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: | Spring Valley Retail Center |
| Record ID (Permit) No(s): | PDS2019-STP-97-050W3 |
| Assessor's Parcel No(s): | 584-511-016, 584-511-019 |
| Street Address (or Intersection): | NEC of Sweetwater Road and St. George Street, Jamacha & Sweetwater Rd |
| City, State, Zip: | Spring Valley, CA 91977 |

| **Part 2. Applicant / Project Proponent Information** | |
|---|---|
| Name: | Brett Feuerstein |
| Company: | Mesa Centers |
| Street Address: | 9294 Mira Mesa Blvd |
| City, State, Zip: | San Diego, CA 92126 |
| Phone Number | (858) 271-4682 |
| Email: | brett@mesacenters.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)** |
|---|---|---|---|
| | 804,979 | 70,242 | 83,714 |

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

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

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

## Part 4. Priority Classification & SWQMP Form Selection

| (A) *If your project is the following … (select one)* | (B) *You must complete …* |
|---|---|
| ☐ **Standard Project**<br>☐ a. Project is East of the Pacific/Salton Sea Divide<br>☐ b. None of the PDP criteria below applies | ➔ **Standard *SWQMP Form*** |
| ☒ **Priority Development Project (PDP)**<br>☐ 1. Project is part of an existing PDP**,** OR<br>☒ 2. Project does any of the following:<br>☒ a. Creates or replaces a total of 10,000 ft² or more of impervious surface<br>☐ 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<br>☐ 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<br>☐ d. Discharges directly to an Environmentally Sensitive Area (ESA) AND creates or replaces 2,500 ft² or more of impervious surface<br>☐ e. Disturbs one or more acres of land (43,560 ft²) and is expected to generate pollutants post-construction<br>☒ 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: 9294 Mira Mesa Blvd San Diego, CA 92126

Date: 1/13/21

- ***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.

# Storm Water Quality Plan Executive Summary
# Spring Valley Retail Center

Prepared by Nolan Huelsman, BWE Inc.
Date: 03/11/2021

## Introduction

Three commercial redevelopment projects are proposed within the Spring Valley Retail Center: Coffee shop, Chick-fil-A, and Building D. Independent Storm Water Quality Management Plans (SWQMPs) and Drainage Studies are prepared for each proposed deployment.

All three developments are considered Priority Development Projects and the cumulative created or replaced impervious surface accounts for less than 50% of the total existing (1.4 AC created/replaced over 15.7 AC = 8.9%).

A combination of Source Control, Site Design, and Structural BMPs are proposed to mitigate impacts of the proposed development. Each design adheres to the requirements of the County of San Diego's BMP manual and provides treatment for the site's Design Capture Volume (DCV) defined as the 85th percentile, 24 hour storm event. A feasibility studies of all retention based BMPs (harvest and use, full and/or partial infiltration) is performed prior to selecting the biofiltration BMPs to comply with the pollutant control requirements. It is determined that the harvest and use of precipitation is infeasible as the site has a low 36-hour water demand (less than 25% of the Design Capture Volume).

See the attached Site Map for locations each of the three proposed developments.

## Building D

Proposed improvements include a commercial use building, walkways, and associated parking areas. Four Biofiltration BMPs are proposed for pollutant control, hydromodification control, and peak flow rate control. The system discharges to Sweetwater Road through a proposed storm drain. A portion of the site is unable to be directed to the proposed BMPs but is offset by existing impervious areas which flow to the proposed BMPs.



9449 Balboa Avenue • Suite 270 • San Diego • CA • 92123
P 619 299 5550 • F 619 299 9934 • www.bwesd.com

## Building F- Chick-fil-A

Proposed improvements include a restaurant building (Chick-fil-A), drive-through, drive-through lane, and associated landscape and parking areas. Offsite runoff is captured by storm drain inlets and discharges to the existing storm drain system in Sweetwater Road. Three biofiltration BMPs are proposed for pollutant control. An underground storage system is proposed downstream of the Biofiltration BMPs and provides hydromodification control for the site.

## Building G - Coffee Shop

Proposed improvements include a coffee shop building, drive-through lane, and associated landscape and parking areas. Offsite runoff bypasses the site via a concrete gutter and discharges to the existing storm drain system in Sweetwater Road. A Biofiltration BMP (BMP #1) is proposed for pollutant control and an underground detention system (BMP #2) provides hydromodification and peak flow rate control for the site. Impervious area dispersion is utilized for pollutant and hydromodification control to offset impervious areas unable to be treated by BMP #1 and BMP #2. Treated stormwater will discharge to Sweetwater Road via a proposed storm drain.

## References


1. Spring Valley Retail Center Building G (Coffee Shop) Storm Water Quality Management Plan (SWQMP), Prepared by BWE Inc
2. Chick-fil-A Inc (Building F) Storm Water Quality Management Plan (SWQMP), Prepared by Joseph C. Truxaw & Associates Inc
3. Spring Valley Retail Center Building D Storm Water Quality Management Plan (SWQMP), Prepared by BWE Inc
4. County of San Diego BMP Design Manual

ST GEORGE COURT

R/W

REFER TO BUILDING D SWQMP
PREPARED BY BWE INC

REFER TO BUILDING G (COFFEE SHOP) SWQMP
PREPARED BY BWE, INC

REFER TO BUILDING F (CHICK-FIL-A) SWQMP
PREPARED BY JOSEPH C. TRUXAW AND ASSOCIATES, INC

REFER TO BUILDING G (COFFEE SHOP) SWQMP
PREPARED BY BWE, INC

PROPOSED
(D) TENANT SPACE "D" (NEW RETAIL/ PHARMACY)

EXISTING
(C) DD'S DISCOUNT 21,000 SF

(B) ROSS 27,105 SF

EXISTING
(A) TARGET SPACE 46,644 SF

PROPOSED
(E.2) NEW SUB-TENANT O'REILLY AUTO PARTS 8,561 S.F.
EXISTING BUILDING

EXISTING
(E.1) EXISTING Smart&Final 27,992 S.F.

(N) WIDER DRIVEWAY 36' WIDE THROAT WITH FLARES PER SAN DIEGO STANDARDS G-28

EXISTING
(H) (E)DRIVE-THRU RESTAURANT #1 740 SF

NOT A PART

TENANT A 1,500 SF | TENANT B 1,000 SF | TENANT C 2,000 SF
PROPOSED MULTI-TENANT (G) 4,500 SF

PROPOSED
(F) SINGLE-TENANT 4,400 SF

JAMACHA ROAD

SAINT GEORGE STREET

SWEETWATER ROAD

25 0 50 100
SCALE IN FEET
1 inch = 50 ft.

PLOT: M:\PROJECTS\13000\13392\S.1.00 SPRING VALLEY RETAIL\DWGS\EXHIBITS\SWQMP\COMBINED SITE MAP\13392US.1.00-SITE-MAPS.DWG Kyle Merkitt 3/11/2021 8:32 AM

BWE
CIVIL•STRUCTURAL•SURVEY•PLANNING
9449 BALBOA AVE. STE 270
SAN DIEGO, CA 92123 619.299.5550

| SYM | DESCRIPTION | DATE | APPR |
|---|---|---|---|

ISSUE DATE: 09/29/2020
DRAWN BY: MDS
CHECKED BY: MGC
BWE JOB NUMBER: 13392US.1.00
CLIENT JOB NUMBER:
MUNICIPALITY
PROJECT NUMBER:

SHEET TITLE
OVERALL SITE MAP
SHEET 1 OF 1

PROJECT
SPRING VALLEY RETAIL CENTER
SPRING VALLEY, CA

SITE ADDRESS
933 SWEETWATER ROAD
SPRING VALLEY, CA 91977

# BUILDING D
# STORM WATER QUALITY MANAGEMENT PLAN (SWQMP)

# County of San Diego

## Stormwater Quality Management Plan (SWQMP)

## For Priority Development Projects (PDPs)

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




| Project Information | |
|---|---|
| **Project Name** | Building D Spring Valley Retail Center |
| **Project Address** | Jamacha & Sweetwater Rd Spring Valley, CA |
| **Assessor's Parcel # (APN)** | 584-511-19 |
| **Permit # / Record ID** | PDS2019-STP-97-050W3 |

| Project Applicant / Project Proponent | | |
|---|---|---|
| **Name** | Brett Feuerstein | |
| **Address** | 9294 Mira Mesa Blvd, San Diego, CA 92126 | |
| **Phone** | 858-271-4682 | **Email:** brett@mesacenters.com |

| SWQMP Preparer | | |
|---|---|---|
| **Name** | Nolan Huelsman | |
| **Company (if applicable)** | BWE Inc. | |
| **Address** | 9449 Balboa Ave, Suite # 270, San Diego, CA 92123 | |
| **Phone** | (619) 299-5550 | **Email:** nhuelsman@bwesd.com |
| **PE Number (if applicable)** | 75442 | |

### 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 11, 2021

***COUNTY ACCEPTED***

*SWQMP Approved By*: *Approval Date*:

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

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

| No. | Date | Summary of Changes |
|---|---|---|
| **Preliminary Design / Planning / CEQA** | | |
| 1 | 11/19/2019 | Initial Submittal |
| 2 | 4/1/2020 | BMP subdrain connection at inlet directly west of the project site. |
| 3 | 9/24/2020 | BMP design and location |
| 4 | 1/13/2021 | BMP updates |
| 5 | 3/11/2021 | BMP updates |
| **Final Design** | | |
| 1 | Date | Initial Submittal |
| 2 | Date | Summary of Change |
| 3 | Date | Summary of Change |
| 4 | Date | Summary of Change |
| No. | Date | Summary of Change |
| **Plan Changes** | | |
| 1 | Date | Initial Submittal |
| 2 | Date | Summary of Change |
| 3 | Date | Summary of Change |
| 4 | Date | Summary of Change |
| No. | Date | Summary of Change |

# PDP SWQMP Submittal Checklist

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


☒ Table 1: Scope of SWQMP Submittal ..... Page 2

☒ Table 2: Baseline BMPs for Existing Natural Features and Proposed Features (Groups 1, 2, and 3) ..... Page 3

☒ Table 3: Baseline BMPs for Pollutant-generating Sources (Group 4) ..... Page 4

☒ Table 4: Infeasibility Justifications for Baseline BMPs ..... Page 5

☒ Table 5: DMA Structural Compliance Strategies and Documentation ..... Page 6

☒ Table 6: Critical Coarse Sediment Yield Area (CCSYA) Requirements ..... Page 7

☒ Table 7: Minimum Construction Stormwater BMPs ..... Page 8

☒ Table 8: Infeasibility Justifications for Construction BMPs..... Page 9


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

☒ Attachment 1: Storm Water Intake Form

☒ Attachment 2: DMA Exhibits and Construction Plan Sheets

☒ Attachment 3: Source Control BMP Worksheet

☐ Attachment 4: Previous SWQMP Submittals

☒ Attachment 5: Existing Site and Drainage Description

☐ Attachment 6: Documentation of DMAs without Structural BMPs

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

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

☒ Attachment 9: Management of Critical Coarse Sediment Yield Areas

☐ Attachment 10: Installation Verification Form

☐ Attachment 11: BMP Maintenance Agreements and Plans

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

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

[1] All SWQMP attachments are available at www.sandiego.gov/stormwater under the Development Resources tab. Some attachments are presented out of order because they are shared between multiple SWQMP forms.

## Table 1 – Scope of SWQMP Submittal

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

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

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

The redevelopment proposed project includes a building on the north end of an existing development. The project also proposes sidewalk improvements on the building's western edge along with planters in the parking area adjacent to the site. The site limit of work is approximately 0.8 acres and is currently a fully developed built out commercial area.

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

## Table 2 – Baseline BMPs for Existing and Proposed Site Features

| Site Features<br>Select each feature that applies. | BMP Implementation<br>Describe BMP implementation for each selected site feature. | | | | |
|---|---|---|---|---|---|
| **Group 1: Existing Natural Site Features** [See BMPDM Sections 4.3.1 and 4.3.2] | | | | | |
| | **Maintain & conserve natural features** | | **Establish buffers for waterbodies** | | |
| | Full | Partial | Full | Partial | |
| ☐ **Natural waterbodies** | ☐ | ☐ | ☐ | ☐ | |
| ☐ **Natural storage reservoirs & drainage corridors** | ☐ | ☐ | | | |
| ☐ **Natural areas, soils, & vegetation (incl. trees)** | ☐ | ☐ | | | |
| **Group 2: Common Impervious Outdoor Site Features** [See BMPDM Sections 4.3.3 and 4.3.5] | | | | | |
| | **Disperse impervious areas (See SD-B)** | | **Use permeable materials (See SD-D)** | | **Minimize impervious areas** |
| | Full | Partial | Full | Partial | |
| ☐ **Streets and roads** | ☐ | ☐ | ☐ | ☐ | ☒ Check here to confirm that impervious surfaces have been minimized where applicable and feasible for all outdoor impervious areas. If not, explain in Table 4. |
| ☒ **Sidewalks & walkways** | ☐ | ☒ | ☐ | ☐ | |
| ☒ **Parking areas & lots** | ☐ | ☒ | ☐ | ☐ | |
| ☒ **Driveways** | ☐ | ☒ | ☐ | ☐ | |
| ☒ **Patios, decks, & courtyards** | ☐ | ☒ | ☐ | ☐ | |
| ☐ **Hardcourt recreation areas** | ☐ | ☐ | ☐ | ☐ | |
| ☐ Add impervious feature | ☐ | ☐ | ☐ | ☐ | |
| ☐ Add impervious feature | ☐ | ☐ | ☐ | ☐ | |
| ☐ Add impervious feature | ☐ | ☐ | ☐ | ☐ | |
| **Group 3: Other Outdoor Site Features** [See BMPDM Sections 4.2.6, 4.3.4, 4.3.5, 4.3.7, and 4.3.8] | | | | | |
| ☐ **Rooftop areas** | **Disperse rooftop runoff (See SD-B)** | | **Install green roofs (optional; See SD-C)** | | **Use rain barrels to capture runoff (optional; See SD-E)** |
| | Full | Partial | Full | Partial | Full / Partial |
| | ☐ | ☒ | ☐ | ☐ | ☐ / ☐ |
| ☒ **Landscaped areas** | **Use water-efficient landscaping (required)** | | **Install efficient irrigation systems (required)** | | **Minimize erosion of slopes and surfaces (required)** |
| | Full | | Full | | Full |
| | ☒ | | ☒ | | ☒ |
| ☐ **Water features (pools, spas, etc.)** | **Provide a designated washing area** | | **Drain feature to the sanitary sewer (if allowed)** | | **Drain feature to a pervious area** |
| | Full | Partial | Full | Partial | Full / Partial |
| | ☐ | ☐ | ☐ | ☐ | ☐ / ☐ |

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

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

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

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

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

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

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

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

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

| BMP-Feature Combination | | Explanation |
|---|---|---|
| Feature | Sidewalk & Walkways | Portions of the sidewalk and walkway areas will drain to proposed biofiltration basins within the planter boxes located in the parking area to the west of the proposed building location. |
| BMP | SD-B | |
| Feature | Parking Areas & Lots | Portions of the sidewalk and walkway areas will drain to proposed biofiltration basins within the planter boxes located in the parking area to the west of the proposed building location. |
| BMP | SD-B | |
| Feature | Rooftop Areas | The rooftop area will drain to the west where downdrains will discharge the rooftop areas to the street and a ribbon gutter will direct it towards a proposed biofiltration basin. |
| BMP | SD-B | |
| Feature | Trash & Refuse Storage | Trash and refuse storage will be protected from rain and from wind dispersal. |
| BMP | BMP | |
| Feature | Loading and Unloading | Loading and unloading areas will be protected from rain. |
| BMP | BMP | |
| Feature | Feature | Explanation |
| BMP | BMP | |
| Feature | Feature | Explanation |
| BMP | BMP | |

## Table 5: DMA Structural Compliance Strategies and Documentation

**Part A – Selection and Application Structural Performance Standards**

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

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

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

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

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

| a. Existing impervious area (ft²) | b. Impervious area created / replaced (ft²) | c. % Impervious created / replaced [(b/a)*100] |
|---|---|---|
| 64,182 sf | 17,979 sf | 28% |

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

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

**Part B – Compliance Strategies and Required Attachments**

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

| Att. 1 | Att. 2 | Att. 3 | Att. 4 | Att. 5 |
|---|---|---|---|---|
| Storm Water Intake Form ☒ | DMA Exhibits and Construction Plan Sheets ☒ | Source Control BMP Worksheet (see Table 3) ☒ | Previous SWQMP Submittals (see Table 1) ☐ | Existing Site and Drainage Description ☒ |

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

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

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

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

## Table 6: Critical Coarse Sediment Yield Area (CCSYA) Requirements

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

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

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

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

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

☒ **WMAA mapping demonstrates the following:**

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

b. All potential upstream offsite CCYSAs will be bypassed

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

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

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

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

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

a. Project does not require discretionary permits

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

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

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

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

## Table 7 –Minimum Construction Stormwater BMPs

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

[3] See Caltrans 2017 Storm Water Quality Handbooks, Construction Site BMP Manual, available at: (http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm)
[4] Planting or Hydroseeding may be installed between May 1st and August 15th. Slope irrigation must be in place and operable for slopes >3 feet. Vegetation must be watered and established prior to October 1st. A contingency physical BMP must be implemented by August 15th if vegetation is not established by that date. If landscaping is proposed, erosion control measures must also be used while landscaping is being established. Established vegetation must have a subsurface mat of intertwined mature roots with a uniform vegetative coverage of 70 percent of the natural vegetative coverage or more on all disturbed areas.
[5] All slopes over three feet must have established vegetative cover prior to final permit approval.
[6] County PDS 659. Standard Lot Perimeter Protection Design System (Bldg. Division)
[7] County PDS 660. County Standard Desilting Basin for Disturbed Areas of 1 Acre or Less Bldg. Division
[8] Regional Standard Drawing D-40 – Rip Rap Energy Dissipater (also acceptable for velocity reduction)
[9] Applicants are responsible to apply appropriate BMPs for specific wastes (e.g., BMP WM-8 for concrete).

## Table 8 – Explanations and Justifications for Construction Phase BMPs

☒ **Check here if no explanations or justifications for Table 7 BMPs are required.**

**Justifications for Table 7 Temporary Construction Phase BMPs**

- **Required Justifications**: Justify all construction activity types for which NO BMPs were selected.
- **If Requested**: Justify why specific individual BMPs were not selected.
- **Additional Explanation**: Describe any proposed features and/or BMPs not listed in Table 7.

| Activity Type / BMP | | Explanation |
|---|---|---|
| Activity Type | Errosion Control for Disturbed Slopes | No slopes >5% will be disturbed as a part of this project. |
| BMP | BMP | |
| Activity Type | Energy Dissipation | No velocity control is required for concentrated runoff. |
| BMP | BMP | |
| Activity Type | Activity Type | Explanation |
| BMP | BMP | |
| Activity Type | Activity Type | Explanation |
| BMP | BMP | |
| Activity Type | Activity Type | Explanation |
| BMP | BMP | |
| Activity Type | Activity Type | Explanation |
| BMP | BMP | |
| Activity Type | Activity Type | Explanation |
| BMP | BMP | |

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

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

| **Part 1. Project Information** | |
|---|---|
| Project Name: | Building D Spring Valley Retail Center |
| Record ID (Permit) No(s): | PDS2019-STP-97-050W3 |
| Assessor's Parcel No(s): | 584-511-19 |
| Street Address (or Intersection): | Jamacha & Sweetwater Rd |
| City, State, Zip: | Spring Valley, CA 91977 |
| **Part 2. Applicant / Project Proponent Information** | |
| Name: | Brett Feuerstein |
| Company: | Mira Mesa Shopping Centers |
| Street Address: | 9294 Mira Mesa Blvd |
| City, State, Zip: | San Diego, CA 92126 |
| Phone Number | 858-271-4682 |
| Email: | brett@mesacenters.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)** |
|---|---|---|---|
| | 92,474 sf | 17,979 sf | 19,063 sf |

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

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

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

## Part 4. Priority Classification & SWQMP Form Selection

| (A) *If your project is the following … (select one)* | (B) *You must complete …* |
|---|---|
| ☐ **Standard Project**<br>☐ a. Project is East of the Pacific/Salton Sea Divide<br>☐ b. None of the PDP criteria below applies | ➔ **Standard *SWQMP Form*** |
| ☒ **Priority Development Project (PDP)**<br>☐ 1. Project is part of an existing PDP**,** OR<br>☒ 2. Project does any of the following:<br>☒ a. Creates or replaces a total of 10,000 ft² or more of impervious surface<br>☒ 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<br>☐ 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<br>☐ d. Discharges directly to an Environmentally Sensitive Area (ESA) AND creates or replaces 2,500 ft² or more of impervious surface<br>☐ e. Disturbs one or more acres of land (43,560 ft²) and is expected to generate pollutants post-construction<br>☒ 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: 9294 Mira Mesa Blvd San Diego, CA 92126 Date: 1/13/21

- ***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.

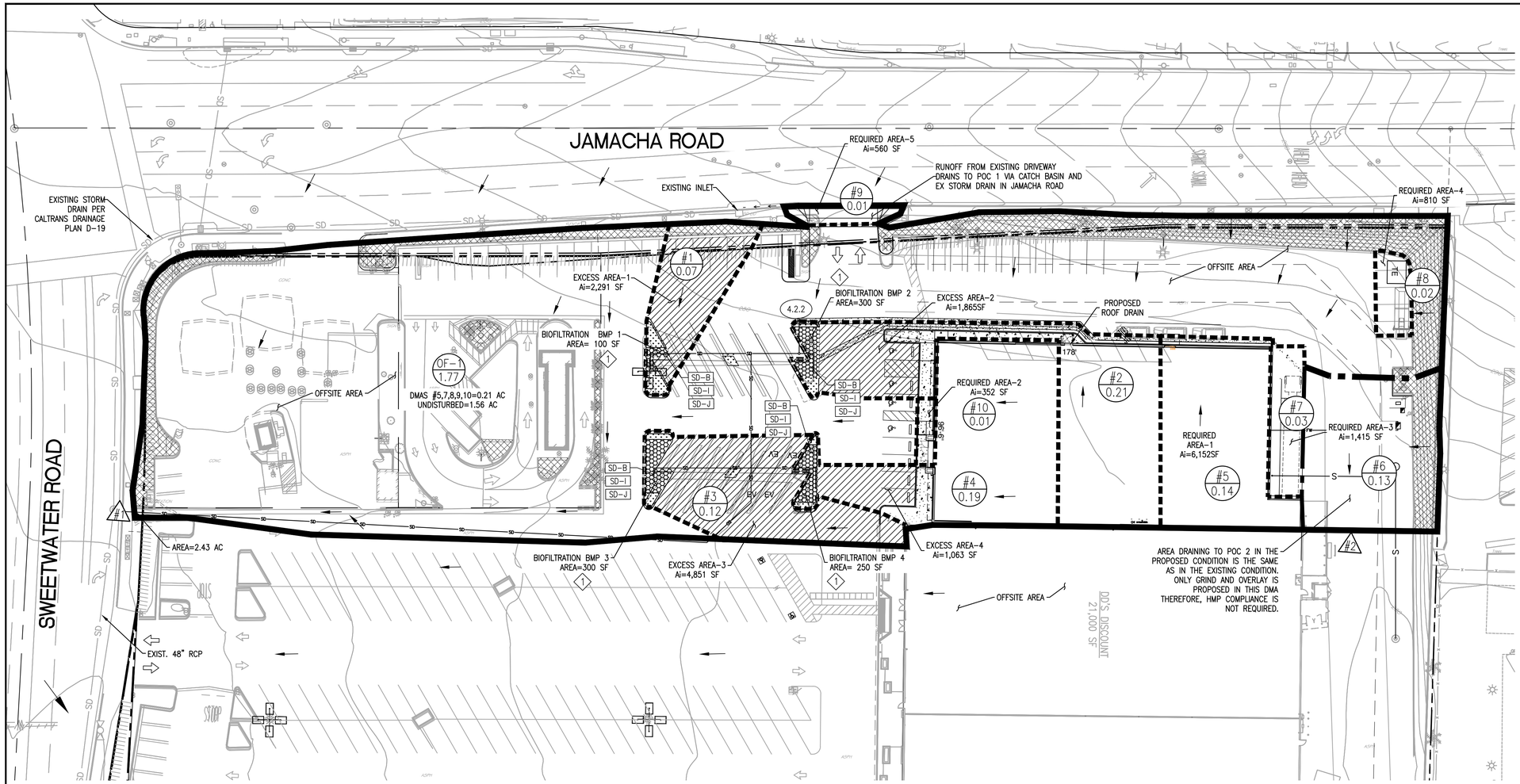
| Sub-attachments | Requirement |
|---|---|
| ☒ **2.1: DMA Exhibits** | All PDPs |
| ☐ **2.2: Individual Structural BMP DMA Mapbook** | PDPs with structural BMPs |
| ☒ **2.3: Construction Plan Sets** | All projects |

## 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 #:** | |
|---|---|
| **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<br>☐ SSD-BMP tree wells |
| ☒ Attachment 7 | ☒ Structural pollutant control BMPs |
| ☒ Attachment 8 | ☒ Structural hydromodification management BMPs<br>☒ Point(s) of Compliance (POC) for hydromodification management<br>☒ Proposed drainage boundary and drainage area to each POC |
| ☒ Attachment 9 | ☐ Onsite CCSYAs<br>☐ Bypass of onsite CCSYAs<br>☐ Bypass of upstream offsite CCSYAs |

[1] Group 1-4 features and baseline BMPs from PDP SWQMP Tables 2 and 3.
[2] Minimum Construction Stormwater BMPs from PDP SWQMP Table 7.
[3] Identify the location, ID numbers, type, and size/detail of BMPs.




## LEGEND

| SYMBOL | |
|---|---|
| DMA BOUNDARY | |
| LIMIT OF WORK | |
| MINOR BASIN BOUNDARY | |
| EXISTING STORM DRAIN | SD |
| NEW STORM DRAIN | SD |
| EXISTING CONTOUR | XXX |
| NEW CONTOUR | XXX |
| POINT OF COMPLIANCE (POC) | 1 |
| DRAINAGE MANAGEMENT AREA MARKER AREA (AC) | B-X X.XX |
| BIOFILTRATION BMP | |
| CONCRETE | |
| ASPHALT | |
| PERVIOUS AREA | |
| EXCESS AREA | |

## SOURCE CONTROL BMPS:

- 4.2.1 PREVENT ILLICIT DISCHARGES INTO THE MS4
- 4.2.2 IDENTIFY THE STORM DRAIN SYSTEM USING STENCILING OR SIGNAGE
- 4.2.3 PROTECT OUTDOOR MATERIAL STORAGE AREAS FROM RAINFALL, RUN-ON, RUNOFF, AND WIND DISPERSAL
- 4.2.4 PROTECT MATERIALS STORED IN OUTDOOR WORK AREAS FROM RAINFALL, RUN-ON, RUNOFF, AND WIND DISPERSAL
- 4.2.5 PROTECT TRASH STORAGE AREAS FROM RAINFALL, RUN-ON, RUNOFF, AND WIND DISPERSAL
- 4.2.6 ADDITIONAL BMPS TO MINIMIZE POLLUTANT GENERATION

## SITE DESIGN BMPS:

- SD-B DISPERSION OF SIDEWALKS, PARKING AREAS, DRIVEWAYS, AND ROOFTOP RUNOFF
- SD-I MINIMIZATION OF IMPERVIOUS AREAS AND EROSION
- SD-J WATER-EFFICIENT LANDSCAPING
- SD-K EFFICIENT IRRIGATION SYSTEMS

## STRUCTURAL BMPS:

- 1 BIOFILTRATION BMP (POLLUTANT & HMP CONTROL)

## SUMMARY TABLE

TOTAL REQUIRED AREA: 9,289 SF
TOTAL EXCESS AREA: 10,070 SF

## NOTES:

1. THE PROJECT SOIL TYPE FOR THE SITE IS D.
2. THE DEPTH TO GROUNDWATER IS UNKNOWN.

30 15 0 30 60 90
SCALE: 1"=30'

BVE
CIVIL•STRUCTURAL•SURVEY•PLANNING
9449 BALBOA AVE. STE 270
SAN DIEGO, CA 92123 619.299.5550

| DESCRIPTION | DATE | APPR |
|---|---|---|
| | | |

| | |
|---|---|
| ISSUE DATE: | 03/18/2021 |
| DRAWN BY: | MDS |
| CHECKED BY: | MGC |
| BME JOB NUMBER: | 13392US1.00 |
| CLIENT JOB NUMBER: | |
| MUNICIPALITY | |
| PROJECT NUMBER: | |

SHEET TITLE: DMA EXHIBIT

SHEET 1 OF 1

PROJECT: BUILDING D
SPRING VALLEY RETAIL CENTER
SPRING VALLEY, CA

SITE ADDRESS: 933 SWEETWATER ROAD
SPRING VALLEY, CA 91977

PLOT: M:\PROJECTS\13000\13392US.1.00 SPRING VALLEY RETAIL\DWGS\EXHIBITS\SWQMP\DVG\13392US.1.00-DMAS-EXHB.DWG Malcolm D. Smith 3/19/2021 8:24 AM

| DIST | COUNTY | ROUTE | KILOMETER POST TOTAL PROJECT | SHEET NO | TOTAL SHEETS |
|---|---|---|---|---|---|
| 11 | SD | 54,125 | 9.7/10.8, 18.0/19.6 | 176 | 803 |

REGISTERED CIVIL ENGINEER 10-31-97

4-6-98
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
J.T. OLSON
No. 46054
Exp. 12-31-98
CIVIL
STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

Caltrans Metric

DATE REVISED BY
DATE REVISED

CALCULATED/ DESIGNED BY
CHECKED BY

PROJECT ENGINEER
T.S. BOUQUIN

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT

MATCH LINE 13+00 "NSW"

MATCH LINE 17+00 "JMR"

MATCH LINE 16+60 "NSW"

PROJECT SITE

SWEETWATER ROAD

NEW SWEETWATER ROAD

"NSW"

"JMR"

JAMACHA ROAD

JAMACHA ROAD

GRADE TO DRAIN

NEW TYPE 2 Conc APRON

MOVED

Exist Conc DITCH

Exist Conc DITCH

NEW 30 mm PLASTIC PIPE X 4 m

NEW 900 mm GMP H=1.2 m WITH TYPE 2 APRON AT LOW POINT

NEW 800 mm PLASTIC PIPE

NEW GMP

R/W

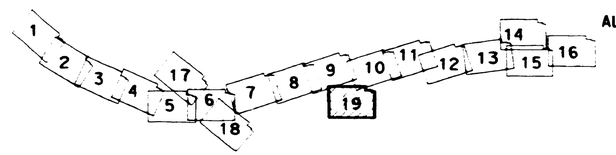
F

| No. | R | Δ | T | L |
|---|---|---|---|---|
| 1 | 13.72 | 88°17'22" | 13.31 | 21.14 |
| 2 | 6.86 | 78°51'31" | 5.64 | 9.44 |
| 3 | 377.00 | 11°46'20" | 38.87 | 77.46 |
| 4 | 377.00 | 5°30'42" | 18.15 | 36.27 |

AS-BUILT PLANS
CONTRACT NO. 11-001924
DATE COMPLETED: 05-14-02
BY: ARMANDO GARCIA

31

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN




DRAINAGE PLAN

SCALE: 1:500 D-19

This plan sheet accurate for DRAINAGE WORK only

FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS 0 20 40 60 80

USERNAME => tbngoddy
DGN FILE => b00192119_ab.dgn

CU 11222

EA 001921

LAST REVISION 11-13-97 TIME PLOTTED => 25-MAR-2005 16:47

## 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.

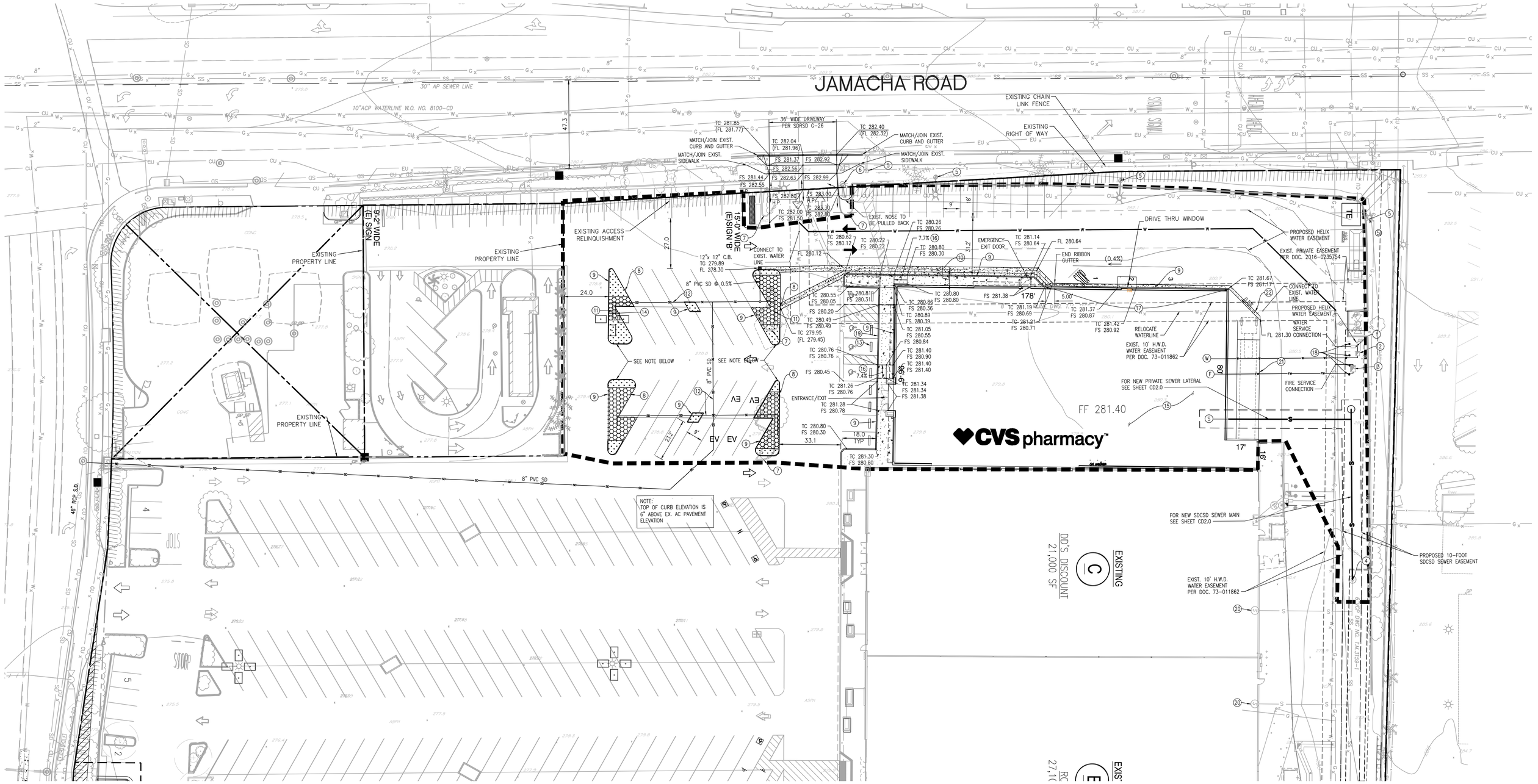
| | |
|---|---|
| ☐ | All Mapbooks are attached |
| ☐ | All Mapbooks are in Attachment 11 |

## 2.3 Construction Plan Sets

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

| **Plan Type** | **Grading Plan** |
|---|---|
| **Required Information**[4] | |
| ☒ Structural BMP(s) and Significant Site Design BMPs (if applicable) with ID numbers. | |
| ☒ The grading and drainage design shown on the plans must be consistent with the delineation of DMAs shown on the DMA exhibit. | |
| ☒ Details and specifications for construction of Structural BMP(s) and Significant Site Design BMPs (if applicable). | |
| ☐ Signage indicating the location and boundary of structural BMP(s) as required by County staff. | |
| ☒ How to access the structural BMP(s) to inspect and perform maintenance. | |
| ☒ Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds). | |
| ☐ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP). | |
| ☐ Recommended equipment to perform maintenance. | |
| ☐ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management. | |
| ☒ Include landscaping plan sheets (if available) showing vegetation requirements for vegetated structural BMP(s). | |
| ☒ All BMPs must be fully dimensioned on the plans. | |
| ☐ When proprietary BMPs are used, site-specific cross-section with outflow, inflow, and manufacturer model number must be provided. Photocopies of general brochures are not acceptable. | |
| ☒ Include all source control and site design measures described in the SWQMP. | |
| ☐ Include all construction BMPs described in the SWQMP. | |

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




## BASIS OF BEARINGS

THE BASIS OF BEARINGS AND COORDINATS FOR THIS SURVERY IS THE CALIFORNIA COORDINATE SYSTEM OF 1983 (CCS83) ZONE 6, NAD83, (1992.35 EPOCH) BASED UPON THE GRID BEARING BETWEEN GPS STATIONS 3206 AND 3205, AND IS DETERMINED BY GPS MEASUREMENTS TAKEN ON NOVEMBER 1, 2018, BOTH STATIONS HAVING A COORDIANTE VALUE OF FIRST ORDER ACCURACY OR BETTER PER RECORD OF SURVEY 14492.

I.E. GPS STATION 3206 TO 3205: N 03^09'44" W

## BENCHMARK

THE BENCHMARK FOR THIS SURVEY IS THE FOUND BRASS PLUG ON TOP OF CONCRETE CURB AT THE NORTHEAST CURB RETURN OF JAMACHA ROAD AND DARBY STREET, PER CITY OF SAN DIEGO VERTICAL CONTROL DATED AUGUST 1989.

BM ELEVATION: 365.467, NGVD 29

## TOPOGRAPHY

EXISTING AERIAL TOPOGRAPHY WAS PREPARED BY RICK ENGINEERING COMPANY, DATED SEPTEMBER 24, 2019. CONTOURS SHOWN ON PLANS ARE AT 1-FT INTERVALS.

## LEGAL DESCRIPTION

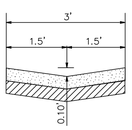
BEGIN OF PORTION OF PARCEL 2 OF MAP NO. 7119 IN THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY APRIL 6, 1978.

## PRELIMINARY GRADING PLAN NOTE

THIS PLAN IS PROVIDED TO ALLOW FOR FULL AND ADEQUATE DISCRETIONARY REVIEW OF A PROPOSED DEVELOPMENT PROJECT. THE PROPERTY OWNER ACKNOWLEDGES THAT ACCEPTANCE OR APPROVAL OF THIS PLAN DOES NOT CONSTITUTE AN APPROVAL TO PERFORM ANY GRADING SHOWN HEREON, AND AGREES TO OBTAIN VALID GRADING PERMISSIONS BEFORE COMMENCING SUCH ACTIVITY.

## GRADING VOLUMES

CUT VOLUME: 20 CY
FILL VOLUME: 20 CY
IMPORT/EXPORT: 0 CY




TYPICAL RIBBON GUTTER DETAIL

NO SCALE

## GRADING KEYNOTES

1. WATER SERVICE METER
2. WATER SERVICE BACKFLOW
3. FIRE SERVICE BACKFLOW
4. CONNECT SEWER LATERAL TO EXISTING SEWER MAIN
5. EXIST. LIGHT TO REMAIN AND PROTECT IN PLACE
6. EXIST. POWER POLE TO REMAIN AND PROTECT IN PLACE
7. EXIST. CURB TO BE REMOVED
8. 6" PCC CURB WITH CURB CUTS PER DETAIL THIS SHEET
9. 6" PCC CURB
10. RIBBON GUTTER PER DETAIL THIS SHEET
11. 6" PERFORATED PIPE IN BASIN
12. STORM DRAIN
13. WHEEL STOP (TYP)
14. EXIST. LIGHT TO BE REMOVED
15. EXIST. BUILDING TO BE REMOVED
16. CURB RAMP
17. DEEPENED FOOTING AS REQUIRED
18. BOLLARD
19. 0" CURB
20. NEW PARKING LOT LIGHT
21. ROLLED CURB AND GUTTER
22. PROPOSED CONCRETE SWALE

## LEGEND

- PROJECT BOUNDARY
- RIGHT OF WAY
- EASEMENT
- PROPOSED STORM DRAIN
- PROPOSED SEWER
- PROPOSED WATER — W
- PROPOSED BIOFILTRATION BASIN AREA
- PROPOSED PLANTING AREA
- PROPOSED CONCRETE PAVEMENT

NOTICE: IN THE EVENT THAT ANY ACTIVITY, INCLUDING EARTHMOVING OR CONSTRUCTION, DISCOVERS THE PRESENCE OF 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. THE PRESENCE OF CONTAMINATED SOILS WILL REQUIRE SOIL TESTING AND REMEDIATION IN ACCORDANCE WITH STANDARD COUNTY PROCEEDURES. THIS PROCESS WILL BE DETERMINED ONCE THE COUNTY IS NOTIFIED OF THE PRESENCE OF CONTAMINATED SOILS.

PRELIMINARY
NOT FOR CONSTRUCTION

20 10 0 20 40 60
SCALE: 1"=20'

# SHOPPING CENTER - SPRING VALLEY

S.E.C. JAMACHA RD. & SWEETWATER RD.
SPRING VALLEY, CA


REGISTERED PROFESSIONAL ENGINEER — KEVIN LEE NUELL — No. 76137 — Exp. 06-31-21 — CIVIL — STATE OF CALIFORNIA

BWE
CIVIL•STRUCTURAL•SURVEY•PLANNING
9449 BALBOA AVE, STE 270
SAN DIEGO, CA 92123 619.299.5550

ZAAP
ZIEBARTH ASSOCIATES ARCHITECTURE + PLANNING

PREPARED BY:
ZAAP, INC.
2900 FOURTH AVENUE #204
SAN DIEGO, CA 92103
619-233-6450 (PHONE)
619-233-6449 (FAX)
WWW.ZAAP.BIZ


PROJECT ADDRESS:
935 SWEETWATER ROAD
Spring Valley, CA 91977
PROJECT NO: 16350

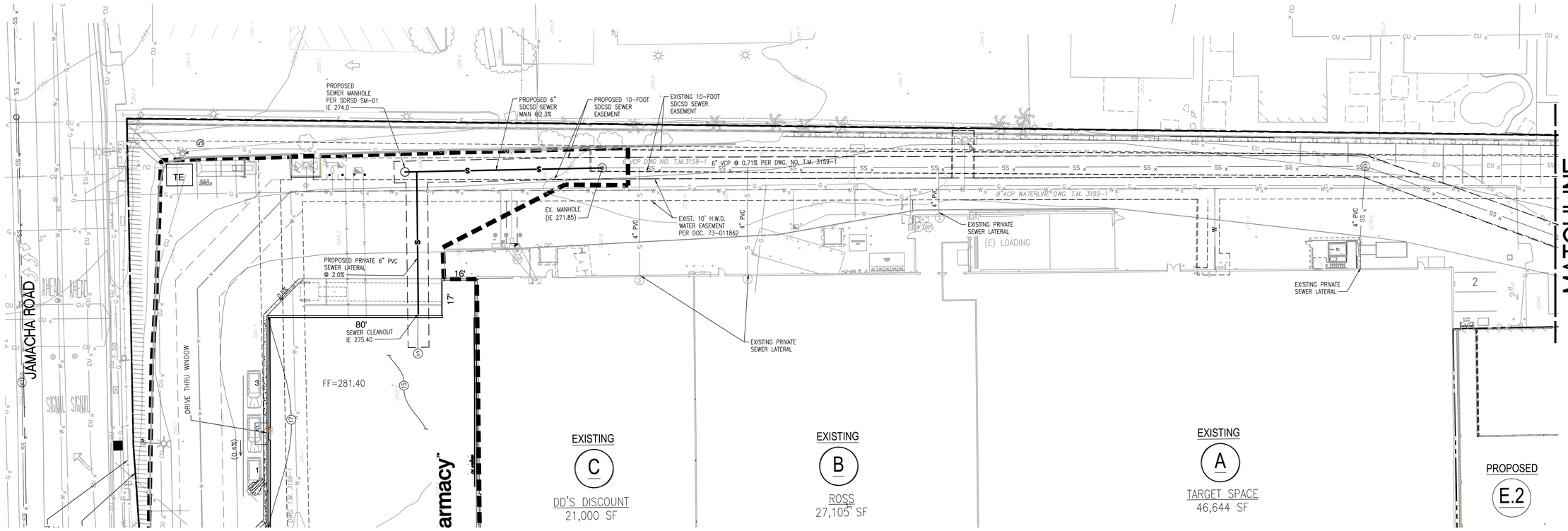
DATE: 09/26/2019

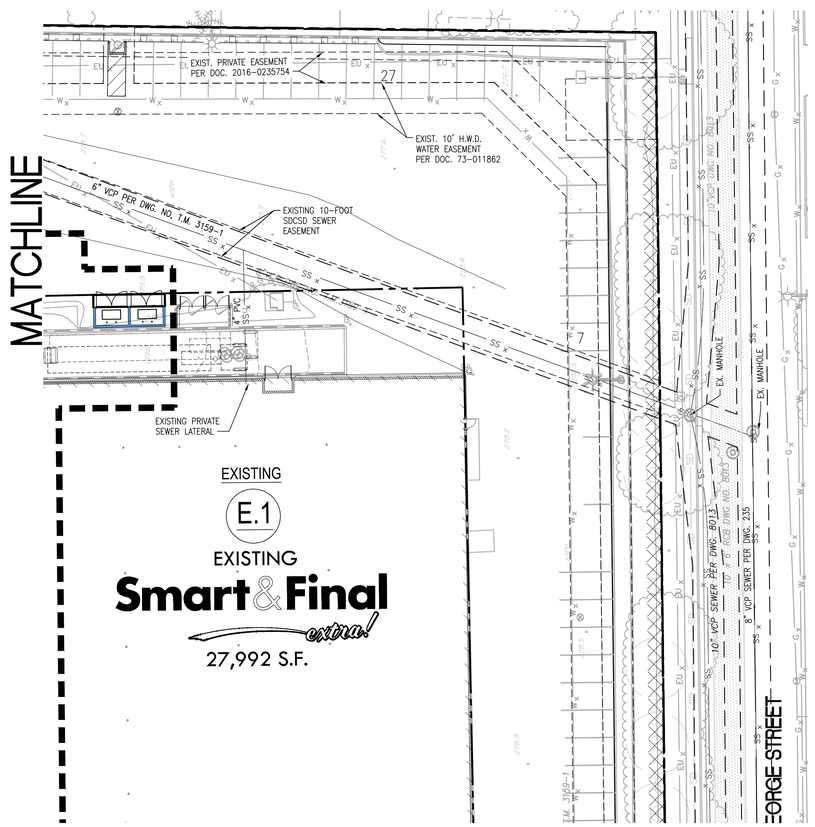
| REVISION #: | DATE: | REVISION #: | DATE: |
|---|---|---|---|
| 1 | | 5 | |
| 2 | | 6 | |
| 3 | | 7 | |
| 4 | | 8 | |

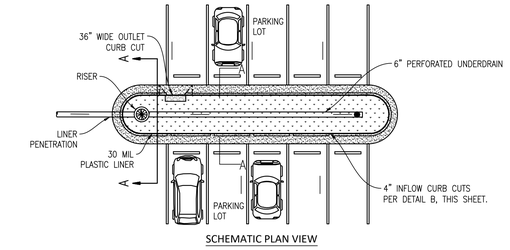
PROJECT NAME: SHOPPING CENTER - SPRING VALLEY

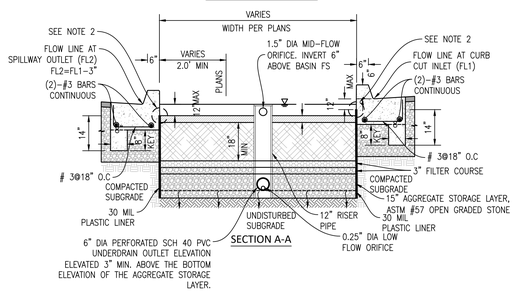
CD1.0

SHEET TITLE:
PRELIMINARY GRADING PLAN



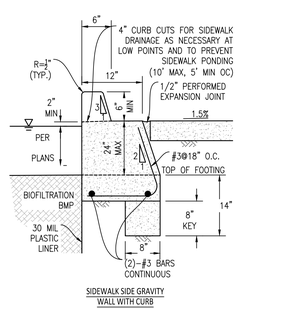



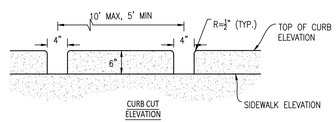




NOTE
1. THE PARKING LAYOUT IN THE PLAN VIEW OF THIS DETAIL IS NOT REPRESENTATIVE OF SPECIFIC SITE CONDITIONS. PLEASE SEE PLAN SHEETS FOR THE PARKING LAYOUTS AT EACH BMP.
2. LINER ATTACHMENT TO ADJACENT CONCRETE PER DETAIL C THIS SHEET.
3. THE 6" FILTER COURSE LAYER SHALL INCLUDE 3" WASHED ASTM 33 SAN OVERLYING 3" ASTM NO 8 STONE.

LEGEND
- 3" MULCH
- 18" SOIL MEDIA
- 6" FILTER COURSE
- 15" AGGREGATE LAYER

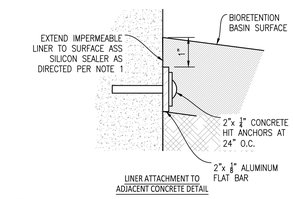
A BIOFILTRATION BMP
NO SCALE



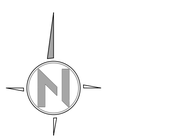

NOTE
1. SEAL PLASTIC LINER ADJACENT IMPROVEMENTS AND EDGE RESTRAINTS PER DETAIL C, THIS SHEET.
2. CONCRETE SHALL BE 560-C-3250.

B GRAVITY WALL WITH CURB CUTS
NO SCALE




NOTES
1. ON CLEAN CONCRETE SURFACE, ADHERE LINER TO CONCRETE WITH SILICONE SEALANT OR EQUIVALENT PER MANUFACTURER RECOMMENDATIONS TO TOP ¼" OF LINER.
2. SECURE LINER TO CONCRETE WITH 2" ALUMINUM OR STAINLESS STEEL FLAT BAR AS DIRECTED PER PLAN.
3. AS AN ALTERNATE, HIT ANCHORS CAN BE SUBSTITUTED WITH STAINLESS STEEL ANCHORS AT 24" O.C. OR POWDER ACTUATED FASTENERS AT 12" O.C.
4. TRIM EXCESS LINER TO BE FLUSH WITH SURFACE ELEVATION.
5. CONTRACTOR MEANS AND METHODS SHOULD AVOID/ MINIMIZE WRINKLES TO THE LINER.

C IMPERMEABLE LINER FASTENING DETAIL
NO SCALE




20 10 0 20 40 60
SCALE: 1"=20'

PRELIMINARY
NOT FOR CONSTRUCTION

DESIGNED PROFESSIONAL ENGINEER JUSTIN LEE HUEY Exp. 06-30-20 CIVIL STATE OF CALIFORNIA

BWE
CIVIL•STRUCTURAL•SURVEY•PLANNING
9449 BALBOA AVE, STE 270
SAN DIEGO, CA 92123 619.299.5550

ZAAP
ZIEBARTH ASSOCIATES
ARCHITECTURE • PLANNING

PREPARED BY:
ZAAP, INC.
2900 FOURTH AVENUE #204
SAN DIEGO, CA 92103
619-233-6450 (PHONE)
619-233-6449 (FAX)
WWW.ZAAP.BIZ

PROJECT ADDRESS:
935 SWEETWATER ROAD
Spring Valley, CA 91977
PROJECT NO: 16350

DATE: 09/26/2019

| REVISION #: | DATE: | REVISION #: | DATE: |
|---|---|---|---|
| 1 | | 4 | |
| 2 | | 5 | |
| 3 | | 6 | |

PROJECT NAME: SHOPPING CENTER - SPRING VALLEY
CD2.0

SHEET TITLE:
SEWER PLAN/DETAILS

# SHOPPING CENTER - SPRING VALLEY

S.E.C. JAMACHA RD. & SWEETWATER RD.
SPRING VALLEY, CA

## 3.0 Cover Sheet and General Requirements

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

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

- Submit this documentation using this cover sheet.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## 5.0 General Requirements

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

  ☒ **Yes**

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

    Title: Preliminary Drainage Study for Spring Valley Commercial Use Building D

    Prepared By: BWE Inc.

    Date: March 2021

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

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

# DRAINAGE STUDY SUMMARY PAGE

Table 7-2 Combined Onsite and Offsite Peak Flow Rates Summary

| | Drainage Area (acres) | | 100 Yr Flow (cfs) | | Change from Existing Condition |
|---|---|---|---|---|---|
| | **Existing Condition** | **Proposed Condition** | **Existing Condition** | **Proposed Condition (Unmitigated)** | |
| **Discharge Point 1** | 2.39 | 2.43 | 13.43 | 12.76 | |
| | | | | | |
| **Discharge Point 2** | 0.16 | 0.13 | 1.03 | 0.83 | |
| | | | | | |
| **Total** | **2.55** | **2.56** | **14.46** | **13.59** | **-0.87** |

The unmitigated peak flow rate generated from the 100-year storm event is anticipated to decrease by 0.87 cfs (=14.46-13.59 cfs) in the proposed condition. The decrease in peak flow rate is mainly due to the slight decrease in the impervious area in the proposed condition and the runoff coefficient factor "C" in the proposed condition.

Additional detention of the 100-year peak flow rate is not required because the unmitigated peak flow rate is lower than the existing condition peak flow rate.

## 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<br>• 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** Spring Valley
**Permit Application Number** PDS2019-STP-97-050W3

### 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

Nolan Huelsman
Print Name

BWE Inc.
Company

March 11, 2021
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.

Four structural BMPs (BMP-1, 2, 3, and 4) are proposed for both stormwater pollutant control and hydromodification management flow control of drainage from the project site. Selection of the BMP type was determined from Section 5.1 of the County BMP Design Manual.

After calculating the Design Capture Volume, Step 2 was completed to determine Capture and Use feasibility. As the site does not propose a habitable structure over 9 stories tall, the project is not required to perform capture and use per the County of San Diego BMP design manual. At this time, it is expected that full and partial infiltration will note be feasible for proposed BMPs due to the mapped soil types. Therefore, BMPs 1, 2, 3, and 4 are designed as Biofiltration BMPs.

Stormwater generated from the project will be managed by the proposed BMPs and will ultimately discharge into the existing storm drain at the south west corner of OF-1. OF-1 will bypass BMP 2 via a ribbon gutter which terminates at a catch basin and proposed storm drain system which connects to the storm drain in Sweetwater Road. DMAs 1,3,7,8,9 contain "required area" which is not routed to the proposed BMPs but is mitigating by treating "excess areas" in DMAs 1, 2, 3, and 4 which do flow to BMPs 1-4.

The DMA 2 discharges via roof drains to a curb and gutter followed by a ribbon gutter, which discharges to BMP 2. The runoff from DMA 5 will comingle with flow from OF-1 and bypass the proposed BMPs, but this area is accounted for an offset by the "excess areas". Run-off from DMAs 6 and 7 similarly flow uncontrolled to POC #2 to the south but are mitigated by the treatment of excess areas.

In total, approximately 9,289 S.F. of required impervious area in DMAs 2, 5, 7, 8, and 9 of proposed improvements cannot be feasibly treated independently due to site constraints. However, approximately 10,070 S.F. of "Excess Area" in DMAs 1, 2, 3, and 4 is managed within the project's BMPs, which more than offsets the required untreated area.

DMAs 1 and 3 only contain asphalt overlaying (not full-depth pavement replacement) and therefore these DMAs which drain to BMPs 1 and 3 respectively are considered to be excess areas.

In step 4 it was determined that BMP-1, 2, 3, and 4 can be designed to treat the full DCV and satisfy the minimum 3% footprint requirement. The proposed BMPs more than adequately provide the required DCV and HMP volume with only 6-inches of surface ponding. Furthermore, due to low-flow threshold requirements for HMP, a low-flow restrictor was necessary for the proposed biofiltration BMPs.

**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 (ft²) | Structural BMP Type | | | | | | | Permit # and Sheet # |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Harvest and Use | Infiltration | Unlined Biofiltration | Lined Biofiltration | Flow-thru treatment | Hydromodification Management [1] | Other | |
| 1 | 1 | 2,985 | ☐ | ☐ | ☐ | ☒ | ☐ | ☒ | ☐ | |
| 2 | 2 | 8,982 | ☐ | ☐ | ☐ | ☒ | ☐ | ☒ | ☐ | |
| 3 | 3 | 5,273 | ☐ | ☐ | ☐ | ☒ | ☐ | ☒ | ☐ | |
| 4 | 4 | 8,271 | ☐ | ☐ | ☐ | ☒ | ☐ | ☒ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |

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

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

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

| **BMP Ownership and Maintenance** (See BMPDM Section 7.3 and Attachment 11) | | | | |
|---|---|---|---|---|
| BMP Maintenance Category | Cat. 1<br>☐ | Cat. 2<br>☒ | Cat. 3<br>☐ | Cat. 4<br>☐ |
| Final owner of BMP | ☐ HOA | ☒ Property Owner | ☐ County | |
| | ☐ Other (describe): | | | |
| Maintenance of BMP into perpetuity | ☐ HOA | ☒ Property Owner | ☐ County | |
| | ☐ Other (describe): | | | |

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

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

| **Structural BMP ID #** 2 | **Permit # and Sheet #** |
|---|---|

**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 | To be determined |

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

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

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

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

| **Structural BMP ID #** 3 | **Permit # and Sheet #** |
|---|---|

**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 | To be determined |

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

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

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

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

| **Structural BMP ID #** 4 | **Permit # and Sheet #** |
|---|---|

**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 | To be determined |

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

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

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

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

## 7.4 Storm Water Pollutant Control Worksheet Calculations

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

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

## 7.5 Identification and Narrative of Receiving Water and Pollutants of Concern

- Complete this sub-attachment *only if flow-thru treatment BMPs are implemented onsite* in lieu of retention or biofiltration BMPs. Unless excepted because of a Prior Lawful Approval[4], PDPs must also participate in an alternative compliance program[5].

**A. General Description**

Describe flow path of storm water from the project site discharge location(s), through urban storm conveyance systems as applicable, to receiving creeks, rivers, and lagoons as applicable, and ultimate discharge to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable).

**B. Water Body Impairments and Priorities**

List any 303(d) impaired water bodies[6] within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs and/or Highest Priority Pollutants from the WQIP for the impaired water bodies:

| 303(d) Impaired Water Body | Pollutant(s)/Stressor(s) | TMDLs / WQIP Highest Priority Pollutant |
|---|---|---|
| Lower Sweetwater River | Indicator Bacteria, Selenium, Toxicity | |
| | | |
| | | |

**C. Identification of Project Site Pollutants**

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

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

[4] See BMPDM Appendix L: Prior Lawful Approval Requirements and Guidance.
[5] See SWQMP Attachment 12 (Alternative Compliance Projects) and BMPDM Appendix J (Offsite Alternative Compliance Requirements and Guidance).
[6] The current list of Section 303(d) impaired water bodies can be found at: https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml

## 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 | DMA 1 | DMA 2 | DMA 3 | DMA 4 | | | | | | | unitless |
| | 2 | 85th Percentile 24-hr Storm Depth | 0.54 | 0.54 | 0.54 | 0.54 | | | | | | | inches |
| | 3 | Impervious Surfaces Not Directed to Dispersion Area (C=0.90) | 2,291 | 8,573 | 4,851 | 7,941 | | | | | | | 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) | 694 | 409 | 422 | 330 | | | | | | | sq-ft |
| | 6 | Natural Type A Soil Not Serving as Dispersion Area (C=0.10) | | | | | | | | | | | sq-ft |
| | 7 | Natural Type B Soil Not Serving as Dispersion Area (C=0.14) | | | | | | | | | | | sq-ft |
| | 8 | Natural Type C Soil Not Serving as Dispersion Area (C=0.23) | | | | | | | | | | | 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 | | | | | | | 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 | 2,985 | 8,982 | 5,273 | 8,271 | 0 | 0 | 0 | 0 | 0 | 0 | sq-ft |
| | 23 | Initial Runoff Factor for Standard Drainage Areas | 0.71 | 0.86 | 0.84 | 0.87 | 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 | 0.71 | 0.86 | 0.84 | 0.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | unitless |
| | 26 | Initial Design Capture Volume | 95 | 348 | 199 | 324 | 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 | 0.71 | 0.86 | 0.84 | 0.87 | n/a | n/a | n/a | n/a | n/a | n/a | unitless |
| | 32 | Design Capture Volume After Dispersion Techniques | 95 | 348 | 199 | 324 | 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 | 0.71 | 0.86 | 0.84 | 0.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | unitless |
| | 36 | Final Effective Tributary Area | 2,119 | 7,725 | 4,429 | 7,196 | 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 | 95 | 348 | 199 | 324 | 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 | DMA 1 | DMA 2 | DMA 3 | DMA 4 | - | - | - | - | - | - | unitless |
| | 2 | 85th Percentile Rainfall Depth | 0.54 | 0.54 | 0.54 | 0.54 | - | - | - | - | - | - | inches |
| | 3 | Predominant NRCS Soil Type Within BMP Location | D | D | D | D | | | | | | | unitless |
| | 4 | Is proposed BMP location Restricted or Unrestricted for Infiltration Activities? | Restricted | Restricted | Restricted | Restricted | | | | | | | unitless |
| | 5 | Nature of Restriction | Structures | Structures | Structures | Structures | | | | | | | unitless |
| | 6 | Do Minimum Retention Requirements Apply to this Project? | Yes | Yes | Yes | Yes | | | | | | | yes/no |
| | 7 | Are Habitable Structures Greater than 9 Stories Proposed? | No | No | No | No | | | | | | | yes/no |
| Advanced Analysis | 8 | Has Geotechnical Engineer Performed an Infiltration Analysis? | No | No | No | No | | | | | | | yes/no |
| | 9 | Design Infiltration Rate Recommended by Geotechnical Engineer | | | | | | | | | | | in/hr |
| Result | 10 | Design Infiltration Rate Used To Determine Retention Requirements | 0.000 | 0.000 | 0.000 | 0.000 | - | - | - | - | - | - | in/hr |
| | 11 | Percent of Average Annual Runoff that Must be Retained within DMA | 4.5% | 4.5% | 4.5% | 4.5% | - | - | - | - | - | - | percentage |
| | 12 | Fraction of DCV Requiring Retention | 0.02 | 0.02 | 0.02 | 0.02 | - | - | - | - | - | - | ratio |
| | 13 | Required Retention Volume | 2 | 7 | 4 | 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 | DMA 1 | DMA 2 | DMA 3 | DMA 4 | - | - | - | - | - | - | sq-ft |
| | 2 | Design Infiltration Rate Recommended | 0.000 | 0.000 | 0.000 | 0.000 | - | - | - | - | - | - | in/hr |
| | 3 | Design Capture Volume Tributary to BMP | 95 | 348 | 199 | 324 | - | - | - | - | - | - | cubic-feet |
| | 4 | Is BMP Vegetated or Unvegetated? | Vegetated | Vegetated | Vegetated | Vegetated | | | | | | | unitless |
| | 5 | Is BMP Impermeably Lined or Unlined? | Lined | Lined | Lined | Lined | | | | | | | unitless |
| | 6 | Does BMP Have an Underdrain? | Underdrain | Underdrain | Underdrain | Underdrain | | | | | | | unitless |
| | 7 | Does BMP Utilize Standard or Specialized Media? | Standard | Standard | Standard | Standard | | | | | | | unitless |
| | 8 | Provided Surface Area | 100 | 300 | 300 | 250 | | | | | | | sq-ft |
| | 9 | Provided Surface Ponding Depth | 6 | 6 | 6 | 6 | | | | | | | inches |
| | 10 | Provided Soil Media Thickness | 21 | 21 | 21 | 21 | | | | | | | inches |
| | 11 | Provided Gravel Thickness (Total Thickness) | 18 | 18 | 18 | 18 | | | | | | | inches |
| | 12 | Underdrain Offset | 3 | 3 | 3 | 3 | | | | | | | inches |
| | 13 | Diameter of Underdrain or Hydromod Orifice (Select Smallest) | 0.25 | 0.25 | 0.25 | 0.25 | | | | | | | inches |
| | 14 | Specialized Soil Media Filtration Rate | | | | | | | | | | | in/hr |
| | 15 | Specialized Soil Media Pore Space for Retention | | | | | | | | | | | unitless |
| | 16 | Specialized Soil Media Pore Space for Biofiltration | | | | | | | | | | | unitless |
| | 17 | Specialized Gravel Media Pore Space | | | | | | | | | | | unitless |
| Retention Calculations | 18 | Volume Infiltrated Over 6 Hour Storm | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 19 | Ponding Pore Space Available for Retention | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | unitless |
| | 20 | Soil Media Pore Space Available for Retention | 0.05 | 0.05 | 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 | 0.00 | 0.00 | 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 | 2.25 | 2.25 | 2.25 | 2.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | inches |
| | 24 | Fraction of DCV Retained (Independent of Drawdown Time) | 0.20 | 0.16 | 0.28 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ratio |
| | 25 | Calculated Retention Storage Drawdown Time | 120 | 120 | 120 | 120 | 0 | 0 | 0 | 0 | 0 | 0 | hours |
| | 26 | Efficacy of Retention Processes | 0.22 | 0.18 | 0.29 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ratio |
| | 27 | Volume Retained by BMP (Considering Drawdown Time) | 21 | 63 | 58 | 52 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 28 | Design Capture Volume Remaining for Biofiltration | 74 | 285 | 141 | 272 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| Biofiltration Calculations | 29 | Max Hydromod Flow Rate through Underdrain | 0.0031 | 0.0031 | 0.0031 | 0.0031 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | cfs |
| | 30 | Max Soil Filtration Rate Allowed by Underdrain Orifice | 1.32 | 0.44 | 0.44 | 0.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | in/hr |
| | 31 | Soil Media Filtration Rate per Specifications | 5.00 | 5.00 | 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 | 1.32 | 0.44 | 0.44 | 0.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | in/hr |
| | 33 | Depth Biofiltered Over 6 Hour Storm | 7.95 | 2.65 | 2.65 | 3.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | inches |
| | 34 | Ponding Pore Space Available for Biofiltration | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | unitless |
| | 35 | Soil Media Pore Space Available for Biofiltration | 0.20 | 0.20 | 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 | 16.20 | 16.20 | 16.20 | 16.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | inches |
| | 38 | Drawdown Time for Surface Ponding | 5 | 14 | 14 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | hours |
| | 39 | Drawdown Time for Effective Biofiltration Depth | 12 | 37 | 37 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | hours |
| | 40 | Total Depth Biofiltered | 24.15 | 18.85 | 18.85 | 19.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | inches |
| | 41 | Option 1 - Biofilter 1.50 DCV: Target Volume | 111 | 428 | 212 | 408 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 42 | Option 1 - Provided Biofiltration Volume | 111 | 428 | 212 | 404 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 43 | Option 2 - Store 0.75 DCV: Target Volume | 55 | 214 | 106 | 204 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 44 | Option 2 - Provided Storage Volume | 55 | 214 | 106 | 204 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 45 | Portion of Biofiltration Performance Standard Satisfied | 1.00 | 1.00 | 1.00 | 1.00 | 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 | Yes | - | - | - | - | - | - | yes/no |
| | 47 | Overall Portion of Performance Standard Satisfied (BMP Efficacy Factor) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ratio |
| | 48 | **Deficit of Effectively Treated Stormwater** | **0** | **0** | **0** | **0** | **n/a** | **n/a** | **n/a** | **n/a** | **n/a** | **n/a** | cubic-feet |

**No Warning Messages**

## 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]<br>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)<br>Complete the table provided in Sub-attachment 8.2. |
| **8.3: Geomorphic Assessment of Receiving Channels**<br>1. Has a geomorphic assessment been performed for the receiving channel(s)?<br>☒ No, the low flow threshold is 0.1Q2 (default low flow threshold) |
| ☐ Yes (provide the information below):<br>Low flow threshold: ☐ 0.1Q2 ☐ 0.3Q2 ☐ 0.5Q2 |
| Title:<br><br>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)<br>☐ 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.

## 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 | | All tributary area from DMAs 1-5 |
| 2 | | All tributary area from DMAs 6-8 and is offset by excess areas |
| | | |
| | | |

## 8.3 Geomorphic Assessment of Receiving Water Channels

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

N/A

## 8.4 Vector Control Plan

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

N/A

# HYDROMODIFICATION MANAGEMENT REPORT

## 1.0 INTRODUCTION, PURPOSE, AND SCOPE

The Spring Valley Commercial Building "D" Project (herein referred to as "project") is a proposed commercial redevelopment located within the County of San Diego, just east of California State Route 125 in the vicinity of the intersection of Jamacha Road and Sweetwater Road. The site will be re- developed and has area of approximately 0.8 acres.

The purpose of this report is to document the methods, parameters, and results of the hydromodification analysis, which was performed pursuant to the guidance described in *the County of San Diego BMP Design Manual*, dated September 2020 (herein referred to as "BMP Design Manual").

This narrative includes:

1. General Methodology
2. Pre-developed condition analysis
3. Post-project condition analysis

## 2.0 GENERAL METHODOLOGY

In accordance with the BMP Design Manual a hydromodification management analysis was performed to demonstrate that peak flow rates and durations at the point of compliance (POC) in the post-project condition will be mitigated to existing condition levels for the range of flows of concern. The existing site is contained within two major drainage basins and two POCs 1 & 2. DMA which drains to POC 2 will not be impacted due to the redevelopment therefore, HMP compliance at this POC is not required.

Refer to existing condition HMP exhibit for basin delineations and POC locations.

Two POCs are maintained in the proposed condition. Basin draining westerly side of the site is split into six (11) drainage management areas (DMAs) (i.e., DMA 1, 2, 3, 4, 5, and OF-1) for the purposes of this study. In the proposed condition, a majority of the newly proposed impervious area will be contained within DMAs 2, 4 and 5. DMAs 1 & 3 contain existing impervious areas which are not disturbed by the redevelopment but considered for pollutant and HMP control to comply with the requirements of the onsite alternate compliance. Runoff from theses areas "excess areas" is controlled to offset the HMP for the "required areas". Required areas are newly installed or replaced impervious areas which require pollutant and HMP control but cannot be directed directly to the BMP due to site/grading constraints. Required areas 1, 2, 3 and 5 are offset by excess areas 1, 2, 3 & 4. All DMAs except DMA 6 discharge at POC 1. For the purpose of comparing flow frequency and duration between pre-development and post-project condition, POC 1 is analyzed. POC 2 primarily includes undisturbed asphalt and existing slopes. Pollutant and HMP control of required areas in DMA-6 are not required.

Refer to proposed condition HMP exhibit for basin delineations and POC locations.

The ranges of flows of concern for this project are between 10% of the 2-year peak flow and the 10-year peak flow. The pre-development and post-project conditions were analyzed via continuous simulation modeling performed using the US Environmental Protection Agency (EPA) Storm Water Management Model (SWMM) 5.1. Bonita rainfall gauge data, obtained from the Project Clean Water website (http://www.projectcleanwater.org/), was incorporated into the SWMM analysis. Hourly data from the SWMM modeling were exported to Excel spreadsheets for post-processing analysis. Based on the data presented in the Excel spreadsheets, BMP parameters were adjusted until the management criteria were met (i.e., orifice diameters and basin depths were designed through iterative modeling process, post-processing, and parameter adjustments).

# 3.0 PRE-DEVELOPED CONDITION MODELING

## 3.1 Drainage Area Delineations

Based on the project topographic survey, the pre-developed (existing) condition drainage area was determined for the site. The current regulations and guidance require that the pre-developed condition area within the project footprint be incorporated into modeling with zero impervious cover. The Hydromodification Management Exhibit is provided in Attachment 2 of the PDP SWQMP and shows the areas.

## 3.2 Catchment Modeling Parameters

In accordance the Table G.1-4 of the BMP Design Manual, the parameters presented in Table 3-2 were incorporated into the SWMM analysis for the pre-developed condition.

**Table 3.2-1 Summary of 'Offstie Area' Condition SWMM Catchment Parameters**

| Parameter | Value | Notes |
|---|---|---|
| Area | 1.74 acres | |
| % Imperv | 90% | |
| N-Imperv | 0.012 | Manning's n for impervious. |
| N-Perv | 0.15 | Manning's n for pervious. |
| Dstore-Imperv | 0.05 | Depth of depression storage on impervious portion. |
| Dstore-Perv | 0.10 | Depth of depression storage on pervious portion. |
| Subarea Routing | Outlet | |
| Infiltration Method | Green-Ampt | |
| Suction Head | 9.0 | Soil capillary suction head. |
| Conductivity | 0.01875 in/hr | Soil saturated hydraulic conductivity with 25% reduction for impervious area (Hydrologic soil group D) |
| Initial Deficit | 0.30 | Difference between soil porosity and initial moisture content (a fraction) (Hydrologic soil group D) |
| Evaporation | CIMIS Zone 6 Values | |

**Table 3.2-2 Summary of 'Project Area' Condition SWMM Catchment Parameters**

| Parameter | Value | Notes |
|---|---|---|
| Area | 0.66 acres | Impervious area in pre-project condition |
| % Imperv | 0% | Pre-development condition |
| N-Imperv | 0.012 | Manning's n for impervious. |
| N-Perv | 0.15 | Manning's n for pervious. |
| Dstore-Imperv | 0.05 | Depth of depression storage on impervious portion. |
| Dstore-Perv | 0.10 | Depth of depression storage on pervious portion. |
| Subarea Routing | Outlet | |
| Infiltration Method | Green-Ampt | |
| Suction Head | 9.0 | Soil capillary suction head. |
| Conductivity | 0.025 in/hr | Soil saturated hydraulic conductivity with 25% reduction due to impervious area. (Hydrologic soil group D) |
| Initial Deficit | 0.30 | Difference between soil porosity and initial moisture content (Hydrologic soil group D) |
| Evaporation | CIMIS Zone 6 Values | |

# 4.0 POST-PROJECT CONDITION MODELING

## 4.1 Drainage Area Delineations

Based on the proposed project topography, the post-developed condition drainage areas were determined for the site. The areas where impervious improvements are proposed were contained within DMAs 2 and 4, which corresponds to BMPs 2 and 4. DMAs 1 and 3 are composed of the existing site tributary to BMPs 1 and 3 and draining to POC 1. DMAs 5 and OF-1 are proposed building area and offsite areas tributary to POC 1. Based on the proposed improvements, the impervious areas and pervious areas were determined. Tables 4.1-1 to 6 provide a summary of the post-project areas. The Hydromodification Management Exhibit is provided in Attachment 2 of PDP SWQMP and shows the areas defined below.

**Table 4.1-1 Summary of 'DMA-1'**
**Post-Project Condition SWMM Catchment Parameters**

| Parameter | Value | Notes |
|---|---|---|
| Area | 0.07 acres | |
| % Imperv | 78% | |
| N-Imperv | 0.012 | Manning's n for impervious. |
| N-Perv | 0.15 | Manning's n for pervious. |
| Dstore-Imperv | 0.05 | Depth of depression storage on impervious portion. |
| Dstore-Perv | 0.10 | Depth of depression storage on pervious portion. |
| Subarea Routing | Outlet | |
| Percent Routed | 100% | Percent of runoff routed between sub-areas. |
| Infiltration Method | Green-Ampt | |
| Suction Head | 9.0 | Soil capillary suction head. (soil group D) |
| Conductivity | 0.01875 in/hr | Soil saturated hydraulic conductivity. (Hydrologic soil group D) |
| Initial Deficit | 0.30 | Difference between soil porosity and initial moisture content (Hydrologic soil group D) |
| Evaporation | CIMIS Zone 6 Values | |

**Table 4.1-2 Summary of 'DMA-2' Post-Project Condition SWMM Catchment Parameters**

| Parameter | Value | Notes |
|---|---|---|
| Area | 0.21 acres | |
| % Imperv | 96% | |
| N-Imperv | 0.012 | Manning's n for impervious. |
| N-Perv | 0.15 | Manning's n for pervious. |
| Dstore-Imperv | 0.05 | Depth of depression storage on impervious portion. |
| Dstore-Perv | 0.10 | Depth of depression storage on pervious portion. |
| Subarea Routing | Outlet | |
| Percent Routed | 100% | Percent of runoff routed between sub-areas. |
| Infiltration Method | Green-Ampt | |
| Suction Head | 9.0 | Soil capillary suction head. (soil group D) |
| Conductivity | 0.01875 in/hr | Soil saturated hydraulic conductivity. (Hydrologic soil group D) |
| Initial Deficit | 0.30 | Difference between soil porosity and initial moisture content (Hydrologic soil group D) |
| Evaporation | CIMIS Zone 6 Values | |

**Table 4.1-3 Summary of 'DMA-3' Post-Project Condition SWMM Catchment Parameters**

| Parameter | Value | Notes |
|---|---|---|
| Area | 0.12 acres | |
| % Imperv | 93.4% | |
| N-Imperv | 0.012 | Manning's n for impervious. |
| N-Perv | 0.15 | Manning's n for pervious. |
| Dstore-Imperv | 0.05 | Depth of depression storage on impervious portion. |
| Dstore-Perv | 0.10 | Depth of depression storage on pervious portion. |
| Subarea Routing | Outlet | |
| Percent Routed | 100% | Percent of runoff routed between sub-areas. |
| Infiltration Method | Green-Ampt | |
| Suction Head | 9.0 | Soil capillary suction head. (soil group D) |
| Conductivity | 0.01875 in/hr | Soil saturated hydraulic conductivity. (Hydrologic soil group D) |
| Initial Deficit | 0.30 | Difference between soil porosity and initial moisture content (Hydrologic soil group D) |
| Evaporation | CIMIS Zone 6 Values | |

**Table 4.1-4 Summary of 'DMA-4' Post-Project Condition SWMM Catchment Parameters**

| Parameter | Value | Notes |
|---|---|---|
| Area | 0.19 acres | |
| % Imperv | 96.5% | |
| N-Imperv | 0.012 | Manning's n for impervious. |
| N-Perv | 0.15 | Manning's n for pervious. |
| Dstore-Imperv | 0.05 | Depth of depression storage on impervious portion. |
| Dstore-Perv | 0.10 | Depth of depression storage on pervious portion. |
| Subarea Routing | Outlet | |
| Percent Routed | 100% | Percent of runoff routed between sub-areas. |
| Infiltration Method | Green-Ampt | |
| Suction Head | 9.0 | Soil capillary suction head. (soil group D) |
| Conductivity | 0.01875 in/hr | Soil saturated hydraulic conductivity. (Hydrologic soil group D) |
| Initial Deficit | 0.30 | Difference between soil porosity and initial moisture content (Hydrologic soil group D) |
| Evaporation | CIMIS Zone 6 Values | |

**Table 4.1-5 Summary of 'DMA-5,7,8-10' Post-Project Condition SWMM Catchment Parameters**

| Parameter | Value | Notes |
|---|---|---|
| Area | 0.21 acres | |
| % Imperv | 100% | |
| N-Imperv | 0.012 | Manning's n for impervious. |
| N-Perv | 0.15 | Manning's n for pervious. |
| Dstore-Imperv | 0.05 | Depth of depression storage on impervious portion. |
| Dstore-Perv | 0.10 | Depth of depression storage on pervious portion. |
| Subarea Routing | Outlet | |
| Percent Routed | 100% | Percent of runoff routed between sub-areas. |
| Infiltration Method | Green-Ampt | |
| Suction Head | 9.0 | Soil capillary suction head. (soil group D) |
| Conductivity | 0.01875 in/hr | Soil saturated hydraulic conductivity. (Hydrologic soil group D) |
| Initial Deficit | 0.30 | Difference between soil porosity and initial moisture content (Hydrologic soil group D) |
| Evaporation | CIMIS Zone 6 Values | |

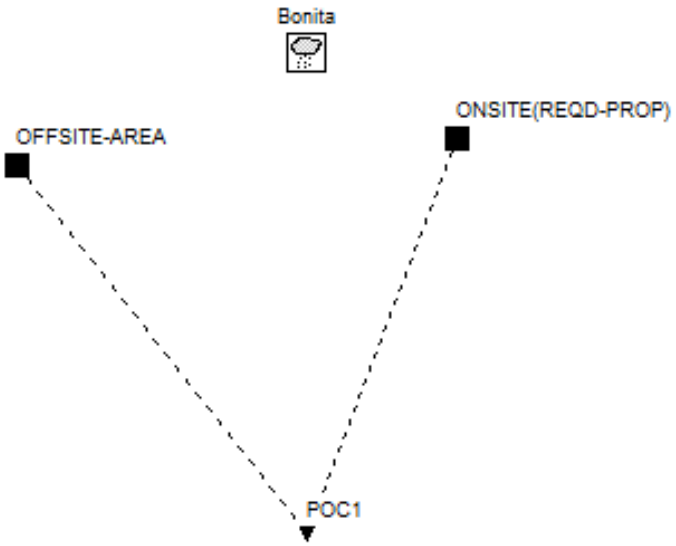
**Table 4.1-6 Summary of 'DMA-OF-1' Post-Project Condition SWMM Catchment Parameters**

| Parameter | Value | Notes |
|---|---|---|
| Area | 1.57 acres | |
| % Imperv | 90% | |
| N-Imperv | 0.012 | Manning's n for impervious. |
| N-Perv | 0.15 | Manning's n for pervious. |
| Dstore-Imperv | 0.05 | Depth of depression storage on impervious portion. |
| Dstore-Perv | 0.10 | Depth of depression storage on pervious portion. |
| Subarea Routing | Outlet | |
| Percent Routed | 100% | Percent of runoff routed between sub-areas. |
| Infiltration Method | Green-Ampt | |
| Suction Head | 9.0 | Soil capillary suction head. (soil group D) |
| Conductivity | 0.01875 in/hr | Soil saturated hydraulic conductivity. (Hydrologic soil group D) |
| Initial Deficit | 0.30 | Difference between soil porosity and initial moisture content (Hydrologic soil group D) |
| Evaporation | CIMIS Zone 6 Values | |

## 5.0 SUMMARY

A hydromodification management analysis was performed in accordance with the BMP Design Manual using SWMM software. The results of the analysis indicate that proposed project as design complies with the current hydromodification management criteria. Compliance has been demonstrated through proposed implementation of one multi-purpose biofiltration basin. The BMPs have been designed to provide water quality pollutant control, hydromodification management, flood control and conveyance. Following this report are the results of the SWMM analysis and additional worksheets/calculations.

SWMM MODEL-PRE DEVELOPMENT



EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.014)
---

BUILDING D - SPRING VALLEY
POC-1 PRE-DEVELOPMENT CONDITION
12392us

**********
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
**********

**********
Analysis Options
**********
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... NO
  Water Quality ..... NO
Infiltration Method ..... GREEN_AMPT
Starting Date ..... 10/03/1970 05:00:00
Ending Date ..... 05/25/2008 22:00:00
Antecedent Dry Days ..... 0.0
Report Time Step ..... 01:00:00
Wet Time Step ..... 00:15:00
Dry Time Step ..... 04:00:00

| ********** | Volume | Depth |
|---|---|---|
| Runoff Quantity Continuity | acre-feet | inches |
| ********** | --- | --- |
| Total Precipitation ..... | 67.814 | 339.070 |
| Evaporation Loss ..... | 9.938 | 49.690 |
| Infiltration Loss ..... | 18.758 | 93.789 |
| Surface Runoff ..... | 39.728 | 198.639 |
| Final Storage ..... | 0.000 | 0.000 |
| Continuity Error (%) ..... | -0.899 | |

| ********** | Volume | Volume |
|---|---|---|
| Flow Routing Continuity | acre-feet | 10^6 gal |
| ********** | --- | --- |
| Dry Weather Inflow ..... | 0.000 | 0.000 |
| Wet Weather Inflow ..... | 39.728 | 12.946 |

Result-Summary Existing

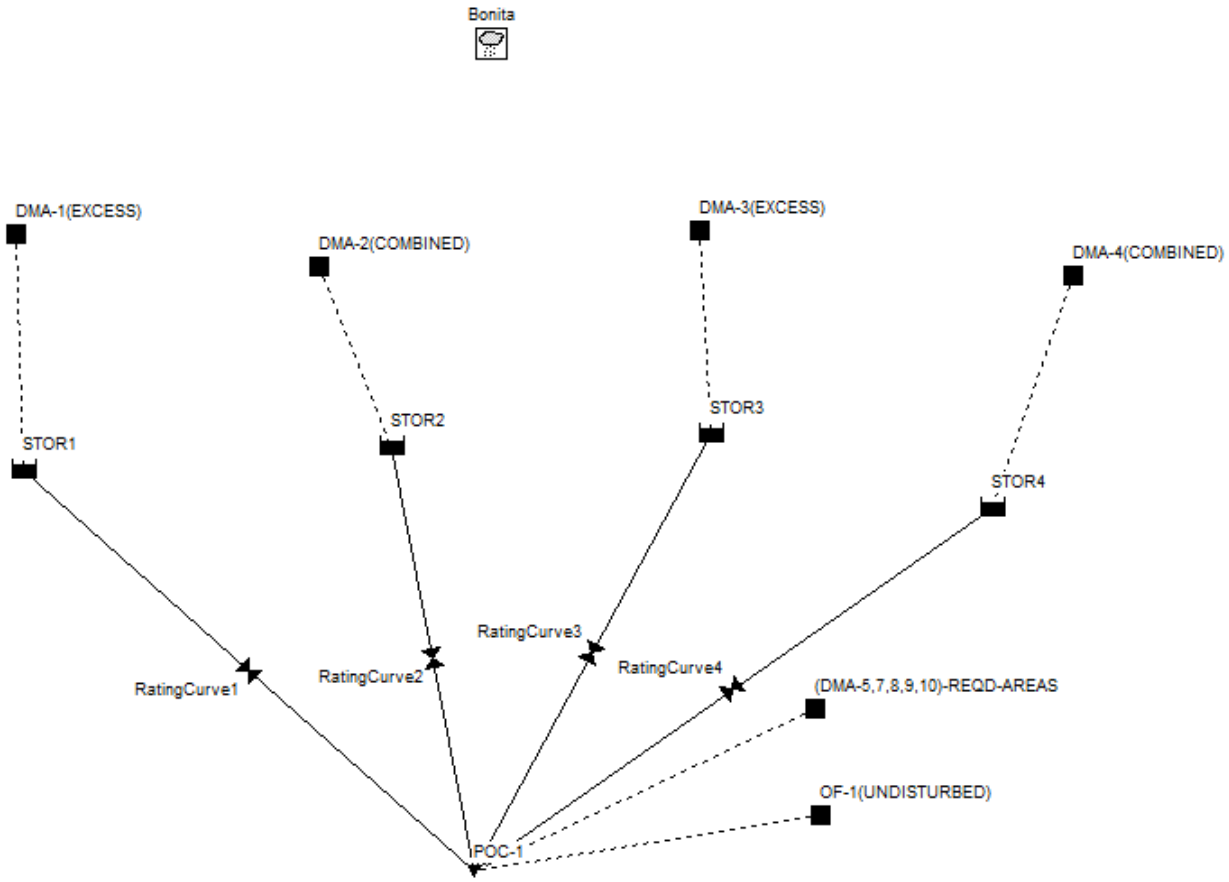
| | | |
|---|---|---|
| Groundwater Inflow ..... | 0.000 | 0.000 |
| RDII Inflow ..... | 0.000 | 0.000 |
| External Inflow ..... | 0.000 | 0.000 |
| External Outflow ..... | 39.728 | 12.946 |
| Flooding Loss ..... | 0.000 | 0.000 |
| Evaporation Loss ..... | 0.000 | 0.000 |
| Exfiltration Loss ..... | 0.000 | 0.000 |
| Initial Stored Volume .... | 0.000 | 0.000 |
| Final Stored Volume ..... | 0.000 | 0.000 |
| Continuity Error (%) ..... | 0.000 | |

**********
Subcatchment Runoff Summary
**********

| Subcatchment | Total Precip in | Total Runon in | Total Evap in | Total Infil in | Imperv Runoff in | Perv Runoff in | Total Runoff in | Total Runoff 10^6 gal | Peak Runoff CFS | Runoff Coeff |
|---|---|---|---|---|---|---|---|---|---|---|
| OFFSITE-AREA | 339.07 | 0.00 | 63.00 | 26.37 | 246.27 | 6.52 | 252.78 | 11.94 | 1.92 | 0.746 |
| ONSITE(REQD-PROP) | 339.07 | 0.00 | 14.59 | 271.53 | 0.00 | 55.89 | 55.89 | 1.00 | 0.64 | 0.165 |

Analysis begun on: Wed Mar 10 14:25:56 2021
Analysis ended on: Wed Mar 10 14:26:09 2021
Total elapsed time: 00:00:13

SWMM MODEL - POST-DEVELOPMENT
(MITIGATED CONDITION)



EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.014)
---

BUILDING D SPRING VALLEY
POC-1 POST-DEVELOPMENT-MIT CONDITION
13392us

**********
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
**********

**********
Analysis Options
**********
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... NO
Infiltration Method ..... GREEN_AMPT
Flow Routing Method ..... KINWAVE
Starting Date ..... 10/03/1970 05:00:00
Ending Date ..... 05/25/2008 22:00:00
Antecedent Dry Days ..... 0.0
Report Time Step ..... 01:00:00
Wet Time Step ..... 00:15:00
Dry Time Step ..... 04:00:00
Routing Time Step ..... 60.00 sec

| ********** | Volume | Depth |
|---|---|---|
| Runoff Quantity Continuity | acre-feet | inches |
| ********** | --------- | ------- |
| Total Precipitation ..... | 66.966 | 339.070 |
| Evaporation Loss ..... | 12.739 | 64.502 |
| Infiltration Loss ..... | 4.487 | 22.719 |
| Surface Runoff ..... | 50.308 | 254.726 |
| Final Storage ..... | 0.000 | 0.000 |
| Continuity Error (%) ..... | -0.849 | |

| ********** | Volume | Volume |
|---|---|---|
| Flow Routing Continuity | acre-feet | 10^6 gal |

Result-Summary Post_Mitigation

| ************************ | --------- | --------- |
|---|---|---|
| Dry Weather Inflow ..... | 0.000 | 0.000 |
| Wet Weather Inflow ..... | 50.308 | 16.394 |
| Groundwater Inflow ..... | 0.000 | 0.000 |
| RDII Inflow ..... | 0.000 | 0.000 |
| External Inflow ..... | 0.000 | 0.000 |
| External Outflow ..... | 50.238 | 16.371 |
| Flooding Loss ..... | 0.000 | 0.000 |
| Evaporation Loss ..... | 0.066 | 0.022 |
| Exfiltration Loss ..... | 0.000 | 0.000 |
| Initial Stored Volume .... | 0.000 | 0.000 |
| Final Stored Volume ..... | 0.000 | 0.000 |
| Continuity Error (%) ..... | 0.008 | |

**********
Highest Flow Instability Indexes
**********
All links are stable.

**********
Routing Time Step Summary
**********

| | | |
|---|---|---|
| Minimum Time Step | : | 60.00 sec |
| Average Time Step | : | 60.00 sec |
| Maximum Time Step | : | 60.00 sec |
| Percent in Steady State | : | 0.00 |
| Average Iterations per Step | : | 1.00 |
| Percent Not Converging | : | 0.00 |

**********
Subcatchment Runoff Summary
**********

| Subcatchment | Total Precip in | Total Runon in | Total Evap in | Total Infil in | Imperv Runoff in | Perv Runoff in | Total Runoff in | Total Runoff 10^6 gal | Peak Runoff CFS | Runoff Coeff |
|---|---|---|---|---|---|---|---|---|---|---|
| OF-1(UNDISTURBED) | 339.07 | 0.00 | 63.79 | 27.97 | 244.69 | 5.09 | 249.78 | 10.65 | 1.73 | 0.737 |
| DMA-2(COMBINED) | 339.07 | 0.00 | 64.67 | 10.35 | 265.07 | | | | | |

```
    2.86     267.93        1.53     0.23   0.790
  DMA-1(EXCESS)           339.07       0.00      51.32      57.00     221.57
    15.74     237.31        0.45     0.08   0.700
  DMA-3(EXCESS)           339.07       0.00      61.10      17.06     261.57
    4.77     266.34        0.87     0.13   0.786
  DMA-4(COMBINED)         339.07       0.00      64.64       9.07     266.93
    2.50     269.44        1.39     0.21   0.795
  (DMA-5,7,8,9,10)-REQD-AREAS     339.07       0.00      75.89       0.00
264.39       0.00     264.39        1.51     0.23   0.780


  ******************
  Node Depth Summary
  ******************


------------------------------------------------------------------------------
---
                                  Average  Maximum  Maximum  Time of Max
Reported
                                    Depth    Depth      HGL   Occurrence   Max
Depth
  Node                 Type          Feet     Feet     Feet  days hr:min
Feet

------------------------------------------------------------------------------
---
  POC-1                OUTFALL       0.00     0.00     0.00     0  00:00
0.00
  STOR1                STORAGE       0.03     4.26     4.26  4532  11:53
4.26
  STOR2                STORAGE       0.11     4.29     4.29  4532  11:43
4.29
  STOR3                STORAGE       0.06     4.23     4.23  5532  14:10
4.19
  STOR4                STORAGE       0.10     4.29     4.29  4532  11:42
4.29


  ******************
  Node Inflow Summary
  ******************


------------------------------------------------------------------------------
------------------
                                  Maximum  Maximum                  Lateral
   Total        Flow
                                  Lateral    Total  Time of Max      Inflow
  Inflow     Balance
                                   Inflow   Inflow   Occurrence      Volume
```

Result-Summary Post_Mitigation

| Node | Type | CFS | CFS | days hr:min | 10^6 gal | 10^6 gal | Error Percent |
|---|---|---|---|---|---|---|---|
| POC-1 | OUTFALL | 1.96 | 2.50 | 4532 12:01 | 12.2 | 16.4 | 0.000 |
| STOR1 | STORAGE | 0.08 | 0.08 | 4532 11:31 | 0.451 | 0.451 | 0.040 |
| STOR2 | STORAGE | 0.23 | 0.23 | 4532 12:01 | 1.53 | 1.53 | 0.035 |
| STOR3 | STORAGE | 0.13 | 0.13 | 4532 12:01 | 0.868 | 0.868 | 0.012 |
| STOR4 | STORAGE | 0.21 | 0.21 | 4532 12:01 | 1.39 | 1.39 | 0.040 |

**********
Node Flooding Summary
**********

No nodes were flooded.

**********
Storage Volume Summary
**********

| Storage Unit | Average Volume 1000 ft3 | Avg Pcnt Full | Evap Pcnt Loss | Exfil Pcnt Loss | Maximum Volume 1000 ft3 | Max Pcnt Full | Time of Max Occurrence days hr:min | Maximum Outflow CFS |
|---|---|---|---|---|---|---|---|---|
| STOR1 | 0.001 | 1 | 1 | 0 | 0.196 | 89 | 4532 11:56 | 0.08 |
| STOR2 | 0.012 | 2 | 1 | 0 | 0.597 | 91 | 4532 11:42 | 0.23 |
| STOR3 | 0.007 | 1 | 0 | 0 | 0.578 | 88 | 5532 14:09 | 0.04 |
| STOR4 | 0.009 | 2 | 0 | 0 | 0.497 | 90 | 4532 11:41 | 0.21 |

**********
Outfall Loading Summary
**********

| Outfall Node | Flow Freq Pcnt | Avg Flow CFS | Max Flow CFS | Total Volume 10^6 gal |
|---|---|---|---|---|
| POC-1 | 7.95 | 0.02 | 2.50 | 16.370 |
| System | 7.95 | 0.02 | 2.50 | 16.370 |

**********
Link Flow Summary
**********

| Link | Type | Maximum \|Flow\| CFS | Time of Max Occurrence days hr:min | Maximum \|Veloc\| ft/sec | Max/ Full Flow | Max/ Full Depth |
|---|---|---|---|---|---|---|
| RatingCurve1 | DUMMY | 0.08 | 4532 11:53 | | | |
| RatingCurve2 | DUMMY | 0.23 | 4532 11:43 | | | |
| RatingCurve3 | DUMMY | 0.04 | 5532 14:10 | | | |
| RatingCurve4 | DUMMY | 0.21 | 4532 11:42 | | | |

**********
Conduit Surcharge Summary
**********

No conduits were surcharged.

Analysis begun on: Wed Mar 10 13:31:37 2021
Analysis ended on: Wed Mar 10 13:32:01 2021
Total elapsed time: 00:00:24

13392us
CVS Spring Valley
3/10/2021

## DMA-1: Rating Curve and Storage Curve for SWMM Model

| Basin Characteristics | |
|---|---|
| WQ ponding depth (ft) = | 0.50 |
| Mulch layer (ft) = | 0.25 |
| Bioretention soil media (ft) = | 1.50 |
| Gravel choker layer (ft) = | 0.50 |
| Gravel layer (ft) = | 1.00 |
| Dead storage (ft) | 0.25 |

| | |
|---|---|
| Botton surface area (ft2) = | 100 |
| Grade break elevation (ft) = | 4.25 |
| Surface area @ grade break (ft2) = | 100 |
| Top surface area (ft2) = | 100 |

| Low-flow Orifice (Restrictor) | |
|---|---|
| Num. of orfices = | 1 |
| Orifice invert elevation (ft) = | 0.0 |
| Orifice diameter (in) = | 0.25 |

| Mid-flow Orfice (1st) | |
|---|---|
| Num. of orfices = | 1 |
| Orifice invert elevation (ft) = | 3.75 |
| Orifice diameter (in) = | 1.5 |

| Overflow Outlet | |
|---|---|
| Outlet invert elevation (ft) = | 4.25 |
| B (ft) = | 3.00 |

| Orifice/Weir Coefficient | |
|---|---|
| Orifice coefficient, Cg = | 0.60 |
| Weir coefficient, Cs = | 3.0 |

| Elevation (ft) | Area (sf) | Porosity | Effective Area for SWMM (sf) | Discharge for SWMM (cfs) |
|---|---|---|---|---|
| **0.00** | 100 | 0.40 | **40** | **0.000** |
| **1.00** | 100 | 0.40 | **40** | **0.002** |
| **1.25** | 100 | 0.40 | **40** | **0.002** |
| **1.50** | 100 | 0.20 | **20** | **0.002** |
| **3.00** | 100 | 0.20 | **20** | **0.003** |
| **3.25** | 100 | 1.00 | **100** | **0.003** |
| **3.75** | 100 | 1.00 | **100** | **0.003** |
| **4.00** | 100 | 1.00 | **100** | **0.029** |
| **4.25** | 100 | 1.00 | **100** | **0.042** |
| **4.50** | 100 | 1.00 | **100** | **1.177** |

13392us
CVS Spring Valley
3/10/2021

## DMA-2: Rating Curve and Storage Curve for SWMM Model

| Basin Characteristics | |
|---|---|
| WQ ponding depth (ft) = | 0.50 |
| Mulch layer (ft) = | 0.25 |
| Bioretention soil media (ft) = | 1.50 |
| Gravel choker layer (ft) = | 0.50 |
| Gravel layer (ft) = | 1.00 |
| Dead storage (ft) | 0.25 |

| | |
|---|---|
| Botton surface area (ft2) = | 300 |
| Grade break elevation (ft) = | 4.25 |
| Surface area @ grade break (ft2) = | 300 |
| Top surface area (ft2) = | 300 |

| Low-flow Orifice (Restrictor) | |
|---|---|
| Num. of orfices = | 1 |
| Orifice invert elevation (ft) = | 0.0 |
| Orifice diameter (in) = | 0.3 |

| Mid-flow Orfice (1st) | |
|---|---|
| Num. of orfices = | 1 |
| Orifice invert elevation (ft) = | 3.75 |
| Orifice diameter (in) = | 1.5 |

| Overflow Outlet | |
|---|---|
| Outlet invert elevation (ft) = | 4.25 |
| B (ft) = | 3.00 |

| Orifice/Weir Coefficient | |
|---|---|
| Orifice coefficient, Cg = | 0.60 |
| Weir coefficient, Cs = | 3.0 |

| Elevation (ft) | Area (sf) | Porosity | Effective Area for SWMM (sf) | Discharge for SWMM (cfs) |
|---|---|---|---|---|
| **0.00** | 300 | 0.40 | **120** | **0.000** |
| **1.00** | 300 | 0.40 | **120** | **0.002** |
| **1.25** | 300 | 0.40 | **120** | **0.002** |
| **1.50** | 300 | 0.20 | **60** | **0.002** |
| **3.00** | 300 | 0.20 | **60** | **0.003** |
| **3.25** | 300 | 1.00 | **300** | **0.003** |
| **3.75** | 300 | 1.00 | **300** | **0.003** |
| **4.00** | 300 | 1.00 | **300** | **0.029** |
| **4.25** | 300 | 1.00 | **300** | **0.042** |
| **4.50** | 300 | 1.00 | **300** | **1.177** |

13392us
CVS Spring Valley
3/10/2021

## DMA-3: Rating Curve and Storage Curve for SWMM Model

| Basin Characteristics | |
|---|---|
| WQ ponding depth (ft) = | 0.50 |
| Mulch layer (ft) = | 0.25 |
| Bioretention soil media (ft) = | 1.50 |
| Gravel choker layer (ft) = | 0.50 |
| Gravel layer (ft) = | 1.00 |
| Dead storage (ft) | 0.25 |

| | |
|---|---|
| Botton surface area (ft2) = | 300 |
| Grade break elevation (ft) = | 4.25 |
| Surface area @ grade break (ft2) = | 300 |
| Top surface area (ft2) = | 300 |

| Low-flow Orifice (Restrictor) | |
|---|---|
| Num. of orfices = | 1 |
| Orifice invert elevation (ft) = | 0.0 |
| Orifice diameter (in) = | 0.25 |

| Mid-flow Orfice (1st) | |
|---|---|
| Num. of orfices = | 1 |
| Orifice invert elevation (ft) = | 3.75 |
| Orifice diameter (in) = | 1.5 |

| Overflow Outlet | |
|---|---|
| Outlet invert elevation (ft) = | 4.25 |
| B (ft) = | 3.00 |

| Orifice/Weir Coefficient | |
|---|---|
| Orifice coefficient, Cg = | 0.60 |
| Weir coefficient, Cs = | 3.0 |

| **Elevation (ft)** | Area (sf) | Porosity | **Effective Area for SWMM (sf)** | **Discharge for SWMM (cfs)** |
|---|---|---|---|---|
| **0.00** | 300 | 0.40 | **120** | **0.000** |
| **1.00** | 300 | 0.40 | **120** | **0.002** |
| **1.25** | 300 | 0.40 | **120** | **0.002** |
| **1.50** | 300 | 0.20 | **60** | **0.002** |
| **3.00** | 300 | 0.20 | **60** | **0.003** |
| **3.25** | 300 | 1.00 | **300** | **0.003** |
| **3.75** | 300 | 1.00 | **300** | **0.003** |
| **4.00** | 300 | 1.00 | **300** | **0.029** |
| **4.25** | 300 | 1.00 | **300** | **0.042** |
| 4.50 | 300 | 1.00 | **300** | **1.177** |

13392us
CVS Spring Valley
3/10/2021

## DMA-4: Rating Curve and Storage Curve for SWMM Model

| Basin Characteristics | |
|---|---|
| WQ ponding depth (ft) = | 0.50 |
| Mulch layer (ft) = | 0.25 |
| Bioretention soil media (ft) = | 1.50 |
| Gravel choker layer (ft) = | 0.50 |
| Gravel layer (ft) = | 1.00 |
| Dead storage (ft) | 0.25 |

| | |
|---|---|
| Botton surface area (ft2) = | 250 |
| Grade break elevation (ft) = | 4.25 |
| Surface area @ grade break (ft2) = | 250 |
| Top surface area (ft2) = | 250 |

| Low-flow Orifice (Restrictor) | |
|---|---|
| Num. of orfices = | 1 |
| Orifice invert elevation (ft) = | 0.0 |
| Orifice diameter (in) = | 0.25 |

| Mid-flow Orfice (1st) | |
|---|---|
| Num. of orfices = | 1 |
| Orifice invert elevation (ft) = | 3.75 |
| Orifice diameter (in) = | 1.5 |

| Overflow Outlet | |
|---|---|
| Outlet invert elevation (ft) = | 4.25 |
| B (ft) = | 3.00 |

| Orifice/Weir Coefficient | |
|---|---|
| Orifice coefficient, Cg = | 0.60 |
| Weir coefficient, Cs = | 3.0 |

| Elevation (ft) | Area (sf) | Porosity | Effective Area for SWMM (sf) | Discharge for SWMM (cfs) |
|---|---|---|---|---|
| **0.00** | 250 | 0.40 | **100** | **0.000** |
| **1.00** | 250 | 0.40 | **100** | **0.002** |
| **1.25** | 250 | 0.40 | **100** | **0.002** |
| **1.50** | 250 | 0.20 | **50** | **0.002** |
| **3.00** | 250 | 0.20 | **50** | **0.003** |
| **3.25** | 250 | 1.00 | **250** | **0.003** |
| **3.75** | 250 | 1.00 | **250** | **0.003** |
| **4.00** | 250 | 1.00 | **250** | **0.029** |
| **4.25** | 250 | 1.00 | **250** | **0.042** |
| **4.50** | 250 | 1.00 | **250** | **1.177** |

## Peak Flow Frequency Summary

| Return Period | Pre-development Qpeak (cfs) | Post-project - Mitigated Q (cfs) |
|---|---|---|
| LF = 0.1*Q2 | 0.095 | 0.087 |
| 2-year | 0.947 | 0.871 |
| 3-year | 1.059 | 1.053 |
| 4-year | 1.197 | 1.187 |
| 5-year | 1.267 | 1.221 |
| 6-year | 1.310 | 1.243 |
| 7-year | 1.375 | 1.268 |
| 8-year | 1.472 | 1.306 |
| 9-year | 1.506 | 1.338 |
| 10-year | 1.533 | 1.366 |

# Pre-development Flow Frequency - Long-term Simulation

Clear Pre-development FF and TS

CVS SPRING VALLEY
Statistics - Node POC1 Total Inflow

| Rank | Start Date | Event Duration (hours) | Event Peak (CFS) | Exceedance Frequency (percent) | Return Period (years) |
|---|---|---|---|---|---|
| 1/1/1900 | 2/26/1983 | 143 | 2.551 | 0.16 | 39 |
| 2 | 11/10/1972 | 28 | 1.603 | 0.31 | 19.5 |
| 3 | 8/14/1983 | 3 | 1.549 | 0.47 | 13 |
| 4 | 3/24/1983 | 17 | 1.532 | 0.62 | 9.75 |
| 5 | 12/3/1992 | 17 | 1.465 | 0.78 | 7.8 |
| 6 | 10/30/1998 | 3 | 1.318 | 0.94 | 6.5 |
| 7 | 11/24/1985 | 29 | 1.303 | 1.09 | 5.57 |
| 8 | 1/7/2005 | 96 | 1.26 | 1.25 | 4.88 |
| 9 | 11/12/1976 | 11 | 1.221 | 1.4 | 4.33 |
| 10 | 12/19/1970 | 84 | 1.19 | 1.56 | 3.9 |
| 11 | 10/18/2004 | 66 | 1.171 | 1.72 | 3.55 |
| 12 | 2/21/2004 | 54 | 1.069 | 1.87 | 3.25 |
| 13 | 3/20/1973 | 6 | 1.059 | 2.03 | 3 |
| 14 | 1/16/1978 | 32 | 1.026 | 2.18 | 2.79 |
| 15 | 2/27/1991 | 48 | 1.025 | 2.34 | 2.6 |
| 16 | 11/20/1983 | 27 | 1.025 | 2.5 | 2.44 |
| 17 | 1/3/2005 | 31 | 0.983 | 2.65 | 2.29 |
| 18 | 2/6/1992 | 16 | 0.974 | 2.81 | 2.17 |
| 19 | 10/11/1987 | 36 | 0.962 | 2.96 | 2.05 |
| 20 | 2/19/2005 | 94 | 0.932 | 3.12 | 1.95 |
| 21 | 4/1/1982 | 10 | 0.925 | 3.28 | 1.86 |
| 22 | 1/5/1987 | 14 | 0.923 | 3.43 | 1.77 |
| 23 | 3/21/1983 | 12 | 0.894 | 3.59 | 1.7 |
| 24 | 3/20/1992 | 15 | 0.891 | 3.74 | 1.63 |
| 25 | 3/25/1991 | 55 | 0.89 | 3.9 | 1.56 |
| 26 | 2/18/1993 | 63 | 0.889 | 4.06 | 1.5 |
| 27 | 3/17/1983 | 48 | 0.879 | 4.21 | 1.44 |
| 28 | 3/2/2004 | 7 | 0.876 | 4.37 | 1.39 |
| 29 | 12/25/1988 | 27 | 0.84 | 4.52 | 1.34 |
| 30 | 12/7/1992 | 18 | 0.826 | 4.68 | 1.3 |
| 31 | 3/2/1992 | 22 | 0.822 | 4.84 | 1.26 |
| 32 | 1/31/1979 | 66 | 0.812 | 4.99 | 1.22 |
| 33 | 4/20/1983 | 39 | 0.803 | 5.15 | 1.18 |
| 34 | 2/2/1988 | 20 | 0.801 | 5.3 | 1.15 |
| 35 | 3/19/1991 | 66 | 0.799 | 5.46 | 1.11 |
| 36 | 11/22/1984 | 17 | 0.797 | 5.62 | 1.08 |
| 37 | 8/16/1977 | 22 | 0.793 | 5.77 | 1.05 |
| 38 | 12/11/1985 | 25 | 0.759 | 5.93 | 1.03 |
| 39 | 2/28/1981 | 41 | 0.745 | 6.08 | 1 |
| 40 | 11/21/1996 | 38 | 0.722 | 6.24 | 0.98 |
| 41 | 12/28/2004 | 38 | 0.722 | 6.4 | 0.95 |
| 42 | 11/11/1985 | 38 | 0.712 | 6.55 | 0.93 |
| 43 | 4/25/1994 | 60 | 0.71 | 6.71 | 0.91 |
| 44 | 2/17/1990 | 30 | 0.703 | 6.86 | 0.89 |
| 45 | 3/10/1980 | 23 | 0.692 | 7.02 | 0.87 |
| 46 | 1/28/1980 | 67 | 0.671 | 7.18 | 0.85 |
| 47 | 11/29/1970 | 18 | 0.664 | 7.33 | 0.83 |
| 48 | 11/30/2007 | 17 | 0.664 | 7.49 | 0.81 |
| 49 | 2/15/1986 | 17 | 0.663 | 7.64 | 0.8 |
| 50 | 2/27/1978 | 88 | 0.655 | 7.8 | 0.78 |
| 51 | 4/3/1987 | 23 | 0.649 | 7.96 | 0.76 |
| 52 | 1/28/1982 | 11 | 0.644 | 8.11 | 0.75 |
| 53 | 12/27/1984 | 29 | 0.641 | 8.27 | 0.74 |
| 54 | 1/11/1993 | 66 | 0.632 | 8.42 | 0.72 |
| 55 | 1/12/1997 | 20 | 0.631 | 8.58 | 0.71 |
| 56 | 1/5/1979 | 34 | 0.613 | 8.74 | 0.7 |
| 57 | 1/3/1995 | 48 | 0.612 | 8.89 | 0.68 |
| 58 | 3/6/1974 | 35 | 0.611 | 9.05 | 0.67 |
| 59 | 10/27/2004 | 34 | 0.601 | 9.2 | 0.66 |
| 60 | 10/21/1976 | 59 | 0.6 | 9.36 | 0.65 |
| 61 | 3/4/2005 | 12 | 0.6 | 9.52 | 0.64 |
| 62 | 2/12/1992 | 10 | 0.599 | 9.67 | 0.63 |
| 63 | 5/8/1977 | 20 | 0.594 | 9.83 | 0.62 |
| 64 | 9/16/1978 | 5 | 0.593 | 9.98 | 0.61 |
| 65 | 2/19/2007 | 26 | 0.581 | 10.14 | 0.6 |
| 66 | 11/9/1982 | 37 | 0.574 | 10.3 | 0.59 |
| 67 | 1/29/1983 | 8 | 0.573 | 10.45 | 0.58 |
| 68 | 1/25/1995 | 20 | 0.57 | 10.61 | 0.57 |
| 69 | 2/19/1980 | 75 | 0.569 | 10.76 | 0.57 |
| 70 | 12/10/1984 | 24 | 0.568 | 10.92 | 0.56 |
| 71 | 3/5/2000 | 19 | 0.559 | 11.08 | 0.55 |
| 72 | 3/6/1992 | 51 | 0.558 | 11.23 | 0.54 |
| 73 | 12/28/1977 | 46 | 0.553 | 11.39 | 0.53 |
| 74 | 3/15/1986 | 27 | 0.553 | 11.54 | 0.53 |
| 75 | 12/6/1986 | 41 | 0.553 | 11.7 | 0.52 |

| | | | |
|---|---|---|---|
| **10-year Q:** | 1.533 | cfs | (interpolated from Table) |
| **9-year Q:** | 1.506 | cfs | |
| **8-year Q:** | 1.472 | cfs | |
| **7-year Q:** | 1.375 | cfs | |
| **6-year Q:** | 1.310 | cfs | |
| **5-year Q:** | 1.267 | cfs | |
| **4-year Q:** | 1.197 | cfs | |
| **3-year Q:** | 1.059 | cfs | |
| **2-year Q:** | 0.947 | cfs | |
| **Lower Flow Threshold:** | 10% | | |
| **0.1xQ2 (Pre):** | 0.095 | cfs | |

## Pre-development Flow Frequency - Long-term Simulation

Clear Pre-development FF and TS

CVS SPRING VALLEY
Statistics - Node POC1 Total Inflow

| Rank | Start Date | Event Duration (hours) | Event Peak (CFS) | Exceedance Frequency (percent) | Return Period (years) |
|---|---|---|---|---|---|
| 76 | 1/20/1982 | 28 | 0.552 | 11.86 | 0.51 |
| 77 | 3/6/1980 | 18 | 0.551 | 12.01 | 0.51 |
| 78 | 2/23/1993 | 16 | 0.548 | 12.17 | 0.5 |
| 79 | 1/15/1993 | 83 | 0.547 | 12.32 | 0.49 |
| 80 | 3/17/1982 | 33 | 0.537 | 12.48 | 0.49 |
| 81 | 3/5/1981 | 27 | 0.535 | 12.64 | 0.48 |
| 82 | 3/26/1981 | 33 | 0.535 | 12.79 | 0.48 |
| 83 | 9/10/1976 | 26 | 0.531 | 12.95 | 0.47 |
| 84 | 1/9/1980 | 119 | 0.526 | 13.1 | 0.46 |
| 85 | 10/9/1986 | 14 | 0.523 | 13.26 | 0.46 |
| 86 | 9/25/1986 | 8 | 0.521 | 13.42 | 0.45 |
| 87 | 5/22/2006 | 12 | 0.521 | 13.57 | 0.45 |
| 88 | 3/10/1975 | 34 | 0.515 | 13.73 | 0.44 |
| 89 | 2/2/1983 | 54 | 0.515 | 13.88 | 0.44 |
| 90 | 12/19/1987 | 3 | 0.508 | 14.04 | 0.43 |
| 91 | 3/13/1991 | 2 | 0.498 | 14.2 | 0.43 |
| 92 | 1/14/1978 | 20 | 0.496 | 14.35 | 0.42 |
| 93 | 3/21/1995 | 51 | 0.493 | 14.51 | 0.42 |
| 94 | 3/30/1978 | 40 | 0.489 | 14.66 | 0.41 |
| 95 | 3/2/1995 | 100 | 0.488 | 14.82 | 0.41 |
| 96 | 12/4/1972 | 9 | 0.486 | 14.98 | 0.41 |
| 97 | 12/16/1984 | 5 | 0.482 | 15.13 | 0.4 |
| 98 | 1/9/1978 | 35 | 0.482 | 15.29 | 0.4 |
| 99 | 3/5/1975 | 25 | 0.482 | 15.44 | 0.39 |
| 100 | 4/13/1976 | 9 | 0.481 | 15.6 | 0.39 |
| 101 | 2/11/2005 | 42 | 0.469 | 15.76 | 0.39 |
| 102 | 3/1/1976 | 45 | 0.467 | 15.91 | 0.38 |
| 103 | 12/24/1983 | 64 | 0.461 | 16.07 | 0.38 |
| 104 | 2/25/1981 | 5 | 0.46 | 16.22 | 0.38 |
| 105 | 2/13/1995 | 26 | 0.459 | 16.38 | 0.37 |
| 106 | 4/14/1988 | 6 | 0.459 | 16.54 | 0.37 |
| 107 | 3/19/1981 | 10 | 0.459 | 16.69 | 0.36 |
| 108 | 2/26/2004 | 48 | 0.459 | 16.85 | 0.36 |
| 109 | 1/3/1974 | 129 | 0.456 | 17 | 0.36 |
| 110 | 10/30/1996 | 6 | 0.456 | 17.16 | 0.35 |
| 111 | 7/14/1984 | 2 | 0.451 | 17.32 | 0.35 |
| 112 | 2/18/2004 | 2 | 0.439 | 17.47 | 0.35 |
| 113 | 2/5/1978 | 147 | 0.434 | 17.63 | 0.35 |
| 114 | 2/17/1994 | 47 | 0.433 | 17.78 | 0.34 |
| 115 | 3/1/1979 | 8 | 0.433 | 17.94 | 0.34 |
| 116 | 3/15/2003 | 34 | 0.431 | 18.1 | 0.34 |
| 117 | 4/28/1980 | 20 | 0.427 | 18.25 | 0.33 |
| 118 | 1/1/1982 | 30 | 0.427 | 18.41 | 0.33 |
| 119 | 4/14/2003 | 16 | 0.426 | 18.56 | 0.33 |
| 120 | 1/5/1993 | 105 | 0.426 | 18.72 | 0.32 |
| 121 | 3/9/1978 | 72 | 0.423 | 18.88 | 0.32 |
| 122 | 1/25/1999 | 50 | 0.422 | 19.03 | 0.32 |
| 123 | 2/24/1987 | 49 | 0.421 | 19.19 | 0.32 |
| 124 | 1/5/1992 | 56 | 0.42 | 19.34 | 0.31 |
| 125 | 3/25/1980 | 5 | 0.419 | 19.5 | 0.31 |
| 126 | 2/7/1993 | 54 | 0.415 | 19.66 | 0.31 |
| 127 | 11/13/1978 | 24 | 0.413 | 19.81 | 0.31 |
| 128 | 2/20/2000 | 61 | 0.41 | 19.97 | 0.3 |
| 129 | 3/22/2005 | 8 | 0.406 | 20.12 | 0.3 |
| 130 | 12/7/2007 | 37 | 0.406 | 20.28 | 0.3 |
| 131 | 1/16/1973 | 6 | 0.404 | 20.44 | 0.3 |
| 132 | 3/11/1995 | 24 | 0.399 | 20.59 | 0.3 |
| 133 | 1/27/1983 | 8 | 0.398 | 20.75 | 0.29 |
| 134 | 2/15/1973 | 4 | 0.398 | 20.9 | 0.29 |
| 135 | 10/25/1971 | 2 | 0.391 | 21.06 | 0.29 |
| 136 | 11/24/1983 | 6 | 0.388 | 21.22 | 0.29 |
| 137 | 4/11/1999 | 9 | 0.387 | 21.37 | 0.28 |
| 138 | 11/26/1981 | 10 | 0.385 | 21.53 | 0.28 |
| 139 | 12/3/1983 | 9 | 0.373 | 21.68 | 0.28 |
| 140 | 1/18/1973 | 6 | 0.372 | 21.84 | 0.28 |
| 141 | 10/26/1996 | 4 | 0.371 | 22 | 0.28 |
| 142 | 4/4/2006 | 17 | 0.368 | 22.15 | 0.27 |
| 143 | 3/14/1982 | 25 | 0.368 | 22.31 | 0.27 |
| 144 | 3/12/1996 | 32 | 0.366 | 22.46 | 0.27 |
| 145 | 12/4/1974 | 17 | 0.363 | 22.62 | 0.27 |
| 146 | 2/2/1985 | 9 | 0.361 | 22.78 | 0.27 |
| 147 | 12/16/1987 | 23 | 0.361 | 22.93 | 0.27 |
| 148 | 12/18/1984 | 38 | 0.358 | 23.09 | 0.26 |
| 149 | 3/4/1978 | 35 | 0.356 | 23.24 | 0.26 |
| 150 | 4/2/1997 | 32 | 0.355 | 23.4 | 0.26 |
| 151 | 3/26/1992 | 19 | 0.355 | 23.56 | 0.26 |

# Pre-development Flow Frequency - Long-term Simulation

Clear Pre-development FF and TS

CVS SPRING VALLEY
Statistics - Node POC1 Total Inflow

| Rank | Start Date | Event Duration (hours) | Event Peak (CFS) | Exceedance Frequency (percent) | Return Period (years) |
|---|---|---|---|---|---|
| 152 | 2/3/1976 | 172 | 0.349 | 23.71 | 0.26 |
| 153 | 1/13/1990 | 104 | 0.335 | 23.87 | 0.25 |
| 154 | 1/10/1995 | 51 | 0.335 | 24.02 | 0.25 |
| 155 | 2/15/1992 | 5 | 0.328 | 24.18 | 0.25 |
| 156 | 12/29/1991 | 9 | 0.326 | 24.34 | 0.25 |
| 157 | 11/21/1984 | 3 | 0.322 | 24.49 | 0.25 |
| 158 | 3/10/2006 | 19 | 0.321 | 24.65 | 0.25 |
| 159 | 4/20/1988 | 52 | 0.32 | 24.8 | 0.25 |
| 160 | 1/5/2008 | 55 | 0.319 | 24.96 | 0.24 |
| 161 | 11/29/1985 | 6 | 0.315 | 25.12 | 0.24 |
| 162 | 10/5/1977 | 22 | 0.314 | 25.27 | 0.24 |
| 163 | 1/30/1986 | 45 | 0.312 | 25.43 | 0.24 |
| 164 | 1/29/2007 | 37 | 0.311 | 25.59 | 0.24 |
| 165 | 1/9/1991 | 3 | 0.31 | 25.74 | 0.24 |
| 166 | 1/17/1988 | 16 | 0.31 | 25.9 | 0.23 |
| 167 | 2/14/2008 | 5 | 0.309 | 26.05 | 0.23 |
| 168 | 11/26/1970 | 11 | 0.309 | 26.21 | 0.23 |
| 169 | 12/16/1978 | 88 | 0.309 | 26.37 | 0.23 |
| 170 | 11/19/1990 | 12 | 0.308 | 26.52 | 0.23 |
| 171 | 4/29/1983 | 20 | 0.307 | 26.68 | 0.23 |
| 172 | 3/26/1993 | 24 | 0.307 | 26.83 | 0.23 |
| 173 | 10/14/2006 | 14 | 0.307 | 26.99 | 0.23 |
| 174 | 4/6/1986 | 19 | 0.305 | 27.15 | 0.22 |
| 175 | 2/21/1979 | 7 | 0.305 | 27.3 | 0.22 |
| 176 | 12/22/1982 | 6 | 0.304 | 27.46 | 0.22 |
| 177 | 12/17/1991 | 16 | 0.304 | 27.61 | 0.22 |
| 178 | 3/10/1986 | 12 | 0.304 | 27.77 | 0.22 |
| 179 | 9/22/1987 | 20 | 0.304 | 27.93 | 0.22 |
| 180 | 4/14/1971 | 20 | 0.303 | 28.08 | 0.22 |
| 181 | 2/18/2005 | 8 | 0.302 | 28.24 | 0.22 |
| 182 | 6/9/1990 | 25 | 0.3 | 28.39 | 0.21 |
| 183 | 3/28/1993 | 3 | 0.298 | 28.55 | 0.21 |
| 184 | 4/17/1996 | 23 | 0.297 | 28.71 | 0.21 |
| 185 | 12/4/1980 | 18 | 0.297 | 28.86 | 0.21 |
| 190 | 12/11/1993 | 19 | 0.295 | 29.64 | 0.21 |
| 190 | 12/14/1993 | 12 | 0.295 | 29.64 | 0.21 |
| 190 | 1/25/1997 | 35 | 0.295 | 29.64 | 0.21 |
| 190 | 12/7/1984 | 8 | 0.295 | 29.64 | 0.21 |
| 190 | 1/2/1971 | 7 | 0.295 | 29.64 | 0.21 |
| 191 | 11/11/1993 | 10 | 0.293 | 29.8 | 0.2 |
| 192 | 11/17/1973 | 33 | 0.292 | 29.95 | 0.2 |
| 193 | 3/12/1990 | 2 | 0.291 | 30.11 | 0.2 |
| 195 | 3/18/2002 | 7 | 0.291 | 30.42 | 0.2 |
| 195 | 3/15/1987 | 29 | 0.291 | 30.42 | 0.2 |
| 196 | 10/28/1974 | 54 | 0.29 | 30.58 | 0.2 |
| 198 | 4/25/1971 | 21 | 0.288 | 30.89 | 0.2 |
| 198 | 4/4/1990 | 3 | 0.288 | 30.89 | 0.2 |
| 199 | 3/17/1979 | 105 | 0.285 | 31.05 | 0.2 |
| 200 | 6/19/1975 | 2 | 0.285 | 31.2 | 0.19 |
| 201 | 11/22/1973 | 33 | 0.279 | 31.36 | 0.19 |
| 202 | 1/21/1996 | 4 | 0.277 | 31.51 | 0.19 |
| 203 | 3/11/1973 | 27 | 0.267 | 31.67 | 0.19 |
| 204 | 2/27/2006 | 19 | 0.267 | 31.83 | 0.19 |
| 205 | 1/28/1981 | 73 | 0.26 | 31.98 | 0.19 |
| 206 | 2/11/2000 | 53 | 0.26 | 32.14 | 0.19 |
| 207 | 12/17/1970 | 17 | 0.254 | 32.29 | 0.19 |
| 208 | 11/15/1972 | 24 | 0.249 | 32.45 | 0.19 |
| 209 | 1/23/2008 | 16 | 0.247 | 32.61 | 0.19 |
| 210 | 1/31/1996 | 44 | 0.246 | 32.76 | 0.19 |
| 212 | 1/25/1994 | 32 | 0.246 | 33.07 | 0.18 |
| 212 | 1/31/1993 | 3 | 0.246 | 33.07 | 0.18 |
| 213 | 12/4/1998 | 57 | 0.245 | 33.23 | 0.18 |
| 214 | 2/7/1994 | 35 | 0.243 | 33.39 | 0.18 |
| 215 | 3/28/2006 | 5 | 0.242 | 33.54 | 0.18 |
| 216 | 1/3/1978 | 36 | 0.24 | 33.7 | 0.18 |
| 217 | 1/28/2005 | 15 | 0.24 | 33.85 | 0.18 |
| 218 | 4/16/1995 | 5 | 0.24 | 34.01 | 0.18 |
| 219 | 4/20/2007 | 11 | 0.239 | 34.17 | 0.18 |
| 220 | 4/1/1999 | 12 | 0.239 | 34.32 | 0.18 |
| 221 | 1/2/2004 | 16 | 0.238 | 34.48 | 0.18 |
| 222 | 6/5/1993 | 15 | 0.237 | 34.63 | 0.18 |
| 223 | 2/7/1983 | 32 | 0.237 | 34.79 | 0.17 |
| 224 | 1/15/1997 | 13 | 0.236 | 34.95 | 0.17 |
| 225 | 2/27/2007 | 22 | 0.233 | 35.1 | 0.17 |
| 226 | 4/1/2004 | 3 | 0.232 | 35.26 | 0.17 |
| 227 | 11/21/1978 | 9 | 0.23 | 35.41 | 0.17 |

# Pre-development Flow Frequency - Long-term Simulation

Clear Pre-development FF and TS

CVS SPRING VALLEY
Statistics - Node POC1 Total Inflow

| Rank | Start Date | Event Duration (hours) | Event Peak (CFS) | Exceedance Frequency (percent) | Return Period (years) |
|---|---|---|---|---|---|
| 228 | 12/30/1981 | 24 | 0.23 | 35.57 | 0.17 |
| 229 | 1/15/1979 | 10 | 0.229 | 35.73 | 0.17 |
| 230 | 12/22/1971 | 15 | 0.229 | 35.88 | 0.17 |
| 231 | 4/23/1980 | 8 | 0.229 | 36.04 | 0.17 |
| 232 | 1/10/1982 | 8 | 0.229 | 36.19 | 0.17 |
| 233 | 2/8/1981 | 38 | 0.228 | 36.35 | 0.17 |
| 234 | 2/13/1978 | 34 | 0.228 | 36.51 | 0.17 |
| 235 | 10/16/1971 | 37 | 0.227 | 36.66 | 0.17 |
| 236 | 11/10/1978 | 46 | 0.226 | 36.82 | 0.17 |
| 237 | 11/28/1981 | 24 | 0.225 | 36.97 | 0.16 |
| 238 | 3/8/1975 | 16 | 0.225 | 37.13 | 0.16 |
| 239 | 2/3/2004 | 11 | 0.223 | 37.29 | 0.16 |
| 241 | 3/7/2002 | 7 | 0.221 | 37.6 | 0.16 |
| 241 | 3/15/2008 | 13 | 0.221 | 37.6 | 0.16 |
| 242 | 10/23/1992 | 15 | 0.22 | 37.75 | 0.16 |
| 243 | 3/25/1977 | 14 | 0.218 | 37.91 | 0.16 |
| 245 | 4/17/2000 | 5 | 0.218 | 38.22 | 0.16 |
| 245 | 4/14/2006 | 21 | 0.218 | 38.22 | 0.16 |
| 246 | 4/5/1975 | 86 | 0.217 | 38.38 | 0.16 |
| 247 | 1/26/1979 | 5 | 0.216 | 38.53 | 0.16 |
| 248 | 12/27/1971 | 33 | 0.215 | 38.69 | 0.16 |
| 249 | 7/8/1999 | 2 | 0.214 | 38.85 | 0.16 |
| 250 | 11/13/1972 | 8 | 0.209 | 39 | 0.16 |
| 251 | 12/7/2004 | 25 | 0.207 | 39.16 | 0.16 |
| 252 | 2/25/1996 | 22 | 0.207 | 39.31 | 0.15 |
| 253 | 11/24/1978 | 19 | 0.207 | 39.47 | 0.15 |
| 254 | 12/18/1977 | 23 | 0.199 | 39.63 | 0.15 |
| 255 | 3/25/1999 | 10 | 0.194 | 39.78 | 0.15 |
| 256 | 3/29/1982 | 28 | 0.193 | 39.94 | 0.15 |
| 257 | 10/26/1991 | 8 | 0.19 | 40.09 | 0.15 |
| 258 | 2/3/2008 | 27 | 0.186 | 40.25 | 0.15 |
| 259 | 11/28/1982 | 54 | 0.185 | 40.41 | 0.15 |
| 260 | 12/23/1994 | 59 | 0.184 | 40.56 | 0.15 |
| 261 | 12/27/1992 | 16 | 0.184 | 40.72 | 0.15 |
| 262 | 11/8/1998 | 8 | 0.184 | 40.87 | 0.15 |
| 263 | 12/5/1996 | 35 | 0.184 | 41.03 | 0.15 |
| 264 | 1/26/2008 | 14 | 0.184 | 41.19 | 0.15 |
| 265 | 2/10/1997 | 4 | 0.184 | 41.34 | 0.15 |
| 266 | 2/4/1999 | 30 | 0.183 | 41.5 | 0.15 |
| 267 | 12/31/2004 | 4 | 0.182 | 41.65 | 0.15 |
| 268 | 3/6/1994 | 33 | 0.181 | 41.81 | 0.15 |
| 269 | 2/24/1983 | 23 | 0.18 | 41.97 | 0.14 |
| 270 | 4/18/1995 | 22 | 0.179 | 42.12 | 0.14 |
| 271 | 10/17/2004 | 7 | 0.178 | 42.28 | 0.14 |
| 272 | 4/28/2005 | 15 | 0.178 | 42.43 | 0.14 |
| 273 | 3/27/1974 | 14 | 0.178 | 42.59 | 0.14 |
| 274 | 8/18/1983 | 8 | 0.175 | 42.75 | 0.14 |
| 276 | 12/23/1995 | 3 | 0.175 | 43.06 | 0.14 |
| 276 | 1/23/1997 | 9 | 0.175 | 43.06 | 0.14 |
| 277 | 3/2/1980 | 16 | 0.174 | 43.21 | 0.14 |
| 278 | 11/24/1984 | 9 | 0.173 | 43.37 | 0.14 |
| 280 | 11/22/1993 | 7 | 0.173 | 43.68 | 0.14 |
| 280 | 2/22/2007 | 13 | 0.173 | 43.68 | 0.14 |
| 281 | 12/9/1996 | 19 | 0.172 | 43.84 | 0.14 |
| 282 | 1/17/1979 | 39 | 0.169 | 43.99 | 0.14 |
| 283 | 1/30/1978 | 14 | 0.169 | 44.15 | 0.14 |
| 284 | 3/6/1973 | 46 | 0.168 | 44.31 | 0.14 |
| 285 | 4/17/2004 | 3 | 0.167 | 44.46 | 0.14 |
| 286 | 12/2/1985 | 15 | 0.166 | 44.62 | 0.14 |
| 287 | 1/9/1973 | 15 | 0.165 | 44.77 | 0.14 |
| 288 | 10/20/1979 | 19 | 0.165 | 44.93 | 0.14 |
| 289 | 2/9/1992 | 11 | 0.165 | 45.09 | 0.13 |
| 290 | 11/19/1982 | 4 | 0.165 | 45.24 | 0.13 |
| 291 | 4/24/2002 | 4 | 0.163 | 45.4 | 0.13 |
| 292 | 10/17/2005 | 25 | 0.16 | 45.55 | 0.13 |
| 293 | 4/6/1978 | 31 | 0.16 | 45.71 | 0.13 |
| 294 | 5/3/2003 | 9 | 0.159 | 45.87 | 0.13 |
| 295 | 1/3/1991 | 21 | 0.154 | 46.02 | 0.13 |
| 296 | 3/25/1994 | 24 | 0.153 | 46.18 | 0.13 |
| 297 | 12/24/1971 | 46 | 0.153 | 46.33 | 0.13 |
| 300 | 12/9/1983 | 3 | 0.153 | 46.8 | 0.13 |
| 300 | 1/1/1990 | 9 | 0.153 | 46.8 | 0.13 |
| 300 | 12/28/1991 | 8 | 0.153 | 46.8 | 0.13 |
| 302 | 11/17/1986 | 15 | 0.153 | 47.11 | 0.13 |
| 302 | 11/25/1988 | 16 | 0.153 | 47.11 | 0.13 |
| 303 | 11/14/1988 | 4 | 0.153 | 47.27 | 0.13 |

# Pre-development Flow Frequency - Long-term Simulation

Clear Pre-development FF and TS

CVS SPRING VALLEY
Statistics - Node POC1 Total Inflow

| Rank | Start Date | Event Duration (hours) | Event Peak (CFS) | Exceedance Frequency (percent) | Return Period (years) |
|---|---|---|---|---|---|
| 304 | 11/16/1984 | 6 | 0.152 | 47.43 | 0.13 |
| 305 | 2/8/1986 | 21 | 0.152 | 47.58 | 0.13 |
| 306 | 2/17/1971 | 7 | 0.152 | 47.74 | 0.13 |
| 308 | 11/4/1987 | 37 | 0.151 | 48.05 | 0.13 |
| 308 | 2/9/1989 | 13 | 0.151 | 48.05 | 0.13 |
| 309 | 3/25/1989 | 12 | 0.151 | 48.21 | 0.13 |
| 310 | 3/8/1986 | 8 | 0.151 | 48.36 | 0.13 |
| 311 | 2/29/1988 | 31 | 0.151 | 48.52 | 0.13 |
| 312 | 12/7/1982 | 51 | 0.15 | 48.67 | 0.13 |
| 313 | 12/28/1974 | 34 | 0.15 | 48.83 | 0.12 |
| 317 | 12/10/2006 | 2 | 0.15 | 49.45 | 0.12 |
| 317 | 12/18/1992 | 5 | 0.15 | 49.45 | 0.12 |
| 317 | 1/28/2002 | 42 | 0.15 | 49.45 | 0.12 |
| 317 | 12/27/2006 | 15 | 0.15 | 49.45 | 0.12 |
| 320 | 3/11/1990 | 3 | 0.149 | 49.92 | 0.12 |
| 320 | 3/22/1992 | 22 | 0.149 | 49.92 | 0.12 |
| 320 | 3/2/1989 | 3 | 0.149 | 49.92 | 0.12 |
| 323 | 10/7/1983 | 3 | 0.149 | 50.39 | 0.12 |
| 323 | 10/17/1984 | 3 | 0.149 | 50.39 | 0.12 |
| 323 | 10/22/1987 | 12 | 0.149 | 50.39 | 0.12 |
| 325 | 2/12/1996 | 2 | 0.148 | 50.7 | 0.12 |
| 325 | 11/28/1998 | 15 | 0.148 | 50.7 | 0.12 |
| 326 | 11/27/1975 | 50 | 0.148 | 50.86 | 0.12 |
| 327 | 12/28/1989 | 8 | 0.147 | 51.01 | 0.12 |
| 331 | 12/8/1991 | 4 | 0.147 | 51.64 | 0.12 |
| 331 | 1/4/1984 | 4 | 0.147 | 51.64 | 0.12 |
| 331 | 12/3/1984 | 4 | 0.147 | 51.64 | 0.12 |
| 331 | 1/7/1987 | 10 | 0.147 | 51.64 | 0.12 |
| 332 | 3/27/1979 | 44 | 0.146 | 51.79 | 0.12 |
| 333 | 2/19/1971 | 4 | 0.146 | 51.95 | 0.12 |
| 334 | 12/19/1990 | 39 | 0.145 | 52.11 | 0.12 |
| 335 | 1/5/1988 | 5 | 0.145 | 52.26 | 0.12 |
| 337 | 1/16/1984 | 6 | 0.144 | 52.57 | 0.12 |
| 337 | 1/23/1989 | 6 | 0.144 | 52.57 | 0.12 |
| 338 | 2/9/1982 | 34 | 0.144 | 52.73 | 0.12 |
| 339 | 12/29/1982 | 5 | 0.144 | 52.89 | 0.12 |
| 340 | 3/27/1985 | 25 | 0.144 | 53.04 | 0.11 |
| 341 | 3/21/1987 | 18 | 0.143 | 53.2 | 0.11 |
| 342 | 1/5/1989 | 8 | 0.143 | 53.35 | 0.11 |
| 343 | 4/17/2003 | 8 | 0.143 | 53.51 | 0.11 |
| 344 | 2/13/1987 | 6 | 0.143 | 53.67 | 0.11 |
| 345 | 1/7/1985 | 29 | 0.142 | 53.82 | 0.11 |
| 346 | 1/4/1989 | 9 | 0.142 | 53.98 | 0.11 |
| 347 | 10/23/1991 | 12 | 0.14 | 54.13 | 0.11 |
| 348 | 2/4/1985 | 8 | 0.14 | 54.29 | 0.11 |
| 349 | 12/15/1988 | 22 | 0.14 | 54.45 | 0.11 |
| 350 | 8/27/1999 | 2 | 0.14 | 54.6 | 0.11 |
| 351 | 9/6/1972 | 9 | 0.139 | 54.76 | 0.11 |
| 352 | 5/1/1980 | 25 | 0.139 | 54.91 | 0.11 |
| 353 | 11/12/1983 | 24 | 0.138 | 55.07 | 0.11 |
| 354 | 2/28/1973 | 9 | 0.137 | 55.23 | 0.11 |
| 355 | 3/6/1987 | 8 | 0.136 | 55.38 | 0.11 |
| 356 | 12/29/1987 | 15 | 0.135 | 55.54 | 0.11 |
| 357 | 2/13/1980 | 85 | 0.134 | 55.69 | 0.11 |
| 358 | 5/28/1990 | 18 | 0.133 | 55.85 | 0.11 |
| 359 | 11/8/1972 | 3 | 0.132 | 56.01 | 0.11 |
| 360 | 3/13/1986 | 10 | 0.131 | 56.16 | 0.11 |
| 361 | 1/19/1978 | 19 | 0.129 | 56.32 | 0.11 |
| 362 | 2/4/1990 | 6 | 0.128 | 56.47 | 0.11 |
| 363 | 2/3/1994 | 34 | 0.128 | 56.63 | 0.11 |
| 364 | 2/23/1971 | 15 | 0.127 | 56.79 | 0.11 |
| 365 | 1/4/1973 | 18 | 0.125 | 56.94 | 0.11 |
| 366 | 11/12/2003 | 7 | 0.121 | 57.1 | 0.11 |
| 367 | 12/25/1977 | 45 | 0.12 | 57.25 | 0.11 |
| 368 | 12/3/1971 | 26 | 0.12 | 57.41 | 0.11 |
| 370 | 2/6/1973 | 5 | 0.119 | 57.72 | 0.11 |
| 370 | 2/19/2006 | 11 | 0.119 | 57.72 | 0.11 |
| 371 | 12/7/2003 | 6 | 0.118 | 57.88 | 0.11 |
| 372 | 4/6/1984 | 10 | 0.118 | 58.03 | 0.1 |
| 373 | 4/24/1994 | 4 | 0.116 | 58.19 | 0.1 |
| 374 | 3/15/1999 | 14 | 0.115 | 58.35 | 0.1 |
| 376 | 12/11/1996 | 5 | 0.114 | 58.66 | 0.1 |
| 376 | 1/2/1993 | 5 | 0.114 | 58.66 | 0.1 |
| 377 | 1/7/1995 | 13 | 0.114 | 58.81 | 0.1 |
| 378 | 6/20/1972 | 8 | 0.111 | 58.97 | 0.1 |
| 379 | 4/1/1980 | 3 | 0.111 | 59.13 | 0.1 |

# Pre-development Flow Frequency - Long-term Simulation

Clear Pre-development FF and TS

CVS SPRING VALLEY
Statistics - Node POC1 Total Inflow

| Rank | Start Date | Event Duration (hours) | Event Peak (CFS) | Exceedance Frequency (percent) | Return Period (years) |
|---|---|---|---|---|---|
| 380 | 9/5/1978 | 3 | 0.11 | 59.28 | 0.1 |
| 381 | 3/13/1981 | 6 | 0.109 | 59.44 | 0.1 |
| 393 | 12/20/1986 | 2 | 0.109 | 61.31 | 0.1 |
| 393 | 12/1/1983 | 2 | 0.109 | 61.31 | 0.1 |
| 393 | 1/29/1985 | 2 | 0.109 | 61.31 | 0.1 |
| 393 | 12/23/1988 | 2 | 0.109 | 61.31 | 0.1 |
| 393 | 1/27/1985 | 2 | 0.109 | 61.31 | 0.1 |
| 393 | 12/28/1988 | 2 | 0.109 | 61.31 | 0.1 |
| 393 | 1/30/1985 | 2 | 0.109 | 61.31 | 0.1 |
| 393 | 12/19/1991 | 2 | 0.109 | 61.31 | 0.1 |
| 393 | 12/21/1988 | 2 | 0.109 | 61.31 | 0.1 |
| 393 | 1/13/1971 | 2 | 0.109 | 61.31 | 0.1 |
| 393 | 12/18/1988 | 2 | 0.109 | 61.31 | 0.1 |
| 393 | 12/13/1971 | 3 | 0.109 | 61.31 | 0.1 |
| 396 | 1/16/1996 | 5 | 0.108 | 61.78 | 0.1 |
| 396 | 12/16/2006 | 14 | 0.108 | 61.78 | 0.1 |
| 396 | 12/29/1992 | 13 | 0.108 | 61.78 | 0.1 |
| 409 | 11/18/1983 | 2 | 0.108 | 63.81 | 0.1 |
| 409 | 11/8/1984 | 2 | 0.108 | 63.81 | 0.1 |
| 409 | 11/18/1984 | 2 | 0.108 | 63.81 | 0.1 |
| 409 | 2/15/1987 | 2 | 0.108 | 63.81 | 0.1 |
| 409 | 2/4/1989 | 2 | 0.108 | 63.81 | 0.1 |
| 409 | 2/13/1989 | 2 | 0.108 | 63.81 | 0.1 |
| 409 | 11/26/1989 | 2 | 0.108 | 63.81 | 0.1 |
| 409 | 11/27/1970 | 2 | 0.108 | 63.81 | 0.1 |
| 409 | 2/2/1989 | 2 | 0.108 | 63.81 | 0.1 |
| 409 | 11/8/1987 | 2 | 0.108 | 63.81 | 0.1 |
| 409 | 11/26/1990 | 2 | 0.108 | 63.81 | 0.1 |
| 409 | 2/9/1985 | 2 | 0.108 | 63.81 | 0.1 |
| 409 | 2/20/1985 | 2 | 0.108 | 63.81 | 0.1 |
| 410 | 1/20/1999 | 25 | 0.107 | 63.96 | 0.1 |
| 411 | 4/21/2001 | 14 | 0.107 | 64.12 | 0.09 |
| 412 | 11/30/1993 | 3 | 0.107 | 64.27 | 0.09 |
| 418 | 3/2/1985 | 20 | 0.106 | 65.21 | 0.09 |
| 418 | 3/31/1984 | 2 | 0.106 | 65.21 | 0.09 |
| 418 | 3/13/1971 | 2 | 0.106 | 65.21 | 0.09 |
| 418 | 3/12/1986 | 2 | 0.106 | 65.21 | 0.09 |
| 418 | 3/15/1991 | 2 | 0.106 | 65.21 | 0.09 |
| 418 | 3/11/1991 | 2 | 0.106 | 65.21 | 0.09 |
| 419 | 3/21/2006 | 8 | 0.105 | 65.37 | 0.09 |
| 420 | 5/5/1995 | 28 | 0.105 | 65.52 | 0.09 |
| 424 | 10/1/1983 | 2 | 0.105 | 66.15 | 0.09 |
| 424 | 10/24/1987 | 2 | 0.105 | 66.15 | 0.09 |
| 424 | 10/27/1984 | 2 | 0.105 | 66.15 | 0.09 |
| 424 | 10/8/1985 | 2 | 0.105 | 66.15 | 0.09 |
| 425 | 11/7/1979 | 4 | 0.105 | 66.3 | 0.09 |
| 427 | 3/11/1999 | 3 | 0.104 | 66.61 | 0.09 |
| 427 | 3/22/2007 | 3 | 0.104 | 66.61 | 0.09 |
| 428 | 11/1/1995 | 4 | 0.104 | 66.77 | 0.09 |
| 429 | 4/17/1971 | 12 | 0.102 | 66.93 | 0.09 |
| 440 | 4/17/1990 | 2 | 0.102 | 68.64 | 0.09 |
| 440 | 4/23/1990 | 18 | 0.102 | 68.64 | 0.09 |
| 440 | 9/20/1991 | 2 | 0.102 | 68.64 | 0.09 |
| 440 | 4/1/1992 | 2 | 0.102 | 68.64 | 0.09 |
| 440 | 4/26/1989 | 2 | 0.102 | 68.64 | 0.09 |
| 440 | 4/27/1984 | 2 | 0.102 | 68.64 | 0.09 |
| 440 | 4/1/1986 | 2 | 0.102 | 68.64 | 0.09 |
| 440 | 4/19/1984 | 2 | 0.102 | 68.64 | 0.09 |
| 440 | 9/17/1989 | 2 | 0.102 | 68.64 | 0.09 |
| 440 | 9/19/1989 | 2 | 0.102 | 68.64 | 0.09 |
| 440 | 4/18/1988 | 2 | 0.102 | 68.64 | 0.09 |
| 441 | 4/17/1983 | 6 | 0.101 | 68.8 | 0.09 |
| 442 | 3/21/1980 | 7 | 0.101 | 68.95 | 0.09 |
| 443 | 1/19/1983 | 6 | 0.101 | 69.11 | 0.09 |
| 444 | 5/29/1988 | 2 | 0.101 | 69.27 | 0.09 |
| 445 | 12/7/1972 | 42 | 0.098 | 69.42 | 0.09 |
| 446 | 2/24/2000 | 5 | 0.096 | 69.58 | 0.09 |
| 448 | 6/15/1995 | 40 | 0.095 | 69.89 | 0.09 |
| 448 | 6/28/2000 | 2 | 0.095 | 69.89 | 0.09 |
| 449 | 3/8/2000 | 5 | 0.091 | 70.05 | 0.09 |
| 450 | 1/30/1973 | 5 | 0.091 | 70.2 | 0.09 |
| 451 | 12/19/1998 | 12 | 0.088 | 70.36 | 0.09 |
| 452 | 12/23/1977 | 19 | 0.087 | 70.51 | 0.09 |
| 453 | 3/25/1982 | 11 | 0.083 | 70.67 | 0.09 |
| 454 | 3/16/1977 | 17 | 0.083 | 70.83 | 0.09 |
| 455 | 3/14/1975 | 19 | 0.079 | 70.98 | 0.09 |

## Pre-development Flow Frequency - Long-term Simulation

Clear Pre-development FF and TS

CVS SPRING VALLEY
Statistics - Node POC1 Total Inflow

| Rank | Start Date | Event Duration (hours) | Event Peak (CFS) | Exceedance Frequency (percent) | Return Period (years) |
|---|---|---|---|---|---|
| 456 | 4/6/1999 | 15 | 0.079 | 71.14 | 0.09 |
| 457 | 1/28/1979 | 10 | 0.077 | 71.29 | 0.09 |
| 458 | 4/4/1976 | 9 | 0.076 | 71.45 | 0.09 |
| 459 | 3/5/1996 | 9 | 0.075 | 71.61 | 0.08 |
| 460 | 3/2/1974 | 27 | 0.075 | 71.76 | 0.08 |
| 461 | 2/4/1975 | 12 | 0.073 | 71.92 | 0.08 |
| 462 | 12/12/1975 | 7 | 0.071 | 72.07 | 0.08 |
| 463 | 10/17/1972 | 38 | 0.069 | 72.23 | 0.08 |
| 464 | 3/22/1975 | 5 | 0.069 | 72.39 | 0.08 |
| 470 | 1/1/2006 | 34 | 0.066 | 73.32 | 0.08 |
| 470 | 1/21/1995 | 3 | 0.066 | 73.32 | 0.08 |
| 470 | 12/25/2003 | 34 | 0.066 | 73.32 | 0.08 |
| 470 | 1/25/2004 | 7 | 0.066 | 73.32 | 0.08 |
| 470 | 1/30/2008 | 2 | 0.066 | 73.32 | 0.08 |
| 470 | 1/22/2008 | 2 | 0.066 | 73.32 | 0.08 |
| 471 | 3/13/1973 | 3 | 0.066 | 73.48 | 0.08 |
| 478 | 11/10/1994 | 20 | 0.065 | 74.57 | 0.08 |
| 478 | 2/26/1993 | 39 | 0.065 | 74.57 | 0.08 |
| 478 | 2/19/2002 | 2 | 0.065 | 74.57 | 0.08 |
| 478 | 2/27/1996 | 9 | 0.065 | 74.57 | 0.08 |
| 478 | 2/24/2008 | 5 | 0.065 | 74.57 | 0.08 |
| 478 | 2/22/2008 | 2 | 0.065 | 74.57 | 0.08 |
| 478 | 2/20/1994 | 13 | 0.065 | 74.57 | 0.08 |
| 479 | 1/18/1980 | 12 | 0.065 | 74.73 | 0.08 |
| 480 | 3/22/1983 | 7 | 0.063 | 74.88 | 0.08 |
| 482 | 3/11/1982 | 34 | 0.063 | 75.2 | 0.08 |
| 482 | 3/14/2005 | 2 | 0.063 | 75.2 | 0.08 |
| 483 | 10/16/1993 | 2 | 0.062 | 75.35 | 0.08 |
| 484 | 4/15/1976 | 3 | 0.061 | 75.51 | 0.08 |
| 488 | 4/13/2003 | 5 | 0.059 | 76.13 | 0.08 |
| 488 | 4/3/1999 | 1 | 0.059 | 76.13 | 0.08 |
| 488 | 4/23/2006 | 5 | 0.059 | 76.13 | 0.08 |
| 488 | 4/9/1994 | 3 | 0.059 | 76.13 | 0.08 |
| 489 | 4/12/1983 | 2 | 0.058 | 76.29 | 0.08 |
| 491 | 12/1/1998 | 6 | 0.057 | 76.6 | 0.08 |
| 491 | 1/23/1995 | 9 | 0.057 | 76.6 | 0.08 |
| 492 | 9/26/1982 | 14 | 0.056 | 76.76 | 0.08 |
| 493 | 3/21/2007 | 10 | 0.055 | 76.91 | 0.08 |
| 494 | 1/11/1981 | 45 | 0.055 | 77.07 | 0.08 |
| 495 | 5/19/1972 | 28 | 0.053 | 77.22 | 0.08 |
| 496 | 10/11/1981 | 3 | 0.052 | 77.38 | 0.08 |
| 497 | 2/5/1972 | 7 | 0.052 | 77.54 | 0.08 |
| 498 | 10/26/1980 | 3 | 0.051 | 77.69 | 0.08 |
| 499 | 3/2/1982 | 3 | 0.051 | 77.85 | 0.08 |
| 500 | 1/16/1995 | 20 | 0.049 | 78 | 0.08 |
| 501 | 3/19/1980 | 3 | 0.048 | 78.16 | 0.08 |
| 502 | 3/14/1983 | 4 | 0.048 | 78.32 | 0.08 |
| 503 | 3/19/2006 | 22 | 0.048 | 78.47 | 0.08 |
| 504 | 3/26/1973 | 7 | 0.046 | 78.63 | 0.08 |
| 506 | 2/17/2000 | 2 | 0.044 | 78.94 | 0.08 |
| 506 | 2/8/2003 | 2 | 0.044 | 78.94 | 0.08 |
| 507 | 4/20/1973 | 1 | 0.044 | 79.1 | 0.08 |
| 508 | 9/16/1982 | 19 | 0.042 | 79.25 | 0.08 |
| 509 | 3/13/1979 | 8 | 0.042 | 79.41 | 0.08 |
| 510 | 12/11/2007 | 3 | 0.042 | 79.56 | 0.08 |
| 511 | 10/29/1981 | 3 | 0.041 | 79.72 | 0.08 |
| 514 | 2/14/2004 | 3 | 0.04 | 80.19 | 0.08 |
| 514 | 2/22/1996 | 3 | 0.04 | 80.19 | 0.08 |
| 514 | 11/1/2003 | 3 | 0.04 | 80.19 | 0.08 |
| 515 | 2/14/1979 | 5 | 0.039 | 80.34 | 0.08 |
| 516 | 1/24/1983 | 5 | 0.037 | 80.5 | 0.08 |
| 517 | 1/28/1977 | 7 | 0.037 | 80.66 | 0.08 |
| 521 | 3/7/2006 | 2 | 0.037 | 81.28 | 0.07 |
| 521 | 3/17/2006 | 2 | 0.037 | 81.28 | 0.07 |
| 521 | 3/4/1999 | 2 | 0.037 | 81.28 | 0.07 |
| 521 | 3/24/2002 | 2 | 0.037 | 81.28 | 0.07 |
| 522 | 11/17/1979 | 2 | 0.033 | 81.44 | 0.07 |
| 523 | 3/4/1973 | 3 | 0.033 | 81.59 | 0.07 |
| 524 | 3/22/1973 | 4 | 0.032 | 81.75 | 0.07 |
| 527 | 4/23/2007 | 2 | 0.031 | 82.22 | 0.07 |
| 527 | 4/2/1978 | 17 | 0.031 | 82.22 | 0.07 |
| 527 | 4/26/2002 | 2 | 0.031 | 82.22 | 0.07 |
| 528 | 10/20/1978 | 1 | 0.03 | 82.37 | 0.07 |
| 529 | 12/26/1979 | 2 | 0.03 | 82.53 | 0.07 |
| 530 | 4/18/1981 | 21 | 0.03 | 82.68 | 0.07 |
| 531 | 2/9/1975 | 23 | 0.028 | 82.84 | 0.07 |

## Pre-development Flow Frequency - Long-term Simulation

Clear Pre-development FF and TS

CVS SPRING VALLEY
Statistics - Node POC1 Total Inflow

| Rank | Start Date | Event Duration (hours) | Event Peak (CFS) | Exceedance Frequency (percent) | Return Period (years) |
|---|---|---|---|---|---|
| 532 | 11/26/1973 | 2 | 0.027 | 83 | 0.07 |
| 533 | 5/24/1977 | 6 | 0.026 | 83.15 | 0.07 |
| 534 | 1/17/1983 | 5 | 0.026 | 83.31 | 0.07 |
| 535 | 1/23/1983 | 6 | 0.025 | 83.46 | 0.07 |
| 536 | 1/30/1975 | 14 | 0.025 | 83.62 | 0.07 |
| 537 | 1/25/1996 | 7 | 0.024 | 83.78 | 0.07 |
| 538 | 10/13/2007 | 4 | 0.021 | 83.93 | 0.07 |
| 539 | 7/19/1979 | 1 | 0.019 | 84.09 | 0.07 |
| 540 | 11/12/1971 | 2 | 0.019 | 84.24 | 0.07 |
| 541 | 2/23/1979 | 9 | 0.018 | 84.4 | 0.07 |
| 542 | 5/1/1978 | 3 | 0.017 | 84.56 | 0.07 |
| 543 | 3/28/1983 | 1 | 0.015 | 84.71 | 0.07 |
| 544 | 10/20/1972 | 9 | 0.015 | 84.87 | 0.07 |
| 548 | 4/15/1978 | 22 | 0.015 | 85.49 | 0.07 |
| 548 | 9/30/1981 | 1 | 0.015 | 85.49 | 0.07 |
| 548 | 4/4/1978 | 1 | 0.015 | 85.49 | 0.07 |
| 548 | 4/25/1975 | 1 | 0.015 | 85.49 | 0.07 |
| 549 | 6/8/1977 | 1 | 0.014 | 85.65 | 0.07 |
| 550 | 3/30/2008 | 6 | 0.013 | 85.8 | 0.07 |
| 565 | 12/4/2004 | 22 | 0.012 | 88.14 | 0.07 |
| 565 | 1/15/1995 | 1 | 0.012 | 88.14 | 0.07 |
| 565 | 12/19/2007 | 1 | 0.012 | 88.14 | 0.07 |
| 565 | 12/28/1996 | 1 | 0.012 | 88.14 | 0.07 |
| 565 | 12/3/2005 | 1 | 0.012 | 88.14 | 0.07 |
| 565 | 12/22/1996 | 13 | 0.012 | 88.14 | 0.07 |
| 565 | 12/20/2007 | 1 | 0.012 | 88.14 | 0.07 |
| 565 | 1/27/2005 | 1 | 0.012 | 88.14 | 0.07 |
| 565 | 12/5/1994 | 1 | 0.012 | 88.14 | 0.07 |
| 565 | 1/4/2007 | 1 | 0.012 | 88.14 | 0.07 |
| 565 | 1/28/2004 | 1 | 0.012 | 88.14 | 0.07 |
| 565 | 12/23/2006 | 1 | 0.012 | 88.14 | 0.07 |
| 565 | 12/20/1995 | 1 | 0.012 | 88.14 | 0.07 |
| 565 | 12/16/1995 | 1 | 0.012 | 88.14 | 0.07 |
| 565 | 12/13/1995 | 1 | 0.012 | 88.14 | 0.07 |
| 578 | 11/12/1993 | 1 | 0.012 | 90.17 | 0.07 |
| 578 | 11/18/2006 | 1 | 0.012 | 90.17 | 0.07 |
| 578 | 11/18/1994 | 1 | 0.012 | 90.17 | 0.07 |
| 578 | 2/18/1997 | 1 | 0.012 | 90.17 | 0.07 |
| 578 | 2/12/2007 | 1 | 0.012 | 90.17 | 0.07 |
| 578 | 2/9/1999 | 1 | 0.012 | 90.17 | 0.07 |
| 578 | 11/16/2003 | 1 | 0.012 | 90.17 | 0.07 |
| 578 | 2/17/1995 | 1 | 0.012 | 90.17 | 0.07 |
| 578 | 2/28/1997 | 1 | 0.012 | 90.17 | 0.07 |
| 578 | 11/21/2004 | 1 | 0.012 | 90.17 | 0.07 |
| 578 | 2/24/1995 | 1 | 0.012 | 90.17 | 0.07 |
| 578 | 11/27/2006 | 1 | 0.012 | 90.17 | 0.07 |
| 578 | 11/28/1996 | 1 | 0.012 | 90.17 | 0.07 |
| 579 | 4/30/1973 | 2 | 0.012 | 90.33 | 0.07 |
| 580 | 4/16/1975 | 5 | 0.012 | 90.48 | 0.07 |
| 590 | 3/7/1999 | 8 | 0.011 | 92.04 | 0.07 |
| 590 | 3/26/2006 | 1 | 0.011 | 92.04 | 0.07 |
| 590 | 3/23/1999 | 10 | 0.011 | 92.04 | 0.07 |
| 590 | 3/13/2006 | 1 | 0.011 | 92.04 | 0.07 |
| 590 | 3/20/2005 | 1 | 0.011 | 92.04 | 0.07 |
| 590 | 3/10/2000 | 1 | 0.011 | 92.04 | 0.07 |
| 590 | 3/15/1979 | 1 | 0.011 | 92.04 | 0.07 |
| 590 | 3/3/2004 | 1 | 0.011 | 92.04 | 0.07 |
| 590 | 3/16/2002 | 1 | 0.011 | 92.04 | 0.07 |
| 590 | 3/24/2005 | 1 | 0.011 | 92.04 | 0.07 |
| 595 | 10/3/1981 | 1 | 0.011 | 92.82 | 0.07 |
| 595 | 10/30/1992 | 1 | 0.011 | 92.82 | 0.07 |
| 595 | 10/6/1975 | 4 | 0.011 | 92.82 | 0.07 |
| 595 | 10/25/1998 | 1 | 0.011 | 92.82 | 0.07 |
| 595 | 10/25/1982 | 25 | 0.011 | 92.82 | 0.07 |
| 596 | 2/6/1983 | 1 | 0.011 | 92.98 | 0.07 |
| 597 | 6/10/1972 | 2 | 0.011 | 93.14 | 0.07 |
| 609 | 4/22/2003 | 1 | 0.011 | 95.01 | 0.06 |
| 609 | 9/22/1999 | 1 | 0.011 | 95.01 | 0.06 |
| 609 | 9/22/2007 | 1 | 0.011 | 95.01 | 0.06 |
| 609 | 9/20/2005 | 1 | 0.011 | 95.01 | 0.06 |
| 609 | 4/6/2002 | 1 | 0.011 | 95.01 | 0.06 |
| 609 | 9/3/1998 | 1 | 0.011 | 95.01 | 0.06 |
| 609 | 9/26/1996 | 1 | 0.011 | 95.01 | 0.06 |
| 609 | 4/13/1972 | 1 | 0.011 | 95.01 | 0.06 |
| 609 | 4/8/2005 | 1 | 0.011 | 95.01 | 0.06 |
| 609 | 4/2/1996 | 1 | 0.011 | 95.01 | 0.06 |

## Pre-development Flow Frequency - Long-term Simulation

Clear Pre-development FF and TS

CVS SPRING VALLEY
Statistics - Node POC1 Total Inflow

| Rank | Start Date | Event Duration (hours) | Event Peak (CFS) | Exceedance Frequency (percent) | Return Period (years) |
|---|---|---|---|---|---|
| 609 | 4/22/2000 | 1 | 0.011 | 95.01 | 0.06 |
| 609 | 4/24/2005 | 1 | 0.011 | 95.01 | 0.06 |
| 615 | 5/8/2003 | 1 | 0.01 | 95.94 | 0.06 |
| 615 | 5/23/2008 | 1 | 0.01 | 95.94 | 0.06 |
| 615 | 5/13/1995 | 1 | 0.01 | 95.94 | 0.06 |
| 615 | 5/30/2001 | 1 | 0.01 | 95.94 | 0.06 |
| 615 | 5/15/2007 | 1 | 0.01 | 95.94 | 0.06 |
| 615 | 5/6/1976 | 1 | 0.01 | 95.94 | 0.06 |
| 616 | 8/10/1998 | 1 | 0.01 | 96.1 | 0.06 |
| 621 | 6/20/2003 | 4 | 0.01 | 96.88 | 0.06 |
| 621 | 6/25/2000 | 1 | 0.01 | 96.88 | 0.06 |
| 621 | 6/3/1999 | 16 | 0.01 | 96.88 | 0.06 |
| 621 | 6/5/1972 | 1 | 0.01 | 96.88 | 0.06 |
| 621 | 7/31/2006 | 4 | 0.01 | 96.88 | 0.06 |
| 622 | 1/1/1974 | 1 | 0.01 | 97.04 | 0.06 |
| 624 | 12/1/1978 | 1 | 0.009 | 97.35 | 0.06 |
| 624 | 1/5/1982 | 1 | 0.009 | 97.35 | 0.06 |
| 625 | 1/7/1980 | 1 | 0.008 | 97.5 | 0.06 |
| 626 | 11/5/1977 | 8 | 0.008 | 97.66 | 0.06 |
| 627 | 5/10/1980 | 1 | 0.008 | 97.82 | 0.06 |
| 628 | 3/25/1975 | 1 | 0.008 | 97.97 | 0.06 |
| 629 | 9/29/1971 | 1 | 0.007 | 98.13 | 0.06 |
| 631 | 4/14/1975 | 1 | 0.007 | 98.44 | 0.06 |
| 631 | 4/21/1980 | 1 | 0.007 | 98.44 | 0.06 |
| 632 | 5/7/1977 | 1 | 0.007 | 98.6 | 0.06 |
| 633 | 12/20/1975 | 1 | 0.007 | 98.75 | 0.06 |
| 634 | 6/7/1972 | 1 | 0.006 | 98.91 | 0.06 |
| 635 | 12/21/1981 | 1 | 0.006 | 99.06 | 0.06 |
| 636 | 3/6/1983 | 1 | 0.006 | 99.22 | 0.06 |
| 637 | 1/24/1979 | 1 | 0.006 | 99.38 | 0.06 |
| 640 | 2/3/1973 | 1 | 0.005 | 99.84 | 0.06 |
| 640 | 2/24/1977 | 3 | 0.005 | 99.84 | 0.06 |
| 640 | 11/1/1974 | 1 | 0.005 | 99.84 | 0.06 |

# Post-project (Mitigated) Flow Frequency - Long-term Simulation

Clear Post-project (Mitigated) FF and TS

BUILDING D SPRING VALLEY
Statistics - Node POC-1 Total Inflow

| Rank | Start Date | Event Duration (hours) | Event Peak (CFS) | Exceedance Frequency (percent) | Return Period (years) |
|---|---|---|---|---|---|
| 1/1/1900 | 2/26/1983 | 180 | 2.496 | 0.17 | 39 |
| 2 | 11/10/1972 | 79 | 1.59 | 0.33 | 19.5 |
| 3 | 8/14/1983 | 36 | 1.402 | 0.5 | 13 |
| 4 | 11/24/1985 | 64 | 1.363 | 0.67 | 9.75 |
| 5 | 12/3/1992 | 48 | 1.299 | 0.83 | 7.8 |
| 6 | 3/17/1983 | 213 | 1.248 | 1 | 6.5 |
| 7 | 1/7/2005 | 131 | 1.238 | 1.17 | 5.57 |
| 8 | 11/12/1976 | 44 | 1.218 | 1.33 | 4.88 |
| 9 | 10/30/1998 | 34 | 1.196 | 1.5 | 4.33 |
| 10 | 12/17/1970 | 151 | 1.184 | 1.67 | 3.9 |
| 11 | 2/27/1991 | 82 | 1.063 | 1.83 | 3.55 |
| 12 | 10/18/2004 | 100 | 1.059 | 2 | 3.25 |
| 13 | 2/21/2004 | 73 | 1.053 | 2.17 | 3 |
| 14 | 2/6/1992 | 51 | 0.938 | 2.33 | 2.79 |
| 15 | 3/20/1973 | 46 | 0.926 | 2.5 | 2.6 |
| 16 | 2/18/2005 | 160 | 0.907 | 2.67 | 2.44 |
| 17 | 1/14/1978 | 135 | 0.892 | 2.83 | 2.29 |
| 18 | 3/2/1992 | 56 | 0.877 | 3 | 2.17 |
| 19 | 10/11/1987 | 63 | 0.871 | 3.17 | 2.05 |
| 20 | 11/20/1983 | 50 | 0.87 | 3.33 | 1.95 |
| 21 | 3/20/1992 | 74 | 0.866 | 3.5 | 1.86 |
| 22 | 1/3/2005 | 65 | 0.865 | 3.67 | 1.77 |
| 23 | 3/25/1991 | 89 | 0.861 | 3.83 | 1.7 |
| 24 | 1/5/1987 | 74 | 0.835 | 4 | 1.63 |
| 25 | 12/7/1992 | 47 | 0.831 | 4.17 | 1.56 |
| 26 | 1/31/1979 | 94 | 0.81 | 4.33 | 1.5 |
| 27 | 8/16/1977 | 57 | 0.802 | 4.5 | 1.44 |
| 28 | 4/1/1982 | 36 | 0.787 | 4.67 | 1.39 |
| 29 | 11/21/1996 | 51 | 0.781 | 4.83 | 1.34 |
| 30 | 2/18/1993 | 76 | 0.774 | 5 | 1.3 |
| 31 | 3/2/2004 | 39 | 0.767 | 5.17 | 1.26 |
| 32 | 2/2/1988 | 53 | 0.739 | 5.33 | 1.22 |
| 33 | 12/25/1988 | 44 | 0.705 | 5.5 | 1.18 |
| 34 | 1/28/1980 | 97 | 0.689 | 5.67 | 1.15 |
| 35 | 4/20/1983 | 46 | 0.684 | 5.83 | 1.11 |
| 36 | 3/19/1991 | 97 | 0.68 | 6 | 1.08 |
| 37 | 11/21/1984 | 103 | 0.679 | 6.17 | 1.05 |
| 38 | 2/28/1981 | 66 | 0.678 | 6.33 | 1.03 |
| 39 | 12/11/1985 | 51 | 0.674 | 6.5 | 1 |
| 40 | 11/11/1985 | 59 | 0.666 | 6.67 | 0.98 |
| 41 | 2/17/1990 | 39 | 0.663 | 6.83 | 0.95 |
| 42 | 12/28/2004 | 90 | 0.661 | 7 | 0.93 |
| 43 | 11/30/2007 | 51 | 0.658 | 7.17 | 0.91 |
| 44 | 2/27/1978 | 175 | 0.652 | 7.33 | 0.89 |
| 45 | 12/27/1984 | 64 | 0.642 | 7.5 | 0.87 |
| 46 | 4/3/1987 | 35 | 0.627 | 7.67 | 0.85 |
| 47 | 4/25/1994 | 84 | 0.609 | 7.83 | 0.83 |
| 48 | 1/28/1982 | 29 | 0.607 | 8 | 0.81 |
| 49 | 3/10/1980 | 39 | 0.605 | 8.17 | 0.8 |
| 50 | 11/29/1970 | 43 | 0.6 | 8.33 | 0.78 |
| 51 | 2/15/1986 | 49 | 0.599 | 8.5 | 0.76 |
| 52 | 1/3/1995 | 77 | 0.58 | 8.67 | 0.75 |
| 53 | 3/4/2005 | 46 | 0.579 | 8.83 | 0.74 |
| 54 | 11/9/1982 | 64 | 0.578 | 9 | 0.72 |
| 55 | 10/27/2004 | 53 | 0.575 | 9.17 | 0.71 |
| 56 | 9/16/1978 | 25 | 0.575 | 9.33 | 0.7 |
| 57 | 1/12/1997 | 46 | 0.574 | 9.5 | 0.68 |
| 58 | 1/5/1979 | 58 | 0.571 | 9.67 | 0.67 |
| 59 | 5/8/1977 | 48 | 0.569 | 9.83 | 0.66 |
| 60 | 12/6/1986 | 72 | 0.561 | 10 | 0.65 |
| 61 | 2/19/2007 | 60 | 0.555 | 10.17 | 0.64 |
| 62 | 10/21/1976 | 80 | 0.551 | 10.33 | 0.63 |
| 63 | 9/25/1986 | 39 | 0.545 | 10.5 | 0.62 |
| 64 | 9/10/1976 | 56 | 0.544 | 10.67 | 0.61 |
| 65 | 1/11/1993 | 202 | 0.544 | 10.83 | 0.6 |
| 66 | 1/25/1995 | 50 | 0.526 | 11 | 0.59 |
| 67 | 2/12/1992 | 37 | 0.522 | 11.17 | 0.58 |
| 68 | 5/22/2006 | 28 | 0.521 | 11.33 | 0.57 |
| 69 | 1/20/1982 | 53 | 0.517 | 11.5 | 0.57 |
| 70 | 2/19/1980 | 78 | 0.512 | 11.67 | 0.56 |
| 71 | 1/27/1983 | 71 | 0.509 | 11.83 | 0.55 |
| 72 | 3/6/1992 | 56 | 0.507 | 12 | 0.54 |
| 73 | 3/6/1974 | 60 | 0.507 | 12.17 | 0.53 |
| 74 | 2/23/1993 | 41 | 0.507 | 12.33 | 0.53 |
| 75 | 12/10/1984 | 57 | 0.503 | 12.5 | 0.52 |

| | | | |
|---|---|---|---|
| **10-year Q:** | 1.366 | cfs | (interpolated from Table) |
| **9-year Q:** | 1.338 | cfs | |
| **8-year Q:** | 1.306 | cfs | |
| **7-year Q:** | 1.268 | cfs | |
| **6-year Q:** | 1.243 | cfs | |
| **5-year Q:** | 1.221 | cfs | |
| **4-year Q:** | 1.187 | cfs | |
| **3-year Q:** | 1.053 | cfs | |
| **2-year Q:** | 0.871 | cfs | |

| | | |
|---|---|---|
| **Lower Flow Threshold:** | 10% | |
| **0.1xQ2 (Post Mitigated):** | 0.087 | cfs |

## Post-project (Mitigated) Flow Frequency - Long-term Simulation

Clear Post-project (Mitigated) FF and TS

BUILDING D SPRING VALLEY
Statistics - Node POC-1 Total Inflow

| Rank | Start Date | Event Duration (hours) | Event Peak (CFS) | Exceedance Frequency (percent) | Return Period (years) |
|---|---|---|---|---|---|
| 76 | 3/6/1980 | 48 | 0.5 | 12.67 | 0.51 |
| 77 | 3/26/1981 | 48 | 0.499 | 12.83 | 0.51 |
| 78 | 3/15/1986 | 39 | 0.498 | 13 | 0.5 |
| 79 | 3/5/1975 | 88 | 0.496 | 13.17 | 0.49 |
| 80 | 10/9/1986 | 43 | 0.495 | 13.33 | 0.49 |
| 81 | 12/25/1977 | 124 | 0.492 | 13.5 | 0.48 |
| 82 | 3/21/1995 | 53 | 0.492 | 13.67 | 0.48 |
| 83 | 1/9/1980 | 120 | 0.488 | 13.83 | 0.47 |
| 84 | 3/1/1976 | 60 | 0.485 | 14 | 0.46 |
| 85 | 3/14/1982 | 134 | 0.481 | 14.17 | 0.46 |
| 86 | 1/3/1974 | 155 | 0.474 | 14.33 | 0.45 |
| 87 | 3/15/2003 | 66 | 0.473 | 14.5 | 0.45 |
| 88 | 12/16/1987 | 98 | 0.472 | 14.67 | 0.44 |
| 89 | 3/5/2000 | 40 | 0.47 | 14.83 | 0.44 |
| 90 | 4/14/1988 | 24 | 0.468 | 15 | 0.43 |
| 91 | 3/13/1991 | 12 | 0.466 | 15.17 | 0.43 |
| 92 | 12/16/1984 | 18 | 0.462 | 15.33 | 0.42 |
| 93 | 12/24/1983 | 67 | 0.461 | 15.5 | 0.42 |
| 94 | 2/13/1995 | 82 | 0.46 | 15.67 | 0.41 |
| 95 | 2/25/1981 | 18 | 0.459 | 15.83 | 0.41 |
| 96 | 3/10/1975 | 62 | 0.454 | 16 | 0.41 |
| 97 | 7/14/1984 | 11 | 0.451 | 16.17 | 0.4 |
| 98 | 2/11/2005 | 71 | 0.449 | 16.33 | 0.4 |
| 99 | 3/5/1981 | 49 | 0.448 | 16.5 | 0.39 |
| 100 | 3/2/1995 | 113 | 0.441 | 16.67 | 0.39 |
| 101 | 12/4/1972 | 40 | 0.44 | 16.83 | 0.39 |
| 102 | 2/17/1994 | 93 | 0.438 | 17 | 0.38 |
| 103 | 2/2/1983 | 91 | 0.438 | 17.17 | 0.38 |
| 104 | 1/9/1978 | 50 | 0.437 | 17.33 | 0.38 |
| 105 | 10/30/1996 | 34 | 0.437 | 17.5 | 0.37 |
| 106 | 4/14/2003 | 40 | 0.431 | 17.67 | 0.37 |
| 107 | 2/18/2004 | 10 | 0.425 | 17.83 | 0.36 |
| 108 | 3/19/1981 | 25 | 0.423 | 18 | 0.36 |
| 109 | 4/13/1976 | 32 | 0.423 | 18.17 | 0.36 |
| 110 | 3/30/1978 | 81 | 0.419 | 18.33 | 0.35 |
| 111 | 2/26/2004 | 48 | 0.412 | 18.5 | 0.35 |
| 112 | 3/1/1979 | 29 | 0.412 | 18.67 | 0.35 |
| 113 | 12/30/1981 | 91 | 0.407 | 18.83 | 0.35 |
| 114 | 1/25/1999 | 78 | 0.406 | 19 | 0.34 |
| 115 | 2/15/1973 | 19 | 0.404 | 19.17 | 0.34 |
| 116 | 3/25/1980 | 18 | 0.403 | 19.33 | 0.34 |
| 117 | 1/16/1973 | 24 | 0.401 | 19.5 | 0.33 |
| 118 | 3/11/1995 | 53 | 0.398 | 19.67 | 0.33 |
| 119 | 4/28/1980 | 33 | 0.395 | 19.83 | 0.33 |
| 120 | 12/7/2007 | 38 | 0.395 | 20 | 0.32 |
| 121 | 11/26/1981 | 75 | 0.393 | 20.17 | 0.32 |
| 122 | 1/5/1993 | 106 | 0.392 | 20.33 | 0.32 |
| 123 | 10/26/1996 | 23 | 0.392 | 20.5 | 0.32 |
| 124 | 10/25/1971 | 8 | 0.387 | 20.67 | 0.31 |
| 125 | 3/9/1978 | 95 | 0.387 | 20.83 | 0.31 |
| 126 | 1/5/1992 | 68 | 0.386 | 21 | 0.31 |
| 127 | 2/24/1987 | 78 | 0.384 | 21.17 | 0.31 |
| 128 | 2/7/1993 | 55 | 0.384 | 21.33 | 0.3 |
| 129 | 3/22/2005 | 45 | 0.383 | 21.5 | 0.3 |
| 130 | 12/4/1974 | 34 | 0.375 | 21.67 | 0.3 |
| 131 | 4/4/2006 | 42 | 0.374 | 21.83 | 0.3 |
| 132 | 4/11/1999 | 33 | 0.37 | 22 | 0.3 |
| 133 | 2/5/1978 | 150 | 0.36 | 22.17 | 0.29 |
| 134 | 2/20/2000 | 105 | 0.36 | 22.33 | 0.29 |
| 135 | 11/13/1978 | 29 | 0.352 | 22.5 | 0.29 |
| 136 | 4/2/1997 | 32 | 0.349 | 22.67 | 0.29 |
| 137 | 11/24/1983 | 33 | 0.348 | 22.83 | 0.28 |
| 138 | 2/3/1976 | 204 | 0.346 | 23 | 0.28 |
| 139 | 12/3/1983 | 24 | 0.343 | 23.17 | 0.28 |
| 140 | 2/2/1985 | 48 | 0.336 | 23.33 | 0.28 |
| 141 | 12/18/1984 | 61 | 0.334 | 23.5 | 0.28 |
| 142 | 1/18/1973 | 30 | 0.333 | 23.67 | 0.27 |
| 143 | 1/30/1986 | 67 | 0.332 | 23.83 | 0.27 |
| 144 | 3/12/1996 | 52 | 0.329 | 24 | 0.27 |
| 145 | 1/10/1995 | 75 | 0.327 | 24.17 | 0.27 |
| 146 | 1/29/2007 | 55 | 0.326 | 24.33 | 0.27 |
| 147 | 3/26/1992 | 34 | 0.324 | 24.5 | 0.27 |
| 148 | 11/26/1970 | 39 | 0.322 | 24.67 | 0.26 |
| 149 | 10/14/2006 | 31 | 0.321 | 24.83 | 0.26 |
| 150 | 1/13/1990 | 127 | 0.321 | 25 | 0.26 |
| 151 | 12/29/1991 | 30 | 0.321 | 25.17 | 0.26 |

## Post-project (Mitigated) Flow Frequency - Long-term Simulation

Clear Post-project (Mitigated) FF and TS

BUILDING D SPRING VALLEY
Statistics - Node POC-1 Total Inflow

| Rank | Start Date | Event Duration (hours) | Event Peak (CFS) | Exceedance Frequency (percent) | Return Period (years) |
|---|---|---|---|---|---|
| 152 | 4/29/1983 | 30 | 0.321 | 25.33 | 0.26 |
| 153 | 2/15/1992 | 19 | 0.32 | 25.5 | 0.25 |
| 154 | 1/9/1991 | 12 | 0.319 | 25.67 | 0.25 |
| 155 | 1/17/1988 | 44 | 0.319 | 25.83 | 0.25 |
| 156 | 9/22/1987 | 34 | 0.319 | 26 | 0.25 |
| 157 | 3/26/1993 | 69 | 0.318 | 26.17 | 0.25 |
| 158 | 11/29/1985 | 24 | 0.318 | 26.33 | 0.25 |
| 159 | 11/19/1990 | 25 | 0.318 | 26.5 | 0.25 |
| 160 | 3/10/2006 | 56 | 0.315 | 26.67 | 0.24 |
| 161 | 12/17/1978 | 95 | 0.315 | 26.83 | 0.24 |
| 162 | 3/8/1986 | 65 | 0.314 | 27 | 0.24 |
| 163 | 4/14/1971 | 23 | 0.312 | 27.17 | 0.24 |
| 164 | 6/9/1990 | 37 | 0.309 | 27.33 | 0.24 |
| 165 | 4/6/1986 | 28 | 0.308 | 27.5 | 0.24 |
| 166 | 2/21/1979 | 22 | 0.307 | 27.67 | 0.23 |
| 167 | 1/5/2008 | 82 | 0.306 | 27.83 | 0.23 |
| 168 | 10/5/1977 | 36 | 0.305 | 28 | 0.23 |
| 169 | 12/17/1991 | 44 | 0.304 | 28.17 | 0.23 |
| 170 | 12/22/1982 | 11 | 0.303 | 28.33 | 0.23 |
| 171 | 11/17/1973 | 45 | 0.303 | 28.5 | 0.23 |
| 172 | 4/17/1996 | 27 | 0.297 | 28.67 | 0.23 |
| 173 | 4/20/1988 | 58 | 0.295 | 28.83 | 0.23 |
| 174 | 10/28/1974 | 55 | 0.29 | 29 | 0.22 |
| 175 | 12/4/1980 | 30 | 0.289 | 29.17 | 0.22 |
| 176 | 1/25/1997 | 39 | 0.284 | 29.33 | 0.22 |
| 177 | 12/14/1993 | 13 | 0.284 | 29.5 | 0.22 |
| 178 | 12/7/1984 | 19 | 0.284 | 29.67 | 0.22 |
| 180 | 1/2/1971 | 12 | 0.284 | 30 | 0.22 |
| 180 | 12/11/1993 | 21 | 0.284 | 30 | 0.22 |
| 181 | 4/4/1990 | 10 | 0.284 | 30.17 | 0.22 |
| 182 | 1/21/1996 | 12 | 0.283 | 30.33 | 0.21 |
| 183 | 2/14/2008 | 13 | 0.283 | 30.5 | 0.21 |
| 184 | 11/11/1993 | 11 | 0.283 | 30.67 | 0.21 |
| 185 | 3/12/1990 | 5 | 0.281 | 30.83 | 0.21 |
| 186 | 3/18/2002 | 9 | 0.281 | 31 | 0.21 |
| 187 | 3/15/1987 | 31 | 0.281 | 31.17 | 0.21 |
| 188 | 4/25/1971 | 21 | 0.277 | 31.33 | 0.21 |
| 189 | 6/19/1975 | 4 | 0.274 | 31.5 | 0.21 |
| 190 | 2/11/2000 | 57 | 0.27 | 31.67 | 0.21 |
| 191 | 2/27/2006 | 47 | 0.267 | 31.83 | 0.2 |
| 192 | 11/22/1973 | 35 | 0.262 | 32 | 0.2 |
| 193 | 1/23/2008 | 20 | 0.258 | 32.17 | 0.2 |
| 194 | 3/17/1979 | 109 | 0.255 | 32.33 | 0.2 |
| 195 | 4/16/1995 | 19 | 0.252 | 32.5 | 0.2 |
| 196 | 1/31/1993 | 7 | 0.251 | 32.67 | 0.2 |
| 197 | 1/25/1994 | 33 | 0.251 | 32.83 | 0.2 |
| 198 | 1/28/1981 | 73 | 0.25 | 33 | 0.2 |
| 199 | 4/1/1999 | 30 | 0.248 | 33.17 | 0.2 |
| 200 | 1/31/1996 | 50 | 0.248 | 33.33 | 0.19 |
| 201 | 6/5/1993 | 25 | 0.247 | 33.5 | 0.19 |
| 202 | 3/28/2006 | 15 | 0.247 | 33.67 | 0.19 |
| 203 | 4/20/2007 | 21 | 0.243 | 33.83 | 0.19 |
| 204 | 11/21/1978 | 21 | 0.241 | 34 | 0.19 |
| 205 | 3/11/1973 | 56 | 0.239 | 34.17 | 0.19 |
| 206 | 1/3/1978 | 51 | 0.238 | 34.33 | 0.19 |
| 207 | 12/4/1998 | 60 | 0.237 | 34.5 | 0.19 |
| 208 | 11/15/1972 | 25 | 0.237 | 34.67 | 0.19 |
| 209 | 10/16/1971 | 38 | 0.237 | 34.83 | 0.19 |
| 210 | 1/28/2005 | 16 | 0.237 | 35 | 0.19 |
| 211 | 1/15/1979 | 87 | 0.236 | 35.17 | 0.18 |
| 212 | 2/8/1981 | 39 | 0.235 | 35.33 | 0.18 |
| 213 | 1/10/1982 | 16 | 0.234 | 35.5 | 0.18 |
| 214 | 2/7/1994 | 47 | 0.233 | 35.67 | 0.18 |
| 215 | 11/10/1978 | 55 | 0.233 | 35.83 | 0.18 |
| 216 | 12/22/1971 | 18 | 0.233 | 36 | 0.18 |
| 217 | 1/2/2004 | 17 | 0.233 | 36.17 | 0.18 |
| 218 | 2/7/1983 | 42 | 0.232 | 36.33 | 0.18 |
| 219 | 1/15/1997 | 15 | 0.23 | 36.5 | 0.18 |
| 220 | 4/1/2004 | 5 | 0.228 | 36.67 | 0.18 |
| 221 | 2/27/2007 | 24 | 0.226 | 36.83 | 0.18 |
| 222 | 2/13/1978 | 36 | 0.223 | 37 | 0.18 |
| 223 | 4/23/1980 | 14 | 0.221 | 37.17 | 0.17 |
| 224 | 4/5/1975 | 101 | 0.21 | 37.33 | 0.17 |
| 225 | 2/3/2004 | 18 | 0.209 | 37.5 | 0.17 |
| 226 | 1/26/1979 | 6 | 0.209 | 37.67 | 0.17 |
| 227 | 12/18/1977 | 25 | 0.209 | 37.83 | 0.17 |

## Post-project (Mitigated) Flow Frequency - Long-term Simulation

Clear Post-project (Mitigated) FF and TS

BUILDING D SPRING VALLEY
Statistics - Node POC-1 Total Inflow

| Rank | Start Date | Event Duration (hours) | Event Peak (CFS) | Exceedance Frequency (percent) | Return Period (years) |
|---|---|---|---|---|---|
| 229 | 3/15/2008 | 21 | 0.207 | 38.17 | 0.17 |
| 229 | 3/7/2002 | 8 | 0.207 | 38.17 | 0.17 |
| 230 | 10/23/1992 | 15 | 0.206 | 38.33 | 0.17 |
| 232 | 4/17/2000 | 21 | 0.204 | 38.67 | 0.17 |
| 232 | 4/14/2006 | 21 | 0.204 | 38.67 | 0.17 |
| 233 | 2/25/1996 | 32 | 0.203 | 38.83 | 0.17 |
| 234 | 12/7/2004 | 28 | 0.203 | 39 | 0.17 |
| 235 | 2/24/1983 | 39 | 0.202 | 39.17 | 0.17 |
| 236 | 7/8/1999 | 3 | 0.2 | 39.33 | 0.17 |
| 237 | 12/27/1992 | 61 | 0.199 | 39.5 | 0.16 |
| 238 | 12/23/1994 | 65 | 0.198 | 39.67 | 0.16 |
| 239 | 11/8/1998 | 24 | 0.197 | 39.83 | 0.16 |
| 240 | 3/25/1977 | 15 | 0.197 | 40 | 0.16 |
| 241 | 2/10/1997 | 10 | 0.196 | 40.17 | 0.16 |
| 242 | 12/5/1996 | 36 | 0.195 | 40.33 | 0.16 |
| 243 | 11/29/1982 | 64 | 0.195 | 40.5 | 0.16 |
| 244 | 3/25/1999 | 21 | 0.195 | 40.67 | 0.16 |
| 245 | 3/6/1994 | 49 | 0.194 | 40.83 | 0.16 |
| 246 | 2/4/1999 | 31 | 0.193 | 41 | 0.16 |
| 247 | 2/3/2008 | 38 | 0.19 | 41.17 | 0.16 |
| 248 | 4/18/1995 | 23 | 0.187 | 41.33 | 0.16 |
| 249 | 4/28/2005 | 15 | 0.187 | 41.5 | 0.16 |
| 250 | 1/26/2008 | 39 | 0.186 | 41.67 | 0.16 |
| 251 | 3/29/1982 | 30 | 0.184 | 41.83 | 0.16 |
| 252 | 3/27/1974 | 15 | 0.182 | 42 | 0.15 |
| 253 | 12/27/1971 | 34 | 0.181 | 42.17 | 0.15 |
| 254 | 10/17/2004 | 9 | 0.181 | 42.33 | 0.15 |
| 255 | 1/30/1978 | 22 | 0.178 | 42.5 | 0.15 |
| 256 | 11/24/1978 | 35 | 0.178 | 42.67 | 0.15 |
| 257 | 10/20/1979 | 29 | 0.177 | 42.83 | 0.15 |
| 258 | 10/26/1991 | 30 | 0.173 | 43 | 0.15 |
| 259 | 11/19/1982 | 12 | 0.17 | 43.17 | 0.15 |
| 260 | 3/2/1980 | 17 | 0.17 | 43.33 | 0.15 |
| 261 | 12/23/1995 | 5 | 0.169 | 43.5 | 0.15 |
| 262 | 1/23/1997 | 16 | 0.169 | 43.67 | 0.15 |
| 263 | 1/3/1991 | 46 | 0.169 | 43.83 | 0.15 |
| 264 | 12/2/1985 | 32 | 0.168 | 44 | 0.15 |
| 265 | 11/17/1986 | 34 | 0.168 | 44.17 | 0.15 |
| 266 | 11/25/1988 | 29 | 0.168 | 44.33 | 0.15 |
| 267 | 2/22/2007 | 13 | 0.168 | 44.5 | 0.15 |
| 268 | 11/22/1993 | 9 | 0.167 | 44.67 | 0.15 |
| 269 | 2/9/1992 | 31 | 0.166 | 44.83 | 0.14 |
| 270 | 1/9/1973 | 16 | 0.166 | 45 | 0.14 |
| 271 | 3/6/1973 | 51 | 0.166 | 45.17 | 0.14 |
| 272 | 11/16/1984 | 19 | 0.166 | 45.33 | 0.14 |
| 273 | 3/25/1989 | 23 | 0.165 | 45.5 | 0.14 |
| 274 | 2/29/1988 | 49 | 0.165 | 45.67 | 0.14 |
| 275 | 11/14/1988 | 11 | 0.165 | 45.83 | 0.14 |
| 276 | 2/8/1986 | 26 | 0.164 | 46 | 0.14 |
| 277 | 12/9/1996 | 20 | 0.164 | 46.17 | 0.14 |
| 278 | 8/18/1983 | 29 | 0.163 | 46.33 | 0.14 |
| 279 | 2/17/1971 | 13 | 0.163 | 46.5 | 0.14 |
| 280 | 12/24/1971 | 47 | 0.16 | 46.67 | 0.14 |
| 281 | 4/17/2004 | 5 | 0.16 | 46.83 | 0.14 |
| 282 | 1/1/1990 | 13 | 0.158 | 47 | 0.14 |
| 283 | 12/9/1983 | 5 | 0.158 | 47.17 | 0.14 |
| 284 | 12/28/1991 | 12 | 0.158 | 47.33 | 0.14 |
| 285 | 2/9/1989 | 15 | 0.157 | 47.5 | 0.14 |
| 286 | 11/4/1987 | 44 | 0.157 | 47.67 | 0.14 |
| 288 | 3/11/1990 | 5 | 0.155 | 48 | 0.14 |
| 288 | 3/2/1989 | 5 | 0.155 | 48 | 0.14 |
| 289 | 10/17/2005 | 28 | 0.154 | 48.17 | 0.13 |
| 292 | 10/17/1984 | 5 | 0.154 | 48.67 | 0.13 |
| 292 | 10/7/1983 | 5 | 0.154 | 48.67 | 0.13 |
| 292 | 10/22/1987 | 18 | 0.154 | 48.67 | 0.13 |
| 293 | 4/24/2002 | 5 | 0.153 | 48.83 | 0.13 |
| 294 | 12/28/1989 | 20 | 0.153 | 49 | 0.13 |
| 295 | 12/28/1974 | 38 | 0.153 | 49.17 | 0.13 |
| 296 | 5/3/2003 | 10 | 0.153 | 49.33 | 0.13 |
| 297 | 12/7/1982 | 65 | 0.152 | 49.5 | 0.13 |
| 298 | 3/27/1979 | 46 | 0.152 | 49.67 | 0.13 |
| 299 | 4/6/1978 | 32 | 0.151 | 49.83 | 0.13 |
| 302 | 12/8/1991 | 6 | 0.148 | 50.33 | 0.13 |
| 302 | 12/3/1984 | 6 | 0.148 | 50.33 | 0.13 |
| 302 | 1/4/1984 | 6 | 0.148 | 50.33 | 0.13 |
| 303 | 11/27/1975 | 50 | 0.147 | 50.5 | 0.13 |

## Post-project (Mitigated) Flow Frequency - Long-term Simulation

Clear Post-project (Mitigated) FF and TS

BUILDING D SPRING VALLEY
Statistics - Node POC-1 Total Inflow

| Rank | Start Date | Event Duration (hours) | Event Peak (CFS) | Exceedance Frequency (percent) | Return Period (years) |
|---|---|---|---|---|---|
| 304 | 2/19/1971 | 6 | 0.147 | 50.67 | 0.13 |
| 305 | 3/27/1985 | 26 | 0.146 | 50.83 | 0.13 |
| 306 | 12/19/1990 | 41 | 0.146 | 51 | 0.13 |
| 307 | 1/5/1988 | 7 | 0.144 | 51.17 | 0.13 |
| 308 | 3/21/1987 | 19 | 0.144 | 51.33 | 0.13 |
| 309 | 2/28/1973 | 18 | 0.143 | 51.5 | 0.13 |
| 310 | 3/25/1994 | 25 | 0.143 | 51.67 | 0.13 |
| 312 | 1/23/1989 | 8 | 0.142 | 52 | 0.13 |
| 312 | 1/16/1984 | 8 | 0.142 | 52 | 0.13 |
| 313 | 2/13/1987 | 8 | 0.14 | 52.17 | 0.12 |
| 314 | 2/9/1982 | 40 | 0.14 | 52.33 | 0.12 |
| 315 | 1/5/1989 | 10 | 0.139 | 52.5 | 0.12 |
| 316 | 12/29/1982 | 8 | 0.139 | 52.67 | 0.12 |
| 317 | 10/23/1991 | 14 | 0.138 | 52.83 | 0.12 |
| 318 | 5/1/1980 | 25 | 0.138 | 53 | 0.12 |
| 319 | 1/7/1985 | 31 | 0.138 | 53.17 | 0.12 |
| 320 | 1/4/1989 | 11 | 0.137 | 53.33 | 0.12 |
| 321 | 12/15/1988 | 24 | 0.135 | 53.5 | 0.12 |
| 322 | 11/12/2003 | 21 | 0.135 | 53.67 | 0.12 |
| 326 | 12/10/2006 | 3 | 0.134 | 54.33 | 0.12 |
| 326 | 1/28/2002 | 43 | 0.134 | 54.33 | 0.12 |
| 326 | 12/27/2006 | 16 | 0.134 | 54.33 | 0.12 |
| 326 | 12/18/1992 | 7 | 0.134 | 54.33 | 0.12 |
| 327 | 2/13/1980 | 94 | 0.133 | 54.5 | 0.12 |
| 329 | 2/12/1996 | 3 | 0.133 | 54.83 | 0.12 |
| 329 | 11/28/1998 | 16 | 0.133 | 54.83 | 0.12 |
| 330 | 11/12/1983 | 25 | 0.132 | 55 | 0.12 |
| 331 | 3/6/1987 | 9 | 0.131 | 55.17 | 0.12 |
| 332 | 4/17/2003 | 8 | 0.129 | 55.33 | 0.12 |
| 333 | 5/28/1990 | 18 | 0.128 | 55.5 | 0.12 |
| 334 | 2/3/1994 | 34 | 0.128 | 55.67 | 0.12 |
| 335 | 9/6/1972 | 10 | 0.127 | 55.83 | 0.12 |
| 336 | 12/29/1987 | 16 | 0.126 | 56 | 0.12 |
| 337 | 8/27/1999 | 2 | 0.125 | 56.17 | 0.12 |
| 338 | 4/24/1994 | 6 | 0.125 | 56.33 | 0.12 |
| 339 | 3/13/1986 | 11 | 0.124 | 56.5 | 0.12 |
| 340 | 12/3/1971 | 31 | 0.124 | 56.67 | 0.11 |
| 341 | 11/8/1972 | 3 | 0.122 | 56.83 | 0.11 |
| 342 | 2/6/1973 | 12 | 0.12 | 57 | 0.11 |
| 343 | 2/19/2006 | 11 | 0.12 | 57.17 | 0.11 |
| 344 | 1/4/1973 | 22 | 0.118 | 57.33 | 0.11 |
| 345 | 2/23/1971 | 16 | 0.118 | 57.5 | 0.11 |
| 346 | 12/7/2003 | 7 | 0.117 | 57.67 | 0.11 |
| 347 | 1/7/1995 | 22 | 0.117 | 57.83 | 0.11 |
| 348 | 6/20/1972 | 9 | 0.115 | 58 | 0.11 |
| 349 | 3/15/1999 | 14 | 0.115 | 58.17 | 0.11 |
| 350 | 2/4/1990 | 8 | 0.113 | 58.33 | 0.11 |
| 351 | 12/11/1996 | 6 | 0.113 | 58.5 | 0.11 |
| 352 | 1/2/1993 | 6 | 0.113 | 58.67 | 0.11 |
| 353 | 11/7/1979 | 5 | 0.109 | 58.83 | 0.11 |
| 354 | 4/6/1984 | 10 | 0.109 | 59 | 0.11 |
| 355 | 9/5/1978 | 5 | 0.107 | 59.17 | 0.11 |
| 356 | 3/13/1981 | 9 | 0.107 | 59.33 | 0.11 |
| 357 | 4/21/2001 | 15 | 0.106 | 59.5 | 0.11 |
| 358 | 3/21/1980 | 9 | 0.105 | 59.67 | 0.11 |
| 359 | 5/5/1995 | 30 | 0.104 | 59.83 | 0.11 |
| 360 | 1/19/1983 | 8 | 0.102 | 60 | 0.11 |
| 362 | 1/16/1996 | 7 | 0.102 | 60.33 | 0.11 |
| 362 | 12/16/2006 | 15 | 0.102 | 60.33 | 0.11 |
| 363 | 3/21/2006 | 9 | 0.101 | 60.5 | 0.11 |
| 364 | 1/20/1999 | 25 | 0.1 | 60.67 | 0.11 |
| 365 | 11/30/1993 | 4 | 0.1 | 60.83 | 0.11 |
| 366 | 12/7/1972 | 52 | 0.099 | 61 | 0.11 |
| 367 | 4/1/1980 | 3 | 0.097 | 61.17 | 0.11 |
| 368 | 3/22/2007 | 4 | 0.097 | 61.33 | 0.11 |
| 369 | 1/30/1973 | 7 | 0.097 | 61.5 | 0.11 |
| 370 | 3/11/1999 | 3 | 0.097 | 61.67 | 0.11 |
| 371 | 12/28/1988 | 3 | 0.096 | 61.83 | 0.11 |
| 372 | 1/29/1985 | 3 | 0.095 | 62 | 0.1 |
| 373 | 1/30/1985 | 3 | 0.095 | 62.17 | 0.1 |
| 374 | 12/18/1988 | 3 | 0.095 | 62.33 | 0.1 |
| 375 | 12/23/1988 | 3 | 0.095 | 62.5 | 0.1 |
| 376 | 11/1/1995 | 5 | 0.095 | 62.67 | 0.1 |
| 377 | 12/21/1988 | 3 | 0.095 | 62.83 | 0.1 |
| 378 | 12/1/1983 | 3 | 0.095 | 63 | 0.1 |
| 382 | 12/20/1986 | 3 | 0.095 | 63.67 | 0.1 |

# Post-project (Mitigated) Flow Frequency - Long-term Simulation

Clear Post-project (Mitigated) FF and TS

BUILDING D SPRING VALLEY
Statistics - Node POC-1 Total Inflow

| Rank | Start Date | Event Duration (hours) | Event Peak (CFS) | Exceedance Frequency (percent) | Return Period (years) |
|---|---|---|---|---|---|
| 382 | 12/13/1971 | 4 | 0.095 | 63.67 | 0.1 |
| 382 | 1/13/1971 | 3 | 0.095 | 63.67 | 0.1 |
| 382 | 1/27/1985 | 3 | 0.095 | 63.67 | 0.1 |
| 383 | 11/18/1984 | 3 | 0.095 | 63.83 | 0.1 |
| 384 | 11/8/1987 | 3 | 0.094 | 64 | 0.1 |
| 385 | 2/15/1987 | 3 | 0.094 | 64.17 | 0.1 |
| 386 | 2/4/1989 | 3 | 0.094 | 64.33 | 0.1 |
| 387 | 2/13/1989 | 3 | 0.094 | 64.5 | 0.1 |
| 388 | 11/18/1983 | 3 | 0.094 | 64.67 | 0.1 |
| 389 | 2/9/1985 | 3 | 0.094 | 64.83 | 0.1 |
| 390 | 11/26/1990 | 3 | 0.094 | 65 | 0.1 |
| 394 | 11/8/1984 | 3 | 0.094 | 65.67 | 0.1 |
| 394 | 2/20/1985 | 3 | 0.094 | 65.67 | 0.1 |
| 394 | 2/2/1989 | 3 | 0.094 | 65.67 | 0.1 |
| 394 | 11/26/1989 | 3 | 0.094 | 65.67 | 0.1 |
| 395 | 4/17/1983 | 7 | 0.094 | 65.83 | 0.1 |
| 396 | 4/17/1971 | 12 | 0.093 | 66 | 0.1 |
| 397 | 3/12/1986 | 2 | 0.093 | 66.17 | 0.1 |
| 398 | 3/2/1985 | 20 | 0.092 | 66.33 | 0.1 |
| 399 | 3/15/1991 | 2 | 0.092 | 66.5 | 0.1 |
| 402 | 3/31/1984 | 2 | 0.092 | 67 | 0.1 |
| 402 | 3/11/1991 | 2 | 0.092 | 67 | 0.1 |
| 402 | 3/13/1971 | 2 | 0.092 | 67 | 0.1 |
| 403 | 10/24/1987 | 2 | 0.092 | 67.17 | 0.1 |
| 406 | 10/8/1985 | 2 | 0.091 | 67.67 | 0.1 |
| 406 | 10/27/1984 | 2 | 0.091 | 67.67 | 0.1 |
| 406 | 10/1/1983 | 2 | 0.091 | 67.67 | 0.1 |
| 407 | 4/23/1990 | 18 | 0.089 | 67.83 | 0.1 |
| 408 | 4/18/1988 | 2 | 0.089 | 68 | 0.1 |
| 409 | 9/19/1989 | 2 | 0.089 | 68.17 | 0.1 |
| 410 | 4/1/1992 | 2 | 0.089 | 68.33 | 0.1 |
| 417 | 4/17/1990 | 2 | 0.089 | 69.5 | 0.09 |
| 417 | 4/26/1989 | 2 | 0.089 | 69.5 | 0.09 |
| 417 | 4/27/1984 | 2 | 0.089 | 69.5 | 0.09 |
| 417 | 4/1/1986 | 2 | 0.089 | 69.5 | 0.09 |
| 417 | 9/17/1989 | 2 | 0.089 | 69.5 | 0.09 |
| 417 | 9/20/1991 | 2 | 0.089 | 69.5 | 0.09 |
| 417 | 4/19/1984 | 2 | 0.089 | 69.5 | 0.09 |
| 418 | 5/29/1988 | 2 | 0.087 | 69.67 | 0.09 |
| 419 | 6/28/2000 | 3 | 0.087 | 69.83 | 0.09 |
| 420 | 6/15/1995 | 40 | 0.087 | 70 | 0.09 |
| 421 | 3/8/2000 | 5 | 0.085 | 70.17 | 0.09 |
| 422 | 3/25/1982 | 13 | 0.084 | 70.33 | 0.09 |
| 423 | 3/16/1977 | 17 | 0.084 | 70.5 | 0.09 |
| 424 | 2/4/1975 | 20 | 0.079 | 70.67 | 0.09 |
| 425 | 12/23/1977 | 20 | 0.078 | 70.83 | 0.09 |
| 426 | 4/4/1976 | 11 | 0.076 | 71 | 0.09 |
| 427 | 12/19/1998 | 13 | 0.076 | 71.17 | 0.09 |
| 428 | 3/14/1975 | 19 | 0.072 | 71.33 | 0.09 |
| 429 | 10/17/1972 | 78 | 0.071 | 71.5 | 0.09 |
| 430 | 12/12/1975 | 8 | 0.071 | 71.67 | 0.09 |
| 431 | 3/22/1975 | 6 | 0.069 | 71.83 | 0.09 |
| 432 | 3/2/1974 | 27 | 0.069 | 72 | 0.09 |
| 433 | 4/6/1999 | 15 | 0.068 | 72.17 | 0.09 |
| 434 | 1/28/1979 | 10 | 0.068 | 72.33 | 0.09 |
| 435 | 12/25/2003 | 35 | 0.065 | 72.5 | 0.09 |
| 436 | 2/24/2008 | 6 | 0.065 | 72.67 | 0.09 |
| 437 | 3/5/1996 | 9 | 0.064 | 72.83 | 0.09 |
| 438 | 1/18/1980 | 13 | 0.062 | 73 | 0.09 |
| 439 | 1/1/2006 | 35 | 0.062 | 73.17 | 0.09 |
| 440 | 1/21/1995 | 4 | 0.062 | 73.33 | 0.09 |
| 441 | 3/21/2007 | 11 | 0.06 | 73.5 | 0.09 |
| 442 | 2/26/1993 | 39 | 0.058 | 73.67 | 0.09 |
| 443 | 4/15/1976 | 5 | 0.058 | 73.83 | 0.09 |
| 444 | 12/1/1998 | 7 | 0.057 | 74 | 0.09 |
| 445 | 1/23/1995 | 10 | 0.057 | 74.17 | 0.09 |
| 446 | 1/30/2008 | 2 | 0.056 | 74.33 | 0.09 |
| 448 | 1/22/2008 | 2 | 0.056 | 74.67 | 0.09 |
| 448 | 1/25/2004 | 7 | 0.056 | 74.67 | 0.09 |
| 449 | 2/27/1996 | 10 | 0.056 | 74.83 | 0.09 |
| 450 | 3/11/1982 | 34 | 0.055 | 75 | 0.09 |
| 453 | 11/10/1994 | 20 | 0.055 | 75.5 | 0.09 |
| 453 | 2/22/2008 | 2 | 0.055 | 75.5 | 0.09 |
| 453 | 2/19/2002 | 2 | 0.055 | 75.5 | 0.09 |
| 454 | 1/11/1981 | 45 | 0.055 | 75.67 | 0.09 |
| 455 | 3/14/2005 | 2 | 0.053 | 75.83 | 0.09 |

## Post-project (Mitigated) Flow Frequency - Long-term Simulation

Clear Post-project (Mitigated) FF and TS

BUILDING D SPRING VALLEY
Statistics - Node POC-1 Total Inflow

| Rank | Start Date | Event Duration (hours) | Event Peak (CFS) | Exceedance Frequency (percent) | Return Period (years) |
|---|---|---|---|---|---|
| 456 | 9/26/1982 | 15 | 0.053 | 76 | 0.09 |
| 457 | 10/16/1993 | 2 | 0.053 | 76.17 | 0.09 |
| 458 | 2/5/1972 | 8 | 0.052 | 76.33 | 0.09 |
| 459 | 4/3/1999 | 2 | 0.051 | 76.5 | 0.08 |
| 460 | 4/12/1983 | 2 | 0.051 | 76.67 | 0.08 |
| 463 | 4/23/2006 | 6 | 0.05 | 77.17 | 0.08 |
| 463 | 4/9/1994 | 4 | 0.05 | 77.17 | 0.08 |
| 463 | 4/13/2003 | 6 | 0.05 | 77.17 | 0.08 |
| 464 | 3/2/1982 | 3 | 0.049 | 77.33 | 0.08 |
| 465 | 10/11/1981 | 3 | 0.047 | 77.5 | 0.08 |
| 466 | 3/19/2006 | 23 | 0.046 | 77.67 | 0.08 |
| 467 | 1/16/1995 | 20 | 0.046 | 77.83 | 0.08 |
| 468 | 3/19/1980 | 3 | 0.046 | 78 | 0.08 |
| 469 | 10/26/1980 | 4 | 0.045 | 78.17 | 0.08 |
| 470 | 3/14/1983 | 4 | 0.045 | 78.33 | 0.08 |
| 471 | 5/19/1972 | 29 | 0.045 | 78.5 | 0.08 |
| 472 | 3/26/1973 | 7 | 0.043 | 78.67 | 0.08 |
| 473 | 10/29/1981 | 3 | 0.04 | 78.83 | 0.08 |
| 474 | 9/16/1982 | 19 | 0.039 | 79 | 0.08 |
| 475 | 2/17/2000 | 3 | 0.038 | 79.17 | 0.08 |
| 476 | 2/8/2003 | 3 | 0.038 | 79.33 | 0.08 |
| 477 | 2/14/1979 | 5 | 0.037 | 79.5 | 0.08 |
| 478 | 12/11/2007 | 3 | 0.037 | 79.67 | 0.08 |
| 479 | 4/20/1973 | 2 | 0.037 | 79.83 | 0.08 |
| 480 | 3/13/1979 | 8 | 0.036 | 80 | 0.08 |
| 483 | 11/1/2003 | 3 | 0.035 | 80.5 | 0.08 |
| 483 | 2/14/2004 | 3 | 0.035 | 80.5 | 0.08 |
| 483 | 2/22/1996 | 3 | 0.035 | 80.5 | 0.08 |
| 484 | 1/28/1977 | 8 | 0.035 | 80.67 | 0.08 |
| 485 | 1/24/1983 | 9 | 0.035 | 80.83 | 0.08 |
| 486 | 3/7/2006 | 3 | 0.033 | 81 | 0.08 |
| 487 | 3/17/2006 | 3 | 0.033 | 81.17 | 0.08 |
| 488 | 3/24/2002 | 3 | 0.033 | 81.33 | 0.08 |
| 489 | 3/4/1999 | 3 | 0.033 | 81.5 | 0.08 |
| 490 | 3/4/1973 | 4 | 0.031 | 81.67 | 0.08 |
| 491 | 11/17/1979 | 3 | 0.03 | 81.83 | 0.08 |
| 492 | 4/23/2007 | 2 | 0.028 | 82 | 0.08 |
| 493 | 4/26/2002 | 2 | 0.028 | 82.17 | 0.08 |
| 494 | 12/26/1979 | 6 | 0.026 | 82.33 | 0.08 |
| 495 | 10/20/1978 | 1 | 0.026 | 82.5 | 0.08 |
| 496 | 4/18/1981 | 21 | 0.026 | 82.67 | 0.08 |
| 497 | 2/9/1975 | 23 | 0.025 | 82.83 | 0.08 |
| 498 | 5/24/1977 | 6 | 0.025 | 83 | 0.08 |
| 499 | 1/30/1975 | 14 | 0.025 | 83.17 | 0.08 |
| 500 | 1/17/1983 | 5 | 0.023 | 83.33 | 0.08 |
| 501 | 11/26/1973 | 2 | 0.023 | 83.5 | 0.08 |
| 502 | 1/23/1983 | 6 | 0.022 | 83.67 | 0.08 |
| 503 | 1/25/1996 | 8 | 0.02 | 83.83 | 0.08 |
| 504 | 10/13/2007 | 4 | 0.018 | 84 | 0.08 |
| 505 | 7/19/1979 | 2 | 0.017 | 84.17 | 0.08 |
| 506 | 11/12/1971 | 2 | 0.017 | 84.33 | 0.08 |
| 507 | 2/23/1979 | 9 | 0.016 | 84.5 | 0.08 |
| 508 | 5/1/1978 | 3 | 0.015 | 84.67 | 0.08 |
| 509 | 3/28/1983 | 1 | 0.014 | 84.83 | 0.08 |
| 510 | 4/4/1978 | 1 | 0.013 | 85 | 0.08 |
| 513 | 9/30/1981 | 1 | 0.013 | 85.5 | 0.08 |
| 513 | 4/15/1978 | 22 | 0.013 | 85.5 | 0.08 |
| 513 | 4/25/1975 | 1 | 0.013 | 85.5 | 0.08 |
| 514 | 6/8/1977 | 1 | 0.013 | 85.67 | 0.08 |
| 515 | 1/15/1995 | 1 | 0.012 | 85.83 | 0.08 |
| 516 | 3/30/2008 | 6 | 0.012 | 86 | 0.08 |
| 517 | 4/16/1975 | 5 | 0.011 | 86.17 | 0.08 |
| 518 | 4/30/1973 | 2 | 0.011 | 86.33 | 0.08 |
| 519 | 11/12/1993 | 1 | 0.011 | 86.5 | 0.08 |
| 520 | 12/22/1996 | 13 | 0.011 | 86.67 | 0.08 |
| 521 | 12/4/2004 | 22 | 0.011 | 86.83 | 0.07 |
| 522 | 1/28/2004 | 1 | 0.011 | 87 | 0.07 |
| 523 | 12/20/2007 | 1 | 0.011 | 87.17 | 0.07 |
| 524 | 12/16/1995 | 1 | 0.011 | 87.33 | 0.07 |
| 525 | 12/23/2006 | 1 | 0.011 | 87.5 | 0.07 |
| 533 | 12/3/2005 | 1 | 0.011 | 88.83 | 0.07 |
| 533 | 1/27/2005 | 1 | 0.011 | 88.83 | 0.07 |
| 533 | 12/20/1995 | 1 | 0.011 | 88.83 | 0.07 |
| 533 | 12/5/1994 | 1 | 0.011 | 88.83 | 0.07 |
| 533 | 12/13/1995 | 1 | 0.011 | 88.83 | 0.07 |
| 533 | 1/4/2007 | 1 | 0.011 | 88.83 | 0.07 |

## Post-project (Mitigated) Flow Frequency - Long-term Simulation

Clear Post-project (Mitigated) FF and TS

BUILDING D SPRING VALLEY
Statistics - Node POC-1 Total Inflow

| Rank | Start Date | Event Duration (hours) | Event Peak (CFS) | Exceedance Frequency (percent) | Return Period (years) |
|---|---|---|---|---|---|
| 533 | 12/28/1996 | 1 | 0.011 | 88.83 | 0.07 |
| 533 | 12/19/2007 | 1 | 0.011 | 88.83 | 0.07 |
| 534 | 11/16/2003 | 1 | 0.011 | 89 | 0.07 |
| 535 | 2/9/1999 | 1 | 0.011 | 89.17 | 0.07 |
| 536 | 11/28/1996 | 1 | 0.011 | 89.33 | 0.07 |
| 537 | 2/18/1997 | 1 | 0.011 | 89.5 | 0.07 |
| 544 | 2/12/2007 | 1 | 0.011 | 90.67 | 0.07 |
| 544 | 2/24/1995 | 1 | 0.011 | 90.67 | 0.07 |
| 544 | 11/18/2006 | 1 | 0.011 | 90.67 | 0.07 |
| 544 | 11/27/2006 | 1 | 0.011 | 90.67 | 0.07 |
| 544 | 2/28/1997 | 1 | 0.011 | 90.67 | 0.07 |
| 544 | 11/21/2004 | 1 | 0.011 | 90.67 | 0.07 |
| 544 | 11/18/1994 | 1 | 0.011 | 90.67 | 0.07 |
| 545 | 6/10/1972 | 2 | 0.01 | 90.83 | 0.07 |
| 546 | 3/10/2000 | 1 | 0.01 | 91 | 0.07 |
| 547 | 3/7/1999 | 8 | 0.01 | 91.17 | 0.07 |
| 548 | 3/23/1999 | 10 | 0.01 | 91.33 | 0.07 |
| 549 | 3/15/1979 | 1 | 0.01 | 91.5 | 0.07 |
| 550 | 3/26/2006 | 1 | 0.01 | 91.67 | 0.07 |
| 552 | 3/16/2002 | 1 | 0.01 | 92 | 0.07 |
| 552 | 3/20/2005 | 1 | 0.01 | 92 | 0.07 |
| 553 | 10/25/1982 | 25 | 0.01 | 92.17 | 0.07 |
| 554 | 10/3/1981 | 1 | 0.01 | 92.33 | 0.07 |
| 557 | 10/30/1992 | 1 | 0.01 | 92.83 | 0.07 |
| 557 | 10/25/1998 | 1 | 0.01 | 92.83 | 0.07 |
| 557 | 10/6/1975 | 4 | 0.01 | 92.83 | 0.07 |
| 558 | 4/13/1972 | 1 | 0.01 | 93 | 0.07 |
| 559 | 4/22/2000 | 1 | 0.01 | 93.17 | 0.07 |
| 560 | 4/22/2003 | 1 | 0.01 | 93.33 | 0.07 |
| 569 | 4/2/1996 | 1 | 0.01 | 94.83 | 0.07 |
| 569 | 9/22/2007 | 1 | 0.01 | 94.83 | 0.07 |
| 569 | 4/6/2002 | 1 | 0.01 | 94.83 | 0.07 |
| 569 | 9/22/1999 | 1 | 0.01 | 94.83 | 0.07 |
| 569 | 9/20/2005 | 1 | 0.01 | 94.83 | 0.07 |
| 569 | 4/8/2005 | 1 | 0.01 | 94.83 | 0.07 |
| 569 | 4/24/2005 | 1 | 0.01 | 94.83 | 0.07 |
| 569 | 9/26/1996 | 1 | 0.01 | 94.83 | 0.07 |
| 569 | 9/3/1998 | 1 | 0.01 | 94.83 | 0.07 |
| 570 | 5/8/2003 | 1 | 0.009 | 95 | 0.07 |
| 575 | 5/23/2008 | 1 | 0.009 | 95.83 | 0.07 |
| 575 | 5/15/2007 | 1 | 0.009 | 95.83 | 0.07 |
| 575 | 5/6/1976 | 1 | 0.009 | 95.83 | 0.07 |
| 575 | 5/30/2001 | 1 | 0.009 | 95.83 | 0.07 |
| 575 | 5/13/1995 | 1 | 0.009 | 95.83 | 0.07 |
| 577 | 7/31/2006 | 4 | 0.009 | 96.17 | 0.07 |
| 577 | 6/20/2003 | 4 | 0.009 | 96.17 | 0.07 |
| 578 | 1/1/1974 | 1 | 0.009 | 96.33 | 0.07 |
| 579 | 8/10/1998 | 1 | 0.009 | 96.5 | 0.07 |
| 580 | 6/3/1999 | 16 | 0.009 | 96.67 | 0.07 |
| 582 | 6/25/2000 | 1 | 0.009 | 97 | 0.07 |
| 582 | 6/5/1972 | 1 | 0.009 | 97 | 0.07 |
| 583 | 1/5/1982 | 1 | 0.009 | 97.17 | 0.07 |
| 584 | 12/1/1978 | 1 | 0.008 | 97.33 | 0.07 |
| 585 | 5/10/1980 | 1 | 0.008 | 97.5 | 0.07 |
| 586 | 1/7/1980 | 1 | 0.007 | 97.67 | 0.07 |
| 587 | 11/5/1977 | 8 | 0.007 | 97.83 | 0.07 |
| 588 | 3/25/1975 | 1 | 0.007 | 98 | 0.07 |
| 589 | 9/29/1971 | 1 | 0.007 | 98.17 | 0.07 |
| 590 | 12/20/1975 | 1 | 0.006 | 98.33 | 0.07 |
| 591 | 12/21/1981 | 1 | 0.006 | 98.5 | 0.07 |
| 592 | 4/14/1975 | 1 | 0.006 | 98.67 | 0.07 |
| 593 | 4/21/1980 | 1 | 0.006 | 98.83 | 0.07 |
| 594 | 5/7/1977 | 1 | 0.006 | 99 | 0.07 |
| 595 | 6/7/1972 | 1 | 0.006 | 99.17 | 0.07 |
| 596 | 1/24/1979 | 1 | 0.005 | 99.33 | 0.07 |
| 597 | 2/24/1977 | 3 | 0.005 | 99.5 | 0.07 |
| 598 | 12/14/1975 | 1 | 0.005 | 99.67 | 0.07 |
| 599 | 11/1/1974 | 1 | 0.005 | 99.83 | 0.07 |

CVS Spring Valley
13392us
2021-03-11

[POC 1 - Basin 1]

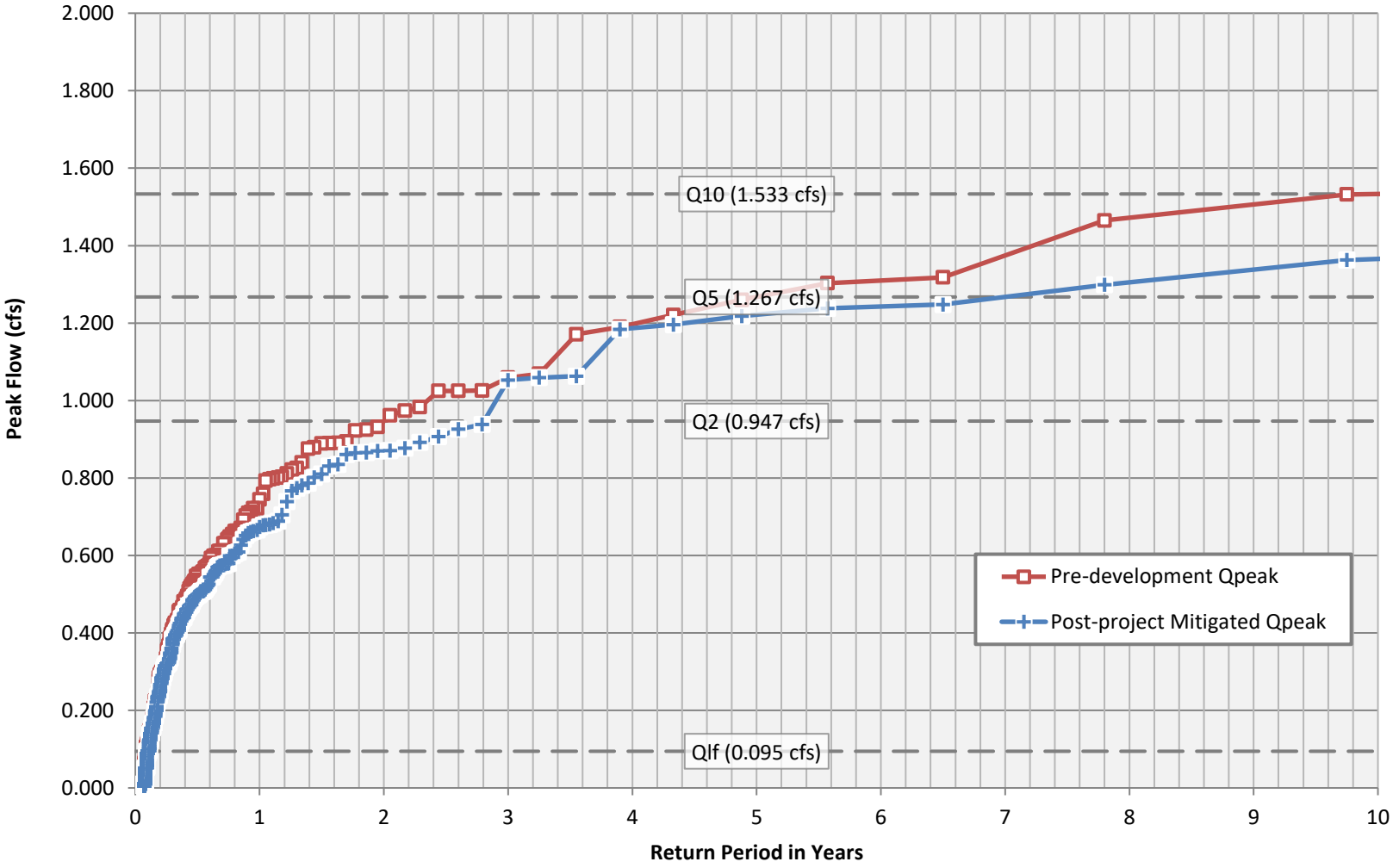
| | | |
|---|---|---|
| **Low-flow Threshold:** | 10% | |
| **0.1xQ2 (Pre):** | 0.095 | cfs |
| **Q10 (Pre):** | 1.533 | cfs |
| **Ordinate #:** | 100 | |
| **Incremental Q (Pre):** | 0.01439 | cfs |
| **Total Hourly Data:** | 329993 | hours |

**The proposed BMP:** **PASSED**

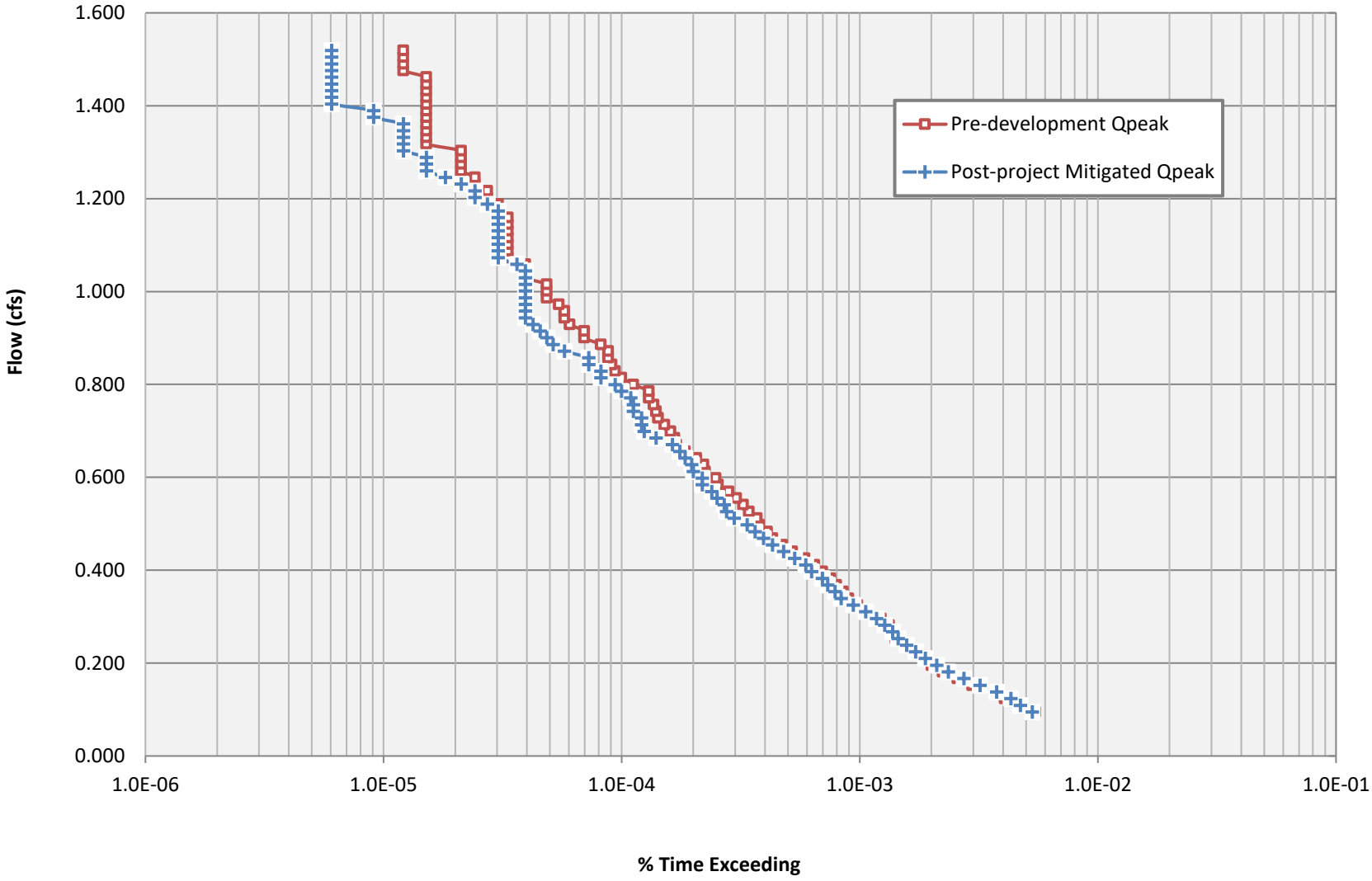
| Beginning of Interval | Pre-develop. Flow (cfs) | Pre-develop. Hours | Pre-develop. % Time Exceeding | Post-project Hours | Post-project % Time Exceeding | Percentage | Pass/Fail |
|---|---|---|---|---|---|---|---|
| 1 | 0.095 | 1804 | 5.47E-03 | 1751 | 5.31E-03 | 97% | Pass |
| 2 | 0.109 | 1568 | 4.75E-03 | 1560 | 4.73E-03 | 99% | Pass |
| 3 | 0.123 | 1343 | 4.07E-03 | 1425 | 4.32E-03 | 106% | *Pass^* |
| 4 | 0.138 | 1228 | 3.72E-03 | 1240 | 3.76E-03 | 101% | *Pass^* |
| 5 | 0.152 | 980 | 2.97E-03 | 1056 | 3.20E-03 | 108% | *Pass^* |
| 6 | 0.167 | 849 | 2.57E-03 | 903 | 2.74E-03 | 106% | *Pass^* |
| 7 | 0.181 | 736 | 2.23E-03 | 777 | 2.35E-03 | 106% | *Pass^* |
| 8 | 0.195 | 662 | 2.01E-03 | 694 | 2.10E-03 | 105% | *Pass^* |
| 9 | 0.210 | 617 | 1.87E-03 | 623 | 1.89E-03 | 101% | *Pass^* |
| 10 | 0.224 | 565 | 1.71E-03 | 567 | 1.72E-03 | 100% | *Pass^* |
| 11 | 0.239 | 511 | 1.55E-03 | 519 | 1.57E-03 | 102% | *Pass^* |
| 12 | 0.253 | 467 | 1.42E-03 | 479 | 1.45E-03 | 103% | *Pass^* |
| 13 | 0.267 | 453 | 1.37E-03 | 453 | 1.37E-03 | 100% | *Pass^* |
| 14 | 0.282 | 439 | 1.33E-03 | 420 | 1.27E-03 | 96% | Pass |
| 15 | 0.296 | 405 | 1.23E-03 | 388 | 1.18E-03 | 96% | Pass |
| 16 | 0.310 | 354 | 1.07E-03 | 350 | 1.06E-03 | 99% | Pass |
| 17 | 0.325 | 323 | 9.79E-04 | 310 | 9.39E-04 | 96% | Pass |
| 18 | 0.339 | 296 | 8.97E-04 | 276 | 8.36E-04 | 93% | Pass |
| 19 | 0.354 | 281 | 8.52E-04 | 260 | 7.88E-04 | 93% | Pass |
| 20 | 0.368 | 263 | 7.97E-04 | 242 | 7.33E-04 | 92% | Pass |
| 21 | 0.382 | 249 | 7.55E-04 | 230 | 6.97E-04 | 92% | Pass |
| 22 | 0.397 | 230 | 6.97E-04 | 207 | 6.27E-04 | 90% | Pass |
| 23 | 0.411 | 213 | 6.45E-04 | 196 | 5.94E-04 | 92% | Pass |
| 24 | 0.426 | 194 | 5.88E-04 | 176 | 5.33E-04 | 91% | Pass |
| 25 | 0.440 | 172 | 5.21E-04 | 158 | 4.79E-04 | 92% | Pass |
| 26 | 0.454 | 156 | 4.73E-04 | 142 | 4.30E-04 | 91% | Pass |
| 27 | 0.469 | 142 | 4.30E-04 | 130 | 3.94E-04 | 92% | Pass |
| 28 | 0.483 | 135 | 4.09E-04 | 120 | 3.64E-04 | 89% | Pass |
| 29 | 0.498 | 125 | 3.79E-04 | 111 | 3.36E-04 | 89% | Pass |
| 30 | 0.512 | 122 | 3.70E-04 | 98 | 2.97E-04 | 80% | Pass |
| 31 | 0.526 | 113 | 3.42E-04 | 91 | 2.76E-04 | 81% | Pass |
| 32 | 0.541 | 107 | 3.24E-04 | 89 | 2.70E-04 | 83% | Pass |
| 33 | 0.555 | 100 | 3.03E-04 | 83 | 2.52E-04 | 83% | Pass |
| 34 | 0.569 | 93 | 2.82E-04 | 79 | 2.39E-04 | 85% | Pass |
| 35 | 0.584 | 84 | 2.55E-04 | 72 | 2.18E-04 | 86% | Pass |
| 36 | 0.598 | 82 | 2.48E-04 | 72 | 2.18E-04 | 88% | Pass |
| 37 | 0.613 | 74 | 2.24E-04 | 66 | 2.00E-04 | 89% | Pass |
| 38 | 0.627 | 73 | 2.21E-04 | 65 | 1.97E-04 | 89% | Pass |
| 39 | 0.641 | 68 | 2.06E-04 | 61 | 1.85E-04 | 90% | Pass |
| 40 | 0.656 | 61 | 1.85E-04 | 58 | 1.76E-04 | 95% | Pass |
| 41 | 0.670 | 56 | 1.70E-04 | 54 | 1.64E-04 | 96% | Pass |
| 42 | 0.685 | 55 | 1.67E-04 | 46 | 1.39E-04 | 84% | Pass |
| 43 | 0.699 | 53 | 1.61E-04 | 41 | 1.24E-04 | 77% | Pass |
| 44 | 0.713 | 50 | 1.52E-04 | 40 | 1.21E-04 | 80% | Pass |
| 45 | 0.728 | 47 | 1.42E-04 | 40 | 1.21E-04 | 85% | Pass |
| 46 | 0.742 | 46 | 1.39E-04 | 37 | 1.12E-04 | 80% | Pass |
| 47 | 0.756 | 45 | 1.36E-04 | 37 | 1.12E-04 | 82% | Pass |
| 48 | 0.771 | 43 | 1.30E-04 | 36 | 1.09E-04 | 84% | Pass |
| 49 | 0.785 | 43 | 1.30E-04 | 33 | 1.00E-04 | 77% | Pass |
| 50 | 0.800 | 37 | 1.12E-04 | 31 | 9.39E-05 | 84% | Pass |
| 51 | 0.814 | 33 | 1.00E-04 | 27 | 8.18E-05 | 82% | Pass |
| 52 | 0.828 | 31 | 9.39E-05 | 27 | 8.18E-05 | 87% | Pass |
| 53 | 0.843 | 30 | 9.09E-05 | 24 | 7.27E-05 | 80% | Pass |

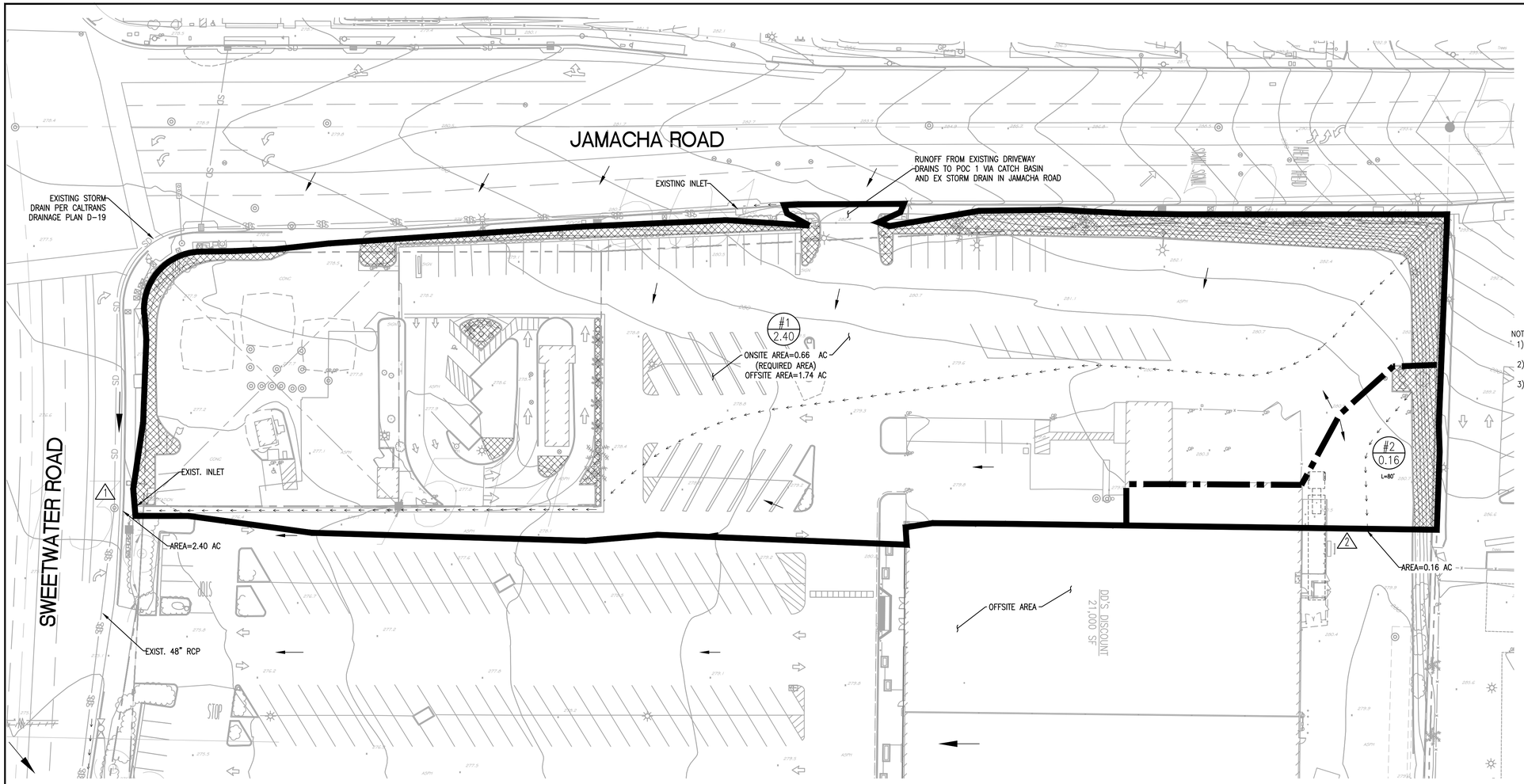
| Beginning of Interval | Pre-develop. Flow (cfs) | Pre-develop. Hours | Pre-develop. % Time Exceeding | Post-project Hours | Post-project % Time Exceeding | Percentage | Pass/Fail |
|---|---|---|---|---|---|---|---|
| 54 | 0.857 | 29 | 8.79E-05 | 24 | 7.27E-05 | 83% | Pass |
| 55 | 0.872 | 29 | 8.79E-05 | 19 | 5.76E-05 | 66% | Pass |
| 56 | 0.886 | 27 | 8.18E-05 | 17 | 5.15E-05 | 63% | Pass |
| 57 | 0.900 | 23 | 6.97E-05 | 16 | 4.85E-05 | 70% | Pass |
| 58 | 0.915 | 23 | 6.97E-05 | 15 | 4.55E-05 | 65% | Pass |
| 59 | 0.929 | 20 | 6.06E-05 | 14 | 4.24E-05 | 70% | Pass |
| 60 | 0.943 | 19 | 5.76E-05 | 13 | 3.94E-05 | 68% | Pass |
| 61 | 0.958 | 19 | 5.76E-05 | 13 | 3.94E-05 | 68% | Pass |
| 62 | 0.972 | 18 | 5.45E-05 | 13 | 3.94E-05 | 72% | Pass |
| 63 | 0.987 | 16 | 4.85E-05 | 13 | 3.94E-05 | 81% | Pass |
| 64 | 1.001 | 16 | 4.85E-05 | 13 | 3.94E-05 | 81% | Pass |
| 65 | 1.015 | 16 | 4.85E-05 | 13 | 3.94E-05 | 81% | Pass |
| 66 | 1.030 | 13 | 3.94E-05 | 13 | 3.94E-05 | 100% | *Pass^* |
| 67 | 1.044 | 13 | 3.94E-05 | 13 | 3.94E-05 | 100% | *Pass^* |
| 68 | 1.059 | 13 | 3.94E-05 | 12 | 3.64E-05 | 92% | Pass |
| 69 | 1.073 | 11 | 3.33E-05 | 10 | 3.03E-05 | 91% | Pass |
| 70 | 1.087 | 11 | 3.33E-05 | 10 | 3.03E-05 | 91% | Pass |
| 71 | 1.102 | 11 | 3.33E-05 | 10 | 3.03E-05 | 91% | Pass |
| 72 | 1.116 | 11 | 3.33E-05 | 10 | 3.03E-05 | 91% | Pass |
| 73 | 1.130 | 11 | 3.33E-05 | 10 | 3.03E-05 | 91% | Pass |
| 74 | 1.145 | 11 | 3.33E-05 | 10 | 3.03E-05 | 91% | Pass |
| 75 | 1.159 | 11 | 3.33E-05 | 10 | 3.03E-05 | 91% | Pass |
| 76 | 1.174 | 10 | 3.03E-05 | 10 | 3.03E-05 | 100% | *Pass^* |
| 77 | 1.188 | 10 | 3.03E-05 | 9 | 2.73E-05 | 90% | Pass |
| 78 | 1.202 | 9 | 2.73E-05 | 8 | 2.42E-05 | 89% | Pass |
| 79 | 1.217 | 9 | 2.73E-05 | 8 | 2.42E-05 | 89% | Pass |
| 80 | 1.231 | 8 | 2.42E-05 | 7 | 2.12E-05 | 88% | Pass |
| 81 | 1.246 | 8 | 2.42E-05 | 6 | 1.82E-05 | 75% | Pass |
| 82 | 1.260 | 7 | 2.12E-05 | 5 | 1.52E-05 | 71% | Pass |
| 83 | 1.274 | 7 | 2.12E-05 | 5 | 1.52E-05 | 71% | Pass |
| 84 | 1.289 | 7 | 2.12E-05 | 5 | 1.52E-05 | 71% | Pass |
| 85 | 1.303 | 7 | 2.12E-05 | 4 | 1.21E-05 | 57% | Pass |
| 86 | 1.318 | 5 | 1.52E-05 | 4 | 1.21E-05 | 80% | Pass |
| 87 | 1.332 | 5 | 1.52E-05 | 4 | 1.21E-05 | 80% | Pass |
| 88 | 1.346 | 5 | 1.52E-05 | 4 | 1.21E-05 | 80% | Pass |
| 89 | 1.361 | 5 | 1.52E-05 | 4 | 1.21E-05 | 80% | Pass |
| 90 | 1.375 | 5 | 1.52E-05 | 3 | 9.09E-06 | 60% | Pass |
| 91 | 1.389 | 5 | 1.52E-05 | 3 | 9.09E-06 | 60% | Pass |
| 92 | 1.404 | 5 | 1.52E-05 | 2 | 6.06E-06 | 40% | Pass |
| 93 | 1.418 | 5 | 1.52E-05 | 2 | 6.06E-06 | 40% | Pass |
| 94 | 1.433 | 5 | 1.52E-05 | 2 | 6.06E-06 | 40% | Pass |
| 95 | 1.447 | 5 | 1.52E-05 | 2 | 6.06E-06 | 40% | Pass |
| 96 | 1.461 | 5 | 1.52E-05 | 2 | 6.06E-06 | 40% | Pass |
| 97 | 1.476 | 4 | 1.21E-05 | 2 | 6.06E-06 | 50% | Pass |
| 98 | 1.490 | 4 | 1.21E-05 | 2 | 6.06E-06 | 50% | Pass |
| 99 | 1.505 | 4 | 1.21E-05 | 2 | 6.06E-06 | 50% | Pass |
| 100 | 1.519 | 4 | 1.21E-05 | 2 | 6.06E-06 | 50% | Pass |

# Peak Flow Frequency Curves



# Flow Duration Curves






## LEGEND

| | SYMBOL |
|---|---|
| OUTER BASIN BOUNDARY | |
| MAJOR BASIN BOUNDARY | |
| EXISTING STORM DRAIN | SD |
| EXISTING CONTOUR | XXX |
| SURFACE FLOW DIRECTION | |
| APPROXIMATE FLOW PATH | |
| POINT OF COMPLIANCE (POC) | 1 |
| DRAINAGE BASIN MARKER & AREA (AC) | #1 X.XX |
| PERVIOUS AREA | |

NOTES:
1) DISCHARGE POINT 1: STORM RUNOFF FROM THE MAJORITY SITE AREA DISCHARGES TO EXISTING RIBBON GUTTER.
2) DISCHARGE POINT 2: STORM RUNOFF FROM THE EASTERLY PORTION OF THE SITE CONCENTRATES AT THIS POINT.
3) RUNOFF FROM POINTS 1 & 2 ULTIMATELY DRAINS TO AN EXISTING STORM DRAIN SYSTEM SITUATED WITHIN SWEETWATER ROAD & ST GEORGE STREET RESPECTIVELY.

N

## 0 ## ##
SCALE IN FEET
1 inch = ## ft.

BVE
CIVIL•STRUCTURAL•SURVEY•PLANNING
9449 BALBOA AVE. STE 270
SAN DIEGO, CA 92123 619.299.5550

| SYM | DESCRIPTION | DATE | APPR |
|---|---|---|---|

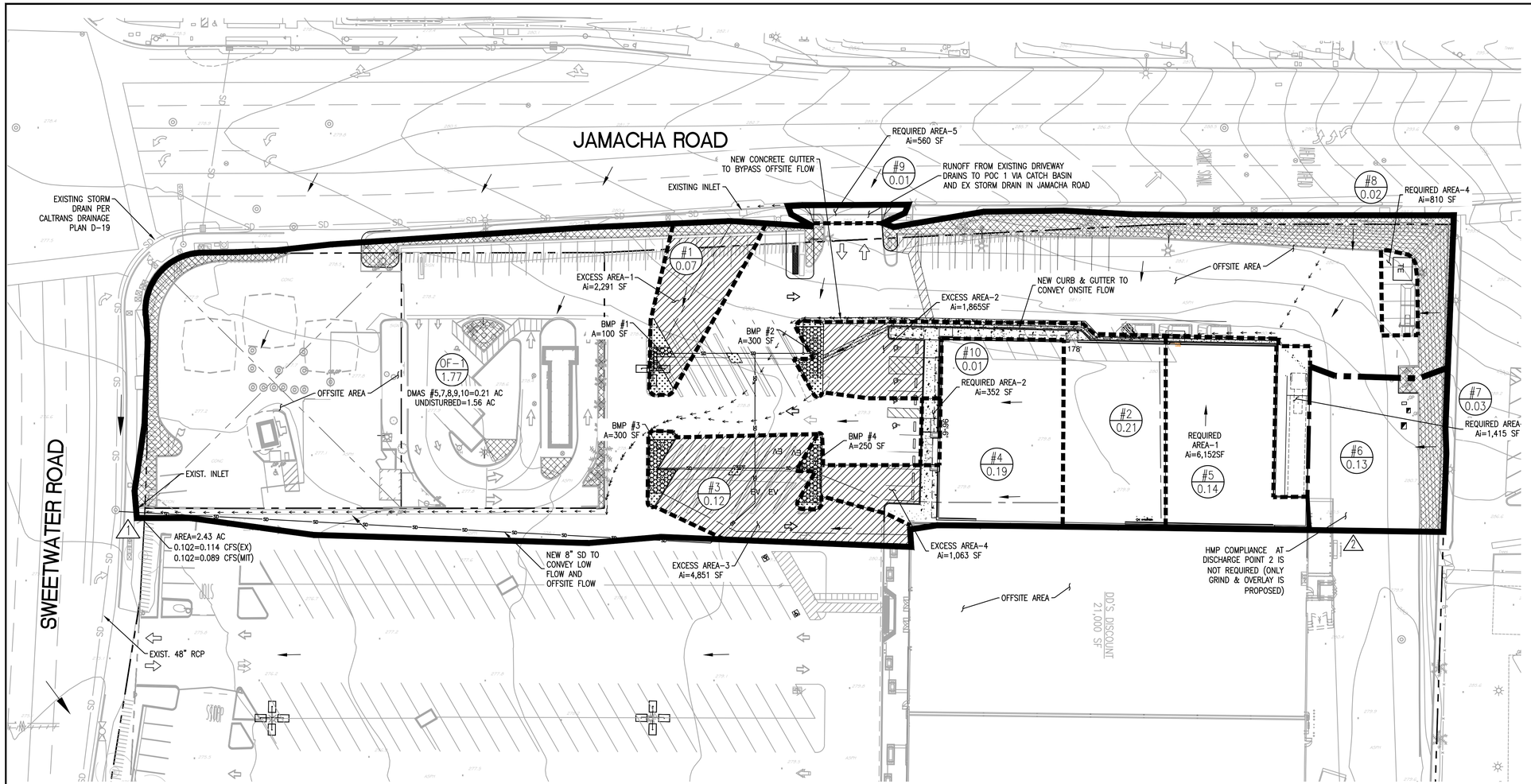
ISSUE DATE: 03/18/2021
DRAWN BY: MDS
CHECKED BY: MGC
BME JOB NUMBER: 13392US1.00
CLIENT JOB NUMBER:
MUNICIPALITY
PROJECT NUMBER:

PROJECT
BUILDING D
SPRING VALLEY RETAIL CENTER
SPRING VALLEY, CA
SITE ADDRESS
933 SWEETWATER ROAD
SPRING VALLEY, CA 91977

SHEET TITLE
EXISTING CONDITION
HMP EXHIBIT

SHEET 1 OF 1

PLOT: M:\PROJECTS\13000\13392US.100 SPRING VALLEY RETAIL\DWGS\EXHIBITS\SWQMP\CVS\13392US.100-HMP-EXIST.DWG Malcolm D. Smith 3/19/2021 8:23 AM




## LEGEND

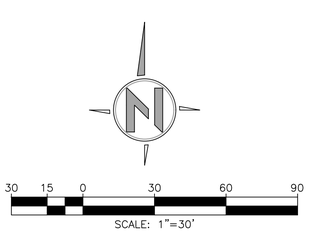
| | SYMBOL |
|---|---|
| OUTER BASIN BOUNDARY | |
| MAJOR BASIN BOUNDARY | |
| MINOR BASIN BOUNDARY | |
| EXISTING STORM DRAIN | SD |
| NEW STORM DRAIN | SD |
| EXISTING CONTOUR | XXX |
| NEW CONTOUR | XXX |
| FLOW DIRECTION | |
| FLOW PATH | |
| POINT OF COMPLIANCE (POC) | 1 |
| DRAINAGE BASIN MARKER & AREA (AC) | B-X X.XX |
| PERVIOUS AREA | |
| BIOFILTRATION BMP | |
| EXCESS AREA | |

HMP NOTES:

1) DUNDERLYING HYDROLOGIC SOIL GROUP = TYPE D
2) DEPTH TO GROUNDWATER TO BE DETERMINED IN THE FINAL ENGINEERING AFTER GEOTECHNICAL INVESTIGATION OF THE SITE HAS BEEN PERFORMED.
3) "EXCESS AREAS" INCLUDE UNDISTURBED EXISTING AREA THAT WILL BE TREATED & HMP CONTROLLED TO COMPLY WITH THE ONSITE ALTERNATIVE COMPLIANCE REQUIREMENTS.
4) "REQUIRED AREAS" INCLUDE DISTURBED AREAS THAT WILL NOT BE TREATED/CONTROLLED DIRECTLY.
5) REQUIRED AREAS 1 TO 4 TOTAL = 8,880 SF, EXCESS AREAS 1, TO 4 = 10,020 SF > REQUIRED AREAS. THEREFORE, MORE AREA IS TREATED/CONTROLLED.

GENERAL NOTES:

1) DISCHARGE POINT 1: STORM RUNOFF FROM THE MAJORITY SITE AREA DISCHARGES TO EXISTING RIBBON GUTTER.
2) DISCHARGE POINT 2: STORM RUNOFF FROM THE EASTERLY PORTION OF THE SITE CONCENTRATES AT THIS POINT.
3) LOW FLOW FROM THE HMP BMP (UNDERGROUND VAULT) IS CONNECTED TO AN EXISTING INLET SITUATED AT THE WESTERLY SIDE OF THE SITE NEAR SWEETWATER ROAD. SURFACE FLOW FROM DISCHARGE POINT 1 CONFLUENCE WITH LOW FLOW FROM HMP BMP AT THIS LOCATION.
4) RUNOFF FROM POINTS 1 & 2 ULTIMATELY DRAINS TO AN EXISTING STORM DRAIN SYSTEM SITUATED WITHIN SWEETWATER ROAD & ST GEORGE STREET RESPECTIVELY.




BVE
CIVIL•STRUCTURAL•SURVEY•PLANNING
9449 BALBOA AVE. STE 270
SAN DIEGO, CA 92123
619.299.5550

| DESCRIPTION | DATE | APPR |
|---|---|---|
| | | |

| SYM | |
|---|---|
| ISSUE DATE: | 03/18/2021 |
| DRAWN BY: | MDS |
| CHECKED BY: | MGC |
| BME JOB NUMBER: | 13392US1.00 |
| CLIENT JOB NUMBER: | |
| MUNICIPALITY | |
| PROJECT NUMBER: | |

PROJECT

**BUILDING D**
**SPRING VALLEY RETAIL CENTER**
SPRING VALLEY, CA

SITE ADDRESS
933 SWEETWATER ROAD
SPRING VALLEY, CA 91977

SHEET TITLE

**PROPOSED CONDITION HMP EXHIBIT**

SHEET 1 OF 1

PLOT: M:\PROJECTS\13000\13392US1.00 SPRING VALLEY RETAIL\DWGS\EXHIBITS\SWQMP\CIVS\13392US1.00-HMP-PROP.DWG Malcolm D. Smith 3/19/2021 8:24 AM

## 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/

## 9.1 Documentation of Hydromodification Management Exemption (BMPDM Section 1.6)

- If the PDP is exempt from hydromodification management requirements (see Table 4 Part A.1 of the PDP SWQMP), use this Sub-attachment to document the exemption.
- Select the type of exemption below that applies and provide an explanation of the selection, including maps or other applicable documentation. Additional documentation may be requested by County staff.

**Exemption Type** per BMPDM Figure 1-2 (select one)

☐ a. The proposed project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐ b. The proposed project will discharge runoff directly to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐ c. The proposed project will discharge runoff directly to an area identified by the County as appropriate for an exemption by the WMAA for the watershed in which the project resides[2].

**Explanation** (add or attach pages as necessary)

[2] This option must include an analysis of the project using the methodology presented in Attachment E of the Regional Watershed Management Area Analysis.

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

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

- Based on the WMAA map and the proposed project design, demonstrate below that both of the following conditions apply to the PDP:

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

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

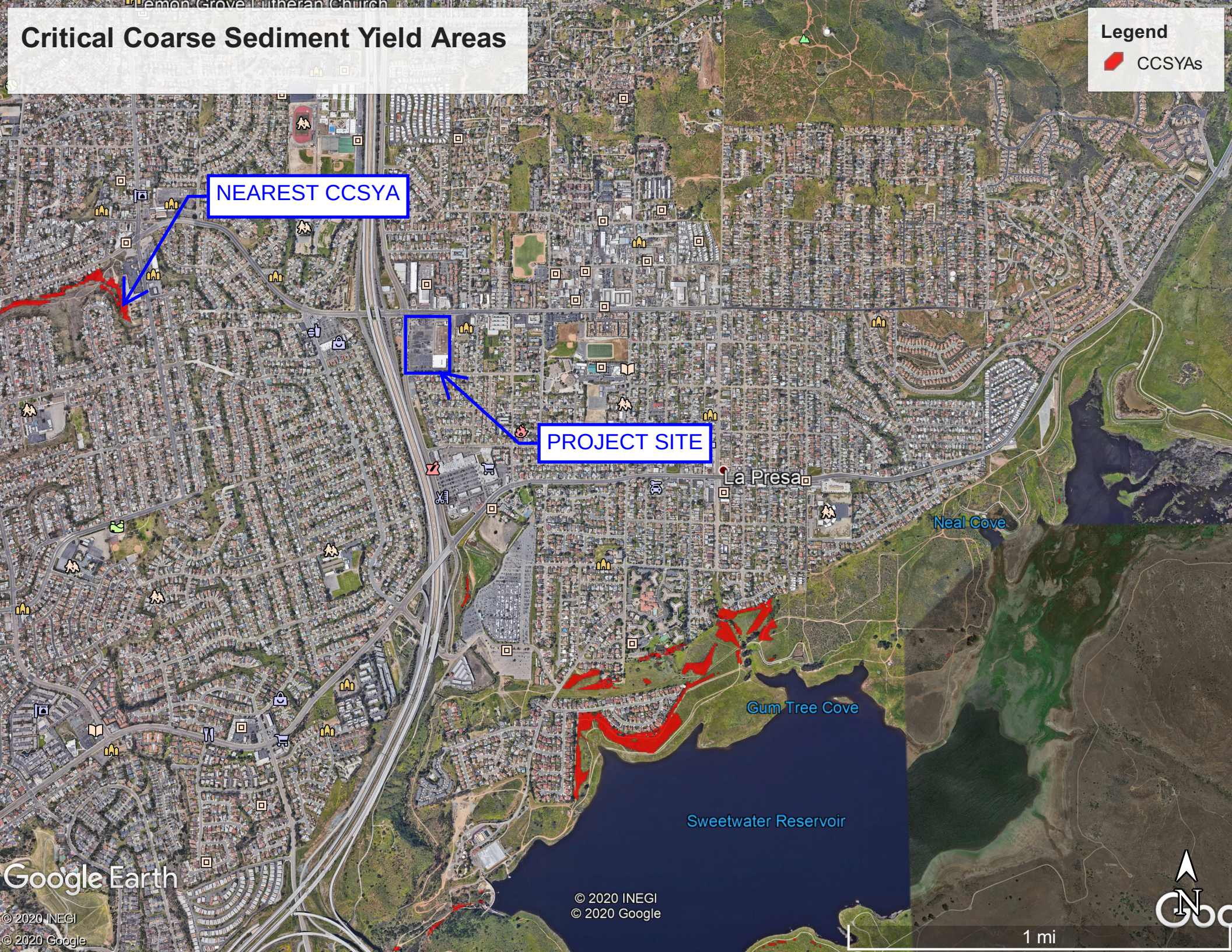
**A. Mapping Results** -- At a minimum, show: (1) the project footprint, (2) areas of proposed development, (3) impacted onsite PCCSYAs, (4) offsite tributary areas[4], and (5) bypass of upstream offsite PCCSYAs.

No PCCYA were identified within the project boundaries.

[3] Applicants may refine initial mapping results using options identified in BMPDM Appendix H.1.2.
[4] Tributary areas must be shown to demonstrate that upstream offsite PCCSYAs do not exist. If bypassing these areas, only the bypass should be shown.

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

# Critical Coarse Sediment Yield Areas



## 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. |
|---|
| |

[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.

## 9.4 No Net Impact Analysis (BMPDM Appendix H.4)

- When impacts to CCSYAs cannot be avoided or effectively bypassed, applicants must demonstrate that their project generates no net impact to the receiving water per the performance metrics identified in BMPDM Appendix H.4.
- Use the space below to document that the PDP will generate no net impact to any receiving water.

| **No Net Impact Analysis** (add or attach pages as necessary) |
| --- |
| |

# BUILDING F
# CHIC-FIL-A
# STORM WATER QUALITY MANAGEMENT PLAN (SWQMP)

# 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** | Chick-fil-A #4466, Spring Valley | |
| **Project Address** | 931 Sweetwater Rd., Spring Valley, CA 91977 | |
| **Assessor's Parcel # (APN)** | 584-511-016, -019 | |
| **Permit # / Record ID** | PDS2019-STP-97-050W3, PDS2020-LDGRMJ-30298 | |
| **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** | Chick-fil-A Inc. | |
| **Address** | 5200 Buffington Road, Atlanta, GA 30349 | |
| **Phone** | (404) 305-4834 | **Email:** jennifer.daw@cfacorp.com |

| **SWQMP Preparer** | | |
|---|---|---|
| **Name** | Randy J. Decker | |
| **Company (if applicable)** | Joseph C. Truxaw & Associates, Inc. | |
| **Address** | 1915 W. Orangewood Ave., Suite 101 | |
| **Phone** | (714) 935-0265 | **Email:** randydecker@truxaw.com |
| **PE Number (if applicable)** | 81077 | |

### 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 10, 2021 |
|---|---|

***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.):*

PDS2020-LDGRMJ-30298 -This SWQMP is specific to the development of the Chick-fi-A restaurant at the southwest corner of the shopping center. This includes the demolition of the existing parking lot, grading activities, construction of a new building, and of new site improvements.

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

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

| No. | Date | Summary of Changes |
|---|---|---|
| **Preliminary Design / Planning / CEQA** | | |
| 1 | 10/30/2019 | Initial Submittal |
| 2 | 5/7/2020 | 1st Plan Check |
| 3 | 9/4/2020 | 2nd Plan Check |
| No. | Date | Summary of Change |
| **Final Design** | | |
| 1 | 12/18/2020 | Initial Submittal |
| 2 | 1/14/2020 | 1st Final Submittal |
| 3 | Date | Summary of Change |
| No. | Date | Summary of Change |
| **Plan Changes** | | |
| 1 | Date | Initial Submittal |
| 2 | Date | Summary of Change |
| 3 | Date | Summary of Change |
| No. | Date | Summary of Change |

# General Directions

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

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

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

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

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

## ② PDP SWQMP Submittal Checklist

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

## ③ Attachment 1: Stormwater Intake Form

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

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

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

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

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

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

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

## ⑤ Attachment 5: Existing Site and Drainage Description

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

## ⑥ Structural Performance Standards

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

# PDP SWQMP Submittal Checklist

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


☒ Table 1: Baseline BMPs for Existing and Proposed Site Features ..... Page 2

☒ Table 2: Baseline BMPs for Pollutant-generating Sources ..... Page 3

☒ Table 3: Explanations and Justifications for Table 1 and 2 Baseline BMPs ..... Page 4

☒ Table 4: DMA Structural Compliance Strategies and Documentation ..... Page 5

☒ Table 5: Critical Coarse Sediment Yield Area (CCSYA) Requirements ..... Page 6

☒ Table 6: Minimum Construction Stormwater BMPs ..... Page 7

☒ Table 7: Explanations and Justifications for Construction Phase BMPs ..... Page 8


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

☒ Attachment 1: Storm Water Intake Form

☒ Attachment 2: DMA Exhibits and Construction Plan Sheets

☐ Attachment 3: Reserved for Future Use

☐ Attachment 4: Previous SWQMP Submittals

☒ Attachment 5: Existing Site and Drainage Description

☒ Attachment 6: Documentation of DMAs without Structural BMPs

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

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

☒ Attachment 9: Management of Critical Coarse Sediment Yield Areas

☒ Attachment 10: BMP Installation Verification Form

☒ Attachment 11: BMP Maintenance Agreements and Plans

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

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

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

## Table 1 – Baseline BMPs for Existing and Proposed Site Features

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

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

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

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

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

*1. Check the boxes below for each proposed feature.*

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

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

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

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

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

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

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

| 1. Sustainable Landscaping (SD-K) |
|---|
| ☒ |

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

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

## Table 2 – Baseline BMPs for Pollutant-generating Sources

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

**A. Management of Stormwater Discharges**

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

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

Select one option for each feature below:

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

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

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

---

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

[3] Separate wastewater agency approvals may be required.

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

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

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

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

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

| BMP-Feature Combination | | Explanation |
|---|---|---|
| Feature | Natural Waterbodies | No Natural Waterbodies exist within the project construction limits |
| BMP | None Proposed | |
| Feature | Natural Storage Reservoirs and Drainage Cooriders | No Natural Storage Reservoirs and Drainage Corriders exist within the project construction limits |
| BMP | None Proposed | |
| Feature | Streets and Roads | No major improvements within the adjacent streets will occur. The only improvements in the Public R/W is a trench to connect the proposed sewer in St. George St. |
| BMP | None Proposed | |
| Feature | Driveways | No improvements to the existing driveway are proposed for this project |
| BMP | None Proposed | |
| Feature | Hardcourt Recreation Areas | No Hardcourt Recreation Areas are proposed for this project |
| BMP | None Proposed | |
| Feature | Water Features | No Water Features proposed for this project |
| BMP | None Proposed | |
| Feature | Patios, Decks, & CourtyardsFeature | The patio areas around the building will drain to the biofiltration basins for treatment |
| BMP | Biofiltration Basins | |

## 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] |
|---|---|---|
| 27,930 | 27,797 | 99.5 |

☒ *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) | | | | ☐ | ☐ | ☐ | ☐ |

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

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

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

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

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

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

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

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

☒ **WMAA mapping demonstrates the following:**

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

b. All potential upstream offsite CCYSAs will be bypassed

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

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

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

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

☐ **RPO Scenario 2: PDP is entirely exempt/not subject to RPO 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<br>Select all applicable activities and at least one BMP for each. | References<br>Caltrans[7] | <br>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**<br>• **Required Justifications**: Justify all construction activity types for which NO BMPs were selected.<br>• **If Requested**: Justify why specific individual BMPs were not selected.<br>• **Additional Explanation**: Describe any proposed features and/or BMPs not listed in Table 6. | | |
| **Activity Type / BMP** | | **Explanation** |
| Activity Type | Activity Type | Explanation |
| BMP | BMP | |
| Activity Type | Activity Type | Explanation |
| BMP | BMP | |
| Activity Type | Activity Type | Explanation |
| BMP | BMP | |
| Activity Type | Activity Type | Explanation |
| BMP | BMP | |
| Activity Type | Activity Type | Explanation |
| BMP | BMP | |
| Activity Type | Activity Type | Explanation |
| BMP | BMP | |
| Activity Type | Activity Type | Explanation |
| BMP | BMP | |

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: | Chick-fil-A #4466, Spring Valley |
| Record ID (Permit) No(s): | PDS2019-STP-97-050W3, PDS2020-LDGRMJ-30298 |
| Assessor's Parcel No(s): | 584-511-016, -019 |
| Street Address (or Intersection): | 931 Sweetwater Rd |
| City, State, Zip: | Spring Valley, CA 91977 |

| **Part 2. Applicant / Project Proponent Information** | |
|---|---|
| Name: | Keith Gilbert |
| Company: | Chick-fil-A Inc. |
| Street Address: | 15635 Alton Parkway, Suite 350 |
| City, State, Zip: | Irvine, CA 92618 |
| Phone Number | (562) 505-5540 |
| Email: | Keith.Gilbert@cfacorp.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)** |
|---|---|---|---|
| | 27,930 | 27,394 | 35,232 |

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

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

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

## Part 4. Priority Classification & SWQMP Form Selection

| (A) *If your project is the following … (select one)* | (B) *You must complete …* |
|---|---|
| ☐ **Standard Project**<br>☐ a. Project is East of the Pacific/Salton Sea Divide<br>☐ b. None of the PDP criteria below applies | → **Standard *SWQMP Form*** |
| ☒ **Priority Development Project (PDP)**<br>☐ 1. Project is part of an existing PDP, OR<br>☒ 2. Project does any of the following:<br>☐ a. Creates or replaces a total of 10,000 ft² or more of impervious surface<br>☒ 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<br>☐ 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<br>☐ d. Discharges directly to an Environmentally Sensitive Area (ESA) AND creates or replaces 2,500 ft² or more of impervious surface<br>☐ e. Disturbs one or more acres of land (43,560 ft²) and is expected to generate pollutants post-construction<br>☒ f. Is a redevelopment project that creates or replaces 5,000 ft² or more of impervious surface on a site already having at least 10,000 ft² of impervious surface | → **PDP *SWQMP Form*** |
| ☐ **Green Streets PDP Exemption**[2] | → **Green *Streets PDP Exemption SWQMP Form*** |

## Part 5. Applicant Signature

*I have reviewed the information in this form, and it is true and correct to the best of my knowledge.*

Applicant / Project Proponent Signature: Date:

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

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

## 2.0 General Requirements

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

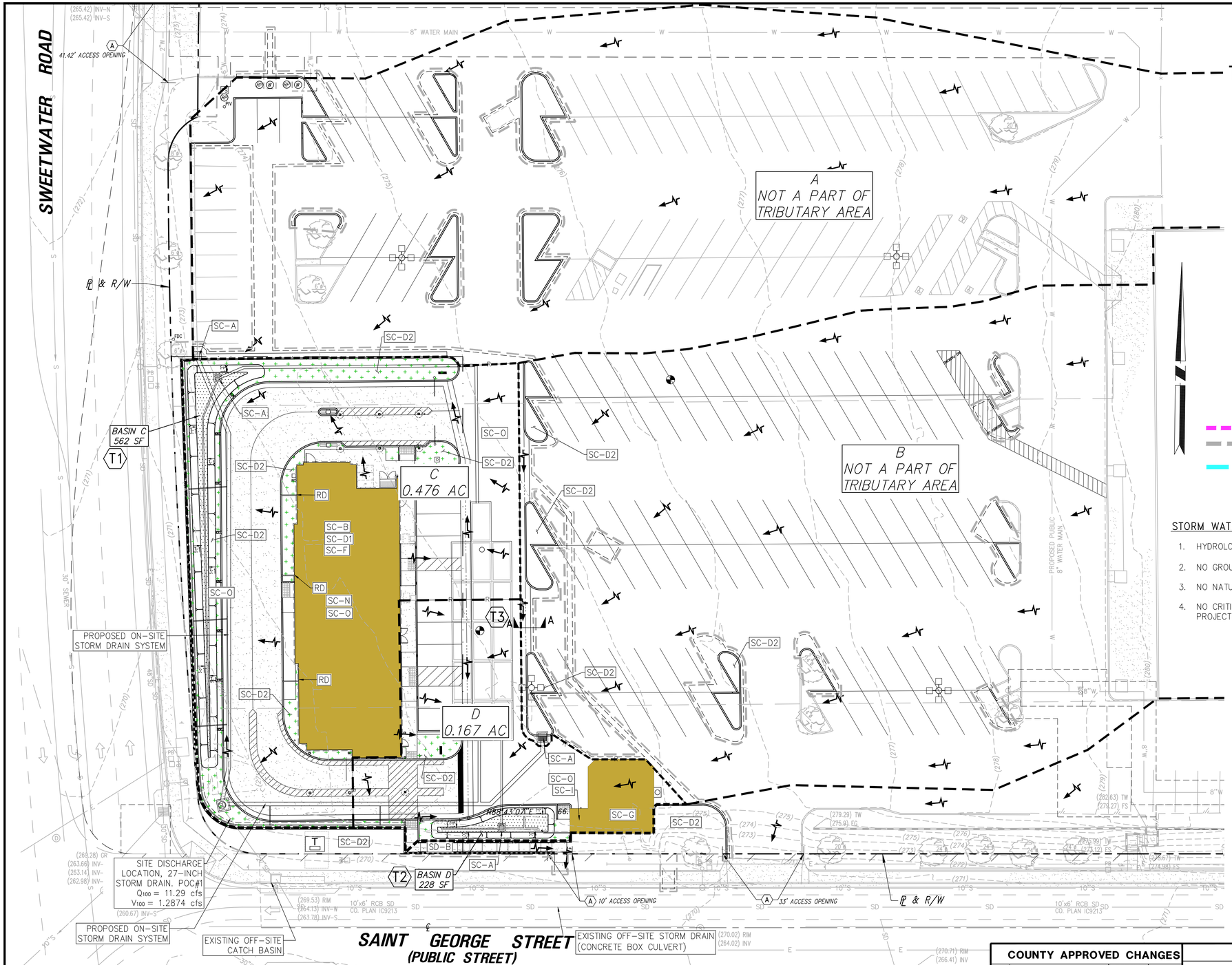
| Sub-attachments | Requirement |
|---|---|
| ☒ **2.1: DMA Exhibits** | All PDPs |
| ☒ **2.2: Individual Structural BMP DMA Mapbook** | PDPs with structural BMPs |
| ☒ **2.3: Construction Plan Sets** | All projects |

## 2.1 DMA Exhibits

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

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

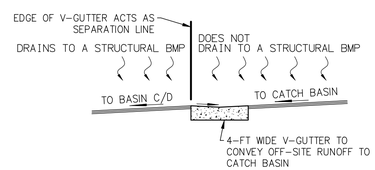
[1] Group 1-4 features and baseline BMPs from PDP SWQMP Tables 2 and 3.
[2] Minimum Construction Stormwater BMPs from PDP SWQMP Table 7.
[3] Identify the location, ID numbers, type, and size/detail of BMPs.




# DISTURBED AREA
# = 0.824 acres

## TOTAL TRIBUTARY AREA TO BASINS=0.643 acres

| DRAINAGE MANAGEMENT AREA | | | | | | | |
|---|---|---|---|---|---|---|---|
| SUBAREA | SURFACE TYPE | AREA AC | PERVIOUS | | IMPERVIOUS | | PROPOSED BMP |
| C | AC/CONCRETE | 0.477 | | | 0.370 | 77.6% | BIO-FILTRATION (T1) BASIN-C |
| | LANDSCAPE | | 0.107 | 22.4% | | | |
| D | ROOF - PAVEMENT | 0.166 | | | 0.146 | 88.0% | BIO-FILTRATION (T2) BASIN-D |
| | LANDSCAPE | | 0.020 | 12.0% | | | |




SECTION A-A

LEGEND

- LIMITS OF TOTAL TRIBUTARY AREA
- LIMITS OF DISTURBED AREA (DRAINAGE MANAGEMENT AREA)
- LIMITS OF DMA SUB-AREA
- SOIL BORING

LAND COVER

- IMPERVIOUS - AC PAVEMENT
- IMPERVIOUS - CONCRETE
- IMPERVIOUS - BUILDING/TRASH ENCLOSURE
- PERVIOUS - LANDSCAPING

## STORM WATER QUALITY MANAGEMENT PLAN INFORMATION

1. HYDROLOGIC SOIL GROUP 'D'
2. NO GROUNDWATER ENCOUNTERED DURING BORINGS, MAX BORING DEPTH=51.5'
3. NO NATURAL HYDROLOGIC FEATURES EXIST WITHIN THIS PROJECT SITE
4. NO CRITICAL COARSE SEDIMENT YIELD AREAS EXIST DOWNSTREAM OF THIS PROJECT SITE

## LID FEATURES

SOURCE CONTROL BMPS

- SC-A ONSITE STORM DRAIN INLETS - PREVENT ILLICIT DISCHARGES TO THE MS4
- SC-B INTERIOR FLOOR DRAINS
- SC-D1 FUTURE INDOOR AND STRUCTURAL PEST CONTROL
- SC-D2 LANDSCAPE/OUTDOOR PESTICIDE USE
- SC-F FOOD SERVICE
- SC-G REFUSE AREAS
- SC-I OUTDOOR STORAGE OF EQUIPMENT AND MATERIALS
- SC-N FIRE SPRINKLER TEST WATER
- SC-O MISCELLANEOUS DRAIN WATER
- SC-P PLAZAS, SIDEWALKS & PARKING LOTS

**THIS PLAN IS:**

***PRELIMINARY***

**(NOT FOR CONSTRUCTION)**

**NOTICE TO CONTRACTOR**

THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ALL UTILITIES, PIPES, AND/OR STRUCTURES AND SHALL BE RESPONSIBLE FOR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

**IMPORTANT NOTICE**

Section 4216 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert CALL 811 Two working days before you dig.

DMA EXHIBIT - 1

## STRUCTURAL BMPs FOR POLLUTANT CONTROL MANAGEMENT

| | | MAINTENANCE THRESHOLD |
|---|---|---|
| T1 | BIO-FILTRATION BASIN-C (LINED) | NOTICEABLE BUILDUP OF SEDIMENT, TRASH, AND DEBRIS. VERY LONG DRAIN TIME |
| T2 | BIO-FILTRATION BASIN-D (LINED) | NOTICEABLE BUILDUP OF SEDIMENT, TRASH, AND DEBRIS. VERY LONG DRAIN TIME |
| T3 | STORM CAPTURE VAULTS - MODEL: SC1-TB-3 (OLD CASTLE STORM CAPTURE VAULTS 7X15X4) QUANTITY: 13 | OPEN MANHOLE AND LOOK FOR NOTICEABLE BUILDUP OF SEDIMENT, TRASH, AND DEBRIS. VERY LONG DRAIN TIME |

20 10 0 20 40 60

SCALE: 1"=20'

REGISTERED PROFESSIONAL ENGINEER RANDY J. DECKER No. 81077 CIVIL STATE OF CALIFORNIA

**RECORD PLAN**

BY: RANDY DECKER DATE:
NAME
R.C.E. 81077
EXPIRES:

**COUNTY APPROVED CHANGES**

| NO. | DESCRIPTION: | APPROVED BY: | DATE: |
|---|---|---|---|
| | | | |

**BENCH MARK**

DESCRIPTION: CALTRANS-DISTRICT 11 DESIGNATION: 125-19.6 L 1998
LOCATION: THE MON IS ON THE SOUTH SIDE OF JAMACHA ROAD
RECORD FROM: CALIFORNIA STATE PLAN COORDINATE SYSTEM, ZONE 6
ELEVATION: 280.163 (ft) DATUM: (NGVD 29) ADJ. 1998

**PRIVATE CONTRACT**

| SHEET 10 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | OF 14 SHEETS |
|---|---|---|

BMP PLAN FOR:

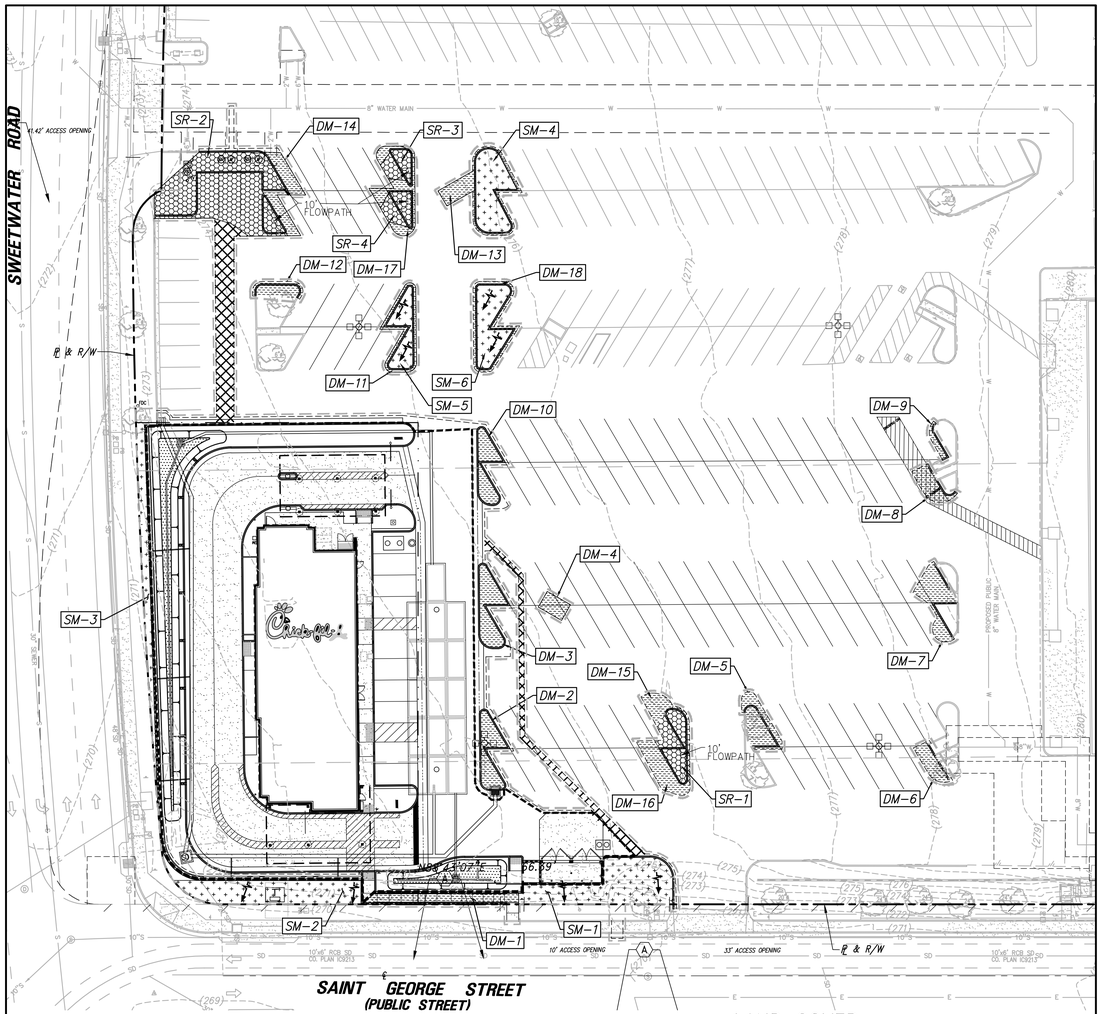
**CHICK-FIL-A #4466**
**SPRING VALLEY**

CALIFORNIA COORDINATE INDEX 198-1761

APPROVED
DIRECTOR OF PUBLIC WORKS
BY:

ENGINEER OF WORK
RANDY DECKER R.C.E. 81077

GRADING PERMIT NO:
PDS2020-LDGRMJ-30286




UTILITY TRENCHING (NOT INCLUDED AS DISTURBED AREA) (996 SF)
SEE CONCEPTUAL UTILITY PLAN FOR DETAILS.

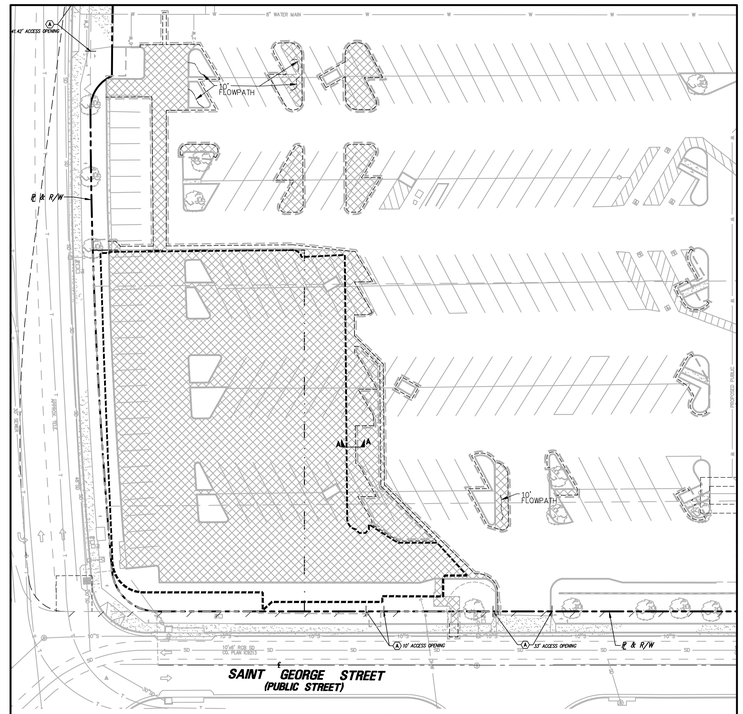
## UTILITY TRENCHING/DE MINIMUS/ SELF-RETAINING/SELF MITIGATING AREA EXHIBIT

SCALE: 1"=30'

## LAND COVER

- PERVIOUS – SELF MITIGATING AREA
- PERVIOUS – SELF RETAINING AREA
- DE MINIMUS AREA

| SELF-MITIGATING, DE MINIMUS, & SELF-RETAINING AREAS | | | | | | |
|---|---|---|---|---|---|---|
| | AREA SF | PERVIOUS | | IMPERVIOUS | | PROPOSED BMP |
| SM-1 | 866 | 866 | 100.0% | – | – | N/A |
| SM-2 | 721 | 721 | 100.0% | – | – | N/A |
| SM-3 | 367 | 367 | 100.0% | – | – | N/A |
| SM-4 | 415 | 415 | 100.0% | – | – | N/A |
| SM-5 | 211 | 211 | 100.0% | – | – | N/A |
| SM-6 | 352 | 352 | 100.0% | – | – | N/A |
| SR-1 | 330 | 165 | 50.0% | 165 | 50.0% | N/A |
| SR-2 | 1364 | 682 | 50.0% | 682 | 50.0% | N/A |
| SR-3 | 136 | 69 | 51.0% | 67 | 49.0% | N/A |
| SR-4 | 153 | 76 | 50.0% | 77 | 50.0% | N/A |
| DM-1 | 250 | – | – | 250 | 100.0% | N/A |
| DM-2 | 206 | – | – | 206 | 100.0% | N/A |
| DM-3 | 232 | – | – | 232 | 100.0% | N/A |
| DM-4 | 85 | – | – | 85 | 100.0% | N/A |
| DM-5 | 240 | – | – | 240 | 100.0% | N/A |
| DM-6 | 114 | – | – | 114 | 100.0% | N/A |
| DM-7 | 250 | – | – | 250 | 100.0% | N/A |
| DM-8 | 133 | – | – | 133 | 100.0% | N/A |
| DM-9 | 41 | – | – | 41 | 100.0% | N/A |
| DM-10 | 175 | – | – | 175 | 100.0% | N/A |
| DM-11 | 148 | – | – | 148 | 100.0% | N/A |
| DM-12 | 127 | – | – | 127 | 100.0% | N/A |
| DM-13 | 238 | – | – | 238 | 100.0% | N/A |
| DM-14 | 240 | – | – | 240 | 100.0% | N/A |
| DM-15 | 95 | – | – | 95 | 100.0% | N/A |
| DM-16 | 199 | – | – | 199 | 100.0% | N/A |
| DM-17 | 204 | – | – | 204 | 100.0% | N/A |
| DM-18 | 161 | – | – | 161 | 100.0% | N/A |




EXISTING IMPERVIOUS LAND USE (AC PAVEMENT AND CONCRETE,) (27,689 SF)

## EXISTING IMPERVIOUS AREA DETAIL

SCALE: 1"=40'

40 20 0 40 80 120

SCALE: 1"=40'

**THIS PLAN IS:**

***PRELIMINARY***

**(NOT FOR CONSTRUCTION)**

**NOTICE TO CONTRACTOR**

THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ALL UTILITIES, PIPES, AND/OR STRUCTURES AND SHALL BE RESPONSIBLE FOR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

**IMPORTANT NOTICE**

Section 4216 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert CALL 811 Two working days before you dig.

DMA EXHIBIT - 2

REGISTERED PROFESSIONAL ENGINEER
RANDY J. DECKER
No. 81077
CIVIL
STATE OF CALIFORNIA

**RECORD PLAN**

BY: RANDY DECKER DATE:
NAME
R.C.E. 81077
EXPIRES:

**COUNTY APPROVED CHANGES**

| NO. | DESCRIPTION: | APPROVED BY: | DATE: |
|---|---|---|---|
| | | | |

**BENCH MARK**

DESCRIPTION: CALTRANS-DISTRICT 11 DESIGNATION: 125-19.6 L 1998

LOCATION: THE MON IS ON THE SOUTH SIDE OF JAMACHA ROAD

RECORD FROM: CALIFORNIA STATE PLAN COORDINATE SYSTEM, ZONE 6

ELEVATION: 280.163 (ft) DATUM: (NGVD 29) ADJ. 1998

**PRIVATE CONTRACT**

| SHEET 11 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | OF 14 SHEETS |
|---|---|---|

BMP PLAN FOR:

**CHICK-FIL-A #4466**
**SPRING VALLEY**

CALIFORNIA COORDINATE INDEX 198-1761

APPROVED
DIRECTOR OF PUBLIC WORKS
BY:

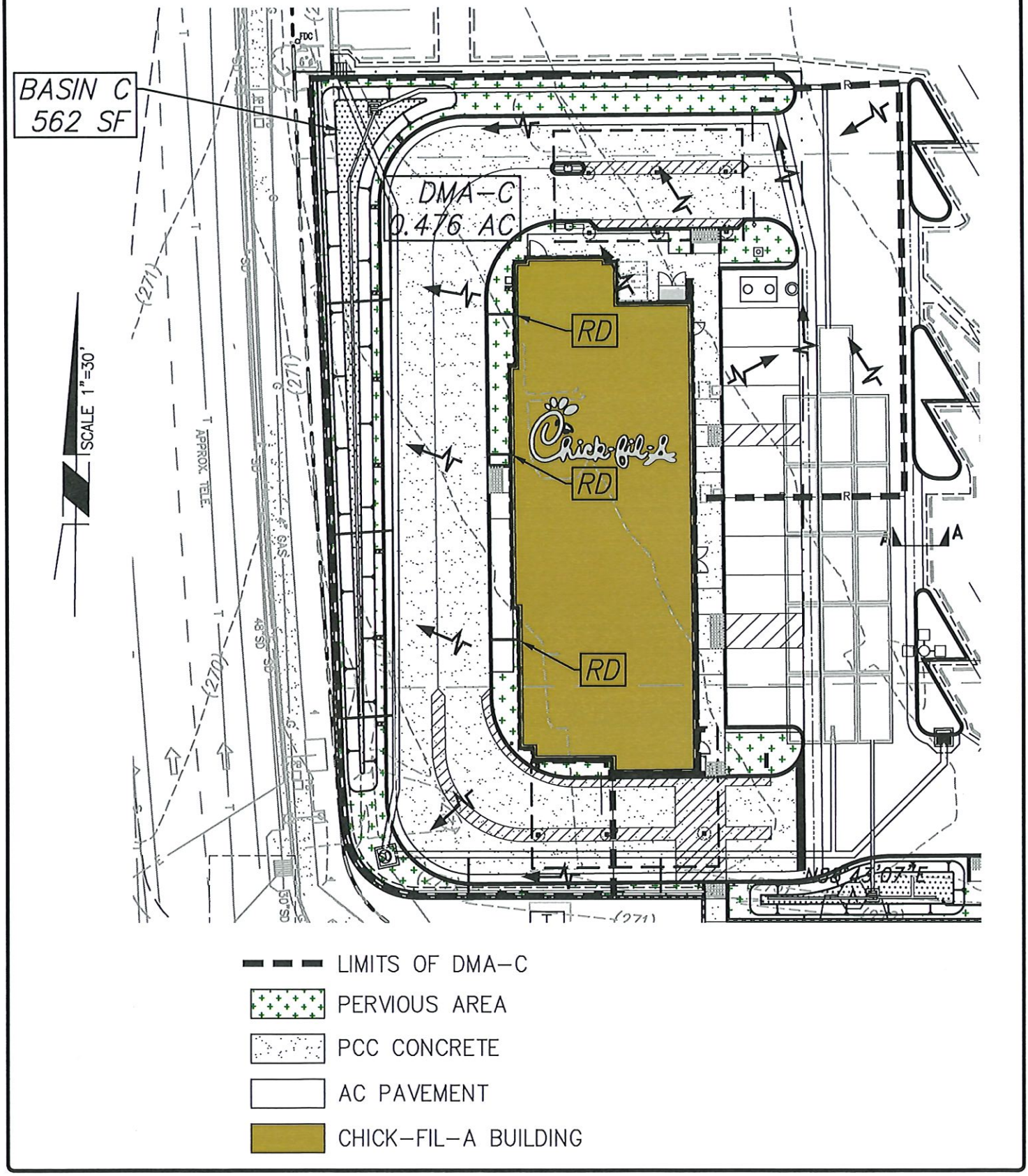
ENGINEER OF WORK
RANDY DECKER R.C.E. 81077

GRADING PERMIT NO:
PDS2020-LDGRMJ-30286

## 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 |



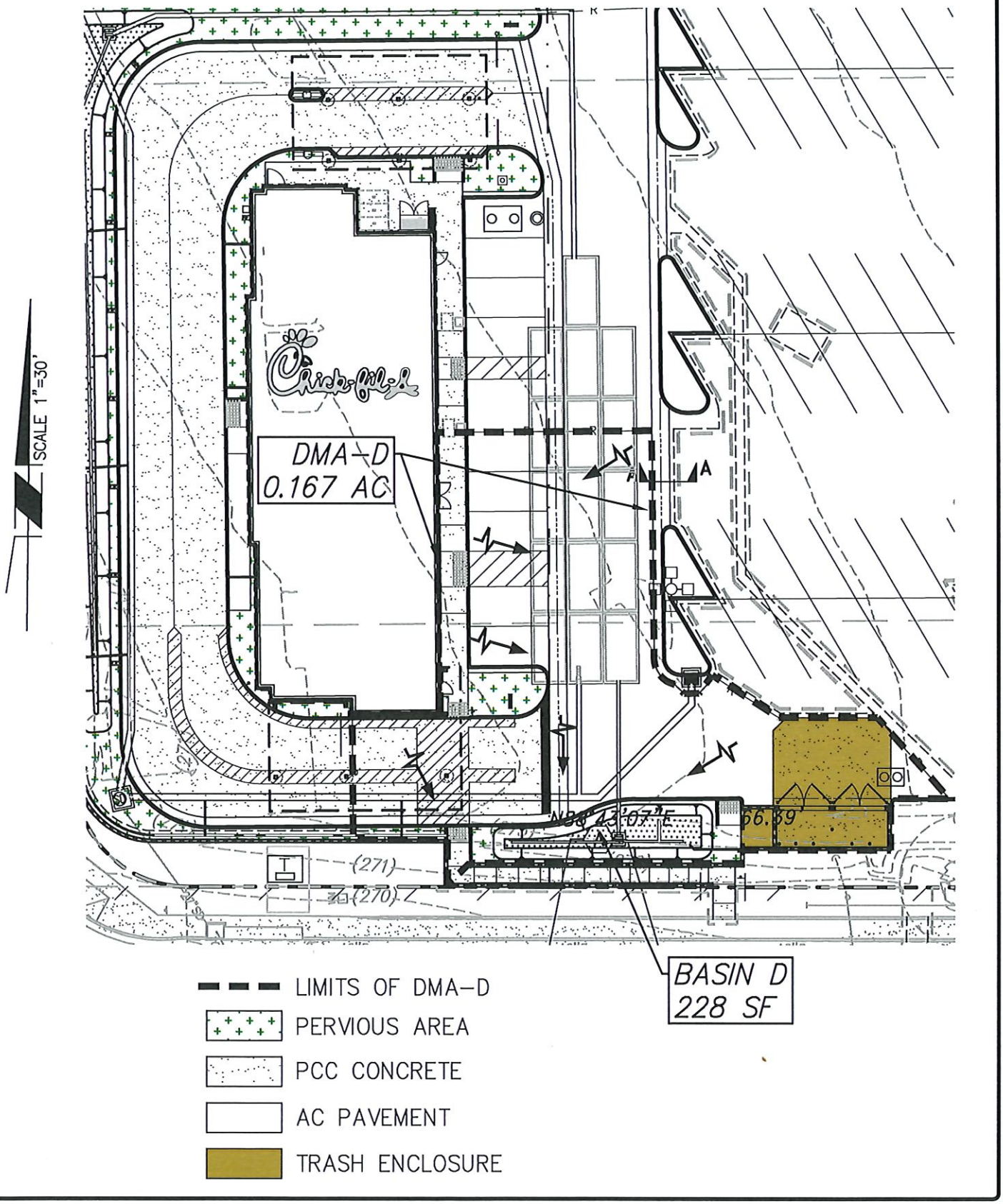


Prepared by:
Joseph C. Truxaw and Associates, Inc.
Civil Engineers and Land Surveyors
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868
(714) 935-0265 Truxaw.com


# INDIVIDUAL STRUCTURAL BMP DMA MAPBOOK - DMA C

CHICK-FIL- A, SPRING VALLEY

| | | | |
|---|---|---|---|
| DRAWN: PJS | CHKD: RJD | | |
| DATE: 12-16-20 | DATE: 12-16-20 | | |





Prepared by:
Joseph C. Truxaw and Associates, Inc.
Civil Engineers and Land Surveyors
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868
(714) 935-0265 Truxaw.com


# INDIVIDUAL STRUCTURAL BMP DMA MAPBOOK – DMA D

CHICK-FIL- A, SPRING VALLEY

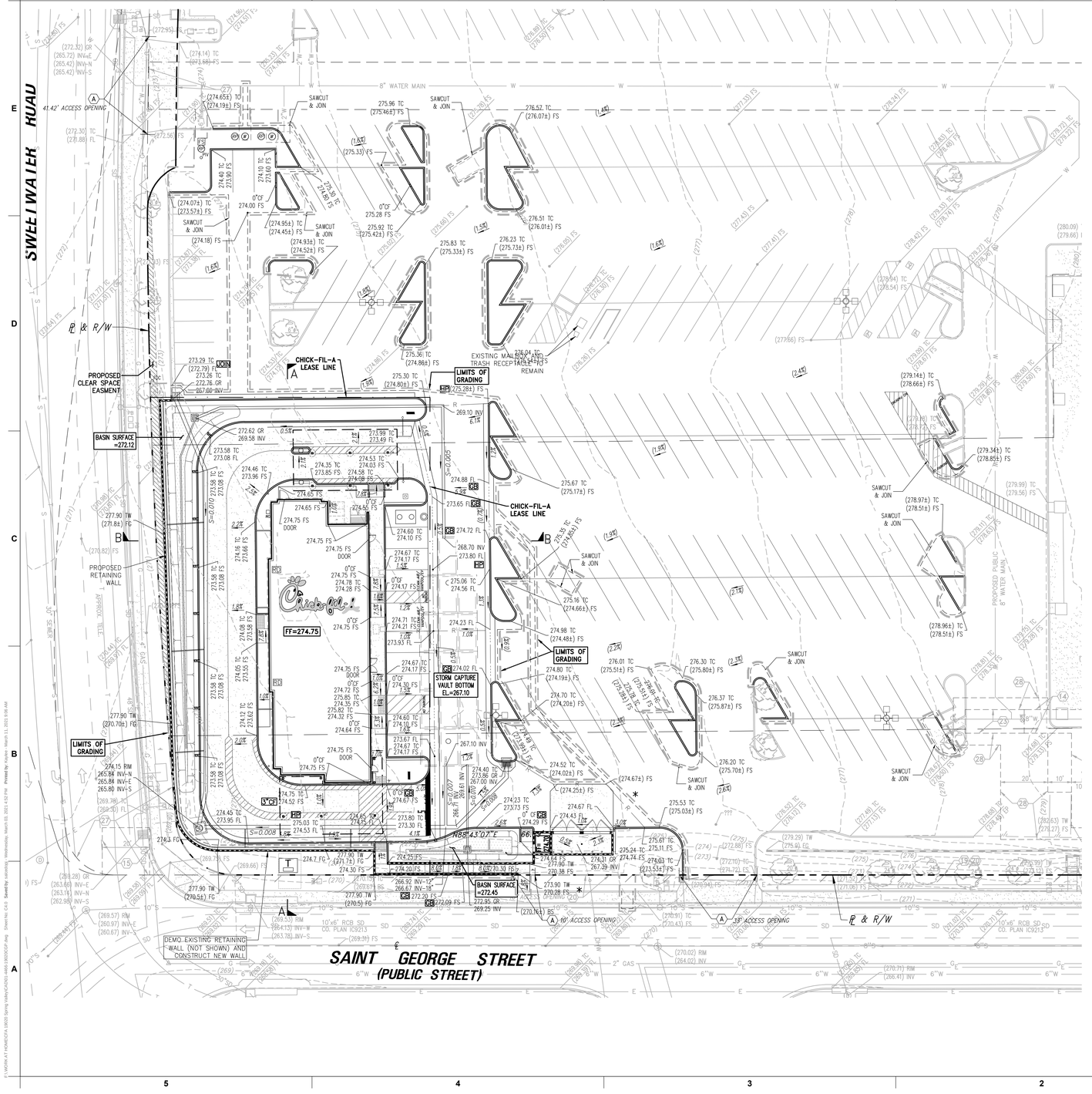
| | | | |
|---|---|---|---|
| DRAWN: PJS | CHKD: RJD | | |
| DATE: 5-6-20 | DATE: 5-6-20 | | |

## 2.3 Construction Plan Sets

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

| **Plan Type** | **Grading and Utility 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




## LEGEND

| | |
|---|---|
| AB | = AGGREGATE BASE |
| AC | = ASPHALT CONCRETE |
| BLK | = CONCRETE BLOCK |
| BS | = BACK OF SIDEWALK |
| CB | = CATCH BASIN |
| CF | = CURB FACE |
| CL | = CENTERLINE |
| CLF | = CHAIN LINK FENCE |
| CO | = CLEANOUT |
| DCV | = DETECTOR CHECK VALVE |
| DS | = ROOF DOWNSPOUT |
| EG | = EDGE OF GUTTER |
| EP | = EDGE OF PAVEMENT |
| FD | = FOUND |
| FDC | = FIRE DEPT. CONNECTION |
| FF | = FINISHED FLOOR |
| FG | = FINISHED GRADE |
| FH | = FIRE HYDRANT |
| FL | = FLOW LINE |
| FS | = FINISHED SURFACE |
| GB | = GRADE BREAK |
| GM | = GAS METER |
| GR | = TOP OF GRATE |
| GV | = GAS VALVE |
| HP | = HIGH POINT |
| HT | = HEIGHT |
| ICV | = IRRIGATION CONTROL VALVE |
| IP | = IRON PIPE |
| LS | = LIGHT STANDARD |
| L&T | = LEAD & TAG |
| MH | = MANHOLE |
| NG | = NATURAL GROUND |
| N&T | = NAIL & TAG |
| OHW | = OVERHEAD WIRE |
| PB | = PULL BOX |
| PCC | = CONCRETE |
| PIV | = POST INDICATOR VALVE |
| PL | = PROPERTY LINE |
| RD | = ROOF DRAIN |
| RWH | = REDWOOD HEADER |
| SCB | = SIGNAL CONTROL BOX |
| SMH | = SEWER MANHOLE |
| SPK | = SPIKE |
| SW | = SIDEWALK |
| TC | = TOP OF CURB |
| TE | = TRASH ENCLOSURE |
| TP | = TELEPHONE POLE |
| TRAN | = TRANSITION |
| TRANS= | TRANSFORMER |
| TRW | = TOP OF RETAINING WALL |
| TW | = TOP OF WALL |
| UG | = UNDERGROUND |
| UP | = UTILITY POLE |
| VAR | = VARIABLE |
| W | = WASHER |
| WDF | = WOOD FENCE |
| WM | = WATER METER |
| WV | = WATER VALVE |
| N. | = NORTH |
| S. | = SOUTH |
| E. | = EAST |
| W. | = WEST |
| N'LY | = NORTHERLY |
| S'LY | = SOUTHERLY |
| E'LY | = EASTERLY |
| W'LY | = WESTERLY |
| N/O | = NORTH OF |
| S/O | = SOUTH OF |
| E/O | = EAST OF |
| W/O | = WEST OF |
| ℄ | = CENTERLINE |
| R/W | = RIGHT OF WAY |
| Δ | = DELTA |
| R | = RADIUS |
| L | = LENGTH |
| T | = TANGENT |
| M | = MEASURED DATA |
| C | = CALCULATED DATA |
| (RAD)= | RADIAL BEARING |
| PRO | = PROPORTIONATE MEASUREMENT |
| (210.00' R) | = RECORD DATA |
| 210.00' M. | = MEASURED DATA |
| 210.00' PRO. | = PRORATED DATA |
| 210.00' C. | = CALCULATED DATA |
| (427.00) TC | = EXISTING ELEVATION |
| 427.00 TC | = DESIGN ELEVATION |
| CATV | = CABLE TV LINE |
| E | = ELECTRICAL LINE |
| G | = GAS LINE |
| GB | = GRADE BREAK LINE |
| R | = RIDGE LINE |
| S | = SEWER LINE |
| SD | = STORM DRAIN LINE |
| T | = TELEPHONE LINE |
| W | = WATER LINE |

## SYMBOLS

- FIRE HYDRANT
- STREET LIGHT
- TRAFFIC SIGNAL
- TRAFFIC SIGNAL ARM & POLE
- LIGHT STANDARD
- UTILITY POLE
- GUY WIRE & ANCHOR
- WM WATER METER
- GM GAS METER
- WV WATER VALVE
- PB PULL BOX
- GRATE INLET
- SIGN
- VENT
- (S) SEWER MANHOLE
- (D) STORM DRAIN MANHOLE
- (T) TELEPHONE MANHOLE
- (MH) MANHOLE
- SEWER CLEANOUT
- (M) MONITORING WELL
- HANDICAP PARKING STALL
- (L) LANDSCAPED AREA
- (P) PROTECT IN PLACE
- (R) REMOVE AND DISPOSE OFFSITE
- (RE) RELOCATE
- (J) PLOTABLE EASEMENT ITEM No. PER TITLE REPORT
- (427.0) EXIST. CONTOUR
- 427.0 DESIGN CONTOUR

SCALE: 1"=20'

**THIS PLAN IS:**

***PRELIMINARY***

**(NOT FOR CONSTRUCTION)**

**NOTICE TO CONTRACTOR**

THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ALL UTILITIES, PIPES, AND/OR STRUCTURES AND SHALL BE RESPONSIBLE FOR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

**IMPORTANT NOTICE**

Section 4216 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert CALL 811 Two working days before you dig.

**PRELIMINARY GRADING PLAN NOTE:**

THIS PLAN IS PROVIDED TO ALLOW FOR FULL AND ADEQUATE DISCRETIONARY REVIEW OF A PROPOSED DEVELOPMENT PROJECT. THE PROPERTY OWNER ACKNOWLEDGES THAT ACCEPTANCE OR APPROVAL OF THIS PLAN DOES NOT CONSTITUTE AN APPROVAL TO PERFORM ANY GRADING SHOWN HEREON, AND AGREES TO OBTAIN VALID GRADING PERMISSIONS BEFORE COMMENCING SUCH ACTIVITY.

**✱ EASEMENT NOTE:**

THE EXISTING ACCESS RELINQUISHMENT EASEMENT SHALL BE REMOVED UPON THE RECORDATION OF THE NEW ACCESS EASEMENT AT THE PROPOSED DRIVEWAY ALONG SAINT GEORGE ST. AS SHOWN ON THIS PLAN.


Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998

Prepared by:

JOSEPH C. TRUXAW & ASSOCIATES, INC.
Civil Engineers and Land Surveyors
1915 W. ORANGEWOOD AVE.
SUITE 101
ORANGE, CA 92868
(714) 935-0265
(714) 935-0106 (FAX)


REGISTERED PROFESSIONAL ENGINEER RANDY J. DECKER No. 81077 CIVIL STATE OF CALIFORNIA

# CHICK-FIL-A

## HWY 125 & JAMACHA RD, FSU

931 Sweetwater Rd., Spring Valley, CA 91977

**FSR# 04466**

**REVISION SCHEDULE**

| NO. | DATE | DESCRIPTION |
|---|---|---|

| | |
|---|---|
| ENGINEER'S PROJECT # | CFA19020 |
| PRINTED FOR | CONSTRUCTION |
| DATE | 03-10-21 |
| DRAWN BY | PJS |


Information contained on this drawing and in all digital files produced for above named project may not be reproduced in any manner without express written permission from authorized project representatives.


SHEET: PRELIMINARY GRADING PLAN

SHEET NUMBER: C4.0


BWE
CIVIL STRUCTURAL SURVEY PLANNING
9449 BALBOA AVE, STE 270
SAN DIEGO, CA 92123 619.299.5550

ZA
ZIEBARTH ASSOCIATES
ARCHITECTURE + PLANNING

PREPARED BY:
ZAAP, INC.
2900 FOURTH AVENUE #204
SAN DIEGO, CA 92103
619-233-6450 (PHONE)
619-233-6449 (FAX)
WWW.ZAAP.BIZ


PROJECT ADDRESS:
935 SWEETWATER ROAD
Spring Valley, CA 91977
PROJECT NO: 16350

DATE: 09/26/2019

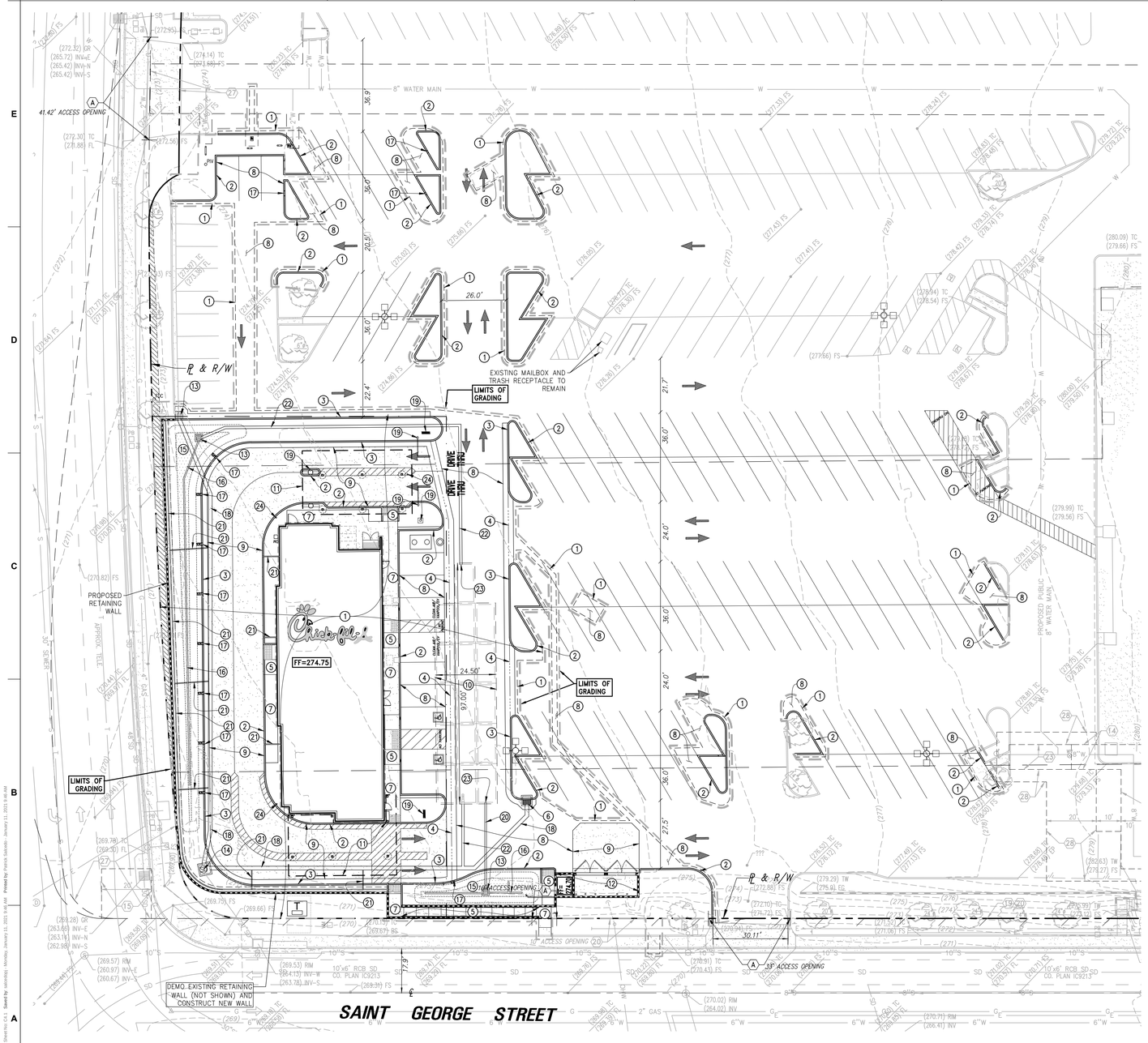
| REVISION #: | DATE: | REVISION #: | DATE: |
|---|---|---|---|
| 1 | | 4 | |
| 2 | | 5 | |
| 3 | | 6 | |

PROJECT NAME: SHOPPING CENTER - SPRING VALLEY

SHEET TITLE:

# SHOPPING CENTER - SPRING VALLEY

S.E.C. JAMACHA RD. & SWEETWATER RD.
SPRING VALLEY, CA




## CONSTRUCTION NOTES

1. SAWCUT & REMOVE EXISTING PAVEMENT, CONCRETE CURBS, TREES, ETC.
2. CONCRETE CURB: CF=6-INCH UNLESS OTHERWISE SHOWN
3. CONCRETE CURB & GUTTER
4. 4-FOOT WIDE V-GUTTER
5. HANDICAP ACCESS RAMP IN ACCORDANCE WITH CA TITLE 24 REQUIREMENTS, ADA GUIDELINES, COUNTY STANDARDS AND ARCHITECTURAL DETAILS
6. CURB INLET CATCH BASIN TYPE C (3'-OPENING W/GRATE INLET) PER SAN DIEGO REGIONAL STANDARD DRAWING NO. 03A
7. CONCRETE SIDEWALK/HARDSCAPE
8. AC PAVEMENT
9. PCC PAVEMENT
10. STORM CAPTURE VAULT PER MANUFACTURERS' SPECIFICATION (7'X15'X4' -QTY 15) (T4)
11. CANOPY PER ARCHITECTURAL DETAILS
12. COVERED TRASH ENCLOSURE/STORAGE ROOM AND CONCRETE APRON PER ARCHITECTURAL DETAILS.
13. STORMWATER INLET STRUCTURE
14. STORM DRAIN JUNCTION STRUCTURE
15. BIO-FILTRATION BASIN (T1)(T2)
16. 6-INCH PERFORATED PIPE
17. CURB OPENING
18. 18-INCH STORM DRAIN PIPE
19. MENUBOARD/FLAG POLE/CLEARANCE BAR/DIRECTIONAL DRIVE-THRU SIGN
20. 8-INCH STORM DRAIN PIPE
21. 4-INCH STORM DRAIN PIPE. CONNECT TO DOWNSPOUT TO ROOF DRAIN WHERE SHOWN.
22. 12-INCH STORM DRAIN PIPE
23. INSTALL FLAP GATE TO INSIDE OF STORM VAULT WALL AT PIPE INLET. SIZE TO MATCH PIPE SIZE.
24. INSTALL 6-INCH PIPE BOLLARD

(L) LANDSCAPING

20 10 0 20 40 60
SCALE: 1"=20'

**THIS PLAN IS:**
***PRELIMINARY***
**(NOT FOR CONSTRUCTION)**

**NOTICE TO CONTRACTOR**
THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ALL UTILITIES, PIPES, AND/OR STRUCTURES AND SHALL BE RESPONSIBLE FOR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

**IMPORTANT NOTICE**
Section 4216 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert CALL 811
Two working days before you dig.

Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998


Prepared by:
JOSEPH C. TRUXAW & ASSOCIATES, INC.
Civil Engineers and Land Surveyors
1915 W. ORANGEWOOD AVE.
SUITE 101
ORANGE, CA 92868
(714) 935-0265
(714) 935-0106 (FAX)


REGISTERED PROFESSIONAL ENGINEER
RANDY J. DECKER
No. 81077
CIVIL
STATE OF CALIFORNIA

# CHICK-FIL-A
## HWY 125 & JAMACHA RD, FSU
931 Sweetwater Rd., Spring Valley, CA 91977

**FSR# 04466**

**REVISION SCHEDULE**

| NO. | DATE | DESCRIPTION |
|---|---|---|

| | |
|---|---|
| ENGINEER'S PROJECT # | CFA19020 |
| PRINTED FOR | CONSTRUCTION |
| DATE | 01-08-21 |
| DRAWN BY | PJS |


Information contained on this drawing and in all digital files produced for above named project may not be reproduced in any manner without express written or verbal consent from authorized project representatives.


SHEET
PRELIMINARY
CONSTRUCTION NOTES

SHEET NUMBER
C4.1


BWE
CIVIL•STRUCTURAL•SURVEY•PLANNING
9449 BALBOA AVE., STE 270
SAN DIEGO, CA 92123 619.299.5550

ZA
ZIEBARTH ASSOCIATES
ARCHITECTURE + PLANNING

PREPARED BY:
ZAAP, INC.
2900 FOURTH AVENUE #204
SAN DIEGO, CA 92103
619-233-6450 (PHONE)
619-233-6449 (FAX)
WWW.ZAAP.BIZ


PROJECT ADDRESS:
935 SWEETWATER ROAD
Spring Valley, CA 91977
PROJECT NO: 16350

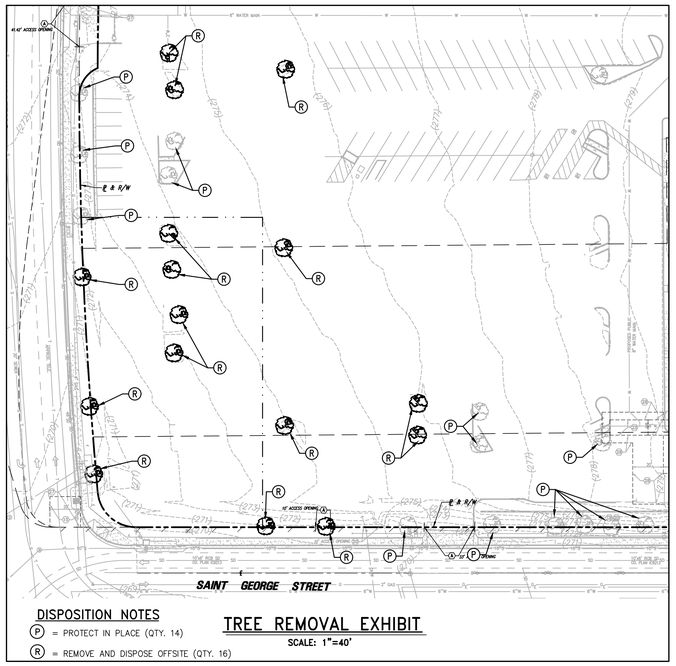
DATE: 09/26/2019

| REVISION #: | DATE: | REVISION #: | DATE: |
|---|---|---|---|
| 1 | | 4 | |
| 2 | | 5 | |
| 3 | | 6 | |

PROJECT NAME:
SHOPPING CENTER - SPRING VALLEY

SHEET TITLE:

# SHOPPING CENTER - SPRING VALLEY
S.E.C. JAMACHA RD. & SWEETWATER RD.
SPRING VALLEY, CA



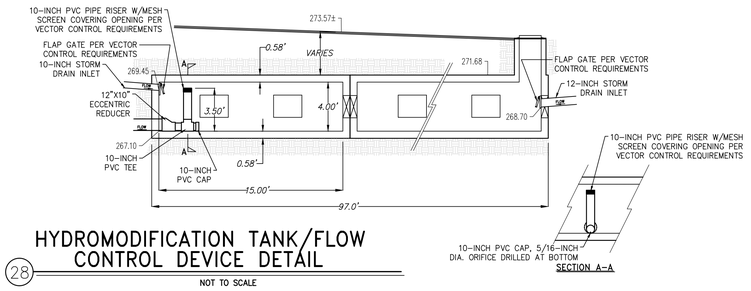

## DISPOSITION NOTES

(P) = PROTECT IN PLACE (QTY. 14)

(R) = REMOVE AND DISPOSE OFFSITE (QTY. 16)

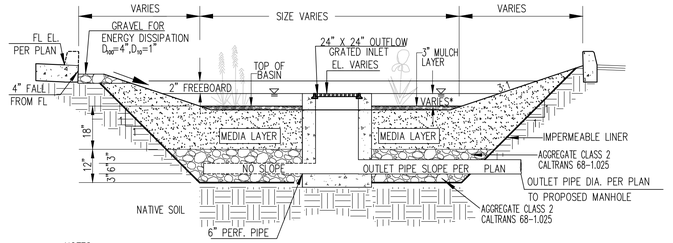
## TREE REMOVAL EXHIBIT

SCALE: 1"=40'




## HYDROMODIFICATION TANK/FLOW CONTROL DEVICE DETAIL (28)

NOT TO SCALE



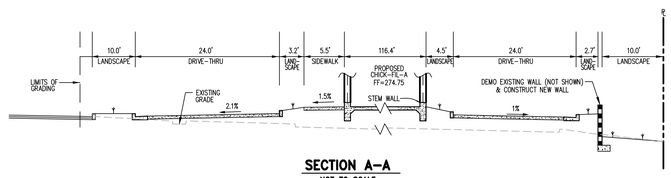

NOTES:

1.- MEDIA SPECIFICATIONS TO BE APPROVED BY THE COUNTY OF SAN DIEGO

* PONDING SHALL BE 6" IN BASIN C AND 4" IN BASIN D

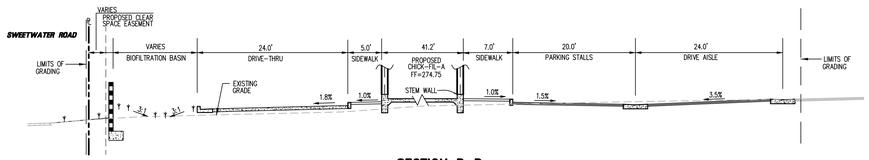
## BIO-FILTRATION BASIN (TYPICAL) (15)

NOT TO SCALE




## SECTION A-A

NOT TO SCALE




## SECTION B-B

NOT TO SCALE

## EARTHWORK QUANTITY ESTIMATES

| | | |
|---|---|---|
| RAW CUT: | 910 | CU. YD. |
| RAW FILL: | 250 | CU. YD. |
| EXPORT: | 660 | CU. YD. |

THE ABOVE QUANTITIES DO NOT REFLECT ANY SHRINKAGE, SWELLING, SUBSIDENCE, STRIPPING LOSS, OVER-EXCAVATION, DEMOLITION LOSSES, FOOTING SPOILS, OR ANY SPECIAL CONDITIONS THAT MAY BE SPECIFIED IN THE APPLICABLE GEOTECHNICAL REPORT(S) AND ARE FOR REFERENCE AND FEE PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING HIS OWN QUANTITIES FOR CONSTRUCTION AND CONTRACT PURPOSES.

THESE QUANTITIES ARE APPROXIMATE ONLY AND DO NOT INCLUDE OVEREXCAVATION QUANTITIES, IMPORT OR EXPORT QUANTITIES.

## SOURCE OF BOUNDARY & EASEMENT INFORMATION. **

THE TOPOGRAPHIC INFORMATION SHOWN ON THESE PLANS WERE TAKEN FROM THE PLAN REFERENCED BELOW.

DATE OF SURVEY: APRIL 11, 2019
DELTA (1): AUGUST 22, 2019
ALTA SURVEY BY: TRUXAW AND ASSOCIATES, INC.
1915 W ORANGEWOOD, SUITE 101
ORANGE, CA 92868
(714) 935-0265
JOB # CFA19020

## ** BENCHMARK

CALTRANS-DISTRICT 11 DESIGNATION: 125-19.6 L 1998

ELEVATION = 280.163 (ft) (NGVD 29) ADJ. 1998

LOCATION:
THE MON IS ON THE SOUTH SIDE OF JAMACHA ROAD IN THE TOP OF CURB OF A FLARE WHERE THE ROAD CHANGES WIDTH. IT IS APPROX. STA ON "JMR" OF 14+80 +/-, AND APPROX 60 METERS WEST OF THE SD ON FROM JAMACHA ROAD.

## ** BASIS OF BEARINGS

THE BEARING NORTH 00°34'10" EAST ALONG THE EAST LINE OF TRACT NO. 7119 (R), EAST LINE ESTABLISHED PARALLEL TO CENTERLINE OF SAINT GEORGE COURT BY FOUND MONUMENTS PER VALLEY GLEN MAP NO. 7488 (R1). BOTH OF OFFICIAL RECORDS OF SAN DIEGO COUNTY, STATE OF CALIFORNIA, WAS USED AS THE BASIS OF BEARINGS FOR THIS SURVEY.

## ** RECORD DATA

(R) = RECORD DATA PER PARCEL MAP NO. 7119, FILE NO. 78-136523

(R1) = RECORD DATA PER VALLEY GLEN MAP NO. 7488, FILE NO. 72-306132

## **EASEMENT NOTES

(19) ABUTTER'S RIGHTS OF INGRESS AND EGRESS TO OR FROM SAINT GEORGE STREET HAVE BEEN DEDICATED OR RELINQUISHED ON THE MAP OF PARCEL MAP NO. 7556 OF PARCEL MAPS RECORDED FEBRUARY 21, 1973.

EXCEPT AT 30 FOOT ACCESS OPENING DESCRIBED IN DOCUMENT RECORDED SEPTEMBER 24, 1985 AS INSTRUMENT NO. 85-351957 OF OFFICIAL RECORDS.

(AFFECTS PARCEL C)

NOTE: SAID DOCUMENT AFFECTS THE PROPOSED CHICK-FIL-A LEASE AREA AND IS PLOTTED HEREON.

(20) ABUTTER'S RIGHTS OF INGRESS AND EGRESS TO OR FROM SAINT GEORGE STREET, EXCEPTING THEREFROM RIGHT OF ACCESS DESIGNATED AS "ACCESS NO.1" AND "ACCESS NO. 2" AND SWEETWATER ROAD HAVE BEEN DEDICATED OR RELINQUISHED ON THE MAP OF MAP NO. 8152 OF TRACT MAPS RECORDED AUGUST 12, 1975.

(AFFECTS PARCEL C)

(27) AN EASEMENT FOR THE PURPOSE OF CONSTRUCTING AND MAINTAINING AND SHORING, BRACES, FOUNDATIONS OR WALL NECESSARY TO SUPPORT THE REMAINING IMPROVEMENTS AND INCIDENTAL PURPOSES, RECORDED MAY 14, 1999 AS INSTRUMENT NO. 1999-0329566 OF OFFICIAL RECORDS.

IN FAVOR OF: PEOPLE OF THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION, AS DISCLOSED BY FINAL ORDER OF CONDEMNATION

AFFECTS: AS DESCRIBED THEREIN

THE LOCATION OF THE EASEMENT CANNOT BE DETERMINED FROM RECORD INFORMATION.

NOTE: SAID DOCUMENT IS ALSO LISTED IN THE SUBJECT LEGAL DESCRIPTION EXCEPTIONS LISTED HEREON.

THIS PLAN IS:

**PRELIMINARY**

**(NOT FOR CONSTRUCTION)**

**NOTICE TO CONTRACTOR**

THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ALL UTILITIES, PIPES, AND/OR STRUCTURES AND SHALL BE RESPONSIBLE FOR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

**IMPORTANT NOTICE**

Section 4216 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert CALL 811 Two working days before you dig.


Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998

Prepared by:

JOSEPH C. TRUXAW & ASSOCIATES, INC.
Civil Engineers and Land Surveyors
1915 W. ORANGEWOOD AVE.
SUITE 101
ORANGE, CA 92868
(714) 935-0265
(714) 935-0106 (FAX)

REGISTERED PROFESSIONAL ENGINEER RANDY J. DECKER No. 81077 CIVIL STATE OF CALIFORNIA


# CHICK-FIL-A

## HWY 125 & JAMACHA RD, FSU

931 Sweetwater Rd., Spring Valley, CA 91977

**FSR# 04466**

REVISION SCHEDULE

| NO. | DATE | DESCRIPTION |
|---|---|---|

| | |
|---|---|
| ENGINEER'S PROJECT # | CFA19020 |
| PRINTED FOR | CONSTRUCTION |
| DATE | 01-08-21 |
| DRAWN BY | PJS |


Information contained on this drawing and in all digital files produced for above named project may not be reproduced in any manner without express written or verbal consent from authorized project representatives.


SHEET: PRELIMINARY CONSTRUCTION NOTES

SHEET NUMBER

C4.2


BWE
CIVIL•STRUCTURAL•SURVEY•PLANNING
9449 BALBOA AVE, STE 270
SAN DIEGO, CA 92123 619.299.5550

ZA
ZIEBARTH ASSOCIATES
ARCHITECTURE + PLANNING

PREPARED BY:
ZAAP, INC.
2900 FOURTH AVENUE #204
SAN DIEGO, CA 92103
619-233-6450 (PHONE)
619-233-6449 (FAX)
WWW.ZAAP.BIZ


PROJECT ADDRESS:
935 SWEETWATER ROAD
Spring Valley, CA 91977
PROJECT NO: 16350

DATE: 09/26/2019

| REVISION #: | DATE: | REVISION #: | DATE: |
|---|---|---|---|
| 1 | | 1 | |
| 2 | | 2 | |
| 3 | | 3 | |
| 4 | | 4 | |

PROJECT NAME:
SHOPPING CENTER - SPRING VALLEY

SHEET TITLE:

# SHOPPING CENTER - SPRING VALLEY

S.E.C. JAMACHA RD. & SWEETWATER RD.
SPRING VALLEY, CA


P:\CFA19020\CAD\01-4466-19020CGP.dwg Sheet Set: Saved by: mwilfred Friday, December 18, 2020 4:57 PM Printed by: Jose Rosell January 8, 2021 11:30 AM

P:\CFA19020\CAD\01-4466-19020CGP.dwg, C4.2, 1/8/2021 11:30:53 AM

## 5.0 General Requirements

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

  ☒ **Yes**

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

    | |
    |---|
    | Title: Drainage Certification Letter |
    | Prepared By: Joseph C. Truxaw & Associates Inc. |
    | Date: 02-26-21 |

  - 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.

Joseph C. Truxaw and Associates, Inc.
Civil Engineers and Land Surveyors
1915 W. Orangewood Ave., Suite 101
Orange, CA 92868 (714) 935-0265
www.truxaw.com

February 26, 2021

**DIANA PEREZ, P.E., Project Manager**
PDS Land Development
5510 Overland Avenue, Suite 310
San Diego, CA 92123

**RE: Drainage Certification Letter**
**Chick-fil-A Restaurant #4466**
**931 Sweetwater Road, Spring Valley, CA**

Dear Diana,

The proposed project will not adversely impact existing drainage facilities or downstream neighbors. The existing project site area is mostly impervious with approximately 7,800 square feet of landscaping. The proposed project will increase the landscape area to approximately 12,900 square feet and incorporating biofiltration basins. The project also proposes underground storm vaults to detain a volume of storm water for water quality and hydromodification purposes. The combination of the proposed features will reduce the storm water discharge for the site and will drain to existing points of discharge.

Please contact me with any questions or comments. Thank you.

Sincerely,



Randy Decker, PE
Project Engineer



## 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 | 7,838 |
| ☐ Non-Vegetated Pervious Areas | |
| ☒ Impervious Areas | 27,394 |

**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 condition of the project site is of a parking lot that services the shopping center. The parking area is made up of AC pavement and is in very poor condition and landscape planters are placed in the parking bays. The existing topography shows that the parking field for the shopping center slopes southwest towards the project site. A curb & gutter picks up surface runoff in the parking area along Sweetwater Road and the remainder sheet flows to the southwest corner of the parking area where surface runoff is collected into a curb face opening catch basin. The site elevation is approx.. 2-3 ft higher than the street elevation and grade is made up by a slope in the landscape planter along Sweetwater Road and retaining wall along St. George Street. Once drainage is collected into the catch basin, it enters a county storm drain and is conveyed offsite. Pre-Development there is one Site Discharge location that is a catchbasin in the south west corner of the site.

Q100pre = 11.32 CFS

V100pre= 1.2953 Acre-FT

## 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.)*
The site is currently a parking lot servicing the existing shopping center. Land use is commercial parking lot and activities include parking for the stores within the center.

*b. List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features).*
Impervious features in the existing condition include AC pavement, concrete curb, and concrete curb & gutter.

*c. List/describe proposed pervious features of the project (e.g., landscape areas):*
Pervious features in the existing condition include the landscape planters within the parking lot and a perimeter landscape buffer around Sweetwater Road and St. George Street. Both pervious areas consist of trees and shrubs, the remainder of the ladncape area is exposed dirt.

*d. Does the project include grading and changes to site topography?* ☒ **Yes** ☐ **No**
*If **yes**, describe below.*
To capture stormwater for treatment and avoid comingling with existing drainage that flows toward the site, the low point of the site in the existing condition (existing cath basin) must be lifted up by approx. 1-2 ft. This raises the topography of the site form the existing condition.

## 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 storm drain network will consist of curb & gutter to direct surface flow to Basin C and Basin D for storage and treatment. Runoff will then travel through storm drain pipes to the concrete storage vaults for hydromodification storage and flow control. The controlled flow will leave the vaults at a controlled flow rate and enter the proposed 18-inch storm drain pipe.

To avoid comingling of existing drainage flowing toward the site with stormwater that is to be treated, two large catch basins will be constructed at the site perimieter to collect surface flow from the north and west parking lot areas. A V-gutter is located between the development envelope and the rest of the parking lot to prevent comingling. The off-site drainage will travel through the proposed 18-inch storm drain pipes to the proposed junction structure where it leaves the site at the point of compliance.

The point of compliance is the public catch basin located in the public right of way off of Saint George Street.

Q100 Post = 11.29 CFS
V100 Post = 1.2874 Acre-ft

## 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<br>• Dispersion Areas calculations from SSD-BMP tool | • Fact Sheet SD-B (Appendix E.8)<br>• Appendix I |
| ☐ **Tree Wells** | • DCV calculations from SSD-BMP tool<br>• Tree Well calculations from SSD-BMP tool | • Fact Sheet SD-A (Appendix E.7)<br>• Appendix I |

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

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

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

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

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

| *DMA #* | *a. DMA Area ($ft^2$)* | *Incidental Impervious Area* | | *Permit # and Sheet #* |
|---|---|---|---|---|
| | | *b. Size($ft^2$)* | *c. % (b/a*100)* | |
| SM-1 | 866 | 0 | 0 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| SM-2 | 721 | 0 | 0 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| SM-3 | 367 | 0 | 0 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| SM-4 | 415 | 0 | 0 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| SM-5 | 211 | 0 | 0 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| SM-6 | 352 | 0 | 0 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

- "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 fully 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 for every DMA listed.

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

Natural and Landscaped Areas

☒ 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.

Incidental Impervious Areas (if applicable; see above)

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.

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

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

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

| *DMA #* | *DMA Area ($ft^2$)* | *Permit # and Sheet #* |
|---|---|---|
| DMA-1 | 250 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| DMA-2 | 206 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| DMA-3 | 232 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| DMA-4 | 85 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| DMA-5 | 240 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| DMA-6 | 114 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| DMA-7 | 250 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| DMA-8 | 133 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| DMA-9 | 41 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| DMA-10 | 175 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| DMA-11 | 148 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| DMA-12 | 127 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| DMA-13 | 238 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| DMA-14 | 240 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| DMA-15 | 95 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| DMA-16 | 199 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| DMA-17 | 204 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| DMA-18 | 161 | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |

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

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

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

## 6.3 Self-retaining DMAs using Significant Site Design BMPs

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

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

| DMA # | DMA Area ($ft^2$) | **BMP Type** (choose one per DMA) | | *Permit # and Sheet #* |
|---|---|---|---|---|
| | | **Dispersion Area (Att. 6.3.1)** | **Tree Wells (Att. 6.3.2)** | |
| SR-1 | 330 | ☒ | ☐ | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| SR-2 | 1,364 | ☒ | ☐ | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| SR-3 | 136 | ☒ | ☐ | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| SR-4 | 153 | ☒ | ☐ | PDS2020-LDGRMJ-30298 - Shown on DMA Exhibit |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |

Copy and Paste table here for additional DMAs

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

other guidance or instruction identified by the County.

*6.3.1 Self-retaining DMAs with Impervious Dispersion Areas*

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

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

**Summary Sheet for Self-retaining DMAs with Impervious Area Dispersion**

Attach Printouts from SSD-BMP tool below

- DCV calculations from SSD-BMP tool
- Dispersion Areas calculations from SSD-BMP tool

## SSD-BMP Automated Worksheet I-1: Step 1. Calculation of Design Capture Volume (V1.0)

| Category | # | Description | *i* | *ii* | *iii* | *iv* | *v* | *vi* | *vii* | *viii* | *ix* | *x* | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard Drainage Basin Inputs | 1 | Drainage Basin ID or Name | SR-1 | SR-2 | SR-3 | SR-5 | | | | | | | unitless |
| | 2 | 85th Percentile 24-hr Storm Depth | 0.54 | 0.54 | 0.54 | 0.54 | | | | | | | inches |
| | 3 | Is Hydromodification Control Applicable? | Yes | Yes | Yes | Yes | | | | | | | yes/no |
| | 4 | Impervious Surfaces Not Directed to Dispersion Area (C=0.90) | | | | | | | | | | | sq-ft |
| | 5 | Semi-Pervious Surfaces Not Serving as Dispersion Area (C=0.30) | | | | | | | | | | | sq-ft |
| | 6 | Engineered Pervious Surfaces Not Serving as Dispersion Area (C=0.10) | | | | | | | | | | | sq-ft |
| | 7 | Natural Type A Soil Not Serving as Dispersion Area (C=0.10) | | | | | | | | | | | sq-ft |
| | 8 | Natural Type B Soil Not Serving as Dispersion Area (C=0.14) | | | | | | | | | | | sq-ft |
| | 9 | Natural Type C Soil Not Serving as Dispersion Area (C=0.23) | | | | | | | | | | | sq-ft |
| | 10 | Natural Type D Soil Not Serving as Dispersion Area (C=0.30) | | | | | | | | | | | sq-ft |
| SSD-BMPs Proposed | 11 | Does Tributary Incorporate Dispersion and/or Rain Barrels? | Yes | Yes | Yes | Yes | | | | | | | yes/no |
| | 12 | Does Tributary Incorporate Tree Wells? | | | | | | | | | | | yes/no |
| Dispersion Area & Rain Barrel Inputs (Optional) | 13 | Impervious Surfaces **Directed to Dispersion Area** per SD-B (Ci=0.90) | 165 | 682 | 67 | 77 | | | | | | | sq-ft |
| | 14 | Semi-Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.30) | | | | | | | | | | | sq-ft |
| | 15 | Engineered Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.10) | | | | | | | | | | | sq-ft |
| | 16 | Natural Type A Soil **Serving as Dispersion Area** per SD-B (Ci=0.10) | | | | | | | | | | | sq-ft |
| | 17 | Natural Type B Soil **Serving as Dispersion Area** per SD-B (Ci=0.14) | | | | | | | | | | | sq-ft |
| | 18 | Natural Type C Soil **Serving as Dispersion Area** per SD-B (Ci=0.23) | | | | | | | | | | | sq-ft |
| | 19 | Natural Type D Soil **Serving as Dispersion Area** per SD-B (Ci=0.30) | 165 | 682 | 69 | 76 | | | | | | | sq-ft |
| | 20 | Number of Rain Barrels Proposed per SD-E | | | | | | | | | | | # |
| | 21 | Average Rain Barrel Size | | | | | | | | | | | gal |
| Initial Runoff Factor Calculation | 22 | Total Tributary Area | 330 | 1,364 | 136 | 153 | 0 | 0 | 0 | 0 | 0 | 0 | sq-ft |
| | 23 | Initial Runoff Factor for Standard Drainage Areas | 0.00 | 0.00 | 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 | 0.60 | 0.60 | 0.60 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | unitless |
| | 25 | Initial Weighted Runoff Factor | 0.60 | 0.60 | 0.60 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | unitless |
| | 26 | Initial Design Capture Volume | 9 | 37 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| Dispersion Area Adjustment & Rain Barrel Adjustment | 27 | Total Impervious Area Dispersed to Pervious Surface | 165 | 682 | 67 | 77 | 0 | 0 | 0 | 0 | 0 | 0 | sq-ft |
| | 28 | Total Pervious Dispersion Area | 165 | 682 | 69 | 76 | 0 | 0 | 0 | 0 | 0 | 0 | sq-ft |
| | 29 | Ratio of Dispersed Impervious Area to Pervious Dispersion Area for DCV Reduction | 1.00 | 1.00 | 1.00 | 1.00 | n/a | n/a | n/a | n/a | n/a | n/a | ratio |
| | 30 | Adjustment Factor for Dispersed & Dispersion Areas | 0.77 | 0.77 | 0.77 | 0.77 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | ratio |
| | 31 | Runoff Factor After Dispersion Techniques | 0.46 | 0.46 | 0.46 | 0.46 | n/a | n/a | n/a | n/a | n/a | n/a | unitless |
| | 32 | Design Capture Volume After Dispersion Techniques | 7 | 28 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 33 | Total Rain Barrel Volume Reduction | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| Results | 34 | Final Adjusted Runoff Factor | 0.46 | 0.46 | 0.46 | 0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | unitless |
| | 35 | Final Effective Tributary Area | 152 | 627 | 63 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | sq-ft |
| | 36 | Initial Design Capture Volume Retained by Dispersion Area and Rain Barrel(s) | 2 | 9 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 37 | Remaining Design Capture Volume Tributary to Tree Well(s) | 7 | 28 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |

**No Warning Messages**

*6.3.2 Self-retaining DMAs with Tree Wells*

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

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

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

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

**Summary Sheet for Self-retaining DMAs with Tree Wells**

Attach Printouts from SSD-BMP tool below

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

## 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<br>• 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** Chick-fil-A #4466, Spring Valley
**Permit Application Number** PDS2020-STP-97-050W3, PDS2020-LDGRMJ-30298

### CERTIFICATION

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

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

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

RCE# 81077 Exp. 9-30-21
Engineer of Work's Signature, PE Number & Expiration Date

Randy J. Decker
Print Name

Joseph C. Truxaw & Associates Inc.
Company




03-10-21 Engineer's Seal:
Date

## 7.2 Structural BMP Strategy

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

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

The BMPs for pollution treatment selected for this site are Biofiltration basins. The basis for selecting this BMP type is due to no infiltration of the native soils as well as the low demand of irrigation water for a capture and reuse system. Since the native soils have no infiltration an infiltration system is not feasible. Likewise, the landscape area proposed and low to moderate amount of water demand from the proposed planting will not demand enough storm water to drawdown the Design Volume in the required drawdown time. Therefore biofiltration basins are proposed for treatment purposes. The basins have been designed and located in coordination with site grading for optimal and cost effective construction .

**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 (ft²) | Structural BMP Type | | | | | | | Permit # and Sheet # |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Harvest and Use | Infiltration | Unlined Biofiltration | Lined Biofiltration | Flow-thru treatment | Hydromodification Management [1] | Other | |
| T1 | Sub-Area C | 20,746 | ☐ | ☐ | ☐ | ☒ | ☐ | ☐ | ☐ | C-10 |
| T2 | Sub Area D | 7,265 | ☐ | ☐ | ☐ | ☒ | ☐ | ☐ | ☐ | C-10 |
| T3 | Sub Area C & D) | 28,011 | ☐ | ☐ | ☐ | ☐ | ☐ | ☒ | ☐ | C-10 |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |

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

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |

Copy and Paste table here for additional BMPs

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

| **Structural BMP ID #** T1 | **Permit # and Sheet #** PDS2020-LDGRMJ-30298 - Grading Plan Sheet |
|---|---|

**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 | Randy Decker<br>Joseph C. Truxaw & Associates, Inc.<br>(714) 935-2065 |

**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): | Chick-fil-A | | |

**Discussion** (As needed; Continue on subsequent pages as necessary)
Maintenance of Structural BMPs shall be described in the Lease Agreement

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

| **Structural BMP ID #** T2 | **Permit # and Sheet #** PDS2020-LDGRMJ-30298 - Grading Plan Sheet |
|---|---|

**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 | Randy Decker<br>Joseph C. Truxaw & Associates, Inc.<br>(714) 935-2065 |

**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): | Chick-fil-A | | |

**Discussion** (As needed; Continue on subsequent pages as necessary)
Maintenance of Structural BMPs shall be described in the Lease Agreement

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

| **Structural BMP ID #** T3 | **Permit # and Sheet #** PDS2020-LDGRMJ-30298 - Grading Plan Sheet |
|---|---|

**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 | Randy Decker<br>Joseph C. Truxaw & Associates, Inc.<br>(714) 935-2065 |

**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): | Chick-fil-A | | |

**Discussion** (As needed; Continue on subsequent pages as necessary)
Maintenance of Structural BMPs shall be described in the Lease Agreement

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

## 7.4 Storm Water Pollutant Control Worksheet Calculations

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

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

## 7.5 Identification and Narrative of Receiving Water and Pollutants of Concern

- Complete this sub-attachment *only if flow-thru treatment BMPs are implemented onsite* in lieu of retention or biofiltration BMPs. Unless excepted because of a Prior Lawful Approval[4], PDPs must also participate in an alternative compliance program[5].

**A. General Description**

Describe flow path of storm water from the project site discharge location(s), through urban storm conveyance systems as applicable, to receiving creeks, rivers, and lagoons as applicable, and ultimate discharge to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable).

*The project will collect runoff from both offsite and on-site treated areas and will discharge the runoff into the municipal storm drain system. Once discharged the municipal storm drain directs runoff into the underground box culvert along HWY 125 (aka. Spring Creek) The box culvert discharges just south of the HWY 125 and Jamacha Rd. intersection where the creek becomes a naturally lined creek. Because the creek becomes naturally lined from this point, hydromodification is necessary for this project. Spring connects to Sweetwater River just south of Sweetwater Reservoir, and the storm water will be conveyed to the San Diego Bay by Sweetwater River.*

**B. Water Body Impairments and Priorities**

List any 303(d) impaired water bodies[6] within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs and/or Highest Priority Pollutants from the WQIP for the impaired water bodies:

| 303(d) Impaired Water Body | Pollutant(s)/Stressor(s) | TMDLs / WQIP Highest Priority Pollutant |
|---|---|---|
| Sweetwater River, Lower | Enterococcu, Fecal Coliform, Phosphorus, Selenium, Sulfates, Total Dissolved Solids, Total Nitrogen, Toxicity | |
| | | |
| | | |

**C. Identification of Project Site Pollutants**

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

| Pollutant | Not Applicable to the Project Site | Anticipated from the Project Site | Also a Receiving Water Pollutant of Concern |
|---|---|---|---|
| Sediment | ☒ | ☐ | ☐ |
| Nutrients | ☒ | ☐ | ☐ |
| Heavy Metals | ☒ | ☐ | ☐ |
| Organic Compounds | ☒ | ☐ | ☐ |

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

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

[6] The current list of Section 303(d) impaired water bodies can be found at: https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml

| | | | |
|---|---|---|---|
| Trash & Debris | ☐ | ☒ | ☐ |
| Oxygen Demanding Substances | ☐ | ☒ | ☐ |
| Oil & Grease | ☐ | ☒ | ☐ |
| Bacteria & Viruses | ☐ | ☒ | ☐ |
| Pesticides | ☐ | ☒ | ☐ |

# 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 | SUBAREA C | SUBAREA D | | | | | | | | | unitless |
| | 2 | 85th Percentile 24-hr Storm Depth | 0.54 | 0.54 | | | | | | | | | inches |
| | 3 | Impervious Surfaces Not Directed to Dispersion Area (C=0.90) | 16,096 | 6,375 | | | | | | | | | sq-ft |
| | 4 | Semi-Pervious Surfaces Not Serving as Dispersion Area (C=0.30) | 0 | 0 | | | | | | | | | sq-ft |
| | 5 | Engineered Pervious Surfaces Not Serving as Dispersion Area (C=0.10) | 0 | 0 | | | | | | | | | sq-ft |
| | 6 | Natural Type A Soil Not Serving as Dispersion Area (C=0.10) | 0 | 0 | | | | | | | | | sq-ft |
| | 7 | Natural Type B Soil Not Serving as Dispersion Area (C=0.14) | 0 | 0 | | | | | | | | | sq-ft |
| | 8 | Natural Type C Soil Not Serving as Dispersion Area (C=0.23) | 0 | 0 | | | | | | | | | sq-ft |
| | 9 | Natural Type D Soil Not Serving as Dispersion Area (C=0.30) | 4,650 | 890 | | | | | | | | | 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 | 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 | 20,746 | 7,265 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | sq-ft |
| | 23 | Initial Runoff Factor for Standard Drainage Areas | 0.77 | 0.83 | 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 | 0.77 | 0.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | unitless |
| | 26 | Initial Design Capture Volume | 719 | 271 | 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 | 0.77 | 0.83 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | unitless |
| | 32 | Design Capture Volume After Dispersion Techniques | 719 | 271 | 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 | 0.77 | 0.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | unitless |
| | 36 | Final Effective Tributary Area | 15,974 | 6,030 | 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 | 719 | 271 | 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 | SUBAREA C | SUBAREA D | - | - | - | - | - | - | - | - | unitless |
| | 2 | 85th Percentile Rainfall Depth | 0.54 | 0.54 | - | - | - | - | - | - | - | - | inches |
| | 3 | Predominant NRCS Soil Type Within BMP Location | D | D | D | | | | | | | | unitless |
| | 4 | Is proposed BMP location Restricted or Unrestricted for Infiltration Activities? | Unrestricted | Unrestricted | Unrestricted | | | | | | | | unitless |
| | 5 | Nature of Restriction | n/a | n/a | n/a | | | | | | | | unitless |
| | 6 | Do Minimum Retention Requirements Apply to this Project? | Yes | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | Yes | yes/no |
| | 7 | Are Habitable Structures Greater than 9 Stories Proposed? | No | No | No | | | | | | | | yes/no |
| Advanced Analysis | 8 | Has Geotechnical Engineer Performed an Infiltration Analysis? | Yes | Yes | Yes | | | | | | | | yes/no |
| | 9 | Design Infiltration Rate Recommended by Geotechnical Engineer | 0.000 | 0.000 | 0.000 | | | | | | | | in/hr |
| Result | 10 | Design Infiltration Rate Used To Determine Retention Requirements | 0.000 | 0.000 | 0.000 | - | - | - | - | - | - | - | in/hr |
| | 11 | Percent of Average Annual Runoff that Must be Retained within DMA | 4.5% | 4.5% | 1.5% | - | - | - | - | - | - | - | percentage |
| | 12 | Fraction of DCV Requiring Retention | 0.02 | 0.02 | 0.01 | - | - | - | - | - | - | - | ratio |
| | 13 | Required Retention Volume | 14 | 5 | 0 | - | - | - | - | - | - | - | 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 | SUBAREA C | SUBAREA D | - | - | - | - | - | - | - | - | sq-ft |
| | 2 | Design Infiltration Rate Recommended | 0.000 | 0.000 | - | - | - | - | - | - | - | - | in/hr |
| | 3 | Design Capture Volume Tributary to BMP | 719 | 271 | - | - | - | - | - | - | - | - | 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 | Standard | | | | | | | | | unitless |
| | 8 | Provided Surface Area | 562 | 228 | | | | | | | | | sq-ft |
| | 9 | Provided Surface Ponding Depth | 6 | 6 | | | | | | | | | inches |
| | 10 | Provided Soil Media Thickness | 18 | 18 | | | | | | | | | inches |
| | 11 | Provided Gravel Thickness (Total Thickness) | 12 | 12 | | | | | | | | | inches |
| | 12 | Underdrain Offset | 3 | 3 | | | | | | | | | inches |
| | 13 | Diameter of Underdrain or Hydromod Orifice (Select Smallest) | 6.00 | 6.00 | | | | | | | | | inches |
| | 14 | Specialized Soil Media Filtration Rate | | | | | | | | | | | in/hr |
| | 15 | Specialized Soil Media Pore Space for Retention | | | | | | | | | | | unitless |
| | 16 | Specialized Soil Media Pore Space for Biofiltration | | | | | | | | | | | unitless |
| | 17 | Specialized Gravel Media Pore Space | | | | | | | | | | | unitless |
| Retention Calculations | 18 | Volume Infiltrated Over 6 Hour Storm | 0 | 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 | 0.05 | 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 | 2.10 | 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) | 0.14 | 0.15 | 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 | 0.16 | 0.17 | 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) | 116 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 28 | Design Capture Volume Remaining for Biofiltration | 603 | 225 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| Biofiltration Calculations | 29 | Max Hydromod Flow Rate through Underdrain | 1.4948 | 1.4948 | 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 | 114.91 | 283.23 | 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 | 5.00 | 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 | 5.00 | 5.00 | 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 | 30.00 | 30.00 | 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 | 0.20 | 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 | 13.20 | 13.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | inches |
| | 38 | Drawdown Time for Surface Ponding | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | hours |
| | 39 | Drawdown Time for Effective Biofiltration Depth | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | hours |
| | 40 | Total Depth Biofiltered | 43.20 | 43.20 | 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 | 905 | 337 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 42 | Option 1 - Provided Biofiltration Volume | 905 | 337 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 43 | Option 2 - Store 0.75 DCV: Target Volume | 452 | 169 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 44 | Option 2 - Provided Storage Volume | 452 | 169 | 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 |

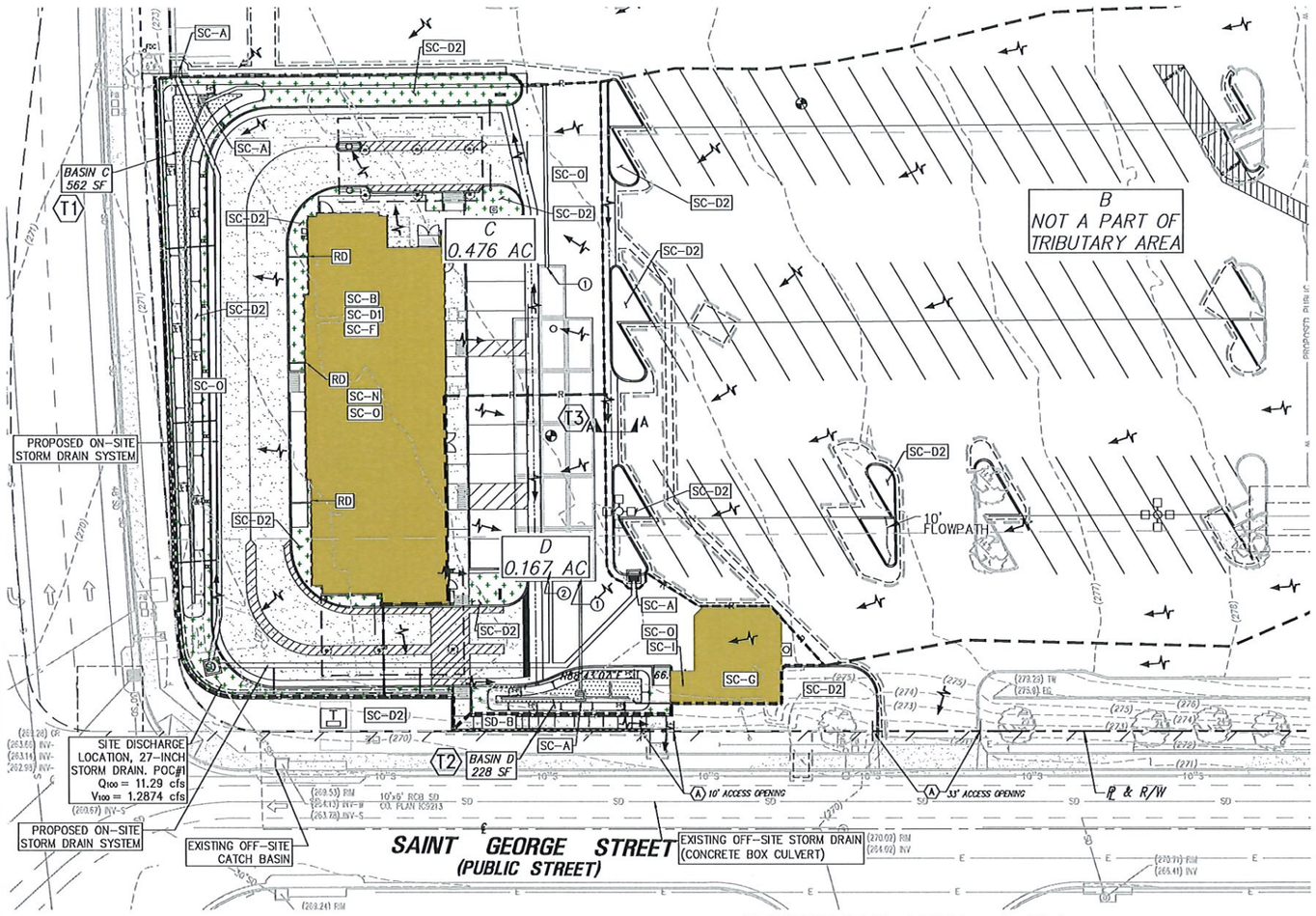
No Warning Messages

## 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]<br>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)<br>Complete the table provided in Sub-attachment 8.2. |
| **8.3: Geomorphic Assessment of Receiving Channels**<br>1. Has a geomorphic assessment been performed for the receiving channel(s)?<br>☒ No, the low flow threshold is 0.1Q2 (default low flow threshold) |
| ☐ Yes (provide the information below):<br>Low flow threshold: ☐ 0.1Q2 ☐ 0.3Q2 ☐ 0.5Q2 |
| Title:<br><br>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)<br>☒ 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.

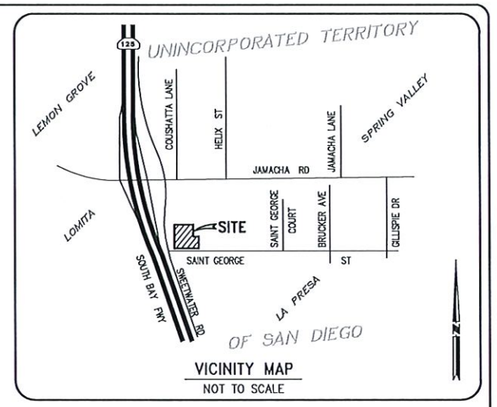



## LEGEND

- LIMITS OF TOTAL TRIBUTARY AREA
- LIMITS OF DISTURBED AREA (DRAINAGE MANAGEMENT AREA)
- LIMITS OF DMA SUB-AREA
- SOIL BORING

### STRUCTURAL BMPs FOR POLLUTANT CONTROL MANAGEMENT

- T1 BIO-FILTRATION BASIN-C (LINED)
- T2 BIO-FILTRATION BASIN-D (LINED)
- T3 STORM CAPTURE VAULTS




VICINITY MAP
NOT TO SCALE

### LAND COVER

- IMPERVIOUS – AC PAVEMENT
- IMPERVIOUS – CONCRETE
- IMPERVIOUS – BUILDING/TRASH ENCLOSURE
- PERVIOUS – LANDSCAPING

### STORM WATER QUALITY MANAGEMENT PLAN INFORMATION

1. HYDROLOGIC SOIL GROUP 'D'
2. NO GROUNDWATER ENCOUNTERED DURING BORINGS, MAX BORING DEPTH=51.5'
3. NO NATURAL HYDROLOGIC FEATURES EXIST WITHIN THIS PROJECT SITE
4. NO CRITICAL COARSE SEDIMENT YIELD AREAS EXIST DOWNSTREAM OF THIS PROJECT SITE

**NOTICE TO CONTRACTOR**

THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ALL UTILITIES, PIPES, AND/OR STRUCTURES AND SHALL BE RESPONSIBLE FOR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

**IMPORTANT NOTICE**

Section 4216 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert CALL 811 Two working days before you dig.

### VECTOR CONTROL MANAGEMENT

1. FLAP VALVE
2. MESH SCREEN

### LID FEATURES

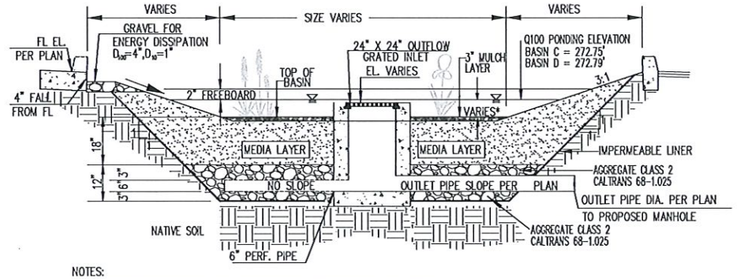
SOURCE CONTROL BMPS

- SC-A ONSITE STORM DRAIN INLETS – PREVENT ILLICIT DISCHARGES TO THE MS4
- SC-B INTERIOR FLOOR DRAINS
- SC-D1 FUTURE INDOOR AND STRUCTURAL PEST CONTROL
- SC-D2 LANDSCAPE/OUTDOOR PESTICIDE USE
- SC-F FOOD SERVICE
- SC-G REFUSE AREAS
- SC-I OUTDOOR STORAGE OF EQUIPMENT AND MATERIALS
- SC-N FIRE SPRINKLER TEST WATER
- SC-O MISCELLANEOUS DRAIN WATER
- SC-P PLAZAS, SIDEWALKS & PARKING LOTS

DISTURBED AREA = 0.824 acres

TOTAL TRIBUTARY AREA TO BASINS=0.643 acres

| DRAINAGE MANAGEMENT AREA | | | | | | | |
|---|---|---|---|---|---|---|---|
| SUBAREA | SURFACE TYPE | AREA AC | PERVIOUS | | IMPERVIOUS | | PROPOSED BMP |
| C | AC/CONCRETE | 0.477 | | | 0.370 | 77.6% | BIO-FILTRATION (T1) BASIN-C |
| | LANDSCAPE | | 0.107 | 22.4% | | | |
| D | ROOF – PAVEMENT | 0.166 | | | 0.146 | 88.0% | BIO-FILTRATION (T2) BASIN-D |
| | LANDSCAPE | | 0.020 | 12.0% | | | |




NOTES:
1.– MEDIA SPECIFICATIONS TO BE APPROVED BY THE COUNTY OF SAN DIEGO
* PONDING SHALL BE 6" IN BASIN C AND 4" IN BASIN D

BIO-FILTRATION BASIN (TYPICAL)
NOT TO SCALE

**THIS PLAN IS:**
***PRELIMINARY***
**(NOT FOR CONSTRUCTION)**

| NO. | REVISIONS | DATE |
|---|---|---|
| | | |


Prepared by:
Joseph C. Truxaw and Associates, Inc.
Civil Engineers and Land Surveyors
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868 (714) 935-0265 Truxaw.com


# HMP EXHIBIT

CHICK-FIL-A #4466
AT THE NEC OF SWEETWATER RD. AND ST. GEORGE ST.
IN UNINCORPORATED AREA OF SAN DIEGO COUNTY, STATE OF CA

| | |
|---|---|
| DATE | 03-10-21 |
| DRAWN BY | PJS |
| CHECKED BY | RD/SMH |
| JOB NO. | CFA19020 |
| SHEET NO. | 1 |
| | OF 1 SHEETS |

## 8.1 Flow Control Facility Design

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

# SDHM 3.1

# PROJECT REPORT

## General Model Information

Project Name: CFA19020
Site Name:
Site Address:
City:
Report Date: 3/11/2021
Gage: BONITA
Data Start: 10/01/1971
Data End: 09/30/2004
Timestep: Hourly
Precip Scale: 1.000
Version Date: 2020/04/07

### POC Thresholds

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

DRAFT

# *Landuse Basin Data*
## *Predeveloped Land Use*

### Basin 1

| | |
|---|---|
| Bypass: | No |
| GroundWater: | No |
| Pervious Land Use | acre |
| C,NatVeg,Flat | 0.643 |
| Pervious Total | 0.643 |
| Impervious Land Use | acre |
| Impervious Total | 0 |
| Basin Total | 0.643 |

Element Flows To:

| Surface | Interflow | Groundwater |
|---|---|---|

DRAFT

## *Mitigated Land Use*

### SUBAREA C

| | |
|---|---|
| Bypass: | No |
| GroundWater: | No |
| Pervious Land Use | acre |
| C,Urban,Flat | 0.107 |
| Pervious Total | 0.107 |
| Impervious Land Use | acre |
| IMPERVIOUS-FLAT | 0.37 |
| Impervious Total | 0.37 |
| Basin Total | 0.477 |

Element Flows To:

| Surface | Interflow | Groundwater |
|---|---|---|
| Surface BASIN C | Surface BASIN C | |

DRAFT

## SUBAREA D

| | |
|---|---|
| Bypass: | No |
| GroundWater: | No |

| Pervious Land Use | acre |
|---|---|
| C,Urban,Flat | 0.02 |
| Pervious Total | 0.02 |

| Impervious Land Use | acre |
|---|---|
| IMPERVIOUS-FLAT | 0.146 |
| Impervious Total | 0.146 |
| Basin Total | 0.166 |

Element Flows To:

| Surface | Interflow | Groundwater |
|---|---|---|
| Surface BASIN D | Surface BASIN D | |

DRAFT

DRAFT

## *Mitigated Routing*

### BASIN C

| | |
|---|---|
| Bottom Length: | 20.00 ft. |
| Bottom Width: | 28.10 ft. |
| Material thickness of first layer: | 0.25 |
| Material type for first layer: | Mulch |
| Material thickness of second layer: | 1.5 |
| Material type for second layer: | ESM |
| Material thickness of third layer: | 1 |
| Material type for third layer: | GRAVEL |
| Underdrain used | |
| Underdrain Diameter (feet): | 0.5 |
| Orifice Diameter (in.): | 6 |
| Offset (in.): | 3 |
| Flow Through Underdrain (ac-ft.): | 6.61 |
| Total Outflow (ac-ft.): | 6.624 |
| Percent Through Underdrain: | 99.79 |
| Discharge Structure | |
| Riser Height: | 0.5 ft. |
| Riser Diameter: | 27.1 in. |
| Element Flows To: | |
| Outlet 1 | Outlet 2 |
| Storm Capture 3 | |

DRAFT

Biofilter Hydraulic Table

| Stage(feet) | Area(ac.) | Volume(ac-ft.) | Discharge(cfs) | Infilt(cfs) |
|---|---|---|---|---|
| 0.0000 | 0.0374 | 0.0000 | 0.0000 | 0.0000 |
| 0.0376 | 0.0373 | 0.0001 | 0.0000 | 0.0000 |
| 0.0752 | 0.0369 | 0.0003 | 0.0000 | 0.0000 |
| 0.1127 | 0.0365 | 0.0004 | 0.0000 | 0.0000 |
| 0.1503 | 0.0361 | 0.0006 | 0.0000 | 0.0000 |
| 0.1879 | 0.0356 | 0.0008 | 0.0000 | 0.0000 |
| 0.2255 | 0.0352 | 0.0009 | 0.0000 | 0.0000 |
| 0.2631 | 0.0348 | 0.0011 | 0.0000 | 0.0000 |
| 0.3007 | 0.0344 | 0.0013 | 0.0000 | 0.0000 |
| 0.3382 | 0.0340 | 0.0014 | 0.0000 | 0.0000 |
| 0.3758 | 0.0336 | 0.0016 | 0.0000 | 0.0000 |
| 0.4134 | 0.0332 | 0.0018 | 0.0000 | 0.0000 |
| 0.4510 | 0.0328 | 0.0020 | 0.0000 | 0.0000 |
| 0.4886 | 0.0324 | 0.0021 | 0.0000 | 0.0000 |
| 0.5262 | 0.0320 | 0.0023 | 0.0000 | 0.0000 |
| 0.5637 | 0.0317 | 0.0025 | 0.0000 | 0.0000 |
| 0.6013 | 0.0313 | 0.0027 | 0.0000 | 0.0000 |
| 0.6389 | 0.0309 | 0.0029 | 0.0000 | 0.0000 |
| 0.6765 | 0.0305 | 0.0031 | 0.0000 | 0.0000 |
| 0.7141 | 0.0301 | 0.0033 | 0.0000 | 0.0000 |
| 0.7516 | 0.0298 | 0.0035 | 0.0000 | 0.0000 |
| 0.7892 | 0.0294 | 0.0037 | 0.0000 | 0.0000 |
| 0.8268 | 0.0290 | 0.0039 | 0.0000 | 0.0000 |
| 0.8644 | 0.0286 | 0.0041 | 0.0000 | 0.0000 |
| 0.9020 | 0.0283 | 0.0044 | 0.0000 | 0.0000 |
| 0.9396 | 0.0279 | 0.0046 | 0.0000 | 0.0000 |
| 0.9771 | 0.0275 | 0.0048 | 0.0000 | 0.0000 |
| 1.0147 | 0.0272 | 0.0050 | 0.0000 | 0.0000 |
| 1.0523 | 0.0268 | 0.0053 | 0.0000 | 0.0000 |

| | | | | |
|---|---|---|---|---|
| 1.0899 | 0.0265 | 0.0055 | 0.0000 | 0.0000 |
| 1.1275 | 0.0261 | 0.0057 | 0.0000 | 0.0000 |
| 1.1651 | 0.0258 | 0.0060 | 0.0000 | 0.0000 |
| 1.2026 | 0.0254 | 0.0062 | 0.0000 | 0.0000 |
| 1.2402 | 0.0251 | 0.0065 | 0.0000 | 0.0000 |
| 1.2778 | 0.0247 | 0.0067 | 0.0000 | 0.0000 |
| 1.3154 | 0.0244 | 0.0070 | 0.0000 | 0.0000 |
| 1.3530 | 0.0240 | 0.0073 | 0.0000 | 0.0000 |
| 1.3905 | 0.0237 | 0.0075 | 0.0000 | 0.0000 |
| 1.4281 | 0.0234 | 0.0078 | 0.0000 | 0.0000 |
| 1.4657 | 0.0230 | 0.0081 | 0.0000 | 0.0000 |
| 1.5033 | 0.0227 | 0.0083 | 0.0000 | 0.0000 |
| 1.5409 | 0.0224 | 0.0086 | 0.0000 | 0.0000 |
| 1.5785 | 0.0221 | 0.0089 | 0.0000 | 0.0000 |
| 1.6160 | 0.0217 | 0.0092 | 0.0000 | 0.0000 |
| 1.6536 | 0.0214 | 0.0095 | 0.0000 | 0.0000 |
| 1.6912 | 0.0211 | 0.0098 | 0.0000 | 0.0000 |
| 1.7288 | 0.0208 | 0.0101 | 0.0000 | 0.0000 |
| 1.7664 | 0.0205 | 0.0105 | 0.0000 | 0.0000 |
| 1.8040 | 0.0202 | 0.0109 | 0.0000 | 0.0000 |
| 1.8415 | 0.0199 | 0.0114 | 0.0000 | 0.0000 |
| 1.8791 | 0.0196 | 0.0118 | 0.0000 | 0.0000 |
| 1.9167 | 0.0192 | 0.0123 | 0.0000 | 0.0000 |
| 1.9543 | 0.0189 | 0.0127 | 0.0000 | 0.0000 |
| 1.9919 | 0.0186 | 0.0132 | 0.0000 | 0.0000 |
| 2.0295 | 0.0183 | 0.0136 | 0.0000 | 0.0000 |
| 2.0670 | 0.0181 | 0.0141 | 0.0000 | 0.0000 |
| 2.1046 | 0.0178 | 0.0146 | 0.0000 | 0.0000 |
| 2.1422 | 0.0175 | 0.0150 | 0.0000 | 0.0000 |
| 2.1798 | 0.0172 | 0.0155 | 0.0000 | 0.0000 |
| 2.2174 | 0.0169 | 0.0160 | 0.0000 | 0.0000 |
| 2.2549 | 0.0166 | 0.0165 | 0.0000 | 0.0000 |
| 2.2925 | 0.0163 | 0.0170 | 0.0000 | 0.0000 |
| 2.3301 | 0.0161 | 0.0175 | 0.0000 | 0.0000 |
| 2.3677 | 0.0158 | 0.0180 | 0.0000 | 0.0000 |
| 2.4053 | 0.0155 | 0.0186 | 0.0000 | 0.0000 |
| 2.4429 | 0.0152 | 0.0191 | 0.0000 | 0.0000 |
| 2.4804 | 0.0150 | 0.0196 | 0.0000 | 0.0000 |
| 2.5180 | 0.0147 | 0.0202 | 0.0000 | 0.0000 |
| 2.5556 | 0.0144 | 0.0207 | 0.0000 | 0.0000 |
| 2.5932 | 0.0142 | 0.0213 | 0.0000 | 0.0000 |
| 2.6308 | 0.0139 | 0.0218 | 0.0000 | 0.0000 |
| 2.6684 | 0.0137 | 0.0224 | 0.0000 | 0.0000 |
| 2.7059 | 0.0134 | 0.0230 | 0.0000 | 0.0000 |
| 2.7435 | 0.0132 | 0.0235 | 0.0000 | 0.0000 |
| 2.7500 | 0.0129 | 0.0236 | 0.0000 | 0.0000 |

DRAFT

Biofilter Hydraulic Table

| Stage(feet) | Area(ac.) | Volume(ac-ft.) | Discharge(cfs) | To Amended(cfs) | Infilt(cfs) |
|---|---|---|---|---|---|
| 2.7500 | 0.0374 | 0.0236 | 0.0000 | 0.0650 | 0.0000 |
| 2.7876 | 0.0378 | 0.0250 | 0.0000 | 0.0650 | 0.0000 |
| 2.8252 | 0.0382 | 0.0265 | 0.0000 | 0.0791 | 0.0000 |
| 2.8627 | 0.0386 | 0.0279 | 0.0000 | 0.0808 | 0.0000 |
| 2.9003 | 0.0391 | 0.0294 | 0.0000 | 0.0824 | 0.0000 |
| 2.9379 | 0.0395 | 0.0309 | 0.0000 | 0.0840 | 0.0000 |
| 2.9755 | 0.0399 | 0.0323 | 0.0000 | 0.0857 | 0.0000 |
| 3.0131 | 0.0404 | 0.0339 | 0.0000 | 0.0873 | 0.0000 |
| 3.0507 | 0.0408 | 0.0354 | 0.0000 | 0.0889 | 0.0000 |

| | | | | | |
|---|---|---|---|---|---|
| 3.0882 | 0.0412 | 0.0369 | 0.0000 | 0.0906 | 0.0000 |
| 3.1258 | 0.0417 | 0.0385 | 0.0000 | 0.0922 | 0.0000 |
| 3.1634 | 0.0421 | 0.0401 | 0.0000 | 0.0938 | 0.0000 |
| 3.2010 | 0.0426 | 0.0416 | 0.0000 | 0.0954 | 0.0000 |
| 3.2386 | 0.0430 | 0.0433 | 0.0000 | 0.0971 | 0.0000 |
| 3.2762 | 0.0435 | 0.0449 | 0.0000 | 0.0987 | 0.0000 |
| 3.3137 | 0.0439 | 0.0465 | 0.0000 | 0.1003 | 0.0000 |
| 3.3513 | 0.0444 | 0.0482 | 0.0000 | 0.1020 | 0.0000 |
| 3.3889 | 0.0448 | 0.0499 | 0.0000 | 0.1036 | 0.0000 |
| 3.4200 | 0.0452 | 0.0513 | 0.0000 | 0.1049 | 0.0000 |

DRAFT

## Surface BASIN C

Element Flows To:

| Outlet 1 | Outlet 2 |
| --- | --- |
| Storm Capture 3 | BASIN C |

DRAFT

## BASIN D

| | |
|---|---|
| Bottom Length: | 20.00 ft. |
| Bottom Width: | 11.40 ft. |
| Material thickness of first layer: | 0.25 |
| Material type for first layer: | Mulch |
| Material thickness of second layer: | 1.5 |
| Material type for second layer: | ESM |
| Material thickness of third layer: | 1 |
| Material type for third layer: | GRAVEL |
| Underdrain used | |
| Underdrain Diameter (feet): | 0.5 |
| Orifice Diameter (in.): | 6 |
| Offset (in.): | 3 |
| Flow Through Underdrain (ac-ft.): | 2.529 |
| Total Outflow (ac-ft.): | 2.529 |
| Percent Through Underdrain: | 99.99 |
| Discharge Structure | |
| Riser Height: | 0.5 ft. |
| Riser Diameter: | 27.1 in. |
| Element Flows To: | |
| Outlet 1 | Outlet 2 |
| Storm Capture 3 | |

DRAFT

Biofilter Hydraulic Table

| Stage(feet) | Area(ac.) | Volume(ac-ft.) | Discharge(cfs) | Infilt(cfs) |
|---|---|---|---|---|
| 0.0000 | 0.0234 | 0.0000 | 0.0000 | 0.0000 |
| 0.0376 | 0.0233 | 0.0001 | 0.0000 | 0.0000 |
| 0.0752 | 0.0230 | 0.0001 | 0.0000 | 0.0000 |
| 0.1127 | 0.0227 | 0.0002 | 0.0000 | 0.0000 |
| 0.1503 | 0.0223 | 0.0003 | 0.0000 | 0.0000 |
| 0.1879 | 0.0220 | 0.0003 | 0.0000 | 0.0000 |
| 0.2255 | 0.0217 | 0.0004 | 0.0000 | 0.0000 |
| 0.2631 | 0.0214 | 0.0005 | 0.0000 | 0.0000 |
| 0.3007 | 0.0210 | 0.0005 | 0.0000 | 0.0000 |
| 0.3382 | 0.0207 | 0.0006 | 0.0000 | 0.0000 |
| 0.3758 | 0.0204 | 0.0007 | 0.0000 | 0.0000 |
| 0.4134 | 0.0201 | 0.0008 | 0.0000 | 0.0000 |
| 0.4510 | 0.0198 | 0.0008 | 0.0000 | 0.0000 |
| 0.4886 | 0.0195 | 0.0009 | 0.0000 | 0.0000 |
| 0.5262 | 0.0192 | 0.0010 | 0.0000 | 0.0000 |
| 0.5637 | 0.0189 | 0.0011 | 0.0000 | 0.0000 |
| 0.6013 | 0.0186 | 0.0012 | 0.0000 | 0.0000 |
| 0.6389 | 0.0183 | 0.0013 | 0.0000 | 0.0000 |
| 0.6765 | 0.0180 | 0.0014 | 0.0000 | 0.0000 |
| 0.7141 | 0.0177 | 0.0015 | 0.0000 | 0.0000 |
| 0.7516 | 0.0174 | 0.0016 | 0.0000 | 0.0000 |
| 0.7892 | 0.0171 | 0.0017 | 0.0000 | 0.0000 |
| 0.8268 | 0.0168 | 0.0018 | 0.0000 | 0.0000 |
| 0.8644 | 0.0166 | 0.0019 | 0.0000 | 0.0000 |
| 0.9020 | 0.0163 | 0.0020 | 0.0000 | 0.0000 |
| 0.9396 | 0.0160 | 0.0021 | 0.0000 | 0.0000 |
| 0.9771 | 0.0157 | 0.0022 | 0.0000 | 0.0000 |
| 1.0147 | 0.0155 | 0.0023 | 0.0000 | 0.0000 |
| 1.0523 | 0.0152 | 0.0025 | 0.0000 | 0.0000 |
| 1.0899 | 0.0149 | 0.0026 | 0.0000 | 0.0000 |
| 1.1275 | 0.0146 | 0.0027 | 0.0000 | 0.0000 |

| | | | | |
|---|---|---|---|---|
| 1.1651 | 0.0144 | 0.0028 | 0.0000 | 0.0000 |
| 1.2026 | 0.0141 | 0.0030 | 0.0000 | 0.0000 |
| 1.2402 | 0.0139 | 0.0031 | 0.0000 | 0.0000 |
| 1.2778 | 0.0136 | 0.0032 | 0.0000 | 0.0000 |
| 1.3154 | 0.0133 | 0.0034 | 0.0000 | 0.0000 |
| 1.3530 | 0.0131 | 0.0035 | 0.0000 | 0.0000 |
| 1.3905 | 0.0128 | 0.0037 | 0.0000 | 0.0000 |
| 1.4281 | 0.0126 | 0.0038 | 0.0000 | 0.0000 |
| 1.4657 | 0.0124 | 0.0040 | 0.0000 | 0.0000 |
| 1.5033 | 0.0121 | 0.0041 | 0.0000 | 0.0000 |
| 1.5409 | 0.0119 | 0.0043 | 0.0000 | 0.0000 |
| 1.5785 | 0.0116 | 0.0044 | 0.0000 | 0.0000 |
| 1.6160 | 0.0114 | 0.0046 | 0.0000 | 0.0000 |
| 1.6536 | 0.0112 | 0.0047 | 0.0000 | 0.0000 |
| 1.6912 | 0.0109 | 0.0049 | 0.0000 | 0.0000 |
| 1.7288 | 0.0107 | 0.0051 | 0.0000 | 0.0000 |
| 1.7664 | 0.0105 | 0.0053 | 0.0000 | 0.0000 |
| 1.8040 | 0.0102 | 0.0056 | 0.0000 | 0.0000 |
| 1.8415 | 0.0100 | 0.0058 | 0.0000 | 0.0000 |
| 1.8791 | 0.0098 | 0.0061 | 0.0000 | 0.0000 |
| 1.9167 | 0.0096 | 0.0063 | 0.0000 | 0.0000 |
| 1.9543 | 0.0094 | 0.0066 | 0.0000 | 0.0000 |
| 1.9919 | 0.0092 | 0.0068 | 0.0000 | 0.0000 |
| 2.0295 | 0.0090 | 0.0071 | 0.0000 | 0.0000 |
| 2.0670 | 0.0087 | 0.0074 | 0.0000 | 0.0000 |
| 2.1046 | 0.0085 | 0.0077 | 0.0000 | 0.0000 |
| 2.1422 | 0.0083 | 0.0079 | 0.0000 | 0.0000 |
| 2.1798 | 0.0081 | 0.0082 | 0.0000 | 0.0000 |
| 2.2174 | 0.0079 | 0.0085 | 0.0000 | 0.0000 |
| 2.2549 | 0.0077 | 0.0088 | 0.0000 | 0.0000 |
| 2.2925 | 0.0075 | 0.0091 | 0.0000 | 0.0000 |
| 2.3301 | 0.0074 | 0.0094 | 0.0000 | 0.0000 |
| 2.3677 | 0.0072 | 0.0097 | 0.0000 | 0.0000 |
| 2.4053 | 0.0070 | 0.0101 | 0.0000 | 0.0000 |
| 2.4429 | 0.0068 | 0.0104 | 0.0000 | 0.0000 |
| 2.4804 | 0.0066 | 0.0107 | 0.0000 | 0.0000 |
| 2.5180 | 0.0064 | 0.0110 | 0.0000 | 0.0000 |
| 2.5556 | 0.0063 | 0.0114 | 0.0000 | 0.0000 |
| 2.5932 | 0.0061 | 0.0117 | 0.0000 | 0.0000 |
| 2.6308 | 0.0059 | 0.0121 | 0.0000 | 0.0000 |
| 2.6684 | 0.0057 | 0.0124 | 0.0000 | 0.0000 |
| 2.7059 | 0.0056 | 0.0128 | 0.0000 | 0.0000 |
| 2.7435 | 0.0054 | 0.0131 | 0.0000 | 0.0000 |
| 2.7500 | 0.0052 | 0.0132 | 0.0000 | 0.0000 |

DRAFT

Biofilter Hydraulic Table

| Stage(feet) | Area(ac.) | Volume(ac-ft.) | Discharge(cfs) | To Amended(cfs) | Infilt(cfs) |
|---|---|---|---|---|---|
| 2.7500 | 0.0234 | 0.0132 | 0.0000 | 0.0264 | 0.0000 |
| 2.7876 | 0.0237 | 0.0141 | 0.0000 | 0.0264 | 0.0000 |
| 2.8252 | 0.0240 | 0.0150 | 0.0000 | 0.0321 | 0.0000 |
| 2.8627 | 0.0244 | 0.0159 | 0.0000 | 0.0328 | 0.0000 |
| 2.9003 | 0.0247 | 0.0168 | 0.0000 | 0.0334 | 0.0000 |
| 2.9379 | 0.0251 | 0.0177 | 0.0000 | 0.0341 | 0.0000 |
| 2.9755 | 0.0254 | 0.0187 | 0.0000 | 0.0348 | 0.0000 |
| 3.0131 | 0.0258 | 0.0197 | 0.0000 | 0.0354 | 0.0000 |
| 3.0507 | 0.0261 | 0.0206 | 0.0000 | 0.0361 | 0.0000 |
| 3.0882 | 0.0265 | 0.0216 | 0.0000 | 0.0367 | 0.0000 |
| 3.1258 | 0.0268 | 0.0226 | 0.0000 | 0.0374 | 0.0000 |

| | | | | | |
|---|---|---|---|---|---|
| 3.1634 | 0.0272 | 0.0236 | 0.0000 | 0.0381 | 0.0000 |
| 3.2010 | 0.0275 | 0.0247 | 0.0000 | 0.0387 | 0.0000 |
| 3.2386 | 0.0279 | 0.0257 | 0.0000 | 0.0394 | 0.0000 |
| 3.2762 | 0.0283 | 0.0268 | 0.0000 | 0.0400 | 0.0000 |
| 3.3137 | 0.0286 | 0.0278 | 0.0000 | 0.0407 | 0.0000 |
| 3.3513 | 0.0290 | 0.0289 | 0.0000 | 0.0414 | 0.0000 |
| 3.3889 | 0.0294 | 0.0300 | 0.0000 | 0.0420 | 0.0000 |
| 3.4200 | 0.0297 | 0.0309 | 0.0000 | 0.0426 | 0.0000 |

DRAFT

## Surface BASIN D

Element Flows To:

| Outlet 1 | Outlet 2 |
| --- | --- |
| Storm Capture 3 | BASIN D |

DRAFT

## Storm Capture 3

Dimensions
Depth: 4 ft.
Length: 240 ft.
Width: 7 ft.
Discharge Structure
Riser Height: 3.5 ft.
Riser Diameter: 10 in.
Orifice 1 Diameter: 0.3125 inElevation:0.01 ft.
Element Flows To:
Outlet 1 Outlet 2

SCapture Hydraulic Table

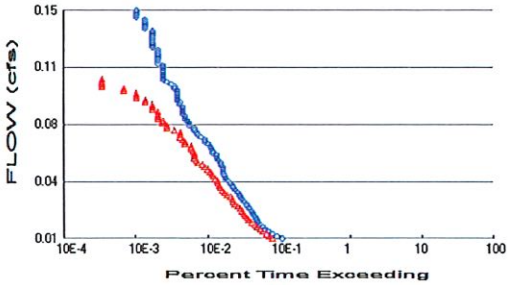
| Stage(feet) | Area(ac.) | Volume(ac-ft.) | Discharge(cfs) | Infilt(cfs) |
|---|---|---|---|---|
| 0.0000 | 0.038 | 0.000 | 0.000 | 0.000 |
| 0.0444 | 0.038 | 0.001 | 0.000 | 0.000 |
| 0.0889 | 0.038 | 0.003 | 0.000 | 0.000 |
| 0.1333 | 0.038 | 0.005 | 0.000 | 0.000 |
| 0.1778 | 0.038 | 0.006 | 0.001 | 0.000 |
| 0.2222 | 0.038 | 0.008 | 0.001 | 0.000 |
| 0.2667 | 0.038 | 0.010 | 0.001 | 0.000 |
| 0.3111 | 0.038 | 0.012 | 0.001 | 0.000 |
| 0.3556 | 0.038 | 0.013 | 0.001 | 0.000 |
| 0.4000 | 0.038 | 0.015 | 0.001 | 0.000 |
| 0.4444 | 0.038 | 0.017 | 0.001 | 0.000 |
| 0.4889 | 0.038 | 0.018 | 0.001 | 0.000 |
| 0.5333 | 0.038 | 0.020 | 0.001 | 0.000 |
| 0.5778 | 0.038 | 0.022 | 0.002 | 0.000 |
| 0.6222 | 0.038 | 0.024 | 0.002 | 0.000 |
| 0.6667 | 0.038 | 0.025 | 0.002 | 0.000 |
| 0.7111 | 0.038 | 0.027 | 0.002 | 0.000 |
| 0.7556 | 0.038 | 0.029 | 0.002 | 0.000 |
| 0.8000 | 0.038 | 0.030 | 0.002 | 0.000 |
| 0.8444 | 0.038 | 0.032 | 0.002 | 0.000 |
| 0.8889 | 0.038 | 0.034 | 0.002 | 0.000 |
| 0.9333 | 0.038 | 0.036 | 0.002 | 0.000 |
| 0.9778 | 0.038 | 0.037 | 0.002 | 0.000 |
| 1.0222 | 0.038 | 0.039 | 0.002 | 0.000 |
| 1.0667 | 0.038 | 0.041 | 0.002 | 0.000 |
| 1.1111 | 0.038 | 0.042 | 0.002 | 0.000 |
| 1.1556 | 0.038 | 0.044 | 0.002 | 0.000 |
| 1.2000 | 0.038 | 0.046 | 0.002 | 0.000 |
| 1.2444 | 0.038 | 0.048 | 0.002 | 0.000 |
| 1.2889 | 0.038 | 0.049 | 0.003 | 0.000 |
| 1.3333 | 0.038 | 0.051 | 0.003 | 0.000 |
| 1.3778 | 0.038 | 0.053 | 0.003 | 0.000 |
| 1.4222 | 0.038 | 0.054 | 0.003 | 0.000 |
| 1.4667 | 0.038 | 0.056 | 0.003 | 0.000 |
| 1.5111 | 0.038 | 0.058 | 0.003 | 0.000 |
| 1.5556 | 0.038 | 0.060 | 0.003 | 0.000 |
| 1.6000 | 0.038 | 0.061 | 0.003 | 0.000 |
| 1.6444 | 0.038 | 0.063 | 0.003 | 0.000 |
| 1.6889 | 0.038 | 0.065 | 0.003 | 0.000 |
| 1.7333 | 0.038 | 0.066 | 0.003 | 0.000 |
| 1.7778 | 0.038 | 0.068 | 0.003 | 0.000 |

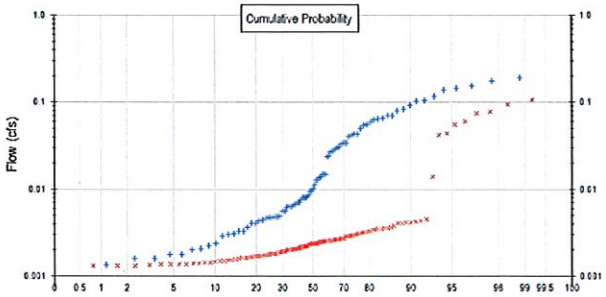
DRAFT

| | | | | |
|---|---|---|---|---|
| 1.8222 | 0.038 | 0.070 | 0.003 | 0.000 |
| 1.8667 | 0.038 | 0.072 | 0.003 | 0.000 |
| 1.9111 | 0.038 | 0.073 | 0.003 | 0.000 |
| 1.9556 | 0.038 | 0.075 | 0.003 | 0.000 |
| 2.0000 | 0.038 | 0.077 | 0.003 | 0.000 |
| 2.0444 | 0.038 | 0.078 | 0.003 | 0.000 |
| 2.0889 | 0.038 | 0.080 | 0.003 | 0.000 |
| 2.1333 | 0.038 | 0.082 | 0.003 | 0.000 |
| 2.1778 | 0.038 | 0.084 | 0.003 | 0.000 |
| 2.2222 | 0.038 | 0.085 | 0.003 | 0.000 |
| 2.2667 | 0.038 | 0.087 | 0.004 | 0.000 |
| 2.3111 | 0.038 | 0.089 | 0.004 | 0.000 |
| 2.3556 | 0.038 | 0.090 | 0.004 | 0.000 |
| 2.4000 | 0.038 | 0.092 | 0.004 | 0.000 |
| 2.4444 | 0.038 | 0.094 | 0.004 | 0.000 |
| 2.4889 | 0.038 | 0.096 | 0.004 | 0.000 |
| 2.5333 | 0.038 | 0.097 | 0.004 | 0.000 |
| 2.5778 | 0.038 | 0.099 | 0.004 | 0.000 |
| 2.6222 | 0.038 | 0.101 | 0.004 | 0.000 |
| 2.6667 | 0.038 | 0.102 | 0.004 | 0.000 |
| 2.7111 | 0.038 | 0.104 | 0.004 | 0.000 |
| 2.7556 | 0.038 | 0.106 | 0.004 | 0.000 |
| 2.8000 | 0.038 | 0.108 | 0.004 | 0.000 |
| 2.8444 | 0.038 | 0.109 | 0.004 | 0.000 |
| 2.8889 | 0.038 | 0.111 | 0.004 | 0.000 |
| 2.9333 | 0.038 | 0.113 | 0.004 | 0.000 |
| 2.9778 | 0.038 | 0.114 | 0.004 | 0.000 |
| 3.0222 | 0.038 | 0.116 | 0.004 | 0.000 |
| 3.0667 | 0.038 | 0.118 | 0.004 | 0.000 |
| 3.1111 | 0.038 | 0.120 | 0.004 | 0.000 |
| 3.1556 | 0.038 | 0.121 | 0.004 | 0.000 |
| 3.2000 | 0.038 | 0.123 | 0.004 | 0.000 |
| 3.2444 | 0.038 | 0.125 | 0.004 | 0.000 |
| 3.2889 | 0.038 | 0.126 | 0.004 | 0.000 |
| 3.3333 | 0.038 | 0.128 | 0.004 | 0.000 |
| 3.3778 | 0.038 | 0.130 | 0.004 | 0.000 |
| 3.4222 | 0.038 | 0.132 | 0.004 | 0.000 |
| 3.4667 | 0.038 | 0.133 | 0.004 | 0.000 |
| 3.5111 | 0.038 | 0.135 | 0.015 | 0.000 |
| 3.5556 | 0.038 | 0.137 | 0.120 | 0.000 |
| 3.6000 | 0.038 | 0.138 | 0.281 | 0.000 |
| 3.6444 | 0.038 | 0.140 | 0.476 | 0.000 |
| 3.6889 | 0.038 | 0.142 | 0.685 | 0.000 |
| 3.7333 | 0.038 | 0.144 | 0.890 | 0.000 |
| 3.7778 | 0.038 | 0.145 | 1.072 | 0.000 |
| 3.8222 | 0.038 | 0.147 | 1.217 | 0.000 |
| 3.8667 | 0.038 | 0.149 | 1.322 | 0.000 |
| 3.9111 | 0.038 | 0.150 | 1.394 | 0.000 |
| 3.9556 | 0.038 | 0.152 | 1.481 | 0.000 |
| 4.0000 | 0.038 | 0.154 | 1.551 | 0.000 |

DRAFT

# *Analysis Results*
## *POC 1*




+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 0.643
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 0.127
Total Impervious Area: 0.516

Flow Frequency Method: Cunnane

Flow Frequency Return Periods for Predeveloped. POC #1

| **Return Period** | **Flow(cfs)** |
|---|---|
| 2 year | 0.058756 |
| 5 year | 0.106505 |
| 10 year | 0.151104 |
| 25 year | 0.183348 |

Flow Frequency Return Periods for Mitigated. POC #1

| **Return Period** | **Flow(cfs)** |
|---|---|
| 2 year | 0.003776 |
| 5 year | 0.046393 |
| 10 year | 0.076237 |
| 25 year | 0.100913 |

DRAFT

## Duration Flows

The Facility PASSED

| Flow(cfs) | Predev | Mit | Percentage | Pass/Fail |
|---|---|---|---|---|
| 0.0059 | 320 | 231 | 72 | Pass |
| 0.0073 | 271 | 205 | 75 | Pass |
| 0.0088 | 230 | 191 | 83 | Pass |
| 0.0103 | 201 | 167 | 83 | Pass |
| 0.0117 | 181 | 153 | 84 | Pass |
| 0.0132 | 168 | 139 | 82 | Pass |
| 0.0147 | 156 | 129 | 82 | Pass |
| 0.0161 | 145 | 117 | 80 | Pass |
| 0.0176 | 140 | 106 | 75 | Pass |
| 0.0191 | 132 | 101 | 76 | Pass |
| 0.0205 | 125 | 95 | 76 | Pass |
| 0.0220 | 120 | 91 | 75 | Pass |
| 0.0235 | 116 | 86 | 74 | Pass |
| 0.0249 | 107 | 81 | 75 | Pass |
| 0.0264 | 103 | 75 | 72 | Pass |
| 0.0279 | 98 | 68 | 69 | Pass |
| 0.0293 | 92 | 66 | 71 | Pass |
| 0.0308 | 86 | 63 | 73 | Pass |
| 0.0323 | 82 | 60 | 73 | Pass |
| 0.0337 | 79 | 53 | 67 | Pass |
| 0.0352 | 74 | 49 | 66 | Pass |
| 0.0367 | 70 | 46 | 65 | Pass |
| 0.0381 | 65 | 43 | 66 | Pass |
| 0.0396 | 63 | 42 | 66 | Pass |
| 0.0411 | 60 | 40 | 66 | Pass |
| 0.0425 | 55 | 39 | 70 | Pass |
| 0.0440 | 51 | 37 | 72 | Pass |
| 0.0455 | 49 | 34 | 69 | Pass |
| 0.0470 | 48 | 33 | 68 | Pass |
| 0.0484 | 47 | 31 | 65 | Pass |
| 0.0499 | 47 | 29 | 61 | Pass |
| 0.0514 | 46 | 26 | 56 | Pass |
| 0.0528 | 44 | 24 | 54 | Pass |
| 0.0543 | 43 | 21 | 48 | Pass |
| 0.0558 | 40 | 20 | 50 | Pass |
| 0.0572 | 38 | 19 | 50 | Pass |
| 0.0587 | 38 | 19 | 50 | Pass |
| 0.0602 | 34 | 19 | 55 | Pass |
| 0.0616 | 34 | 18 | 52 | Pass |
| 0.0631 | 32 | 17 | 53 | Pass |
| 0.0646 | 31 | 17 | 54 | Pass |
| 0.0660 | 29 | 14 | 48 | Pass |
| 0.0675 | 26 | 14 | 53 | Pass |
| 0.0690 | 26 | 13 | 50 | Pass |
| 0.0704 | 23 | 12 | 52 | Pass |
| 0.0719 | 21 | 12 | 57 | Pass |
| 0.0734 | 20 | 12 | 60 | Pass |
| 0.0748 | 19 | 10 | 52 | Pass |
| 0.0763 | 19 | 8 | 42 | Pass |
| 0.0778 | 16 | 8 | 50 | Pass |
| 0.0792 | 16 | 7 | 43 | Pass |
| 0.0807 | 15 | 7 | 46 | Pass |
| 0.0822 | 14 | 6 | 42 | Pass |

DRAFT

| | | | | |
|---|---|---|---|---|
| 0.0836 | 14 | 6 | 42 | Pass |
| 0.0851 | 13 | 6 | 46 | Pass |
| 0.0866 | 13 | 6 | 46 | Pass |
| 0.0880 | 13 | 5 | 38 | Pass |
| 0.0895 | 13 | 5 | 38 | Pass |
| 0.0910 | 12 | 5 | 41 | Pass |
| 0.0924 | 12 | 4 | 33 | Pass |
| 0.0939 | 11 | 4 | 36 | Pass |
| 0.0954 | 11 | 3 | 27 | Pass |
| 0.0968 | 11 | 3 | 27 | Pass |
| 0.0983 | 11 | 3 | 27 | Pass |
| 0.0998 | 11 | 2 | 18 | Pass |
| 0.1012 | 10 | 2 | 20 | Pass |
| 0.1027 | 10 | 1 | 10 | Pass |
| 0.1042 | 9 | 1 | 11 | Pass |
| 0.1056 | 8 | 1 | 12 | Pass |
| 0.1071 | 7 | 1 | 14 | Pass |
| 0.1086 | 7 | 0 | 0 | Pass |
| 0.1100 | 7 | 0 | 0 | Pass |
| 0.1115 | 7 | 0 | 0 | Pass |
| 0.1130 | 7 | 0 | 0 | Pass |
| 0.1144 | 7 | 0 | 0 | Pass |
| 0.1159 | 7 | 0 | 0 | Pass |
| 0.1174 | 6 | 0 | 0 | Pass |
| 0.1188 | 6 | 0 | 0 | Pass |
| 0.1203 | 6 | 0 | 0 | Pass |
| 0.1218 | 6 | 0 | 0 | Pass |
| 0.1232 | 6 | 0 | 0 | Pass |
| 0.1247 | 6 | 0 | 0 | Pass |
| 0.1262 | 6 | 0 | 0 | Pass |
| 0.1276 | 5 | 0 | 0 | Pass |
| 0.1291 | 5 | 0 | 0 | Pass |
| 0.1306 | 5 | 0 | 0 | Pass |
| 0.1320 | 5 | 0 | 0 | Pass |
| 0.1335 | 5 | 0 | 0 | Pass |
| 0.1350 | 5 | 0 | 0 | Pass |
| 0.1364 | 5 | 0 | 0 | Pass |
| 0.1379 | 5 | 0 | 0 | Pass |
| 0.1394 | 4 | 0 | 0 | Pass |
| 0.1408 | 4 | 0 | 0 | Pass |
| 0.1423 | 4 | 0 | 0 | Pass |
| 0.1438 | 4 | 0 | 0 | Pass |
| 0.1452 | 4 | 0 | 0 | Pass |
| 0.1467 | 3 | 0 | 0 | Pass |
| 0.1482 | 3 | 0 | 0 | Pass |
| 0.1496 | 3 | 0 | 0 | Pass |
| 0.1511 | 3 | 0 | 0 | Pass |

DRAFT

## Water Quality

Drawdown Time Results

Pond: Storm Capture 3

| Days | Stage(feet) | Percent of Total Run Time |
|---|---|---|
| 1 | 0.043 | 17.621 |
| 2 | 0.097 | 15.723 |
| 3 | 0.165 | 14.077 |
| 4 | 0.247 | 12.520 |
| 5 | 0.343 | 10.998 |

Maximum Stage: 3.920 Drawdown Time: 05 00:00:10

DRAFT

## *POC 2*

POC #2 was not reported because POC must exist in both scenarios and both scenarios must have been run.

DRAFT

## *POC 3*

POC #3 was not reported because POC must exist in both scenarios and both scenarios must have been run.

DRAFT

## *POC 4*

POC #4 was not reported because POC must exist in both scenarios and both scenarios must have been run.

DRAFT

# Model Default Modifications

Total of 0 changes have been made.

## PERLND Changes

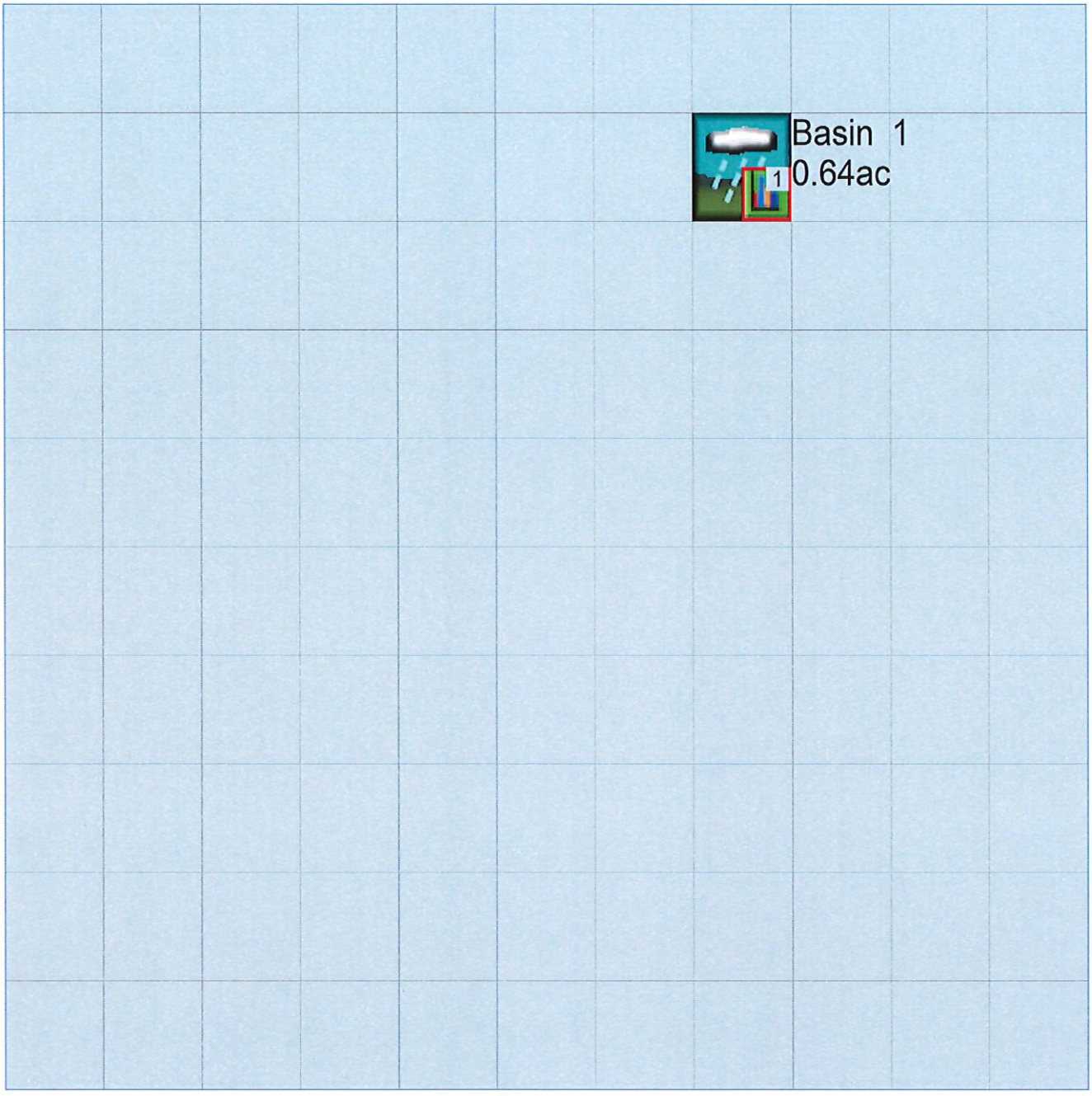
No PERLND changes have been made.

## IMPLND Changes

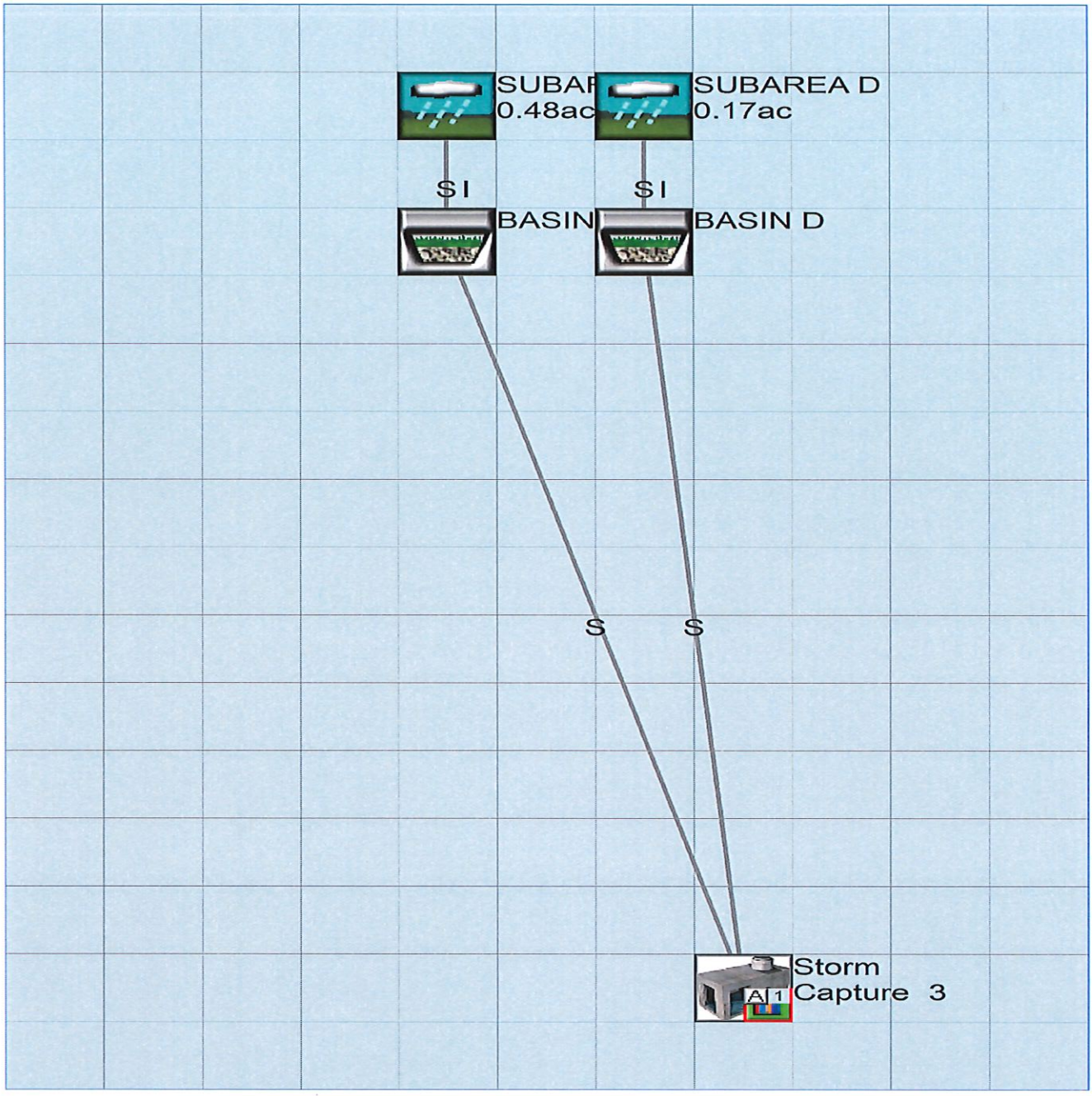
No IMPLND changes have been made.

DRAFT

# Appendix
## Predeveloped Schematic



## *Mitigated Schematic*



## Predeveloped UCI File

```
RUN

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

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   CFA19020.wdm
MESSU       25   PreCFA19020.MES
            27   PreCFA19020.L61
            28   PreCFA19020.L62
            30   POCCFA190201.dat
END FILES

OPN SEQUENCE
    INGRP               INDELT 00:60
      PERLND      19
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title---------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  1                   MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #          K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                        User  t-series Engl Metr ***
                                    in  out           ***
   19      C,NatVeg,Flat          1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   19         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ***************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   19         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO
```

DRAFT

```
  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   19         0    1    1    1    0    0    0    0    1    1    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN     INFILT      LSUR     SLSUR      KVARY      AGWRC
   19              0       3.8      0.035       100      0.05        2.5      0.915
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   19              0         0         2         2         0      0.05      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #      CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   19              0       0.6      0.04         1       0.3         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   19       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   19       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1  0.1
  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
   19              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
```

DRAFT

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

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

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  19                       0.643     COPY   501     12
PERLND  19                       0.643     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
```

DRAFT

```
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
```

DRAFT

## Mitigated UCI File

```
RUN

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

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   CFA19020.wdm
MESSU       25   MitCFA19020.MES
            27   MitCFA19020.L61
            28   MitCFA19020.L62
            30   POCCFA190201.dat
END FILES

OPN SEQUENCE
    INGRP               INDELT 00:60
      PERLND       43
      IMPLND        1
      GENER         2
      RCHRES        1
      RCHRES        2
      GENER         4
      RCHRES        3
      RCHRES        4
      RCHRES        5
      COPY          1
      COPY        501
      DISPLY        1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Storm Capture  3            MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1          1    1
  501          1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
    2         24
    4         24
  END OPCODE
  PARM
    #    #          K ***
    2              0.
    4              0.
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                          in  out           ***
   43       C,Urban,Flat           1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***
```

DRAFT

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

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

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

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

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3          ***
    # -   # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   43              0         0         2         2         0      0.05      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                                  ***
    # -   #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   43             0       0.6      0.03         1       0.3         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3          ***
    # -   #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   43       0.6  0.6  0.6  0.6  0.7  0.7  0.7  0.7  0.7  0.6  0.6  0.6
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3          ***
    # -   #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   43       0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1
  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
   43             0         0      0.15         0         1      0.05         0
  END PWAT-STATE1

END PERLND

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

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

DRAFT

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

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

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

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

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

END IMPLND

SCHEMATIC
<-Source->                <--Area-->     <-Target->   MBLK    ***
<Name>   #                <-factor->     <Name>   #   Tbl#    ***
SUBAREA C***
PERLND  43                    0.107      RCHRES   1      2
PERLND  43                    0.107      RCHRES   1      3
IMPLND   1                     0.37      RCHRES   1      5
SUBAREA D***
PERLND  43                     0.02      RCHRES   3      2
PERLND  43                     0.02      RCHRES   3      3
IMPLND   1                    0.146      RCHRES   3      5

******Routing******
RCHRES   2                        1      RCHRES   5      6
RCHRES   2                               COPY     1     16
RCHRES   1                        1      RCHRES   5      7
RCHRES   1                               COPY     1     17
RCHRES   1                        1      RCHRES   2      8
RCHRES   4                        1      RCHRES   5      6
RCHRES   4                               COPY     1     16
RCHRES   3                        1      RCHRES   5      7
RCHRES   3                               COPY     1     17
RCHRES   3                        1      RCHRES   4      8
RCHRES   5                        1      COPY   501     16
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   12.1        DISPLY   1     INPUT  TIMSER 1
GENER    2 OUTPUT TIMSER      .0002778     RCHRES   1     EXTNL  OUTDGT 1
GENER    4 OUTPUT TIMSER      .0002778     RCHRES   3     EXTNL  OUTDGT 1



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

DRAFT

```
RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG           ***
                                        in  out                             ***
    1     Surface BASIN C         2    1    1    1   28    0    1
    2     BASIN C                 1    1    1    1   28    0    1
    3     Surface BASIN D         2    1    1    1   28    0    1
    4     BASIN D                 1    1    1    1   28    0    1
    5     Storm Capture  3-022     1    1    1    1   28    0    1
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
    1         1    0    0    0    0    0    0    0    0    0
    2         1    0    0    0    0    0    0    0    0    0
    3         1    0    0    0    0    0    0    0    0    0
    4         1    0    0    0    0    0    0    0    0    0
    5         1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ****************** PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
    1         4    0    0    0    0    0    0    0    0    0    1    9
    2         4    0    0    0    0    0    0    0    0    0    1    9
    3         4    0    0    0    0    0    0    0    0    0    1    9
    4         4    0    0    0    0    0    0    0    0    0    1    9
    5         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
    3       0  1  0  0    4  5  0  0  0       0  1  0  0  0       2  1  2  2  2
    4       0  1  0  0    4  0  0  0  0       0  0  0  0  0       2  2  2  2  2
    5       0  1  0  0    4  0  0  0  0       0  0  0  0  0       2  2  2  2  2
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN      DELTH     STCOR       KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->      ***
    1             1      0.01       0.0       0.0       0.0       0.0
    2             2      0.01       0.0       0.0       0.0       0.0
    3             3      0.01       0.0       0.0       0.0       0.0
    4             4      0.01       0.0       0.0       0.0       0.0
    5             5      0.05       0.0       0.0       0.5       0.0
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                     ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
    1             0        4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    2             0        4.0  0.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    3             0        4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    4             0        4.0  0.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    5             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
```

DRAFT

```
***                          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 Variable Quantity Lines
***                          addr
***                         <------>
*** kwd  varnam optyp  opn  vari  s1 s2 s3 tp multiply  lc ls ac as agfn ***
  <****> <----> <----> <-> <----><-><-><-><-><---------> <><-> <><-> <--> ***
  UVQUAN vol4   RCHRES   4 VOL               4
  UVQUAN v2m4   GLOBAL     WORKSP  3         3
  UVQUAN vpo4   GLOBAL     WORKSP  4         3
  UVQUAN v2d4   GENER    4 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
*** 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  v2m4    1 WORKSP  3          1.0 QUAN
  UVNAME  vpo4    1 WORKSP  4          1.0 QUAN
  UVNAME  v2d4    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             =  1380.63
*** 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
*** opt foplop dcdts  yr mo dy hr mn d t   vnam  s1 s2 s3 ac quantity  tc  ts rp
  <****><-><--><><-><--> <> <> <> <><><>  <----><-><-><-><-><---------> <> <-><->
  GENER   4                                v2m4             =  717.09
*** Compute remaining available pore space
  GENER   4                                vpo4             =  v2m4
  GENER   4                                vpo4            -=  vol4
*** Check to see if VPORA goes negative; if so set VPORA = 0.0
IF (vpo4 < 0.0) THEN
  GENER   4                                vpo4             =  0.0
END IF
*** Infiltration volume
  GENER   4                                v2d4             =  vpo4
END SPEC-ACTIONS
FTABLES
  FTABLE      2
   75    4
     Depth      Area    Volume  Outflow1 Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.037371  0.000000  0.000000
  0.037582  0.037299  0.000147  0.000000
  0.075165  0.036881  0.000297  0.000000
  0.112747  0.036465  0.000449  0.000000
  0.150330  0.036051  0.000605  0.000000
  0.187912  0.035640  0.000763  0.000000
  0.225495  0.035231  0.000924  0.000000
```

DRAFT

```
0.263077  0.034825  0.001089  0.000000
0.300659  0.034420  0.001256  0.000000
0.338242  0.034018  0.001426  0.000000
0.375824  0.033619  0.001599  0.000000
0.413407  0.033222  0.001776  0.000000
0.450989  0.032827  0.001955  0.000000
0.488571  0.032434  0.002138  0.000000
0.526154  0.032044  0.002324  0.000000
0.563736  0.031656  0.002513  0.000000
0.601319  0.031270  0.002705  0.000000
0.638901  0.030887  0.002900  0.000000
0.676484  0.030506  0.003099  0.000000
0.714066  0.030128  0.003301  0.000000
0.751648  0.029751  0.003506  0.000000
0.789231  0.029378  0.003714  0.000000
0.826813  0.029006  0.003926  0.000000
0.864396  0.028637  0.004142  0.000000
0.901978  0.028270  0.004360  0.000000
0.939560  0.027905  0.004582  0.000000
0.977143  0.027543  0.004808  0.000000
1.014725  0.027183  0.005037  0.000000
1.052308  0.026826  0.005270  0.000000
1.089890  0.026470  0.005506  0.000000
1.127473  0.026117  0.005746  0.000000
1.165055  0.025767  0.005989  0.000000
1.202637  0.025419  0.006236  0.000000
1.240220  0.025073  0.006487  0.000000
1.277802  0.024729  0.006741  0.016319
1.315385  0.024388  0.006999  0.017768
1.352967  0.024049  0.007261  0.018108
1.390549  0.023713  0.007526  0.020012
1.428132  0.023378  0.007795  0.022034
1.465714  0.023047  0.008068  0.024175
1.503297  0.022717  0.008345  0.026438
1.540879  0.022390  0.008626  0.028826
1.578462  0.022065  0.008911  0.029334
1.616044  0.021742  0.009199  0.031339
1.653626  0.021422  0.009492  0.033980
1.691209  0.021104  0.009788  0.036750
1.728791  0.020789  0.010089  0.039652
1.766374  0.020476  0.010510  0.042686
1.803956  0.020165  0.010937  0.044747
1.841538  0.019856  0.011369  0.045854
1.879121  0.019550  0.011807  0.049155
1.916703  0.019246  0.012251  0.052590
1.954286  0.018945  0.012700  0.056155
1.991868  0.018645  0.013156  0.059842
2.029451  0.018349  0.013617  0.063372
2.067033  0.018054  0.014084  0.076646
2.104615  0.017762  0.014557  0.097569
2.142198  0.017472  0.015035  0.097569
2.179780  0.017185  0.015520  0.097569
2.217363  0.016899  0.016011  0.097569
2.254945  0.016616  0.016508  0.097569
2.292527  0.016336  0.017010  0.097569
2.330110  0.016058  0.017519  0.097569
2.367692  0.015782  0.018034  0.097569
2.405275  0.015508  0.018556  0.097569
2.442857  0.015237  0.019083  0.097569
2.480440  0.014968  0.019617  0.097569
2.518022  0.014702  0.020157  0.097569
2.555604  0.014438  0.020703  0.097569
2.593187  0.014176  0.021256  0.097569
2.630769  0.013916  0.021815  0.097569
2.668352  0.013659  0.022380  0.097569
2.705934  0.013404  0.022952  0.097569
2.743516  0.013152  0.023531  0.097569
2.750000  0.012902  0.031695  0.097569
END FTABLE  2
FTABLE      1
```

DRAFT

```
 19    5
   Depth      Area      Volume   Outflow1   Outflow2  Velocity  Travel Time***
    (ft)    (acres)  (acre-ft)    (cfs)      (cfs)    (ft/sec)    (Minutes)***
0.000000  0.012902  0.000000  0.000000  0.000000
0.037582  0.037792  0.001412  0.000000  0.065046
0.075165  0.038216  0.002841  0.000000  0.079147
0.112747  0.038641  0.004285  0.000000  0.080777
0.150330  0.039069  0.005745  0.000000  0.082406
0.187912  0.039500  0.007222  0.000000  0.084036
0.225495  0.039932  0.008714  0.000000  0.085666
0.263077  0.040367  0.010223  0.000000  0.087296
0.300659  0.040805  0.011749  0.000000  0.088925
0.338242  0.041244  0.013290  0.000000  0.090555
0.375824  0.041686  0.014849  0.000000  0.092185
0.413407  0.042131  0.016424  0.000000  0.093814
0.450989  0.042577  0.018015  0.000000  0.095444
0.488571  0.043026  0.019624  0.000000  0.097074
0.526154  0.043478  0.021250  0.101392  0.098704
0.563736  0.043931  0.022892  0.385447  0.100333
0.601319  0.044387  0.024552  0.772018  0.101963
0.638901  0.044846  0.026229  1.238133  0.103593
0.670000  0.045227  0.027629  1.770862  0.104941
END FTABLE  1
FTABLE      4
 75    4
   Depth      Area      Volume   Outflow1 Velocity  Travel Time***
    (ft)    (acres)  (acre-ft)    (cfs)    (ft/sec)    (Minutes)***
0.000000  0.023378  0.000000  0.000000
0.037582  0.023321  0.000060  0.000000
0.075165  0.022989  0.000122  0.000000
0.112747  0.022659  0.000185  0.000000
0.150330  0.022332  0.000251  0.000000
0.187912  0.022007  0.000319  0.000000
0.225495  0.021685  0.000388  0.000000
0.263077  0.021365  0.000460  0.000000
0.300659  0.021047  0.000533  0.000000
0.338242  0.020732  0.000609  0.000000
0.375824  0.020418  0.000686  0.000000
0.413407  0.020108  0.000766  0.000000
0.450989  0.019799  0.000848  0.000000
0.488571  0.019493  0.000932  0.000000
0.526154  0.019189  0.001018  0.000000
0.563736  0.018888  0.001106  0.000000
0.601319  0.018589  0.001197  0.000000
0.638901  0.018292  0.001290  0.000000
0.676484  0.017997  0.001385  0.000000
0.714066  0.017705  0.001482  0.000000
0.751648  0.017416  0.001582  0.000000
0.789231  0.017128  0.001684  0.000000
0.826813  0.016843  0.001789  0.000000
0.864396  0.016560  0.001895  0.000000
0.901978  0.016280  0.002005  0.000000
0.939560  0.016002  0.002117  0.000000
0.977143  0.015726  0.002231  0.000000
1.014725  0.015452  0.002348  0.000000
1.052308  0.015181  0.002467  0.000000
1.089890  0.014913  0.002589  0.000000
1.127473  0.014646  0.002714  0.000000
1.165055  0.014382  0.002841  0.000000
1.202637  0.014120  0.002971  0.000000
1.240220  0.013861  0.003103  0.000000
1.277802  0.013604  0.003238  0.006621
1.315385  0.013349  0.003376  0.007208
1.352967  0.013097  0.003517  0.007346
1.390549  0.012846  0.003660  0.008119
1.428132  0.012599  0.003807  0.008939
1.465714  0.012353  0.003956  0.009808
1.503297  0.012110  0.004108  0.010726
1.540879  0.011869  0.004262  0.011694
1.578462  0.011631  0.004420  0.011900
```

DRAFT

```
1.616044  0.011395  0.004581  0.012714
1.653626  0.011161  0.004744  0.013785
1.691209  0.010930  0.004911  0.014909
1.728791  0.010701  0.005081  0.016087
1.766374  0.010474  0.005320  0.017317
1.803956  0.010249  0.005563  0.018153
1.841538  0.010027  0.005810  0.018603
1.879121  0.009808  0.006062  0.019942
1.916703  0.009590  0.006318  0.021335
1.954286  0.009375  0.006578  0.022782
1.991868  0.009162  0.006843  0.024277
2.029451  0.008952  0.007113  0.025710
2.067033  0.008744  0.007387  0.039041
2.104615  0.008538  0.007665  0.039583
2.142198  0.008335  0.007948  0.039583
2.179780  0.008134  0.008236  0.039583
2.217363  0.007935  0.008528  0.039583
2.254945  0.007739  0.008825  0.039583
2.292527  0.007545  0.009127  0.039583
2.330110  0.007353  0.009433  0.039583
2.367692  0.007163  0.009744  0.039583
2.405275  0.006976  0.010060  0.039583
2.442857  0.006792  0.010381  0.039583
2.480440  0.006609  0.010707  0.039583
2.518022  0.006429  0.011038  0.039583
2.555604  0.006251  0.011373  0.039583
2.593187  0.006076  0.011714  0.039583
2.630769  0.005903  0.012060  0.039583
2.668352  0.005732  0.012411  0.039583
2.705934  0.005564  0.012767  0.039583
2.743516  0.005398  0.013128  0.039583
2.750000  0.005234  0.016462  0.039583
END FTABLE  4
FTABLE      3
 19    5
   Depth       Area      Volume   Outflow1   Outflow2  Velocity  Travel Time***
    (ft)    (acres)  (acre-ft)    (cfs)      (cfs)    (ft/sec)    (Minutes)***
0.000000  0.005234  0.000000  0.000000  0.000000
0.037582  0.023713  0.000885  0.000000  0.026389
0.075165  0.024050  0.001782  0.000000  0.032109
0.112747  0.024389  0.002693  0.000000  0.032771
0.150330  0.024730  0.003616  0.000000  0.033432
0.187912  0.025074  0.004552  0.000000  0.034093
0.225495  0.025420  0.005500  0.000000  0.034754
0.263077  0.025769  0.006462  0.000000  0.035415
0.300659  0.026120  0.007437  0.000000  0.036076
0.338242  0.026473  0.008426  0.000000  0.036738
0.375824  0.026829  0.009427  0.000000  0.037399
0.413407  0.027186  0.010442  0.000000  0.038060
0.450989  0.027547  0.011471  0.000000  0.038721
0.488571  0.027909  0.012513  0.000000  0.039382
0.526154  0.028274  0.013569  0.101392  0.040043
0.563736  0.028641  0.014638  0.385447  0.040705
0.601319  0.029011  0.015721  0.772018  0.041366
0.638901  0.029383  0.016819  1.238133  0.042027
0.670000  0.029692  0.017737  1.770862  0.042574
END FTABLE  3
FTABLE      5
 92    4
   Depth       Area      Volume   Outflow1 Velocity  Travel Time***
    (ft)    (acres)  (acre-ft)    (cfs)    (ft/sec)    (Minutes)***
0.000000  0.038567  0.000000  0.000000
0.044444  0.038567  0.001796  0.000492
0.088889  0.038567  0.003526  0.000744
0.133333  0.038567  0.005240  0.000931
0.177778  0.038567  0.006955  0.001085
0.222222  0.038567  0.008669  0.001221
0.266667  0.038567  0.010383  0.001343
0.311111  0.038567  0.012097  0.001454
0.355556  0.038567  0.013811  0.001558
```

DRAFT

| | | | |
|---|---|---|---|
| 0.400000 | 0.038567 | 0.015525 | 0.001655 |
| 0.444444 | 0.038567 | 0.017239 | 0.001747 |
| 0.488889 | 0.038567 | 0.018953 | 0.001834 |
| 0.533333 | 0.038567 | 0.020667 | 0.001917 |
| 0.577778 | 0.038567 | 0.022382 | 0.001997 |
| 0.622222 | 0.038567 | 0.024096 | 0.002074 |
| 0.666667 | 0.038567 | 0.025810 | 0.002147 |
| 0.711111 | 0.038567 | 0.027524 | 0.002219 |
| 0.755556 | 0.038567 | 0.029238 | 0.002288 |
| 0.800000 | 0.038567 | 0.030952 | 0.002355 |
| 0.844444 | 0.038567 | 0.032666 | 0.002421 |
| 0.888889 | 0.038567 | 0.034380 | 0.002484 |
| 0.933333 | 0.038567 | 0.036094 | 0.002546 |
| 0.977778 | 0.038567 | 0.037809 | 0.002607 |
| 1.022222 | 0.038567 | 0.039523 | 0.002666 |
| 1.066667 | 0.038567 | 0.041237 | 0.002724 |
| 1.111111 | 0.038567 | 0.042951 | 0.002781 |
| 1.155556 | 0.038567 | 0.044665 | 0.002836 |
| 1.200000 | 0.038567 | 0.046379 | 0.002891 |
| 1.244444 | 0.038567 | 0.048093 | 0.002944 |
| 1.288889 | 0.038567 | 0.049807 | 0.002997 |
| 1.333333 | 0.038567 | 0.051521 | 0.003049 |
| 1.377778 | 0.038567 | 0.053236 | 0.003099 |
| 1.422222 | 0.038567 | 0.054950 | 0.003149 |
| 1.466667 | 0.038567 | 0.056664 | 0.003198 |
| 1.511111 | 0.038567 | 0.058378 | 0.003247 |
| 1.555556 | 0.038567 | 0.060092 | 0.003295 |
| 1.600000 | 0.038567 | 0.061806 | 0.003342 |
| 1.644444 | 0.038567 | 0.063520 | 0.003388 |
| 1.688889 | 0.038567 | 0.065234 | 0.003434 |
| 1.733333 | 0.038567 | 0.066948 | 0.003479 |
| 1.777778 | 0.038567 | 0.068663 | 0.003523 |
| 1.822222 | 0.038567 | 0.070377 | 0.003568 |
| 1.866667 | 0.038567 | 0.072091 | 0.003611 |
| 1.911111 | 0.038567 | 0.073805 | 0.003654 |
| 1.955556 | 0.038567 | 0.075519 | 0.003696 |
| 2.000000 | 0.038567 | 0.077233 | 0.003738 |
| 2.044444 | 0.038567 | 0.078947 | 0.003780 |
| 2.088889 | 0.038567 | 0.080661 | 0.003821 |
| 2.133333 | 0.038567 | 0.082375 | 0.003862 |
| 2.177778 | 0.038567 | 0.084090 | 0.003902 |
| 2.222222 | 0.038567 | 0.085804 | 0.003942 |
| 2.266667 | 0.038567 | 0.087518 | 0.003981 |
| 2.311111 | 0.038567 | 0.089232 | 0.004020 |
| 2.355556 | 0.038567 | 0.090946 | 0.004059 |
| 2.400000 | 0.038567 | 0.092660 | 0.004097 |
| 2.444444 | 0.038567 | 0.094374 | 0.004135 |
| 2.488889 | 0.038567 | 0.096088 | 0.004172 |
| 2.533333 | 0.038567 | 0.097802 | 0.004210 |
| 2.577778 | 0.038567 | 0.099517 | 0.004247 |
| 2.622222 | 0.038567 | 0.101231 | 0.004283 |
| 2.666667 | 0.038567 | 0.102945 | 0.004319 |
| 2.711111 | 0.038567 | 0.104659 | 0.004355 |
| 2.755556 | 0.038567 | 0.106373 | 0.004391 |
| 2.800000 | 0.038567 | 0.108087 | 0.004427 |
| 2.844444 | 0.038567 | 0.109801 | 0.004462 |
| 2.888889 | 0.038567 | 0.111515 | 0.004496 |
| 2.933333 | 0.038567 | 0.113229 | 0.004531 |
| 2.977778 | 0.038567 | 0.114944 | 0.004565 |
| 3.022222 | 0.038567 | 0.116658 | 0.004599 |
| 3.066667 | 0.038567 | 0.118372 | 0.004633 |
| 3.111111 | 0.038567 | 0.120086 | 0.004667 |
| 3.155556 | 0.038567 | 0.121800 | 0.004700 |
| 3.200000 | 0.038567 | 0.123514 | 0.004733 |
| 3.244444 | 0.038567 | 0.125228 | 0.004766 |
| 3.288889 | 0.038567 | 0.126942 | 0.004799 |
| 3.333333 | 0.038567 | 0.128656 | 0.004831 |
| 3.377778 | 0.038567 | 0.130371 | 0.004863 |
| 3.422222 | 0.038567 | 0.132085 | 0.004895 |
| 3.466667 | 0.038567 | 0.133799 | 0.004927 |

DRAFT

```
  3.511111  0.038567  0.135513  0.015318
  3.555556  0.038567  0.137227  0.120515
  3.600000  0.038567  0.138941  0.281858
  3.644444  0.038567  0.140655  0.476496
  3.688889  0.038567  0.142369  0.685725
  3.733333  0.038567  0.144083  0.890389
  3.777778  0.038567  0.145798  1.072359
  3.822222  0.038567  0.147512  1.217880
  3.866667  0.038567  0.149226  1.322042
  3.911111  0.038567  0.150940  1.394073
  3.955556  0.038567  0.152654  1.481541
  4.000000  0.038567  0.154368  1.551908
  4.044444  0.038567  0.156082  1.619213
  END FTABLE  5
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>    # <Name> # tem strg<-factor->strg <Name>    #   #        <Name> # #  ***
WDM       2 PREC     ENGL     1             PERLND    1 999 EXTNL  PREC
WDM       2 PREC     ENGL     1             IMPLND    1 999 EXTNL  PREC
WDM       1 EVAP     ENGL     1             PERLND    1 999 EXTNL  PETINP
WDM       1 EVAP     ENGL     1             IMPLND    1 999 EXTNL  PETINP
WDM      22 IRRG     ENGL     0.7       SAME PERLND   43     EXTNL  SURLI
WDM       2 PREC     ENGL     1             RCHRES    1      EXTNL  PREC
WDM       2 PREC     ENGL     1             RCHRES    3      EXTNL  PREC
WDM       1 EVAP     ENGL     0.5           RCHRES    1      EXTNL  POTEV
WDM       1 EVAP     ENGL     0.7           RCHRES    2      EXTNL  POTEV
WDM       1 EVAP     ENGL     0.5           RCHRES    3      EXTNL  POTEV
WDM       1 EVAP     ENGL     0.7           RCHRES    4      EXTNL  POTEV

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>    #       <Name> # #<-factor->strg <Name>    # <Name>    tem strg strg***
RCHRES    5 HYDR    RO     1 1        1     WDM   1020 FLOW     ENGL      REPL
RCHRES    5 HYDR    STAGE  1 1        1     WDM   1021 STAG     ENGL      REPL
COPY      1 OUTPUT  MEAN   1 1     12.1     WDM    701 FLOW     ENGL      REPL
COPY    501 OUTPUT  MEAN   1 1     12.1     WDM    801 FLOW     ENGL      REPL
END EXT TARGETS

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

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

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

  MASS-LINK        6
RCHRES      ROFLOW                          RCHRES         INFLOW
  END MASS-LINK    6

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

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

  MASS-LINK       16
```

DRAFT

```
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
```

DRAFT

DRAFT

```
ERROR/WARNING ID:   238   1

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

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

Relevant data are:
DATE/TIME: 1972/ 2/29 24: 0

RCHRES :    5

RELERR       STORS        STOR       MATIN      MATDIF
-3.316E-02     0.00000  0.0000E+00     0.00000  -3.932E-09

Where:

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

---

```
ERROR/WARNING ID:   238   1

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

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

Relevant data are:
DATE/TIME: 1973/ 5/31 24: 0

RCHRES :    5

RELERR       STORS        STOR       MATIN      MATDIF
-1.648E-01     0.00000  0.0000E+00     0.00000  -2.306E-10

Where:

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

---

```
ERROR/WARNING ID:   238   1

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

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

Relevant data are:
```

DRAFT

DATE/TIME: 1976/ 1/31 24: 0

RCHRES : 5

| RELERR | STORS | STOR | MATIN | MATDIF |
|---|---|---|---|---|
| -1.274E-03 | 0.00000 | 0.0000E+00 | 0.00000 | -1.061E-07 |

Where:

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

---

ERROR/WARNING ID: 238 1

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

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

Relevant data are:
DATE/TIME: 1977/11/30 24: 0

RCHRES : 5

| RELERR | STORS | STOR | MATIN | MATDIF |
|---|---|---|---|---|
| -3.381E-03 | 0.00000 | 0.0000E+00 | 0.00000 | -3.884E-08 |

Where:

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

---

ERROR/WARNING ID: 238 1

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

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

Relevant data are:
DATE/TIME: 1979/ 5/31 24: 0

RCHRES : 5

| RELERR | STORS | STOR | MATIN | MATDIF |
|---|---|---|---|---|
| -1.765E-02 | 0.00000 | 0.0000E+00 | 0.00000 | -7.295E-09 |

Where:

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

DRAFT

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

---

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

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

---

ERROR/WARNING ID:  238  1

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

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

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

RCHRES :  3

| RELERR | STORS | STOR | MATIN | MATDIF |
|---|---|---|---|---|
| -2.709E-02 | 0.00000 | 0.0000E+00 | 0.00000 | 1.2897E-11 |

Where:

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

---

ERROR/WARNING ID:  238  1

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

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

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

RCHRES :  1

| RELERR | STORS | STOR | MATIN | MATDIF |
|---|---|---|---|---|
| -1.146E-02 | 0.00000 | 0.0000E+00 | 0.00000 | 1.7627E-11 |

Where:

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

DRAFT

MATDIF is the net inflow (inflow-outflow) of material to the pu during the present printout reporting period.

---

ERROR/WARNING ID: 238 1

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

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

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

RCHRES : 3

| RELERR | STORS | STOR | MATIN | MATDIF |
|---|---|---|---|---|
| -8.314E-02 | 0.00000 | 0.0000E+00 | 0.00000 | 2.3912E-11 |

Where:

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

---

ERROR/WARNING ID: 238 1

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

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

Relevant data are:
DATE/TIME: 1998/ 5/31 24: 0

RCHRES : 3

| RELERR | STORS | STOR | MATIN | MATDIF |
|---|---|---|---|---|
| -1.654E-03 | 0.00000 | 0.0000E+00 | 0.00000 | 1.3655E-11 |

Where:

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

---

ERROR/WARNING ID: 238 1

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

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

Relevant data are:

DRAFT

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

RCHRES : 3

| RELERR | STORS | STOR | MATIN | MATDIF |
|---|---|---|---|---|
| -5.224E-02 | 0.00000 | 0.0000E+00 | 0.00000 | 1.8521E-11 |

Where:

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

---

ERROR/WARNING ID: 238 1

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

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

Relevant data are:
DATE/TIME: 2002/12/31 24: 0

RCHRES : 3

| RELERR | STORS | STOR | MATIN | MATDIF |
|---|---|---|---|---|
| -1.475E-02 | 0.00000 | 0.0000E+00 | 0.00000 | 1.4331E-11 |

Where:

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

---

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

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

---

DRAFT

# Disclaimer

## Legal Notice

This program and accompanying documentation are provided 'as-is' without warranty of any kind. The entire risk regarding the performance and results of this program is assumed by End User. Clear Creek Solutions Inc. and the governmental licensee or sublicensees disclaim all warranties, either expressed or implied, including but not limited to implied warranties of program and accompanying documentation. In no event shall Clear Creek Solutions Inc. be liable for any damages whatsoever (including without limitation to damages for loss of business profits, loss of business information, business interruption, and the like) arising out of the use of, or inability to use this program even if Clear Creek Solutions Inc. or their authorized representatives have been advised of the possibility of such damages. Software Copyright © by : Clear Creek Solutions, Inc. 2005-2021; All Rights Reserved.

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

www.clearcreeksolutions.com

DRAFT

## 8.2 Hydromodification Management Points of Compliance

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

| POC name or # | Channel name or # | POC Description |
|---|---|---|
| POC#1 | N/A | The existing catch basin that captured runoff for the project area will be removed and a new junction structure will be constructed and connected to the existing private storm drain pipe that connects to the public catch basin in St. George St. The existing storm drain pipe is a 27" RCP and where it connects to the proposed junction structure was taken as the POC for the hydromodification analysis. |
| | | |
| | | |
| | | |

## 8.3 Geomorphic Assessment of Receiving Water Channels

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

## 8.4 Vector Control Plan

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

# VECTOR CONTROL PLAN

## FOR

**Chick-fil-A Restaurant #4466**

**Sweetwater Rd. and Saint George St.**
**Spring Valley, Unincorporated Area of San Diego County**

## PURPOSE

The purpose of this Vector Control Plan is to describe the vector control measures implemented at the proposed Chick-fil-A restaurant located at the southeast corner within the existing shopping center at the intersection of Sweetwater Rd. and Jamacha Rd. in Spring Valley, Unincorporated Area of San Diego County. The development of the new restaurant is required to comply with county storm water quality measures which include the treatment and storage of storm water on-site prior to discharging to a public storm drain system. The proposed development will house sixteen (16) underground concrete vaults for storm water retention on-site. Due to county requirements that storm water that is stored in these concrete vaults will be discharged at a low flow rate and will exceed the maximum time empty the vaults (96 hour drawdown time) and can pose a risk of vector breeding therefore requiring vector control measures.

## VECTOR CONTROL MEASURES

To protect the customers, employees and public from potential vector issues, specific measures have been considered in the design of this storm water storage system.

At the inlet side, there are two storm drain pipes that discharge runoff from the biofiltration basins into the storm water vaults; flap valves will be installed inside the concrete vaults at the pipe inlet to prevent potential vectors from leaving the storage tanks through the inlet pipes.

At the outlet side, a screen will be installed at the top of the riser pipe that allows storm water to leave the concrete vaults once full. The screen can collect debris, trash, and sediment and will need to be cleaned periodically.

## RECORDKEEPING

All records must be made available for review upon request, which includes the BMP inspection sheets provided in the O&M plan. The inspection and maintenance of the vector control measures shall be completed in accordance with the BMP O&M plan associated with this development project.

## RESPONSIBLE PARTY

The owner is aware of the maintenance responsibilities of the proposed BMPs. A funding mechanism is in place to maintain the BMPs at the frequency stated in the LID Plan. The contact information for the entity responsible is below:

| | |
|---|---|
| Owner's Name: | Jennifer M. Daw |
| Owner's Title: | Director of Design and Construction |
| Company: | Chick-fil-A, Inc. |
| Address: | 15635 Alton Parkway, Suite 350<br>Irvine, Ca 92618 |
| Email: | Jennifer.Daw@cfacorp.com |
| Telephone No: | Work: (404) 305-4834, Cell: (562) 221-6060 |

## BMP Operations and Maintenance Plan

| BMP | Responsible Party | Maintenance Activity | Inspection/Maintenance Frequency |
|---|---|---|---|
| **Vector Control BMPs** | | | |
| Inlet Pipe Flap Valves | Chick-fil-A | Inspect the flap valve for proper operation (opens sufficiently when exposed to inflow, closes and seals completely), replace any/all moving parts, remove any trash/debris buildup behind valve. | Once every 6 months. |
| Outlet Pipe Screen | Chick-fil-A | Inspect the screen for damage and replace as necessary, remove any sediment/trash/debris buildup | Once every 6 months |

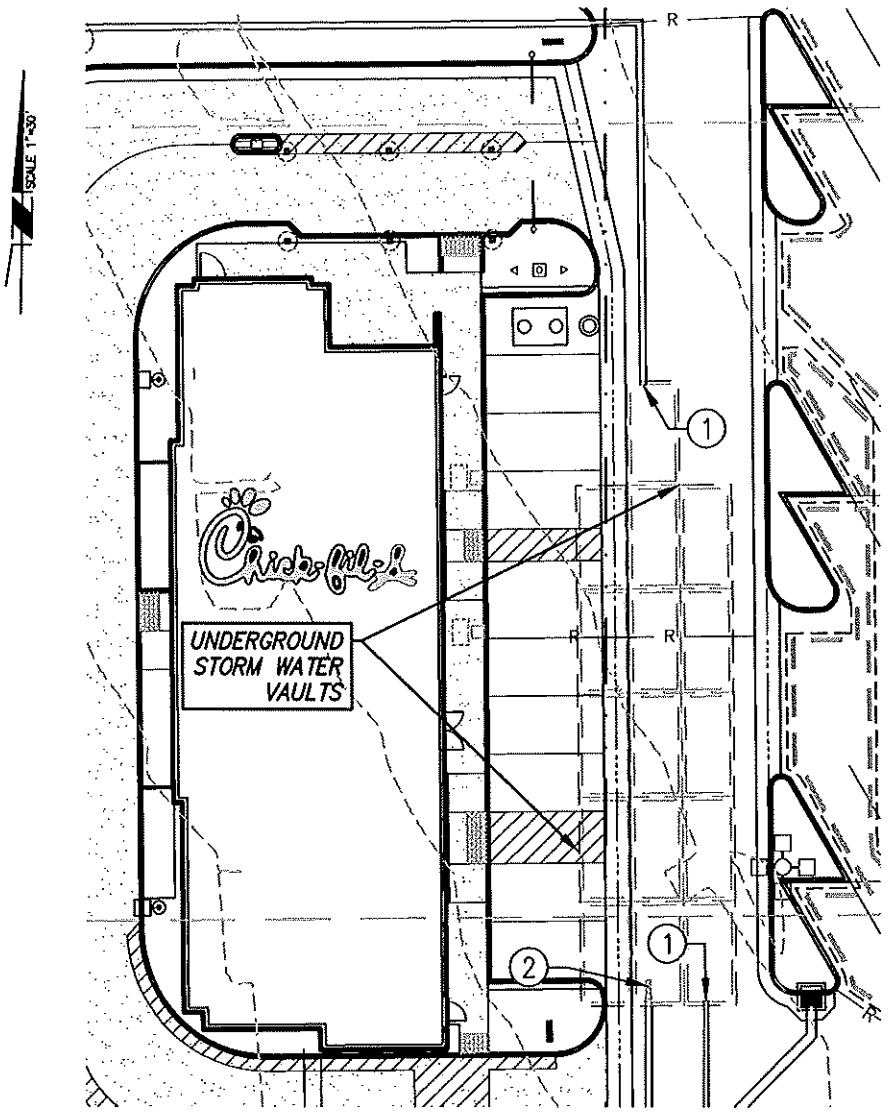
The funding for the treatment and structural BMPs will be provided by Chick-fil-A, Inc., through the current budget for Operation and Maintenance.

Responsible Party Information:

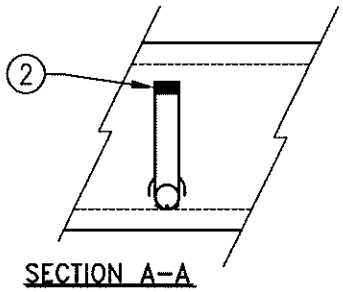
Name: Jennifer Daw
Company: Chick-fil-A
15635 Alton Parkway, Suite 350
Irvine CA 92618

Phone Number: (404) 305-4407

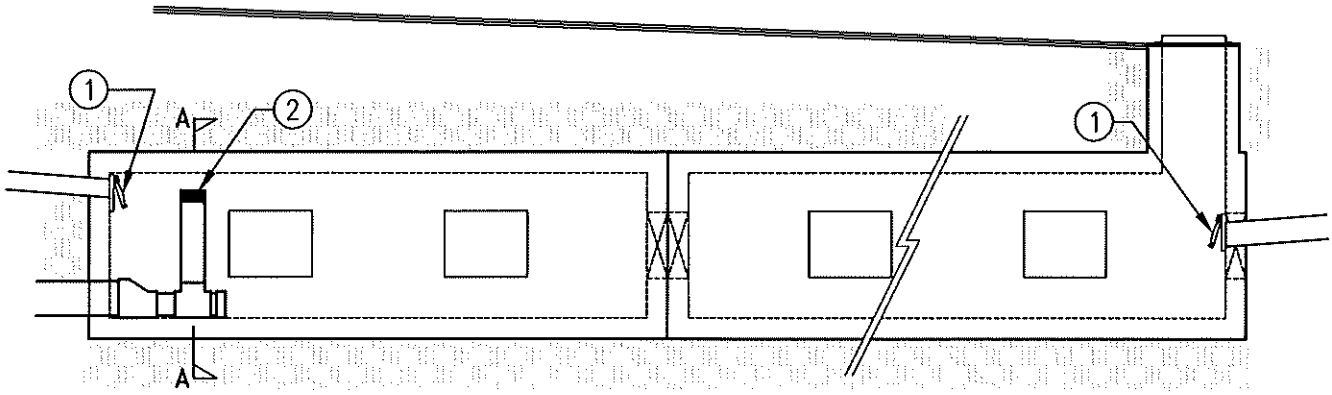
EXHIBIT 1




1. FLAP GATE
2. MESH SCREEN




SECTION A-A





Prepared by:
Joseph C. Truxaw and Associates, Inc.
Civil Engineers and Land Surveyors
1915 W. Orangewood Ave., Suite 101, Orange, CA 92868
(714) 935-0265 truxaw.com


# EXHIBIT 1 – VECTOR CONTROL

CHICK-FIL-A, SPRING VALLEY

| DRAWN: PJS | CHKD: RJD | | |
|---|---|---|---|
| DATE: 9-4-20 | DATE: 9-4-20 | | |

## 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/

## 9.1 Documentation of Hydromodification Management Exemption (BMPDM Section 1.6)

- If the PDP is exempt from hydromodification management requirements (see Table 4 Part A.1 of the PDP SWQMP), use this Sub-attachment to document the exemption.
- Select the type of exemption below that applies and provide an explanation of the selection, including maps or other applicable documentation. Additional documentation may be requested by County staff.

**Exemption Type** per BMPDM Figure 1-2 (select one)

☐ a. The proposed project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐ b. The proposed project will discharge runoff directly to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐ c. The proposed project will discharge runoff directly to an area identified by the County as appropriate for an exemption by the WMAA for the watershed in which the project resides[2].

**Explanation** (add or attach pages as necessary)

[2] This option must include an analysis of the project using the methodology presented in Attachment E of the Regional Watershed Management Area Analysis.

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

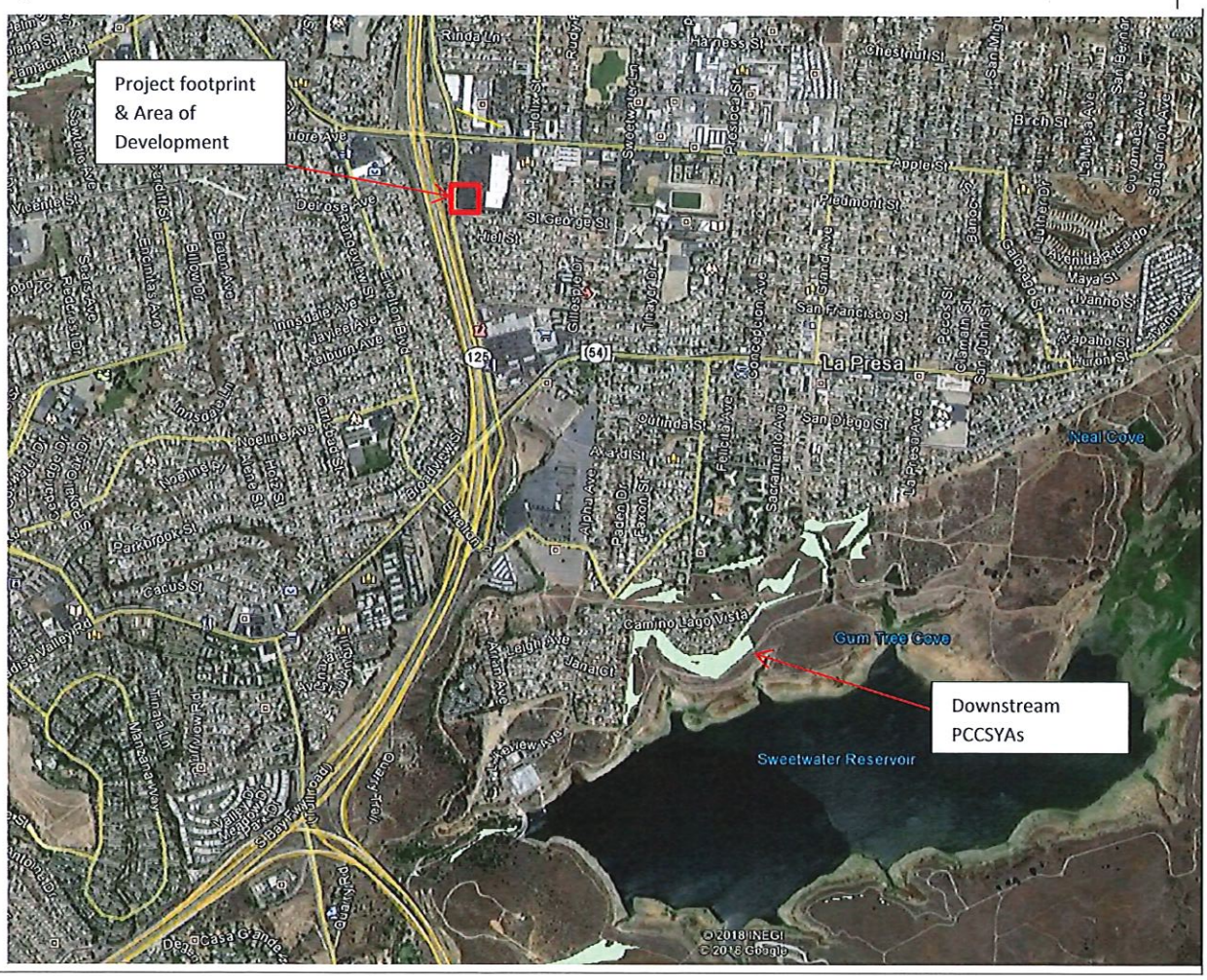
Watershed Management Area Analysis (WMAA) mapping is a simple way to screen projects to determine the presence of onsite or offsite upstream Potential Critical Coarse Sediment Yield Areas (PCCSYAs). The San Diego County Regional WMAA mapping data can be found on the Project Clean Water website here: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

- Based on the WMAA map and the proposed project design, demonstrate below that both of the following conditions apply to the PDP:

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

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

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




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

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

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

Proposed project is upstream of any PCCSYAs and will not have any significant impact

## 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. |

[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.

Proposed project is upstream of any PCCSYAs and will not have any significant impact

## 9.4 No Net Impact Analysis (BMPDM Appendix H.4)

- When impacts to CCSYAs cannot be avoided or effectively bypassed, applicants must demonstrate that their project generates no net impact to the receiving water per the performance metrics identified in BMPDM Appendix H.4.
- Use the space below to document that the PDP will generate no net impact to any receiving water.

**No Net Impact Analysis** (add or attach pages as necessary)

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*** | Chick-fil-A #4466, Spring Valley |
| ***Record ID*** (e.g. grading/improvement plan number, building permit) | PDS2020-LDGRMJ-30298 |
| ***Project Address*** | NEC Corner of Sweetwater Road and St. George Street |
| ***Assessor's Parcel Number(s)*** APN(s) | 584-511-016, -019 |
| ***Project Watershed*** (Hydrologic Unit, Area, and Subarea Name with Numeric Identifier) | Sweetwater Reservoir |
| **B. Owner Information** | |
| ***Name*** | Keith Gilbert - Chick-fil-A Inc. |
| ***Address*** | 15635 Alton Parkway, Suite 350, Irvine, CA 92618 |
| ***Email Address*** | Keith.Gilbert@cfacorp.com |
| ***Phone Number*** | (562) 505-5540 |

| **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) |
|---|---|---|---|---|
| DMA-C | | T1 | - | - |
| DMA-C | | T2 | - | - |
| DMA-D | | T3 | - | - |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## 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 | 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)** | | | | | | | | |
| C | 1 | Biofiltration Basin | T1 | 2 | Pending | C-10 | Pending | |
| D | 1 | Biofiltration Basin | T2 | 2 | Pending | C-10 | Pending | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 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 an item. | | --- | --- | | | |
| | | Choose an item. | | --- | --- | | | |
| | | Choose an item. | | --- | --- | | | |
| | | Choose an item. | | --- | --- | | | |
| | | Choose an item. | | --- | --- | | | |
| 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
- ☐ Water Use Authorization from PDS Landscape Architect

## 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]

## 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 (Inspector Supervisor signature required)
- ☐ 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 (Category 1 BMPs)

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

☒ Stormwater Maintenance Agreement (Category 2 BMPs)

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

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

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

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

### b. Maintenance Plan Requirements

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

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

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

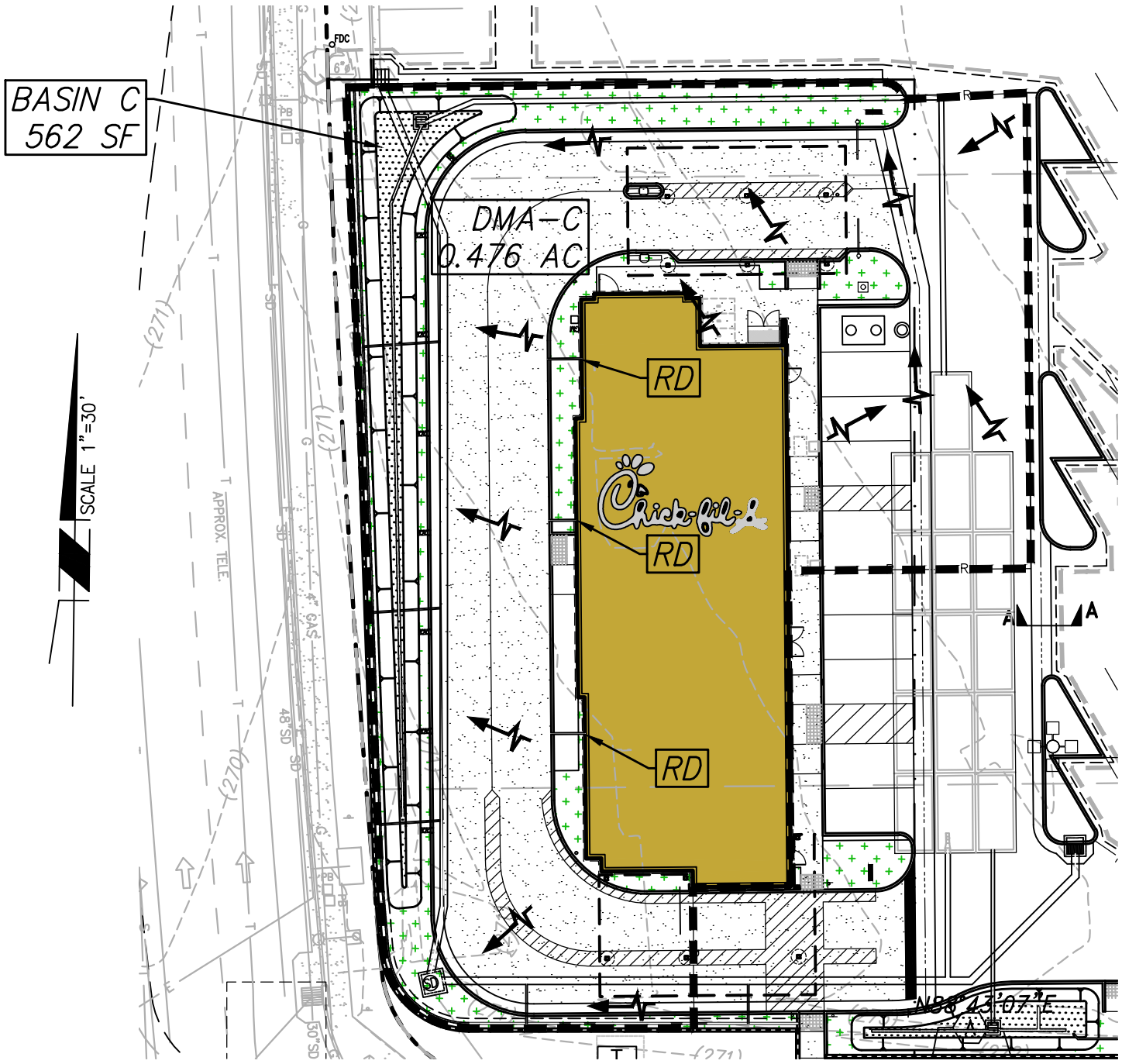
☒ Features to **facilitate inspection** (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds).

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

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

☒ Recommended **equipment** to perform maintenance.

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

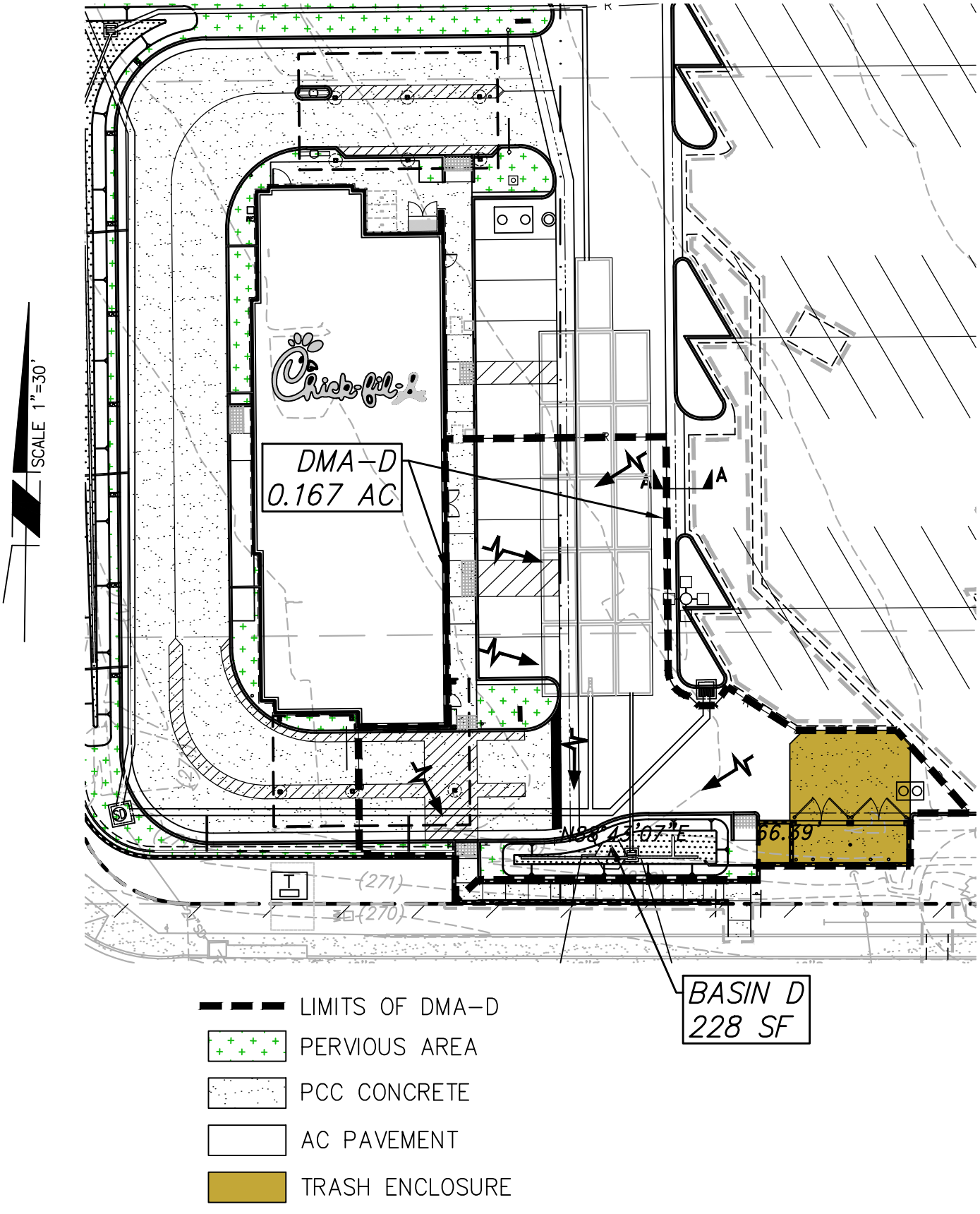



| Prepared by: |
|---|
| Joseph C. Truxaw and Associates, Inc. |
| Civil Engineers and Land Surveyors |
| 1915 W. Orangewood Ave., Suite 101, Orange, CA 92868 |
| (714) 935-0265 Truxaw.com |

# INDIVIDUAL STRUCTURAL BMP DMA MAPBOOK - DMA C

CHICK-FIL- A, SPRING VALLEY

| | | | |
|---|---|---|---|
| DRAWN: PJS | CHKD: RJD | | |
| DATE: 12-16-20 | DATE: 12-16-20 | | |





Prepared by:

**Joseph C. Truxaw and Associates, Inc.**

Civil Engineers and Land Surveyors

1915 W. Orangewood Ave., Suite 101, Orange, CA 92868

(714) 935-0265 Truxaw.com


# INDIVIDUAL STRUCTURAL BMP DMA MAPBOOK - DMA D

## CHICK-FIL- A, SPRING VALLEY

| | | | |
|---|---|---|---|
| DRAWN: PJS | CHKD: RJD | | |
| DATE: 5-6-20 | DATE: 5-6-20 | | |

# BUILDING G
# COFFEE SHOP
# STORM WATER QUALITY MANAGEMENT PLAN (SWQMP)

# County of San Diego

## Stormwater Quality Management Plan (SWQMP)

## For Priority Development Projects (PDPs)

Use for all PDPs (see Storm Water Intake Form, Part 5)




| Project Information | |
|---|---|
| **Project Name** | Spring Valley Retail Center - Coffee Shop |
| **Project Address** | Jamacha Rd & Sweetwater Rd, Spring Valley, CA 91977 |
| **Assessor's Parcel # (APN)** | 584-511-19-00 |
| **Permit # / Record ID** | PDS2019-STP-97-050W3 |

| Project Applicant / Project Proponent | | |
|---|---|---|
| **Name** | Brett Feuerstein | |
| **Address** | 9294 Mira Mesa Blvd, San Diego, CA 92126 | |
| **Phone** | 858-271-4682 | **Email:** brett@mesacenters.com |

| SWQMP Preparer | | |
|---|---|---|
| **Name** | Nolan Huelsman | |
| **Company (if applicable)** | BWE, Inc. | |
| **Address** | 9449 Balboa Avenue, Suite 270 | |
| **Phone** | 619-299-5550 | **Email:** nhuelsman@bwesd.com |
| **PE Number (if applicable)** | 75442 | |

## 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 11, 2020

***COUNTY ACCEPTED***

*SWQMP Approved By*: *Approval Date*:

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

Template Date: December 11, 2018
LUEG: **SW PDP SWQMP**

Preparation Date: March 11, 2020

**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 | 12/3/2019 | Initial Submittal |
| 2 | 9/28/2020 | Second Entitlements Submittal |
| 3 | 9/28/2020 | Third Entitlements Submittal |
| 4 | 1/13/2021 | Fourth Entitlements Submittal |
| 5 | 3/11/2021 | Fifth Entitlements Submittal |
| **Final Design** | | |
| 1 | Date | Initial Submittal |
| 2 | Date | Summary of Change |
| 3 | Date | Summary of Change |
| 4 | Date | Summary of Change |
| No. | Date | Summary of Change |
| **Plan Changes** | | |
| 1 | Date | Initial Submittal |
| 2 | Date | Summary of Change |
| 3 | Date | Summary of Change |
| 4 | Date | Summary of Change |
| No. | Date | Summary of Change |

# PDP SWQMP Submittal Checklist

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


☒ Table 1: Scope of SWQMP Submittal ..... Page 2

☒ Table 2: Baseline BMPs for Existing Natural Features and Proposed Features (Groups 1, 2, and 3) ..... Page 3

☒ Table 3: Baseline BMPs for Pollutant-generating Sources (Group 4) ..... Page 4

☒ Table 4: Infeasibility Justifications for Baseline BMPs ..... Page 5

☒ Table 5: DMA Structural Compliance Strategies and Documentation ..... Page 6

☒ Table 6: Critical Coarse Sediment Yield Area (CCSYA) Requirements ..... Page 7

☒ Table 7: Minimum Construction Stormwater BMPs ..... Page 8

☒ Table 8: Infeasibility Justifications for Construction BMPs ..... Page 9


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

☒ Attachment 1: Storm Water Intake Form

☒ Attachment 2: DMA Exhibits and Construction Plan Sheets

☐ Attachment 3: Source Control BMP Worksheet

☐ Attachment 4: Previous SWQMP Submittals

☒ Attachment 5: Existing Site and Drainage Description

☒ Attachment 6: Documentation of DMAs without Structural BMPs

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

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

☒ Attachment 9: Management of Critical Coarse Sediment Yield Areas

☒ Attachment 10: Installation Verification Form

☒ Attachment 11: BMP Maintenance Agreements and Plans

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

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

[1] All SWQMP attachments are available at www.sandiego.gov/stormwater under the Development Resources tab. Some attachments are presented out of order because they are shared between multiple SWQMP forms.

## Table 1 – Scope of SWQMP Submittal

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

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

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

This submittal is intended to address the redevelopment of an existing parking lot and into a coffee shop. It will include a building, parking lot, drive-thru, and strom water treatment area. The rest of the site plan will be addressed in additional SWQMPs that will be submitted concurrently.

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

## Table 2 – Baseline BMPs for Existing and Proposed Site Features

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

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

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

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

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

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

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

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

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

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

| **BMP-Feature Combination** | | **Explanation** |
|---|---|---|
| Feature | Natural Site Features | No BMPs are proposed because no natural features exist on site. |
| BMP | SD-G | |
| Feature | Feature | Explanation |
| BMP | BMP | |
| Feature | Feature | Explanation |
| BMP | BMP | |
| Feature | Feature | Explanation |
| BMP | BMP | |
| Feature | Feature | Explanation |
| BMP | BMP | |
| Feature | Feature | Explanation |
| BMP | BMP | |
| Feature | Feature | Explanation |
| BMP | BMP | |

## Table 5: DMA Structural Compliance Strategies and Documentation

**Part A – Selection and Application Structural Performance Standards**

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

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

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

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

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

| a. Existing impervious area (ft²) | b. Impervious area created / replaced (ft²) | c. % Impervious created / replaced [(b/a)*100] |
|---|---|---|
| 27,321 | 24,869 | 91% |

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

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

**Part B – Compliance Strategies and Required Attachments**

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

| Att. 1 | Att. 2 | Att. 3 | Att. 4 | Att. 5 |
|---|---|---|---|---|
| Storm Water Intake Form ☒ | DMA Exhibits and Construction Plan Sheets ☒ | Source Control BMP Worksheet (see Page 3) ☒ | Previous SWQMP Submittals (see Page 1) ☐ | Existing Site and Drainage Description ☒ |

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

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

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

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

## Table 6: Critical Coarse Sediment Yield Area (CCSYA) Requirements

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

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

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

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

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

☒ **WMAA mapping demonstrates the following:**

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

b. All potential upstream offsite CCYSAs will be bypassed

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

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

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

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

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

a. Project does not require discretionary permits

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

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

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

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

## Table 7 –Minimum Construction Stormwater BMPs

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

[3] See Caltrans 2017 Storm Water Quality Handbooks, Construction Site BMP Manual, available at: (http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm)
[4] Planting or Hydroseeding may be installed between May 1st and August 15th. Slope irrigation must be in place and operable for slopes >3 feet. Vegetation must be watered and established prior to October 1st. A contingency physical BMP must be implemented by August 15th if vegetation is not established by that date. If landscaping is proposed, erosion control measures must also be used while landscaping is being established. Established vegetation must have a subsurface mat of intertwined mature roots with a uniform vegetative coverage of 70 percent of the natural vegetative coverage or more on all disturbed areas.
[5] All slopes over three feet must have established vegetative cover prior to final permit approval.
[6] County PDS 659. Standard Lot Perimeter Protection Design System (Bldg. Division)
[7] County PDS 660. County Standard Desilting Basin for Disturbed Areas of 1 Acre or Less Bldg. Division
[8] Regional Standard Drawing D-40 – Rip Rap Energy Dissipater (also acceptable for velocity reduction)
[9] Applicants are responsible to apply appropriate BMPs for specific wastes (e.g., BMP WM-8 for concrete).

## Table 8 – Explanations and Justifications for Construction Phase BMPs

| ☒ **Check here if no explanations or justifications for Table 7 BMPs are required.** | | |
|---|---|---|
| **Justifications for Table 7 Temporary Construction Phase BMPs**<br>• **Required Justifications**: Justify all construction activity types for which NO BMPs were selected.<br>• **If Requested**: Justify why specific individual BMPs were not selected.<br>• **Additional Explanation**: Describe any proposed features and/or BMPs not listed in Table 7. | | |
| **Activity Type / BMP** | | **Explanation** |
| Activity Type | Activity Type | Explanation |
| BMP | BMP | |
| Activity Type | Activity Type | Explanation |
| BMP | BMP | |
| Activity Type | Activity Type | Explanation |
| BMP | BMP | |
| Activity Type | Activity Type | Explanation |
| BMP | BMP | |
| Activity Type | Activity Type | Explanation |
| BMP | BMP | |
| Activity Type | Activity Type | Explanation |
| BMP | BMP | |
| Activity Type | Activity Type | Explanation |
| BMP | BMP | |

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

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

| **Part 1. Project Information** | |
|---|---|
| Project Name: | Spring Valley Retail Center - Coffee Shop |
| Record ID (Permit) No(s): | PDS2019-STP-97-050W3 |
| Assessor's Parcel No(s): | 584-51-19-00 |
| Street Address (or Intersection): | Jamacha Rd. & Sweetwater Rd. |
| City, State, Zip: | Spring Valley, CA 91977 |

| **Part 2. Applicant / Project Proponent Information** | |
|---|---|
| Name: | Brett Feuerstein |
| Company: | Mesa Centers |
| Street Address: | 9294 Mira Mesa Blvd |
| City, State, Zip: | San Diego, CA 92126 |
| Phone Number | 858-271-4682 |
| Email: | brett@mesacenters.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)** |
|---|---|---|---|
| | 585,522 | 24,869 | 29,419 |

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

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

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

## Part 4. Priority Classification & SWQMP Form Selection

| (A) *If your project is the following … (select one)* | (B) *You must complete …* |
|---|---|
| ☐ **Standard Project**<br>☐ a. Project is East of the Pacific/Salton Sea Divide<br>☐ b. None of the PDP criteria below applies | ➔ **Standard *SWQMP Form*** |
| ☒ **Priority Development Project (PDP)**<br>☐ 1. Project is part of an existing PDP**,** OR<br>☒ 2. Project does any of the following:<br>☒ a. Creates or replaces a total of 10,000 ft² or more of impervious surface<br>☒ 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<br>☐ 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<br>☐ d. Discharges directly to an Environmentally Sensitive Area (ESA) AND creates or replaces 2,500 ft² or more of impervious surface<br>☐ e. Disturbs one or more acres of land (43,560 ft²) and is expected to generate pollutants post-construction<br>☒ 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: 9294 Mira Mesa Blvd San Diego, CA 92126 Date: 1/13/21

- ***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.

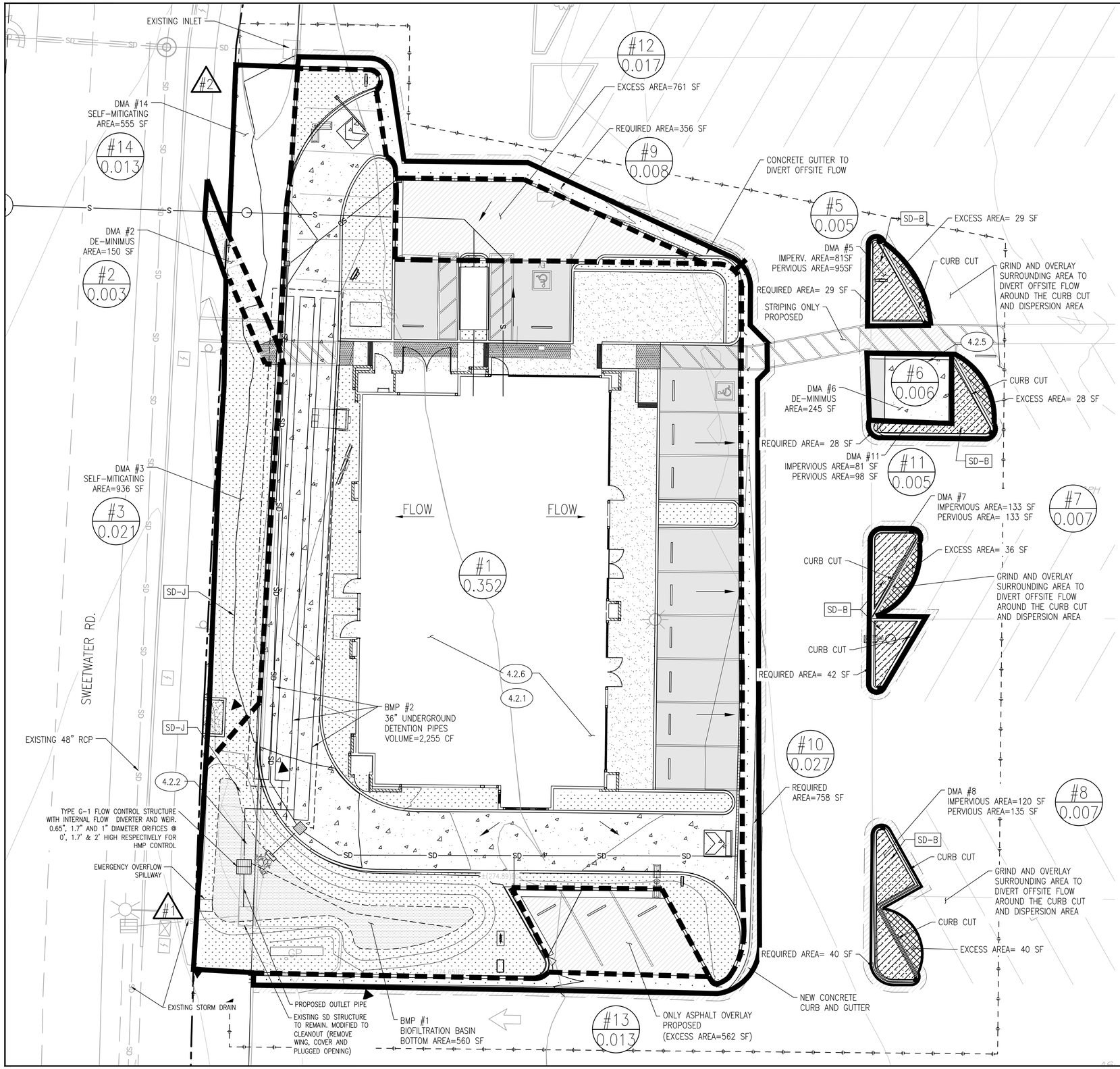
| Sub-attachments | Requirement |
|---|---|
| ☒ **2.1: DMA Exhibits** | All PDPs |
| ☐ **2.2: Individual Structural BMP DMA Mapbook** | PDPs with structural BMPs |
| ☒ **2.3: Construction Plan Sets** | All projects |

## 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 #:** | |
|---|---|
| **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<br>☐ SSD-BMP tree wells |
| ☒ Attachment 7 | ☒ Structural pollutant control BMPs |
| ☒ Attachment 8 | ☒ Structural hydromodification management BMPs<br>☐ Point(s) of Compliance (POC) for hydromodification management<br>☒ Proposed drainage boundary and drainage area to each POC |
| ☒ Attachment 9 | ☐ Onsite CCSYAs ☐ Bypass of onsite CCSYAs<br>☐ Bypass of upstream offsite CCSYAs |

[1] Group 1-4 features and baseline BMPs from PDP SWQMP Tables 2 and 3.
[2] Minimum Construction Stormwater BMPs from PDP SWQMP Table 7.
[3] Identify the location, ID numbers, type, and size/detail of BMPs.




## LEGEND

| | SYMBOL |
|---|---|
| DMA BOUNDARY | |
| LIMIT OF WORK | |
| MINOR BASIN BOUNDARY | |
| EXISTING STORM DRAIN | SD |
| NEW STORM DRAIN | SD |
| EXISTING CONTOUR | XXX |
| NEW CONTOUR | XXX |
| POINT OF COMPLIANCE (POC) | 1 |
| DRAINAGE MANAGEMENT AREA MARKER<br>AREA (AC) | B-X<br>X.XX |
| BIOFILTRATION BMP | |
| CONCRETE | |
| NEW/REPLACED ASPHALT | |
| PERVIOUS DISPERSION AREA | |
| EXCESS AREA | |

## SITE DESIGN BMPS:

- SD-B DISPERSION OF SIDEWALKS, PARKING AREAS, DRIVEWAYS, AND ROOFTOP RUNOFF
- SD-I MINIMIZATION OF IMPERVIOUS AREAS AND EROSION
- SD-J WATER-EFFICIENT LANDSCAPING
- SD-K EFFICIENT IRRIGATION SYSTEMS

## STRUCTURAL BMPS:

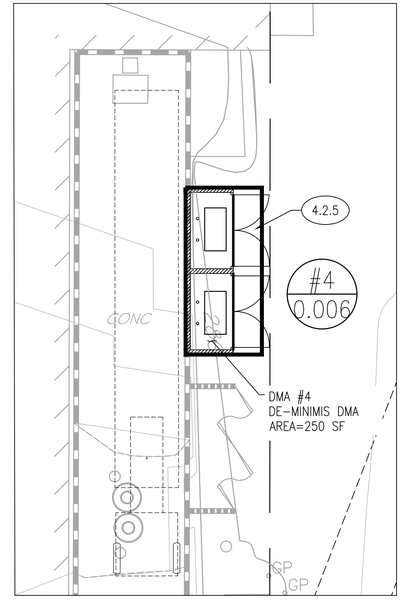
- 1 BIOFILTRATION BMP (POLLUTANT & HMP CONTROL)

## NOTES:

1. THE PROJECT SOIL TYPE FOR THE SITE IS C.
2. THE DEPTH TO GROUNDWATER IS UNKNOWN.

## SOURCE CONTROL BMPS:

- 4.2.1 PREVENT ILLICIT DISCHARGES INTO THE MS4
- 4.2.2 IDENTIFY THE STORM DRAIN SYSTEM USING STENCILING OR SIGNAGE
- 4.2.3 PROTECT OUTDOOR MATERIAL STORAGE AREAS FROM RAINFALL, RUN-ON, RUNOFF, AND WIND DISPERSAL
- 4.2.4 PROTECT MATERIALS STORED IN OUTDOOR WORK AREAS FROM RAINFALL, RUN-ON, RUNOFF, AND WIND DISPERSAL
- 4.2.5 PROTECT TRASH STORAGE AREAS FROM RAINFALL, RUN-ON, RUNOFF, AND WIND DISPERSAL
- 4.2.6 ADDITIONAL BMPS TO MINIMIZE POLLUTANT GENERATION




## ENLARGEMENT A: TRASH ENCLOSURE

SCALE 1" = 10'

SCALE IN FEET
1 inch = 10 ft.

BVE
CIVIL•STRUCTURAL•SURVEY•PLANNING
9449 BALBOA AVE. STE 270
SAN DIEGO, CA 92123
619.299.5550

| DESCRIPTION | DATE | APPR |
|---|---|---|
| | | |

| SYM | |
|---|---|
| ISSUE DATE: | 08/29/2019 |
| DRAWN BY: | MDS |
| CHECKED BY: | MGC |
| BME JOB NUMBER: | 13392US.3.00 |
| CLIENT JOB NUMBER: | |
| MUNICIPALITY PROJECT NUMBER: | |

SHEET TITLE

# DMA EXHIBIT

SHEET 1 OF 1

PROJECT

# SPRING VALLEY RETAIL CENTER
## DUNKIN DONUTS
SPRING VALLEY, CA

SITE ADDRESS

933 SWEETWATER ROAD
SPRING VALLEY, CA 91977

PLOT: M:\PROJECTS\13000\13392US.3.00 US SPRING VALLEY RETAIL CENTER DUNKIN DONUTS\DWGS\EXHIBITS\SWQMP\13392US.3.00-DMAS-EXHB.DWG Kyle Markff 3/11/2021 12:26 PM

## 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.

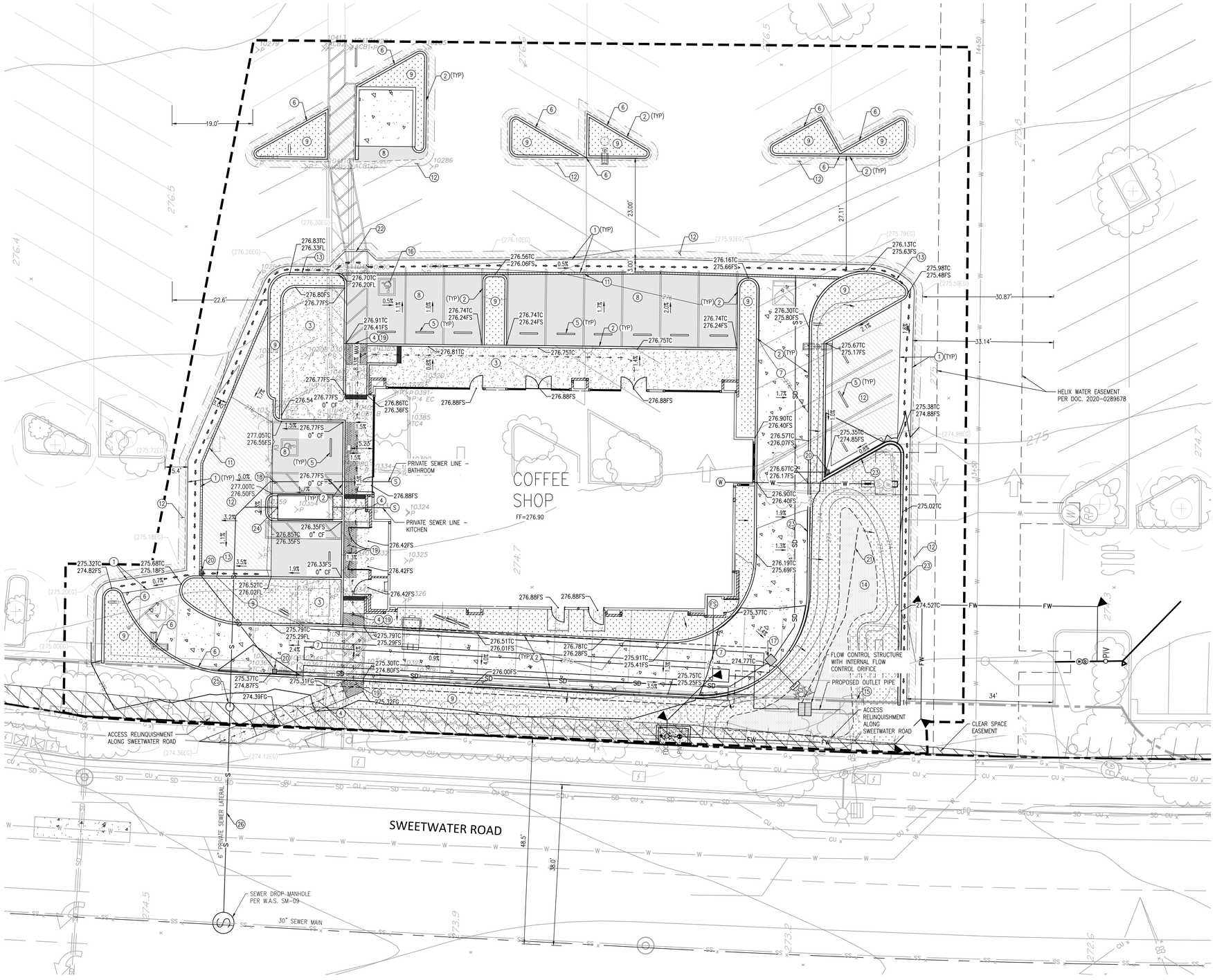
| | |
|---|---|
| ☐ | All Mapbooks are attached |
| ☐ | All Mapbooks are in Attachment 11 |

## 2.3 Construction Plan Sets

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

| **Plan Type** | **Grading 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




## PROPOSED LEGEND

| | SYMBOL |
|---|---|
| PROPERTY LINE/RIGHT OF WAY | |
| BUILDING | |
| SEWER PIPE | S |
| WATER SERVICE | W |
| FIRE WATER SERVICE | FW |
| STORM DRAIN | SD |
| SAWCUT LINE | |
| LIMITS OF WORK | |
| SLOTTED TRENCH DRAIN | |
| DIRECTION OF FLOW | |
| STORM DRAIN INLET | |
| OVERLAY AC PAVEMENT | |
| CONCRETE PAVEMENT (CONC) | |
| LANDSCAPING | |
| BIOFILTRATION BMP | |
| AC PAVEMENT (AC) | |

## EXISTING LEGEND

| | SYMBOL |
|---|---|
| PROPERTY LINE/RIGHT OF WAY LINE | ROW OR P/L |
| EXISTING CENTER LINE | |
| EXISTING CONTOUR | 405 OR (405) |
| EXISTING SPOT ELEVATION | 405.71 |
| UTILITY POLE | UP |
| LIGHT POST | LP |
| STREET LIGHT ON POWER POLE | SL |
| ELECTRIC VAULT | EV |
| ELECTRIC PULL BOX | EPB |
| ELECTRIC LINE | E |
| OVERHEAD ELECTRIC/TELEPHONE AND CABLE LINES | OH/ETC |
| GAS ASSEMBLY | GA |
| GAS LINE | G |
| STORM DRAIN MANHOLE | SDMH |
| STORM DRAIN AREA DRAIN | AD |
| DROP INLET | SDDI |
| CURB INLET | SDCI |
| STORM DRAIN LINE | SD |
| WATER METER | WM |
| WATER VALVE | WV |
| FIRE HYDRANT | FH |
| FIRE DEPT. CONNECTION | FDC |
| BACK FLOW PREVENTER | BFP |
| IRRIGATION CONTROL VALVE | ICV |
| WATER LINE | W |
| SEWER MANHOLE | SMH |
| SEWER CLEAN OUT | SCO |
| SEWER LINE | S |
| SIGN | |
| CONCRETE | CONC |

## CONSTRUCTION KEYNOTES

(S) SEWER POC 5' OUTSIDE OF BUILDING. CONTINUATION PER PLAN
(W) WATER POC 5' OUTSIDE OF BUILDING. CONTINUATION PER PLAN
(FS) FIRE WATER SERVICE POC 5' OUTISDE OF BUILDING. CONINUATION PER PLAN
(1) 3' CONCRETE SWALE. SEE DETAIL ON SHEET CG2.0
(2) 6" PCC CURB
(3) CONCRETE SIDEWALK
(4) CURB RAMP
(5) CONCRETE WHEEL STOP
(6) CURB OPENING
(7) PCC PAVING PER SOILS REPORT
(8) AC PAVING PER SOILS REPORT
(9) LANDSCAPE AREA PER L.S. PLANS
(11) DURASLOT SURFACE DRAIN. SEE DETAIL ON SHEET CG2.0
(12) AC PAVING OVERLAY
(13) CURB AND GUTTER
(14) BIOFILTRATION BMP
(15) EXISTING STORM DRAIN STRUCTURE TO REMAIN. REMOVE WING. PLUG CURB INLET OPENING AND RIM.
(16) STRIPE ACCESSIBLE PARKING STALL
(17) 24" X 24" CATCH BASIN
(18) STRIPE EV STALL PER ARCH PLANS
(19) TRUNCATED DOMES
(20) 12"x12" CATCH BASIN
(21) SUBDRAIN STORM DRAIN PIPE
(22) 5' CONCRETE SWALE. SEE DETAIL ON SHEET CG2.0
(23) GRAVITY WALL WITH CURB
(24) GREASE TRAP INTERCEPTOR
(25) PROPOSED SEWER CLEANOUT
(26) PROPOSED PRIVATE SEWER LATERAL

## EARTHWORK CALCULATOINS

CUT VOLUME = 90 CYD
FILL VOLUME = 230 CYD
NET FILL = 140 CYD

## PRELIMINARY GRADING PLAN:

THIS PLAN IS PROVIDED TO ALLOW FOR FULL AND ADEQUATE DISCRETIONARY REVIEW OF A PROPOSED DEVELOPMENT PROJECT. THE PROPERTY OWNER ACKNOWLEDGES THAT ACCEPTANCE OR APPROVAL OF THIS PLAN DOES NOT CONSTITUTE AN APPROVAL TO PERFORM ANY GRADING SHOWN HEREON, AND AGREES TO OBTAIN VALID GRADING PERMISSIONS BEFORE COMMENCING SUCH ACTIVITY.

## BASIS OF BEARING

THE BASIS OF BEARING FOR THIS WORK IS THE NAD83 CALIFORNIA COORDINATE SYSTEM, ZONE 6, GRID BEARING BETWEEN STATIONS 1209 AND 1208 PER RECORD OF SURVEY 11492.

## BENCHMARK

FOUND 2½" BRASS DISC STAMPED "125–K 19.6i 1998" IN TOP OF CURB ON THE SOUTH SIDE OF JAMACHA ROAD PER CALTRANS CONTROL MONUMENT DATA.
ELEVATION = 280.164 FEET NGVD29 DATUM.

NOTICE: IN THE EVENT THAT ANY ACTIVITY, INCLUDING EARTHMOVING OR CONSTRUCTION, DISCOVERS THE PRESENCE OF 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. THE PRESENCE OF CONTAMINATED SOILS WILL REQUIRE SOIL TESTING AND REMEDIATION IN ACCORDANCE WITH STANDARD COUNTY PROCEEDURES. THIS PROCESS WILL BE DETERMINED ONCE THE COUNTY IS NOTIFIED OF THE PRESENCE OF CONTAMINATED SOILS.

5 0 10 20
SCALE IN FEET
1 inch = 10 ft.

REGISTERED PROFESSIONAL ENGINEER
LEE HUEY
Exp. 06-30-23
CIVIL
STATE OF CALIFORNIA

BWE
CIVIL•STRUCTURAL•SURVEY•PLANNING
9449 BALBOA AVE. STE 270
SAN DIEGO, CA 92123 619.299.5550

ZAAP
ZIEBARTH ASSOCIATES
ARCHITECTUNE • PLANNING

PREPARED BY:
ZAAP, INC.
2900 FOURTH AVENUE #204
SAN DIEGO, CA 92103
619-233-6450 (PHONE)
619-233-6449 (FAX)
WWW.ZAAP.BIZ

PROJECT ADDRESS:
935 SWEETWATER ROAD
Spring Valley, CA 91977
PROJECT NO: 16350

DATE: 09/26/2019

| REVISION #: | DATE: | REVISION #: | DATE: |
|---|---|---|---|
| 1 | | 6 | |
| 2 | | 7 | |
| 3 | | 8 | |
| 4 | | 9 | |
| 5 | | 10 | |

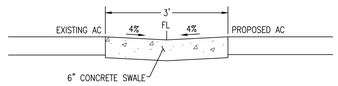
PROJECT NAME:
SHOPPING CENTER - SPRING VALLEY

CG1.0

SHEET TITLE: PRELIMINARY GRADING PLAN

# SHOPPING CENTER - SPRING VALLEY

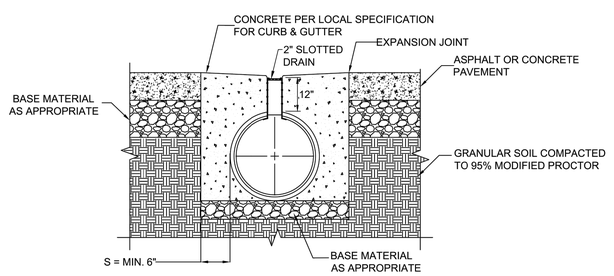
S.E.C. JAMACHA RD. & SWEETWATER RD.
SPRING VALLEY, CA




CONCRETE RIBBON GUTTER

NO SCALE

# HEAVY TRAFFIC DURASLOT® INSTALLATION




Heavy Traffic - surrounded by concrete for critical loading applications. This would include frequent high-speed, H-20 traffic (i.e. highways, loading docks, etc.). The 'S' dimension is generally 6" depending on the specific conditions for the project (design layout, traffic patterns, soil properties, etc.). Expansion joints and concrete and/or asphalt pavement is to be designed by others.

© 2018 ADS, INC.

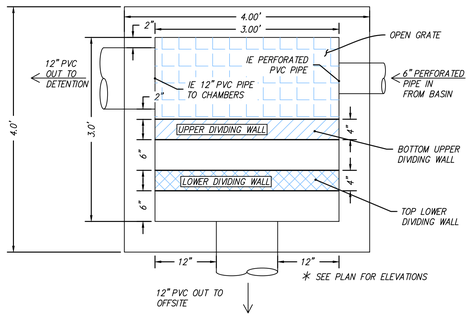
| REV. | DESCRIPTION | BY | MM/DD/YY | CHK'D |
|---|---|---|---|---|
| | | | | |

ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS DETAIL BASED ON INFORMATION PROVIDED TO ADS. THIS DRAWING IS INTENDED TO DEPICT THE COMPONENTS AS REQUESTED. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN SERVICES FOR THIS PROJECT, NOR HAS ADS INDEPENDENTLY VERIFIED THE INFORMATION SUPPLIED. THE INSTALLATION DETAILS PROVIDED HEREIN ARE GENERAL RECOMMENDATIONS AND ARE NOT SPECIFIC FOR THIS PROJECT. THE DESIGN ENGINEER SHALL REVIEW THESE DETAILS PRIOR TO CONSTRUCTION. IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEETS OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

DRAWING NUMBER:

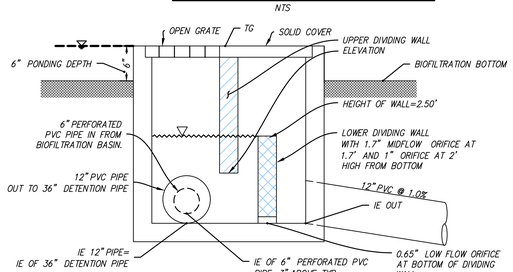
ADVANCED DRAINAGE SYSTEMS, INC.
4640 TRUEMAN BLVD
HILLIARD, OHIO 43026

SIZE: ARCH D
DATE:
DES BY:
DWN BY:
SCALE: NTS
SHEET: 1 OF 1




## MODIFIED CATCH BASIN PER SDRSD D-8, TYPE G-1 WITH DIVIDING WALLS

NTS

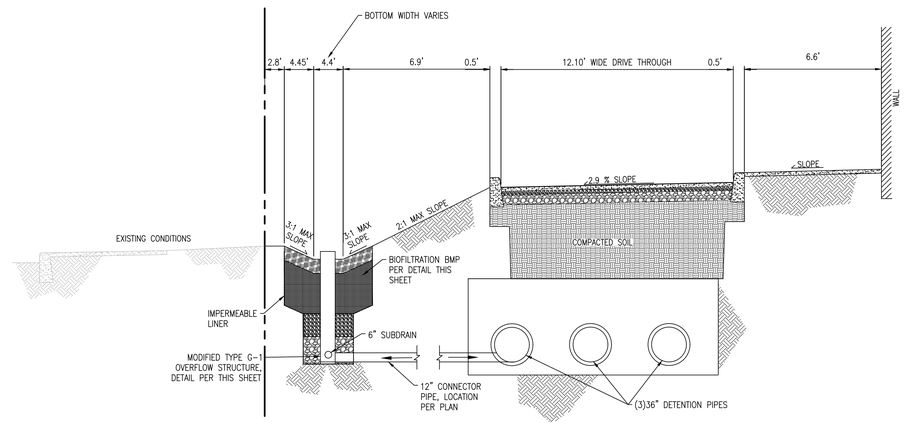



## MODIFIED CATCH BASIN PER SDRSD D-8, TYPE G-1 WITH DIVIDING WALLS

NTS

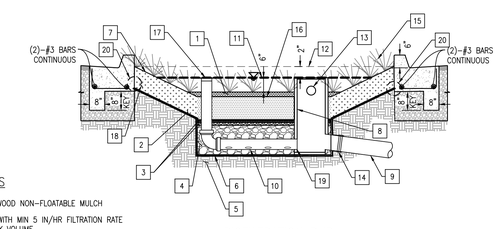
MODIFIED TYPE G-1 CATCH BASIN

NO SCALE




## SECTION A-A

SCALE: N.T.S.




## BIOFILTRATION BMP

NO SCALE

### BIOFILTRATION NOTES

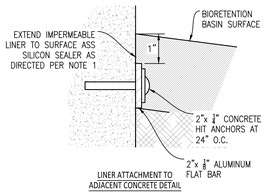
| | |
|---|---|
| 1 | 3" WELL-AGED HARDWOOD NON-FLOATABLE MULCH |
| 2 | MIN 18" SOIL MEDIA WITH MIN 5 IN/HR FILTRATION RATE<br>85% WASHED SAND BY VOLUME<br>15% COMPOST OR ALTERNATIVE ORGANIC AMENDMENT BY VOLUME |
| 3 | FILTER COURSE: 3" WASHED ASTM 33 SAND OVERLYING 3" ASTM NO 8 STONE |
| 4 | AGGREGATE STORAGE LAYER. ASTM #57 OPEN GRADED STONE.<br>MIN. DEPTH 12" UNLESS SPECIFIED |
| 5 | EXISTING UNCOMPACTED SUBGRADE |
| 6 | 30 MIL IMPERMEABLE LINER |
| 7 | SIDE SLOPE (3:1 MAX) |
| 8 | MODIFIED TYPE G-1 OVERFLOW STRUCTURE PER DETAIL THIS SHEET |
| 9 | OUTLET PIPE, SIZE AND MATERIAL PER PLAN |
| 10 | 6" PVC PERFORATED UNDERDRAIN PIPE, OUTLET ELEVATION ELEVATED<br>3" MIN. ABOVE THE BOTTOM ELEVATION OF THE AGGREGATE STORAGE LAYER.<br>(4) PERFORATED HOLES 3/8" ø MIN @ 3-1/4" SPACING ALONG PIPE.<br>W/ STAGGERED HORIZONTAL ROWS. PER CITY OF SAN DIEGO STANDARD DRAWING SDSW-102 |
| 11 | SURFACE PONDING DEPTH (6" ABOVE TOP OF MULCH LAYER) |
| 12 | 2" MIN. FREEBOARD |
| 13 | 2.2" MID FLOW ORIFICE. INVERT 0.75" ABOVE BASIN FS |
| 14 | CLAMP LINER TO OUTLET PIPE FOR WATERTIGHT SEAL |
| 15 | PLANTING PER LANDSCAPE PLANS. PLAN TYPE SHALL CONFORM TO THE CITY/COUNTY OF SAN DIEGO LID STANDARDS |
| 16 | TOP OF BIOFILTRATION SOIL MEDIA, CALLED OUT AS "FS" ON THE PLAN,<br>ADD 3" TO TOP OF MULCH LAYER |
| 17 | 6" PVC CLEANOUT FOR UNDERDRAIN WITH LOCKABLE CAP PER SDSW-101, WHERE OCCURS,<br>RIM ELEVATION TO MATCH WITH THE PONDING DEPTH |
| 18 | PLANTING SOIL PER LANDSCAPE PLANS |
| 19 | 6" PVC THREADED AND CAP WITH 0.65" ORIFICE |
| 20 | LINER ATTACHMENT TO ADJACENT CONCRETE PER DETAIL THIS SHEET. |

### LEGEND

| | |
|---|---|
| 18" SOIL MEDIA | |
| 12" AGGREGATE LAYER | |
| 3" MULCH | |
| 6" FILTER COURSE | |
| PLANTING SOIL | |

### NOTES

1. BIORETENTION SOIL MEDIA (BSM) SHALL BE LIGHTLY COMPACTED AND PLACED IN LOOSE LIFTS APPROXIMATELY 12 INCHES TO ENSURE REASONABLE SETTLEMENT WITHOUT EXCESSIVE COMPACTION. COMPACTION WITHIN THE BSM AREA SHALL NOT EXCEED 75 TO 85% STANDARD PROCTOR WITHIN THE DESIGNED DEPTH OF THE BSM.
2. 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.
3. 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.
4. CONTRACTOR SHALL PROVIDE AN AS-BUILT SURVEY PREPARED BY A LICENSED LAND SURVEYOR OF THE BIORETENTION BASIN.
5. 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.

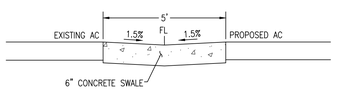



NOTES

1. ON CLEAN CONCRETE SURFACE, ADHERE LINER TO CONCRETE WITH SILICONE SEALANT OR EQUIVALENT PER MANUFACTURER RECOMMENDATIONS TO TOP 1" OF LINER.
2. SECURE LINER TO CONCRETE WITH 2" ALUMINUM OR STAINLESS STEEL FLAT BAR AS DIRECTED PER PLAN.
3. AS AN ALTERNATE, HIT ANCHORS CAN BE SUBSTITUTED WITH STAINLESS STEEL ANCHORS AT 24" O.C. OR POWDER ACTUATED FASTENERS AT 12" O.C.
4. TRIM EXCESS LINER TO BE FLUSH WITH SURFACE ELEVATION.
5. CONTRACTOR MEANS AND METHODS SHOULD AVOID/ MINIMIZE WRINKLES TO THE LINER.

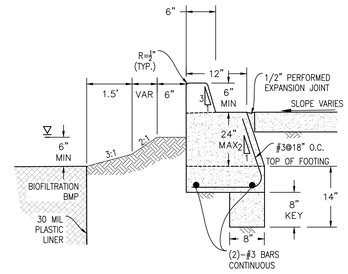
IMPERMEABLE LINER FASTENING DETAIL

NO SCALE




5' CONCRETE RIBBON GUTTER

NO SCALE




GRAVITY WALL WITH CURB

NO SCALE

REGISTERED PROFESSIONAL ENGINEER
KEVIN LEE HUELL
Exp. 3-31-22
CIVIL
STATE OF CALIFORNIA

BWE
CIVIL•STRUCTURAL•SURVEY•PLANNING
9449 BALBOA AVE, STE 270
SAN DIEGO, CA 92123 619.299.5550

ZAAP
ZIEBARTH ASSOCIATES
ARCHITECTURE + PLANNING

PREPARED BY:
ZAAP, INC.
2900 FOURTH AVENUE #204
SAN DIEGO, CA 92103
619-233-6450 (PHONE)
619-233-6449 (FAX)
WWW.ZAAP.BIZ

PROJECT ADDRESS:
935 SWEETWATER ROAD
Spring Valley, CA 91977
PROJECT NO: 16350

DATE: 09/26/2019

| REVISION #: | DATE: | REVISION #: | DATE: |
|---|---|---|---|
| 1 | | 4 | |
| 2 | | 5 | |
| 3 | | 6 | |

PROJECT NAME:
SHOPPING CENTER - SPRING VALLEY

CG2.0

SHEET TITLE: DETAILS

# SHOPPING CENTER - SPRING VALLEY

S.E.C. JAMACHA RD. & SWEETWATER RD.
SPRING VALLEY, CA

## 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: Preliminary Drainage Study |
    | Prepared By: Nolan Huelsman/BWE Inc |
    | Date: March 2021 |

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

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

# DRAINAGE STUDY SUMMARY PAGE

Table 7-2 Combined Onsite and Offsite Peak Flow Rates Summary

| | Drainage Area (acres) | | 100 Yr Flow (cfs) | | Change from Existing Condition |
|---|---|---|---|---|---|
| | **Existing Condition** | **Proposed Condition** | **Existing Condition** | **Proposed Condition (Unmitigated)** | |
| **Discharge Point 1** | 0.65 | 0.63 | 3.92 | 3.76 | |
| | | | | | |
| **Discharge Point 2** | 1.56 | 1.58 | 9.10 | 8.80 | |
| | | | | | |
| **Total** | **2.21** | **2.21** | **13.02** | **12.56** | **-0.46** |

The unmitigated peak flow rate generated from the 100-year storm event is anticipated to decrease by 0.46 cfs (=13.02-12.56 cfs) in the proposed condition. The decrease in peak flow rate is mainly due to the slight decrease in the impervious area in the proposed condition and increase in time of concentration.

Additional detention for the 100-year peak flow rate is not required as the proposed unmitigated peak flow rate is lower than the existing condition peak flow rate.

## 6.0 General Requirements

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

| DMA Compliance Option | Required Sub-attachments | BMPDM Design Resources |
|---|---|---|
| ☒ **Self-mitigating** | • Sub-attachment 6.1 | • BMPDM Section 5.2.1 |
| ☒ **De minimis** | • Sub-attachment 6.2 | • BMPDM Section 5.2.2 |
| ☒ **Self-retaining**[1] | • Sub-attachment 6.3 | • BMPDM Section 5.2.3 (all options) |
| **SSD-BMP Type(s)** | | |
| ☒ **Impervious Area Dispersion** | • Sub-attachment 6.3.1 | • Fact Sheet SD-B (Appendix E.8) |
| ☐ **Tree Wells** | • Sub-attachment 6.3.2 | • Fact Sheet SD-A (Appendix E.7) |

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

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

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

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

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

| *DMA #* | *a. DMA Area ($ft^2$)* | *Incidental Impervious Area* | | *Permit # and Sheet #* |
|---|---|---|---|---|
| | | *b. Size($ft^2$)* | *c. % (b/a*100)* | |
| 3 | 936 | | | |
| 14 | 555 | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

- "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.

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

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

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

| ***DMA #*** | ***DMA Area ($ft^2$)*** | ***Permit # and Sheet #*** |
|---|---|---|
| 2 | 150 | |
| 4 | 250 | |
| 6 | 245 | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

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

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

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

## 6.3 Self-retaining DMAs using Significant Site Design BMPs

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

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

| DMA # | DMA Area ($ft^2$) | **BMP Type** (choose one per DMA) | | *Permit # and Sheet #* |
|---|---|---|---|---|
| | | **Dispersion Area (Att. 6.3.1)** | **Tree Wells (Att. 6.3.2)** | |
| 5 | 205 | ☒ | ☐ | |
| 7 | 308 | ☒ | ☐ | |
| 8 | 295 | ☒ | ☐ | |
| 11 | 207 | ☒ | ☐ | |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |

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

---

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

*6.3.1 Self-retaining DMAs with Impervious Dispersion Areas*

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

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

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

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

**DMA # 5**

**A. Minimum Sizing Requirements**

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

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

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

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

**Amended Soil (Pollutant Control plus Hydromodification Management)**

Must satisfy both conditions and provide calculations below.

☒ Ratio I:P is 1:1 or less, AND

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

| *Impervious Area (ft²)* | *Permeable Dispersion Area (ft²)* | *Ratio I:P* |
|---|---|---|
| 81 | 95 | 0.85:1 |

**Permeable Pavement (Pollutant Control Only)** Provide calculations below.

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

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

**B. Minimum Design Criteria**

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

**Impervious Areas:**

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

**Pervious Dispersion Areas:**

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

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

☒ Are densely and robustly vegetated with drought tolerant species.

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

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

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

[3]Including the permeable pavement.

**DMA # 7**

**A. Minimum Sizing Requirements**

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

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

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

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

**Amended Soil (Pollutant Control plus Hydromodification Management)**

Must satisfy both conditions and provide calculations below.

☒ Ratio I:P is 1:1 or less, AND

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

| *Impervious Area (ft²)* | *Permeable Dispersion Area (ft²)* | *Ratio I:P* |
|---|---|---|
| 133 | 133 | 1:1 |

**Permeable Pavement (Pollutant Control Only)** Provide calculations below.

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

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

**B. Minimum Design Criteria**

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

**Impervious Areas:**

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

**Pervious Dispersion Areas:**

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

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

☒ Are densely and robustly vegetated with drought tolerant species.

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

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

---

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

[3]Including the permeable pavement.

**DMA # 8**

**A. Minimum Sizing Requirements**

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

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

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

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

**Amended Soil (Pollutant Control plus Hydromodification Management)**

Must satisfy both conditions and provide calculations below.

☒ Ratio I:P is 1:1 or less, AND

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

| *Impervious Area (ft²)* | *Permeable Dispersion Area (ft²)* | *Ratio I:P* |
|---|---|---|
| 120 | 135 | 0.89:1 |

**Permeable Pavement (Pollutant Control Only)** Provide calculations below.

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

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

**B. Minimum Design Criteria**

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

**Impervious Areas:**

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

**Pervious Dispersion Areas:**

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

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

☒ Are densely and robustly vegetated with drought tolerant species.

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

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

---

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

[3]Including the permeable pavement.

**DMA # 11**

**A. Minimum Sizing Requirements**

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

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

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

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

**Amended Soil (Pollutant Control plus Hydromodification Management)**

Must satisfy both conditions and provide calculations below.

☒ Ratio I:P is 1:1 or less, AND

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

| *Impervious Area (ft²)* | *Permeable Dispersion Area (ft²)* | *Ratio I:P* |
|---|---|---|
| 81 | 98 | 0.83:1 |

**Permeable Pavement (Pollutant Control Only)** Provide calculations below.

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

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

**B. Minimum Design Criteria**

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

**Impervious Areas:**

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

**Pervious Dispersion Areas:**

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

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

☒ Are densely and robustly vegetated with drought tolerant species.

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

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

---

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

[3]Including the permeable pavement.

## 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<br>• 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** Spring Valley Retail Center-Coffee Shop
**Permit Application Number** PDS2019-STP-97-050W3

### 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

Nolan Huelsman, PE

Print Name

BWE Inc

Company

September 28, 2020

Date

Engineer's Seal:



## 7.2 Structural BMP Strategy

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

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

A combination of Source Control, Site Design, and Structural BMPs are proposed to mitigate impacts of the proposed development. Each design adheres to the requirements of the County of San Diego's BMP manual and provides treatment for the site's Design Capture Volume (DCV) defined as the 85th percentile, 24 hour storm event. A feasibility studies of all retention based BMPs (harvest and use, full and/or partial infiltration) is performed prior to selecting the biofiltration BMPs to comply with the pollutant control requirements. It is determined that the harvest and use of precipitation is infeasible as the site has a low 36-hour water demand (less than 25% of the Design Capture Volume).

Proposed improvements include a coffee shop building, drive-through lane, and associated landscape and parking areas. Offsite runoff bypasses the site via a concrete gutter and discharges to the existing storm drain system in Sweetwater Road. A Biofiltration BMP (BMP #1) is proposed for pollutant control and an underground detention system provides hydromodification for the site (BMP#2). Run-off on the edges of the site such as parking islands utilize impervious dispersion, maintaining an 11" of amended soil depth and an impervious to pervious ratio of 1:1 or less to address pollutant control and hydromodification requirements. Controlled stormwater will discharge to Sweetwater Road via a proposed storm drain.

DMA #1 consists of the coffee shop building, drive-through lane, and surrounding hardscape and landscaping. DMA #12 comprises of a portion of asphalt to the east of the entrance to the drive-through lane and is contributing as excess area. DMA #13 contains the southern parking area that will be overlaid and is considered an excess area. DMAs #1, #12, and #13 drain to BMP #1 for pollutant control and BMP#2 for hydromodification control.

A modified type G-1 catch basin is utilized as a flow control structure to separate the pollutant and hydromodification flows. When ponding in Biofiltration BMP #1 exceeds the 6" depth, water will enter the outlet structure grate, and a low-flow weir will divert water to the underground detention pipes for hydromodification control. Once water exceeds the hydromodification weir it will spill over the crest and discharge to the existing storm drain structure and then to Sweetwater Road. A 0.65" orifice controls the lowest hydromodification flow rates

On-site alternative compliance is utilized to address pollutant and hydromodification impacts from DMAs on the boundary of the project site. Curb cuts allow excess areas to drain to landscaped dispersion areas. All dispersion areas contain 11" minimum of amended soils and the impervious to pervious areas ratio does not exceed 1:1. Across the site, 1,456 SF of excess areas are provided to mitigate 1,253 SF of required area.

DMA #2, #4, and DMA #6 contains a sidewalk ramp and trash enclosures respectively and are hydraulically disconnected from the other DMAs. DMAs #2, #4, and DMA #6 are 250 SF or less, making the areas De-Minimis. DMAs #5, #7, #8, and #11 consist of landscape curb islands and are treated by impervious area dispersion. DMAs #9 and #10 are required areas that are treated by excess areas located in DMAs #5, #7, #8, #11, #12, and #13. DMAs #3 and #14 are landscaped areas that drain offsite and are self-mitigating areas.

**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, 12, & 13 | 16,695 | ☐ | ☐ | ☒ | ☐ | ☐ | ☐ | ☐ | |
| 2 | 1, 12, & 13 | 16,695 | ☐ | ☐ | ☐ | ☐ | ☐ | ☒ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |

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

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

| **Structural BMP ID #** 1 | **Permit # and Sheet #** |
|---|---|
| **BMP Type** | |
| **Infiltration**<br>☐ Infiltration basin (INF-1)<br>☐ Bioretention (INF-2)<br>☐ Permeable pavement (INF-3)<br>**Unlined Biofiltration**<br>☐ Biofiltration with partial retention (PR-1)<br>**Lined Biofiltration**<br>☒ Biofiltration (BF-1)<br>☐ Nutrient Sensitive Media Design (BF-2)<br>☐ Proprietary Biofiltration (BF-3) | **Harvest and Use**<br>☐ Cistern (HU-1)<br>**Flow-thru Treatment** (describe below)<br>☐ With prior lawful approval to meet earlier PDP requirements<br>☐ Pre-treatment/forebay for an onsite retention or biofiltration BMP[2]<br>☐ With alternative compliance<br>**Hydromodification Management**[3]<br>☐ Detention pond or vault<br>☐ **Other** (describe below) |
| **BMP Purpose** | |
| ☒ Pollutant control only<br>☐ Hydromodification control only<br>☐ Combined pollutant control and hydromodification | ☐ Pre-treatment/forebay for another BMP<br>☐ Other (describe below) |
| **BMP Verification** (See BMPDM Section 8.3) | |
| Provide name and contact information for the party responsible to sign BMP verification forms | Nolan Huelsman/BWE Inc<br>9449 Balboa Avenue, Suite 270<br>San Diego, CA 92123<br>619.299.5550 |

| **BMP Ownership and Maintenance** (See BMPDM Section 7.3 and Attachment 11) | | | | |
|---|---|---|---|---|
| BMP Maintenance Category | Cat. 1<br>☐ | Cat. 2<br>☒ | Cat. 3<br>☐ | Cat. 4<br>☐ |
| 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)
Biofiltration BMP.

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

| **Structural BMP ID #** 2 | **Permit # and Sheet #** |
|---|---|

**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 | Nolan Huelsman/BWE Inc<br>9449 Balboa Avenue, Suite 270<br>San Diego, CA 92123<br>619.299.5550 |

**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)

Biofiltration BMP.

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

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

## 7.4 Storm Water Pollutant Control Worksheet Calculations

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

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

## 7.5 Identification and Narrative of Receiving Water and Pollutants of Concern

- Complete this sub-attachment *only if flow-thru treatment BMPs are implemented onsite* in lieu of retention or biofiltration BMPs. Unless excepted because of a Prior Lawful Approval[4], PDPs must also participate in an alternative compliance program[5].

**A. General Description**

Describe flow path of storm water from the project site discharge location(s), through urban storm conveyance systems as applicable, to receiving creeks, rivers, and lagoons as applicable, and ultimate discharge to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable).

The storm water from the site will be piped into the city storm drain system. The piped flows run along Sweetwater Road before entering a channel that connects to Sweetwater River. Sweetwater River then flows into the San Diego Bay before ultimately discharging into the Pacific Ocean.

**B. Water Body Impairments and Priorities**

List any 303(d) impaired water bodies[6] within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs and/or Highest Priority Pollutants from the WQIP for the impaired water bodies:

| 303(d) Impaired Water Body | Pollutant(s)/Stressor(s) | TMDLs / WQIP Highest Priority Pollutant |
|---|---|---|
| Sweetwater River | Benthic Community,Chlorpyrifos, Indicator Bacteria, Nitrogen, Phosphorous, Selenium, TDS, Toxicity | |
| | | |
| | | |

**C. Identification of Project Site Pollutants**

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

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

[4] See BMPDM Appendix L: Prior Lawful Approval Requirements and Guidance.
[5] See SWQMP Attachment 12 (Alternative Compliance Projects) and BMPDM Appendix J (Offsite Alternative Compliance Requirements and Guidance).
[6] The current list of Section 303(d) impaired water bodies can be found at: https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml

| Category | # | Description | i | ii | iii | iv | v | vi | vii | viii | ix | x | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard Drainage Basin Inputs | 1 | Drainage Basin ID or Name | DMA 1, 12 & 13 (BMP#1) | DMA 5 | DMA 7 | DMA 8 | DMA 11 | | | | | | unitless |
| | 2 | 85th Percentile 24-hr Storm Depth | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | | | | | | inches |
| | 3 | Impervious Surfaces Not Directed to Dispersion Area (C=0.90) | 12,578 | | | | | | | | | | 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) | 4,117 | | | | | | | | | | sq-ft |
| | 6 | Natural Type A Soil Not Serving as Dispersion Area (C=0.10) | | | | | | | | | | | sq-ft |
| | 7 | Natural Type B Soil Not Serving as Dispersion Area (C=0.14) | | | | | | | | | | | sq-ft |
| | 8 | Natural Type C Soil Not Serving as Dispersion Area (C=0.23) | | | | | | | | | | | 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 | Yes | Yes | Yes | Yes | | | | | | yes/no |
| | 11 | Impervious Surfaces Directed to Dispersion Area per SD-B (Ci=0.90) | | 81 | 133 | 120 | 81 | | | | | | 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) | | 95 | 133 | 135 | 98 | | | | | | 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 | 16,695 | 176 | 266 | 255 | 179 | 0 | 0 | 0 | 0 | 0 | sq-ft |
| | 23 | Initial Runoff Factor for Standard Drainage Areas | 0.70 | 0.00 | 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 | 0.47 | 0.50 | 0.48 | 0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | unitless |
| | 25 | Initial Weighted Runoff Factor | 0.70 | 0.47 | 0.50 | 0.48 | 0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | unitless |
| | 26 | Initial Design Capture Volume | 536 | 4 | 6 | 6 | 4 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| Dispersion Area Adjustments | 27 | Total Impervious Area Dispersed to Pervious Surface | 0 | 81 | 133 | 120 | 81 | 0 | 0 | 0 | 0 | 0 | sq-ft |
| | 28 | Total Pervious Dispersion Area | 0 | 95 | 133 | 135 | 98 | 0 | 0 | 0 | 0 | 0 | sq-ft |
| | 29 | Ratio of Dispersed Impervious Area to Pervious Dispersion Area | n/a | 0.90 | 1.00 | 0.90 | 0.80 | n/a | n/a | n/a | n/a | n/a | ratio |
| | 30 | Adjustment Factor for Dispersed & Dispersion Areas | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | ratio |
| | 31 | Runoff Factor After Dispersion Techniques | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | n/a | n/a | n/a | n/a | n/a | unitless |
| | 32 | Design Capture Volume After Dispersion Techniques | 536 | 0 | 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 | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | unitless |
| | 36 | Final Effective Tributary Area | 11,687 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | sq-ft |
| | 37 | Initial Design Capture Volume Retained by Site Design Elements | 0 | 4 | 6 | 6 | 4 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 38 | Final Design Capture Volume Tributary to BMP | 536 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |

**No Warning Messages**

Assessed Worksheet 9.b Retention Requirements (WQ4)

| Category | # | Description | i | ii | iii | iv | v | vi | vii | viii | ix | x | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Basic Analysis | 1 | Drainage Basin ID or Name | DMA 1, 12 & 13 (BMP#1) | DMA 5 | DMA 7 | DMA 8 | DMA 11 | - | - | - | - | - | unitless |
| | 2 | 85th Percentile Rainfall Depth | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | - | - | - | - | - | inches |
| | 3 | Predominant NRCS Soil Type Within BMP Location | D | D | D | D | D | | | | | | unitless |
| | 4 | Is proposed BMP location Restricted or Unrestricted for Infiltration Activities? | Unrestricted | Unrestricted | Unrestricted | Unrestricted | Unrestricted | | | | | | unitless |
| | 5 | Nature of Restriction | n/a | n/a | n/a | n/a | n/a | | | | | | unitless |
| | 6 | Do Minimum Retention Requirements Apply to this Project? | Yes | Yes | Yes | Yes | Yes | | | | | | yes/no |
| | 7 | Are Habitable Structures Greater than 9 Stories Proposed? | No | No | No | No | No | | | | | | yes/no |
| Advanced Analysis | 8 | Has Geotechnical Engineer Performed an Infiltration Analysis? | No | No | No | No | No | | | | | | yes/no |
| | 9 | Design Infiltration Rate Recommended by Geotechnical Engineer | | | | | | | | | | | in/hr |
| Result | 10 | Design Infiltration Rate Used To Determine Retention Requirements | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | - | - | - | - | - | in/hr |
| | 11 | Percent of Average Annual Runoff that Must be Retained within DMA | 4.5% | 4.5% | 4.5% | 4.5% | 4.5% | - | - | - | - | - | percentage |
| | 12 | Fraction of DCV Requiring Retention | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | - | - | - | - | - | ratio |
| | 13 | Required Retention Volume | 11 | 0 | 0 | 0 | 0 | - | - | - | - | - | 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 | DMA 1, 12 & 13 (BMP#1) | DMA 5 | DMA 7 | DMA 8 | DMA 11 | - | - | - | - | - | sq-ft |
| | 2 | Design Infiltration Rate Recommended | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | - | - | - | - | - | in/hr |
| | 3 | Design Capture Volume Tributary to BMP | 536 | 0 | 0 | 0 | 0 | - | - | - | - | - | cubic-feet |
| | 4 | Is BMP Vegetated or Unvegetated? | Vegetated | | | | | | | | | | unitless |
| | 5 | Is BMP Impermeably Lined or Unlined? | Lined | | | | | | | | | | unitless |
| | 6 | Does BMP Have an Underdrain? | Underdrain | | | | | | | | | | unitless |
| | 7 | Does BMP Utilize Standard or Specialized Media? | Standard | | | | | | | | | | unitless |
| | 8 | Provided Surface Area | 555 | | | | | | | | | | sq-ft |
| | 9 | Provided Surface Ponding Depth | 6 | | | | | | | | | | inches |
| | 10 | Provided Soil Media Thickness | 18 | | | | | | | | | | inches |
| | 11 | Provided Gravel Thickness (Total Thickness) | 18 | | | | | | | | | | inches |
| | 12 | Underdrain Offset | 3 | | | | | | | | | | inches |
| | 13 | Diameter of Underdrain or Hydromod Orifice (Select Smallest) | 0.65 | | | | | | | | | | inches |
| | 14 | Specialized Soil Media Filtration Rate | | | | | | | | | | | in/hr |
| | 15 | Specialized Soil Media Pore Space for Retention | | | | | | | | | | | unitless |
| | 16 | Specialized Soil Media Pore Space for Biofiltration | | | | | | | | | | | unitless |
| | 17 | Specialized Gravel Media Pore Space | | | | | | | | | | | unitless |
| Retention Calculations | 18 | Volume Infiltrated Over 6 Hour Storm | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 19 | Ponding Pore Space Available for Retention | 0.00 | 1.00 | 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 | 0.05 | 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 | 0.40 | 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 | 0.00 | 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) | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ratio |
| | 25 | Calculated Retention Storage Drawdown Time | 120 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | hours |
| | 26 | Efficacy of Retention Processes | 0.20 | 0.00 | 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) | 108 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 28 | Design Capture Volume Remaining for Biofiltration | 428 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| Biofiltration Calculations | 29 | Max Hydromod Flow Rate through Underdrain | 0.0199 | 0.0000 | 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 | 1.55 | 0.00 | 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 | 5.00 | 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 | 1.55 | 0.00 | 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 | 9.30 | 0.00 | 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 | 0.00 | 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 | 0.20 | 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 | 15.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | inches |
| | 38 | Drawdown Time for Surface Ponding | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | hours |
| | 39 | Drawdown Time for Effective Biofiltration Depth | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | hours |
| | 40 | Total Depth Biofiltered | 24.90 | 0.00 | 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 | 642 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 42 | Option 1 - Provided Biofiltration Volume | 642 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 43 | Option 2 - Store 0.75 DCV: Target Volume | 321 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 44 | Option 2 - Provided Storage Volume | 321 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 45 | Portion of Biofiltration Performance Standard Satisfied | 1.00 | 0.00 | 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 | Yes | Yes | - | - | - | - | - | yes/no |
| | 47 | Overall Portion of Performance Standard Satisfied (BMP Efficacy Factor) | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ratio |
| | 48 | Deficit of Effectively Treated Stormwater | | | | | | | | | | | cubic-feet |

| Category | # | Description | i | ii | iii | iv | v | vi | vii | viii | ix | x | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard Drainage Basin Inputs | 1 | Drainage Basin ID or Name | DMA 1, 12, & 13 (BMP 1) | DMA 5 | DMA 7 | DMA 8 | DMA 11 | | | | | | unitless |
| | 2 | 85th Percentile 24-hr Storm Depth | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | | | | | | inches |
| | 3 | Is Hydromodification Control Applicable? | Yes | Yes | Yes | Yes | Yes | | | | | | yes/no |
| | 4 | Impervious Surfaces Not Directed to Dispersion Area (C=0.90) | 12,578 | | | | | | | | | | sq-ft |
| | 5 | Semi-Pervious Surfaces Not Serving as Dispersion Area (C=0.30) | | | | | | | | | | | sq-ft |
| | 6 | Engineered Pervious Surfaces Not Serving as Dispersion Area (C=0.10) | 4,117 | | | | | | | | | | sq-ft |
| | 7 | Natural Type A Soil Not Serving as Dispersion Area (C=0.10) | | | | | | | | | | | sq-ft |
| | 8 | Natural Type B Soil Not Serving as Dispersion Area (C=0.14) | | | | | | | | | | | sq-ft |
| | 9 | Natural Type C Soil Not Serving as Dispersion Area (C=0.23) | | | | | | | | | | | sq-ft |
| | 10 | Natural Type D Soil Not Serving as Dispersion Area (C=0.30) | | | | | | | | | | | sq-ft |
| SSD-BMPs Proposed | 11 | Does Tributary Incorporate Dispersion and/or Rain Barrels? | No | Yes | Yes | Yes | Yes | | | | | | yes/no |
| | 12 | Does Tributary Incorporate Tree Wells? | No | No | No | No | No | | | | | | yes/no |
| Dispersion Area & Rain Barrel Inputs (Optional) | 13 | Impervious Surfaces **Directed to Dispersion Area** per SD-B (Ci=0.90) | | 81 | 133 | 120 | 81 | | | | | | sq-ft |
| | 14 | Semi-Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.30) | | | | | | | | | | | sq-ft |
| | 15 | Engineered Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.10) | | 95 | 133 | 135 | 98 | | | | | | sq-ft |
| | 16 | Natural Type A Soil **Serving as Dispersion Area** per SD-B (Ci=0.10) | | | | | | | | | | | sq-ft |
| | 17 | Natural Type B Soil **Serving as Dispersion Area** per SD-B (Ci=0.14) | | | | | | | | | | | sq-ft |
| | 18 | Natural Type C Soil **Serving as Dispersion Area** per SD-B (Ci=0.23) | | | | | | | | | | | sq-ft |
| | 19 | Natural Type D Soil **Serving as Dispersion Area** per SD-B (Ci=0.30) | | | | | | | | | | | sq-ft |
| | 20 | Number of Rain Barrels Proposed per SD-E | | | | | | | | | | | # |
| | 21 | Average Rain Barrel Size | | | | | | | | | | | gal |
| Initial Runoff Factor Calculation | 22 | Total Tributary Area | 16,695 | 176 | 266 | 255 | 179 | 0 | 0 | 0 | 0 | 0 | sq-ft |
| | 23 | Initial Runoff Factor for Standard Drainage Areas | 0.70 | 0.00 | 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 | 0.47 | 0.50 | 0.48 | 0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | unitless |
| | 25 | Initial Weighted Runoff Factor | 0.70 | 0.47 | 0.50 | 0.48 | 0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | unitless |
| | 26 | Initial Design Capture Volume | 536 | 4 | 6 | 6 | 4 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| Dispersion Area Adjustment & Rain Barrel Adjustment | 27 | Total Impervious Area Dispersed to Pervious Surface | 0 | 81 | 133 | 120 | 81 | 0 | 0 | 0 | 0 | 0 | sq-ft |
| | 28 | Total Pervious Dispersion Area | 0 | 95 | 133 | 135 | 98 | 0 | 0 | 0 | 0 | 0 | sq-ft |
| | 29 | Ratio of Dispersed Impervious Area to Pervious Dispersion Area for DCV Reduction | n/a | 0.90 | 1.00 | 0.90 | 0.80 | n/a | n/a | n/a | n/a | n/a | ratio |
| | 30 | Adjustment Factor for Dispersed & Dispersion Areas | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | ratio |
| | 31 | Runoff Factor After Dispersion Techniques | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | n/a | n/a | n/a | n/a | n/a | unitless |
| | 32 | Design Capture Volume After Dispersion Techniques | 536 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 33 | Total Rain Barrel Volume Reduction | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| Results | 34 | Final Adjusted Runoff Factor | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | unitless |
| | 35 | Final Effective Tributary Area | 11,687 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | sq-ft |
| | 36 | Initial Design Capture Volume Retained by Dispersion Area and Rain Barrel(s) | 0 | 4 | 6 | 6 | 4 | 0 | 0 | 0 | 0 | 0 | cubic-feet |
| | 37 | Remaining Design Capture Volume Tributary to Tree Well(s) | 536 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | cubic-feet |

**No Warning Messages**

SSD-BMP Automated Worksheet I-2: Step 2. Dispersion Area Validation (V1.0)

| Category | # | Description | i | ii | iii | iv | v | vi | vii | viii | ix | x | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard Dispersion Area Inputs | 1 | Drainage Basin ID or Name | - | DMA 5 | DMA 7 | DMA 8 | DMA 11 | - | - | - | - | - | unitless |
| | 2 | Final Design Capture Volume (DCV) | - | 0 | 0 | 0 | 0 | - | - | - | - | - | cubic-feet |
| | 3 | Is Hydromodification Control Applicable? | - | Yes | Yes | Yes | Yes | - | - | - | - | - | yes/no |
| | 4 | Total Impervious Area Dispersed to Pervious Surface | - | 81 | 133 | 120 | 81 | - | - | - | - | - | sq-ft |
| | 5 | Total Engineered Pervious Surface and/or Natural Soil Dispersion Area (Does Not Include Semi-Pervious Surfaces Serving as Dispersion Area) | - | 95 | 133 | 135 | 98 | - | - | - | - | - | sq-ft |
| | 6 | Ratio of Dispersed Impervious Area to Total Engineered Pervious Surface and/or Natural Soil Dispersion Area | - | 0.85 | 1.00 | 0.89 | 0.83 | - | - | - | - | - | unitless |
| | 7 | Dispersion Area Length (Length of Sheet Flow Across Dispersion Area) | | 10 | 10 | 14 | 11 | | | | | | feet |
| | 8 | Dispersion Area Slope | | 0.5 | 0.5 | 0.5 | 0.5 | | | | | | % |
| | 9 | Thickness of Amended Soil | | 11 | 11 | 11 | 11 | | | | | | inches |
| | 10 | How is Flow Dispersed Across Width of Dispersion Area (definitions below*)? | | Curb Cuts | Curb Cuts | Curb Cuts | Curb Cuts | | | | | | unitless |
| Results | 11 | Is DCV Requirement Fully Satisfied by Dispersion Area? | - | Yes | Yes | Yes | Yes | - | - | - | - | - | yes/no |
| | 12 | Is Hydromodification Control Requirement Satisfied by Dispersion Area? | - | Yes | Yes | Yes | Yes | - | - | - | - | - | yes/no |
| | 13 | Are Dispersion Area Length, Slope, and Thickness of Amended Soil (when applicable) Adequate? | - | Yes | Yes | Yes | Yes | - | - | - | - | - | yes/no |

**Notes:**

***How is Flow Dispersed Across Width of Pervious Dispersion Area?**

Sheet Flow: Flow arrives as sheet flow across the width of the adjacent impervious area

Spreader(s): Flow is discharged from flow spreader(s) across the width of the pervious area

Roof Drains: Discharge from roof drains distributed across the width of the pervious area

Curb Cuts: Discharge from curb cuts distributed across the width of the pervious area

Other: Other (Describe in PDP SWQMP)

## 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]<br>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)<br>Complete the table provided in Sub-attachment 8.2. |
| **8.3: Geomorphic Assessment of Receiving Channels**<br>1. Has a geomorphic assessment been performed for the receiving channel(s)?<br>☒ No, the low flow threshold is 0.1Q2 (default low flow threshold) |
| ☐ Yes (provide the information below):<br>Low flow threshold: ☐ 0.1Q2 ☐ 0.3Q2 ☐ 0.5Q2 |
| Title:<br><br>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)<br>☐ 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.

## 8.2 Hydromodification Management Points of Compliance

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

| POC name or # | Channel name or # | POC Description |
|---|---|---|
| POC #1 | Storm Drain | Existing inlet at Sweetwater Road |
| POC #2 | Storm Drain | Existing inlet on Sweetwater Road |
| | | |
| | | |

# SDHM 3.1

# PROJECT REPORT

# General Model Information

| | |
|---|---|
| Project Name: | POC 1_Vault-pipeRev |
| Site Name: | Spring Valley-Shell |
| Site Address: | San Diego |
| City: | San Diego |
| Report Date: | 10/5/2020 |
| Gage: | BONITA |
| Data Start: | 10/01/1971 |
| Data End: | 09/30/2004 |
| Timestep: | Hourly |
| Precip Scale: | 1.000 |
| Version Date: | 2020/04/07 |

## POC Thresholds

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

# *Landuse Basin Data*
## *Predeveloped Land Use*

### Project-DMA

| | |
|---|---|
| Bypass: | No |
| GroundWater: | No |
| Pervious Land Use | acre |
| C,NatVeg,Flat | 0.38 |
| Pervious Total | 0.38 |
| Impervious Land Use | acre |
| Impervious Total | 0 |
| Basin Total | 0.38 |

Element Flows To:

| Surface | Interflow | Groundwater |
|---|---|---|

## *Mitigated Land Use*

### DMA #1-ReqdArea

| | |
|---|---|
| Bypass: | No |
| GroundWater: | No |

| Pervious Land Use | acre |
|---|---|
| C,Urban,Flat | 0.068 |
| Pervious Total | 0.068 |

| Impervious Land Use | acre |
|---|---|
| IMPERVIOUS-FLAT | 0.284 |
| Impervious Total | 0.284 |
| Basin Total | 0.352 |

Element Flows To:

| Surface | Interflow | Groundwater |
|---|---|---|
| Tank 1 | Tank 1 | |

## DMA#9-ExcessArea

| | |
|---|---|
| Bypass: | No |
| GroundWater: | No |
| Pervious Land Use | acre |
| Pervious Total | 0 |
| Impervious Land Use | acre |
| IMPERVIOUS-FLAT | 0.017 |
| Impervious Total | 0.017 |
| Basin Total | 0.017 |

Element Flows To:

| Surface | Interflow | Groundwater |
|---|---|---|
| Tank 1 | Tank 1 | |

## DMA #13-ExcessArea

| | |
|---|---|
| Bypass: | No |
| GroundWater: | No |
| Pervious Land Use | acre |
| Pervious Total | 0 |
| Impervious Land Use | acre |
| IMPERVIOUS-FLAT | 0.013 |
| Impervious Total | 0.013 |
| Basin Total | 0.013 |

Element Flows To:

| Surface | Interflow | Groundwater |
|---|---|---|
| Tank 1 | Tank 1 | |

# Routing Elements
## Predeveloped Routing

## *Mitigated Routing*

### Tank 1

Dimensions

| | | |
|---|---|---|
| Depth: | 3 ft. | |
| Tank Type: | Circular | |
| Diameter: | 3 ft. | |
| Length: | 305 ft. | |
| Discharge Structure | | |
| Riser Height: | 2.5 ft. | |
| Riser Diameter: | 24 in. | |
| Orifice 1 Diameter: | 0.65 in. | Elevation:0 ft. |
| Orifice 2 Diameter: | 1.7 in. | Elevation:1.7 ft. |
| Orifice 3 Diameter: | 1 in. | Elevation:2 ft. |

Element Flows To:

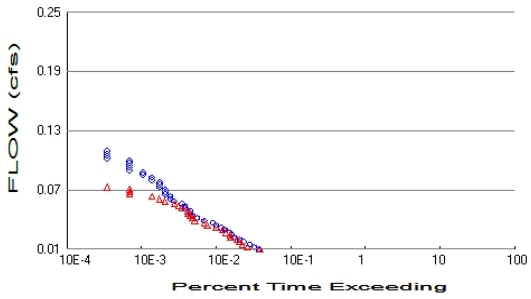
Outlet 1 Outlet 2

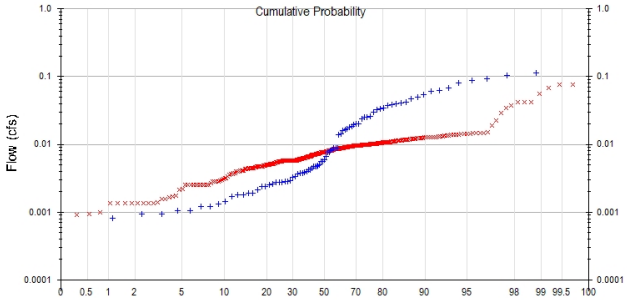
Tank Hydraulic Table

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

| | | | | |
|---|---|---|---|---|
| 1.2000 | 0.020 | 0.018 | 0.012 | 0.000 |
| 1.2333 | 0.020 | 0.019 | 0.012 | 0.000 |
| 1.2667 | 0.020 | 0.019 | 0.012 | 0.000 |
| 1.3000 | 0.020 | 0.020 | 0.013 | 0.000 |
| 1.3333 | 0.020 | 0.021 | 0.013 | 0.000 |
| 1.3667 | 0.020 | 0.021 | 0.013 | 0.000 |
| 1.4000 | 0.021 | 0.022 | 0.013 | 0.000 |
| 1.4333 | 0.021 | 0.023 | 0.013 | 0.000 |
| 1.4667 | 0.021 | 0.024 | 0.013 | 0.000 |
| 1.5000 | 0.021 | 0.024 | 0.014 | 0.000 |
| 1.5333 | 0.021 | 0.025 | 0.014 | 0.000 |
| 1.5667 | 0.021 | 0.026 | 0.014 | 0.000 |
| 1.6000 | 0.021 | 0.026 | 0.014 | 0.000 |
| 1.6333 | 0.020 | 0.027 | 0.014 | 0.000 |
| 1.6667 | 0.020 | 0.028 | 0.014 | 0.000 |
| 1.7000 | 0.020 | 0.028 | 0.014 | 0.000 |
| 1.7333 | 0.020 | 0.029 | 0.017 | 0.000 |
| 1.7667 | 0.020 | 0.030 | 0.024 | 0.000 |
| 1.8000 | 0.020 | 0.031 | 0.034 | 0.000 |
| 1.8333 | 0.020 | 0.031 | 0.043 | 0.000 |
| 1.8667 | 0.020 | 0.032 | 0.047 | 0.000 |
| 1.9000 | 0.020 | 0.033 | 0.050 | 0.000 |
| 1.9333 | 0.020 | 0.033 | 0.053 | 0.000 |
| 1.9667 | 0.020 | 0.034 | 0.056 | 0.000 |
| 2.0000 | 0.019 | 0.035 | 0.059 | 0.000 |
| 2.0333 | 0.019 | 0.035 | 0.063 | 0.000 |
| 2.0667 | 0.019 | 0.036 | 0.070 | 0.000 |
| 2.1000 | 0.019 | 0.037 | 0.074 | 0.000 |
| 2.1333 | 0.019 | 0.037 | 0.078 | 0.000 |
| 2.1667 | 0.018 | 0.038 | 0.081 | 0.000 |
| 2.2000 | 0.018 | 0.038 | 0.084 | 0.000 |
| 2.2333 | 0.018 | 0.039 | 0.087 | 0.000 |
| 2.2667 | 0.018 | 0.040 | 0.090 | 0.000 |
| 2.3000 | 0.017 | 0.040 | 0.093 | 0.000 |
| 2.3333 | 0.017 | 0.041 | 0.095 | 0.000 |
| 2.3667 | 0.017 | 0.041 | 0.098 | 0.000 |
| 2.4000 | 0.016 | 0.042 | 0.100 | 0.000 |
| 2.4333 | 0.016 | 0.043 | 0.102 | 0.000 |
| 2.4667 | 0.016 | 0.043 | 0.105 | 0.000 |
| 2.5000 | 0.015 | 0.044 | 0.107 | 0.000 |
| 2.5333 | 0.015 | 0.044 | 0.238 | 0.000 |
| 2.5667 | 0.014 | 0.045 | 0.476 | 0.000 |
| 2.6000 | 0.014 | 0.045 | 0.784 | 0.000 |
| 2.6333 | 0.013 | 0.046 | 1.146 | 0.000 |
| 2.6667 | 0.013 | 0.046 | 1.556 | 0.000 |
| 2.7000 | 0.012 | 0.046 | 2.006 | 0.000 |
| 2.7333 | 0.012 | 0.047 | 2.491 | 0.000 |
| 2.7667 | 0.011 | 0.047 | 3.006 | 0.000 |
| 2.8000 | 0.010 | 0.048 | 3.546 | 0.000 |
| 2.8333 | 0.009 | 0.048 | 4.106 | 0.000 |
| 2.8667 | 0.008 | 0.048 | 4.681 | 0.000 |
| 2.9000 | 0.007 | 0.049 | 5.265 | 0.000 |
| 2.9333 | 0.006 | 0.049 | 5.854 | 0.000 |
| 2.9667 | 0.004 | 0.049 | 6.442 | 0.000 |
| 3.0000 | 0.000 | 0.049 | 7.023 | 0.000 |
| 3.0333 | 0.000 | 0.000 | 7.594 | 0.000 |

# *Analysis Results*
## *POC 1*




\+ Predeveloped  x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 0.38
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 0.068
Total Impervious Area: 0.314

Flow Frequency Method: Cunnane

Flow Frequency Return Periods for Predeveloped. POC #1

| **Return Period** | **Flow(cfs)** |
|---|---|
| 2 year | 0.034723 |
| 5 year | 0.062942 |
| 10 year | 0.0893 |
| 25 year | 0.108355 |

Flow Frequency Return Periods for Mitigated. POC #1

| **Return Period** | **Flow(cfs)** |
|---|---|
| 2 year | 0.01453 |
| 5 year | 0.041602 |
| 10 year | 0.062176 |
| 25 year | 0.076895 |

## Duration Flows

The Facility PASSED

| Flow(cfs) | Predev | Mit | Percentage | Pass/Fail |
|---|---|---|---|---|
| 0.0147 | 107 | 111 | 103 | Pass |
| 0.0171 | 94 | 76 | 80 | Pass |
| 0.0195 | 82 | 65 | 79 | Pass |
| 0.0219 | 68 | 60 | 88 | Pass |
| 0.0242 | 60 | 55 | 91 | Pass |
| 0.0266 | 50 | 45 | 90 | Pass |
| 0.0290 | 47 | 45 | 95 | Pass |
| 0.0314 | 44 | 39 | 88 | Pass |
| 0.0338 | 38 | 35 | 92 | Pass |
| 0.0362 | 34 | 29 | 85 | Pass |
| 0.0386 | 29 | 22 | 75 | Pass |
| 0.0410 | 26 | 20 | 76 | Pass |
| 0.0433 | 20 | 15 | 75 | Pass |
| 0.0457 | 16 | 14 | 87 | Pass |
| 0.0481 | 14 | 13 | 92 | Pass |
| 0.0505 | 13 | 12 | 92 | Pass |
| 0.0529 | 13 | 12 | 92 | Pass |
| 0.0553 | 11 | 10 | 90 | Pass |
| 0.0577 | 11 | 9 | 81 | Pass |
| 0.0601 | 10 | 8 | 80 | Pass |
| 0.0624 | 8 | 6 | 75 | Pass |
| 0.0648 | 7 | 5 | 71 | Pass |
| 0.0672 | 7 | 4 | 57 | Pass |
| 0.0696 | 6 | 2 | 33 | Pass |
| 0.0720 | 6 | 2 | 33 | Pass |
| 0.0744 | 6 | 2 | 33 | Pass |
| 0.0768 | 5 | 1 | 20 | Pass |
| 0.0791 | 5 | 0 | 0 | Pass |
| 0.0815 | 5 | 0 | 0 | Pass |
| 0.0839 | 4 | 0 | 0 | Pass |
| 0.0863 | 4 | 0 | 0 | Pass |
| 0.0887 | 3 | 0 | 0 | Pass |
| 0.0911 | 3 | 0 | 0 | Pass |
| 0.0935 | 2 | 0 | 0 | Pass |
| 0.0959 | 2 | 0 | 0 | Pass |
| 0.0982 | 2 | 0 | 0 | Pass |
| 0.1006 | 2 | 0 | 0 | Pass |
| 0.1030 | 2 | 0 | 0 | Pass |
| 0.1054 | 1 | 0 | 0 | Pass |
| 0.1078 | 1 | 0 | 0 | Pass |
| 0.1102 | 1 | 0 | 0 | Pass |
| 0.1126 | 1 | 0 | 0 | Pass |
| 0.1149 | 0 | 0 | 0 | Pass |
| 0.1173 | 0 | 0 | 0 | Pass |
| 0.1197 | 0 | 0 | 0 | Pass |
| 0.1221 | 0 | 0 | 0 | Pass |
| 0.1245 | 0 | 0 | 0 | Pass |
| 0.1269 | 0 | 0 | 0 | Pass |
| 0.1293 | 0 | 0 | 0 | Pass |
| 0.1317 | 0 | 0 | 0 | Pass |
| 0.1340 | 0 | 0 | 0 | Pass |
| 0.1364 | 0 | 0 | 0 | Pass |
| 0.1388 | 0 | 0 | 0 | Pass |

| | | | | |
|---|---|---|---|---|
| 0.1412 | 0 | 0 | 0 | Pass |
| 0.1436 | 0 | 0 | 0 | Pass |
| 0.1460 | 0 | 0 | 0 | Pass |
| 0.1484 | 0 | 0 | 0 | Pass |
| 0.1508 | 0 | 0 | 0 | Pass |
| 0.1531 | 0 | 0 | 0 | Pass |
| 0.1555 | 0 | 0 | 0 | Pass |
| 0.1579 | 0 | 0 | 0 | Pass |
| 0.1603 | 0 | 0 | 0 | Pass |
| 0.1627 | 0 | 0 | 0 | Pass |
| 0.1651 | 0 | 0 | 0 | Pass |
| 0.1675 | 0 | 0 | 0 | Pass |
| 0.1698 | 0 | 0 | 0 | Pass |
| 0.1722 | 0 | 0 | 0 | Pass |
| 0.1746 | 0 | 0 | 0 | Pass |
| 0.1770 | 0 | 0 | 0 | Pass |
| 0.1794 | 0 | 0 | 0 | Pass |
| 0.1818 | 0 | 0 | 0 | Pass |
| 0.1842 | 0 | 0 | 0 | Pass |
| 0.1866 | 0 | 0 | 0 | Pass |
| 0.1889 | 0 | 0 | 0 | Pass |
| 0.1913 | 0 | 0 | 0 | Pass |
| 0.1937 | 0 | 0 | 0 | Pass |
| 0.1961 | 0 | 0 | 0 | Pass |
| 0.1985 | 0 | 0 | 0 | Pass |
| 0.2009 | 0 | 0 | 0 | Pass |
| 0.2033 | 0 | 0 | 0 | Pass |
| 0.2056 | 0 | 0 | 0 | Pass |
| 0.2080 | 0 | 0 | 0 | Pass |
| 0.2104 | 0 | 0 | 0 | Pass |
| 0.2128 | 0 | 0 | 0 | Pass |
| 0.2152 | 0 | 0 | 0 | Pass |
| 0.2176 | 0 | 0 | 0 | Pass |
| 0.2200 | 0 | 0 | 0 | Pass |
| 0.2224 | 0 | 0 | 0 | Pass |
| 0.2247 | 0 | 0 | 0 | Pass |
| 0.2271 | 0 | 0 | 0 | Pass |
| 0.2295 | 0 | 0 | 0 | Pass |
| 0.2319 | 0 | 0 | 0 | Pass |
| 0.2343 | 0 | 0 | 0 | Pass |
| 0.2367 | 0 | 0 | 0 | Pass |
| 0.2391 | 0 | 0 | 0 | Pass |
| 0.2415 | 0 | 0 | 0 | Pass |
| 0.2438 | 0 | 0 | 0 | Pass |
| 0.2462 | 0 | 0 | 0 | Pass |
| 0.2486 | 0 | 0 | 0 | Pass |
| 0.2510 | 0 | 0 | 0 | Pass |

## Water Quality

Drawdown Time Results

Pond: Tank 1

| Days | Stage(feet) | Percent of Total Run Time |
|---|---|---|
| 1 | 1.354 | 0.1278 |
| 2 | 0.000 | N/A |
| 3 | 0.000 | N/A |
| 4 | 0.000 | N/A |
| 5 | 0.000 | N/A |

Maximum Stage: 2.500 Drawdown Time: 01 09:07:50

# Model Default Modifications

Total of 0 changes have been made.

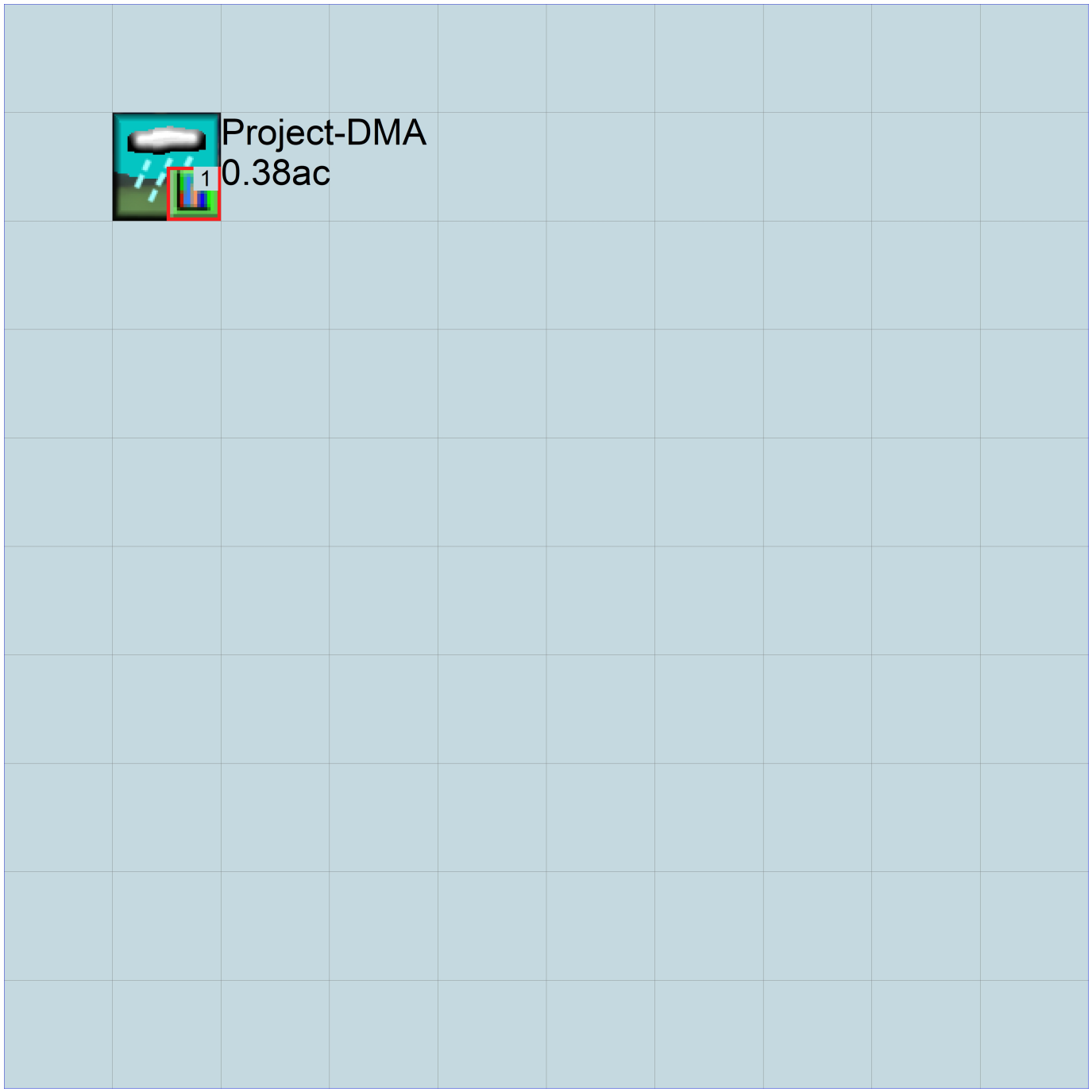
## PERLND Changes

No PERLND changes have been made.

## IMPLND Changes

No IMPLND changes have been made.

# *Appendix*
## *Predeveloped Schematic*



## *Mitigated Schematic*



## *Predeveloped UCI File*

```
RUN

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

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   POC 1_Vault-pipeRev.wdm
MESSU       25   PrePOC 1_Vault-pipeRev.MES
            27   PrePOC 1_Vault-pipeRev.L61
            28   PrePOC 1_Vault-pipeRev.L62
            30   POCPOC 1_Vault-pipeRev1.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:60
      PERLND      19
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Project-DMA                MAX                     1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                         User  t-series Engl Metr ***
                                      in  out           ***
   19      C,NatVeg,Flat          1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   19         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   19         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO
```

```
  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   19         0    1    1    1    0    0    0    0    1    1    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   19             0       3.8     0.035       100      0.05       2.5     0.915
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   19              0         0         2         2         0      0.05      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                            ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   19             0       0.6      0.04         1       0.3         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   19       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   19       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1  0.1
  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
   19             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#   ***
Project-DMA***
PERLND  19                        0.38     COPY   501     12
PERLND  19                        0.38     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
  <------><-------->     <---><---><---><---><---> *** <---><---><---><--->
```

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

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

END EXT SOURCES

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

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

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


END MASS-LINK

END RUN
```

## *Mitigated UCI File*

```
RUN

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

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   POC 1_Vault-pipeRev.wdm
MESSU       25   MitPOC 1_Vault-pipeRev.MES
            27   MitPOC 1_Vault-pipeRev.L61
            28   MitPOC 1_Vault-pipeRev.L62
            30   POCPOC 1_Vault-pipeRev1.dat
END FILES

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

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

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

```
 43         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

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

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

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   43              0         0         2         2         0      0.05      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   43              0       0.6      0.03         1       0.3         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   43       0.6  0.6  0.6  0.6  0.7  0.7  0.7  0.7  0.7  0.6  0.6  0.6
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   43       0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1
  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
   43              0         0      0.15         0         1      0.05         0
  END PWAT-STATE1

END PERLND

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

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

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

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

```
  END IWAT-PARM1

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

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

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

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
DMA #1-ReqdArea***
PERLND  43                      0.068     RCHRES   1      2
PERLND  43                      0.068     RCHRES   1      3
IMPLND   1                      0.284     RCHRES   1      5
DMA#9-ExcessArea***
IMPLND   1                      0.017     RCHRES   1      5
DMA #13-ExcessArea***
IMPLND   1                      0.013     RCHRES   1      5

******Routing******
PERLND  43                      0.068     COPY     1     12
IMPLND   1                      0.284     COPY     1     15
PERLND  43                      0.068     COPY     1     13
IMPLND   1                      0.017     COPY     1     15
IMPLND   1                      0.013     COPY     1     15
RCHRES   1                          1     COPY   501     16
END SCHEMATIC

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



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

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG           ***
                                       in  out                              ***
    1     Tank  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
  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
  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  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      0.06       0.0       0.0       0.5       0.0
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                       ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
    1             0         4.0  0.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
  END HYDR-INIT
END RCHRES

SPECIAL-ACTIONS
END SPECIAL-ACTIONS
FTABLES
  FTABLE      1
   91    4
     Depth      Area    Volume  Outflow1 Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.000000  0.000000  0.000000
  0.033333  0.004404  0.000098  0.001351
  0.066667  0.006193  0.000276  0.002960
  0.100000  0.007541  0.000506  0.003626
  0.133333  0.008658  0.000777  0.004187
  0.166667  0.009623  0.001082  0.004681
  0.200000  0.010479  0.001417  0.005127
  0.233333  0.011251  0.001779  0.005538
  0.266667  0.011956  0.002166  0.005921
  0.300000  0.012603  0.002576  0.006280
  0.333333  0.013203  0.003006  0.006619
  0.366667  0.013760  0.003456  0.006943
  0.400000  0.014281  0.003923  0.007251
  0.433333  0.014769  0.004407  0.007547
  0.466667  0.015226  0.004907  0.007832
  0.500000  0.015657  0.005422  0.008107
  0.533333  0.016062  0.005951  0.008373
  0.566667  0.016444  0.006493  0.008631
  0.600000  0.016804  0.007047  0.008881
  0.633333  0.017145  0.007613  0.009124
  0.666667  0.017466  0.008190  0.009361
  0.700000  0.017769  0.008777  0.009593
  0.733333  0.018055  0.009374  0.009818
  0.766667  0.018324  0.009980  0.010039
  0.800000  0.018578  0.010595  0.010255
  0.833333  0.018817  0.011219  0.010466
  0.866667  0.019041  0.011850  0.010674
  0.900000  0.019252  0.012488  0.010877
  0.933333  0.019449  0.013133  0.011077
  0.966667  0.019633  0.013784  0.011273
  1.000000  0.019804  0.014442  0.011465
  1.033333  0.019963  0.015104  0.011655
  1.066667  0.020110  0.015772  0.011841
  1.100000  0.020245  0.016445  0.012025
  1.133333  0.020368  0.017122  0.012206
  1.166667  0.020480  0.017803  0.012384
```

```
  1.200000  0.020581  0.018487  0.012560
  1.233333  0.020671  0.019175  0.012733
  1.266667  0.020750  0.019865  0.012904
  1.300000  0.020818  0.020558  0.013072
  1.333333  0.020875  0.021253  0.013239
  1.366667  0.020922  0.021949  0.013403
  1.400000  0.020959  0.022648  0.013566
  1.433333  0.020985  0.023347  0.013726
  1.466667  0.021000  0.024046  0.013885
  1.500000  0.021006  0.024747  0.014042
  1.533333  0.021000  0.025447  0.014197
  1.566667  0.020985  0.026146  0.014351
  1.600000  0.020959  0.026846  0.014503
  1.633333  0.020922  0.027544  0.014653
  1.666667  0.020875  0.028240  0.014802
  1.700000  0.020818  0.028935  0.014949
  1.733333  0.020750  0.029628  0.017664
  1.766667  0.020671  0.030318  0.024605
  1.800000  0.020581  0.031006  0.034093
  1.833333  0.020480  0.031690  0.043477
  1.866667  0.020368  0.032371  0.047682
  1.900000  0.020245  0.033048  0.050877
  1.933333  0.020110  0.033721  0.053825
  1.966667  0.019963  0.034389  0.056577
  2.000000  0.019804  0.035051  0.059170
  2.033333  0.019633  0.035709  0.063478
  2.066667  0.019449  0.036360  0.069980
  2.100000  0.019252  0.037005  0.074797
  2.133333  0.019041  0.037643  0.078281
  2.166667  0.018817  0.038274  0.081530
  2.200000  0.018578  0.038898  0.084597
  2.233333  0.018324  0.039513  0.087516
  2.266667  0.018055  0.040119  0.090311
  2.300000  0.017769  0.040716  0.092999
  2.333333  0.017466  0.041304  0.095594
  2.366667  0.017145  0.041880  0.098104
  2.400000  0.016804  0.042446  0.100540
  2.433333  0.016444  0.043001  0.102908
  2.466667  0.016062  0.043542  0.105214
  2.500000  0.015657  0.044071  0.107463
  2.533333  0.015226  0.044586  0.238827
  2.566667  0.014769  0.045086  0.476900
  2.600000  0.014281  0.045570  0.784150
  2.633333  0.013760  0.046038  1.146839
  2.666667  0.013203  0.046487  1.556479
  2.700000  0.012603  0.046917  2.006646
  2.733333  0.011956  0.047327  2.491831
  2.766667  0.011251  0.047714  3.006914
  2.800000  0.010479  0.048076  3.546898
  2.833333  0.009623  0.048411  4.106773
  2.866667  0.008658  0.048716  4.681455
  2.900000  0.007541  0.048987  5.265772
  2.933333  0.006193  0.049217  5.854475
  2.966667  0.004404  0.049395  6.442285
  3.000000  0.001000  0.049493  7.023946
  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     22 IRRG     ENGL    0.7       SAME PERLND  43     EXTNL  SURLI

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   1 HYDR   RO     1 1        1      WDM   1010 FLOW     ENGL      REPL
RCHRES   1 HYDR   STAGE  1 1        1      WDM   1011 STAG     ENGL      REPL
COPY     1 OUTPUT MEAN   1 1     12.1      WDM    701 FLOW     ENGL      REPL
COPY   501 OUTPUT MEAN   1 1     12.1      WDM    801 FLOW     ENGL      REPL
END EXT TARGETS

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

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

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

  MASS-LINK       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


END MASS-LINK

END RUN
```

## *Predeveloped HSPF Message File*

```
ERROR/WARNING ID:   238   1

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

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

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

RCHRES :    1

RELERR       STORS        STOR       MATIN      MATDIF
-6.439E-03     0.00000  0.0000E+00     0.00000  6.2959E-12

Where:

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

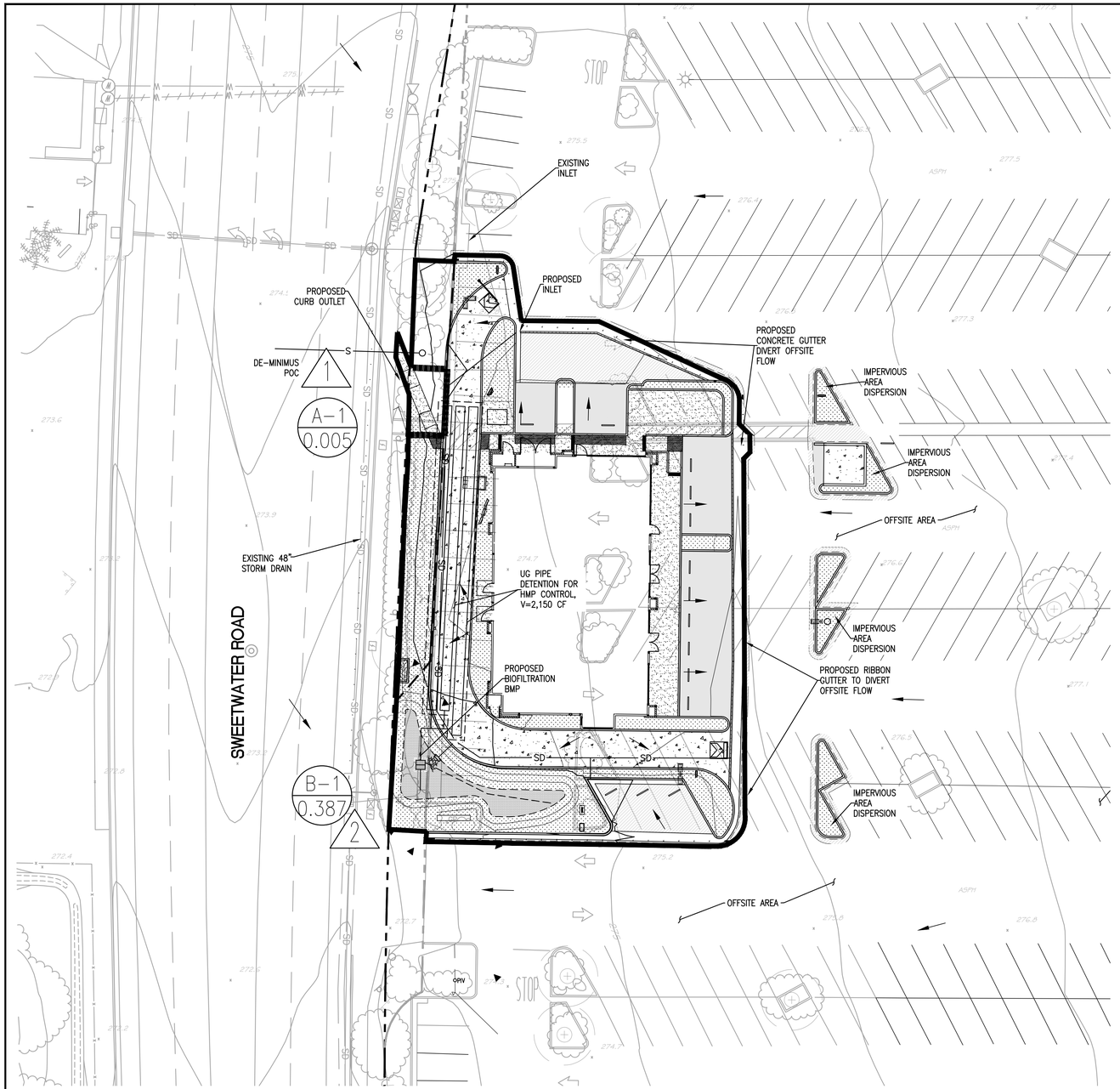
# Disclaimer

## Legal Notice

This program and accompanying documentation are provided 'as-is' without warranty of any kind. The entire risk regarding the performance and results of this program is assumed by End User. Clear Creek Solutions Inc. and the governmental licensee or sublicensees disclaim all warranties, either expressed or implied, including but not limited to implied warranties of program and accompanying documentation. In no event shall Clear Creek Solutions Inc. be liable for any damages whatsoever (including without limitation to damages for loss of business profits, loss of business information, business interruption, and the like) arising out of the use of, or inability to use this program even if Clear Creek Solutions Inc. or their authorized representatives have been advised of the possibility of such damages. Software Copyright © by : Clear Creek Solutions, Inc. 2005-2020; All Rights Reserved.

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

www.clearcreeksolutions.com

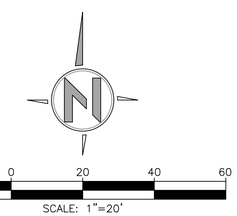



## LEGEND

| | SYMBOL |
|---|---|
| OUTER BASIN BOUNDARY | |
| MAJOR BASIN BOUNDARY | |
| MINOR BASIN BOUNDARY | |
| EXISTING STORM DRAIN | SD |
| NEW STORM DRAIN | SD |
| EXISTING CONTOUR | XXX |
| NEW CONTOUR | XXX |
| FLOW DIRECTION | |
| FLOW PATH | |
| FLOW LENGTH | L=XX.X' |
| NODE ELEVATION | 307.85FL 304.35IE |
| HYDROLOGY NODE | 200 |
| ANALYSIS/EXIT POINT | 1 |
| DRAINAGE BASIN MARKER & AREA (AC) | B-X X.XX |

NOTES:

1) DISCHARGE POINT 1: STORM RUNOFF FROM THE SITE DISCHARGES TO STREET CURB & GUTTER VIA NEW CURB OUTLET.
2) DISCHARGE POINT 2: STORM RUNOFF FROM THE SITE DISCHARGES OFFSITE VIA AN EXISTING STORM DRAIN LATERAL. THE EXCESS RUNOFF FROM EASTERLY OFFSITE AREA WILL DISCHARGE TO STREET CURB & GUTTER PRIOR TO ENTERING TO AN EXISTING CATCH BASIN SITUATED WITHIN SWEETWATER ROAD.
3) RUNOFF FROM THESE POINTS ULTIMATELY DRAINS TO AN EXISTING 48" STORM DRAIN PIPE SITUATED WITHIN SWEETWATER ROAD.
4) THE PROJECT SOIL TYPE FOR THE SITE IS C.
5) THE DEPTH TO GROUNDWATER IS UNKNOWN.
6) NO INFILTRATION CONDITION IS ASSUMED




BVE
CIVIL•STRUCTURAL•SURVEY•PLANNING
9449 BALBOA AVE. STE 270
SAN DIEGO, CA 92123
619.299.5550

| SYM | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| | | | |

ISSUE DATE: 08/29/2019
DRAWN BY: MDS
CHECKED BY: MGC
BME JOB NUMBER: 13392US.3.00
CLIENT JOB NUMBER:
MUNICIPALITY
PROJECT NUMBER:

SHEET TITLE

# HMP EXHIBIT

PROJECT

# SPRING VALLEY RETAIL CENTER
## DUNKIN DONUTS
SPRING VALLEY, CA

SITE ADDRESS
933 SWEETWATER ROAD
SPRING VALLEY, CA 91977

SHEET 1 OF 1

PLOT: M:\PROJECTS\13000\13392US.3.00 US SPRING VALLEY RETAIL CENTER DUNKIN DONUTS\DWGS\EXHIBITS\SWQMP\13392US.3.00-HMP-PROP.DWG Kyle Merkel 3/11/2021 11:58 AM

## 9.0 General Requirements

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

| Sub-attachments | BMPDM Design Resources |
|---|---|
| ☐ **9.1: Documentation of Hydromodification Management Exemption**[1] | Section 1.6 |
| ☒ **9.2: Watershed Management Area Analysis (WMAA) Mapping**[1] | Appendix H.1.1.2 |
| ☐ **9.3: Resource Protection Ordinance (RPO) Methods** | Appendix H.1.1.1 |
| ☐ **9.4: No Net Impact Analysis** | Appendix H.4 |

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

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

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

- Based on the WMAA map and the proposed project design, demonstrate below that both of the following conditions apply to the PDP:

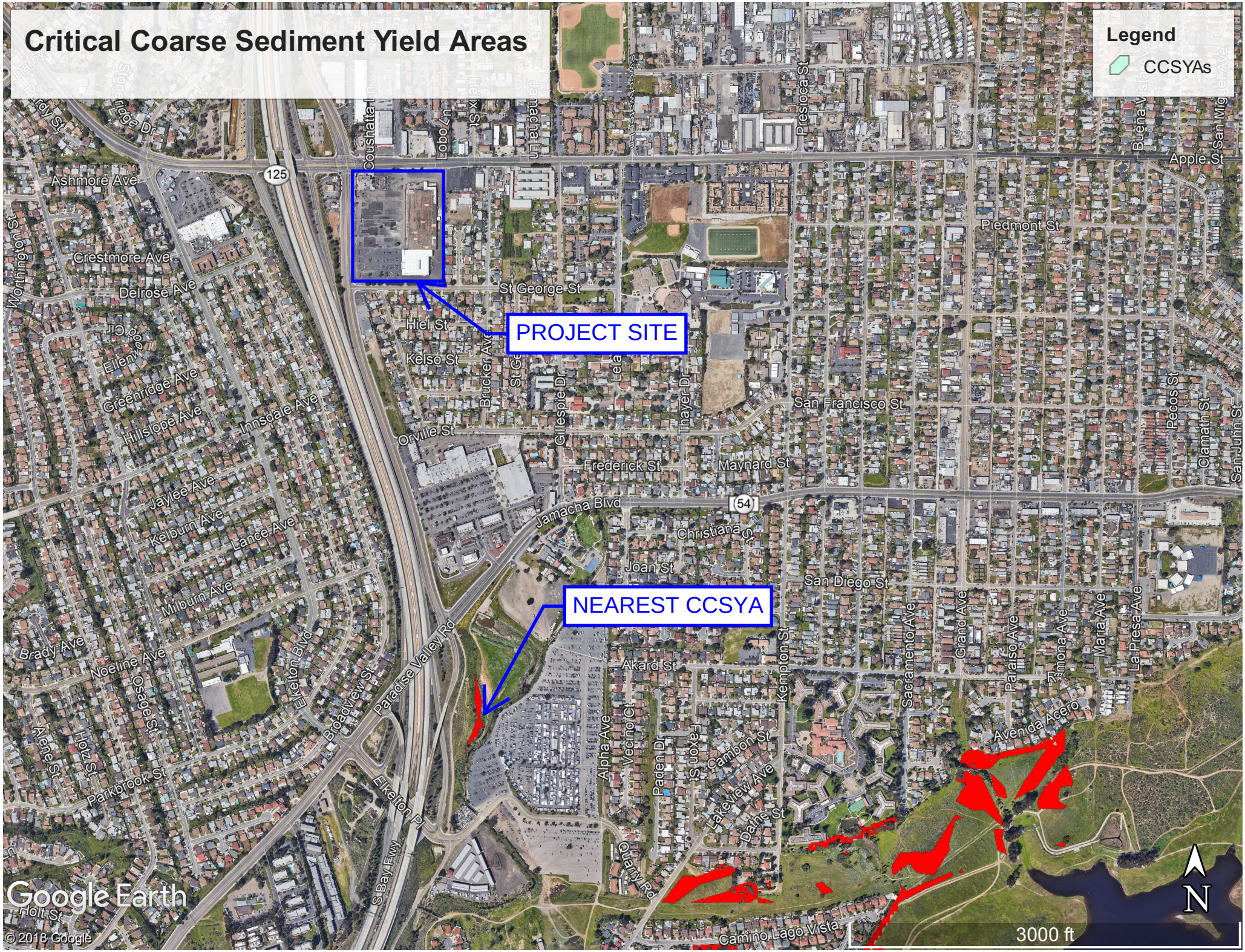
  (a) Less than 5% of PCCSYAs will be impacted (built on or obstructed) by the PDP, and

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

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

[3] Applicants may refine initial mapping results using options identified in BMPDM Appendix H.1.2.
[4] Tributary areas must be shown to demonstrate that upstream offsite PCCSYAs do not exist. If bypassing these areas, only the bypass should be shown.

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


Critical Coarse Sediment Yield Areas
Legend
CCSYAs
PROJECT SITE
NEAREST CCSYA
Ashmore Ave
Crestmore Ave
Delrose Ave
Greenridge Ave
Hillslope Ave
Innsdale Ave
Jaylee Ave
Keburn Ave
Lance Ave
Milburn Ave
Noeline Ave
Brady Ave
Parkbrook St
Holt St
Osage St
Elkelton Blvd
Broadview St
Paradise Valley Rd
Elkelton Pl
S Bay Fwy
Quarry Rd
Camino Lago Vista
Alpha Ave
Vecino Ct
Paden Dr
Cambon St
Lakeview Ave
Dahe St
Akard St
Kempton St
Sacramento Ave
Grand Ave
Paraso Ave
Ramona Ave
Maria Ave
La Presa Ave
Avenida Acero
San Diego St
Christiana St
Joan St
Jamacha Blvd
Orville St
Frederick St
Maynard St
San Francisco St
Piedmont St
Apple St
Hiel St
Kelso St
St George St
Bucker Ave
Gillespie Dr
Thayer Dr
Pecos St
Camath St
San Juan St
Presidio St
Buena V
Worthington St
Eileen Ct
Coushatta
Lobo
125
54
Google Earth
© 2018 Google
3000 ft
N

This form must be accepted by the County prior to the release of construction permits or granting of occupancy for applicable portions of a Priority Development Project (PDP). Its purpose is to provide documentation of the final installation of permanent Best Management Practices (BMPs) used to satisfy Structural Performance Standards for the development project. Compliance with these standards reduces the discharge of pollutants and flows from the completed project site. Applicable standards may be satisfied using Structural BMPs (S-BMPs), Significant Site Design BMPs (SSD-BMPs), or both. Applicants are responsible for providing all requested information. Do not leave any fields blank; indicate *N/A* for any requested item that is not applicable.

## PART 1 General Project and Applicant Information

**Table 1: Project and Applicant Information**

| **A. Project Summary Information** | **ID No. IVF-20___-____ To be assigned by DPW-WPP** |
|---|---|
| ***Project Name*** | Spring Valley Retail Center-Coffee Shop |
| ***Record ID*** (e.g. grading/improvement plan number, building permit) | Click here to enter text. |
| ***Project Address*** | Jamacha Rd & Sweetwater Rd, Spring valley, CA 91977 |
| ***Assessor's Parcel Number(s)*** APN(s) | 584-51-1900 |
| ***Project Watershed*** (complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier) | Lower Sweetwater River<br>Rice Canyon-Sweetwater River<br>180703040903 |
| **B. Owner Information** | |
| ***Name*** | Brett Feuerstein |
| ***Address*** | 9294 Mira Mesa Blvd., San Diego, CA 92126 |
| ***Email Address*** | brett@mesacenters.com |
| ***Phone Number*** | 858-271-4682 |

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

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

**Table 2: Information for Partial IVF Submittals**

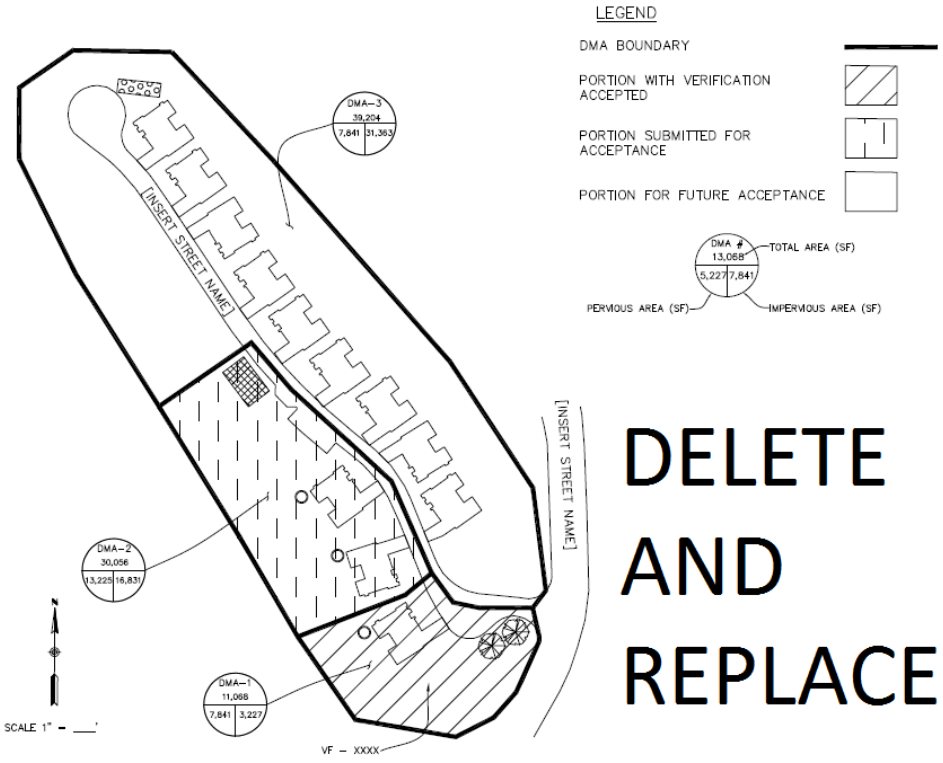
**A: DMA and BMP Information**

| DMA # | Structural and Significant Site Design BMPs | WPP Acceptance Date | IVF ID No. (e.g. 2018-001) |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

**B: DMA and BMP Map**

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

**SAMPLE DMA MAP**



## PART 2 DMA and BMP Inventory Information

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

- In **Part A**, list all Structural BMPs (including both Pollutant Control and/or Hydromodification as applicable) by DMA.
- Complete **Part B** for all DMAs that contain only Significant Site Design BMPs. SSD-BMPs are Site Design BMPs (SD-BMPs) that are sized and constructed to satisfy Structural Performance Standards for a DMA.
- Documentation of SD-BMPs is not required in this table for any DMA that also contains S-BMPs.
- The information provided for each BMP in the table must match that provided in the Stormwater Quality Management Plan (SWQMP), construction plans, maintenance agreements, and other relevant project documentation.

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

| DMA # | BMP Information | | | Maintenance Category | Maintenance Agreement or Maintenance Notification Recorded Doc. # | Construction Plan Sheet # | Landscape Plan # & Sheet # (For Vegetated BMPs Only) | FOR DPW-WPP USE ONLY *Reviewer concurs that the BMP(s) may be accepted into inventory (date and initial)* |
|---|---|---|---|---|---|---|---|---|
| | Quantity | Description/Type of Structural BMP | BMP ID #(s) | | | | | |
| **Part A Structural BMPs (S-BMPs)** | | | | | | | | |
| 1 | 1 | Biofiltration BMP | 1 | C1 | | | | |
| 1 | 1 | Underground Vault | 1 | C1 | | | | |
| | | | | | | | | |
| Add rows as needed | | | | | | | | |
| **Part B Significant Site Design BMPs (SSD-BMPs)** | | | | | | | | |
| | | Choose an item. | | --- | --- | | | |
| | | Choose an item. | | --- | --- | | | |
| | | Choose an item. | | --- | --- | | | |
| Add rows as needed | | | | | | | | |

**PART 3 Required Attachments for All BMPs Listed in Table 3**

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

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

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

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

**For Grading and Improvement projects only, ALSO submit:**

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

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

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

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

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

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

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

**Required only for Verifications for Partial Record Plans**

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

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

**PART 4 Preparer's Certification**

By signing below, I certify that the BMP(s) listed in Table 3 of this Verification Form have been constructed and all are in substantial conformance with the approved plans and applicable regulations. I understand the County reserves the right to inspect the above BMPs to verify compliance with the approved plans and Watershed Protection Ordinance (WPO). Should it be determined that the BMPs were not constructed to plan or code, corrective actions may be necessary before permits can be closed.

Note: Structural BMPs (Table 3, Part A) must be certified by a licensed professional engineer.

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

[SEAL]

Preparer's Printed Name:

____Nolan Huelsman, RCE_____

Email: _nhuelsman@bwesd.com_____

Phone Number: _619-299-5550_____

Preparer's Signed Name:

_____

Date: _Click here to enter text._____

**COUNTY - OFFICIAL USE ONLY:**

For County Inspectors

County Department: _____

Date verification received from EOW: _____

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

Inspector Name: _____

Inspector's Signature: _____ Date: _____

For Building Division Only

Inspection Supervisor Name: _____

Inspector Supervisor's Signature: _____ Date: _____

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

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

For Watershed Protection Program Only

Date Received: _____

WPP Reviewer: _____

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

WPP Reviewer's Signature: _____ Date: _____