County of San Diego

Stormwater Quality Management Plan (SWQMP)

For Priority Development Projects (PDPs)

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

Priority Development Project

Project Information		Development type ☒ New development ☐ Redevelopment
Project Name	Pasqual Heights	
Project Address	830 IDAHO AVE, ESCONDIDO CA, 92025	
Assessor's Parcel # (APN)	234-160-25	
Permit # / Record ID	PDS2024-TM-5657	
Project category (select one)	☐ Commercial	☐ Minor subdivision*
	☐ Industrial	☒ Major subdivision*
	☐ Single family residential lot	☐ Multi-family residential*
	*If residential, is a Homeowners Association (HOA) proposed? ☒ Yes ☐ No	

Project Applicant / Project Proponent		
Name	Touchstone Development, Inc.	
Address	9815 Mira Mesa Blvd, San Diego 92131	
Phone	858-204-1342	Email: kerry@touchstonecommunities.com

SWQMP Preparer		
Name	Mike Wagner	
Company (if applicable)	Touchstone Development, Inc.	
Address	9815 Mira Mesa Blvd, San Diego 92131	
Phone	858-257-4061	Email: mike@touchstonecommunities.com
PE Number (if applicable)	74067	

Preparer's Certification

I understand that the County of San Diego has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the County of San Diego BMP Design Manual. The BMP Design Manual is a design manual for compliance with local County of San Diego Watershed Protection Ordinance (Sections 67.801 et seq.) and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2013-0001, as amended by Order No. R9-2015-0001 and Order No. R9-2015-0100) requirements for storm water management.

This SWQMP is intended to comply with applicable requirements of the BMP Design Manual. I certify that it has been completed to the best of my ability and accurately reflects the project being proposed and the applicable BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this SWQMP by County staff is confined to a review and does not relieve me as the person in charge of overseeing the selection and design of storm water BMPs for this project, of my responsibilities for project design.

Signature ☒	Date March, 2026

COUNTY ACCEPTED

SWQMP Approved By: ☒ *Approval Date:*

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

Scope of SWQMP Submittal (Required)

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

SWQMP Scope	Required Documentation
☒ ***a. SWQMP addresses the entire project***	No additional documentation.
☐ ***b. SWQMP implements requirements of an earlier master SWQMP submittal***	Include a copy of the previous submittal as **Attachment 4**.
☐ ***c. First of multiple SWQMP submittals***	Identify below the elements addressed in this submittal and in future submittals.

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

All Grading, Homes, Driveways, Patios, Pads, Streets, lift station and basin.

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

N/A

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	November,2024	Initial Submittal
2	July, 2025	2nd Submittal
3	Oct., 2025	3rd Submittal
4	Mar., 2026	4th Submittal
Final Design		
1		Initial Submittal
2		
3		
Plan Changes		
1		Initial Submittal
2		
3		

General Directions

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

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

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

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

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

② PDP SWQMP Submittal Checklist

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

③ Attachment 1: Stormwater Intake Form

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

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

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

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

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

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

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

⑤ Attachment 5: Existing Site and Drainage Description

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

⑥ Structural Performance Standards

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

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

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

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

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

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

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

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

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

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

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

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

⑦ Summary of Additional Required Attachments (6 through 12)

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

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

⑧ Table 5: Critical Coarse Sediment Yield Area Requirements

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

⑨ Tables 6 and 7: Temporary Construction Phase BMPs

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

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

⑩ Attachment 2: DMA Exhibits and Construction Plans

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

PDP SWQMP Submittal Checklist

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

SWQMP Attachments[1]: Use the checklist below to identify which attachments will be included with this submittal. Attachments with boxes already checked (☒) are required for all projects. The applicability of other attachments will be determined upon completing this form.

☒ Attachment 1: Storm Water Intake Form

☒ Attachment 2: DMA Exhibits and Construction Plan Sheets

☐ Attachment 3: Reserved for Future Use

☐ Attachment 4: Previous SWQMP Submittals

☒ Attachment 5: Existing Site and Drainage Description

☒ Attachment 6: Documentation of DMAs without Structural BMPs

☒ Attachment 7: Documentation of DMAs with Structural Pollutant Control BMPs

☒ Attachment 8: Documentation of DMAs with Structural Hydromodification Management BMPs

☒ Attachment 9: Management of Critical Coarse Sediment Yield Areas

☒ Attachment 10: BMP Installation Verification Form

☒ Attachment 11: BMP Maintenance Agreements and Plans

☐ Attachment 12: Documentation of Alternative Compliance Projects (ACPs)

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

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

Table 1 – Baseline BMPs for Existing and Proposed Site Features

A. BMPs for Existing Natural Site Features (See Fact Sheet BL-1)

1. Check the boxes below for each existing feature on the site.

2. Select the BMPs to be implemented for each identified feature. Explain why any BMP not selected is infeasible in Table 3.

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

B. BMPs for Common Impervious Outdoor Site Features (See Fact Sheet BL-2)

1. Check the boxes below for each proposed feature.

*2. Select the BMPs to be implemented for each proposed feature. If neither BMP **SD-B** nor **SD-I** is selected for a feature, explain why both BMPs are infeasible in Table 3.*

	a. Direct runoff to pervious areas (SD-B)	b. Construct surfaces from permeable materials (SD-I)	c. Minimize the size of impervious areas
☒ Streets and roads	☐	☐	☒ *Check this box to confirm that all impervious areas on the site will be minimized where feasible.*
☒ Sidewalks & walkways	☐	☐	
☐ Parking areas & lots	☐	☐	*If this box is not checked, identify the surfaces that cannot be minimized in Table 3, and explain why it is infeasible to do so.*
☒ Driveways	☐	☐	
☒ Patios, decks, & courtyards	☒	☐	
☐ Hardcourt recreation areas	☐	☐	
☒ Other: 42 Single Family Homes	☒	☐	

C. ☒ **BMPs for Rooftop Areas:** *Check this box if rooftop areas are proposed and select at least one BMP below.* **(See Fact Sheet BL-3)**

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

1. Direct runoff to pervious areas (SD-B)	2. Install green roofs (SD-C)	3. Install rain barrels (SD-E)
☒	☐	☐

D. ☒ **BMPs for Landscaped Areas:** *Check this box if landscaping is proposed and select at least one BMP below.* **(See Fact Sheet BL-4)**

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

1. Sustainable Landscaping (SD-K)
☒

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

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

Table 2 – Baseline BMPs for Pollutant-generating Sources

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

A. Management of Stormwater Discharges

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

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

Select one option for each feature below:

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

Note: All outdoor features and BMPs in this table must be shown on applicable construction plans. See applicable Fact Sheets in Appendix C of the BMP Design Manual for additional information. **Note:** Use Table 3 to explain BMP infeasibility or inapplicability, or to describe features or BMPs not listed in this table. Additional explanation may be required by the County.

[2] Each BMP is required where feasible. If none are selected for any feature, explain why they are infeasible in Table 3.
[3] Separate wastewater agency approvals may be required.
[4] Structural Treatment Control BMPs (S-BMPs) and Significant Site Design BMPs (SSD-BMPs) may not receive discharges from work areas that concentrate pollutants in a manner that will impair their functioning. Discharges from the proposed work area must also be included in DCV calculations for the applicable BMP.
[5] Describe other proposed options for managing stormwater discharges in Table 3.

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

☒ **Check here if no explanations or justifications for Table 1 or 2 BMPs are required.**

- **Required Justifications**: Provide explanations of BMP inapplicability and/or infeasibility as indicated per Tables 1 and 2.
- **If Requested**: Justify why specific BMPs will not be implemented or will only be partially implemented.
- **Additional Explanation**: Describe any proposed features and/or BMPs not listed in Tables 1 or 2.

BMP-Feature Combination		Explanation
Feature	Streets, Sidewalks, Driveways	Project Streets, Sidewalks and Driveways cannot directly implement SD-B or SD-I per Table 1B. Stormwater will be collected into Curb Inlets and directed to the Biofiltration Basin (BF-2).
BMP	SD-B, SD-I (Both infeasible)	
Feature	Natural Site Features	Some natural areas along the western property line will be protected (~0.7 acres). The remainder of the site is to be graded/developed.
BMP	BL-1	
Feature		
BMP		
Feature		
BMP		
Feature		
BMP		
Feature		
BMP		
Feature		
BMP		

Table 4: DMA Structural Compliance Strategies and Documentation

Part A – Selection and Application Structural Performance Standards

1. Selection of Standards (select one; see BMPDM Section 6.1)

☒ a. Pollutant control + hydromodification ☐ b. Pollutant control only (project is exempt from hydromodification requirements)

2. Application of Structural Performance Standards (select one; see BMPDM Section 1.7)

☒ **New Development Projects:** Standards apply to all impervious surfaces.

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

a. Existing impervious area (ft²)	b. Impervious area created / replaced (ft²)	c. % Impervious created / replaced [(b/a)*100]

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

☒ *Scenario 2: c is less than 50%*: Performance standards apply only to created or replaced impervious surfaces (b only).

Part B – Compliance Strategies and Required Attachments

***1.** Complete and submit each of the applicable attachments on the right.*

Att. 1	Att. 2	Att. 3	Att. 4	Att. 5
Storm Water Intake Form ☒	DMA Exhibits and Construction Plan Sheets ☒	N/A ☐	Previous SWQMP Submittals (see inside cover) ☐	Existing Site and Drainage Description ☒

***2.** Indicate each compliance strategy below that will be used for one or more DMAs on the site.*

	Att. 6 DMAs without Structural BMPs	Att. 7 DMAs w/ Structural Pollutant Control BMPs	Att. 8 DMAs w/ Structural Hydromod. BMPs	Att. 9 Critical Coarse Sediment Yield Areas	Att. 10 BMP Installation Verification Form	Att. 11 Maintenance Agreements/ Plans	Att. 12 Alternative Compliance Projects
☒ Self-mitigating DMAs (BMPDM Section 5.2.1)	☒			☒			
☐ De Minimis DMAs (BMPDM Section 5.2.2)	☐			☐			
☐ Self-retaining DMAs (BMPDM Section 5.2.3)	☐			☐	☐		
Structural BMPs (select all that apply)							
☒ Pollutant Control BMPs (BMPDM Section 5.4)		☒		☒	☒	☒	
☒ Hydromodification Control BMPs (BMPDM Chapter 6)			☒	☒	☒	☒	
☐ Alternative Compliance Project (BMPDM Section 1.8)				☐	☐	☐	☐

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

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

- Identify one applicable compliance pathway for the PDP below.
- Document your selection in **Attachment 9**.

A. Hydromodification Management Exemption (BMPDM Sections 1.6 and 6.1)

☐ **PDP is Exempt from Hydromodification Management Requirements**

Select if hydromodification management exemption was selected in Table 4 Part A.1.

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

☐ **WMAA mapping demonstrates the following:**

a. <5% of potential onsite CCYSAs will be impacted (built on or obstructed)

b. All potential upstream offsite CCYSAs will be bypassed

C. Resource Protection Ordinance (RPO) Methods (BMPDM Appendix H.1.1.1)

☐ **RPO Scenario 1: PDP is subject to and in compliance with RPO requirements**

a. Project requires one or more discretionary permits (RPO applicability is confirmed during discretionary review)

b. Onsite AND upstream offsite CCSYAs will be avoided and/or bypassed

☒ **RPO Scenario 2: PDP is entirely exempt/not subject to RPO requirements**[6]

a. Project does not require discretionary permits

b. Project will bypass all upstream offsite CCSYAs (no requirements for onsite CCSYAs)

D. No Net Impact Analysis (BMPDM Appendix H.4)

☐ **Project demonstrates no net impact to receiving waters**

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

Table 6 –Minimum Construction Stormwater BMPs

Minimum Required BMPs by Activity Type Select all applicable activities and at least one BMP for each.	References Caltrans[7]	 County of San Diego
☒ **Erosion Control for Disturbed Slopes** (choose at least 1 per season)		
☐ Vegetation Stabilization Planting[8] (Summer)	SS-2, SS-4	
☒ Hydraulic Stabilization Hydroseeding (Summer)	SS-4	
☒ Bonded Fiber Matrix or Stabilized Fiber Matrix[9] (Winter)	SS-3	
☐ Physical Stabilization Erosion Control Blanket (Winter)	SS-7	
☒ **Erosion control for disturbed flat areas (slope < 5%)**		
☒ County Standard Lot Perimeter Protection Detail	SC-2	PDS 659[10]
☒ Use of Item A erosion control measures on flat areas	SS-3, SS-4, SS-7	
☐ County Standard Desilting Basin (must treat all site runoff)	SC-2	PDS 660[11]
☒ Mulch, straw, wood chips, soil application	SS-6, SS-8	
☒ **Energy dissipation (required to control velocity for concentrated runoff or dewatering discharge)**		
☒ Energy Dissipater Outlet Protection	SS-10	RSD D-40[12]
☒ **Sediment control for all disturbed areas**		
☒ Silt Fence	SC-1	
☒ Fiber Rolls (Straw Wattles)	SC-5	
☒ Gravel & Sand Bags	SC-6, SC-8	
☐ Dewatering Filtration	NS-2	
☒ Storm Drain Inlet Protection	SC-10	
☐ Engineered Desilting Basin (sized for 10-year flow)	SC-2	
☒ **Preventing offsite tracking of sediment**		
☒ Stabilized Construction Entrance	TC-1	
☐ Construction Road Stabilization	TC-2	
☐ Entrance/Exit Tire Wash	TC-3	
☐ Entrance/Exit Inspection & Cleaning Facility	TC-1	
☒ Street Sweeping and Vacuuming	SC-7	
☒ **Materials Management**		
☒ Material Delivery & Storage	WM-1	
☒ Spill Prevention and Control	WM-4	
☒ **Waste Management[13]**		
☒ Waste Management Concrete Waste Management	WM-8	
☐ Solid Waste Management	WM-5	
☒ Sanitary Waste Management	WM-9	
☐ Hazardous Waste Management	WM-6	

[7] See Caltrans 2017 Construction Site Best Management Practices (BMP) Manual available at: https://dot.ca.gov/programs/construction/storm-water-and-water-pollution-control/manuals-and-handbooks

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

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

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

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

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

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

Table 7 – Explanations and Justifications for Construction Phase BMPs

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

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:	Pasqual Heights
Record ID (Permit) No(s):	PDS-IC-24-053
Assessor's Parcel No(s):	234-160-25
Street Address (or Intersection):	830 IDAHO AVE
City, State, Zip:	ESCONDIDO CA, 92025

Part 2. Applicant / Project Proponent Information	
Name:	Kerry Garza
Company:	Touchstone Development, Inc.
Street Address:	9815 Mira Mesa Blvd
City, State, Zip:	San Diego, Ca 92131
Phone Number	858-257-4061
Email:	kerry@touchstonecommunities.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)**
	16,000	168071	468,705

Ⓑ		
☒	Check here and provide a WDID# if this project is subject to the California Construction General Permit (Order No. 2009-0009-DWQ)[1]	**WDID # (if issued)** N/A Discretionary Phase

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

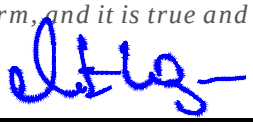
[1] Available at: https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.html

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: March, 2026

- ***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 #:	**Sheet C5 of 5**	
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.

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

ITEMS	SYMBOL
OUTER BASIN BOUNDARY	
FLOW DIRECTION	
BASIN INDENTIFIER/AREA (ACRES)	1 / 1.0

DMA SUMMARY

POC #1

DMA PREDEVELOPED

B,DIRT,FLAT -- 1.40 ACRES
B,DIRT,MOD. -- 0.55 ACRES
C,DIRT,MOD. -- 6.84 ACRES
C,DIRT,STEEP -- 1.97 ACRES

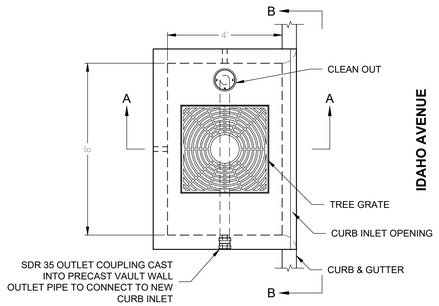
TOTAL -- 10.76 ACRES

DMA PRE SDHM TOTAL -- 10.76 ACRES

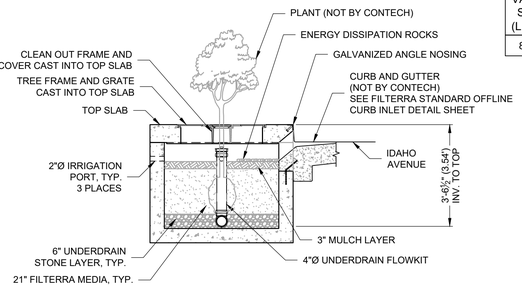
TOUCHSTONE DEVELOPMENT

PASQUAL HEIGHTS -- EXISTING DMA/HMP EXHIBIT

Z:\Common Share_Civil\Projects\1068 Pasqual Heights\Dwgs\Exhibits\Pasqual --- Existing DMA Map.dwg Oct 14, 2025 - 10:13am



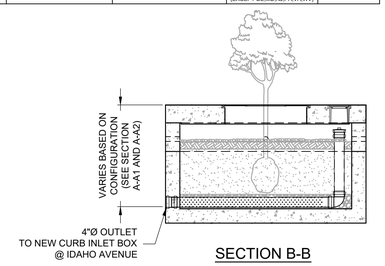
PLAN VIEW



SECTION A-A

FT CONFIGURATION

VAULT SIZE (L x W)	MEDIA AREA (SF)	LONG SIDE INLET DESIG. / PART NO.	SHORT SIDE INLET DESIG. / PART NO.	AVAILABILITY	OUTLET PIPE DIA
8 x 4	32	FT0804	FT0408	ALL (EXCEPT DE,MD,NJ,PA,VA,WV)	4" SDR 35



SECTION B-B

LEGEND

ITEMS	SYMBOL
OUTER BASIN BOUNDARY	
INNER BASIN BOUNDARY	
FLOW DIRECTION	
BASIN INDENTIFIER/AREA (ACRES)	1 / 1.0

SOURCE CONTROL BMPs

(PER COUNTY OF SAN DIEGO BMP DESIGN MANUAL)

4.2.1 PREVENTION OF ILLICIT DISCHARGES INTO THE MS4
4.2.2 STORM DRAIN STENCILING OR SIGNAGE
4.2.5 PROTECT TRASH STORAGE AREAS FROM RAINFALL, RUN-ON, RUNOFF & WIND DISPERSAL.
4.2.6 ADDITIONAL BMPS BASED ON POTENTIAL SOURCES OF POLLUTANTS:
- A. ON-SITE STORM DRAIN INLETS
- D. NEED FOR FUTURE INDOOR & STRUCTURAL PEST CONTROL
- E. LANDSCAPE/OUTDOOR PESTICIDES USE
- Q. PLAZAS, SIDEWALKS, AND PARKING LOTS.

LID, SITE DESIGN & TREATMENT CONTROL BMPs

4.3.1 MAINTAIN NATURAL DRAINAGE PATHWAYS & HYDROLOGIC FEATURES
4.3.2 CONSERVE NATURAL AREAS, SOILS, & VEGETATION
4.3.3 MINIMIZE IMPERVIOUS AREAS
4.3.4 MINIMIZE SOIL COMPACTION
4.3.7 LANDSCAPING WITH NATIVE & DROUGHT TOLERANT SPECIES

DMA SUMMARY

POC #1

DMA 1-A (DRAINS TO BMP#1)
B,DIRT,FLAT -- 4.85 ACRES
C,DIRT,STEEP -- 1.16 ACRES
IMPERVIOUS FLAT -- 3.86 ACRES

TOTAL -- 9.87 ACRES

DMA 1-B (SELF MITIGATING, EAST DIVERSION)
B,DIRT,FLAT -- 0.10 ACRES
C,DIRT,STEEP -- 0.39 ACRES
IMPERVIOUS-FLAT -- 0.02 ACRES
TOTAL -- 0.51 ACRES

DMA 1-C (DRAINS TO FILTERRA)
IMPERVIOUS-MOD -- 0.27 ACRES
C,DIRT,MODERATE -- 0.03
C,DIRT,STEEP -- 0.08 ACRES
TOTAL -- 0.38 ACRES

DMA #1 SDHM TOTAL -- 10.76 ACRES

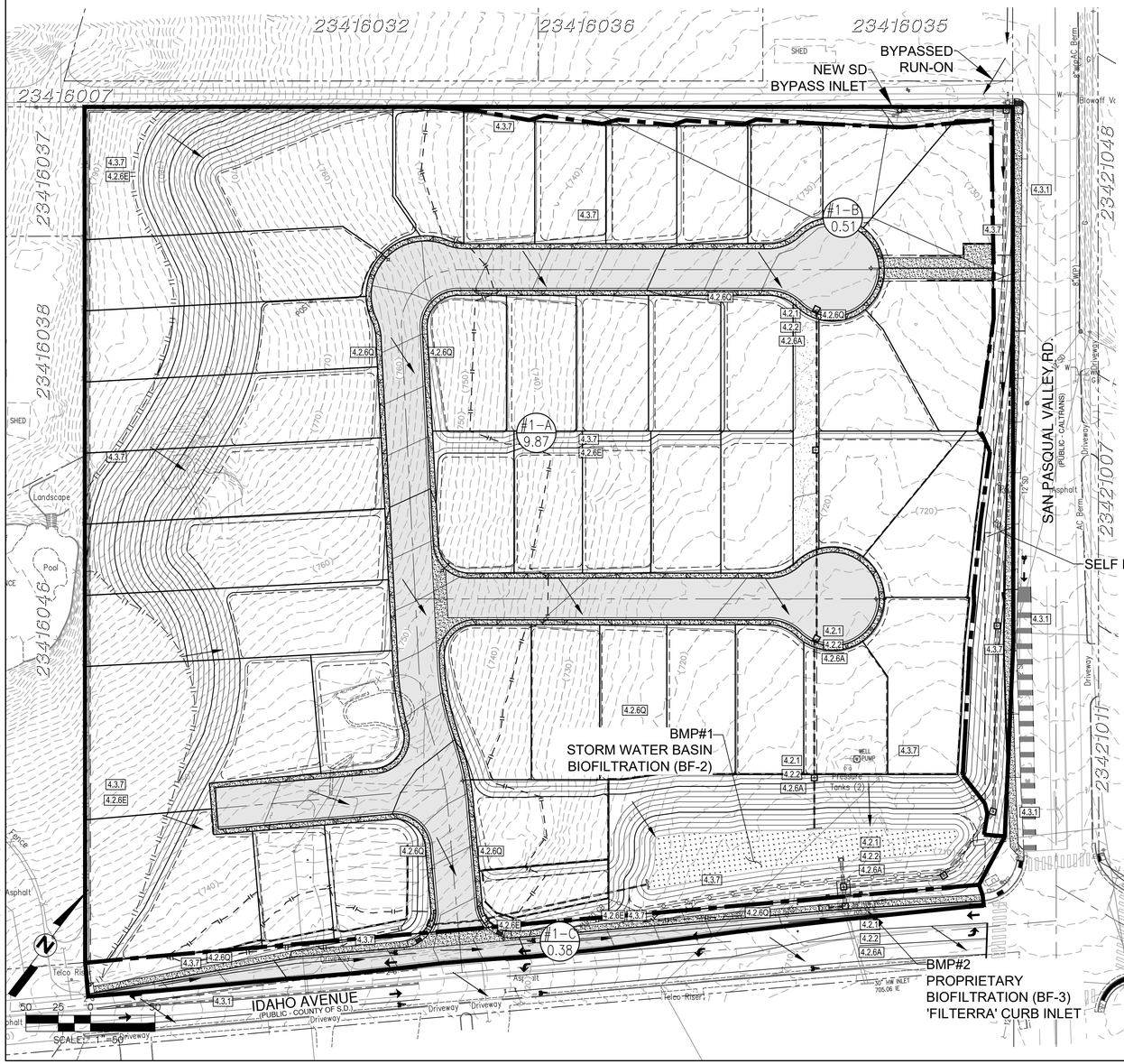
RESEDENTIAL LOT C-VALUE ASSUMPTIONS:

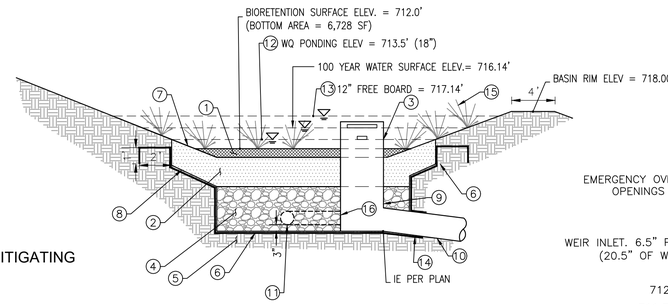
AVERAGE ROOF AREA = 1,754 SQFT
AVERAGE DRIVEWAY = 16' X 28' = 448 SQFT
BACK PATO = 10' X 40' = 400 SQFT

NOTE: SEE "C VALUE CALCULATION FOR SDHM" EXHIBIT IN THE SWQMP REPORT FOR ADDITIONAL DETAILS

FILTERRA OFFLINE CURB INLET STORM WATER TREATMENT UNIT ----
MODEL: FT0804 (8'x4')
(BF-3)

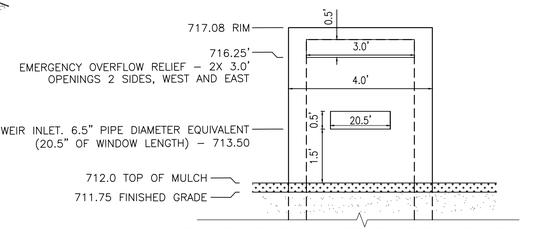
NTS





BIOFILTRATION BASIN (BF-2) DETAIL

NTS



ENLARGMENT - MODIFIED TYPE-'F' CATCH BASIN

NTS

LEGEND

18" MIN SOIL MIX
18" AGGREGATE STORAGE LAYER
3" MULCH

KEYNOTES

1. 3" WELL-AGED SHREDDED HARDWOOD NON-FLOATABLE MULCH
2. 18" MEDIA WITH MIN. 5 IN/HR FILTRATION RATE. NUTRIENT SENSITIVE SOIL MIX PER COUNTY OF SAN DIEGO BMP DESIGN MANUAL APPENDIX F.2
3. RISER HEIGHT, 1.5'
4. 18" CLASS 2 PERMEABLE PER CALTRANS SPECIFICATION 68-1.025
5. EXISTING UNCOMPACTED SUBGRADE
6. 30 MIL NON-WOVEN IMPERMEABLE LINER
7. SIDE SLOPE (2:1)
8. EXCAVATED SLOPE (2:1)
9. OVERFLOW STRUCTURE PER DETAIL THIS SHEET
10. OUTLET PIPE, SIZE PER PLAN
11. 8" PVC PERFORATED PIPE CONFORMING TO ASTM D3034.
12. 18" SURFACE PONDING (WATER QUALITY)
13. 12" FREEBOARD
14. CLAMP LINER TO OUTLET PIPE FOR WATERTIGHT SEAL
15. PLANTING PER LANDSCAPE PLANS
16. PLACE 8" THREADED PVC END CAP AND DRILL 2.2" ORIFICE DIAMETER DRILLED AT FL OF 8" PERF. PIPE

NOTES

1. CONTRACTOR SHALL HIRE A LICENSED LAND SURVEYOR TO STAKE THE SUBGRADE OF THE ROCK STORAGE LAYER, BIORETENTION PONDING SURFACE, AND TOP SLOPE OF BIORETENTION BASIN. MINIMUM SURFACE AREAS AND DEPTHS SHALL BE PROVIDED PER PLANS.
2. CONTRACTOR IS REQUIRED TO NOTIFY ENGINEER OF RECORD (EOR) DURING CONSTRUCTION FOR INSPECTION OF THE SUBGRADE AND INSTALLATION OF THE LINER, ROCK STORAGE, SUBDRAINAGE, SOIL MEDIA AND OVERFLOW STRUCTURE. IF EOR IS NOT NOTIFIED, CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH REMOVING LAYERS AND REPLACING AS NEEDED FOR PROPER INSPECTION.
3. CONTRACTOR SHALL PROVIDE AN AS-BUILT SURVEY PREPARED BY A LICENSED LAND SURVEYOR OF THE BIORETENTION BASIN.
4. CONTRACTOR SHALL PROVIDE CONTRACTOR SUBMITTALS FOR ALL BIORETENTION MATERIALS FOR THE EOR'S REVIEW. THIS INCLUDES, BUT IS NOT LIMITED TO: SOIL MIX, MULCH, FILTER LAYER, AGGREGATE BASE, IMPERMEABLE LINER AND OVERFLOW STRUCTURE.

DMA MAP/HMP EXHIBIT

PASQUAL HEIGHTS

PDS2024-TM-5657
PDS2025-DB-25-00
E25-0047 (C.O.E.)

PREPARED BY:

TOUCHSTONE DEVELOPMENT

PROJECT ADDRESS
830 IDAHO AVE, ESCONDIDO CA 92025

ASSESSOR'S PARCEL NO:
234-160-25

OWNER/APPLICANT:
TOUCHTONE COMMUNITIES
KERRY GARZA
9815 MIRA MESA BLVD.
SAN DIEGO, CA 92131
858-204-1342

PROJECT DESCRIPTION
42 SINGLE FAMILY HOMES

NO.	DATE	REVISIONS
1	11/2024	1ST SUBMITTAL
2	02/2025	UPDATE
3	07/2025	2ND SUBMITTAL
4	10/2025	3RD SUBMITTAL
5	03/2026	FINAL SUBMITTAL

SHEET 4 OF 5

S:\...\Civil\Projects\1058 Pasqual Heights\Dwg\Sheet_Dwg\4 - Pasqual~~ DMA Map.dwg Mar 26, 2026 - 3:34pm

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	**Tentative and Preliminary Grading Plans**
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

PRLIMINARY GRADING PLAN

PASQUAL HEIGHTS

COUNTY OF SAN DIEGO TRACT TM 5657

COUNTY OF SAN DIEGO, CA

PDS2024-TM-5657

PDS2025-DB-25-00

LEGEND

ITEMS	SYMBOL
PROPERTY LINE/ RIGHT OF WAY	
ASPHALT PAVEMENT	
CONCRETE PAVING	
GRANITE–CRETE (VEHICULAR) OR APPROVED EQUAL	
BIO–RETENTION BASIN	
EXISTING CONTOUR	(700')
PROPOSED CONTOUR	700
PROPOSED SLOPE	FILL / CUT
CUT/FILL LINE	
LIMIT OF GRADING	
EXISTING EASEMENT	
SETBACK	
LOT NUMBER	70
ACCESSIBLE PATH OF TRAVEL	
CONCRETE CURB	
CONCRETE CURB & GUTTER	
8" PVC WATER MAIN	W
FIRE HYDRANT ASSEMBLY	FH
GATE VALVE	
AIR–RELEASE VALVE	
BLOW–OFF	
PROPOSED PVC SEWER LINE W/ MANHOLE	S
STORM DRAIN SYSTEM	CURB INLET, CLEANOUT, TYPE F CB, HEADWALL & RIP–RAP
STORM DRAIN "FILTERRA" TREATMENT UNIT	
CONCRETE BROW DITCH	
SECTION LABEL	A / 2 SECTION / SHEET
RELINQUISH ACCESS	
SITE LIGHTING (@ LIFT STATION)	
MASONRY SOUND WALL	
LODGE POLE FENCING	
VINYL FENCING	
VINYL FENCING	

PROJECT MAP
SCALE: 1" = 50'

EXISTING PARCEL SLOPE INFORMATION:

SLOPE ANALYSIS		
MIN SLOPE (%)	MAX SLOPE (%)	AREA (AC)
0%	15%	7.17
15%	25%	2.77
25%	50%	0.41
50%	100%	0.04

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

LOT 15 IN BLOCK 188 OF THE RANCHO RINCON DE DIABLO, IN THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 725, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, AUGUST 13, 1892; EXCEPT THAT PORTION OF SAID LOT CONVEYED TO W.L. PURDUM BY DEED DATED JANUARY 20, 1910 AND RECORDED IN BOOK 249, PAGE 442 OF DEEDS, DESCRIBED AS FOLLOWS:

BEGINNING AT THE CORNER COMMON TO LOTS 15, 16 AND 31 IN BLOCK 188; THENCE ALONG THE NORTHWESTERLY LINE OF LOT 15, 592.5 FEET; THENCE AT RIGHT ANGLES WITH SAID LINE IN A SOUTHEASTERLY DIRECTION 662.7 FEET TO THE INTERSECTION OF SOUTHEASTERLY LINE OF LOT 15; THENCE IN A SOUTHWESTERLY DIRECTION ALONG THE SOUTHEASTERLY LINE OF SAID LOT 15, 259.7 FEET TO SOUTHERLY CORNER OF LOT 15; THENCE ALONG THE SOUTHERLY LINE OF LOT 15, 762.2 FEET TO THE PLACE OF BEGINNING.

ALSO EXCEPTING THAT PORTION OF LOT 15 IN BLOCK 188 OF RANCHO RINCON DE DIABLO, IN THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 725, MADE BY J. M. GRAHAM, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, AUGUST 13, 1892, DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF SAID LOT 15, THENCE (1) SOUTHWESTERLY ALONG THE SOUTHWESTERLY LINE OF SAID LOT 15 27.10 FEET; THENCE (2) LEAVING SAID SOUTHWESTERLY LINE NORTH 09° 27' 53" WEST, 42.36 FEET; THENCE (3) NORTH 34° 58' 00" WEST, 150.16 FEET TO THE NORTHEASTERLY LINE OF SAID LOT 15; THENCE ALONG SAID NORTHEASTERLY LINE SOUTH 37° 38' 19" EAST, 185.00 FEET TO THE POINT OF BEGINNING.

EXISTING ZONING INFORMATION:

GENERAL PLAN REGIONAL CATEGORY: VILLAGE
GENERAL PLAN LAND USE DESIGNATION: VILLAGE RESIDENTIAL (VR–2) 2 DU/Ac
COMMUNITY/SUBREGIONAL PLAN AREA: NORTH COUNTY METRO

ZONE		EX APN: 234–160–25
USE REGULATIONS		A70
ANIMAL REGULATIONS		L
	DENSITY	–
	MIN. LOT SIZE	0.5AC
	MAX FLOOR AREA RATIO	–
	FLOOR AREA RATIO	–
	BUILDING TYPE	C
	HEIGHT	G
	SETBACK	C
	LOT COVERAGE	–
	OPEN SPACE	–
SPECIAL AREA REGULATIONS		–

PARK LAND DEDICATION STATEMENT

PER COUNTY CODE SECTION 810.103(b), FOR SUBDIVISIONS CONTAINING FIFTY (50) OR FEWER PARCELS, ONLY THE PAYMENT OF PARK IN–LIEU FEES SHALL BE REQUIRED.

SOLAR ACCESS STATEMENT:

ALL LOTS WITHIN THIS SUBDIVISION HAVE A MINIMUM 100 SQUARE FEET OF SOLAR ACCESS FOR EACH FUTURE SWELLING/COMMERCIAL/INDUSTRIAL UNIT ALLOWED BY THIS SUBDIVISION (WITH THE EXCEPTION OF LOTS A,B,C,D).

PROPOSED ZONING INFORMATION:

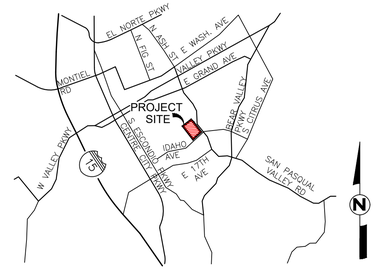
GENERAL PLAN REGIONAL CATEGORY: VILLAGE
GENERAL PLAN LAND USE DESIGNATION: VILLAGE RESIDENTIAL (VR–2) 2 DU/Ac (DENSITY BONUS LAW PER AB1287 USED TO INCREASE DENSITY TO 42 LOTS BY RESERVING 29% (7 LOTS) OF THE BASE DENSITY FOR VERY LOW AND MODERATE INCOME HOUSEHOLDS AS FOLLOWS: 15% OF BASE DENSITY (4 LOTS) RESERVED FOR VERY LOW INCOME HOUSEHOLDS PLUS AN ADDITIONAL 14% OF THE BASE (3 LOTS) RESERVED FOR MODERATE INCOME HOUSEHOLDS). DENSITY BONUS LAW ALLOWS FOR FOUR (4) PROJECT INCENTIVES.
COMMUNITY/SUBREGIONAL PLAN AREA: NORTH COUNTY METRO

ZONE		EX APN: 234–160–25
USE REGULATIONS		A70
ANIMAL REGULATIONS		L
	DENSITY	–
	MIN. LOT SIZE	5,000 SF*
	MAX FLOOR AREA RATIO	–
	FLOOR AREA RATIO	–
	BUILDING TYPE	C
	HEIGHT	G
	SETBACK	V**
	LOT COVERAGE	–
	OPEN SPACE	–
SPECIAL AREA REGULATIONS		–

* DENSITY BONUS INCENTIVE #1 – REDUCED MIN LOT SIZE.
** DENSITY BONUS INCENTIVE #2 – REDUCED SET BACKS: 20' FRONT YARD SETBACK. 5' SIDE YARD SETBACK. 10' REAR YARD SETBACK. PROPOSED SETBACKS SHOWN ON SHEET 3

DENSITY BONUS LOTS:

VERY LOW INCOME: LOTS 5, 18, 19, 42
MEDIUM INCOME: 1, 11, 29



VICINITY MAP

ABBREVIATIONS

AC	ASPHALTIC CONCRETE
BF	BOTTOM OF FOOTING
BMP	BEST MANAGEMENT PRACTICE
CB	CATCH BASIN
CI	CURB INLET
CO	CLEANOUT
CONC	CONCRETE
DWG	DRAWING
DWY	DRIVEWAY
EX	EXISTING
FG	FINISHED GRADE
FGBW	FINISH GRADE BOTTOM OF WALL
FGTW	FINISH GRADE TOP OF WALL
FL	FLOW LINE
FS	FINISH SURFACE
GB	GRADE BREAK
HP	HIGH POINT
IE	INVERT ELEVATION
IOD	IRREVOCABLE OFFER TO DEDICATE
LP	LOW POINT
MH	MANHOLE
MOD	MODIFIED
PP	POWER POLE
PUE	PUBLIC UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE
PVT	PRIVATE
RCP	REINFORCED CONCRETE PIPE
S	SEWER
SD	STORM DRAIN
SDCB	STORM DRAIN CATCH BASIN
SDCB–F	STORM DRAIN CATCH BASIN TYPE F
SHT	SHEET
TC	TOP OF CURB
TG	TOP OF GRATE
TF	TOP OF FOOTING
TW	TOP OF WALL

BASIS OF BEARINGS

THE BASIS OF BEARING FOR THIS SURVEY ARE BASED ON THE GRID BEARING OF NORTH 47°39'14" WEST BETWEEN PT. 2103 AND PT. 1007, AS SHOWN ON RECORD OF SURVEY MAP NO. 14236, FILE NO. 93–428510, RECORDED ON JULY 2, 1993.

EARTHWORK

CUT = 74,791 CY.
FILL = 74,893 CY.
NET FILL = 102 CY

NOTE: QUANTITIES SHOWN ASSUME 42 PAD SPOILS, AND 2' STREET UNDERCUT SPOILS. DOES NOT INCLUDE THE EFFECT OF REMEDIAL GRADING, REMOVAL AND RECOMPACTION, SHRINKAGE, UTILITY & FOOTING SPOILS.

PRELIMINARY GRADING PLAN NOTE:

THE PLAN IS PROVIDED TO ALLOW FOR A 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 GRADING PERMISSIONS BEFORE COMMENCING SUCH ACTIVITY.

PRE-CONSTRUCTION GRADING NOTE:

IN THE EVENT THAT ANY ACTIVITY, INCLUDING EARTHMOVING OR CONSTRUCTION, DISCOVERS THE PRESENCE OF UNDERGROUND STORAGE TANKS, SEPTIC TANKS, WELLS, SITE DEBRIS, AND/OR CONTAMINATED SOILS ON–SITE, THE CONTRACTOR AND/OR PROPERTY OWNER SHALL NOTIFY THE COUNTY OF SAN DIEGO PLANNING & DEVELOPMENT SERVICES DEPARTMENT AND THE DEPARTMENT OF ENVIRONMENTAL HEALTH AND QUALITY. THE PRESENCE OF CONTAMINATED SOILS WILL REQUIRE SOIL TESTING AND REMEDIATION IN ACCORDANCE WITH STANDARD COUNTY PROCEDURES. THIS PROCESS WILL BE DETERMINED ONCE THE COUNTY IS NOTIFIED OF THE PRESENCE OF CONTAMINATED SOILS.

INDEX

GENERAL NOTES

1. GROSS PROJECT AREA: 10.39 ACRES
2. NET PROJECT AREA: 10.39 ACRES
3. TOTAL NUMBER OF LOTS: 42
4. TOTAL NUMBER OF RESIDENTIAL LOTS: 42 (DENSITY BONUS LAW PER AB1287 USED TO INCREASE DENSITY TO 42 LOTS BY RESERVING 29% (7 LOTS) OF THE BASE DENSITY FOR VERY LOW AND MODERATE INCOME HOUSEHOLDS AS FOLLOWS: 15% OF BASE DENSITY (4 LOTS) RESERVED FOR VERY LOW INCOME HOUSEHOLDS PLUS AN ADDITIONAL 14% OF THE BASE (3 LOTS) RESERVED FOR MODERATE INCOME HOUSEHOLDS.
5. MINIMUM LOT SIZE: 5,000 SF
6. ASSESSOR'S PARCEL NUMBER: 234–160–25
7. PRESENT LAND USE DESIGNATION: LIMITED AGRICULTURE (A70)
8. GENERAL PLAN LAND USE DESIGNATION: VILLAGE RESIDENTIAL (VR–2)
9. GENERAL PLAN REGIONAL CATEGORY: VILLAGE
10. WATER AND SEWER SYSTEMS TO BE INSTALLED IN ACCORDANCE WITH COUNTY STANDARDS AND THE REQUIREMENTS OF THE CITY OF ESCONDIDO.
11. SOURCE OR TOPOGRAPHY: BOUNDARY AND TOPOGRAPHIC SURVEY DATED 8/8/24 PREPARED BY KIER + WRIGHT CIVIL ENGINEERS & SURVEYORS, INC.
12. UTILITIES SHALL BE UNDERGROUNDED AND EASEMENTS PROVIDED AS NECESSARY.
13. CUT AND FILL SLOPES NOT TO EXCEED 2:1, UNLESS OTHERWISE NOTED.
14. UTILITY LAYOUTS SHOWN ARE PRELIMINARY AND MAY BE MODIFIED DURING FINAL DESIGN.
15. TEMPORARY & PERMANENT STRUCTURAL BEST MANAGEMENT PRACTICES WILL BE INCORPORATED IN THE FINAL DESIGN AND IMPLEMENTATION OF THE DEVELOPMENT.
16. SOLAR ACCESS STATEMENT: ALL LOTS WITHIN THIS SUBDIVISION HAVE A MINIMUM OF 100 SQUARE FEET OF SOLAR ACCESS FOR EACH FUTURE DWELLING UNIT ALLOWED BY THIS SUBDIVISION.
17. ASSESSOR'S TAX RATE AREA: 74019
18. STREET LIGHTS: DEVELOPER SHALL COMPLY WITH REQUIREMENTS SPECIFIED IN THE COUNTY STANDARDS.
19. ALL CUT AND FILL SLOPES WILL BE PROPERLY LANDSCAPED, IRRIGATED, AND MAINTAINED IN ACCORDANCE WITH COUNTY STANDARDS.
20. BENCHMARK: PK & WASHER SET BY CALTRANS CREWS IN 2021 AS SHOWN ON ROS 23931: PK & WASHER IN NORTHERLY END OF HEADWALL 145'± SOUTHWESTERLY OF CENTERLINE INTERSECTION. ELEV=708.06 FEET (NGVD29).
21. ALL DRAINAGE IMPROVEMENTS TO BE INSTALLED IN ACCORDANCE WITH COUNTY STANDARDS AND SHALL BE MAINTAINED BY THE HOA, UNLESS OTHERWISE NOTED.
22. PRIVATE ROADS AND ALL NON–RESIDENTIAL LOTS SHALL BE MAINTAINED BY THE HOA

PUBLIC UTILITIES & DISTRICTS

GAS AND ELECTRIC	SAN DIEGO GAS AND ELECTRIC
TELEPHONE	AT&T
WATER	CITY OF ESCONDIDO
SEWER	CITY OF ESCONDIDO (REQUIRES LAFCO ANNEX)
STORM WATER	COUNTY OF SAN DIEGO
FIRE	RINCON DEL DIABLO FIRE PROTECTION DISTRICT
POLICE	CITY OF ESCONDIDO
SCHOOLS	ESCONDIDO UNION SCHOOL DISTRICT

OWNER/APPLICANT

I HEREBY CERTIFY THAT I AM THE RECORD OWNER, OR AUTHORIZED REPRESENTATIVE OF THE PROPERTY SHOWN ON THIS TENTATIVE PLAN, AND THAT SAID PLAN SHOWS ALL OF THE CONTIGUOUS OWNERSHIP IN WHICH I HAVE ANY DEED OR TRUST INTEREST. I UNDERSTAND THAT THE PROPERTY IS CONSIDERED CONTIGUOUS EVEN IF IT IS SEPARATED BY ROADS, STREETS AND/OR UTILITY EASEMENTS.

JAMISON BUILDERS
27023 BANBURY DRIVE
VALLEY CENTER, CA 92082

TOUCHSTONE COMMUNITIES
9815 MIRA MESA BLVD.
SAN DIEGO CA, 92131

OLIVIA RUTH TSEMENTZIS DATE

APPLICANT: KERRY GARZA DATE

ENGINEER

TOUCHSTONE DEVELOPMENT, INC.
9815 MIRA MESA BLVD
SAN DIEGO CA, 92131

10/25/25
MICHAEL D. WAGNER DATE
R.C.E #74067

REGISTERED PROFESSIONAL ENGINEER — MICHAEL D. WAGNER — No. 74067 — CIVIL — STATE OF CALIFORNIA

TITLE SHEET

PASQUAL HEIGHTS

PDS2024-TM-5657
PDS2025-DB-25-00
E25-0047 (C.O.E.)

PREPARED BY:

TOUCHSTONE DEVELOPMENT

PROJECT DESCRIPTION

42 SINGLE FAMILY HOMES

NO.	DATE	REVISIONS
1	11/2024	1ST SUBMITTAL
2	02/2025	UPDATE
3	07/2025	2ND SUBMITTAL
4	10/2025	3RD SUBMITTAL
5	03/2026	FINAL SUBMITTAL

PROJECT ADDRESS

830 IDAHO AVE, ESCONDIDO CA 92025

ASSESSOR'S PARCEL NO:

234–160–25

OWNER/APPLICANT:

TOUCHTONE COMMUNITIES
KERRY GARZA
9815 MIRA MESA BLVD.
SAN DIEGO, CA 92131
858–204–1342

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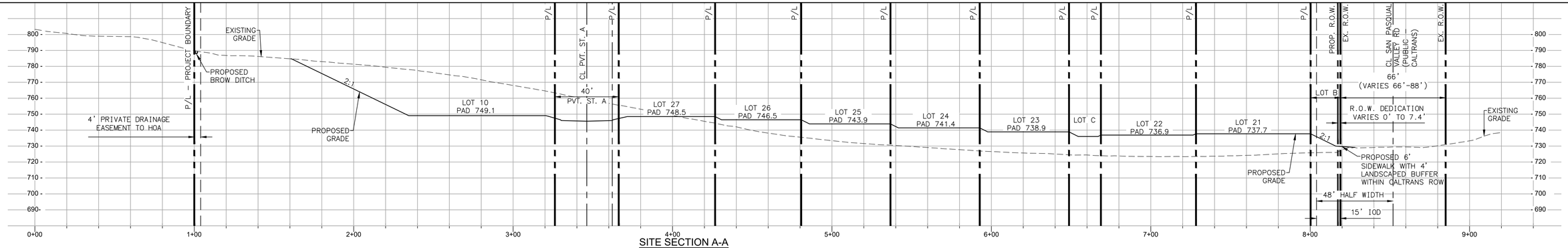
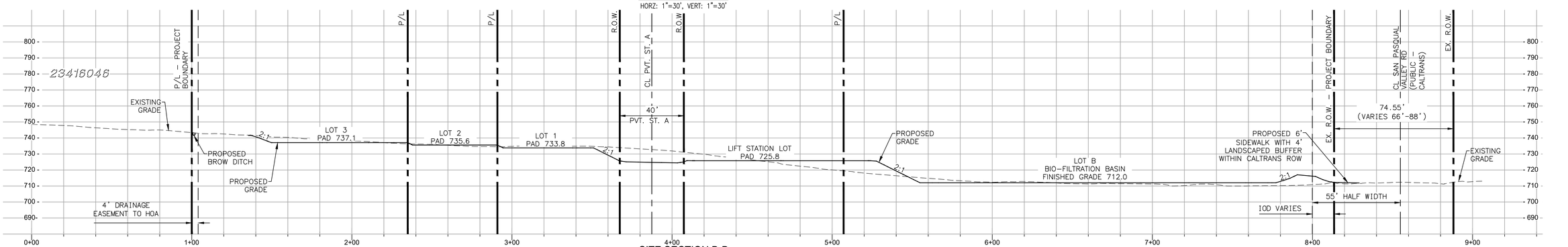


SITE SECTION A-A

HORZ: 1"=30', VERT: 1"=30'



SITE SECTION B-B

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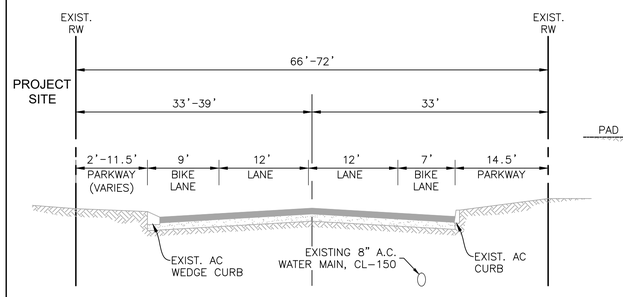
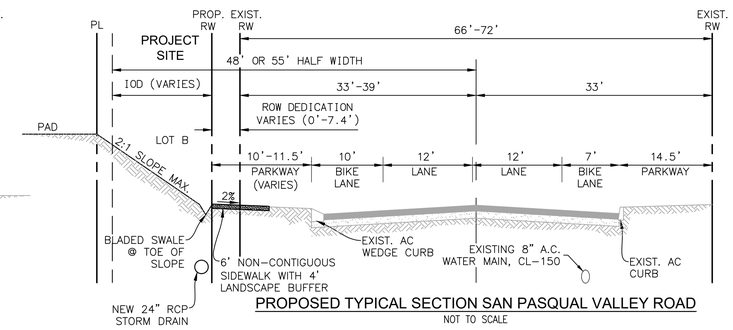


EXISTING TYPICAL SECTION SAN PASQUAL VALLEY ROAD

NOT TO SCALE



PROPOSED TYPICAL SECTION SAN PASQUAL VALLEY ROAD

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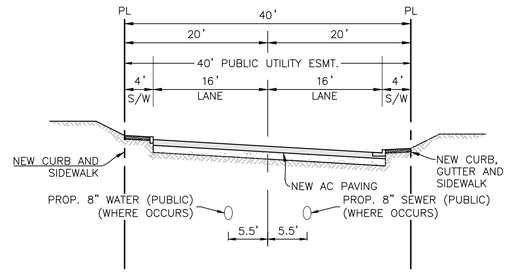
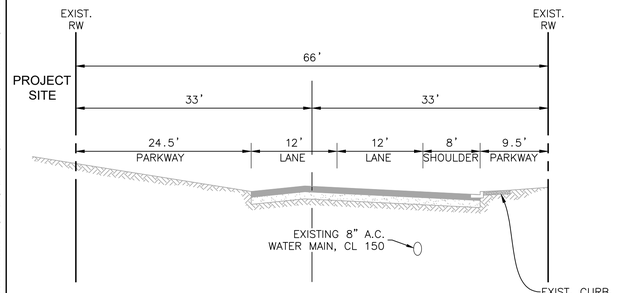


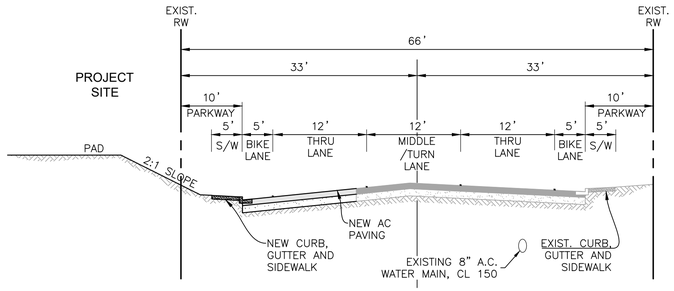
PROPOSED TYPICAL SECTION PRIVATE ROAD A,B,C

NOT TO SCALE



EXISTING TYPICAL SECTION IDAHO AVE (W TO E)

NOT TO SCALE



PROPOSED TYPICAL SECTION IDAHO AVE (W TO E)

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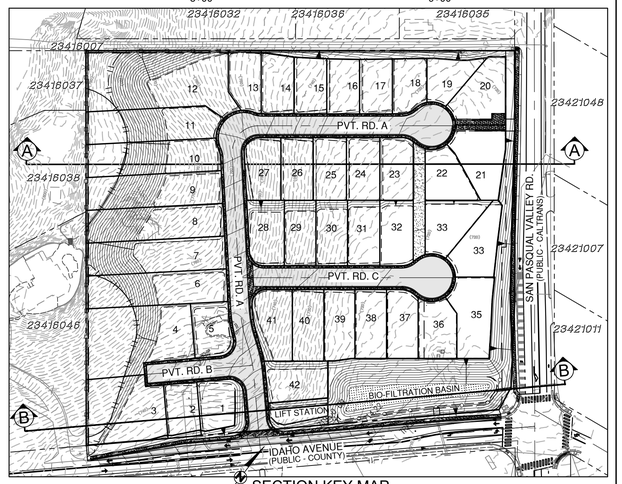

SECTION KEY MAP

1" = 120'

PASQUAL HEIGHTS

SECTIONS
PDS2024-TM-5657
PDS2025-DB-25-00
E25-0047 (C.O.E.)

PREPARED BY:

TOUCHSTONE DEVELOPMENT

PROJECT DESCRIPTION
42 SINGLE FAMILY HOMES

NO.	DATE	REVISIONS
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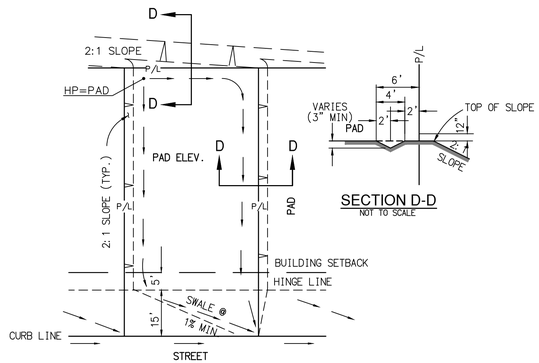
PROJECT ADDRESS
830 IDAHO AVE, ESCONDIDO CA 92025

ASSESSOR'S PARCEL NO:
234-160-25

OWNER/APPLICANT:
TOUCHTONE COMMUNITIES
KERRY CARZA
9815 MIRA MESA BLVD.
SAN DIEGO, CA 92131
858-204-1342

EXISTING EASEMENT NOTES

(1) 4' ANCHOR EASEMENT PER 79-518950



SECTION D-D
NOT TO SCALE

TYPICAL LOT GRADING
NOT TO SCALE

PRELIMINARY GRADING PLAN

PASQUAL HEIGHTS

PDS2024-TM-5657
PDS2025-DB-25-00
E25-0047 (C.O.E.)

PREPARED BY:

TOUCHSTONE DEVELOPMENT

PROJECT DESCRIPTION
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PROJECT ADDRESS
830 IDAHO AVE, ESCONDIDO CA 92025

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KERRY GARZA
9815 MIRA MESA BLVD.
SAN DIEGO, CA 92131
858-204-1342

SHEET 3 OF 5

SCALE: 1"=40'

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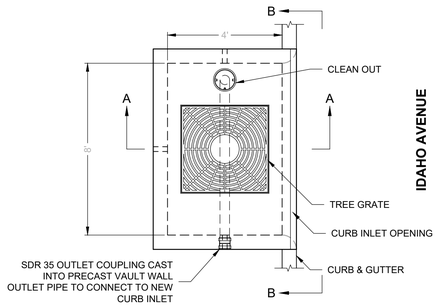
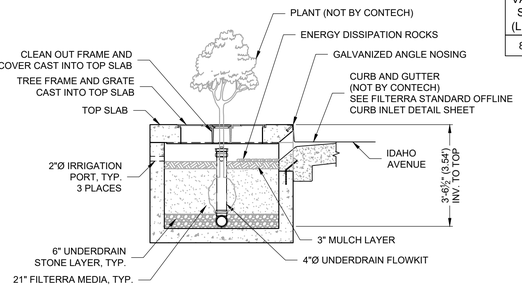


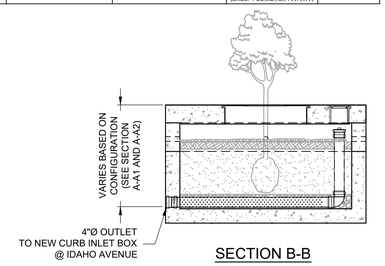
PLAN VIEW



SECTION A-A

FT CONFIGURATION

VAULT SIZE (L x W)	MEDIA AREA (SF)	LONG SIDE INLET DESIG. / PART NO.	SHORT SIDE INLET DESIG. / PART NO.	AVAILABILITY	OUTLET PIPE DIA
8 x 4	32	FT0804	FT0408	ALL (EXCEPT DE,MD,NJ,PA,VA,WV)	4" SDR 35



SECTION B-B

LEGEND

ITEMS	SYMBOL
OUTER BASIN BOUNDARY	
INNER BASIN BOUNDARY	
FLOW DIRECTION	
BASIN INDENTIFIER/AREA (ACRES)	1 / 1.0

SOURCE CONTROL BMPs

(PER COUNTY OF SAN DIEGO BMP DESIGN MANUAL)

4.2.1 PREVENTION OF ILLICIT DISCHARGES INTO THE MS4
4.2.2 STORM DRAIN STENCILING OR SIGNAGE
4.2.5 PROTECT TRASH STORAGE AREAS FROM RAINFALL, RUN-ON, RUNOFF & WIND DISPERSAL.
4.2.6 ADDITIONAL BMPS BASED ON POTENTIAL SOURCES OF POLLUTANTS:
- A. ON-SITE STORM DRAIN INLETS
- D. NEED FOR FUTURE INDOOR & STRUCTURAL PEST CONTROL
- E. LANDSCAPE/OUTDOOR PESTICIDES USE
- Q. PLAZAS, SIDEWALKS, AND PARKING LOTS.

LID, SITE DESIGN & TREATMENT CONTROL BMPs

4.3.1 MAINTAIN NATURAL DRAINAGE PATHWAYS & HYDROLOGIC FEATURES
4.3.2 CONSERVE NATURAL AREAS, SOILS, & VEGETATION
4.3.3 MINIMIZE IMPERVIOUS AREAS
4.3.4 MINIMIZE SOIL COMPACTION
4.3.7 LANDSCAPING WITH NATIVE & DROUGHT TOLERANT SPECIES

DMA SUMMARY

POC #1

DMA 1-A (DRAINS TO BMP#1)
B,DIRT,FLAT -- 4.85 ACRES
C,DIRT,STEEP -- 1.16 ACRES
IMPERVIOUS FLAT -- 3.86 ACRES

TOTAL -- 9.87 ACRES

DMA 1-B (SELF MITIGATING, EAST DIVERSION)
B,DIRT,FLAT -- 0.10 ACRES
C,DIRT,STEEP -- 0.39 ACRES
IMPERVIOUS-FLAT -- 0.02 ACRES
TOTAL -- 0.51 ACRES

DMA 1-C (DRAINS TO FILTERRA)
IMPERVIOUS-MOD -- 0.27 ACRES
C,DIRT,MODERATE -- 0.03
C,DIRT,STEEP -- 0.08 ACRES
TOTAL -- 0.38 ACRES

DMA #1 SDHM TOTAL -- 10.76 ACRES

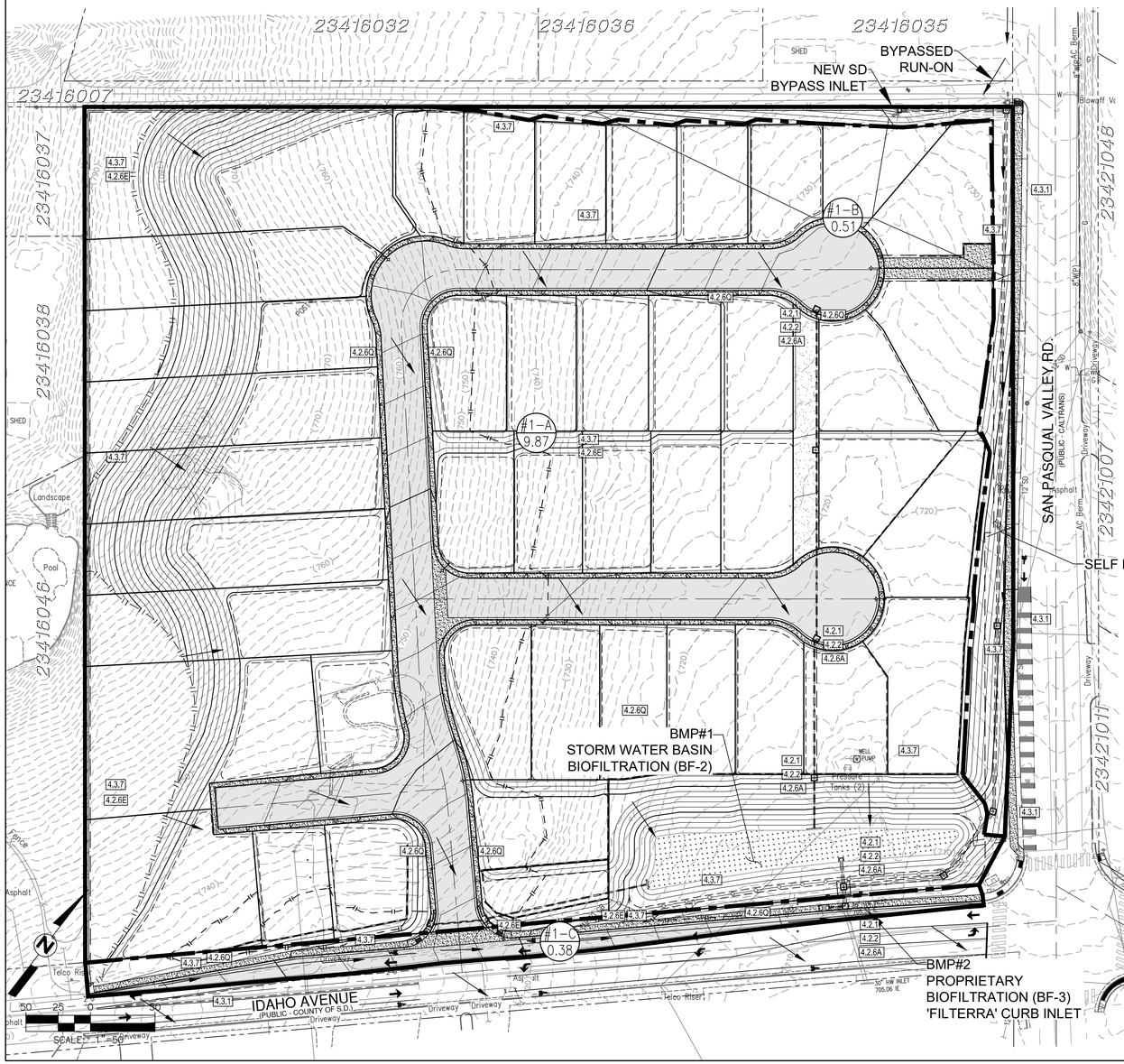
RESEDENTIAL LOT C-VALUE ASSUMPTIONS:

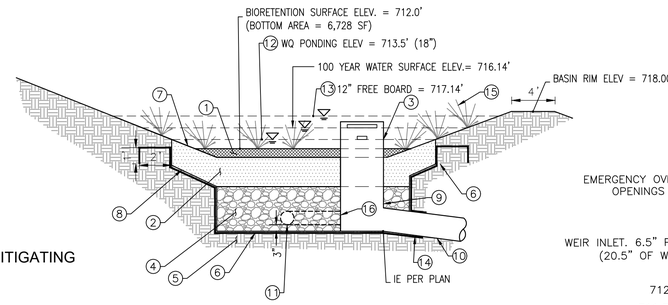
AVERAGE ROOF AREA = 1,754 SQFT
AVERAGE DRIVEWAY = 16' X 28' = 448 SQFT
BACK PATO = 10' X 40' = 400 SQFT

NOTE: SEE "C VALUE CALCULATION FOR SDHM" EXHIBIT IN THE SWQMP REPORT FOR ADDITIONAL DETAILS

FILTERRA OFFLINE CURB INLET STORM WATER TREATMENT UNIT ----
MODEL: FT0804 (8'x4')
(BF-3)

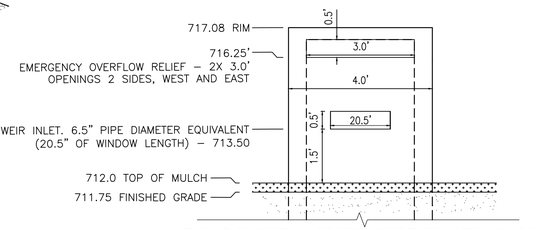
NTS





BIOFILTRATION BASIN (BF-2) DETAIL

NTS



ENLARGMENT - MODIFIED TYPE-'F' CATCH BASIN

NTS

LEGEND

18" MIN SOIL MIX
18" AGGREGATE STORAGE LAYER
3" MULCH

KEYNOTES

1. 3" WELL-AGED SHREDDED HARDWOOD NON-FLOATABLE MULCH
2. 18" MEDIA WITH MIN. 5 IN/HR FILTRATION RATE. NUTRIENT SENSITIVE SOIL MIX PER COUNTY OF SAN DIEGO BMP DESIGN MANUAL APPENDIX F.2
3. RISER HEIGHT, 1.5'
4. 18" CLASS 2 PERMEABLE PER CALTRANS SPECIFICATION 68-1.025
5. EXISTING UNCOMPACTED SUBGRADE
6. 30 MIL NON-WOVEN IMPERMEABLE LINER
7. SIDE SLOPE (2:1)
8. EXCAVATED SLOPE (2:1)
9. OVERFLOW STRUCTURE PER DETAIL THIS SHEET
10. OUTLET PIPE, SIZE PER PLAN
11. 8" PVC PERFORATED PIPE CONFORMING TO ASTM D3034.
12. 18" SURFACE PONDING (WATER QUALITY)
13. 12" FREEBOARD
14. CLAMP LINER TO OUTLET PIPE FOR WATERTIGHT SEAL
15. PLANTING PER LANDSCAPE PLANS
16. PLACE 8" THREADED PVC END CAP AND DRILL 2.2" ORIFICE DIAMETER DRILLED AT FL OF 8" PERF. PIPE

NOTES

1. CONTRACTOR SHALL HIRE A LICENSED LAND SURVEYOR TO STAKE THE SUBGRADE OF THE ROCK STORAGE LAYER, BIORETENTION PONDING SURFACE, AND TOP SLOPE OF BIORETENTION BASIN. MINIMUM SURFACE AREAS AND DEPTHS SHALL BE PROVIDED PER PLANS.
2. CONTRACTOR IS REQUIRED TO NOTIFY ENGINEER OF RECORD (EOR) DURING CONSTRUCTION FOR INSPECTION OF THE SUBGRADE AND INSTALLATION OF THE LINER, ROCK STORAGE, SUBDRAINAGE, SOIL MEDIA AND OVERFLOW STRUCTURE. IF EOR IS NOT NOTIFIED, CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH REMOVING LAYERS AND REPLACING AS NEEDED FOR PROPER INSPECTION.
3. CONTRACTOR SHALL PROVIDE AN AS-BUILT SURVEY PREPARED BY A LICENSED LAND SURVEYOR OF THE BIORETENTION BASIN.
4. CONTRACTOR SHALL PROVIDE CONTRACTOR SUBMITTALS FOR ALL BIORETENTION MATERIALS FOR THE EOR'S REVIEW. THIS INCLUDES, BUT IS NOT LIMITED TO: SOIL MIX, MULCH, FILTER LAYER, AGGREGATE BASE, IMPERMEABLE LINER AND OVERFLOW STRUCTURE.

DMA MAP/HMP EXHIBIT

PASQUAL HEIGHTS

PDS2024-TM-5657
PDS2025-DB-25-00
E25-0047 (C.O.E.)

PREPARED BY:

TOUCHSTONE DEVELOPMENT

PROJECT ADDRESS
830 IDAHO AVE, ESCONDIDO CA 92025

ASSESSOR'S PARCEL NO:
234-160-25

OWNER/APPLICANT:
TOUCHTONE COMMUNITIES
KERRY GARZA
9815 MIRA MESA BLVD.
SAN DIEGO, CA 92131
858-204-1342

PROJECT DESCRIPTION
42 SINGLE FAMILY HOMES

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SHEET 4 OF 5

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EXISTING EASEMENT NOTES

(1) EX 4' ANCHOR EASEMENT TO SDGE PER 79-518950

23416007 PARCEL 1 PARCEL MAP 16364

23416032 PARCEL 4 PARCEL MAP 4127

23416036 PARCEL 3 PARCEL MAP 4127

23416035 PARCEL 3 PARCEL MAP 4127

23416037 PARCEL 1 PARCEL MAP 16364

23416038 PARCEL 2 PARCEL MAP 16364

23416046 REMAINDER PARCEL PARCEL MAP 16364

23421048

23421007

23421011

SAN PASQUAL VALLEY RD (PUBLIC - CALTRANS)

IDAHO AVENUE (PUBLIC - COUNTY OF S.D.)

EX PVT DWY

EX FH

EX 8" WTR

EX GAS

EX 2" GAS

EX PP

PVT DWY

EX 30" CMP SD

EXISTING LINED POND AND DEBRIS

EXISTING POOL TO BE REMOVED

EXISTING STRUCTURE TO BE REMOVED

EX. HOUSE

EX. GARAGE

EXISTING LEACH FIELD TO BE REMOVED

REMOVE EXISTING WELL AND PUMP

REMOVE EXISTING SERVICE POLE

EX POLE ANCHORS TO REMAIN

EX POLE ANCHOR TO REMAIN

EX PP TO REMAIN

PVT DWY TO REMAIN

206.5'

141.9'

113.5'

75.8'

42'

27'

112'

74'

34'

SCALE: 1"=40'

EXISTING CONDITION/ENCUMBRANCE MAP

PASQUAL HEIGHTS

PDS2024-TM-5657
PDS2025-DB-25-00
E25-0047 (C.O.E.)

PREPARED BY:

TOUCHSTONE DEVELOPMENT

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SHEET 5 OF 5

S:_Civil\Projects\1058 Prospect Heights\Dwgs\Sheet_Dwgs\4&5 - Prospect - Encumbrance Map.dwg Mar 26, 2026 - 3:38pm

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: Pasqual Heights Drainage Study

    Prepared By: Touchstone Communities

    Date: Jan, 2026

  - 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.

5.1 Description of Existing Site Condition

Provide the requested information below for the project site in its existing condition.

a. Current Site Status

Select all that apply to any portion of the site.

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

b. Existing Land Cover

Provide the area (in acres or square feet) within all applicable categories of land cover below. The total area should equal that of the entire project site.

	Area *(acres or ft²)*
☒ Vegetative Cover	340,024 ft2
☒ Non-Vegetated Pervious Areas	112,564 ft2
☒ Impervious Areas	16,000 ft2

c. Underlying Soil

Select all soil groups that are present on the site.

NRCS Hydrologic Soil Group(s)			
Type A	Type B	Type C	Type D
☐	☒	☒	☐

5.2 Description of Existing Site Drainage

Describe how storm water runoff is conveyed from the site. At a minimum, address the following:

- Is the existing drainage conveyance ☒ **natural** or ☐ **urban**?
- Is runoff from offsite conveyed through the site? ☒ **Yes** ☐ **No**

  If **yes**, quantify all offsite drainage areas, design flows, and locations where offsite flows enter the project site, and summarize how such flows are conveyed through the site.
- Describe the existing project site drainage conveyance network (including any existing storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels).
- Identify all discharge locations from the existing project site along with a summary of conveyance system size and capacity for each of the discharge locations. Summarize the pre-project drainage areas and design flows to each of the existing runoff discharge locations.
- Provide additional information as necessary or requested to describe the site drainage.

Description (add pages as necessary to provide all requested information).

The existing on-site area of 10.39 acres is mostly undeveloped covered mainly by low vegetation and medium sized trees covered throughout the property. The property contains an existing single-family home and detached garage structure. The topography of the site is gently sloped and generally slopes from the North-West to South-East. (See Existing Condition Hydrology Exhibit, Appendix A).

The hydrology of the site can be analyzed at two discharge points as described below:

Analysis Point #1:

Analysis point #1 is the confluence point for runoff from offsite and onsite flows that drain through the project site to the existing headwall & 30" culvert along Idaho Ave near the San Pasqual Valley Road intersection, that is then conveyed off-site. The drainage sub-basins to Analysis point # 1 consists of a total of 44.11 acres.

Run-on from the north and west (22.39 acres, basins 1-01 and 1-02) generally sheet flows to a low point near the project site's northern corner. Adjacent to San Pasqual Valley Road Flow is then conveyed via a natural swale on the property from the west to east to the to the existing 30" CMP culvert beneath Idaho Avenue which discharges on the church property on the east side of Idaho Road.

Run-on from the south and west (13.14 acres, basins 1-11, 1-12 and 1-13) is the confluence point for off-site runoff to the south of the property and a portion of the southern part of the property that drains to Idaho Avenue and drains toward the north along the western edge of Idaho Ave to the intersection at San Pasqual Valley Road. Runoff generally drains from the south to the northeast and eventually outfalls to Idaho Avenue pavement edge near the existing driveway (Node 112 → 103), then continues in the shoulder and eventually reaches the 30" CMP culvert beneath Idaho Avenue.

The 100-year storm event flowrate for Analysis point #1 is calculated at 76.18 CFS in the existing condition.

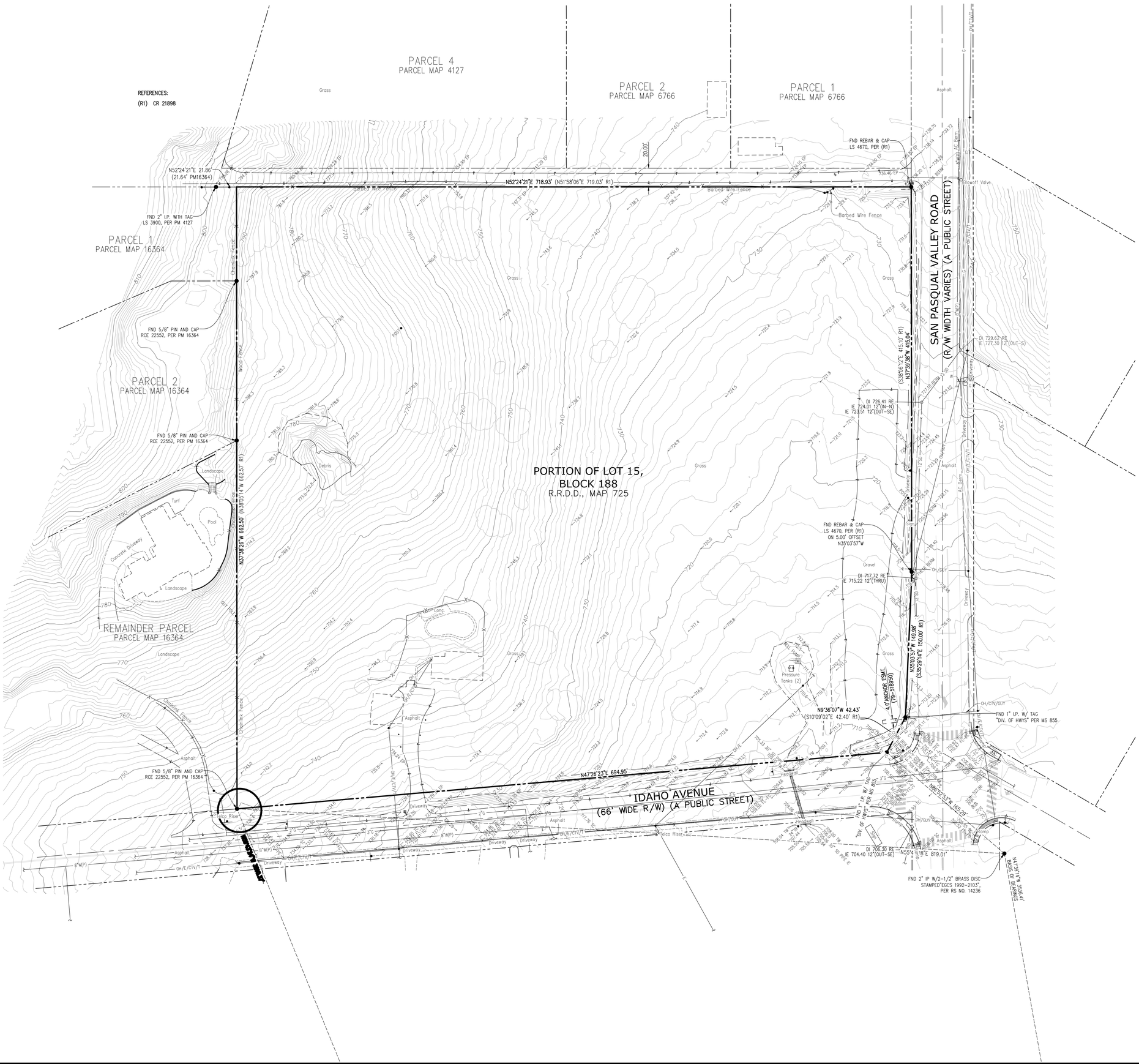
Analysis Point 2:

Analysis point #2 is the confluence of runoff collected in the eastern curbline of Idaho Avenue at the intersection of Idaho Ave. and San Pasqual Valley Road. This runoff is all off-site runoff that is analyzed to determine the ultimate flow in Idaho Ave and is not directly affected by the proposed project.

The drainage sub-basins to Analysis point #2 (sub-basins 2-01 through 2-03) consists of 1.58 acres. Runoff is all off-site and includes a portion of Pedregal Drive which drains directly into Idaho Ave., and the easterly crowned portion of Idaho Avenue. (Node 200 → 203). The 100-year storm event flowrate for Analysis point #3 is calculated at 5.13 CFS in the existing condition.

The Existing 30" culvert does not fully convey the existing storm flows in the 100 year condition. The existing culvert conveys 45.83 CFS before over-topping the culvert and flowing into Idaho Avenue. The approximate remaining flow in the existing condition being conveyed from Idaho to San Pasqual Valley Road and ultimately the drainage channel downstream of the project is approximately 35.48 CFS. Idaho Avenue has capacity to convey 93 CFS within the ROW limits. (For Idaho Capacity calculation see Appendix D).

The project site is not located within the 100-year flood plain, County Floodway or hazard flood zone.



NOTES

1. THIS PLOT WAS PREPARED FROM INFORMATION FURNISHED IN A PRELIMINARY TITLE REPORT, PREPARED BY CHICAGO TITLE INSURANCE COMPANY, DATED APRIL 12, 2024, ORDER NUMBER 00207666. NO LIABILITY IS ASSUMED FOR MATTERS OF RECORD NOT STATED IN SAID PRELIMINARY TITLE REPORT THAT MAY AFFECT THE TITLE LINES, OR EXCEPTIONS, OR EASEMENTS OF THE PROPERTY.

2. ALL DISTANCES AND ELEVATIONS SHOWN HEREON ARE IN GROUND AND US SURVEY FEET AND DECIMALS THEREOF.

3. THE TYPES, LOCATIONS, SIZES AND/OR DEPTHS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS TOPOGRAPHIC SURVEY WERE OBTAINED FROM SOURCES OF VARYING RELIABILITY. THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE TYPES, EXTENT, SIZES, LOCATIONS AND DEPTHS OF SUCH UNDERGROUND UTILITIES. (A REASONABLE EFFORT HAS BEEN MADE TO LOCATE AND DELINEATE ALL KNOWN UNDERGROUND UTILITIES). HOWEVER, THE ENGINEER CAN ASSUME NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF ITS DELINEATION OF SUCH UNDERGROUND UTILITIES WHICH MAY BE ENCOUNTERED, BUT WHICH ARE NOT SHOWN ON THESE DRAWINGS.

4. THE SUBJECT PROPERTY IS SHOWN ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) FOR SAN DIEGO COUNTY, CALIFORNIA, MAP NUMBER 06073C1081G FOR COMMUNITY NUMBER 060290 (CITY OF ESCONDIDO), WITH AN EFFECTIVE DATE OF MAY 16, 2012, AS BEING LOCATED IN FLOOD ZONE "X (UNSHADED)"

   ACCORDING TO FEMA THE DEFINITION OF ZONE "X" (UNSHADED) IS: AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

   INFORMATION WAS OBTAINED FROM THE FEMA WEBSITE ON JUNE 5, 2024.

   FEMA BASE FLOOD ELEVATIONS ARE BASED ON NAVD88 DATUM.

5. BENCHMARK:
   PK & WASHER SET BY CALTRANS CREWS IN 2021 AS SHOWN ON ROS 23931: PK & WASHER IN NORTHERLY END OF HEADWALL 145' +/- SOUTHWESTERLY OF CENTERLINE INTERSECTION.
   ELEV = 708.06 FEET (NGVD29)

6. BASIS OF BEARINGS:
   THE BASIS OF BEARINGS FOR THIS SURVEY ARE BASED ON THE GRID BEARING OF NORTH 47°39'14" WEST BETWEEN PT. 2103 AND PT. 1007, AS SHOWN ON RECORD OF SURVEY MAP NO. 14236, FILE NO. 93-428510, RECORDED ON JULY 2, 1993.

7. CORNER RECORD NOTE:
   THE DEVELOPER AND/OR CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREPARATION AND FILING OF PRE-CONSTRUCTION AND POST-CONSTRUCTION CORNER RECORDS FOR ANY MONUMENTS OR PROPERTY CORNERS SHOWN HEREON THAT MAY BE DESTROYED DURING IMPROVEMENTS TO THE SUBJECT PROPERTY AS DEFINED IN SECTION 8771(B) OF THE PROFESSIONAL LAND SURVEYORS ACT.

LEGEND

- BUILDING OVERHANG LINE
- CENTER LINE
- CONCRETE CURB
- CONCRETE CURB & GUTTER
- CONTOUR LINE-MAJOR
- CONTOUR LINE-MINOR
- DRIVEWAY
- EASEMENT LINE
- EDGE OF PAVEMENT
- ELECTRIC LINE
- FENCE LINE
- GAS LINE-VALVE & METER
- LOT LINE
- MONUMENT/MONUMENT LINE
- OVERHEAD POWER LINE
- PROPERTY LINE
- SANITARY SEWER LINE-MANHOLE & CLEANOUT
- SIDEWALK
- SPOT ELEVATION
- STORM DRAIN LINE-MANHOLE & CATCH BASIN
- STORM DRAIN LINE OVER 24"DIAMETER
- WATER LINE & VALVE
- BLOWOFF VALVE
- ELECTROLIER
- FIRE HYDRANT
- GUY ANCHOR
- MAILBOX
- MONUMENT FOUND AS NOTED
- POWER POLE/JOINT POLE
- TRAFFIC SIGNAL POLE
- TREE
- TREE CANOPY LINE
- UTILITY BOX
- WATER VALVE
- WELL

ABBREVIATIONS

CB	CATCH BASIN
CONC	CONCRETE
CR	CORNER RECORD
CTV	CABLE TELEVISION
DI	DRAIN INLET
DIV.	DIVISION
EB	ELECTRICAL BOX
EP	EDGE OF PAVEMENT
ESMT.	EASEMENT
FL-FC	FLOW LINE AT FACE OF CURB
FND	FOUND
GB	GRADE BREAK
GUY	GUY ANCHOR
HWYS	HIGHWAYS
IE	INVERT ELEVATION
I.P.	IRON PIPE
LS	LAND SURVEYOR
OH	OVERHEAD UTILITY LINES
PM	PARCEL MAP
(P)	PER PLAN
RCE	REGISTERED CIVIL ENGINEER
RE	RIM ELEVATION
R.R.D.D.	RANCHO RINCON DE DIABLO
R/W	RIGHT OF WAY
SDCB	STORM DRAIN CATCH BASIN
SDMH	STORM DRAIN MANHOLE
SSMH	SEWER MANHOLE
SS	SANITARY SEWER
TC	TOP OF CURB
W/	WITH

SURVEYOR'S STATEMENT

THIS MAP CORRECTLY REPRESENTS A FIELD & AERIAL SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYOR'S ACT.

DRAFT 08-08-2024
DATE

CASEY R. LYNCH, PLS 8380
CLYNCH@KIERWRIGHT.COM

PROFESSIONAL LAND SURVEYOR
CASEY R. LYNCH
No. 8380
EXP. 12/31/25
STATE OF CALIFORNIA

NO.	BY	REVISION

KIER+WRIGHT
500 La Terraza Blvd., Unit 102
Escondido, CA 92025
Phone: (760) 840-0265
www.kierwright.com

BOUNDARY & TOPOGRAPHIC SURVEY
OF
830 IDAHO AVENUE
FOR
TOUCHSTONE COMMUNITIES
ESCONDIDO, CALIFORNIA

DATE	JUNE, 2024
SCALE	AS SHOWN
SURVEYOR	MS
DRAWN BY	TC
JOB NO.	A24171
SHEET	1
OF	1 SHEETS

5.3 Description of Proposed Site Development

Provide a general description of the proposed site development, including at a minimum the information requested below. Add pages as necessary.

a. Project description/ Proposed land use and/or activities (project location, development type, size, numbers of units, etc.)

Project proposes new pritate roads to serve 42 new single family homes. The project will also include additional open space lots that will house the bio-retention basin, utility easements and HOA maintenance areas.

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

Impervious features of the project includes new 32' roadway with 4' sidewalks on both sides. Each lot will have a new home approximately 40' x 50', attached patios and driveways to each garage.

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

Pervious areas include planted slopes, yards and common areas. A majority of the proposed lots and HOA maintained landscaped areas will be landscaped/pervious.

d. Does the project include grading and changes to site topography? ☒ **Yes** ☐ **No**

*If **yes**, describe below.*

The major development activities include, but are not limited to, clearing & grubbing, demolition, grading, & construction of the 42 single family homes project.

5.4 Description of Proposed Site Drainage

A. Changes to Site Drainage -- Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)? ☒ **Yes** ☐ **No**

If **yes**:

- Describe (1) the proposed project site drainage conveyance network (including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels), and (2) the method for conveying offsite flows through or around the proposed project site.
- Identify all discharge locations from the proposed project site along with a summary of the conveyance system size and capacity for each of the discharge locations.
- Provide a summary of pre- and post-project drainage areas and design flows to each of the runoff discharge locations.

Description (add pages as necessary to provide all requested information).

The major development activities include, but are not limited to, clearing & grubbing, demolition, grading, & construction of the 42 single family homes project. (See Proposed Hydrology Exhibit, Appendix B)

The associated improvements will also include drainage improvements, and construction of Best Management Practices (BMPs). A biofiltration basin BMP#1 is proposed for dual purpose for water quality/hydromodification management and detention to maintain the existing condition peak flow rates in the proposed condition. The treatment basin is designed to consider Conjunctive Use, and treatment ponding (1st 18" of depth) is not considered in the detention calculation.

A proprietary storm water treatment unit "Filterra" (BMP#2) will be used to treat a portion of widened roadway in Idaho Avenue. The site is designed to maintain the existing drainage patterns. A portion of Run-On from the south will be conveyed via a brow ditch at the boundary of the project and routed around the project to discharge into to Idaho Ave via a curb outlet. Run-on from the west will be conveyed via a brow ditch and directed to a new inlet and conveyed in a bypass storm drain system that is routed through the project to directly connect to the existing 30" culvert at Idaho Ave, to maintain drainage patterns. The storm drain is private and will be located on-site within HOA lot B.

<u>Analysis Point 1:</u>

To analyze the impacts of the project, Analysis point #1 is at the same location as the existing condition location, at the existing 30" storm drain culvert at Idaho Ave. The drainage sub-basins to Analysis point #1 (sub-basins1-01 through 1-34) consists of 44.38 acres. Run-off to this analysis point includes run-on from the southwest and north west, as well as the majority of the proposed project site.

Off-site run on from the north west will be captured in a brow ditch and directed to a new type-F catch basin (Node 102) where drainage will be conveyed by a private bypass storm drain through the site to directly connect to the existing 30" culvert at Idaho Ave (Node 103). The majority of the project site area will be captured by proposed private storm drain infrastructure and discharged into the new bio-filtration basin for both treatment and flow control.

Off-site run on from the south west will be captured in a brow ditch and directed to a new curb outlet at Idaho Ave (Node 133) where drainage will then be conveyed via new curb and gutter to the proposed curb inlet (Node 103) which then connects to the existing 30" culvert at Idaho Ave.

The outlet pipe for the bio-filtration basin connects to the private bypass storm drain system before connecting to the existing 30" culvert. Runoff from the project site is not comingled with off-site run-on until properly treated and detained. The mitigated 100-year flow for analysis point #1 is calculated at 42.4 CFS (after detention). A curb inlet is sized to capture nuisance flows (2 CFS max) along Idaho Ave at the 30" culvert for smaller storm events. This added flow is shown in the overall hydraulic calculations for the storm drain system. The added flow still maintains existing peak flow at this analysis point. See hydraulic calculations, Appendix D, confirming adequate capacity to convey the 100-year storm through the existing 30" storm drain culvert.

The proposed condition will mimic the existing condition in that not all the storm water can enter the existing 30" culvert. The majority of runoff within Idaho Avenue will bypass the proposed curb inlet connecting to the 30" culvert and continue down Idaho to San Pasqual Valley Road and ultimately the drainage channel downstream of the project as in the existing condition. The proposed condition reduces that flow from 35.48 in the existing condition to 33.31 in the proposed. Proposed Idaho Avenue has capacity to convey 134 CFS within the ROW limits. (For Idaho Capacity calculation see Appendix D

<u>Flows at POC1:</u>
Existing: 76.18 CFS
Proposed: 88.75 CFS
Proposed with Detention: 88.75 – 25.85* = 62.90 CFS < 76.18 CFS … OK
*See detention calcs in Drainage Study

<u>Analysis Point 2:</u>

Analysis point #2 is the confluence of runoff collected in the eastern curbline of Idaho Avenue at the intersection of Idaho Ave. and San Pasqual Valley Road. This runoff is all off-site runoff that is analyzed to determine the ultimate flow in Idaho Ave and is not directly affected by the proposed project. This run-off is unchanged in the proposed condition. See hydraulic calculations, Appendix D of the Drainage Study, to show the capacity of Idaho avenue using flows from Analysis point 1 and 2, for conservative conveyance.

The project site is not located within the 100 year flood plain, County Floodway or hazard flood zone.

6.0 General Requirements

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

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

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

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

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

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

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

DMA #	***a. DMA Area (ft²)***	***Incidental Impervious Area***		***Permit # and Sheet #***
		b. Size(ft²)	***c. % (b/a*100)***	
1-B	22,215	330	1.49%	DMA Map/HMP Exhibit (Sheet 4 of 5)

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

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

<u>Natural and Landscaped Areas</u>

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

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

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

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

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

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

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

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

7.0 General Requirements

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

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

7.1 Engineer of Work Certification for Structural BMPs

Project Name Pasqual Heights
Permit Application Number PDS-IC-24-053

CERTIFICATION

I hereby declare that I am the Engineer in Responsible Charge of design of structural storm water best management practices (BMPs) for this project, and that I have exercised responsible charge over the design of the BMPs as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with the PDP requirements of the County of San Diego BMP Design Manual, which is a design manual for compliance with local County of San Diego Watershed Protection Ordinance (Sections 67.801 et seq.) and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2013-0001 as amended by R9-2015-0001 and R9-2015-0100) requirements for storm water management. I have read and understand that the County of San Diego has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the BMP Design Manual.

I certify that this PDP SWQMP has been completed to the best of my ability and accurately reflects the project being proposed and the applicable BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this PDP SWQMP by County staff is confined to a review and does not relieve me, as the Engineer in Responsible Charge of design of structural storm water BMPs for this project, of my responsibilities for their design.

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

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

Mike Wagner
Print Name

Touchstone Development, Inc.
Company

10/01/2025
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.

Proposed project will construct new roads to serve new homes. Roads will be graded N to S towards Idaho Ave. New Curb inlet structures will be installed at the low end of each road to capture storm water and discharge to the BMP#1 (Bio-Filtration). On-site stormwater will be discharged from the site from the same location as in the existing condition.

The proposed widened public road, Idaho Ave will be captured into BMP#2 (Proprietary Bio-filtration BF-3) .

BMP#1 will provide hydro-modification (pollutant and flow control) for the project as expressed in the SDHM calculation in Attachment 8.

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	
1	1	429,066	☐	☐	☐	☒	☐	☒	☐	Sheet 4 – DMA/HMP Exh.
2	2	17,424	☐	☐	☐	☐	☐	☐	☒	Sheet 4 – DMA/HMP Exh.
			☐	☐	☐	☐	☐	☐	☐	
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			☐	☐	☐	☐	☐	☐	☐	

Copy and Paste table here for additional BMPs

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

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

Structural BMP ID # BMP #1	**Permit # and Sheet #** 4 of 5
BMP Type	
Infiltration ☐ Infiltration basin (INF-1) ☐ Bioretention (INF-2) ☐ Permeable pavement (INF-3) **Unlined Biofiltration** ☐ Biofiltration with partial retention (PR-1) **Lined Biofiltration** ☐ Biofiltration (BF-1) ☒ Nutrient Sensitive Media Design (BF-2) ☐ Proprietary Biofiltration (BF-3)	**Harvest and Use** ☐ Cistern (HU-1) **Flow-thru Treatment** (describe below) ☐ With prior lawful approval to meet earlier PDP requirements ☐ Pre-treatment/forebay for an onsite retention or biofiltration BMP[2] ☐ With alternative compliance **Hydromodification Management**[3] ☐ Detention pond or vault ☒ **Other** (describe below)
BMP Purpose	
☐ Pollutant control only ☐ Hydromodification control only ☒ Combined pollutant control and hydromodification	☐ Pre-treatment/forebay for another BMP ☐ Other (describe below)
BMP Verification (See BMPDM Section 8.3)	
Provide name and contact information for the party responsible to sign BMP verification forms	Mike Wagner, PE, QSD Mike@Touchstonecommunities.com
BMP Ownership and Maintenance (See BMPDM Section 7.3 and Attachment 11)	
BMP Maintenance Category	Cat. 1 ☐ Cat. 2 ☒ Cat. 3 ☐ Cat. 4 ☐
Final owner of BMP	☒ HOA ☐ Property Owner ☐ County ☐ Other (describe):
Maintenance of BMP into perpetuity	☒ HOA ☐ Property Owner ☐ County ☐ Other (describe):
Discussion (As needed; Continue on subsequent pages as necessary)	

Copy and Paste table here for additional BMPs

[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.

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

Structural BMP ID # BMP #2	**Permit # and Sheet #** 4 of 5
BMP Type	
Infiltration ☐ Infiltration basin (INF-1) ☐ Bioretention (INF-2) ☐ Permeable pavement (INF-3) **Unlined Biofiltration** ☐ Biofiltration with partial retention (PR-1) **Lined Biofiltration** ☐ Biofiltration (BF-1) ☐ Nutrient Sensitive Media Design (BF-2) ☒ Proprietary Biofiltration (BF-3)	**Harvest and Use** ☐ Cistern (HU-1) **Flow-thru Treatment** (describe below) ☐ With prior lawful approval to meet earlier PDP requirements ☐ Pre-treatment/forebay for an onsite retention or biofiltration BMP[2] ☐ With alternative compliance **Hydromodification Management**[3] ☐ Detention pond or vault ☐ **Other** (describe below)
BMP Purpose	
☒ Pollutant control only ☐ Hydromodification control only ☐ Combined pollutant control and hydromodification	☐ Pre-treatment/forebay for another BMP ☐ Other (describe below)
BMP Verification (See BMPDM Section 8.3)	
Provide name and contact information for the party responsible to sign BMP verification forms	Mike Wagner, Project Engineer

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)

Runoff treated from widened public road only and is not co-mingled with runoff from on-site project areas.

Copy and Paste table here for additional BMPs

[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*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
Standard Drainage Basin Inputs	1	Drainage Basin ID or Name	BMP #1	BMP									unitless
	2	85th Percentile 24-hr Storm Depth	0.64	0.64									inches
	3	Impervious Surfaces Not Directed to Dispersion Area (C=0.90)	168,141	11,761									sq-ft
	4	Semi-Pervious Surfaces Not Serving as Dispersion Area (C=0.30)											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)	211,266										sq-ft
	8	Natural Type C Soil Not Serving as Dispersion Area (C=0.23)	50,529	4,792									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	No	No	No	No	No	No	No	No	yes/no
	11	Impervious Surfaces **Directed to Dispersion Area** per SD-B (Ci=0.90)											sq-ft
	12	Semi-Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.30)											sq-ft
	13	Engineered Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.10)											sq-ft
	14	Natural Type A Soil **Serving as Dispersion Area** per SD-B (Ci=0.10)											sq-ft
	15	Natural Type B Soil **Serving as Dispersion Area** per SD-B (Ci=0.14)											sq-ft
	16	Natural Type C Soil **Serving as Dispersion Area** per SD-B (Ci=0.23)											sq-ft
	17	Natural Type D Soil **Serving as Dispersion Area** per SD-B (Ci=0.30)											sq-ft
	18	Number of Tree Wells Proposed per SD-A											#
	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	429,936	16,553	0	0	0	0	0	0	0	0	sq-ft
	23	Initial Runoff Factor for Standard Drainage Areas	0.45	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	24	Initial Runoff Factor for Dispersed & Dispersion Areas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	25	Initial Weighted Runoff Factor	0.45	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	26	Initial Design Capture Volume	10,318	627	0	0	0	0	0	0	0	0	cubic-feet
Dispersion Area Adjustments	27	Total Impervious Area Dispersed to Pervious Surface	0	0	0	0	0	0	0	0	0	0	sq-ft
	28	Total Pervious Dispersion Area	0	0	0	0	0	0	0	0	0	0	sq-ft
	29	Ratio of Dispersed Impervious Area to Pervious Dispersion Area	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	ratio
	30	Adjustment Factor for Dispersed & Dispersion Areas	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	ratio
	31	Runoff Factor After Dispersion Techniques	0.45	0.71	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	unitless
	32	Design Capture Volume After Dispersion Techniques	10,318	627	0	0	0	0	0	0	0	0	cubic-feet
Tree & Barrel Adjustments	33	Total Tree Well Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
	34	Total Rain Barrel Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
Results	35	Final Adjusted Runoff Factor	0.45	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	36	Final Effective Tributary Area	193,471	11,753	0	0	0	0	0	0	0	0	sq-ft
	37	Initial Design Capture Volume Retained by Site Design Elements	0	0	0	0	0	0	0	0	0	0	cubic-feet
	38	Final Design Capture Volume Tributary to BMP	10,318	627	0	0	0	0	0	0	0	0	cubic-feet

No Warning Messages

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

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
Basic Analysis	1	Drainage Basin ID or Name	BMP #1	BMP	-	-	-	-	-	-	-	-	unitless
	2	85th Percentile Rainfall Depth	0.64	0.64	-	-	-	-	-	-	-	-	inches
	3	Predominant NRCS Soil Type Within BMP Location	D	D									unitless
	4	Is proposed BMP location Restricted or Unrestricted for Infiltration Activities?	Restricted	Restricted									unitless
	5	Nature of Restriction	Structures	Structures									unitless
	6	Do Minimum Retention Requirements Apply to this Project?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	yes/no
	7	Are Habitable Structures Greater than 9 Stories Proposed?											yes/no
Advanced Analysis	8	Has Geotechnical Engineer Performed an Infiltration Analysis?											yes/no
	9	Design Infiltration Rate Recommended by Geotechnical Engineer											in/hr
Result	10	Design Infiltration Rate Used To Determine Retention Requirements	0.000	0.000	-	-	-	-	-	-	-	-	in/hr
	11	Percent of Average Annual Runoff that Must be Retained within DMA	1.5%	1.5%	-	-	-	-	-	-	-	-	percentage
	12	Fraction of DCV Requiring Retention	0.01	0.01	-	-	-	-	-	-	-	-	ratio
	13	Required Retention Volume	103	6	-	-	-	-	-	-	-	-	cubic-feet

No Warning Messages

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

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
BMP Inputs	1	Drainage Basin ID or Name	BMP #1	BMP	-	-	-	-	-	-	-	-	sq-ft
	2	Design Infiltration Rate Recommended	0.000	0.000	-	-	-	-	-	-	-	-	in/hr
	3	Design Capture Volume Tributary to BMP	10,318	627	-	-	-	-	-	-	-	-	cubic-feet
	4	Is BMP Vegetated or Unvegetated?	Vegetated	Vegetated									unitless
	5	Is BMP Impermeably Lined or Unlined?	Lined	Lined									unitless
	6	Does BMP Have an Underdrain?	Underdrain	Underdrain									unitless
	7	Does BMP Utilize Standard or Specialized Media?	Standard	Specialized									unitless
	8	Provided Surface Area	6,727	32									sq-ft
	9	Provided Surface Ponding Depth	18	6									inches
	10	Provided Soil Media Thickness	18	36									inches
	11	Provided Gravel Thickness (Total Thickness)	27	6									inches
	12	Underdrain Offset	3	3									inches
	13	Diameter of Underdrain or Hydromod Orifice (Select Smallest)	2.20	4.00									inches
	14	Specialized Soil Media Filtration Rate		100.00									in/hr
	15	Specialized Soil Media Pore Space for Retention		0.10									unitless
	16	Specialized Soil Media Pore Space for Biofiltration		0.10									unitless
	17	Specialized Gravel Media Pore Space		0.40									unitless
Retention Calculations	18	Volume Infiltrated Over 6 Hour Storm	0	0	0	0	0	0	0	0	0	0	cubic-feet
	19	Ponding Pore Space Available for Retention	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	unitless
	20	Soil Media Pore Space Available for Retention	0.05	0.10	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	unitless
	21	Gravel Pore Space Available for Retention (Above Underdrain)	0.00	0.00	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	unitless
	22	Gravel Pore Space Available for Retention (Below Underdrain)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	unitless
	23	Effective Retention Depth	2.10	4.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inches
	24	Fraction of DCV Retained (Independent of Drawdown Time)	0.11	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	25	Calculated Retention Storage Drawdown Time	120	120	0	0	0	0	0	0	0	0	hours
	26	Efficacy of Retention Processes	0.13	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	27	Volume Retained by BMP (Considering Drawdown Time)	1,350	15	0	0	0	0	0	0	0	0	cubic-feet
	28	Design Capture Volume Remaining for Biofiltration	8,968	612	0	0	0	0	0	0	0	0	cubic-feet
Biofiltration Calculations	29	Max Hydromod Flow Rate through Underdrain	0.2816	0.7954	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	cfs
	30	Max Soil Filtration Rate Allowed by Underdrain Orifice	1.81	1,073.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	in/hr
	31	Soil Media Filtration Rate per Specifications	5.00	100.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	in/hr
	32	Soil Media Filtration Rate to be used for Sizing	1.81	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	in/hr
	33	Depth Biofiltered Over 6 Hour Storm	10.85	600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inches
	34	Ponding Pore Space Available for Biofiltration	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	35	Soil Media Pore Space Available for Biofiltration	0.20	0.10	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	unitless
	36	Gravel Pore Space Available for Biofiltration (Above Underdrain)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	unitless
	37	Effective Depth of Biofiltration Storage	31.20	10.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inches
	38	Drawdown Time for Surface Ponding	10	0	0	0	0	0	0	0	0	0	hours
	39	Drawdown Time for Effective Biofiltration Depth	17	0	0	0	0	0	0	0	0	0	hours
	40	Total Depth Biofiltered	42.05	610.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inches
	41	Option 1 - Biofilter 1.50 DCV: Target Volume	13,452	918	0	0	0	0	0	0	0	0	cubic-feet
	42	Option 1 - Provided Biofiltration Volume	13,452	918	0	0	0	0	0	0	0	0	cubic-feet
	43	Option 2 - Store 0.75 DCV: Target Volume	6,726	459	0	0	0	0	0	0	0	0	cubic-feet
	44	Option 2 - Provided Storage Volume	6,726	29	0	0	0	0	0	0	0	0	cubic-feet
	45	Portion of Biofiltration Performance Standard Satisfied	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
Result	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	48	**Deficit of Effectively Treated Stormwater**	**0**	**0**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	cubic-feet

Attention!

- BMPs sized at <3% of the effective tributary areas must be accompanied by Reduced Size BMP Maintenance calculations (see last tab)

-Use of specialized or proprietary media requires submittal of supplemental information outlined in Appendix F of the BMPDM

Table B.1-1: Runoff factors for surfaces draining to BMPs – Pollutant Control BMPs

Surface	Runoff Factor
Roofs[1]	0.90
Concrete or Asphalt[1]	0.90
Unit Pavers (grouted)[1]	0.90
Decomposed Granite	0.30
Cobbles or Crushed Aggregate	0.30
Amended, Mulched Soils or Landscape	0.10
Compacted Soil (e.g., unpaved parking)	0.30
Natural (A Soil)	0.10
Natural (B Soil)	0.14
Natural (C Soil)	0.23
Natural (D Soil)	0.30

[1]Surface is considered impervious and could benefit from use of Site Design BMPs and adjustment of the runoff factor per Section B.2.1.

B.1.1 Runoff Factor

Estimate the area weighted runoff factor for the tributary area to the BMP using runoff factor (from Table B.1-1) and area of each surface type in the tributary area and the following equation:

$$C = \frac{\sum C_x A_x}{\sum A_x}$$

PROPOSED - C VALUES

COLOR	SURFACE TYPE	C-VALUE	BASIN 1 AREA (sqft)	BASIN 2 AREA (sqft)
	LANDSCAPE	0.1	261,795	4,792
	ROOF AREA	0.9	73,668	0
	IMPERVIOUS	0.9	97,555	11,761

RESIDENTIAL LOT C-VALUE ASSUMPTIONS:
AVERAGE ROOF AREA = 1,754 SQFT
AVERAGE DRIVEWAY = 16' X 28' = 448 SQFT
BACK PATO = 10' X 40' = 400 SQFT

BASIN 1 (BMP#1 BIO-RETENTION) C-VALUE CALCULATION

$$C = \frac{(261{,}795 * 0.1)+(73{,}668 * 0.9)+(97{,}555 * 0.9)}{433{,}018}$$

C= 0.41

BASIN 2 (BMP#2 FILTERRA) C-VALUE CALCULATION

$$C = \frac{(4{,}792 * 0.1)+(11{,}761 * 0.9)}{17{,}424}$$

C= 0.66

PARKVIEW TOWNHOMES -- C-VALUE CALC (BACKUP FOR SDHM)

TOUCHSTONE

Filterra Sizing Spreadhseet

San Diego Region

Uniform Intensity Approach

Storm Intensity = 0.2 in/hr

Filterra Infiltration Rate = 140 in/hr
Filterra Flow per ft^2 = 0.00324 ft3/sec/ft2

Filterra Flow Rate Q = 0.00231 ft3/sec x Filterra Surface Area
Rational Method Q = C x I x A
San Diego Multiplier M = 1.5

Site Flowrate Q = (C x DI x DA x M x 43560) / (12 x 3600)
OR DA = (12 x 3600 x Q) / (C x 43560 x DI x M)

where	Q = Flow	CFS
	DA = Drainage Area	acres
	DI = Design Intensity	in/hr
	C = Runoff Coefficient	
	C = Runoff Coefficient	
	M = Multiplier	

DMA	Drainage Area	Runoff Coefficie	Intensity	SD Multiplier	Q=1.5*CIA		Filterra Surface Area
1-C	0.4	0.67	0.2	1.5	0.0804		**24.81481481**

32 square feet provided with Fiterra FT0408 Unit
OK

Filterra Sizing Spreadsheet
Uniform Intensity Approach
Storm Intensity = 0.20 in/hr

Filterra Infiltration Rate = 140 (in/hr)
Filterra Flow per Square Foot = 0.00324 (ft3/sec/ft2)

Filterra Flow Rate, Q = 0.00405 ft3/sec x Filterra Surface Area
Rational Method, Q = C x I x A

Site Flowrate, Q = (C x DI x DA x 43560) / (12 x3600)
OR DA = (12 x 3600 x Q) / (C x 43560 x DI)

where Q = Flow (ft3/sec)
DA = Drainage Area (acres)
DI = Design Intensity (in/hr)
C = Runoff coefficient (dimensionless)

			DI 0.2	C 1.00	C 0.85	C 0.50
Available Filterra Box Sizes			Filterra	100%	Commercial	Residential
L (ft)	W (ft)	Filterra Surface Area (ft2)	Flow Rate, Q (ft3/sec)	Imperv. DA (acres)	max DA (acres)	max DA (acres)
4	4	16	0.0519	0.257	0.302	0.514
6	4	24	0.0778	0.386	0.454	0.771
6.5	4	26	0.0843	0.418	0.492	0.836
8	4	32	0.1037	0.514	0.605	1.028
12	4	48	0.1556	0.771	0.907	1.543
6	6	36	0.1167	0.579	0.681	1.157
8	6	48	0.1556	0.771	0.907	1.543
10	6	60	0.1944	0.964	1.134	1.928
12	6	72	0.2333	1.157	1.361	2.314
13	7	91	0.2949	1.462	1.720	2.925
12	8	96	0.3111	1.543	1.815	3.085
14	8	112	0.3630	1.800	2.117	3.600
16	8	128	0.4148	2.057	2.420	4.114
18	8	144	0.4667	2.314	2.722	4.628
20	8	160	0.5185	2.571	3.025	5.142
22	8	176	0.5704	2.828	3.327	5.657

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 ATTACHED SDHM CALCULATIONS FOR FLOW CONTROL DESIGN.

LEGEND

ITEMS	SYMBOL
OUTER BASIN BOUNDARY	
FLOW DIRECTION	
BASIN INDENTIFIER/AREA (ACRES)	1 / 1.0

DMA SUMMARY

POC #1

DMA PREDEVELOPED

B,DIRT,FLAT -- 1.40 ACRES
B,DIRT,MOD. -- 0.55 ACRES
C,DIRT,MOD. -- 6.84 ACRES
C,DIRT,STEEP -- 1.97 ACRES

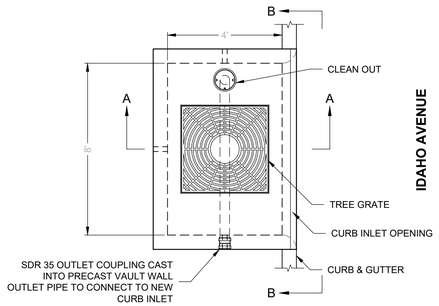
TOTAL -- 10.76 ACRES

DMA PRE SDHM TOTAL -- 10.76 ACRES

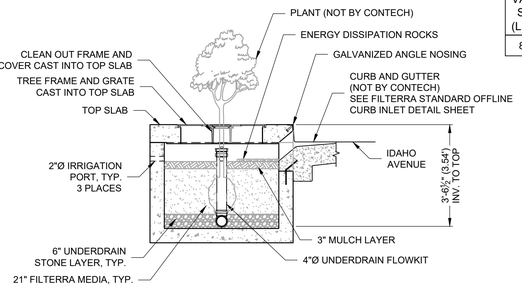
PASQUAL HEIGHTS -- EXISTING DMA/HMP EXHIBIT

TOUCHSTONE DEVELOPMENT

Z:\Common Share_Civil Projects\1068 Pasqual Heights\Dwgs\Exhibits\Pasqual --- Existing DMA Map.dwg Oct 13, 2025 - 4:05pm



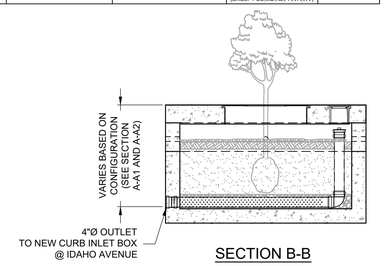
PLAN VIEW



SECTION A-A

FT CONFIGURATION

VAULT SIZE (L x W)	MEDIA AREA (SF)	LONG SIDE INLET DESIG. / PART NO.	SHORT SIDE INLET DESIG. / PART NO.	AVAILABILITY	OUTLET PIPE DIA
8 x 4	32	FT0804	FT0408	ALL (EXCEPT DE,MD,NJ,PA,VA,WV)	4" SDR 35



SECTION B-B

LEGEND

ITEMS	SYMBOL
OUTER BASIN BOUNDARY	
INNER BASIN BOUNDARY	
FLOW DIRECTION	
BASIN INDENTIFIER/AREA (ACRES)	1 / 1.0

SOURCE CONTROL BMPs

(PER COUNTY OF SAN DIEGO BMP DESIGN MANUAL)

4.2.1 PREVENTION OF ILLICIT DISCHARGES INTO THE MS4
4.2.2 STORM DRAIN STENCILING OR SIGNAGE
4.2.5 PROTECT TRASH STORAGE AREAS FROM RAINFALL, RUN-ON, RUNOFF & WIND DISPERSAL.
4.2.6 ADDITIONAL BMPS BASED ON POTENTIAL SOURCES OF POLLUTANTS:
- A. ON-SITE STORM DRAIN INLETS
- D. NEED FOR FUTURE INDOOR & STRUCTURAL PEST CONTROL
- E. LANDSCAPE/OUTDOOR PESTICIDES USE
- Q. PLAZAS, SIDEWALKS, AND PARKING LOTS.

LID, SITE DESIGN & TREATMENT CONTROL BMPs

4.3.1 MAINTAIN NATURAL DRAINAGE PATHWAYS & HYDROLOGIC FEATURES
4.3.2 CONSERVE NATURAL AREAS, SOILS, & VEGETATION
4.3.3 MINIMIZE IMPERVIOUS AREAS
4.3.4 MINIMIZE SOIL COMPACTION
4.3.7 LANDSCAPING WITH NATIVE & DROUGHT TOLERANT SPECIES

DMA SUMMARY

POC #1

DMA 1-A (DRAINS TO BMP#1)
B,DIRT,FLAT -- 4.85 ACRES
C,DIRT,STEEP -- 1.16 ACRES
IMPERVIOUS FLAT -- 3.86 ACRES

TOTAL -- 9.87 ACRES

DMA 1-B (SELF MITIGATING, EAST DIVERSION)
B,DIRT,FLAT -- 0.10 ACRES
C,DIRT,STEEP -- 0.39 ACRES
IMPERVIOUS-FLAT -- 0.02 ACRES
TOTAL -- 0.51 ACRES

DMA 1-C (DRAINS TO FILTERRA)
IMPERVIOUS-MOD -- 0.27 ACRES
C,DIRT,MODERATE -- 0.03
C,DIRT,STEEP -- 0.08 ACRES
TOTAL -- 0.38 ACRES

DMA #1 SDHM TOTAL -- 10.76 ACRES

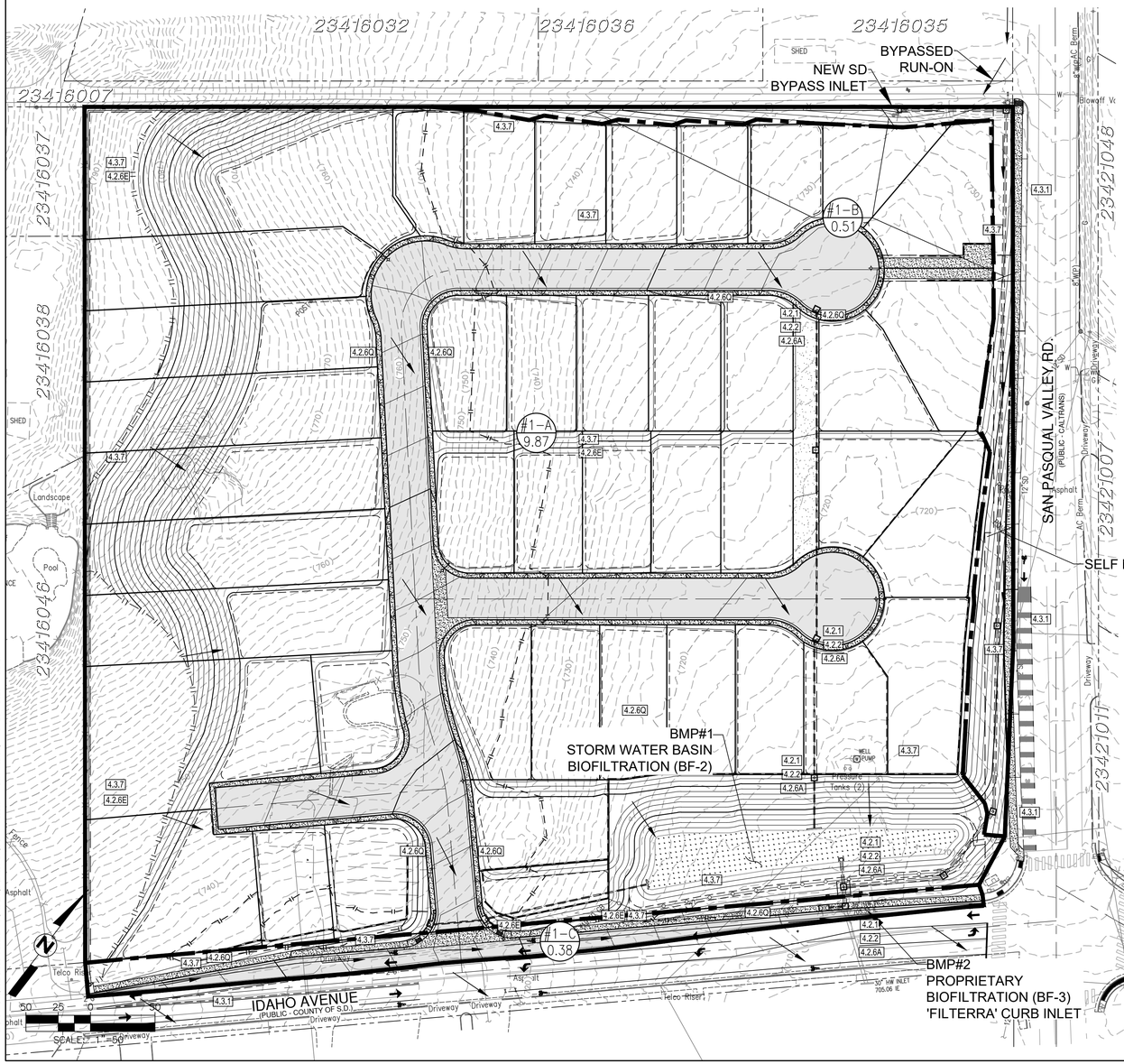
RESEDENTIAL LOT C-VALUE ASSUMPTIONS:

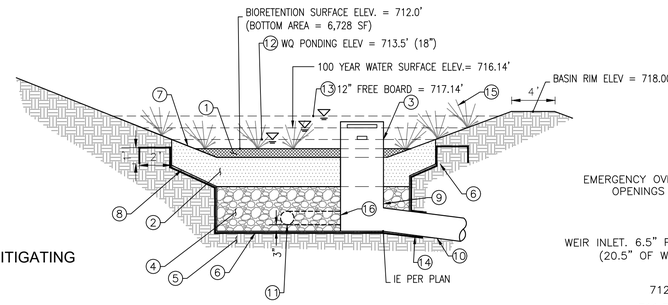
AVERAGE ROOF AREA = 1,754 SQFT
AVERAGE DRIVEWAY = 16' X 28' = 448 SQFT
BACK PATO = 10' X 40' = 400 SQFT

NOTE: SEE "C VALUE CALCULATION FOR SDHM" EXHIBIT IN THE SWQMP REPORT FOR ADDITIONAL DETAILS

FILTERRA OFFLINE CURB INLET STORM WATER TREATMENT UNIT ----
MODEL: FT0804 (8'x4')
(BF-3)

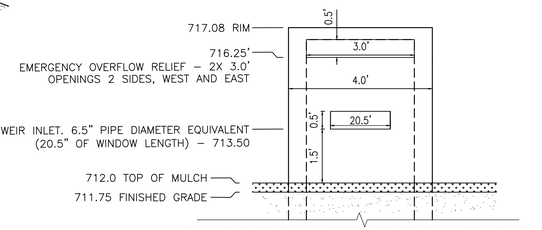
NTS





BIOFILTRATION BASIN (BF-2) DETAIL

NTS



ENLARGMENT - MODIFIED TYPE-'F' CATCH BASIN

NTS

LEGEND

18" MIN SOIL MIX
18" AGGREGATE STORAGE LAYER
3" MULCH

KEYNOTES

1. 3" WELL-AGED SHREDDED HARDWOOD NON-FLOATABLE MULCH
2. 18" MEDIA WITH MIN. 5 IN/HR FILTRATION RATE. NUTRIENT SENSITIVE SOIL MIX PER COUNTY OF SAN DIEGO BMP DESIGN MANUAL APPENDIX F.2
3. RISER HEIGHT, 1.5'
4. 18" CLASS 2 PERMEABLE PER CALTRANS SPECIFICATION 68-1.025
5. EXISTING UNCOMPACTED SUBGRADE
6. 30 MIL NON-WOVEN IMPERMEABLE LINER
7. SIDE SLOPE (2:1)
8. EXCAVATED SLOPE (2:1)
9. OVERFLOW STRUCTURE PER DETAIL THIS SHEET
10. OUTLET PIPE, SIZE PER PLAN
11. 8" PVC PERFORATED PIPE CONFORMING TO ASTM D3034.
12. 18" SURFACE PONDING (WATER QUALITY)
13. 12" FREEBOARD
14. CLAMP LINER TO OUTLET PIPE FOR WATERTIGHT SEAL
15. PLANTING PER LANDSCAPE PLANS
16. PLACE 8" THREADED PVC END CAP AND DRILL 2.2" ORIFICE DIAMETER DRILLED AT FL OF 8" PERF. PIPE

NOTES

1. CONTRACTOR SHALL HIRE A LICENSED LAND SURVEYOR TO STAKE THE SUBGRADE OF THE ROCK STORAGE LAYER, BIORETENTION PONDING SURFACE, AND TOP SLOPE OF BIORETENTION BASIN. MINIMUM SURFACE AREAS AND DEPTHS SHALL BE PROVIDED PER PLANS.
2. CONTRACTOR IS REQUIRED TO NOTIFY ENGINEER OF RECORD (EOR) DURING CONSTRUCTION FOR INSPECTION OF THE SUBGRADE AND INSTALLATION OF THE LINER, ROCK STORAGE, SUBDRAINAGE, SOIL MEDIA AND OVERFLOW STRUCTURE. IF EOR IS NOT NOTIFIED, CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH REMOVING LAYERS AND REPLACING AS NEEDED FOR PROPER INSPECTION.
3. CONTRACTOR SHALL PROVIDE AN AS-BUILT SURVEY PREPARED BY A LICENSED LAND SURVEYOR OF THE BIORETENTION BASIN.
4. CONTRACTOR SHALL PROVIDE CONTRACTOR SUBMITTALS FOR ALL BIORETENTION MATERIALS FOR THE EOR'S REVIEW. THIS INCLUDES, BUT IS NOT LIMITED TO: SOIL MIX, MULCH, FILTER LAYER, AGGREGATE BASE, IMPERMEABLE LINER AND OVERFLOW STRUCTURE.

DMA MAP/HMP EXHIBIT

PASQUAL HEIGHTS

PDS2024-TM-5657
PDS2025-DB-25-00
E25-0047 (C.O.E.)

PREPARED BY:

TOUCHSTONE DEVELOPMENT

PROJECT ADDRESS
830 IDAHO AVE, ESCONDIDO CA 92025

ASSESSOR'S PARCEL NO:
234-160-25

OWNER/APPLICANT:
TOUCHTONE COMMUNITIES
KERRY GARZA
9815 MIRA MESA BLVD.
SAN DIEGO, CA 92131
858-204-1342

PROJECT DESCRIPTION
42 SINGLE FAMILY HOMES

NO.	DATE	REVISIONS
1	11/2024	1ST SUBMITTAL
2	02/2025	UPDATE
3	07/2025	2ND SUBMITTAL
4	10/2025	3RD SUBMITTAL
5	03/2026	FINAL SUBMITTAL

SHEET 4 OF 5

S:\...\Civil\Projects\1058 Pasqual Heights\Dwg\Sheet_Dwg\4 - Pasqual~~ DMA Map.dwg Mar 26, 2026 - 3:34pm

SDHM 3.1

PROJECT REPORT

General Model Information

Project Name:	Pasqual SDHM (Revised)
Site Name:	Pasqual
Site Address:	830 Idaho Ave
City:	Escondido
Report Date:	12/11/2025
Gage:	ESCONDID
Data Start:	10/01/1964
Data End:	09/30/2004
Timestep:	Hourly
Precip Scale:	1.000
Version Date:	2021/06/28

POC Thresholds

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

Landuse Basin Data

Predeveloped Land Use

DMA #2 Predeveloped

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
B,Dirt,Flat	1.4
B,Dirt,Moderate	0.55
C,Dirt,Moderate	6.84
C,Dirt,Steep	1.97
Pervious Total	10.76

Impervious Land Use	acre
Impervious Total	0
Basin Total	10.76

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

DMA #1-A (BMP#1 Tributary)

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
B,Dirt,Flat	4.85
C,Dirt,Steep	1.16
Pervious Total	6.01

Impervious Land Use	acre
IMPERVIOUS-FLAT	3.86
Impervious Total	3.86
Basin Total	9.87

Element Flows To:

Surface	Interflow	Groundwater
Surface BMP #1	Surface BMP #1	

DMA 1-B (East Diversion)

Bypass:	Yes
GroundWater:	No

Pervious Land Use	acre
C,Dirt,Steep	0.39
B,Dirt,Flat	0.1
Pervious Total	0.49

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.02
Impervious Total	0.02
Basin Total	0.51

Element Flows To:

Surface	Interflow	Groundwater

DMA#1-C (Filterra Tributary)

Bypass:	Yes
GroundWater:	No

Pervious Land Use	acre
C,Dirt,Moderate	0.03
C,Dirt,Steep	0.08
Pervious Total	0.11

Impervious Land Use	acre
IMPERVIOUS-MOD	0.27
Impervious Total	0.27
Basin Total	0.38

Element Flows To:

Surface	Interflow	Groundwater

Routing Elements
Predeveloped Routing

Mitigated Routing

BMP #1

Bottom Length:	82.03 ft.
Bottom Width:	82.03 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:	1.5
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	0.67
Orifice Diameter (in.):	2.2
Offset (in.):	3
Flow Through Underdrain (ac-ft.):	145.033
Total Outflow (ac-ft.):	171.353
Percent Through Underdrain:	84.64
Discharge Structure	
Riser Height:	1.5 ft.
Riser Diameter:	6.5 in.
Element Flows To:	
Outlet 1	Outlet 2

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.2073	0.0000	0.0000	0.0000
0.0907	0.2060	0.0042	0.0000	0.0000
0.1813	0.2044	0.0085	0.0000	0.0000
0.2720	0.2028	0.0128	0.0000	0.0000
0.3626	0.2013	0.0171	0.0000	0.0000
0.4533	0.1997	0.0215	0.0000	0.0000
0.5440	0.1982	0.0259	0.0000	0.0000
0.6346	0.1966	0.0303	0.0000	0.0000
0.7253	0.1951	0.0348	0.0000	0.0000
0.8159	0.1936	0.0393	0.0000	0.0000
0.9066	0.1920	0.0439	0.0000	0.0000
0.9973	0.1905	0.0485	0.0000	0.0000
1.0879	0.1890	0.0531	0.0000	0.0000
1.1786	0.1875	0.0578	0.0000	0.0000
1.2692	0.1860	0.0625	0.0000	0.0000
1.3599	0.1845	0.0673	0.0112	0.0000
1.4505	0.1830	0.0721	0.0168	0.0000
1.5412	0.1815	0.0769	0.0264	0.0000
1.6319	0.1800	0.0818	0.0312	0.0000
1.7225	0.1786	0.0867	0.0384	0.0000
1.8132	0.1771	0.0936	0.0421	0.0000
1.9038	0.1756	0.1005	0.0479	0.0000
1.9945	0.1742	0.1075	0.0508	0.0000
2.0852	0.1727	0.1145	0.0557	0.0000
2.1758	0.1713	0.1216	0.0581	0.0000
2.2665	0.1699	0.1287	0.0609	0.0000
2.3571	0.1684	0.1359	0.0677	0.0000
2.4478	0.1670	0.1432	0.0761	0.0000
2.5385	0.1656	0.1505	0.0848	0.0000

2.6291	0.1642	0.1578	0.0931	0.0000
2.7198	0.1628	0.1653	0.1011	0.0000
2.8104	0.1614	0.1727	0.1085	0.0000
2.9011	0.1600	0.1803	0.1156	0.0000
2.9918	0.1586	0.1879	0.1222	0.0000
3.0824	0.1572	0.1956	0.1286	0.0000
3.1731	0.1558	0.2033	0.1347	0.0000
3.2500	0.1545	0.2099	0.2275	0.0000

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
3.2500	0.2073	0.2099	0.0000	0.7788	0.0000
3.3407	0.2089	0.2287	0.0000	0.7788	0.0000
3.4313	0.2105	0.2477	0.0000	1.0028	0.0000
3.5220	0.2121	0.2669	0.0000	1.0498	0.0000
3.6126	0.2137	0.2862	0.0000	1.0969	0.0000
3.7033	0.2153	0.3056	0.0000	1.1440	0.0000
3.7940	0.2169	0.3252	0.0000	1.1910	0.0000
3.8846	0.2185	0.3450	0.0000	1.2381	0.0000
3.9753	0.2202	0.3649	0.0000	1.2852	0.0000
4.0659	0.2218	0.3849	0.0000	1.3323	0.0000
4.1566	0.2234	0.4051	0.0000	1.3793	0.0000
4.2473	0.2251	0.4254	0.0000	1.4264	0.0000
4.3379	0.2267	0.4459	0.0000	1.4735	0.0000
4.4286	0.2284	0.4665	0.0000	1.5205	0.0000
4.5192	0.2301	0.4873	0.0000	1.5676	0.0000
4.6099	0.2317	0.5082	0.0000	1.6147	0.0000
4.7005	0.2334	0.5293	0.0000	1.6617	0.0000
4.7912	0.2351	0.5506	0.0479	1.7088	0.0000
4.8819	0.2368	0.5720	0.2543	1.7559	0.0000
4.9725	0.2385	0.5935	0.4308	1.8030	0.0000
5.0632	0.2402	0.6152	0.5172	1.8500	0.0000
5.1538	0.2419	0.6370	0.5873	1.8971	0.0000
5.2445	0.2436	0.6590	0.6498	1.9442	0.0000
5.3352	0.2453	0.6812	0.7069	1.9912	0.0000
5.4258	0.2470	0.7035	0.7597	2.0383	0.0000
5.5165	0.2488	0.7260	0.8090	2.0854	0.0000
5.6071	0.2505	0.7486	0.8556	2.1325	0.0000
5.6978	0.2522	0.7714	0.8997	2.1795	0.0000
5.7885	0.2540	0.7944	0.9417	2.2266	0.0000
5.8791	0.2557	0.8175	0.9820	2.2737	0.0000
5.9698	0.2575	0.8407	1.0206	2.3207	0.0000
6.0604	0.2593	0.8642	1.0579	2.3678	0.0000
6.1511	0.2610	0.8877	1.0939	2.4149	0.0000
6.2418	0.2628	0.9115	1.1287	2.4620	0.0000
6.3324	0.2646	0.9354	1.1625	2.5090	0.0000
6.4231	0.2664	0.9595	1.1953	2.5561	0.0000
6.5137	0.2682	0.9837	1.2273	2.6032	0.0000
6.6044	0.2700	1.0081	1.2584	2.6502	0.0000
6.6951	0.2718	1.0327	1.2888	2.6973	0.0000
6.7857	0.2736	1.0574	1.3185	2.7444	0.0000
6.8764	0.2754	1.0823	1.3475	2.7915	0.0000
6.9670	0.2773	1.1073	1.3760	2.8385	0.0000
7.0577	0.2791	1.1325	1.4038	2.8856	0.0000
7.1484	0.2809	1.1579	1.4311	2.9327	0.0000
7.2390	0.2828	1.1835	1.4579	2.9797	0.0000
7.3297	0.2846	1.2092	1.4842	3.0268	0.0000
7.4203	0.2865	1.2351	1.5101	3.0739	0.0000

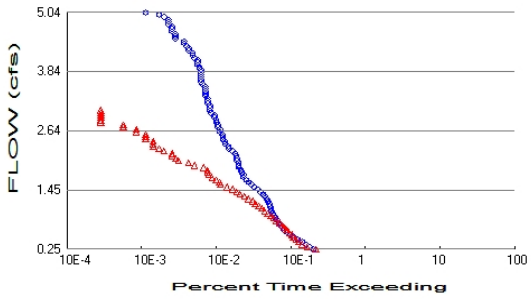
7.5110	0.2884	1.2612	1.5355	3.1209	0.0000
7.6016	0.2902	1.2874	1.5605	3.1680	0.0000
7.6923	0.2921	1.3138	1.5851	3.2151	0.0000
7.7830	0.2940	1.3403	1.6094	3.2622	0.0000
7.8736	0.2959	1.3671	1.6333	3.3092	0.0000
7.9643	0.2978	1.3940	1.6568	3.3563	0.0000
8.0549	0.2997	1.4211	1.6800	3.4034	0.0000
8.1456	0.3016	1.4483	1.7029	3.4504	0.0000
8.2363	0.3035	1.4757	1.7255	3.4975	0.0000
8.2500	0.3038	1.4799	1.7477	3.5046	0.0000

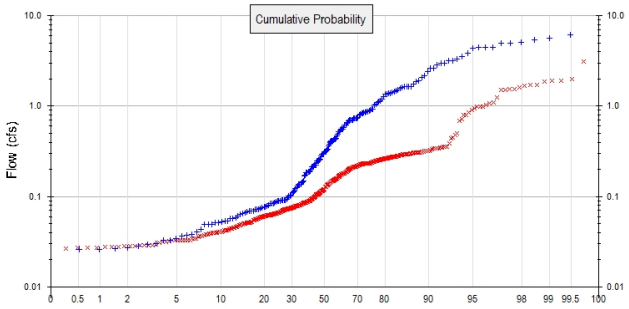
Surface BMP #1

Element Flows To:

Outlet 1	Outlet 2
	BMP #1

Analysis Results
POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 10.76
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 6.61
Total Impervious Area: 4.15

Flow Frequency Method: Cunnane

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	2.497157
5 year	4.460516
10 year	5.036336
25 year	5.794577

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	0.95886
5 year	1.660567
10 year	1.90697
25 year	2.245909

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.2497	709	755	106	Pass
0.2981	626	585	93	Pass
0.3464	560	493	88	Pass
0.3948	500	448	89	Pass
0.4431	438	412	94	Pass
0.4915	388	381	98	Pass
0.5398	343	362	105	Pass
0.5882	316	335	106	Pass
0.6365	286	310	108	Pass
0.6849	272	290	106	Pass
0.7332	258	271	105	Pass
0.7816	245	250	102	Pass
0.8299	234	223	95	Pass
0.8783	218	207	94	Pass
0.9266	210	189	90	Pass
0.9750	202	171	84	Pass
1.0233	196	156	79	Pass
1.0717	191	143	74	Pass
1.1200	184	131	71	Pass
1.1684	179	117	65	Pass
1.2167	173	109	63	Pass
1.2651	169	95	56	Pass
1.3134	158	84	53	Pass
1.3618	150	73	48	Pass
1.4101	137	66	48	Pass
1.4585	129	59	45	Pass
1.5068	114	49	42	Pass
1.5552	103	40	38	Pass
1.6035	96	39	40	Pass
1.6519	89	35	39	Pass
1.7002	82	31	37	Pass
1.7486	81	28	34	Pass
1.7969	78	27	34	Pass
1.8453	75	27	36	Pass
1.8936	72	24	33	Pass
1.9420	70	18	25	Pass
1.9903	70	15	21	Pass
2.0387	67	11	16	Pass
2.0870	67	10	14	Pass
2.1354	65	9	13	Pass
2.1837	63	9	14	Pass
2.2321	58	7	12	Pass
2.2804	52	6	11	Pass
2.3288	51	5	9	Pass
2.3771	46	5	10	Pass
2.4255	45	5	11	Pass
2.4738	43	4	9	Pass
2.5222	43	4	9	Pass
2.5705	42	4	9	Pass
2.6189	40	3	7	Pass
2.6672	40	3	7	Pass
2.7156	37	2	5	Pass
2.7639	37	2	5	Pass

2.8122	36	1	2	Pass
2.8606	35	1	2	Pass
2.9089	33	1	3	Pass
2.9573	33	1	3	Pass
3.0056	30	1	3	Pass
3.0540	29	1	3	Pass
3.1023	29	0	0	Pass
3.1507	29	0	0	Pass
3.1990	27	0	0	Pass
3.2474	27	0	0	Pass
3.2957	27	0	0	Pass
3.3441	25	0	0	Pass
3.3924	25	0	0	Pass
3.4408	25	0	0	Pass
3.4891	25	0	0	Pass
3.5375	25	0	0	Pass
3.5858	23	0	0	Pass
3.6342	22	0	0	Pass
3.6825	22	0	0	Pass
3.7309	22	0	0	Pass
3.7792	22	0	0	Pass
3.8276	22	0	0	Pass
3.8759	22	0	0	Pass
3.9243	21	0	0	Pass
3.9726	20	0	0	Pass
4.0210	20	0	0	Pass
4.0693	20	0	0	Pass
4.1177	18	0	0	Pass
4.1660	17	0	0	Pass
4.2144	17	0	0	Pass
4.2627	15	0	0	Pass
4.3111	15	0	0	Pass
4.3594	14	0	0	Pass
4.4078	13	0	0	Pass
4.4561	13	0	0	Pass
4.5045	10	0	0	Pass
4.5528	10	0	0	Pass
4.6012	10	0	0	Pass
4.6495	9	0	0	Pass
4.6979	9	0	0	Pass
4.7462	9	0	0	Pass
4.7946	8	0	0	Pass
4.8429	8	0	0	Pass
4.8913	8	0	0	Pass
4.9396	7	0	0	Pass
4.9880	6	0	0	Pass
5.0363	4	0	0	Pass

Water Quality

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

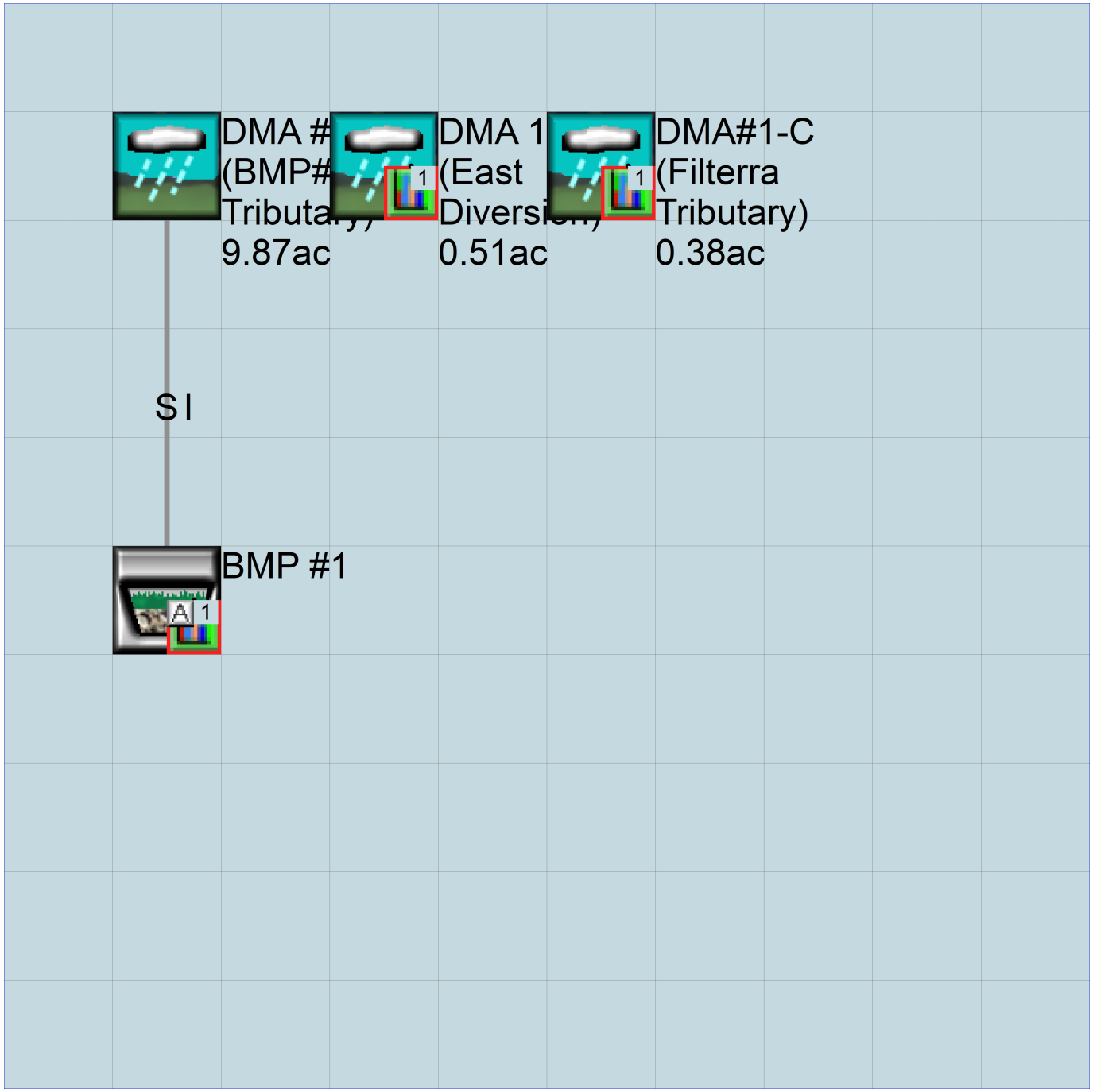
No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

Appendix
Predeveloped Schematic

Mitigated Schematic



Predeveloped UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1964 10 01        END    2004 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
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WDM         26   Pasqual SDHM (Revised).wdm
MESSU       25   PrePasqual SDHM (Revised).MES
            27   PrePasqual SDHM (Revised).L61
            28   PrePasqual SDHM (Revised).L62
            30   POCPasqual SDHM (Revised)1.dat
END FILES

OPN SEQUENCE
    INGRP               INDELT 00:60
      PERLND      13
      PERLND      14
      PERLND      23
      PERLND      24
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
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  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
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  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                      in  out           ***
   13      B,Dirt,Flat            1    1    1    1   27    0
   14      B,Dirt,Moderate        1    1    1    1   27    0
   23      C,Dirt,Moderate        1    1    1    1   27    0
   24      C,Dirt,Steep           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 ***
   13         0    0    1    0    0    0    0    0    0    0    0    0
   14         0    0    1    0    0    0    0    0    0    0    0    0
   23         0    0    1    0    0    0    0    0    0    0    0    0
```

```
 24         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  *********
 13         0    0    4    0    0    0    0    0    0    0    0    0    1    9
 14         0    0    4    0    0    0    0    0    0    0    0    0    1    9
 23         0    0    4    0    0    0    0    0    0    0    0    0    1    9
 24         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 ***
 13         0    1    1    1    0    0    0    0    1    1    0
 14         0    1    1    1    0    0    0    0    1    1    0
 23         0    1    1    1    0    0    0    0    1    1    0
 24         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
 13              0         4      0.07       100      0.05        2.5      0.915
 14              0       3.7     0.055        80       0.1        2.5      0.915
 23              0       3.5     0.033        80       0.1        2.5      0.915
 24              0       3.2      0.03        75      0.15        2.5      0.915
END PWAT-PARM2

PWAT-PARM3
  <PLS >      PWATER input info: Part 3         ***
  # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
 13              0         0         2         2         0      0.05      0.05
 14              0         0         2         2         0      0.05      0.05
 23              0         0         2         2         0      0.05      0.05
 24              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 ***
 13              0       0.6     0.017         1       0.3         0
 14              0       0.6     0.017         1       0.3         0
 23              0       0.6     0.017         1       0.3         0
 24              0       0.6     0.017         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  ***
 13       0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4
 14       0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4
 23       0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4
 24       0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  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  ***
 13       0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1
 14       0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1
 23       0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1
 24       0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1
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
 13              0         0      0.01         0       0.4       0.01         0
 14              0         0      0.01         0       0.4       0.01         0
 23              0         0      0.01         0       0.4       0.01         0
```

```
   24              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#   ***
DMA #2 Predeveloped***
PERLND  13                        1.4     COPY   501     12
PERLND  13                        1.4     COPY   501     13
PERLND  14                       0.55     COPY   501     12
PERLND  14                       0.55     COPY   501     13
PERLND  23                       6.84     COPY   501     12
PERLND  23                       6.84     COPY   501     13
PERLND  24                       1.97     COPY   501     12
PERLND  24                       1.97     COPY   501     13

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

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



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

```
END NETWORK

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

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

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

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

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

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

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

END EXT SOURCES

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

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

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

```
END MASS-LINK

END RUN
```

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1964 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   Pasqual SDHM (Revised).wdm
MESSU       25   MitPasqual SDHM (Revised).MES
            27   MitPasqual SDHM (Revised).L61
            28   MitPasqual SDHM (Revised).L62
            30   POCPasqual SDHM (Revised)1.dat
END FILES

OPN SEQUENCE
    INGRP               INDELT 00:60
      PERLND      13
      PERLND      24
      IMPLND       1
      PERLND      23
      IMPLND       2
      GENER        2
      RCHRES       1
      RCHRES       2
      COPY         1
      COPY       501
      COPY       601
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Surface BMP #1              MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  601         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
    2        24
  END OPCODE
  PARM
    #    #         K ***
    2             0.
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                          in  out           ***
   13      B,Dirt,Flat            1    1    1    1   27    0
   24      C,Dirt,Steep           1    1    1    1   27    0
   23      C,Dirt,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 ***
 13         0    0    1    0    0    0    0    0    0    0    0    0
 24         0    0    1    0    0    0    0    0    0    0    0    0
 23         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  *********
 13         0    0    4    0    0    0    0    0    0    0    0    0    1    9
 24         0    0    4    0    0    0    0    0    0    0    0    0    1    9
 23         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 ***
 13         0    1    1    1    0    0    0    0    1    1    0
 24         0    1    1    1    0    0    0    0    1    1    0
 23         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
 13              0         4      0.07       100      0.05        2.5      0.915
 24              0       3.2      0.03        75      0.15        2.5      0.915
 23              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
 13              0         0         2         2         0      0.05      0.05
 24              0         0         2         2         0      0.05      0.05
 23              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 ***
 13              0       0.6     0.017         1       0.3         0
 24              0       0.6     0.017         1       0.3         0
 23              0       0.6     0.017         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  ***
 13       0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4
 24       0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4
 23       0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  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  ***
 13       0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1
 24       0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1
 23       0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1
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
 13              0         0      0.01          0       0.4       0.01          0
 24              0         0      0.01          0       0.4       0.01          0
 23              0         0      0.01          0       0.4       0.01          0
```

```
  END PWAT-STATE1

END PERLND

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

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
    2         0    0    1    0    0    0
  END ACTIVITY

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

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

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

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

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

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
DMA #1-A (BMP#1 Tributary)***
PERLND  13                       4.85     RCHRES   1      2
PERLND  13                       4.85     RCHRES   1      3
PERLND  24                       1.16     RCHRES   1      2
PERLND  24                       1.16     RCHRES   1      3
IMPLND   1                       3.86     RCHRES   1      5
DMA 1-B  (East Diversion)***
PERLND  24                       0.39     COPY   501     12
PERLND  24                       0.39     COPY   601     12
```

```
PERLND  24                          0.39     COPY   501     13
PERLND  24                          0.39     COPY   601     13
PERLND  13                           0.1     COPY   501     12
PERLND  13                           0.1     COPY   601     12
PERLND  13                           0.1     COPY   501     13
PERLND  13                           0.1     COPY   601     13
IMPLND   1                          0.02     COPY   501     15
IMPLND   1                          0.02     COPY   601     15
DMA#1-C (Filterra Tributary)***
PERLND  23                          0.03     COPY   501     12
PERLND  23                          0.03     COPY   601     12
PERLND  23                          0.03     COPY   501     13
PERLND  23                          0.03     COPY   601     13
PERLND  24                          0.08     COPY   501     12
PERLND  24                          0.08     COPY   601     12
PERLND  24                          0.08     COPY   501     13
PERLND  24                          0.08     COPY   601     13
IMPLND   2                          0.27     COPY   501     15
IMPLND   2                          0.27     COPY   601     15

******Routing******
PERLND  13                          4.85     COPY     1     12
PERLND  24                          1.16     COPY     1     12
IMPLND   1                          3.86     COPY     1     15
PERLND  13                          4.85     COPY     1     13
PERLND  24                          1.16     COPY     1     13
RCHRES   1                             1     RCHRES   2      8
RCHRES   2                             1     COPY   501     16
RCHRES   1                             1     COPY   501     17
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
GENER    2 OUTPUT TIMSER       .0002778     RCHRES   1     EXTNL  OUTDGT 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 BMP #1          2    1    1    1   28    0    1
    2     BMP #1                  1    1    1    1   28    0    1
  END GEN-INFO
  *** Section RCHRES***

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

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

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                  ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
```

```
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
    1        0  1  0  0    4  5  0  0  0       0  1  0  0  0        2  1  2  2  2
    2        0  1  0  0    4  0  0  0  0       0  0  0  0  0        2  2  2  2  2
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><--------><--------> ***
    1              1      0.01       0.0       0.0       0.0       0.0
    2              2      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
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
*** User-Defined Variable Quantity Lines
***                          addr
***                         <------>
*** kwd  varnam optyp  opn  vari  s1 s2 s3 tp multiply  lc ls ac as agfn ***
  <****> <----> <----> <-> <----><-><-><-><-><--------> <><-> <><-> <--> ***
  UVQUAN vol2   RCHRES   2 VOL              4
  UVQUAN v2m2   GLOBAL     WORKSP  1        3
  UVQUAN vpo2   GLOBAL     WORKSP  2        3
  UVQUAN v2d2   GENER    2 K       1        3
*** User-Defined Target Variable Names
***                  addr or                        addr or
***                 <------>                       <------>
*** kwd   varnam ct  vari  s1 s2 s3  frac oper     vari  s1 s2 s3  frac oper
  <****>  <----><-> <----><-><-><-> <---> <-->    <----><-><-><-> <---> <-->
  UVNAME  v2m2    1 WORKSP  1         1.0 QUAN
  UVNAME  vpo2    1 WORKSP  2         1.0 QUAN
  UVNAME  v2d2    1 K       1         1.0 QUAN
*** opt foplop dcdts  yr mo dy hr mn d t   vnam  s1 s2 s3 ac quantity  tc  ts rp
  <****><-><--><><-><--> <> <> <> <><><>  <----><-><-><-><-><--------> <> <-><->
  GENER   2                               v2m2            =  9960.87
*** Compute remaining available pore space
  GENER   2                               vpo2            =  v2m2
  GENER   2                               vpo2           -=  vol2
*** Check to see if VPORA goes negative; if so set VPORA = 0.0
IF (vpo2 < 0.0) THEN
  GENER   2                               vpo2            =  0.0
END IF
*** Infiltration volume
  GENER   2                               v2d2            =  vpo2
END SPEC-ACTIONS
FTABLES
  FTABLE      2
   37    4
     Depth      Area    Volume  Outflow1 Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.207316  0.000000  0.000000
  0.090659  0.205976  0.004220  0.000000
  0.181319  0.204402  0.008477  0.000000
  0.271978  0.202834  0.012772  0.000000
  0.362637  0.201272  0.017104  0.000000
  0.453297  0.199716  0.021475  0.000000
  0.543956  0.198166  0.025883  0.000000
  0.634615  0.196622  0.030329  0.000000
  0.725275  0.195084  0.034814  0.000000
  0.815934  0.193552  0.039337  0.000000
  0.906593  0.192026  0.043899  0.000000
  0.997253  0.190507  0.048499  0.000000
```

```
1.087912  0.188993  0.053139  0.000000
1.178571  0.187485  0.057817  0.000000
1.269231  0.185984  0.062535  0.000000
1.359890  0.184488  0.067292  0.011198
1.450549  0.182998  0.072089  0.016797
1.541209  0.181515  0.076926  0.026395
1.631868  0.180037  0.081802  0.031194
1.722527  0.178566  0.086719  0.038446
1.813187  0.177100  0.093576  0.042072
1.903846  0.175641  0.100489  0.047869
1.994505  0.174188  0.107459  0.050768
2.085165  0.172740  0.114484  0.055679
2.175824  0.171299  0.121566  0.058135
2.266484  0.169864  0.128706  0.060905
2.357143  0.168435  0.135902  0.067746
2.447802  0.167012  0.143155  0.076128
2.538462  0.165594  0.150466  0.084756
2.629121  0.164183  0.157835  0.093119
2.719780  0.162778  0.165261  0.101050
2.810440  0.161379  0.172746  0.108525
2.901099  0.159986  0.180290  0.115574
2.991758  0.158599  0.187892  0.122245
3.082418  0.157218  0.195552  0.128590
3.173077  0.155844  0.203272  0.134667
3.250000  0.154475  0.228670  0.227491
END FTABLE  2
FTABLE      1
 57    5
   Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
    (ft)   (acres) (acre-ft)   (cfs)     (cfs)   (ft/sec)    (Minutes)***
0.000000  0.154475  0.000000  0.000000  0.000000
0.090659  0.208902  0.018867  0.000000  0.778811
0.181319  0.210493  0.037878  0.000000  1.002755
0.271978  0.212090  0.057034  0.000000  1.049826
0.362637  0.213694  0.076334  0.000000  1.096897
0.453297  0.215303  0.095781  0.000000  1.143968
0.543956  0.216919  0.115373  0.000000  1.191039
0.634615  0.218540  0.135112  0.000000  1.238110
0.725275  0.220168  0.154999  0.000000  1.285181
0.815934  0.221801  0.175033  0.000000  1.332252
0.906593  0.223441  0.195216  0.000000  1.379323
0.997253  0.225086  0.215547  0.000000  1.426394
1.087912  0.226738  0.236028  0.000000  1.473465
1.178571  0.228396  0.256659  0.000000  1.520536
1.269231  0.230060  0.277441  0.000000  1.567607
1.359890  0.231729  0.298374  0.000000  1.614678
1.450549  0.233405  0.319458  0.000000  1.661749
1.541209  0.235087  0.340695  0.047934  1.708820
1.631868  0.236775  0.362084  0.254256  1.755891
1.722527  0.238469  0.383627  0.430839  1.802962
1.813187  0.240169  0.405323  0.517161  1.850033
1.903846  0.241875  0.427174  0.587262  1.897104
1.994505  0.243587  0.449180  0.649844  1.944174
2.085165  0.245305  0.471341  0.706908  1.991245
2.175824  0.247029  0.493659  0.759697  2.038316
2.266484  0.248759  0.516133  0.809050  2.085387
2.357143  0.250496  0.538764  0.855560  2.132458
2.447802  0.252238  0.561552  0.899669  2.179529
2.538462  0.253986  0.584499  0.941714  2.226600
2.629121  0.255741  0.607605  0.981960  2.273671
2.719780  0.257501  0.630870  1.020621  2.320742
2.810440  0.259267  0.654295  1.057870  2.367813
2.901099  0.261040  0.677881  1.093851  2.414884
2.991758  0.262818  0.701627  1.128686  2.461955
3.082418  0.264603  0.725535  1.162477  2.509026
3.173077  0.266393  0.749605  1.195313  2.556097
3.263736  0.268190  0.773837  1.227271  2.603168
3.354396  0.269993  0.798233  1.258418  2.650239
3.445055  0.271801  0.822792  1.288812  2.697310
3.535714  0.273616  0.847516  1.318506  2.744381
```

```
  3.626374  0.275437  0.872404  1.347546  2.791452
  3.717033  0.277264  0.897458  1.375973  2.838523
  3.807692  0.279096  0.922677  1.403824  2.885594
  3.898352  0.280935  0.948063  1.431134  2.932665
  3.989011  0.282780  0.973616  1.457932  2.979736
  4.079670  0.284631  0.999337  1.484246  3.026807
  4.170330  0.286488  1.025226  1.510102  3.073878
  4.260989  0.288351  1.051283  1.535522  3.120949
  4.351648  0.290220  1.077509  1.560529  3.168020
  4.442308  0.292095  1.103905  1.585141  3.215091
  4.532967  0.293976  1.130472  1.609376  3.262162
  4.623626  0.295863  1.157209  1.633252  3.309233
  4.714286  0.297757  1.184118  1.656784  3.356304
  4.804945  0.299656  1.211198  1.679987  3.403375
  4.895604  0.301561  1.238451  1.702873  3.450446
  4.986264  0.303473  1.265877  1.725456  3.497517
  5.000000  0.303763  1.270048  1.747747  3.504649
  END FTABLE  1
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      1 EVAP     ENGL    0.5            RCHRES   1     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.7            RCHRES   2     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   1001 STAG     ENGL      REPL
RCHRES   1 HYDR   STAGE  1 1        1      WDM   1002 STAG     ENGL      REPL
RCHRES   1 HYDR   O      1 1        1      WDM   1003 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
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:   341   6

DATE/TIME: 1966/12/ 5  9: 0

RCHRES:     1

The volume of water in this reach/mixed reservoir is greater than the value
in the "volume" column of the last row of RCHTAB().  To continue the
simulation the table has been extrapolated, based on information contained
in the last two rows.  This will usually result in some loss of accuracy.
If depth is being calculated it will also cause an error condition.
Relevant data are:

NROWS         V1         V2        VOL
57 5.5142E+04 5.5323E+04 5.6400E+04
```

```
ERROR/WARNING ID:   341   5

DATE/TIME: 1966/12/ 5  9: 0

RCHRES:     1

Calculation of relative depth, using Newton's method of successive
approximations, converged to an invalid value (not in range 0.0 to 1.0).
Probably ftable was extrapolated.  If extrapolation was small, no problem.
Remedy; extend ftable.  Relevant data are:

A          B          C      RDEP1      RDEP2  COUNT
1.2632E+01 2.6439E+04 -1.832E+05    6.9082  6.9082E+00      3
```

```
ERROR/WARNING ID:   341   6

DATE/TIME: 1966/12/ 5 10: 0

RCHRES:     1

The volume of water in this reach/mixed reservoir is greater than the value
in the "volume" column of the last row of RCHTAB().  To continue the
simulation the table has been extrapolated, based on information contained
in the last two rows.  This will usually result in some loss of accuracy.
If depth is being calculated it will also cause an error condition.
Relevant data are:

NROWS         V1         V2        VOL
57 5.5142E+04 5.5323E+04 6.1692E+04
```

```
ERROR/WARNING ID:   341   5

DATE/TIME: 1966/12/ 5 10: 0

RCHRES:     1

Calculation of relative depth, using Newton's method of successive
approximations, converged to an invalid value (not in range 0.0 to 1.0).
Probably ftable was extrapolated.  If extrapolation was small, no problem.
Remedy; extend ftable.  Relevant data are:

A          B          C      RDEP1      RDEP2  COUNT
1.2632E+01 2.6439E+04 -9.536E+05   35.468     35.468        3
```

```
ERROR/WARNING ID:   341   6

DATE/TIME: 1966/12/ 5 11: 0

RCHRES:     1
```

The volume of water in this reach/mixed reservoir is greater than the value
in the "volume" column of the last row of RCHTAB(). To continue the
simulation the table has been extrapolated, based on information contained
in the last two rows. This will usually result in some loss of accuracy.
If depth is being calculated it will also cause an error condition.
Relevant data are:

NROWS	V1	V2	VOL
57	5.5142E+04	5.5323E+04	6.0555E+04

ERROR/WARNING ID: 341   5

DATE/TIME: 1966/12/ 5 11: 0

RCHRES: 1

Calculation of relative depth, using Newton's method of successive
approximations, converged to an invalid value (not in range 0.0 to 1.0).
Probably ftable was extrapolated. If extrapolation was small, no problem.
Remedy; extend ftable. Relevant data are:

A	B	C	RDEP1	RDEP2	COUNT
1.2632E+01	2.6439E+04	-7.881E+05	29.397	29.397	3

ERROR/WARNING ID: 341   6

DATE/TIME: 1966/12/ 5 12: 0

RCHRES: 1

The volume of water in this reach/mixed reservoir is greater than the value
in the "volume" column of the last row of RCHTAB(). To continue the
simulation the table has been extrapolated, based on information contained
in the last two rows. This will usually result in some loss of accuracy.
If depth is being calculated it will also cause an error condition.
Relevant data are:

NROWS	V1	V2	VOL
57	5.5142E+04	5.5323E+04	5.9741E+04

ERROR/WARNING ID: 341   5

DATE/TIME: 1966/12/ 5 12: 0

RCHRES: 1

Calculation of relative depth, using Newton's method of successive
approximations, converged to an invalid value (not in range 0.0 to 1.0).
Probably ftable was extrapolated. If extrapolation was small, no problem.
Remedy; extend ftable. Relevant data are:

A	B	C	RDEP1	RDEP2	COUNT
1.2632E+01	2.6439E+04	-6.696E+05	25.026	2.5026E+01	3

ERROR/WARNING ID: 341   6

DATE/TIME: 1966/12/ 5 13: 0

RCHRES: 1

The volume of water in this reach/mixed reservoir is greater than the value
in the "volume" column of the last row of RCHTAB(). To continue the
simulation the table has been extrapolated, based on information contained
in the last two rows. This will usually result in some loss of accuracy.
If depth is being calculated it will also cause an error condition.
Relevant data are:

NROWS	V1	V2	VOL
57	5.5142E+04	5.5323E+04	5.9214E+04

ERROR/WARNING ID: 341   5

DATE/TIME: 1966/12/ 5 13: 0

RCHRES: 1

Calculation of relative depth, using Newton's method of successive
approximations, converged to an invalid value (not in range 0.0 to 1.0).
Probably ftable was extrapolated. If extrapolation was small, no problem.
Remedy; extend ftable. Relevant data are:

A	B	C	RDEP1	RDEP2	COUNT
1.2632E+01	2.6439E+04	-5.929E+05	22.189	2.2189E+01	3

ERROR/WARNING ID: 341   6

DATE/TIME: 1966/12/ 5 14: 0

RCHRES: 1

The volume of water in this reach/mixed reservoir is greater than the value
in the "volume" column of the last row of RCHTAB(). To continue the
simulation the table has been extrapolated, based on information contained
in the last two rows. This will usually result in some loss of accuracy.
If depth is being calculated it will also cause an error condition.
Relevant data are:

NROWS	V1	V2	VOL
57	5.5142E+04	5.5323E+04	5.6666E+04

ERROR/WARNING ID: 341   5

DATE/TIME: 1966/12/ 5 14: 0

RCHRES: 1

Calculation of relative depth, using Newton's method of successive
approximations, converged to an invalid value (not in range 0.0 to 1.0).
Probably ftable was extrapolated. If extrapolation was small, no problem.
Remedy; extend ftable. Relevant data are:

A	B	C	RDEP1	RDEP2	COUNT
1.2632E+01	2.6439E+04	-2.219E+05	8.3581	8.3581E+00	3

ERROR/WARNING ID: 341   6

DATE/TIME: 1966/12/ 5 16: 0

RCHRES: 1

The volume of water in this reach/mixed reservoir is greater than the value
in the "volume" column of the last row of RCHTAB(). To continue the
simulation the table has been extrapolated, based on information contained
in the last two rows. This will usually result in some loss of accuracy.
If depth is being calculated it will also cause an error condition.
Relevant data are:

NROWS	V1	V2	VOL
57	5.5142E+04	5.5323E+04	5.5984E+04

ERROR/WARNING ID: 341   5

DATE/TIME: 1966/12/ 5 16: 0

RCHRES: 1

Calculation of relative depth, using Newton's method of successive
approximations, converged to an invalid value (not in range 0.0 to 1.0).

Probably ftable was extrapolated. If extrapolation was small, no problem.
Remedy; extend ftable. Relevant data are:

A	B	C	RDEP1	RDEP2	COUNT
1.2632E+01	2.6439E+04	-1.226E+05	4.6285	4.6285	3

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Drawdown Time for Biofiltration Basins (BF-2) (Pasqual Heights)

BMP #1

Aggregate storage above underdrain invert (H) = 24 inch (from hydromodification analysis)
BMP Area (A) = 7,401 sf (from hydromodification analysis)

Orifice D :	2	inch	……	(from hydromodification analysis)
Q :	0.148	cfs	……	Q = Cd . A . {2g (H-D/2}^0.5

Effective Media Infiltration Rate:

f_{eq} = Q/A (=Ft^3/Sec * 1/Ft^2 *3,600 Sec/hr * 12 in/Ft)

***f_{eq} =** **0.86** in/hr (5"/hr for no outlet control)

BMP Parameters

1	Surface Ponding [6 inch minimum, 18 inch maximum]	18.0	inches
2	Media Thickness [18 inches minimum]. Also add 3" mulch layer	**21.0**	inches
3	Aggregate storage above underdrain	24	inches
4	Freely drained pore storage	0.2	in/in
**5	Estimated Drawdown of surface storage (=[1]/[5])	***20.9***	***hrs***

8.2 Hydromodification Management Points of Compliance

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

POC name or #	Channel name or #	POC Description
#1 (node 103 in drainage study)	#1	Existing 30" SD pipe leaving site Southerly

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/

9.3 Resource Protection Ordinance (RPO) Methods (BMPDM Appendix H.1.1.1)

- Either of two Resource Protection Ordinance (RPO) methods may also be used to demonstrate compliance with CCSYA requirements. Select either option and document the selection below:

  ☐ **RPO Scenario 1: PDP is subject to and in compliance with RPO requirements**[5]

  - **Select** if the project requires one or more discretionary permits;
  - **Demonstrate** that onsite AND upstream offsite CCSYAs will be avoided and/or bypassed.

  ☒ **RPO Scenario 2: PDP is entirely exempt/not subject to RPO requirements**[6]

  - **Select** if the project does not require discretionary permits;
  - **Demonstrate** that all upstream offsite CCSYAs will be bypassed[7].

A. Mapping Results -- At a minimum, show as applicable: (1) the project footprint, (2) areas of proposed development, (3) locations of onsite and upstream offsite CCSYAs, and (4) bypass of all identified CCSYAs.
This project does not have slopes greater than 25% and over 50' in height. All run-on from offsite is bypassed around the site. Please see included Slope Analysis exhibit, attachment 9.

[5] RPO applicability is normally confirmed during discretionary review. Check with your project manager if you're not sure of your status.
[6] Does not include PDPs utilizing exemption(s) via RPO Section 86.604(e)(2)(cc) or 86.604(e)(3).
[7] This scenario does not impose requirements for onsite CCSYAs.

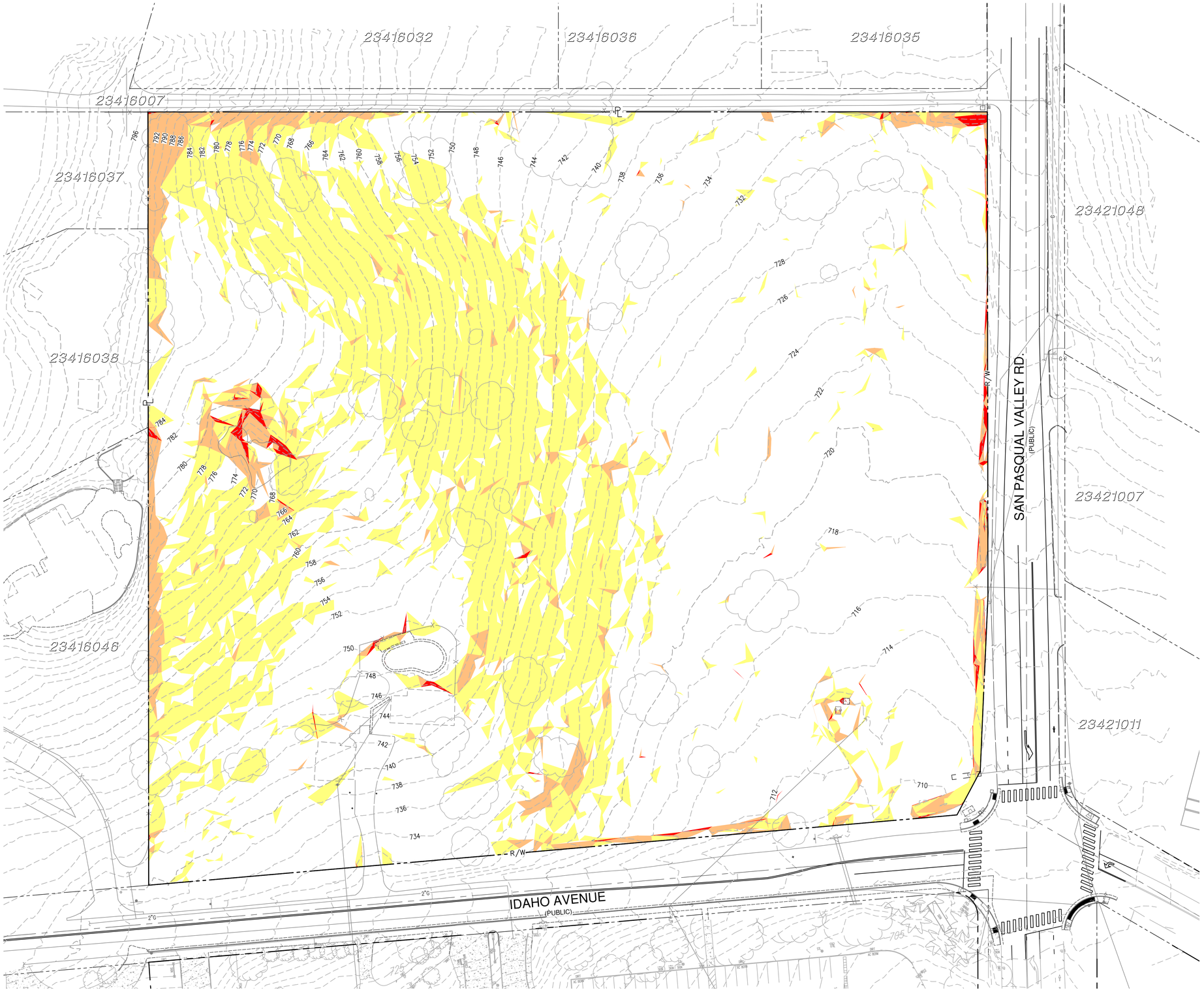
B. Explanation -- Provide documentation as needed to demonstrate that (1) onsite CCSYAs are avoided and bypassed [if applicable], and (2) upstream offsite CCYSAs are effectively bypassed. Add pages as necessary.

This project does not have slopes greater than 25% and over 50' in height.

All run-on from offsite is bypassed around the site.

Please see included Slope Analysis exhibit, attachment 9.

SLOPE ANALYSIS FOR
PASQUAL HEIGHTS

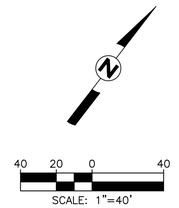


DENSITY FORMULA

THIS PROPERTY IS NOT LOCATED WITHIN ANY OF THE FIVE SLOPE DEPENDENT RURAL LAND DESIGNATIONS, THEREFORE DENSITY CALCULATIONS ARE NOT REQUIRED.

SLOPE ANALYSIS			
COLOR	MIN SLOPE (%)	MAX SLOPE (%)	AREA (AC)
	0%	15%	7.17
	15%	25%	2.77
	25%	50%	0.41
	50%	100%	0.04

VICINITY MAP



EXISTING SLOPE ANALYSIS

PASQUAL HEIGHTS

PDS2024-TM-5657
PDS2025-DB-25-00
E25-0046/47 (C.O.E.)

PREPARED BY:

TOUCHSTONE DEVELOPMENT

PROJECT ADDRESS
830 IDAHO AVE, ESCONDIDO CA 92025

ASSESSOR'S PARCEL NO:
234-160-25

OWNER/APPLICANT:
TOUCHTONE COMMUNITIES
KERRY GARZA
9815 MIRA MESA BLVD.
SAN DIEGO, CA 92131
858-204-1342

PROJECT DESCRIPTION
42 SINGLE FAMILY HOMES

NO.	DATE	REVISIONS
1	11/2024	1ST SUBMITTAL
2	02/2025	UPDATE
3	07/2025	2ND SUBMITTAL
4	10/2025	3RD SUBMITTAL
5	01/2026	FINAL SUBMITTAL

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

PART 1 PROJECT INFORMATION

A. Project Summary Information	
Project Name	Pasqual Heights
Record ID (e.g. grading/improvement plan number, building permit)	PDS-IC-24-053
Project Address	830 IDAHO AVE, ESCONDIDO CA, 92025
Assessor's Parcel Number(s) APN(s)	234-160-25
Project Watershed (Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	San Dieguito Watershed 905, Hodges 905.2, Hydrologic Unit sub area 905.24
B. Owner Information	
Name	Kerry Garza
Address	9815 Mira Mesa Blvd
Email Address	kerry@touchstonecommunities.com
Phone Number	858-344-1556

COUNTY – OFFICIAL USE ONLY	
INTAKE ID#	
ACCEPTANCE ID#	

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

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

DMA #	APN or Lot #	BMP ID #	WPP Acceptance Date (If applicable)	WPP Acceptance ID# (If applicable, e.g. 20/21-001)
1	OS Lot C	BMP#1 (BF-2)		
2	Idaho Avenue	BMP#2 (BF-3) (Filterra)		

PART 2 BMP INVENTORY INFORMATION

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

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

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

PART 3 REQUIRED ATTACHMENTS

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

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

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

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

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

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

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

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

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

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

PART 4 PREPARER'S CERTIFICATION

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

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

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

Preparer's Name:	
Email Address:	
Phone Number:	
Preparer's Signature:	
Date:	

[SEAL]

PROJECT RECORD ID: _____

COUNTY - OFFICIAL USE ONLY

County Inspector Approval:

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

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

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

Inspector Name: _____

Inspector's Signature: _____ Date: _____

DPW Watershed Protection Program (WPP) Acceptance:

Date Received: _____

WPP Reviewer: _____

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

WPP Reviewer's Signature: _____ Date: _____

Enter Acceptance ID# on page 1.

NOTES:

11.0 Cover Sheet and General Requirements

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

a. Applicability of Maintenance Agreements

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

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

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

CATEGORY 1 MAINTENANCE AGREEMENTS ARE RECORDED PRIOR TO OCCUPANCY.

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

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

CATEGORY 2 MAINTENANCE AGREEMENTS ARE RECORDED PRIOR TO PERMIT ISSUANCE.

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

b. Maintenance Plan Requirements

Maintenance plans should include the following:

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

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

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

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

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

☒ Recommended **equipment** to perform maintenance.

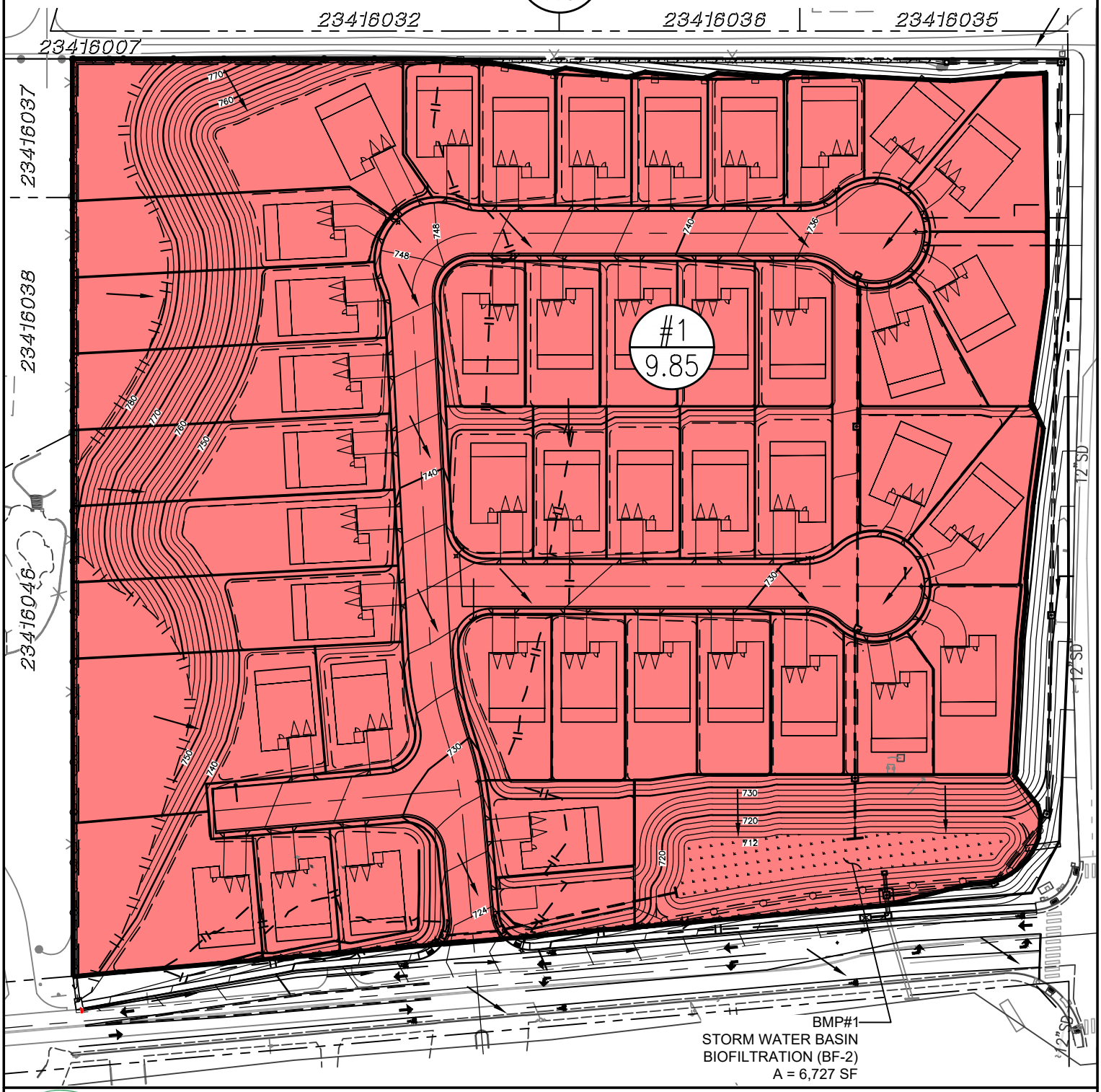
☒ When applicable, necessary special **training or certification** requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management.

LEGEND

ITEMS	SYMBOL
DMA BOUNDARY AREA	
BIOFILTRATION BMP AREA	
BASIN INDENTIFIER/AREA (ACRES)	1 / 1.0

100 50 0 100

SCALE: 1"=100'



TOUCHSTONE DEVELOPMENT

BMP #1 -- BIOFILTRATION BASIN (BF-2)

LEGEND

ITEMS	SYMBOL
DMA BOUNDARY AREA	
BIOFILTRATION BMP AREA	
BASIN INDENTIFIER/AREA (ACRES)	1 / 1.0

100 50 0 100

SCALE: 1"=100'

TOUCHSTONE DEVELOPMENT

BMP #2 -- PROPRIETARY BIO-FILTRATION (BF-3)

Attachment 3a

Maintenance Indicators and Actions

Maintenance shall be per "Summary of Standard Inspection and Maintenance for BF-2 Biofiltration" provided in the following sheet.

Accessibility to Structural BMPs

Maintenance crews to access the biolfiltration basins in outdoor courtyard and street level.

Inspection Facilitation Features

Cleanouts at the upstream end of the biofiltration basins and Area Drains at the downstream end are provided for each biofiltration basin.

Responsible Party for Maintenance and Funding Mechanism

Structural BMPs will be the responsibility of the developer up until a Homeowner Association is established. The Homeowner Association will charge homeowners a monthly fee for the upkeep of the project which includes maintenance of the Structural BMPs.

BMP MAINTENANCE PROGRAM

BF-2

	PROPOSED OPERATION AND MAINTENANCE PROCEDURE DETAILS (TREATMENT CONTROL BMPs)				
	O&M RESPONSIBLE PARTY DESIGNEE : HOA				
	ROUTINE ACTION	**MAINTENANCE INDICATOR**	**FIELD MEASUREMENT**	**MEASUREMENT FREQUENCY**	**MAINTENANCE ACTIVITY**
TC BMP: BIOFILTRATION BASIN	INSPECT FOR STANDING WATER AND DRAINAGE PROBLEMS	WHEN WATER STANDS BETWEEN STORM AND REMAINS ON THE SURFACE MORE THAN 48 HRS AFTER A STORM	VISUAL	BIANNUALLY	CHECK FOR CLOGGED OR SLOW-DRAINING FILTER MEDIA, A CRUST FORMED ON THE TOP LAYER, OR OTHER CAUSES OF INSUFFICIENT FILTERING TIME AND RESTORE PROPER FILTRATION CHARACTERISTICS. REMOVE SEDIMENT OR TRASH BLOCKAGE, OR ADD UNDERDRAIN IF NECESSARY
	INSPECT FOR VEGETATION	DEAD, DISEASED AND/OR OVERGROWN VEGETATION	VISUAL	BIANNUALLY	REMOVE AND REPLACE THE DEAD & DISEASED PLANTS WITH HEALTHY PLANTS. TRIM AND PURNE EXCESS VEGETATION
	INSPECT FOR MULCH	MULCH IS MISSING OR PATCHY IN APPEARANCE	VISUAL	BIANNUALLY	RE-MULCH ANY VOID AREAS, MAKE SURE MULCH IS EVEN IN APPEARANCE AT A DEPTH OF 3 INCHES. ADD FRESH MULCH LAYER EVERY 6 MONTHS. ONCE EVERY 2 TO 3 YEARS REMOVE OLD MULCH LAYER BEFORE APPLYING NEW ONE.

POST-CONSTRUCTION PERMANENT BMPs	PROPOSED OPERATION AND MAINTENANCE PROCEDURE DETAILS (LID/SITE DESIGN AND SOURCE CONTROL BMPs)				
	O&M RESPONSIBLE PARTY DESIGNEE : HOA				
	ROUTINE ACTION	**MAINTENANCE INDICATOR**	**FIELD MEASUREMENT**	**MEASUREMENT FREQUENCY**	**MAINTENANCE ACTIVITY**
LID/SITE DESIGN: - LANDSCAPE/PLANTER AREA	REFUSE/TRASH PICK-UP, FERTILIZING	TRASH, TALL GRASS, WEEDS, DEAD OR POORLY GROWING LANDSCAPE	VISUAL	BIWEEKLY	REMOVE TRASH & DEAD VEGETATION, REMOVE WEEDS, AND APPLY FERTILIZER
SOURCE CONTROLS:					
- HARDSCAPE SWEEPING	SWEEPING	DIRT ACCUMULATION	VISUAL	MONTHLY	SWEEP PAVED AREAS REGULARLY TO COLLECT LOOSE DUST PARTICLES. WIPE UP SPILLS WITH RAGS AND OTHER ABSORBENT MATERIAL IMMEDIATELY, DO NOT HOSE DOWN THE AREA TO A STORM DRAIN
- STORM DRAIN SYSTEM SIGNAGE	RESIGNAGE/RESTENCILING	ILLEGIBLE SIGNAGE/STENCILING	VISUAL	AS REQUIRED	PROVIDE EMPLOYEE TRAINING, INSPECT/REPAIR STORM DRAIN INLET SIGNAGE/STENCILING FOR LEGIBILITY
- NON-STORM WATER DISCHARGES	PREVENT NON-STORM WATER DISCHARGES	NON-STORM WATER DISCHARGE/RELEASE	VISUAL	AS REQUIRED	PROVIDE EMPLOYEE TRAINING MAINTAIN LEGIBILITY OF STORM DRAIN INLET ISOLATE PROBLEM AREAS AND PLUG ILLEGAL DISCHARGE POINTS . ON PAVED AREAS, CLEAN UP SPILLS WITH AS LITTLE WATER AS POSSIBLE. FOR SMALL SPILLS, USE ABSORBENT MATERIALS RATHER THAN HOSING DOWN SPILL AREAS

BF-2
Biofiltration

BMP MAINTENANCE FACT SHEET
FOR
STRUCTURAL BMP BF-2 **BIOFILTRATION**

Biofiltration facilities are vegetated surface water systems that filter water through vegetation, and soil or engineered media prior to discharge via underdrain or overflow to the downstream conveyance system. Biofiltration facilities have limited or no infiltration. They are typically designed to provide enough hydraulic head to move flows through the underdrain connection to the storm drain system. Typical biofiltration 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 aggregate storage layer
- Aggregate storage layer with underdrain(s)
- Impermeable liner or uncompacted native soils at the bottom of the facility
- Overflow structure

Normal Expected Maintenance

Biofiltration 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, underdrain, or outlet structure. The specific cause of the drainage issue must be determined and corrected.
- 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.

BF-2
Biofiltration

Other Special Considerations

Biofiltration 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**.

BF-2
Biofiltration

SUMMARY OF STANDARD INSPECTION AND MAINTENANCE FOR BF-1 BIOFILTRATION		
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 BF-1 BIOFILTRATION (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, clearing underdrains, 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	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 due to release rates controlled by an orifice installed on the underdrain, 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.
Underdrain clogged	Clear blockage.	• Inspect if standing water is observed for longer than 24-96 hours following a 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 BF-1.
http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=250&Itemid=220

BF-2
Biofiltration

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 BF-1 BIOFILTRATION 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).

BF-2
Biofiltration

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

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION 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 BF-1 BIOFILTRATION 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:		

BF-2
Biofiltration

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

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION 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:		
Underdrain clogged (inspect underdrain if standing water is observed for longer than 24-96 hours following a storm event) 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:		

BF-2
Biofiltration

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

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 5 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Standing water in BMP for longer than 24-96 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, clearing underdrains, 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 mosquitos persist following corrective measures to remove standing water, or if the BMP design does not meet the 96-hour drawdown criteria due to release rates controlled by an orifice installed on the underdrain, 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.

Filterra Owner's Manual

filterra®

Bioretention Systems

CONTECH®

ENGINEERED SOLUTIONS

filterra®
Bioretention Systems

Table of Contents

Enclosed

Local Area Filterra Plant List

CONTECH®
ENGINEERED SOLUTIONS

Introduction

Thank you for your purchase of the Filterra® Bioretention System. Filterra is a specially engineered stormwater treatment system incorporating high performance biofiltration media to remove pollutants from stormwater runoff. The system's biota (vegetation and soil microorganisms) then further breakdown and absorb captured pollutants. All components of the system work together to provide a sustainable long-term solution for treating stormwater runoff.

The Filterra system has been delivered to you with protection in place to resist intrusion of construction related sediment which can contaminate the biofiltration media and result in inadequate system performance. These protection devices are intended as a best practice and cannot fully prevent contamination. It is the purchaser's responsibility to provide adequate measures to prevent construction related runoff from entering the Filterra system.

Included with your purchase is Activation of the Filterra system by the manufacturer as well as a 1-year warranty from delivery of the system and 1-year of routine maintenance (mulch replacement, debris removal, and pruning of vegetation) up to twice during the first year after activation.

Design and Installation

Each project presents different scopes for the use of Filterra systems. Information and help may be provided to the design engineer during the planning process. Correct Filterra box sizing (by rainfall region) is essential to predict pollutant removal rates for a given area. The engineer shall submit calculations for approval by the local jurisdiction. The contractor is responsible for the correct installation of Filterra units as shown in approved plans. A comprehensive installation manual is available at www.ContechES.com.

Activation Overview

Activation of the Filterra system is a procedure completed by the manufacturer to place the system into working condition. This involves the following items:

- Removal of construction runoff protection devices
- Planting of the system's vegetation
- Placement of pretreatment mulch layer using mulch certified for use in Filterra systems.

Activation MUST be provided by the manufacturer to ensure proper site conditions are met for Activation, proper installation of the vegetation, and use of pretreatment mulch certified for use in Filterra systems.

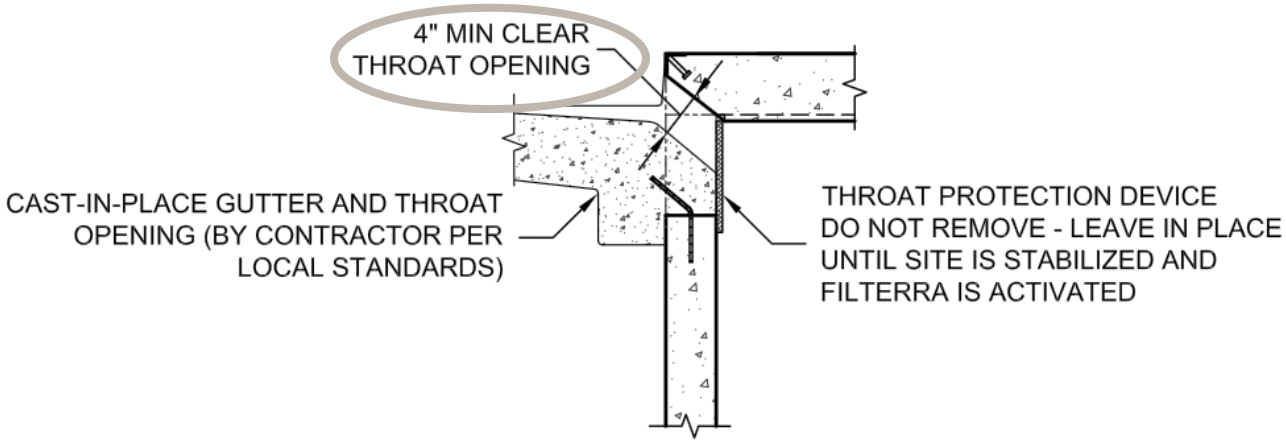
Minimum Requirements

The minimum requirements for Filterra Activation are as follows:

1. The site landscaping must be fully stabilized, i.e. full landscaping installed and some grass cover (not just straw and seed) is required to reduce sediment transport. Construction debris and materials should be removed from surrounding area.

2. Final paving must be completed. Final paving ensures that paving materials will not enter and contaminate the Filterra system during the paving process, and that the plant will receive runoff from the drainage area, assisting with plant survival for the Filterra system.

3. Filterra throat opening should be at least 4" in order to ensure adequate capacity for inflow and debris.



An Activation Checklist is included on page 12 to ensure proper conditions are met for Contech to perform the Activation services. A charge of $500.00 will be invoiced for each Activation visit requested by Customer where Contech determines that the site does not meet the conditions required for Activation.

Filterra Plant Selection Overview

A Plant List has been enclosed with this packet highlighting recommended plants for Filterra systems in your area. Keep in mind that plants are subject to availability due to seasonality and required minimum size for the Filterra system. Plants installed in the Filterra system are container plants (max 15 gallon) from nursery stock and will be immature in height and spread at Activation.

It is the responsibility of the owner to provide adequate irrigation when necessary to the plant of the Filterra system.

The "Planting Requirements for Filterra Systems" document is included as an appendix and discusses proper selection and care of the plants within Filterra systems.

Warranty Overview

Refer to the Contech Engineered Solutions LLC Stormwater Treatment System LIMITED WARRANTY for further information. The following conditions may void the Filterra system's warranty and waive the manufacturer provided Activation and Maintenance services:

- Unauthorized activation or performance of any of the items listed in the activation overview
- Any tampering, modifications or damage to the Filterra system or runoff protection devices
- Removal of any Filterra system components
- Failure to prevent construction related runoff from entering the Filterra system
- Failure to properly store and protect any Filterra components (including media and underdrain stone) that may be shipped separately from the vault

Routine Maintenance Guidelines

With proper routine maintenance, the biofiltration media within the Filterra system should last as long as traditional bioretention media. Routine maintenance is included by the manufacturer on all Filterra systems for the first year after activation. This includes a maximum of 2 visits to remove debris, replace pretreatment mulch, and prune the vegetation. More information is provided in the Operations and Maintenance Guidelines. Some Filterra systems also contain pretreatment or outlet bays. Depending on site pollutant loading, these bays may require periodic removal of debris, however this is not included in the first year of maintenance, and would likely not be required within the first year of operation.

These services, as well as routine maintenance outside of the included first year, can be provided by certified maintenance providers listed on the Contech website. Training can also be provided to other stormwater maintenance or landscape providers.

Why Maintain?

All stormwater treatment systems require maintenance for effective operation. This necessity is often incorporated in your property's permitting process as a legally binding BMP maintenance agreement. Other reasons to maintain are:

- Avoiding legal challenges from your jurisdiction's maintenance enforcement program.
- Prolonging the expected lifespan of your Filterra media.
- Avoiding more costly media replacement.
- Helping reduce pollutant loads leaving your property.

Simple maintenance of the Filterra is required to continue effective pollutant removal from stormwater runoff before discharge into downstream waters. This procedure will also extend the longevity of the living biofilter system. The unit will recycle and accumulate pollutants within the biomass, but is also subjected to other materials entering the inlet. This may include trash, silt and leaves etc. which will be contained above the mulch layer. Too much silt may inhibit the Filterra's flow rate, which is the reason for site stabilization before activation. Regular replacement of the mulch stops accumulation of such sediment.

When to Maintain?

Contech includes a 1-year maintenance plan with each system purchase. Annual included maintenance consists of a maximum of two (2) scheduled visits. Additional maintenance may be necessary depending on sediment and trash loading (by Owner or at additional cost). The start of the maintenance plan begins when the system is activated.

Maintenance visits are scheduled seasonally; the spring visit aims to clean up after winter loads including salts and sands while the fall visit helps the system by removing excessive leaf litter.

It has been found that in regions which receive between 30-50 inches of annual rainfall, (2) two visits are generally required; regions with less rainfall often only require (1) one visit per annum. Varying land uses can affect maintenance frequency; e.g. some fast food restaurants require more frequent trash removal. Contributing drainage areas which are subject to new development wherein the recommended erosion and sediment control measures have not been implemented may require additional maintenance visits.

Some sites may be subjected to extreme sediment or trash loads, requiring more frequent maintenance visits. This is the reason for detailed notes of maintenance actions per unit, helping the Supplier and Owner predict future maintenance frequencies, reflecting individual site conditions.

Owners must promptly notify the (maintenance) Supplier of any damage to the plant(s), which constitute(s) an integral part of the bioretention technology. Owners should also advise other landscape or maintenance contractors to leave all maintenance to the Supplier (i.e. no pruning or fertilizing) during the first year.

Exclusion of Services

Clean up due to major contamination such as oils, chemicals, toxic spills, etc. will result in additional costs and are not covered under the Supplier maintenance contract. Should a major contamination event occur the Owner must block off the outlet pipe of the Filterra (where the cleaned runoff drains to, such as drop inlet) and block off the throat of the Filterra. The Supplier should be informed immediately.

Maintenance Visit Summary

Each maintenance visit consists of the following simple tasks (detailed instructions below).

1. Inspection of Filterra and surrounding area
2. Removal of tree grate and erosion control stones
3. Removal of debris, trash and mulch
4. Mulch replacement
5. Plant health evaluation and pruning or replacement as necessary
6. Clean area around Filterra
7. Complete paperwork

Maintenance Tools, Safety Equipment and Supplies

Ideal tools include: camera, bucket, shovel, broom, pruners, hoe/rake, and tape measure. Appropriate Personal Protective Equipment (PPE) should be used in accordance with local or company procedures. This may include impervious gloves where the type of trash is unknown, high visibility clothing and barricades when working in close proximity to traffic and also safety hats and shoes. A T-Bar or crowbar should be used for moving the tree grates (up to 170 lbs ea.). Most visits require minor trash removal and a full replacement of mulch. See below for actual number of bagged mulch that is required in each media bay size. Mulch should be a double shredded, hardwood variety. Some visits may require additional Filterra engineered soil media available from the Supplier.

Box Length	Box Width	Filter Surface Area (ft^2)	Volume at 3" (ft^3)	# of 2 ft^3 Mulch Bags
4	4	4	4	2
6	4	6	6	3
8	4	8	8	4
6	6	9	9	5
8	6	12	12	6
10	6	15	15	8
12	6	18	18	9
13	7	23	23	12

Maintenance Visit Procedure

Keep sufficient documentation of maintenance actions to predict location specific maintenance frequencies and needs. An example Maintenance Report is included in this manual.

1. Inspection of Filterra and surrounding area

- Record individual unit before maintenance with photograph (numbered). Record on Maintenance Report (see example in this document) the following:

Record on Maintenance Report the following:

Standing Water	yes | no
Damage to Box Structure	yes | no
Damage to Grate	yes | no
Is Bypass Clear	yes | no

If yes answered to any of these observations, record with close-up photograph (numbered).

2. Removal of tree grate and erosion control stones

- Remove cast iron grates for access into Filterra box.
- Dig out silt (if any) and mulch and remove trash & foreign items.

3. Removal of debris, trash and mulch

Record on Maintenance Report the following:

Silt/Clay	yes | no
Cups/ Bags	yes | no
Leaves	yes | no
Buckets Removed	_____

- After removal of mulch and debris, measure distance from the top of the Filterra engineered media soil to the top of the top slab. Compare the measured distance to the distance shown on the approved Contract Drawings for the system. Add Filterra media (not top soil or other) to bring media up as needed to distance indicated on drawings.

Record on Maintenance Report the following:

Distance to Top of Top Slab (inches)	_____
Inches of Media Added	_____

4. Mulch replacement

- Add double shredded mulch evenly across the entire unit to a depth of 3".
- Refer to Filterra Mulch Specifications for information on acceptable sources.
- Ensure correct repositioning of erosion control stones by the Filterra inlet to allow for entry of trash during a storm event.
- Replace Filterra grates correctly using appropriate lifting or moving tools, taking care not to damage the plant.

5. Plant health evaluation and pruning or replacement as necessary

- Examine the plant's health and replace if necessary.
- Prune as necessary to encourage growth in the correct directions

Record on Maintenance Report the following:

Height above Grate	_____ (ft)
Width at Widest Point	_____ (ft)
Health	healthy | unhealthy
Damage to Plant	yes | no
Plant Replaced	yes | no

6. Clean area around Filterra

- Clean area around unit and remove all refuse to be disposed of appropriately.

7. Complete paperwork

- Deliver Maintenance Report and photographs to appropriate location (normally Contech during maintenance contract period).
- Some jurisdictions may require submission of maintenance reports in accordance with approvals. It is the responsibility of the Owner to comply with local regulations.

Maintenance Checklist

Drainage System Failure	Problem	Conditions to Check	Condition that Should Exist	Actions
Inlet	Excessive sediment or trash accumulation.	Accumulated sediments or trash impair free flow of water into Filterra.	Inlet should be free of obstructions allowing free distributed flow of water into Filterra.	Sediments and/or trash should be removed.
Mulch Cover	Trash and floatable debris accumulation.	Excessive trash and/or debris accumulation.	Minimal trash or other debris on mulch cover.	Trash and debris should be removed and mulch cover raked level. Ensure bark nugget mulch is not used.
Mulch Cover	"Ponding" of water on mulch cover.	"Ponding" in unit could be indicative of clogging due to excessive fine sediment accumulation or spill of petroleum oils.	Stormwater should drain freely and evenly through mulch cover.	Recommend contact manufacturer and replace mulch as a minimum.
Vegetation	Plants not growing or in poor condition.	Soil/mulch too wet, evidence of spill. Incorrect plant selection. Pest infestation. Vandalism to plants.	Plants should be healthy and pest free.	Contact manufacturer for advice.
Vegetation	Plant growth excessive.	Plants should be appropriate to the species and location of Filterra.		Trim/prune plants in accordance with typical landscaping and safety needs.
Structure	Structure has visible cracks.	Cracks wider than 1/2 inch or evidence of soil particles entering the structure through the cracks.		Vault should be repaired.
Maintenance is ideally to be performed twice annually.				

Filterra Inspection & Maintenance Log

Filterra System Size/Model:_____ **Location:** _____

Date	Mulch & Debris Removed	Depth of Mulch Added	Mulch Brand	Height of Vegetation Above Grate	Vegetation Species	Issues with System	Comments
1/1/17	*5 – 5 gal Buckets*	*3″*	*Lowe's Premium Brown Mulch*	*4′*	*Galaxy Magnolia*	*- Standing water in downstream structure*	*- Removed blockage in downstream structure*

Appendix 1 – Filterra® Activation Checklist

CONTECH ENGINEERED SOLUTIONS

Project Name:______________________________Company:______________________________

Site Contact Name: ______________________________ Site Contact Phone/Email: ____________________

Site Owner/End User Name:____________________Site Owner/End User Phone/Email: ____________________

Preferred Activation Date: ____________________(provide 2 weeks minimum from date this form is submitted)

Site Designation	System Size	Final Pavement / Top Coat Complete	Landscaping Complete / Grass Emerging	Construction materials / Piles / Debris Removed	Throat Opening Measures 4" Min. Height	Plant Species Requested
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	

Attach additional sheets as necessary.

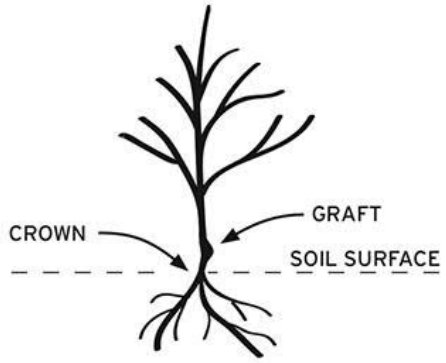
NOTE: A charge of $500.00 will be invoiced for each Activation visit requested by Customer where Contech determines that the site does not meet the conditions required for Activation. ONLY Contech authorized representatives can perform Activation of Filterra systems; unauthorized Activations will void the system warranty and waive manufacturer supplied Activation and 1st Year Maintenance.

____ ______________________

Signature Date

Appendix 2 – Planting Requirements for Filterra® Systems

Plant Material Selection



- Select plant(s) as specified in the engineering plans and specifications.
- Select plant(s) with full root development but not to the point where root bound.
- Use local nursery container plants only. Ball and burlapped plants are not permitted.
- For precast Filterra systems with a tree grate, plant(s) must not have scaffold limbs at least 14 inches from the crown due to spacing between the top of the mulch and the tree grate. Lower branches can be pruned away provided there are sufficient scaffold branches for tree or shrub development.
- For precast Filterra systems with a tree grate, at the time of installation, it is required that plant(s) must be at least 6" above the tree grate opening at installation for all Filterra configurations. This DOES NOT apply to Full Grate Cover designs.
- Plant(s) shall not have a mature height greater than 25 feet.
- For standard 21" media depth, a 7 – 15 gallon container size shall be used. Media less than 21" (Filterra boxes only) will require smaller container plants.
- For precast Filterra systems, plant(s) should have a single trunk at installation, and pruning may be necessary at activation and maintenance for some of the faster growing species, or species known to produce basal sprouts.

Plant Installation

- During transport protect the plant leaves from wind and excessive jostling.
- Prior to removing the plant(s) from the container, ensure the soil moisture is sufficient to maintain the integrity of the root ball. If needed, pre-wet the container plant.
- Cut away any roots which are growing out of the container drain holes. Plants with excessive root growth from the drain holes should be rejected.
- Plant(s) should be carefully removed from the pot by gently pounding on the sides of the container with the fist to loosen root ball. Then carefully slide out. Do not lift plant(s) by trunk as this can break roots and cause soil to fall off. Extract the root ball in a horizontal position and support it to prevent it from breaking apart. Alternatively the pot can be cut away to minimize root ball disturbance.
- Remove any excess soil from above the root flare after removing plant(s) from container.
- Excavate a hole with a diameter 4" greater than the root ball, gently place the plant(s).
- If plant(s) have any circling roots from being pot bound, gently tease them loose without breaking them.
- If root ball has a root mat on the bottom, it should be shaved off with a knife just above the mat line.
- Plant the tree/shrub/grass with the top of the root ball 1" above surrounding media to allow for settling.
- All plants should have the main stem centered in the tree grate (where applicable) upon completion of installation.
- With all trees/shrubs, remove dead, diseased, crossed/rubbing, sharply crotched branches or branches growing excessively long or in wrong direction compared to majority of branches.
- To prevent transplant shock (especially if planting takes place in the hot season), it may be necessary to prune some of the foliage to compensate for reduced root uptake capacity. This is accomplished by pruning away some of the smaller secondary branches or a main scaffold branch if there are too many. Too much foliage relative to the root ball can dehydrate and damage the plant.
- Plant staking may be required.

Mulch Installation

- Only mulch that has been meeting Contech Engineered Solutions' mulch specifications can be used in the Filterra system.
- Mulch must be applied to a depth of 3" evenly over the surface of the media.

Irrigation Requirements

- Each Filterra system must receive adequate irrigation to ensure survival of the living system during periods of drier weather.
- Irrigation sources include rainfall runoff from downspouts and/or gutter flow, applied water through the tree grate or in some cases from an irrigation system with emitters installed during construction.
- At Activation: Apply about one (cool climates) to two (warm climates) gallons of water per inch of trunk diameter over the root ball.
- During Establishment: In common with all plants, each Filterra plant will require more frequent watering during the establishment period. One inch of applied water per week for the first three months is recommended for cooler climates (2 to 3 inches for warmer climates). If the system is receiving rainfall runoff from the drainage area, then irrigation may not be needed. Inspection of the soil moisture content can be evaluated by gently brushing aside the mulch layer and feeling the soil. Be sure to replace the mulch when the assessment is complete. Irrigate as needed**.
- Established Plants: Established plants have fully developed root systems and can access the entire water column in the media. Therefore irrigation is less frequent but requires more applied water when performed. For a mature system assume 3.5 inches of available water within the media matrix. Irrigation demand can be estimated as 1" of irrigation demand per week. Therefore if dry periods exceed 3 weeks, irrigation may be required. It is also important to recognize that plants which are exposed to windy areas and reflected heat from paved surfaces may need more frequent irrigation. Long term care should develop a history which is more site specific.

** Five gallons per square yard approximates 1 inch of water Therefore for a 6' by 6' Filterra approximately 20-60 gallons of water is needed. To ensure even distribution of water it needs to be evenly sprinkled over the entire surface of the filter bed, with special attention to make sure the root ball is completely wetted. NOTE: if needed, measure the time it takes to fill a five gallon bucket to estimate the applied water flow rate then calculate the time needed to irrigate the Filterra. For example, if the flow rate of the sprinkler is 5 gallons/minute then it would take 12 minutes to irrigate a 6' by 6' filter.

Notes

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