

**HMP Flow Control Facility Design for  
OTAY RANCH  
VILLAGE 14 AND PLANNING AREAS 16/19  
PROPOSED PROJECT AMENDMENT**

**County of San Diego, California**

**Preparation/Revision Date:  
December 19, 2019**

**Prepared for:**

**GDCI PROCTOR VALLEY L.P.  
4364 Bonita Road, #607  
Bonita, CA 91902-1421  
(619) 267-4904**

**Declaration of Responsible Charge**

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

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

**Engineer of Work**

Hunsaker & Associates San Diego, Inc.  
9707 Waples Street  
San Diego, CA 92121  
Phone: (858)558-4500  
Fax: (858)558-1414  
Web: [www.HunsakerSD.com](http://www.HunsakerSD.com)



 12/20/19

Alisa S. Vialpando, R.C.E. 47945      Date  
Vice President

## Hydromodification Management Plan (HMP) -Flow Control Facility Design

This HMP report has been prepared in place of Attachment 2a of the Priority Development Project (PDP) SWQMP for Otay Ranch Village 14 and Planning Areas 16/19 (February 2018) and has been prepared to be submitted concurrently with the SWQMP.

### SECTIONS

1. Project Background
2. Introduction/Summary
3. Flow Duration Curve Analysis
4. Elevation vs. Discharge, Elevation vs Area Curves, Drawdown, SWMM Input Calculations
5. Biofiltration Details
6. SWMM Input Data (Existing and Proposed Models)
7. Hydromodification Watershed Maps

## **I. PROJECT BACKGROUND**

The Proposed Project Amendment relates to approximately 1,543 acres of undeveloped land within the 23,000-acre Otay Ranch master planned community, located in southern San Diego County. More specifically, the Proposed Project Amendment reflects proposed changes to the Approved Project, which the County Board of Supervisors approved on June 26, 2019 (the “Approved Project”). Both the Approved Project and the Proposed Project Amendment contemplate development within a portion of Otay Ranch Village 14 and Planning Areas 16/19 in the Proctor Valley area of Otay Ranch, as shown on Figure 1.

On June 27, 2019, the Owner/Applicant, entered into a Dispute Resolution Agreement with the California Department of Fish and Wildlife (CDFW), the United States Fish and Wildlife Service (USFWS), and the County of San Diego (County), pursuant to which Owner/Applicant would seek a land exchange with CDFW through a process overseen by the California Wildlife Conservation Board (WCB). The proposed land exchange, if approved by WCB, would require Owner/Applicant to (i) transfer 147.3 acres in Village 14 and 192.4 acres in Planning Areas 16 to CDFW, and (ii) record a conservation easement over 191.5 acres in Planning Area 16, and would require CDFW to transfer 219.4 acres in Village 14 to Owner/Applicant. The Proposed Project Amendment would then be implemented upon the lands within Owner/Applicant ownership, including those received via the WCB land exchange.

Because the Proposed Project Amendment assumes the above-described land exchange between Owner/Applicant and CDFW, it would result in a different development pattern than the Approved Project’s development pattern. For this reason, the County will require that Owner/Applicant process a Specific Plan Amendment and a Revised Tentative Map to accommodate the Proposed Project Amendment.

The purpose of this technical analysis is to evaluate analyze the drainage impacts of the Proposed Project Amendment and mitigate as necessary.

Hunsaker prepared the following technical reports for the FEIR which are incorporated herein by reference:

- Appendix 3.1.2-1 *CEQA Drainage Study, Otay Ranch Village 14 and Planning Areas 16/19*, Prepared by Hunsaker & Associates (February 5, 2018);
- Final EIR Appendix 3.1.2-2 *Priority Development Project (PDP) Storm Water Quality Management Plan (SWQMP Proposed Project Amendment), Otay Ranch Village 14 and Planning Areas 16 and 19*, Prepared by Hunsaker & Associates (February 5, 2018);
- Final EIR Appendix 3.2.2-4 *Hydromodification Flow Control Study Otay Ranch Village 14 and Planning Areas 16/19 Proposed Project Amendment*, Prepared by Hunsaker & Associates (February 5, 2018);
- Final EIR Appendix 4.1-12 *CEQA Drainage Study, Otay Ranch Village 14 and Planning Areas 16/19 Land Exchange Alternative*, Prepared by Hunsaker & Associates (January 29, 2018);

- Final EIR Appendix 4.1-10 *Priority Development Project (PDP) Storm Water Quality Management Plan (SWQMP Land Exchange Alternative)*, Otay Ranch Village 14 and Planning Areas 16 and 19, Prepared by Hunsaker & Associates (January 29, 2018);
- Final EIR Appendix 4.1-11 *Hydromodification Flow Control Study Otay Ranch Village 14 and Planning Areas 16/19 Land Exchange Alternative*, Prepared by Hunsaker & Associates (January 29, 2018);

Hunsaker & Associates prepared the following technical reports for the Proposed Project Amendment which are incorporated herein by reference:

- *CEQA Drainage Study, Otay Ranch Village 14 and Planning Areas 16/19 Proposed Project Amendment*, Prepared by Hunsaker & Associates (December 19, 2019);
- *Priority Development Project (PDP) Storm Water Quality Management Plan (SWQMP), Otay Ranch Village 14 and Planning Areas 16 and 19 Proposed Project Amendment*, Prepared by Hunsaker & Associates (December 19, 2019);
- *Hydromodification Flow Control Study Otay Ranch Village 14 and Planning Areas 16/19 Proposed Project Amendment*, Prepared by Hunsaker & Associates (December 19, 2019);

#### PROPOSED PROJECT AMENDMENT

The Proposed Project Amendment reflects proposed changes to the approved project, which would add 147 units for a total of 1,266 residential units and would reduce the Development Footprint by approximately 230 acres, to a total of 579 acres, within a project area of 1,543 acres as shown on Figure 4 and more fully described below. The proposed project amendment includes a revised Tentative Map and Specific Plan Amendment. As contemplated in the Dispute Resolution Agreement, the Proposed Project Amendment assumes and will require a County-initiated amendment to the MSCP County Subarea Plan. Because the amendment to the MSCP County Subarea Plan will be initiated by the County, it is not part of the Proposed Project Amendment.

#### TERMINOLOGY

The following Terminology are used in this report.

**Approved Project:** The project described in Otay Ranch Village 14 and Planning Areas 16/19 Tentative Map 5616, Specific Plan 16-002, and the certified EIR, which the County of San Diego (County) approved on June 26, 2019. The Approved Project permits 1,119 residential units within a Project Area of approximately 1,369 acres. The Development Footprint of the Approved Project is 809 acres.

**Development Footprint:** The areas where a given project will cause permanent or temporary ground disturbance. The Development Footprint includes all on-site development, off-site improvements, and impacts resulting from infrastructure and other allowable uses within the Otay Ranch Resource Management Plan (RMP) Preserve.



EIR Land Exchange Alternative: The project alternative identified as the “Land Exchange Alternative” in Chapter 4 of the certified Final EIR. This Land Exchange Alternative contemplated a land exchange with the California Department of Fish and Wildlife (CDFW) and would develop 1,530 residential units within a Project Area of approximately 2,387.6 acres, with a Development Footprint of 658.3 acres.

Off-Site Improvements: Off-site improvements total approximately 40.1 acres and include Proctor Valley Road, wet and dry utilities, drainage facilities, trails, an off-site sewer pump station in the southern reach of Proctor Valley Road, and off-site sewer facilities to connect to the Salt Creek Interceptor as planned since 1994.

Project Area: The total land area for the Proposed Project Amendment as contemplated in the proposed land exchange between applicant and CDFW.<sup>1</sup> The Project Area consists of approximately 1,283.6 acres currently owned by GDCI Proctor Valley, L.P., the owner/applicant, 219.4 acres currently owned by CDFW, and approximately 40.1 acres of off-site improvements, for a total of 1,543 acres as shown in Figure 4.

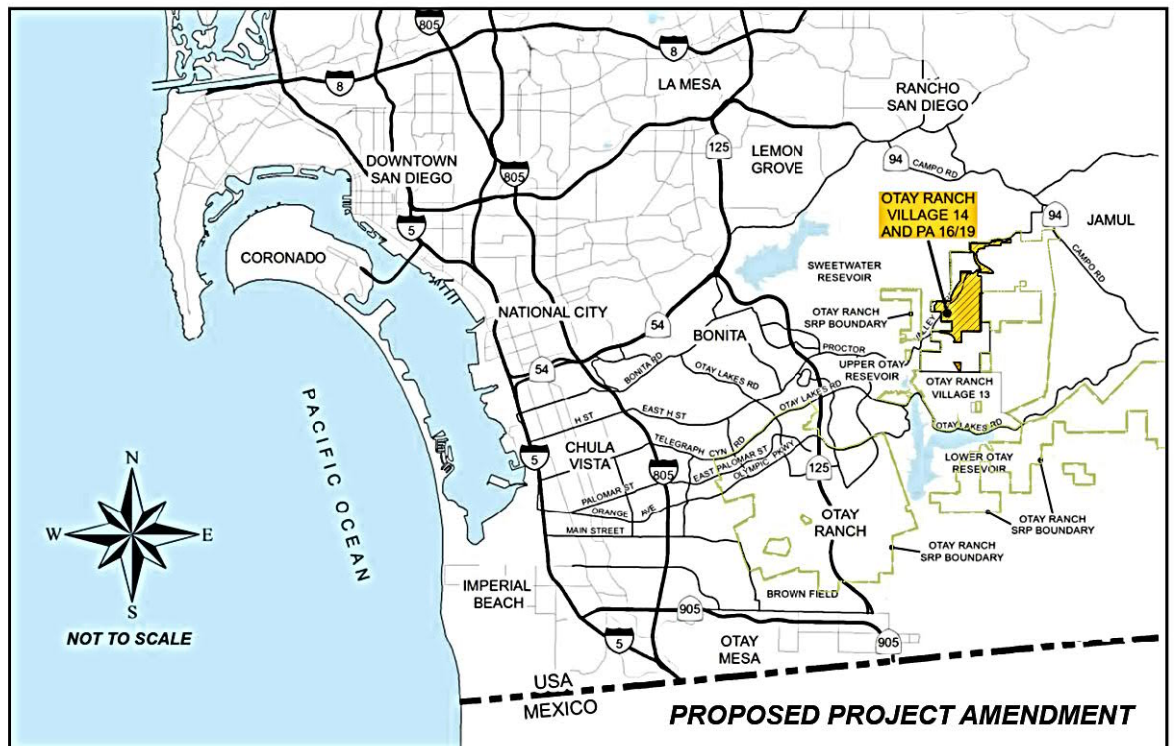
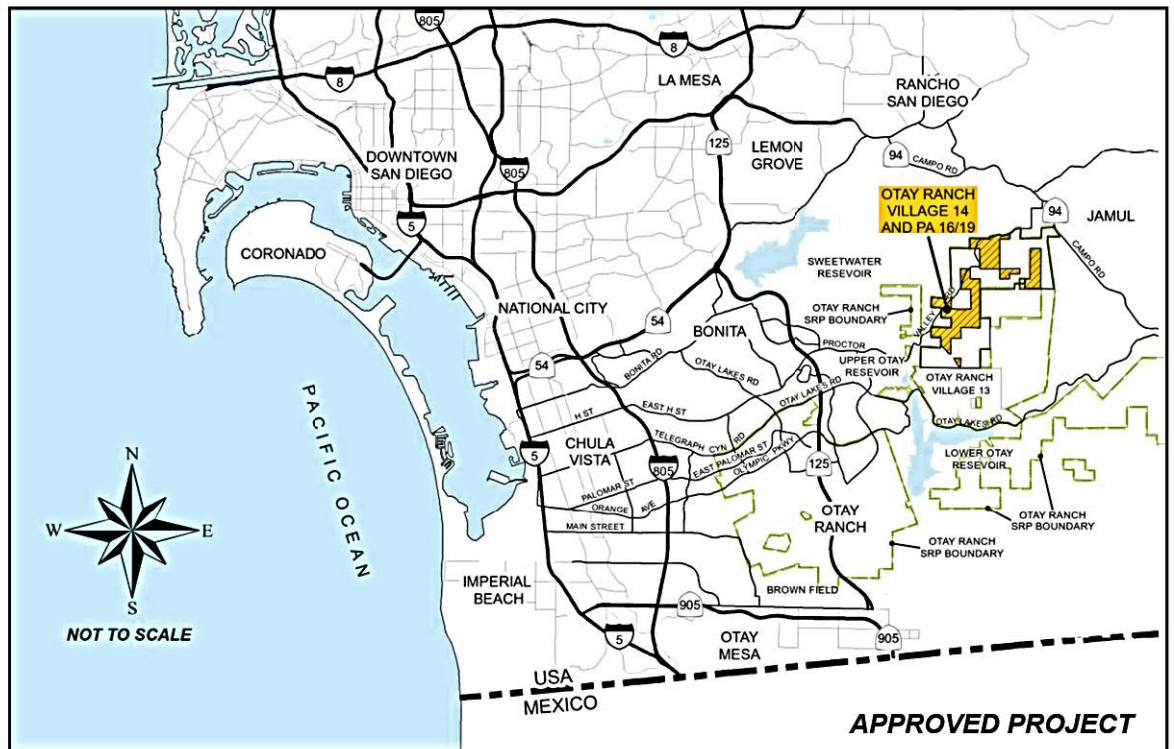
Proposed Project Amendment: The Proposed Project Amendment reflects proposed changes to the Approved Project, which would add 147 units for a total of 1,266 residential units and would reduce the Development Footprint by approximately 230 acres, to a total of 579 acres, within a Project Area of 1,543 acres, as shown on Figure 2 and in Tables 1-3.

Revised Tentative Map: The Revised Tentative Map reflects revisions to the June 26, 2019, Approved Tentative Map #5616 that are necessary to process and implement the land exchange with CDFW and the Proposed Project Amendment in the County.

Specific Plan Amendment: The Specific Plan Amendment reflects revisions to the June 26, 2019, Approved Specific Plan #16-002 that are necessary to process and implement the land exchange with CDFW and the Proposed Project Amendment in the County.

---

<sup>1</sup> As indicated above, the land exchange necessary to implement the Proposed Project Amendment must be approved by the California Wildlife Conservation Board.



**FIGURE 1**  
**Regional Location Map**

**Table 1**  
**Village 14 and Planning Areas 16/19**  
**Proposed Project Amendment**  
**Site Utilization Plan Summary**  
**November, 2019**

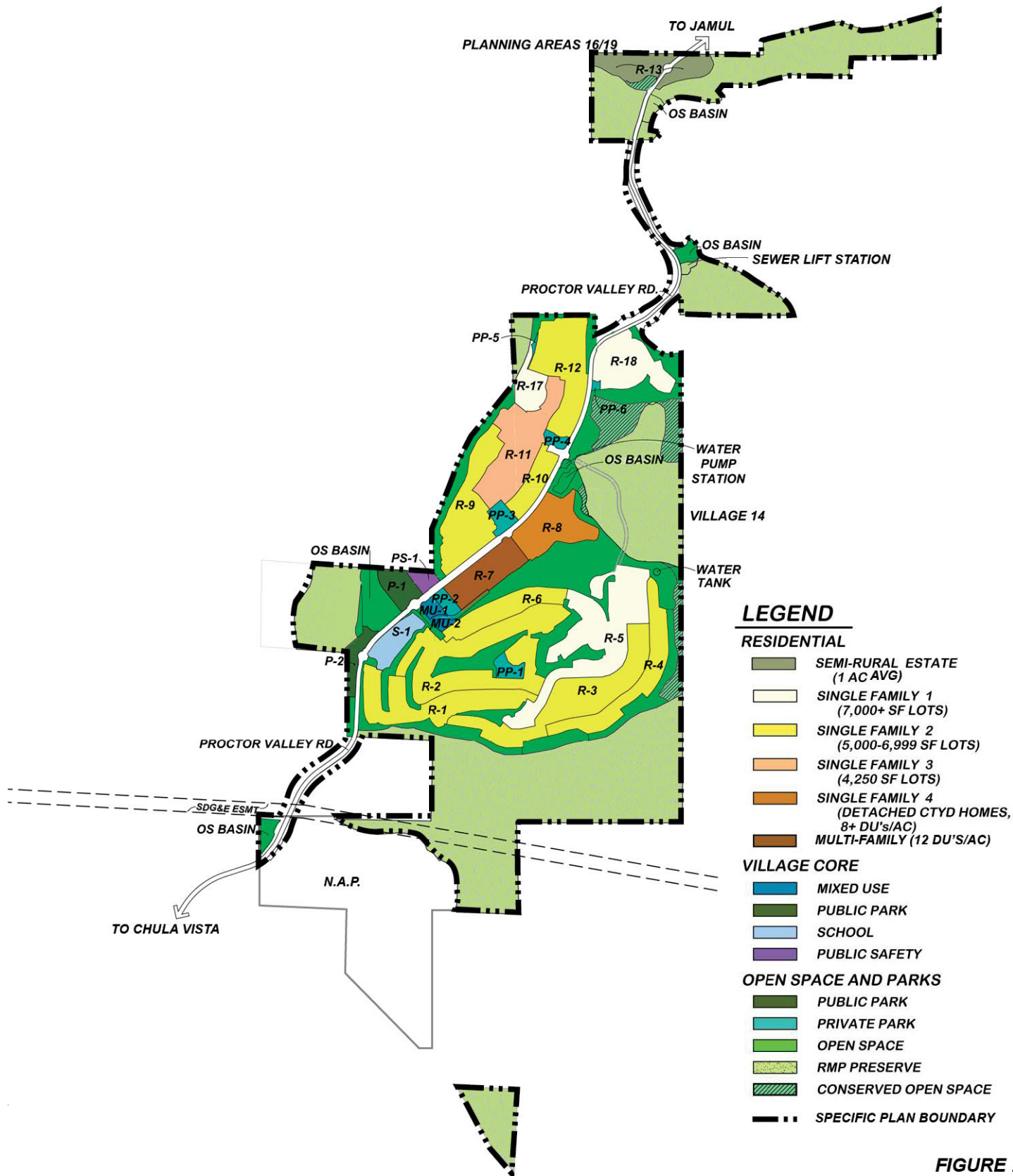
| Description                                          | Village 14   |              | Planning Area 16/19 |           | Total Proposed Project     |              |
|------------------------------------------------------|--------------|--------------|---------------------|-----------|----------------------------|--------------|
|                                                      | Gross Acres  | Target Units | Gross Acres         | Units     | Gross Acres <sup>(1)</sup> | Target Units |
| <b>Residential Subtotal <sup>(1)</sup></b>           | 386.6        | 1,253        | 14.9                | 13        | 401.4                      | 1,266        |
| <b>Non-Residential Uses</b>                          |              |              |                     |           |                            |              |
| Mixed Use <sup>(2)</sup>                             | 2.7          |              |                     |           | 2.7                        |              |
| Public Parks                                         | 10.2         |              |                     |           | 10.2                       |              |
| Private Parks/Recreation <sup>(3)</sup>              | 9.5          |              |                     |           | 9.5                        |              |
| Public Safety Site                                   | 2.3          |              |                     |           | 2.3                        |              |
| Elementary School Site                               | 9.9          |              |                     |           | 9.9                        |              |
| Open Space                                           | 47.8         |              | 1.7                 |           | 49.5                       |              |
| Conserved Open Space                                 | 23.0         |              | 1.5                 |           | 24.5                       |              |
| Otay Ranch RMP Preserve                              | 278.6        |              | 98.4                |           | 377.0                      |              |
| Circulation                                          | 23.3         |              | 3.4                 |           | 26.7                       |              |
| <b>Non-Residential Uses Subtotal</b>                 | 407.2        |              | 105.0               |           | 512.1                      | -            |
| <b>Total Proposed Project Amendment</b>              | <b>793.7</b> | <b>1,253</b> | <b>119.8</b>        | <b>13</b> | <b>913.6</b>               | <b>1,266</b> |
| <b>Other Offsites</b>                                |              |              |                     |           |                            |              |
| Offsite Improvements                                 | 40.1         |              |                     |           | 40.1                       |              |
| Offsite Preserve PA16                                |              |              | 58.3                |           | 58.3                       |              |
| Parcels Exchanged to CDFW                            | 147.3        |              | 192.4               |           | 339.7                      |              |
| Conservation Easement PA16                           |              |              | 191.5               |           | 191.5                      |              |
| <b>Total Proposed Project Amendment Project Area</b> |              |              |                     |           | <b>1,543.1</b>             | <b>1,266</b> |

(1) Total residential gross acres includes 98.6 acres of related internal slopes, fuel modification and/or preserve edge open space lots.

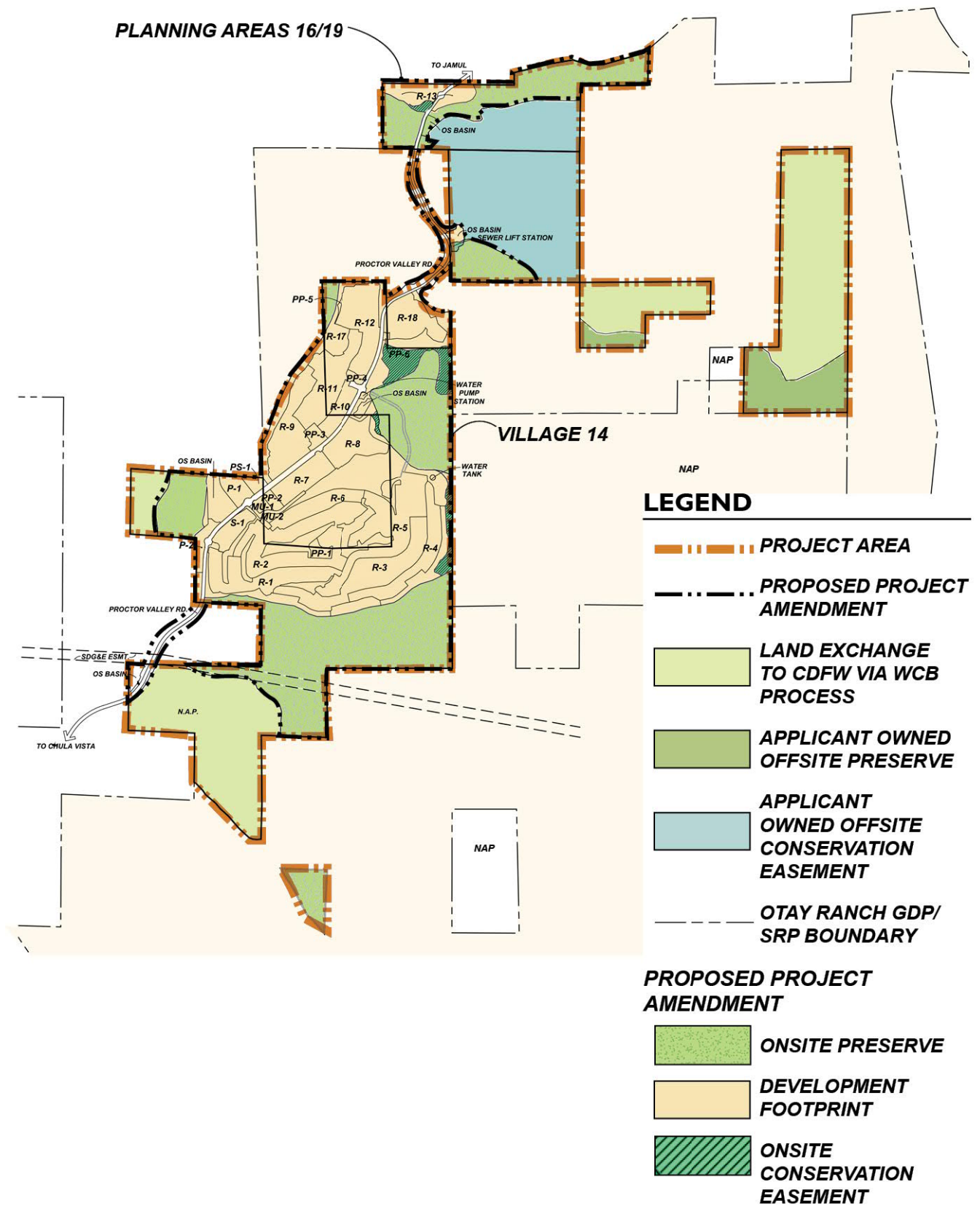
(2) Village 14 Mixed Use acreage includes 10,000 sf of commercial use.

(3) Village 14 has 2.1 acres of private pocket parks included in the residential acreage; therefore the subtotal including PPP is 11.6 acres.

(4) May not total due to rounding.



**FIGURE 2**  
**Proposed Project Amendment**  
 Otay Ranch Village 14 and Planning Areas 16/19



**FIGURE 4**  
**Proposed Project Amendment – Project Area**  
 Otay Ranch Village 14 and Planning Areas 16/19



**Table 2**  
**Proposed Project Amendment**  
**Site Utilization Plan Detail**  
**November 1, 2019**

| VILLAGE 14                                |                    |              |              |             |
|-------------------------------------------|--------------------|--------------|--------------|-------------|
| Description                               |                    | Gross Acres  | Units        | Density     |
| <b>Single Family Residential</b>          |                    |              |              |             |
| R-1                                       | 50*100             | 33.1         | 103          | 3.1         |
| R-2                                       | 60*100             | 48.3         | 136          | 2.8         |
| R-3                                       | 60*85              | 35.8         | 112          | 3.1         |
| R-4                                       | 60*100             | 31.5         | 73           | 2.3         |
| R-5                                       | 75*100             | 51.7         | 121          | 2.3         |
| R-6                                       | 60*85              | 22.5         | 47           | 2.1         |
| R-8                                       | Courtyard M        | 21.1         | 116          | 5.5         |
| R-9                                       | 60*85              | 33.0         | 96           | 2.9         |
| R-10                                      | 60*85              | 8.5          | 31           | 3.7         |
| R-11                                      | 50*85 M            | 25.4         | 119          | 4.7         |
| R-12                                      | 50*100             | 27.6         | 94           | 3.4         |
| R-17                                      | 70*100             | 7.4          | 10           | 1.3         |
| R-18                                      | 70*100             | 27.8         | 45           | 1.6         |
| <b>Single Family Residential Subtotal</b> |                    | <b>373.8</b> | <b>1,103</b> | <b>3.0</b>  |
| <b>MultiFamily</b>                        |                    |              |              |             |
| R-7                                       | MF                 | 12.7         | 150          | 11.8        |
| <b>MF Subtotal</b>                        |                    | <b>12.7</b>  | <b>150</b>   | <b>11.8</b> |
| <b>Residential Subtotal</b>               |                    | <b>386.6</b> | <b>1,253</b> | <b>3.2</b>  |
| <b>Non-Residential Uses</b>               |                    |              |              |             |
| Mixed Use <sup>(2)</sup>                  | MU - C             | 2.7          |              |             |
| <b>Public Parks</b>                       |                    |              |              |             |
| P-1                                       | Village Green Park | 6.2          |              |             |
| P-2                                       | Scenic Park        | 3.9          |              |             |
| <b>Public Parks Subtotal</b>              |                    | <b>10.2</b>  |              |             |
| <b>Private Parks &amp; Recreation</b>     |                    |              |              |             |
| PP-1                                      | Central            | 2.8          |              |             |
| PP-2                                      | Village Core       | 2.1          |              |             |
| PP-3                                      | West               | 1.9          |              |             |
| PP-4                                      | West               | 1.5          |              |             |
| PP-5                                      | northwest          | 0.8          |              |             |
| PP-6                                      | Northeast          | 0.4          |              |             |
| PPP (3)                                   | Various            | 0.0          |              |             |
| <b>Private Parks/Recreation Subtotal</b>  |                    | <b>9.5</b>   |              |             |
| <b>Public Safety Site</b>                 |                    |              |              |             |
| <b>Elementary School Site</b>             |                    | <b>2.3</b>   |              |             |
| <b>Open Space</b>                         |                    | <b>9.9</b>   |              |             |
| <b>Conserved Open Space</b>               |                    | <b>47.8</b>  |              |             |
| <b>Otay Ranch RMP Preserve</b>            |                    | <b>23.0</b>  |              |             |
| <b>Circulation - In Preserve</b>          |                    | <b>274.9</b> |              |             |
| <b>Circulation - Arterial</b>             |                    | <b>3.7</b>   |              |             |
| <b>Non-Residential Uses Subtotal</b>      |                    | <b>23.3</b>  |              |             |
| <b>Village 14 Subtotal</b>                |                    | <b>407.2</b> |              |             |
| <b>Village 14 Subtotal</b>                |                    | <b>793.7</b> | <b>1,253</b> | <b>1.6</b>  |

(1) Residential gross acres includes 96.5 acres of related internal slopes, fuel modification and/or preserve edge open space lots.

(2) Village 14 Mixed Use acreage includes 10,000 sf of commercial use.

(3) Village 14 has 2.1 acres of private pocket parks included in the residential acreage; therefore the subtotal including PPP is 11.6 acres.

(4) May not total due to rounding.

**Table 3**  
**Proposed Project Amendment**  
**Site Utilization Plan Detail**  
**November 1, 2019**

| PLANNING AREA 16/19                        |              |              |            |
|--------------------------------------------|--------------|--------------|------------|
| Description                                | Gross Acres  | Units        | Density    |
| <b>Residential Uses</b>                    |              |              |            |
| R-13 PA 19 Estates                         | 14.9         | 13           | 0.9        |
| <b>Residential Subtotal <sup>(1)</sup></b> | <b>14.9</b>  | <b>13</b>    | <b>0.9</b> |
| <b>Non-Residential Uses</b>                |              |              |            |
| Circulation in Preserve                    | 1.4          |              |            |
| Open Space                                 | 1.7          |              |            |
| Conserved Open Space                       | 1.5          |              |            |
| Otay Ranch RMP Preserve                    | 97.0         |              |            |
| Circulation Arterial                       | 3.4          |              |            |
| <b>Non-Residential Uses Subtotal</b>       | <b>105.0</b> |              |            |
| <b>Planning Area 19 Subtotal</b>           | <b>119.8</b> | <b>13</b>    | <b>0.1</b> |
|                                            |              |              |            |
| <b>Proposed Project Amendment Total</b>    | <b>913.6</b> | <b>1,266</b> | <b>1.4</b> |

| OTHER                                          |                |              |         |
|------------------------------------------------|----------------|--------------|---------|
| Description                                    | Gross Acres    | Units        | Density |
| <b>Other Applicant Owned NAP of TM</b>         |                |              |         |
| PV1 exchanged to CDFW                          | 18.9           |              |         |
| PV3 exchanged to CDFW                          | 128.4          |              |         |
| R-15 Exchanged to CDFW                         | 49.9           |              |         |
| R-16 Exchanged to CDFW                         | 142.5          |              |         |
| R-14 Conservation Easement Area                | 191.5          |              |         |
| R-15 Preserve                                  | 10.5           |              |         |
| R-16 Preserve                                  | 47.8           |              |         |
| <b>Subtotal</b>                                | <b>589.5</b>   |              |         |
| <b>Offsite Acres</b>                           | <b>40.1</b>    |              |         |
|                                                |                |              |         |
| <b>Proposed Project Amendment Project Area</b> | <b>1,543.1</b> | <b>1,266</b> |         |

**Notes:**

- (1) Residential gross acres includes 2.1 acres of related internal slopes, fuel modification and/or preserve edge open space lots.  
(2) May not total due to rounding.

PROPOSED PROJECT AMENDMENT RELATIVE TO THE APPROVED PROJECT AND THE EIR LAND EXCHANGE ALTERNATIVE.

The Final EIR evaluated both the Approved Project and the EIR Land Exchange Alternative at a project-level of analysis. This Technical Memorandum examines whether the FEIR, through its analysis of the Approved Project and the EIR Land Exchange Alternative, covered all anticipated impacts of the Proposed Project Amendment. The table below compares the Proposed Project Amendment to the Approved Project and the EIR Land Exchange Alternative. Note that from a geographical perspective, each acre that comprises the Proposed Project's Development Footprint is located either within the Approved Project Development Footprint or within the EIR Land Exchange Alternative Development Footprint. In other words, no portion of the Proposed Project Amendment Development Footprint is outside the combined Approved Project and EIR Land Exchange Alternative Development Footprints.

| TABLE 4 Proposed Project Amendment Comparison |                            |                  |                               |
|-----------------------------------------------|----------------------------|------------------|-------------------------------|
| Description                                   | Proposed Project Amendment | Approved Project | EIR Land Exchange Alternative |
|                                               |                            |                  |                               |
| Development Footprint                         | 579                        | 809              | 658                           |
| Project Area                                  | 1,543                      | 1,369            | 2,388                         |
| Offsites                                      | 40                         | 85               | 40                            |
| Units                                         | 1,266                      | 1,119            | 1,530                         |
| Proctor Valley Rd.                            | Same                       | Same             | Same                          |



## **II. INTRODUCTION/SUMMARY**

This HMP report summarizes the approach used to model the Proposed Project Amendment site within San Diego County, California using the Environmental Protection Agency (EPA) Storm Water Management Model 5.1 (SWMM). SWMM models were prepared for pre- and post-developed conditions at each of the Proposed Project Amendment's designated Point of Compliances (POC) in order to demonstrate that the proposed biofiltration basin facilities have sufficient footprints and volumes to meet the current HMP requirements from the Regional Water Quality Control Board (RWQCB).

The Proposed Project Amendment was subdivided into thirteen (7) subareas with each draining to their respective POC. See Section 6 of this Report for HMP-related maps.

Following are brief descriptions of each POC:

### **POC 1:**

POC 1 is the northernmost POC for areas within the Village 14 portion of the site. This POC encompasses 616.1 acres of native undeveloped area in existing condition. The western boundary of this POC subwatershed is generally the existing Proctor Valley Road. In proposed condition, the drainage area to this POC is about 311.8 acres of developed area and 304.3 acres of undisturbed or pervious area which will not need to be treated or routed through the proposed water quality basins within POC1. The developed portions of this POC include single- family residences, mixed-use, parks, a school site, a fire station, open space, and community facilities. The two proposed water quality basins tributary to POC1 will be situated within open space areas. The primary basin (Basin #1 [BF-2-1]) will be located at the downstream end of the POC subwatershed directly adjacent to the Proctor Valley drainageway. Another basin (Basin #6 [BF-2-6]) will be located within the northern portion of the POC east of Proctor Valley Road. This POC includes a dual pipe storm drain system along some parts of Proctor Valley Road to convey the untreated-developed area flows and to convey the offsite natural flows which are bypassed through the site. The peak developed flows will either be diverted or routed through each basin for water quality treatment and flow control of its respective tributary area. The designed riser outlet structure will include flow control discharge orifices and be sized to accommodate peak flows. Both onsite and offsite storm drain systems will confluence immediately downstream of Basin#1 prior to discharging at the POC1 location (west of the P-2 park). The HMP analysis of POC1 includes natural areas to east of Proctor Valley Road which are to be preserved as open space.

### **POC 2:**

POC 2 is located south of POC1 and is immediately downstream of Basin #2 (BF-2-2). The existing condition tributary area to POC2 consists of about 1,361.4 acres of undisturbed native pervious land east of existing Proctor Valley Road. Similar to POC 1, POC 2 will include both developed areas as well as undeveloped/unimproved areas. About 1,257.6 acres will remain completely

pervious and about 103.8 acres will be developed. The POC2 developed portions in Village 14 will consist of single- family residences, parks, and open space areas. The developed area runoff will be conveyed towards Basin #2 for treatment then confluence with the offsite flows downstream of Basin #2 prior to discharging into Proctor Valley drainageway located immediately west of Proctor Valley Road. The developed flows which were directed into Basin #2 for water quality treatment and flow control will outlet the basin via the designed riser outlet structure which will include flow control discharge orifices. The HMP analysis of POC2 includes natural areas to east of Proctor Valley Road which are to be preserved as open space.

### POC 3:

The POC 3 existing and proposed condition subwatershed was delineated for areas tributary to the point of discharge from proposed Basin #3 (BF-2-3). The HMP analysis for POC3 was prepared to address water quality and HMP compliance related to the widening of and associated improvements to Proctor Valley Road. The roadside basin will treat storm water runoff collected by inlets along a portion of Proctor Valley Road. The proposed sewer pump station is also included within this developed subwatershed to POC3. The HMP analysis of POC3 includes natural areas to east of Proctor Valley Road which are to be preserved as open space.

### POC 4:

The POC 4 existing and proposed condition subwatershed was delineated for areas tributary to the point of discharge from proposed Basin #4 (BF-2-4). The HMP analysis for POC4 addresses water quality and HMP compliance related to the widening of and associated improvements to Proctor Valley Road. The roadside basin (Basin #4) will treat storm water runoff collected by inlets along a portion of Proctor Valley Road. This POC also includes some pervious natural areas which will bypass the basin since it does not require any water quality (WQ) treatment. The HMP analysis of POC4 includes natural areas to east of Proctor Valley Road which are to be preserved as open space.

### POC 5:

POC 5 is the southernmost POC. The POC5 existing and proposed condition subwatershed was delineated for areas tributary to the point of discharge from proposed Basin #5 (BF-2-5). The HMP analysis for POC5 addresses water quality and HMP compliance related to the widening of and associated improvements to Proctor Valley Road. The roadside basin (Basin #5) will treat storm water runoff collected by inlets along a portion of Proctor Valley Road. This POC also includes some existing undeveloped areas located north of Proctor Valley Road and east of the Neighborhood 9 portion of Rolling Hills Ranch which is located upstream of POC5. Portions of Rolling Hills Ranch are also tributary to POC5 and were included in both the existing or proposed condition (SWMM) models.

### POC 6:

POC 6 is located within the northern portion of the Proposed Project Amendment, along Proctor Valley Road just north of the main development area. The existing area for this POC is undeveloped. When developed, this POC will include undeveloped areas as well as roadway, and a treatment basin. DMA's 7 and 8 are tributary to POC 6. Separate DMA's were identified to distinguish the portions of Proctor Valley Road that will be treated for water quality via Compact Proprietary Biofiltration Units (DMA 7, BF-3-7, MWS-8-16) and Biofiltration Basin (DMA 8, BF-2-8). HMP control for DMA's 7 and 8 will be addressed via Basin #8 (BF-2-8). The HMP analysis of POC 6 includes natural areas to east of Proctor Valley Road which are to be preserved as open space.

### POC 7:

POC7 is located within the northeast portion of the Proposed Project Amendment within Planning Area 19. The existing area for this POC is undeveloped. When developed, this POC will include undeveloped areas as well as roadway, estate residential lots, and a treatment basin. DMA's 9 and 10 are tributary to POC 7. Separate DMA's were identified to distinguish the portions of Proctor Valley Road that will be treated for water quality via Compact Proprietary Biofiltration Units (DMA 9, BF-3-9, MWS-8-16) and Biofiltration Basin (DMA 10, BF-2-10). HMP control for DMA's 9 and 10 will be addressed via Basin #10 (BF-2-10). The HMP analysis of POC 7 includes natural areas to east of Proctor Valley Road which are to be preserved as open space.

### SWMM MODEL DEVELOPMENT

Since each POC is similar in terms of model development, the following will outline the typical model development. Two (2) SWMM models are prepared for each POC; one represents existing conditions and another represents proposed condition.

The existing condition analysis was prepared by defining the area to the respective POC. Similarly, the proposed condition analysis was prepared by defining the areas to the respective POC. However, since not all of the tributary areas are routed through each respective water quality basin, further subdivision of the overall tributary area was required. Areas were subdivided as follows:

1. Areas not requiring water quality treatment and bypassing a basin
2. Newly developed areas where runoff is directed to WQ basin but excluding the basin area;  
and
3. WQ Basin area.

For all SWMM models, flow duration curves were prepared to demonstrate that the proposed biofiltration basin footprints and proposed outlet structure will be sufficient to meet the current HMP requirements.

The inputs required to develop SWMM models include rainfall, watershed characteristics, and BMP configurations. The Lower Otay Reservoir Rain Gage from the Project Clean Water website was used for this study since it is the most representative of the project site precipitation. Evaporation for the site was modeled using average monthly values from the San Diego County hourly dataset. The site was modeled with hydrologic group D soils as determined from both the San Diego County Hydrology Manual soil map and the United States Geological Survey (USGS) web-based Soil Survey Map. Other SWMM inputs for the subareas are discussed in the following sections of this document where the selection of parameters is further explained in detail.

### BIOFILTRATION MODELING

For each respective POC, developed area storm water runoff is routed through a biofiltration basin located at the downstream end of each respective POC drainage area as shown on the Proposed Condition HMP map in Section 6 of this report. The analysis was modeled using the bio-retention cell LID module within SWMM. The bioretention cell module can model the underground gravel storage layer, underdrain with an orifice plate, amended soil layer, and a surface storage pond up to the elevation of the invert of the bottom orifice. Separate diversion and detention basin calculations were prepared to model the portion of the storage pond between the base orifice invert elevations and the spillway elevation from the biofiltration basin, according to the assumptions explained in the Section 2 of this report. Once runoff has been routed through the respective basin outlet structure, it is conveyed via a storm drain pipe to the respective POC.

Basin Discussion: Flow control at each basin is achieved using multiple orifices along the height of a concrete riser structure which may be square or circular. The size, number and location of the orifices along its height are presented in the Basin Table below.

## SWMM MODEL DEVELOPMENT

Since each POC is similar in terms of model development, the following will outline the typical model development. Two (2) SWMM models are prepared for each POC; one represents existing conditions and another represents proposed condition.

The existing condition analysis was prepared by defining the area to the respective POC. Similarly, the proposed condition analysis was prepared by defining the areas to the respective POC. However, since not all of the tributary areas are routed through each respective water quality basin, further subdivision of the overall tributary area was required. Areas were subdivided as follows:

1. Areas not requiring water quality treatment and bypassing a basin
2. Newly developed areas where runoff is directed to WQ basin but excluding the basin area; and
3. WQ Basin area.

For all SWMM models, flow duration curves were prepared to demonstrate that the proposed biofiltration basin footprints and proposed outlet structure will be sufficient to meet the current HMP requirements.

The inputs required to develop SWMM models include rainfall, watershed characteristics, and BMP configurations. The Lower Otay Reservoir Rain Gage from the Project Clean Water website was used for this study since it is the most representative of the project site precipitation.

Evaporation for the site was modeled using average monthly values from the San Diego County hourly dataset. The site was modeled with hydrologic group D soils as determined from both the San Diego County Hydrology Manual soil map and the United States Geological Survey (USGS) web-based Soil Survey Map. Other SWMM inputs for the subareas are discussed in the following sections of this document where the selection of parameters is further explained in detail.

## BIOFILTRATION MODELING

For each respective POC, developed area storm water runoff is routed through a biofiltration basin located at the downstream end of each respective POC drainage area as shown on the Proposed Condition HMP map in Section 6 of this report. The analysis was modeled using the bio-retention cell LID module within SWMM. The bioretention cell module can model the underground gravel storage layer, underdrain with an orifice plate, amended soil layer, and a surface storage pond up to the elevation of the invert of the bottom orifice. Separate diversion and detention basin calculations were prepared to model the portion of the storage pond between the base orifice invert elevations and the spillway elevation from the biofiltration basin, according to the assumptions explained in the Section 2 of this report. Once runoff has been routed through the respective basin outlet structure, it is conveyed via a storm drain pipe to the respective POC.

Basin Discussion: Flow control at each basin is achieved using multiple orifices along the height of a concrete riser structure which may be square or circular. The size, number and location of the orifices along its height are presented in the Basin Table below.

|               |                                                     |                      |                           |                                |                                          |                                               |                                                           |                   |                |                 |                 |                   |
|---------------|-----------------------------------------------------|----------------------|---------------------------|--------------------------------|------------------------------------------|-----------------------------------------------|-----------------------------------------------------------|-------------------|----------------|-----------------|-----------------|-------------------|
| Village 14    |                                                     |                      |                           |                                |                                          |                                               |                                                           |                   |                |                 |                 |                   |
| Basin Summary |                                                     |                      |                           |                                |                                          |                                               |                                                           |                   |                |                 |                 |                   |
| Basin ID      | BMP Description                                     | Surface Ponding (in) | Soil Media Thickness (in) | Provided Gravel Thickness (in) | Provided Surface Area at Basin FG (s.f.) | Provided Surface Area at Ponding Depth (s.f.) | Subdrain Diameter (in) Elevated 3" Bottom of Gravel Layer | Low Orifice       | Middle Orifice | Upper Orifice   | Emergency Riser | Infiltration Rate |
| BF-2-1        | Biofiltration Basin                                 | 6.0                  | 18.0                      | 18.0                           | 177707                                   | 180245                                        | 4.6                                                       | (1) 6" @ 0.50'    | N/A            | (1) 6" @ 3.0'   | 10' x 10' Box   | 0.100             |
| BF-2-2        | Biofiltration Basin                                 | 6.0                  | 18.0                      | 18.0                           | 82774                                    | 84509                                         | 3.2                                                       | (1) 4" @ 0.50'    | N/A            | (1) 6" @ 3.0'   | 5' x 10' Box    | 0.050             |
| BF-2-3        | Biofiltration Basin                                 | 6.0                  | 18.0                      | 18.0                           | 5627                                     | 6086                                          | 1.0                                                       | (1) 1" @ 0.50'    | N/A            | (1) 3" @ 3.0'   | 1' x 1' Box     | 0.025             |
| BF-2-4        | Biofiltration Basin                                 | 6.0                  | 18.0                      | 18.0                           | 3363                                     | 3720                                          | 0.9                                                       | (1) 0.75" @ 0.50' | N/A            | (1) 2" @ 3.0'   | 1' x 1' Box     | 0.025             |
| BF-2-5        | Biofiltration Basin                                 | 6.0                  | 18.0                      | 18.0                           | 5576                                     | 6033                                          | 1.0                                                       | (1) 1" @ 0.50'    | N/A            | (1) 3" @ 3.0'   | 1' x 2' Box     | 0.050             |
| BF-2-6        | Biofiltration Basin                                 | 6.0                  | 18.0                      | 18.0                           | 65829                                    | 67377                                         | 3.5                                                       | (1) 3" @ 0.50'    | N/A            | (1) 3" @ 3.0'   | 6' x 6' Box     | 0.025             |
| BF-3-7        | Proprietary Compact Biofiltration (Modular Wetland) | MWS L-8-16           |                           |                                |                                          |                                               |                                                           |                   |                |                 |                 | N/A               |
| BF-2-8        | Biofiltration Basin                                 | 6.0                  | 18.0                      | 18.0                           | 1537                                     | 1781                                          | 0.5                                                       | (1) 0.75" @ 0.50' | N/A            | (1) 3" @ 3.0'   | 1' x 1' Box     | 0.025             |
| BF-3-9        | Proprietary Compact Biofiltration (Modular Wetland) | MWS L-8-16           |                           |                                |                                          |                                               |                                                           |                   |                |                 |                 | N/A               |
| BF-2-10       | Biofiltration Basin                                 | 6.0                  | 18.0                      | 18.0                           | 10020                                    | 10630                                         | 1.4                                                       | (1) 1.25" @ 0.50' | N/A            | (1) 3.0" @ 3.0' | 2' x 1' Box     | 0.025             |

## FLOW DURATION CURVE COMPARISON

The Flow Duration Curves (FDC) for the site were compared at each POC by exporting the hourly runoff time series results from SWMM to a spreadsheet. The FDC for each POC was compared between 10% of the existing condition  $Q_2$  (based on an assumption of high susceptibility for downstream channel erosion as required if no soils tests are completed) up to the existing condition  $Q_{10}$ . The  $Q_2$  and  $Q_{10}$  were determined using a partial duration statistical analysis of the runoff time series in an Excel spreadsheet. As the SWMM Model is a statistical analysis based on the Weibull Plotting Position Method, the Weibull Method was also used within the spreadsheet to ensure that the results were similar to those obtained by the SWMM Model.

The range between 10% of  $Q_2$  and  $Q_{10}$  was divided into 100 equal time intervals; the number of hours that each flow rate was exceeded was counted from the hourly series. Additionally, the intermediate peaks with a return period “i” were obtained ( $Q_i$  with  $i=3$  to 9). For the purpose of the plot, the values were presented as a percentage of time that exceeded for each flow rate.

Section 6 of this HMP Study provides detailed drainage exhibit for the post-developed conditions. As shown in Figures 4-16 in the succeeding section, the FDC for the proposed condition for each basin is within 110% of the curve for the existing condition. The additional runoff volume generated from developing the site will be released to the downstream storm drain at a flow rate below the 10%  $Q_2$  lower threshold. Additionally, the Proposed Project will not increase peak flow rates between the  $Q_2$  and the  $Q_{10}$ , as shown in the graphics in Figures 4-15 and also in the Tables 15-26 included in Section 1. Similar FDC comparison curves also were generated for each POC and included in the following Section 1 of this report.

## SUMMARY & CONCLUSION

A summary of existing and proposed conditions draining to each POC is shown in the Tables 7-19 below. The proposed biofiltration basins are proposed to mitigate increased flow frequencies as a result of development. In general the post project natural area has been established as the balance of the existing natural area minus the developed area.

Table 7: POC1 Area Summary

|              | Existing (AC) | Proposed (AC) |
|--------------|---------------|---------------|
| POC 1        | 616.1         | 312.0         |
| Bypass Basin | N/A           | 304.1         |
| TOTAL        | 616.1         | 616.1         |

Table 8: POC2 Area Summary

|              | Existing (AC) | Proposed (AC) |
|--------------|---------------|---------------|
| POC 2        | 1,361.4       | 103.8         |
| Bypass Basin | N/A           | 1,257.6       |
| TOTAL        | 1,361.4       | 1,361.4       |



Table 9: POC3 Area Summary

|              | Existing (AC) | Proposed (AC) |
|--------------|---------------|---------------|
| POC 3        | 6.1           | 6.1           |
| Bypass Basin | N/A           | N/A           |
| TOTAL        | 6.11          | 6.11          |

Table 10: POC4 Area Summary

|              | Existing (AC) | Proposed (AC) |
|--------------|---------------|---------------|
| POC 4        | 17.8          | 3.6           |
| Bypass Basin | N/A           | 14.2          |
| TOTAL        | 17.77         | 17.77         |

Table 11: POC5 Area Summary

|              | Existing (AC) | Proposed (AC) |
|--------------|---------------|---------------|
| POC 5        | 182.0         | 6.6           |
| Bypass Basin | N/A           | 175.4         |
| TOTAL        | 182.0         | 182.0         |

Table 12: POC6 Area Summary

|              | Existing (AC) | Proposed (AC) |
|--------------|---------------|---------------|
| POC 6        | 815.6         | 2.6           |
| Bypass Basin | N/A           | 810.9         |
| TOTAL        | 815.6         | 815.6         |

Table 13: POC7 Area Summary

|              | Existing (AC) | Proposed (AC) |
|--------------|---------------|---------------|
| POC 7        | 747.9         | 15.1          |
| Bypass Basin | N/A           | 732.8         |
| TOTAL        | 747.9         | 747.9         |

This study has demonstrated that the proposed biofiltration basin footprints for the Proposed Project Amendment site is sufficient to meet the current HMP criteria if the biofiltration cross-section area and volume recommended within this report are incorporated at the Proposed Project Amendment site.



VILLAGE 14 PLANNING AREAS 16/19  
BIOFILTRATION BMP DMA CALCULATIONS

|                         | Imp. RF | Pervious RF | Basin BF-1-1 | Imp Area | Pervious Area | Summation RF x A | Basin BF-1-2 | Imp Area | Pervious Area | Summation RF x A | Basin BF-1-6 | Imp Area | Pervious Area | Summation RF x A |
|-------------------------|---------|-------------|--------------|----------|---------------|------------------|--------------|----------|---------------|------------------|--------------|----------|---------------|------------------|
|                         |         |             | (ac.)        | (ac.)    | (ac.)         |                  | (ac.)        | (ac.)    | (ac.)         |                  | (ac.)        | (ac.)    | (ac.)         |                  |
| Basin                   | 0.90    | 0.10        | 4.080        |          | 4.080         | 0.408            | 1.900        |          | 1.900         | 0.190            | 1.511        |          | 1.511         | 0.151            |
| Bldg Roof & Hardscape   | 0.90    | 0.30        | 79.429       | 79.429   |               | 71.486           | 32.678       | 32.678   |               | 29.411           | 22.223       | 22.223   |               | 20.001           |
| Lot Landscape           | 0.90    | 0.30        | 29.360       |          | 29.360        | 8.808            | 12.883       |          | 12.883        | 3.865            | 8.862        |          | 8.862         | 2.659            |
| Road Pvmt & Hardscape   | 0.90    | 0.30        | 35.610       | 35.610   |               | 32.049           | 20.878       | 20.878   |               | 18.790           | 19.498       | 19.498   |               | 17.548           |
| Road Landscape          | 0.90    | 0.30        | 8.353        |          | 8.353         | 2.506            | 5.275        |          | 5.275         | 1.583            | 4.380        |          | 4.380         | 1.314            |
| Slopes & Misc Landscape | 0.90    | 0.30        | 69.813       |          | 69.813        | 20.944           | 30.222       |          | 30.222        | 9.067            | 28.905       |          | 28.905        | 8.672            |
|                         |         |             | 226.643      | 115.038  | 111.605       | 136.200          | 103.837      | 53.557   | 50.281        | 62.905           | 85.380       | 41.721   | 43.659        | 50.344           |
|                         |         |             | Weighted C = |          |               | 0.60             | Weighted C = |          |               | 0.61             | Weighted C = |          |               | 0.59             |

## Otay Ranch Village 14 and Planning Areas 16/19

## Composite C Factor Worksheet

Engineer of Record: Alisa Vialpando, P.E.

Project Manager: Johnny Rivera, P.E.

Project Engineer: Ryan Rost

WO#2421-0036

DLN 1235

## DMA 1

|                                              | R-11 South<br>(DMA 1.1) | R-10 (DMA<br>1.2) | R-9 (DMA<br>1.3) | R-7 & 8<br>(DMA 1.4) | R-6<br>(DMA 1.5) | R-5 South<br>(DMA 1.6) | P-1 Park<br>(DMA 1.7) | PP-1 through 3<br>(DMA 1.8) | R-2 (DMA<br>1.9) | PS-1<br>(DMA 1.10) | MU-1 & 2<br>(DMA 1.11) | R-1<br>(DMA 1.12) | PVRd & Misc Rd<br>(DMA 1.13) | Misc Slopes<br>(DMA 1.14) | Basin<br>(DMA 1.15) | Total<br>DMA 1 |
|----------------------------------------------|-------------------------|-------------------|------------------|----------------------|------------------|------------------------|-----------------------|-----------------------------|------------------|--------------------|------------------------|-------------------|------------------------------|---------------------------|---------------------|----------------|
| Total Area DMA(ac)=                          | 18.421                  | 7.781             | 22.791           | 28.744               | 10.994           | 22.986                 | 6.988                 | 6.233                       | 46.438           | 2.531              | 2.650                  | 2.403             | 12.079                       | 31.526                    | 4.080               | 226.643        |
|                                              |                         |                   |                  |                      |                  |                        |                       |                             |                  |                    |                        |                   |                              |                           |                     |                |
| Total Road Area(ac)=                         | 4.987                   | 2.111             | 6.354            |                      | 2.887            | 5.428                  |                       |                             | 9.561            |                    |                        | 0.555             | 12.079                       |                           |                     | 43.963         |
| Roadway % Impervious=                        | 81%                     | 81%               | 81%              |                      | 81%              | 81%                    |                       |                             | 81%              |                    |                        | 81%               | 81%                          |                           |                     |                |
| Total Road Impervious Area (a                | 4.040                   | 1.710             | 5.147            |                      | 2.339            | 4.397                  |                       |                             | 7.745            |                    |                        | 0.450             | 9.784                        |                           |                     | 35.610         |
| Total Road Pervious Area (ac)=               | 0.948                   | 0.401             | 1.207            |                      | 0.549            | 1.031                  |                       |                             | 1.817            |                    |                        | 0.105             | 2.295                        |                           |                     | 8.353          |
|                                              |                         |                   |                  |                      |                  |                        |                       |                             |                  |                    |                        |                   |                              |                           |                     |                |
| Total (Typical) Pad Area=                    | 8.879                   | 3.629             | 11.240           | 28.744               | 5.503            | 12.052                 | 6.988                 | 6.233                       | 18.733           | 2.531              | 2.650                  | 1.607             |                              |                           |                     | 108.788        |
| Typical Pad Area Per Lot (ac)=               | 0.098                   | 0.117             | 0.117            | 28.744               | 0.117            | 0.172                  | 6.988                 | 6.233                       | 0.138            | 2.531              | 2.650                  | 0.115             |                              |                           |                     | N/A            |
| Typical (min) Product Width<br>(ft)=         | 50                      | 60                | 60               | MF                   | 60               | 75                     | Park                  | Park                        | 60               | PS                 | MF                     | 50                |                              |                           |                     | N/A            |
| Typical (min) Product Depth<br>(ft)=         | 85                      | 85                | 85               | MF                   | 85               | 100                    | Park                  | Park                        | 100              | PS                 | MF                     | 100               |                              |                           |                     | N/A            |
| Typical Pad Impervious Area<br>Per Lot (sf)= | 3020                    | 3736              | 3736             | 1064262              | 3736             | 5215                   | Park                  | Park                        | 4387             | 93727              | 98111                  | 3532              |                              |                           |                     | N/A            |
| Typical Pad Impervious Area<br>Per Lot (ac)= | 0.069                   | 0.086             | 0.086            | 24.432               | 0.086            | 0.120                  | n/a                   | n/a                         | 0.101            | 2.152              | 2.252                  | 0.081             |                              |                           |                     | N/A            |
| Typical Pad Pervious Area Per<br>Lot (ac)=   | 0.028                   | 0.031             | 0.031            | 4.312                | 0.031            | 0.052                  | n/a                   | n/a                         | 0.037            | 0.380              | 0.397                  | 0.034             |                              |                           |                     | N/A            |
| Typical (min) Pad Impervious<br>%=           | 71%                     | 73%               | 73%              | 85%                  | 73%              | 70%                    | 30%                   | 65%                         | 73%              | 85%                | 85%                    | 71%               |                              |                           |                     | N/A            |
| # Lots in Neighborhood=                      | 91                      | 31                | 96               | 1                    | 47               | 70                     | 1                     | 1                           | 136              | 1                  | 1                      | 14                |                              |                           |                     | N/A            |
| Total Typical Pad Impervious<br>Area (ac)=   | 6.309                   | 2.659             | 8.234            | 24.432               | 4.031            | 8.380                  | 2.096                 | 4.051                       | 13.697           | 2.152              | 2.252                  | 1.135             |                              |                           |                     | 79.429         |
| al Typical Pad Pervious Area (a              | 2.570                   | 0.971             | 3.006            | 4.312                | 1.472            | 3.672                  | 4.891                 | 2.182                       | 5.036            | 0.380              | 0.397                  | 0.472             |                              |                           |                     | 29.360         |
|                                              |                         |                   |                  |                      |                  |                        |                       |                             |                  |                    |                        |                   |                              |                           |                     |                |
| Slope/Landscape/Pervious<br>Area (ac)=       | 4.555                   | 2.040             | 5.197            |                      | 2.604            | 5.506                  |                       |                             | 18.144           |                    |                        | 0.24              |                              | 31.526                    |                     | 69.813         |
|                                              |                         |                   |                  |                      |                  |                        |                       |                             |                  |                    |                        |                   |                              |                           |                     |                |
| Total Impervious Area (ac)=                  | 10.349                  | 4.369             | 13.381           | 24.432               | 6.370            | 12.777                 | 2.096                 | 4.051                       | 21.441           | 2.152              | 2.252                  | 1.585             | 9.784                        | 0.000                     | 0.000               | 115.038        |
| Total Pervious Area (ac)=                    | 8.072                   | 3.412             | 9.411            | 4.312                | 4.624            | 10.209                 | 4.891                 | 2.182                       | 24.996           | 0.380              | 0.397                  | 0.818             | 2.295                        | 31.526                    | 4.080               | 111.605        |
| Composite % Impervious=                      | 56%                     | 56%               | 59%              | 85%                  | 58%              | 56%                    | 30%                   | 65%                         | 46%              | 85%                | 85%                    | 66%               | 81%                          | 0%                        | 0%                  | 50.8%          |
|                                              |                         |                   |                  |                      |                  |                        |                       |                             |                  |                    |                        |                   |                              |                           | 222.564             | 51.7%          |

## DMA 2

|                                           | Proctor Valley Road 68' R/W (DMA 2.1) | R-1 (DMA 2.2) | R-3 (DMA 2.3) | R-4 (DMA 2.4) | PPP-1 PARK (DMA 2.5) | R-5 SOUTH (DMA 2.6) | S-1 SCHOOL (DMA 2.7) | P-2 PARK (DMA 2.8) | Basin BF-1-2 (DMA 2.9) | Additional Slopes (DMA 2.10) |  |  |  |  |         | TOTAL   |
|-------------------------------------------|---------------------------------------|---------------|---------------|---------------|----------------------|---------------------|----------------------|--------------------|------------------------|------------------------------|--|--|--|--|---------|---------|
| Total Area DMA(ac)=                       | 7.648                                 | 21.719        | 31.638        | 15.215        | 0.285                | 4.333               | 7.002                | 2.365              | 1.900                  | 11.732                       |  |  |  |  |         | 103.837 |
|                                           |                                       |               |               |               |                      |                     |                      |                    |                        |                              |  |  |  |  |         |         |
| Total Road Area(ac)=                      | 7.648                                 | 7.181         | 5.511         | 4.509         |                      | 1.305               |                      |                    |                        |                              |  |  |  |  |         | 26.153  |
| Roadway % Impervious=                     | 77%                                   | 81%           | 81%           | 81%           |                      | 81%                 |                      |                    |                        |                              |  |  |  |  |         |         |
| Total Road Impervious Area (ac)=          | 5.889                                 | 5.816         | 4.464         | 3.652         |                      | 1.057               |                      |                    |                        |                              |  |  |  |  |         | 20.878  |
| Total Road Pervious Area (ac)=            | 1.759                                 | 1.364         | 1.047         | 0.857         |                      | 0.248               |                      |                    |                        |                              |  |  |  |  |         | 5.275   |
|                                           |                                       |               |               |               |                      |                     |                      |                    |                        |                              |  |  |  |  |         |         |
| Total (Typical) Pad Area=                 |                                       | 10.331        | 13.113        | 10.055        |                      | 2.410               | 7.002                | 2.365              |                        |                              |  |  |  |  |         | 45.276  |
| Typical Pad Area Per Lot (ac)=            |                                       | 0.115         | 0.117         | 0.138         |                      | 0.172               |                      |                    |                        |                              |  |  |  |  |         | N/A     |
| Typical (min) Product Width (ft)=         |                                       | 50            | 60            | 60            |                      | 75                  |                      |                    |                        |                              |  |  |  |  |         | N/A     |
| Typical (min) Product Depth (ft)=         |                                       | 100           | 85            | 100           |                      | 100                 |                      |                    |                        |                              |  |  |  |  |         | N/A     |
| Typical Pad Impervious Area Per Lot (sf)= |                                       | 3532          | 3736          | 4387          |                      | 5215                |                      |                    |                        |                              |  |  |  |  |         | N/A     |
| Typical Pad Impervious Area Per Lot (ac)= |                                       | 0.081         | 0.086         | 0.101         |                      | 0.120               |                      |                    |                        |                              |  |  |  |  |         | N/A     |
| Typical Pad Pervious Area Per Lot (ac)=   |                                       | 0.034         | 0.031         | 0.037         |                      | 0.052               |                      |                    |                        |                              |  |  |  |  |         | N/A     |
| Typical (min) Pad Impervious %=           |                                       | 71%           | 73%           | 73%           | 30%                  | 70%                 | 85%                  | 30%                |                        |                              |  |  |  |  |         | N/A     |
| # Lots in Neighborhood=                   |                                       | 90            | 112           | 73            | 1                    | 14                  | 1                    | 1                  |                        |                              |  |  |  |  |         | N/A     |
| Total Typical Pad Impervious Area (ac)=   |                                       | 7.298         | 9.606         | 7.352         | 0.086                | 1.676               | 5.952                | 0.709              |                        |                              |  |  |  |  |         | 32.678  |
| Total Typical Pad Pervious Area (ac)=     |                                       | 3.033         | 3.507         | 2.703         | 0.200                | 0.734               | 1.050                | 1.655              |                        |                              |  |  |  |  |         | 12.883  |
|                                           |                                       |               |               |               |                      |                     |                      |                    |                        |                              |  |  |  |  |         |         |
| Slope/Landscape/Pervious Area (ac)=       |                                       | 4.21          | 13.01         | 0.65          |                      | 0.62                |                      |                    | 1.900                  | 11.732                       |  |  |  |  |         | 32.123  |
|                                           |                                       |               |               |               |                      |                     |                      |                    |                        |                              |  |  |  |  |         |         |
| Total Impervious Area (ac)=               | 5.889                                 | 13.114        | 14.070        | 11.004        | 0.086                | 2.733               | 5.952                | 0.709              |                        | 0.000                        |  |  |  |  |         | 53.557  |
| Total Pervious Area (ac)=                 | 1.759                                 | 8.606         | 17.568        | 4.211         | 0.200                | 1.600               | 1.050                | 1.655              | 1.900                  | 11.732                       |  |  |  |  |         | 50.281  |
| Composite % Impervious=                   | 77%                                   | 60%           | 44%           | 72%           | 30%                  | 63%                 | 85%                  | 30%                | 0%                     | 0%                           |  |  |  |  |         | 51.6%   |
|                                           |                                       |               |               |               |                      |                     |                      |                    |                        |                              |  |  |  |  | 101.937 | 52.5%   |

## DMA 6

[illegible]

VILLAGE 14 PLANNING AREAS 16/19  
BIOFILTRATION BMP DMA CALCULATIONS

|                         | Imp. RF | Pervious RF | Basin BF-1-3 | Imp Area | Pervious Area | Summation RF x A | Basin BF-1-4 | Imp Area | Pervious Area | Summation RF x A | Basin BF-1-5 | Imp Area | Pervious Area | Summation RF x A |
|-------------------------|---------|-------------|--------------|----------|---------------|------------------|--------------|----------|---------------|------------------|--------------|----------|---------------|------------------|
|                         |         |             | (ac.)        | (ac.)    | (ac.)         |                  | (ac.)        | (ac.)    | (ac.)         |                  | (ac.)        | (ac.)    | (ac.)         |                  |
| Basin                   | 0.90    | 0.10        | 0.129        |          | 0.129         | 0.013            | 0.077        |          | 0.077         | 0.008            | 0.128        |          | 0.128         | 0.013            |
| Bldg Roof & Hardscape   | 0.90    | 0.30        |              |          |               | 0.000            |              |          |               | 0.000            |              |          |               | 0.000            |
| Lot Landscape           | 0.90    | 0.30        |              |          |               | 0.000            |              |          |               | 0.000            |              |          |               | 0.000            |
| Road Pvmt & Hardscape   | 0.90    | 0.30        | 4.102        | 4.102    |               | 3.692            | 2.476        | 2.476    |               | 2.229            | 3.733        | 3.733    |               | 3.360            |
| Road Landscape          | 0.90    | 0.30        | 1.225        |          | 1.225         | 0.368            | 0.740        |          | 0.740         | 0.222            | 1.338        |          | 1.338         | 0.401            |
| Slopes & Misc Landscape | 0.90    | 0.30        | 0.783        |          | 0.783         | 0.235            | 0.331        |          | 0.331         | 0.099            | 1.574        |          | 1.574         | 0.472            |
| Natural                 | 0.90    | 0.30        |              |          |               | 0.000            |              |          |               | 0.000            |              |          |               | 0.000            |
|                         |         |             | 6.111        | 4.102    | 2.138         | 4.308            | 3.547        | 2.476    | 1.148         | 2.557            | 6.645        | 3.733    | 3.040         | 4.246            |
|                         |         |             | Weighted C = |          |               | 0.70             | Weighted C = |          |               | 0.72             | Weighted C = |          |               | 0.64             |

## DMA 3

[illegible]



## DMA 4

|                                     |                                   |                      |                |  |  |  |  |  |  |  |  |  |  |       |       |
|-------------------------------------|-----------------------------------|----------------------|----------------|--|--|--|--|--|--|--|--|--|--|-------|-------|
|                                     | Proctor Valley Rd 68' R/W DMA 4.1 | Basin BF-1-4 DMA 4.2 | Slopes DMA 4.3 |  |  |  |  |  |  |  |  |  |  |       | TOTAL |
| Total Area DMA(ac)=                 | 3.216                             | 0.077                | 0.254          |  |  |  |  |  |  |  |  |  |  |       | 3.547 |
|                                     |                                   |                      |                |  |  |  |  |  |  |  |  |  |  |       |       |
| Total Road Area(ac)=                | 3.216                             |                      |                |  |  |  |  |  |  |  |  |  |  |       | 3.216 |
| Roadway % Impervious=               | 77%                               |                      |                |  |  |  |  |  |  |  |  |  |  |       |       |
| Total Road Impervious Area (ac)=    | 2.476                             |                      |                |  |  |  |  |  |  |  |  |  |  |       | 2.476 |
| Total Road Pervious Area (ac)=      | 0.740                             |                      |                |  |  |  |  |  |  |  |  |  |  |       | 0.740 |
|                                     |                                   |                      |                |  |  |  |  |  |  |  |  |  |  |       |       |
| Slope/Landscape/Pervious Area (ac)= |                                   | 0.077                | 0.254          |  |  |  |  |  |  |  |  |  |  |       | 0.331 |
|                                     |                                   |                      |                |  |  |  |  |  |  |  |  |  |  |       |       |
| Total Impervious Area (ac)=         | 2.476                             |                      |                |  |  |  |  |  |  |  |  |  |  |       | 2.476 |
| Total Pervious Area (ac)=           | 0.740                             | 0.077                | 0.254          |  |  |  |  |  |  |  |  |  |  |       | 1.070 |
| Composite % Impervious=             | 77%                               | 0%                   | 0%             |  |  |  |  |  |  |  |  |  |  |       | 69.8% |
|                                     |                                   |                      |                |  |  |  |  |  |  |  |  |  |  | 3.469 | 71.4% |

## DMA 5

[illegible]

VILLAGE 14 PLANNING AREAS 16/19  
BIOFILTRATION BMP DMA CALCULATIONS

|                         | Imp. RF | Pervious RF | Basin BF-3-7 | Imp Area | Pervious Area | Summation RF x A | Basin BF-1-8 | Fraction of Total | Imp Area | Pervious Area | Summation RF x A | Basin BF-1-9* | Imp Area | Pervious Area | Summation RF x A | Basin BF-1-10 | Imp Area | Pervious Area | Summation RF x A |
|-------------------------|---------|-------------|--------------|----------|---------------|------------------|--------------|-------------------|----------|---------------|------------------|---------------|----------|---------------|------------------|---------------|----------|---------------|------------------|
|                         |         |             | (ac.)        | (ac.)    | (ac.)         |                  | (ac.)        |                   | (ac.)    | (ac.)         |                  | (ac.)         | (ac.)    | (ac.)         |                  | (ac.)         | (ac.)    | (ac.)         |                  |
| Basin                   | 0.90    | 0.10        |              |          |               | 0.000            | 0.035        | 0.003             |          | 0.035         | 0.004            |               |          |               | 0.000            | 0.230         |          | 0.230         | 0.023            |
| Bldg Roof & Hardscape   | 0.90    | 0.30        |              |          |               | 0.000            |              |                   |          |               | 0.000            |               |          |               | 0.000            | 1.791         | 1.791    |               | 1.612            |
| Lot Landscape           | 0.90    | 0.30        |              |          |               | 0.000            |              |                   |          |               | 0.000            |               |          |               | 0.000            | 7.742         |          | 7.742         | 2.323            |
| Road Pvmnt & Hardscape  | 0.90    | 0.30        | 1.598        | 1.598    |               | 1.438            | 0.884        | 1.473             | 0.884    |               | 0.796            | 1.646         | 1.646    |               | 1.481            | 1.873         | 1.873    |               | 1.686            |
| Road Landscape          | 0.90    | 0.30        | 0.120        |          | 0.120         | 0.036            | 0.067        | 0.017             |          | 0.067         | 0.020            | 0.124         |          | 0.124         | 0.037            | 0.309         |          | 0.309         | 0.093            |
| Slopes & Misc Landscape | 0.90    | 0.30        | 0.843        |          | 0.843         | 0.253            | 1.191        | 0.304             |          | 1.191         | 0.357            | 0.688         |          | 0.688         | 0.206            | 0.707         |          | 0.707         | 0.212            |
|                         |         |             | 2.561        | 1.598    | 0.963         | 1.727            | 2.177        | 1.796             | 0.884    | 1.293         | 1.177            | 2.458         | 1.646    | 0.812         | 1.725            | 12.652        | 3.664    | 8.988         | 5.948            |
|                         |         |             | Weighted C = |          |               | 0.67             | Weighted C = |                   |          | 0.54          | Weighted C =     |               |          | 0.70          | Weighted C =     |               |          | 0.47          |                  |

\*DMA's 9 & 10 are being combined to be treated/attenuated by BF-1-10 (versus previous design option to direct DMA 9 to Modular Wetlands)

## DMA 7

[illegible]

DMA 8

[illegible]

## DMA 9

[illegible]

DMA 10[illegible]

| EXISTING             |            |         | Proposed              |         |        |                      |            |         |
|----------------------|------------|---------|-----------------------|---------|--------|----------------------|------------|---------|
| Natural              |            |         | DEVELOPED             |         |        | NATURAL              |            |         |
| POC 1                |            |         | DMA 1-Dev             |         |        | DMA 1/6-Nat          |            |         |
| area sqft            | 26835574   | 616.06  | area sqft             | 9872575 | 226.64 | area sqft            | 13243846.6 | 304.04  |
| length               | 11,230     |         | length                | 6320    |        | length               | 6455       |         |
| width                | 2390       |         | width                 | 1562    |        | width                | 2052       |         |
| Upstream Elevation   | 1910       |         | Upstream Elevation    | 990     |        | Upstream Elevation   | 1910       |         |
| Downstream Elevation | 620        |         | Downstream Elevation  | 620     |        | Downstream Elevation | 734        |         |
| Slope                | 11.5%      |         | Slope                 | 5.9%    |        | Slope                | 18.2%      |         |
|                      |            |         | DMA 6-Dev             |         |        |                      |            |         |
|                      |            |         | area sqft             | 3719152 | 85.38  |                      |            |         |
|                      |            |         | length                | 3285    |        |                      |            |         |
|                      |            |         | width                 | 1132    |        |                      |            |         |
|                      |            |         | Upstream Elevation    | 999     |        |                      |            |         |
|                      |            |         | Downstream Elevation  | 734     |        |                      |            |         |
|                      |            |         | Slope                 | 8.1%    |        |                      |            |         |
| POC 2                |            |         | DMA 2-DEV             |         |        | DMA 2-NAT            |            |         |
| area sqft            | 59302584   | 1361.40 | area sqft             | 4523148 | 103.84 | area sqft            | 54779436   | 1257.56 |
| length               | 13730      |         | length                | 11606   |        | length               | 14129      |         |
| width                | 4319       |         | width                 | 390     |        | width                | 3877       |         |
| Upstream Elevation   | 1720       |         | Upstream Elevation    | 1910    |        | Upstream Elevation   | 1720       |         |
| Downstream Elevation | 565        |         | Downstream Elevation  | 620     |        | Downstream Elevation | 620        |         |
| Slope                | 8.4%       |         | Slope                 | 11.1%   |        | Slope                | 7.8%       |         |
| POC 3                |            |         | DMA 3-Dev             |         |        | DMA 3-Nat            |            |         |
| area sqft            | 266152     | 6.11    | area sqft             | 266205  | 6.11   | area sqft            | 93127.32   | n/a     |
| length               | 2550       |         | length                | 2556    |        | length               | 0          | n/a     |
| width                | 104        |         | width                 | 104     |        | width                | #DIV/0!    | n/a     |
| Upstream Elevation   | 600        |         | Upstream Elevation    | 610     |        | Upstream Elevation   | 1910       | n/a     |
| Downstream Elevation | 560        |         | Downstream Elevation  | 560     |        | Downstream Elevation | 620        | n/a     |
| Slope                | 1.6%       |         | Slope                 | 2.0%    |        | Slope                | #DIV/0!    | n/a     |
| POC 4                |            |         | DMA 4-Dev             |         |        | DMA 4-Nat            |            |         |
| area sqft            | 774061     | 17.77   | area sqft             | 154488  | 3.55   | area sqft            | 619573     | 14.22   |
| length               | 1700       |         | length                | 1622    |        | length               | 1510       |         |
| width                | 455        |         | width                 | 95      |        | width                | 410        |         |
| Upstream Elevation   | 710        |         | Upstream Elevation    | 560     |        | Upstream Elevation   | 710        |         |
| Downstream Elevation | 530        |         | Downstream Elevation  | 530     |        | Downstream Elevation | 530        |         |
| Slope                | 10.6%      |         | Slope                 | 1.8%    |        | Slope                | 11.9%      |         |
| POC 5                |            |         | DMA 5-Dev             |         |        | DMA 5-Nat            |            |         |
| area sqft            | 7928791    | 182.02  | area sqft             | 289449  | 6.64   | area sqft            | 7639342    | 175.38  |
| length               | 6050       |         | length                | 2321    |        | length               | 6050       |         |
| width                | 1311       |         | width                 | 125     |        | width                | 1263       |         |
| Upstream Elevation   | 795        |         | Upstream Elevation    | 625     |        | Upstream Elevation   | 795        |         |
| Downstream Elevation | 565        |         | Downstream Elevation  | 565     |        | Downstream Elevation | 565        |         |
| Slope                | 3.8%       |         | Slope                 | 2.6%    |        | Slope                | 3.8%       |         |
| POC 6                |            |         | DMA 7-Dev             |         |        | DMA 7/8-Nat          |            |         |
| area sqft            | 35,527,972 | 815.61  | area sqft             | 111546  | 2.56   | area sqft            | 35321592   | 810.87  |
| length               | 10990      |         | length                | 845     |        | length               | 10990      |         |
| width                | 3233       |         | width                 | 132     |        | width                | 3214       |         |
| Upstream Elevation   | 1680       |         | Upstream Elevation    | 912     |        | Upstream Elevation   | 1680       |         |
| Downstream Elevation | 880        |         | Downstream Elevation  | 899     |        | Downstream Elevation | 880        |         |
| Slope                | 7.3%       |         | Slope                 | 1.5%    |        | Slope                | 7.3%       |         |
|                      |            |         | DMA 8-Dev             |         |        |                      |            |         |
|                      |            |         | area sqft             | 94834   | 2.18   |                      |            |         |
|                      |            |         | length                | 1567    |        |                      |            |         |
|                      |            |         | width                 | 61      |        |                      |            |         |
|                      |            |         | Upstream Elevation    | 918     |        |                      |            |         |
|                      |            |         | Downstream Elevation  | 899     |        |                      |            |         |
|                      |            |         | Slope                 | 1.2%    |        |                      |            |         |
| POC 7-EX             |            |         | POC 7-PR (DMA 9-Dev)  |         |        | DMA 9/DMA 10 - Nat   |            |         |
| area sqft            | 92578800   | 217.93  | area sqft             | 107061  | 2.46   | area sqft            | 31930174   | 732.95  |
| length               | 10,090     |         | length                | 954     |        | length               | 10090      |         |
| width                | 3229       |         | width                 | 112     |        | width                | 3164       |         |
| Upstream Elevation   | 1146       |         | Upstream Elevation    | 913.0   |        | Upstream Elevation   | 1146       |         |
| Downstream Elevation | 890        |         | Downstream Elevation  | 895     |        | Downstream Elevation | 890        |         |
| Slope                | 8.4%       |         | Slope                 | 1.9%    |        | Slope                | 2.6%       |         |
| POC 7-EX             |            |         | POC 7-PR (DMA 10-Dev) |         |        | DMA 9/DMA 10 - Nat   |            |         |
| area sqft            | 658186     | 15.11   | area sqft             | 551125  | 12.65  | area sqft            | 850186     | 19.11   |
| length               | 2,274      |         | length                | 2274    |        | length               | 10090      |         |
| width                | 289        |         | width                 | 242     |        | width                | 65         |         |
| Upstream Elevation   | 920        | 880     | Upstream Elevation    | 920     |        | Upstream Elevation   | 1146       |         |
| Downstream Elevation | 890        |         | Downstream Elevation  | 895     |        | Downstream Elevation | 890        |         |
| Slope                | 1.3%       |         | Slope                 | 1.1%    |        | Slope                | 2.6%       |         |



### **III. FLOW DURATION CURVE ANALYSIS**

#### **SECTION 1 - Flow Duration Curve Analysis, Plot & Table**

The FDCs shall not exceed the existing conditions by more than 10%, neither in peak flow nor duration.

The Figures 4-15 on the following pages illustrate that the FDCs in post-development conditions, after the proposed BMPs are installed, is below the existing FDC. The FDC table following the curve shows that if the interval  $0.10Q_2 - Q_{10}$  is divided in 100 sub-intervals, then: a) the post development divided by pre-development durations are never larger than 110% (the permit allows up to 110%); and, b) there are no more than 10 intervals in the range 101%-110%, which would imply an excess over 10% of the length of the curve (the permit allows less than 10% of excesses measured as 101-110%).

Consequently, the design passes the hydromodification test.

It is important to note that the FDCs can be expressed in the “x” axis as a percentage of time, hours per year, total number of hours, or any other similar time variable. As those variables only differ by multiplying a constant, their plot in logarithmic scale will appear exactly the same and compliance can be observed regardless of the variable selected. The selection of a logarithmic scale in lieu of the normal scale is preferred, as differences between the pre-development and post-development curves can be depicted more clearly in the entire range of analysis. Both graphics are presented for reference in Figures 4-15 below.

For the “y” axis, the peak flow value is the variable of choice. As an additional analysis performed by H&A, not only the range of analysis is clearly depicted (10% of  $Q_2$  to  $Q_{10}$ ) but also all intermediate flows are shown (30% of  $Q_2$ , 50% of  $Q_2$ ,  $Q_2$ ,  $Q_3$ ,  $Q_4$ ,  $Q_5$ ,  $Q_6$ ,  $Q_7$ ,  $Q_8$  and  $Q_9$ ) in order to demonstrate compliance at any range  $Q_x - Q_{x+1}$ . It must be pointed out that one of the limitations of both the SWMM and SDHM models is that the intermediate analysis is not performed (to obtain  $Q_i$  from  $i = 2$  to 10). H&A performed the analysis using the Cunnane Plotting Position Method (the preferred method in the HMP permit) from the “n” largest independent peak flows obtained from the continuous time series.

## Flow Duration Curve Analysis, Plot & Table

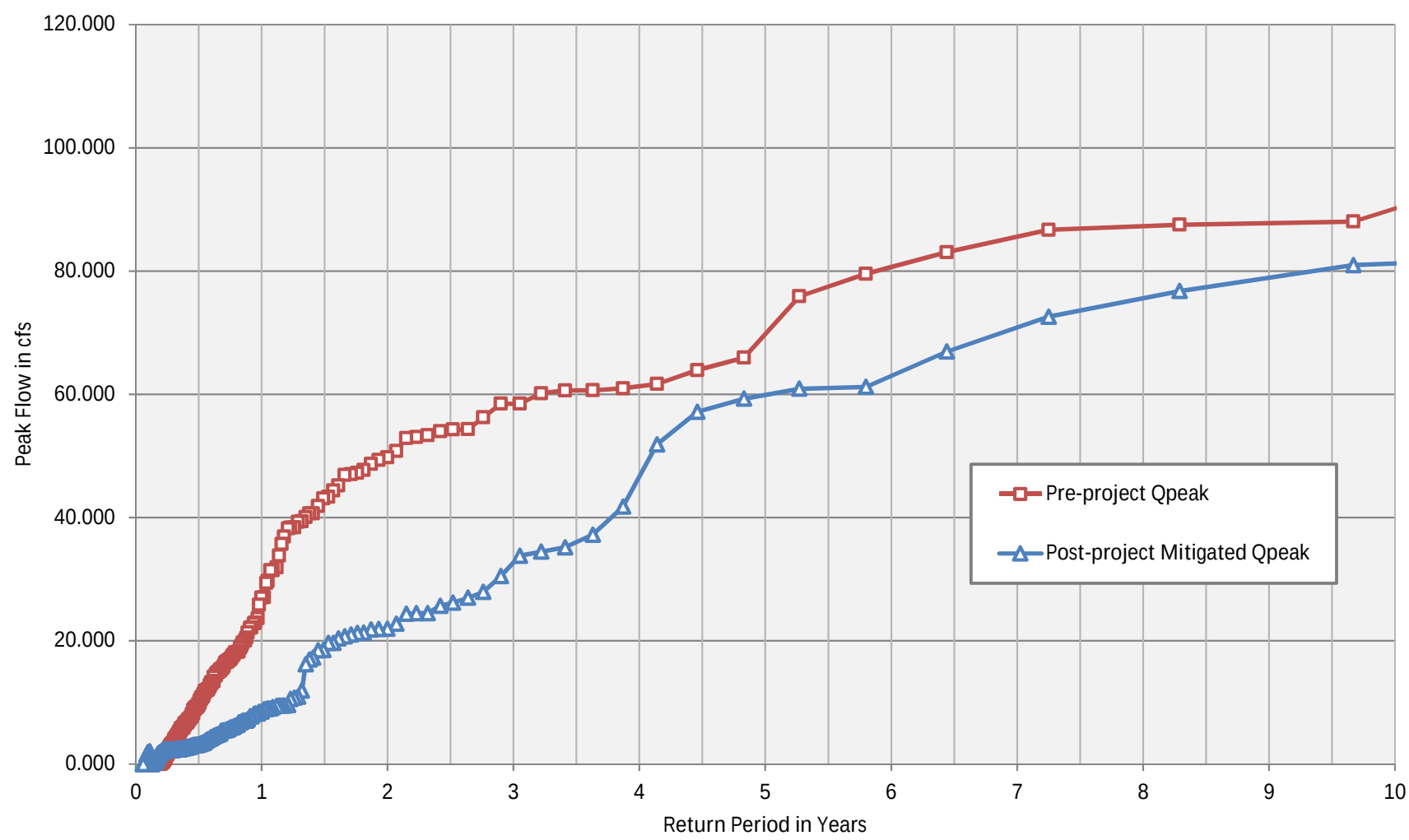
Figure 4 – POC 1 Flow Duration Curve

## Village 14 POC 1 BF-2-1 & BF-2-6

### Peak Flow Frequency Summary

| Return Period | Pre-project Qpeak<br>(cfs) | Post-project - Mitigated Q<br>(cfs) | Reduction<br>(cfs) |
|---------------|----------------------------|-------------------------------------|--------------------|
| LF = 0.1xQ2   | 4.978                      | 2.195                               | 2.782              |
| 2-year        | 49.776                     | 21.952                              | 27.824             |
| 5-year        | 69.791                     | 59.905                              | 9.886              |
| 10-year       | 90.132                     | 81.226                              | 8.906              |

Peak Flow Frequency Curves - POC-1



# Village 14 POC 1 BF-2-1 & BF-2-6

Low-flow Threshold: 10%

0.1xQ2 (Pre): 4.978 cfs

Q10 (Pre): 90.132 cfs

Ordinate #: 100

Incremental Q (Pre): 0.85154 cfs

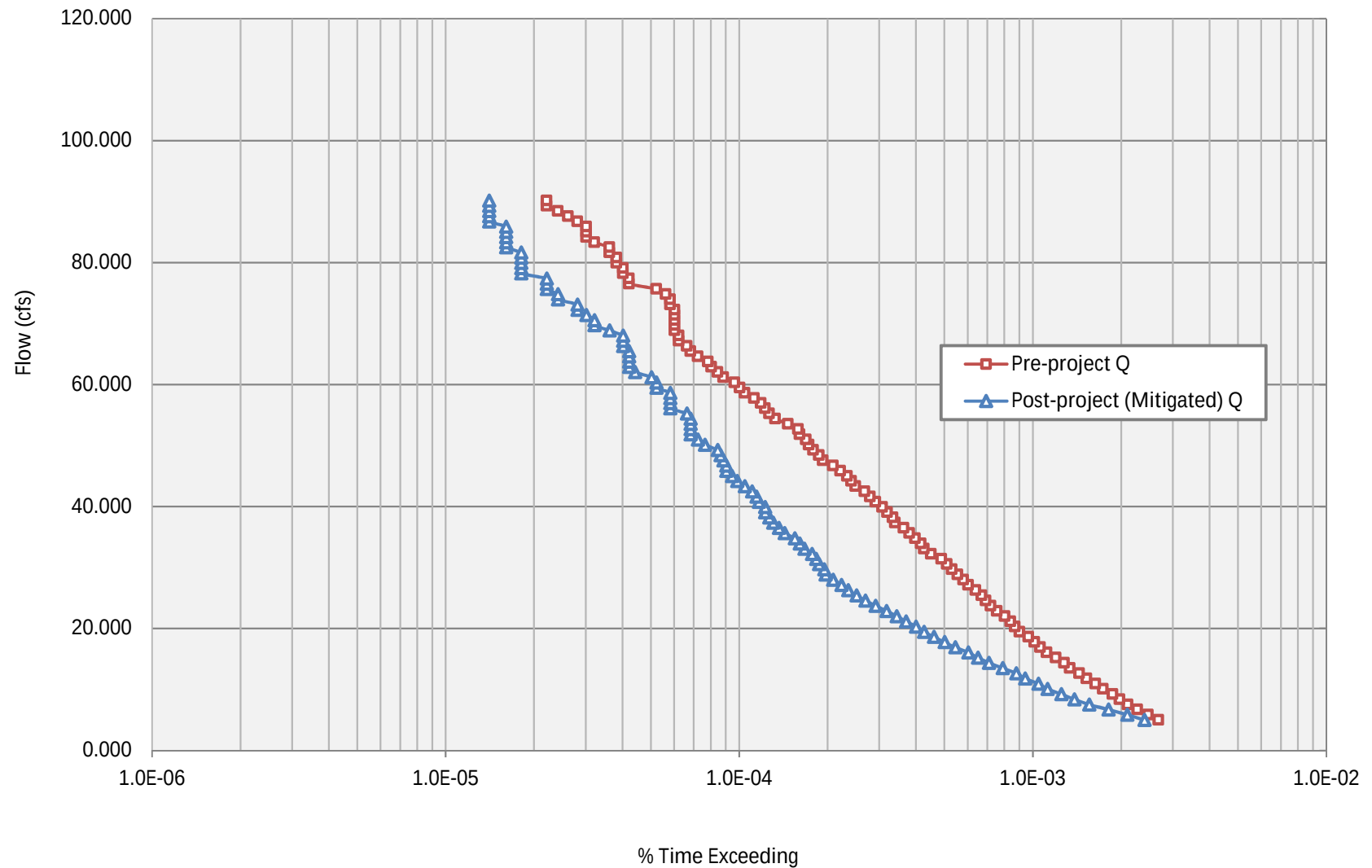
Total Hourly Data: 497370 hours

The proposed BMP: PASSED

| Interval | Pre-project Flow (cfs) | Pre-project Hours | Pre-project % Time Exceeding | Post-project Hours | Post-project % Time Exceeding | Percentage | Pass/Fail |
|----------|------------------------|-------------------|------------------------------|--------------------|-------------------------------|------------|-----------|
| 0        | 4.978                  | 1334              | 2.68E-03                     | 1195               | 2.40E-03                      | 90%        | Pass      |
| 1        | 5.829                  | 1230              | 2.47E-03                     | 1045               | 2.10E-03                      | 85%        | Pass      |
| 2        | 6.681                  | 1131              | 2.27E-03                     | 902                | 1.81E-03                      | 80%        | Pass      |
| 3        | 7.532                  | 1048              | 2.11E-03                     | 775                | 1.56E-03                      | 74%        | Pass      |
| 4        | 8.384                  | 984               | 1.98E-03                     | 690                | 1.39E-03                      | 70%        | Pass      |
| 5        | 9.235                  | 931               | 1.87E-03                     | 622                | 1.25E-03                      | 67%        | Pass      |
| 6        | 10.087                 | 864               | 1.74E-03                     | 559                | 1.12E-03                      | 65%        | Pass      |
| 7        | 10.938                 | 813               | 1.63E-03                     | 520                | 1.05E-03                      | 64%        | Pass      |
| 8        | 11.790                 | 759               | 1.53E-03                     | 469                | 9.43E-04                      | 62%        | Pass      |
| 9        | 12.641                 | 717               | 1.44E-03                     | 437                | 8.79E-04                      | 61%        | Pass      |
| 10       | 13.493                 | 666               | 1.34E-03                     | 393                | 7.90E-04                      | 59%        | Pass      |
| 11       | 14.345                 | 637               | 1.28E-03                     | 353                | 7.10E-04                      | 55%        | Pass      |
| 12       | 15.196                 | 596               | 1.20E-03                     | 324                | 6.51E-04                      | 54%        | Pass      |
| 13       | 16.048                 | 555               | 1.12E-03                     | 300                | 6.03E-04                      | 54%        | Pass      |
| 14       | 16.899                 | 528               | 1.06E-03                     | 271                | 5.45E-04                      | 51%        | Pass      |
| 15       | 17.751                 | 504               | 1.01E-03                     | 249                | 5.01E-04                      | 49%        | Pass      |
| 16       | 18.602                 | 481               | 9.67E-04                     | 229                | 4.60E-04                      | 48%        | Pass      |
| 17       | 19.454                 | 449               | 9.03E-04                     | 212                | 4.26E-04                      | 47%        | Pass      |
| 18       | 20.305                 | 433               | 8.71E-04                     | 199                | 4.00E-04                      | 46%        | Pass      |
| 19       | 21.157                 | 418               | 8.40E-04                     | 184                | 3.70E-04                      | 44%        | Pass      |
| 20       | 22.008                 | 400               | 8.04E-04                     | 171                | 3.44E-04                      | 43%        | Pass      |
| 21       | 22.860                 | 376               | 7.56E-04                     | 158                | 3.18E-04                      | 42%        | Pass      |
| 22       | 23.712                 | 358               | 7.20E-04                     | 145                | 2.92E-04                      | 41%        | Pass      |
| 23       | 24.563                 | 344               | 6.92E-04                     | 134                | 2.69E-04                      | 39%        | Pass      |
| 24       | 25.415                 | 333               | 6.70E-04                     | 125                | 2.51E-04                      | 38%        | Pass      |
| 25       | 26.266                 | 318               | 6.39E-04                     | 117                | 2.35E-04                      | 37%        | Pass      |
| 26       | 27.118                 | 300               | 6.03E-04                     | 111                | 2.23E-04                      | 37%        | Pass      |
| 27       | 27.969                 | 289               | 5.81E-04                     | 104                | 2.09E-04                      | 36%        | Pass      |
| 28       | 28.821                 | 276               | 5.55E-04                     | 98                 | 1.97E-04                      | 36%        | Pass      |
| 29       | 29.672                 | 264               | 5.31E-04                     | 97                 | 1.95E-04                      | 37%        | Pass      |
| 30       | 30.524                 | 254               | 5.11E-04                     | 93                 | 1.87E-04                      | 37%        | Pass      |
| 31       | 31.375                 | 243               | 4.89E-04                     | 91                 | 1.83E-04                      | 37%        | Pass      |
| 32       | 32.227                 | 224               | 4.50E-04                     | 88                 | 1.77E-04                      | 39%        | Pass      |
| 33       | 33.079                 | 212               | 4.26E-04                     | 83                 | 1.67E-04                      | 39%        | Pass      |
| 34       | 33.930                 | 207               | 4.16E-04                     | 80                 | 1.61E-04                      | 39%        | Pass      |
| 35       | 34.782                 | 198               | 3.98E-04                     | 77                 | 1.55E-04                      | 39%        | Pass      |
| 36       | 35.633                 | 189               | 3.80E-04                     | 71                 | 1.43E-04                      | 38%        | Pass      |
| 37       | 36.485                 | 181               | 3.64E-04                     | 68                 | 1.37E-04                      | 38%        | Pass      |
| 38       | 37.336                 | 169               | 3.40E-04                     | 65                 | 1.31E-04                      | 38%        | Pass      |
| 39       | 38.188                 | 166               | 3.34E-04                     | 63                 | 1.27E-04                      | 38%        | Pass      |
| 40       | 39.039                 | 159               | 3.20E-04                     | 61                 | 1.23E-04                      | 38%        | Pass      |
| 41       | 39.891                 | 153               | 3.08E-04                     | 61                 | 1.23E-04                      | 40%        | Pass      |
| 42       | 40.742                 | 145               | 2.92E-04                     | 58                 | 1.17E-04                      | 40%        | Pass      |
| 43       | 41.594                 | 139               | 2.79E-04                     | 57                 | 1.15E-04                      | 41%        | Pass      |
| 44       | 42.446                 | 133               | 2.67E-04                     | 55                 | 1.11E-04                      | 41%        | Pass      |
| 45       | 43.297                 | 124               | 2.49E-04                     | 52                 | 1.05E-04                      | 42%        | Pass      |
| 46       | 44.149                 | 120               | 2.41E-04                     | 49                 | 9.85E-05                      | 41%        | Pass      |
| 47       | 45.000                 | 116               | 2.33E-04                     | 47                 | 9.45E-05                      | 41%        | Pass      |
| 48       | 45.852                 | 110               | 2.21E-04                     | 45                 | 9.05E-05                      | 41%        | Pass      |

| Interval | Pre-project Flow<br>(cfs) | Pre-project Hours | Pre-project %<br>Time Exceeding | Post-project<br>Hours | Post-project %<br>Time Exceeding | Percentage | Pass/Fail |
|----------|---------------------------|-------------------|---------------------------------|-----------------------|----------------------------------|------------|-----------|
| 49       | 46.703                    | 104               | 2.09E-04                        | 45                    | 9.05E-05                         | 43%        | Pass      |
| 50       | 47.555                    | 96                | 1.93E-04                        | 44                    | 8.85E-05                         | 46%        | Pass      |
| 51       | 48.406                    | 93                | 1.87E-04                        | 43                    | 8.65E-05                         | 46%        | Pass      |
| 52       | 49.258                    | 89                | 1.79E-04                        | 42                    | 8.44E-05                         | 47%        | Pass      |
| 53       | 50.109                    | 86                | 1.73E-04                        | 38                    | 7.64E-05                         | 44%        | Pass      |
| 54       | 50.961                    | 84                | 1.69E-04                        | 36                    | 7.24E-05                         | 43%        | Pass      |
| 55       | 51.812                    | 80                | 1.61E-04                        | 34                    | 6.84E-05                         | 43%        | Pass      |
| 56       | 52.664                    | 79                | 1.59E-04                        | 34                    | 6.84E-05                         | 43%        | Pass      |
| 57       | 53.516                    | 73                | 1.47E-04                        | 34                    | 6.84E-05                         | 47%        | Pass      |
| 58       | 54.367                    | 66                | 1.33E-04                        | 34                    | 6.84E-05                         | 52%        | Pass      |
| 59       | 55.219                    | 63                | 1.27E-04                        | 33                    | 6.63E-05                         | 52%        | Pass      |
| 60       | 56.070                    | 61                | 1.23E-04                        | 29                    | 5.83E-05                         | 48%        | Pass      |
| 61       | 56.922                    | 59                | 1.19E-04                        | 29                    | 5.83E-05                         | 49%        | Pass      |
| 62       | 57.773                    | 56                | 1.13E-04                        | 29                    | 5.83E-05                         | 52%        | Pass      |
| 63       | 58.625                    | 52                | 1.05E-04                        | 29                    | 5.83E-05                         | 56%        | Pass      |
| 64       | 59.476                    | 50                | 1.01E-04                        | 26                    | 5.23E-05                         | 52%        | Pass      |
| 65       | 60.328                    | 48                | 9.65E-05                        | 26                    | 5.23E-05                         | 54%        | Pass      |
| 66       | 61.179                    | 44                | 8.85E-05                        | 25                    | 5.03E-05                         | 57%        | Pass      |
| 67       | 62.031                    | 42                | 8.44E-05                        | 22                    | 4.42E-05                         | 52%        | Pass      |
| 68       | 62.883                    | 40                | 8.04E-05                        | 21                    | 4.22E-05                         | 53%        | Pass      |
| 69       | 63.734                    | 39                | 7.84E-05                        | 21                    | 4.22E-05                         | 54%        | Pass      |
| 70       | 64.586                    | 36                | 7.24E-05                        | 21                    | 4.22E-05                         | 58%        | Pass      |
| 71       | 65.437                    | 34                | 6.84E-05                        | 21                    | 4.22E-05                         | 62%        | Pass      |
| 72       | 66.289                    | 33                | 6.63E-05                        | 20                    | 4.02E-05                         | 61%        | Pass      |
| 73       | 67.140                    | 31                | 6.23E-05                        | 20                    | 4.02E-05                         | 65%        | Pass      |
| 74       | 67.992                    | 31                | 6.23E-05                        | 20                    | 4.02E-05                         | 65%        | Pass      |
| 75       | 68.843                    | 30                | 6.03E-05                        | 18                    | 3.62E-05                         | 60%        | Pass      |
| 76       | 69.695                    | 30                | 6.03E-05                        | 16                    | 3.22E-05                         | 53%        | Pass      |
| 77       | 70.546                    | 30                | 6.03E-05                        | 16                    | 3.22E-05                         | 53%        | Pass      |
| 78       | 71.398                    | 30                | 6.03E-05                        | 15                    | 3.02E-05                         | 50%        | Pass      |
| 79       | 72.250                    | 30                | 6.03E-05                        | 14                    | 2.81E-05                         | 47%        | Pass      |
| 80       | 73.101                    | 29                | 5.83E-05                        | 14                    | 2.81E-05                         | 48%        | Pass      |
| 81       | 73.953                    | 29                | 5.83E-05                        | 12                    | 2.41E-05                         | 41%        | Pass      |
| 82       | 74.804                    | 28                | 5.63E-05                        | 12                    | 2.41E-05                         | 43%        | Pass      |
| 83       | 75.656                    | 26                | 5.23E-05                        | 11                    | 2.21E-05                         | 42%        | Pass      |
| 84       | 76.507                    | 21                | 4.22E-05                        | 11                    | 2.21E-05                         | 52%        | Pass      |
| 85       | 77.359                    | 21                | 4.22E-05                        | 11                    | 2.21E-05                         | 52%        | Pass      |
| 86       | 78.210                    | 20                | 4.02E-05                        | 9                     | 1.81E-05                         | 45%        | Pass      |
| 87       | 79.062                    | 20                | 4.02E-05                        | 9                     | 1.81E-05                         | 45%        | Pass      |
| 88       | 79.913                    | 19                | 3.82E-05                        | 9                     | 1.81E-05                         | 47%        | Pass      |
| 89       | 80.765                    | 19                | 3.82E-05                        | 9                     | 1.81E-05                         | 47%        | Pass      |
| 90       | 81.617                    | 18                | 3.62E-05                        | 9                     | 1.81E-05                         | 50%        | Pass      |
| 91       | 82.468                    | 18                | 3.62E-05                        | 8                     | 1.61E-05                         | 44%        | Pass      |
| 92       | 83.320                    | 16                | 3.22E-05                        | 8                     | 1.61E-05                         | 50%        | Pass      |
| 93       | 84.171                    | 15                | 3.02E-05                        | 8                     | 1.61E-05                         | 53%        | Pass      |
| 94       | 85.023                    | 15                | 3.02E-05                        | 8                     | 1.61E-05                         | 53%        | Pass      |
| 95       | 85.874                    | 15                | 3.02E-05                        | 8                     | 1.61E-05                         | 53%        | Pass      |
| 96       | 86.726                    | 14                | 2.81E-05                        | 7                     | 1.41E-05                         | 50%        | Pass      |
| 97       | 87.577                    | 13                | 2.61E-05                        | 7                     | 1.41E-05                         | 54%        | Pass      |
| 98       | 88.429                    | 12                | 2.41E-05                        | 7                     | 1.41E-05                         | 58%        | Pass      |
| 99       | 89.280                    | 11                | 2.21E-05                        | 7                     | 1.41E-05                         | 64%        | Pass      |
| 100      | 90.132                    | 11                | 2.21E-05                        | 7                     | 1.41E-05                         | 64%        | Pass      |

# Flow Duration Curve - POC-1 [Pre vs. Post (Mitigated)]



## Flow Duration Curve Analysis, Plot & Table

Figure 5 – POC 2 Flow Duration Curve

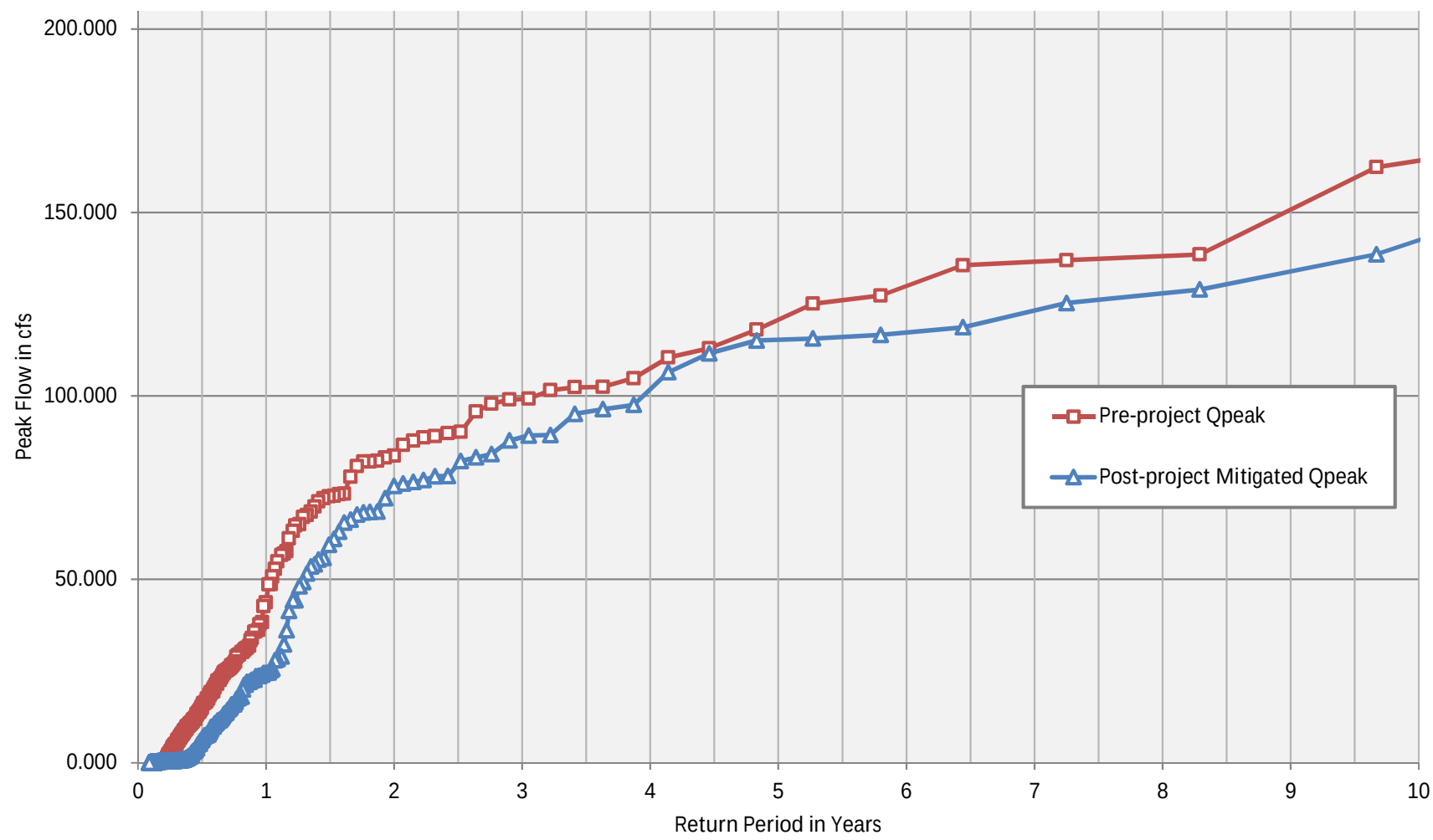


## Village 14 POC 2 BF-2-2

### Peak Flow Frequency Summary

| Return Period | Pre-project Qpeak<br>(cfs) | Post-project - Mitigated Q<br>(cfs) | Reduction<br>(cfs) |
|---------------|----------------------------|-------------------------------------|--------------------|
| LF = 0.1xQ2   | 8.368                      | 7.549                               | 0.820              |
| 2-year        | 83.683                     | 75.488                              | 8.195              |
| 5-year        | 120.795                    | 115.317                             | 5.478              |
| 10-year       | 164.147                    | 142.422                             | 21.726             |

Peak Flow Frequency Curves - POC-2



# Village 14 POC 2 BF-2-2

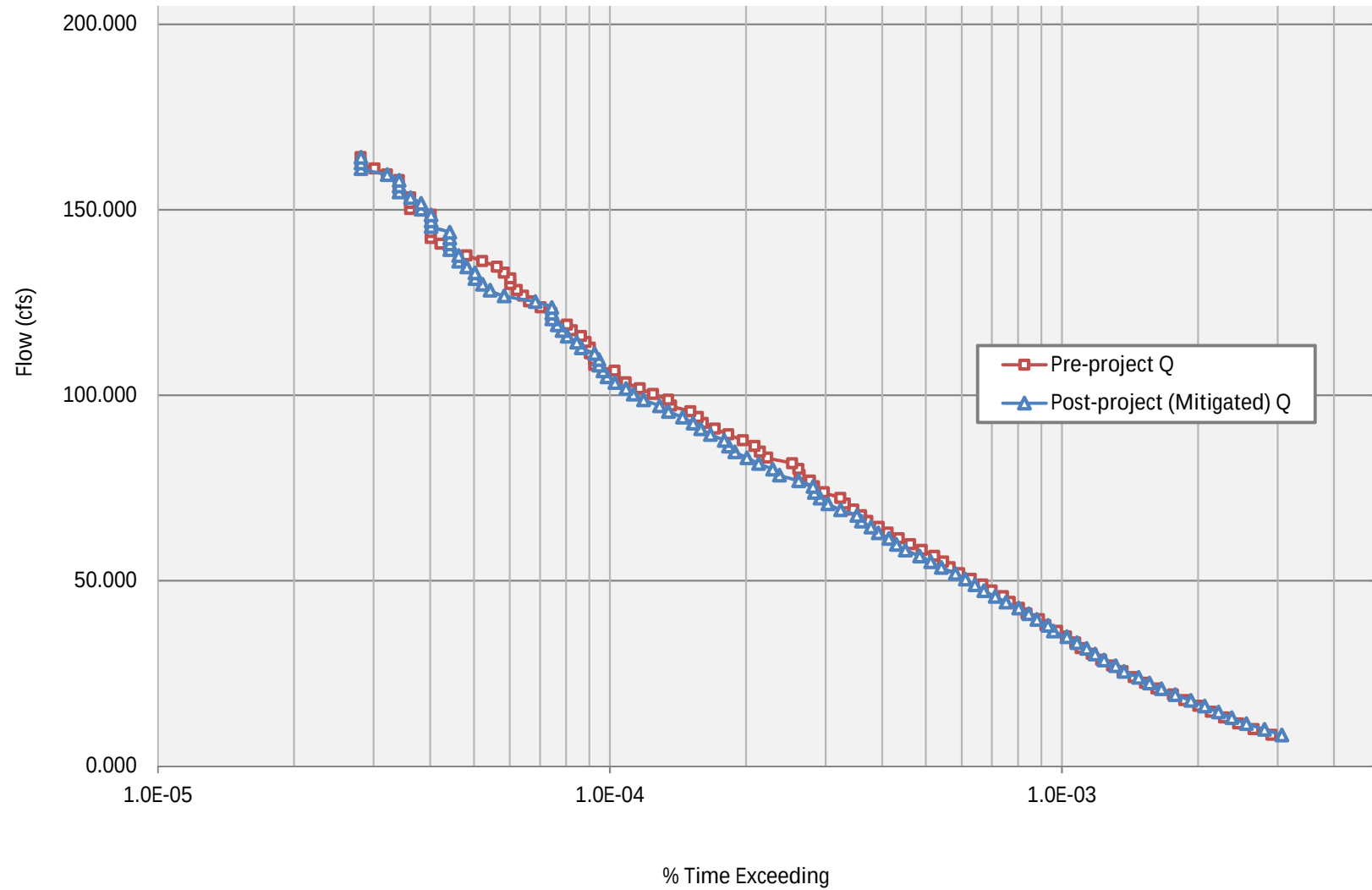
Low-flow Threshold: 10%  
 0.1xQ2 (Pre): 8.368 cfs  
 Q10 (Pre): 164.147 cfs  
 Ordinate #: 100  
 Incremental Q (Pre): 1.55779 cfs  
 Total Hourly Data: 497370 hours

The proposed BMP: PASSED

| Interval | Pre-project Flow (cfs) | Pre-project Hours | Pre-project % Time Exceeding | Post-project Hours | Post-project % Time Exceeding | Percentage | Pass/Fail |
|----------|------------------------|-------------------|------------------------------|--------------------|-------------------------------|------------|-----------|
| 0        | 8.368                  | 1448              | 2.91E-03                     | 1524               | 3.06E-03                      | 105%       | Pass      |
| 1        | 9.926                  | 1323              | 2.66E-03                     | 1395               | 2.80E-03                      | 105%       | Pass      |
| 2        | 11.484                 | 1222              | 2.46E-03                     | 1273               | 2.56E-03                      | 104%       | Pass      |
| 3        | 13.042                 | 1138              | 2.29E-03                     | 1182               | 2.38E-03                      | 104%       | Pass      |
| 4        | 14.599                 | 1064              | 2.14E-03                     | 1104               | 2.22E-03                      | 104%       | Pass      |
| 5        | 16.157                 | 998               | 2.01E-03                     | 1029               | 2.07E-03                      | 103%       | Pass      |
| 6        | 17.715                 | 930               | 1.87E-03                     | 959                | 1.93E-03                      | 103%       | Pass      |
| 7        | 19.273                 | 877               | 1.76E-03                     | 885                | 1.78E-03                      | 101%       | Pass      |
| 8        | 20.831                 | 806               | 1.62E-03                     | 825                | 1.66E-03                      | 102%       | Pass      |
| 9        | 22.388                 | 761               | 1.53E-03                     | 777                | 1.56E-03                      | 102%       | Pass      |
| 10       | 23.946                 | 718               | 1.44E-03                     | 735                | 1.48E-03                      | 102%       | Pass      |
| 11       | 25.504                 | 679               | 1.37E-03                     | 682                | 1.37E-03                      | 100%       | Pass      |
| 12       | 27.062                 | 643               | 1.29E-03                     | 654                | 1.31E-03                      | 102%       | Pass      |
| 13       | 28.620                 | 609               | 1.22E-03                     | 616                | 1.24E-03                      | 101%       | Pass      |
| 14       | 30.177                 | 580               | 1.17E-03                     | 589                | 1.18E-03                      | 102%       | Pass      |
| 15       | 31.735                 | 548               | 1.10E-03                     | 564                | 1.13E-03                      | 103%       | Pass      |
| 16       | 33.293                 | 533               | 1.07E-03                     | 537                | 1.08E-03                      | 101%       | Pass      |
| 17       | 34.851                 | 509               | 1.02E-03                     | 510                | 1.03E-03                      | 100%       | Pass      |
| 18       | 36.408                 | 486               | 9.77E-04                     | 476                | 9.57E-04                      | 98%        | Pass      |
| 19       | 37.966                 | 458               | 9.21E-04                     | 463                | 9.31E-04                      | 101%       | Pass      |
| 20       | 39.524                 | 443               | 8.91E-04                     | 438                | 8.81E-04                      | 99%        | Pass      |
| 21       | 41.082                 | 416               | 8.36E-04                     | 420                | 8.44E-04                      | 101%       | Pass      |
| 22       | 42.640                 | 400               | 8.04E-04                     | 399                | 8.02E-04                      | 100%       | Pass      |
| 23       | 44.197                 | 382               | 7.68E-04                     | 374                | 7.52E-04                      | 98%        | Pass      |
| 24       | 45.755                 | 369               | 7.42E-04                     | 354                | 7.12E-04                      | 96%        | Pass      |
| 25       | 47.313                 | 348               | 7.00E-04                     | 334                | 6.72E-04                      | 96%        | Pass      |
| 26       | 48.871                 | 332               | 6.68E-04                     | 319                | 6.41E-04                      | 96%        | Pass      |
| 27       | 50.429                 | 313               | 6.29E-04                     | 304                | 6.11E-04                      | 97%        | Pass      |
| 28       | 51.986                 | 295               | 5.93E-04                     | 289                | 5.81E-04                      | 98%        | Pass      |
| 29       | 53.544                 | 281               | 5.65E-04                     | 269                | 5.41E-04                      | 96%        | Pass      |
| 30       | 55.102                 | 272               | 5.47E-04                     | 255                | 5.13E-04                      | 94%        | Pass      |
| 31       | 56.660                 | 260               | 5.23E-04                     | 241                | 4.85E-04                      | 93%        | Pass      |
| 32       | 58.217                 | 244               | 4.91E-04                     | 224                | 4.50E-04                      | 92%        | Pass      |
| 33       | 59.775                 | 230               | 4.62E-04                     | 214                | 4.30E-04                      | 93%        | Pass      |
| 34       | 61.333                 | 217               | 4.36E-04                     | 206                | 4.14E-04                      | 95%        | Pass      |
| 35       | 62.891                 | 205               | 4.12E-04                     | 195                | 3.92E-04                      | 95%        | Pass      |
| 36       | 64.449                 | 196               | 3.94E-04                     | 188                | 3.78E-04                      | 96%        | Pass      |
| 37       | 66.006                 | 185               | 3.72E-04                     | 179                | 3.60E-04                      | 97%        | Pass      |
| 38       | 67.564                 | 179               | 3.60E-04                     | 175                | 3.52E-04                      | 98%        | Pass      |
| 39       | 69.122                 | 172               | 3.46E-04                     | 161                | 3.24E-04                      | 94%        | Pass      |
| 40       | 70.680                 | 165               | 3.32E-04                     | 151                | 3.04E-04                      | 92%        | Pass      |
| 41       | 72.238                 | 161               | 3.24E-04                     | 145                | 2.92E-04                      | 90%        | Pass      |
| 42       | 73.795                 | 148               | 2.98E-04                     | 141                | 2.83E-04                      | 95%        | Pass      |
| 43       | 75.353                 | 141               | 2.83E-04                     | 140                | 2.81E-04                      | 99%        | Pass      |
| 44       | 76.911                 | 138               | 2.77E-04                     | 130                | 2.61E-04                      | 94%        | Pass      |
| 45       | 78.469                 | 131               | 2.63E-04                     | 118                | 2.37E-04                      | 90%        | Pass      |
| 46       | 80.027                 | 130               | 2.61E-04                     | 114                | 2.29E-04                      | 88%        | Pass      |
| 47       | 81.584                 | 126               | 2.53E-04                     | 106                | 2.13E-04                      | 84%        | Pass      |
| 48       | 83.142                 | 111               | 2.23E-04                     | 100                | 2.01E-04                      | 90%        | Pass      |

| Interval | Pre-project Flow<br>(cfs) | Pre-project Hours | Pre-project %<br>Time Exceeding | Post-project<br>Hours | Post-project %<br>Time Exceeding | Percentage | Pass/Fail |
|----------|---------------------------|-------------------|---------------------------------|-----------------------|----------------------------------|------------|-----------|
| 49       | 84.700                    | 107               | 2.15E-04                        | 94                    | 1.89E-04                         | 88%        | Pass      |
| 50       | 86.258                    | 104               | 2.09E-04                        | 91                    | 1.83E-04                         | 88%        | Pass      |
| 51       | 87.815                    | 98                | 1.97E-04                        | 89                    | 1.79E-04                         | 91%        | Pass      |
| 52       | 89.373                    | 91                | 1.83E-04                        | 83                    | 1.67E-04                         | 91%        | Pass      |
| 53       | 90.931                    | 85                | 1.71E-04                        | 79                    | 1.59E-04                         | 93%        | Pass      |
| 54       | 92.489                    | 80                | 1.61E-04                        | 76                    | 1.53E-04                         | 95%        | Pass      |
| 55       | 94.047                    | 78                | 1.57E-04                        | 72                    | 1.45E-04                         | 92%        | Pass      |
| 56       | 95.604                    | 75                | 1.51E-04                        | 67                    | 1.35E-04                         | 89%        | Pass      |
| 57       | 97.162                    | 68                | 1.37E-04                        | 64                    | 1.29E-04                         | 94%        | Pass      |
| 58       | 98.720                    | 67                | 1.35E-04                        | 59                    | 1.19E-04                         | 88%        | Pass      |
| 59       | 100.278                   | 62                | 1.25E-04                        | 56                    | 1.13E-04                         | 90%        | Pass      |
| 60       | 101.836                   | 58                | 1.17E-04                        | 54                    | 1.09E-04                         | 93%        | Pass      |
| 61       | 103.393                   | 54                | 1.09E-04                        | 51                    | 1.03E-04                         | 94%        | Pass      |
| 62       | 104.951                   | 51                | 1.03E-04                        | 49                    | 9.85E-05                         | 96%        | Pass      |
| 63       | 106.509                   | 51                | 1.03E-04                        | 48                    | 9.65E-05                         | 94%        | Pass      |
| 64       | 108.067                   | 46                | 9.25E-05                        | 47                    | 9.45E-05                         | 102%       | Pass      |
| 65       | 109.624                   | 46                | 9.25E-05                        | 47                    | 9.45E-05                         | 102%       | Pass      |
| 66       | 111.182                   | 45                | 9.05E-05                        | 46                    | 9.25E-05                         | 102%       | Pass      |
| 67       | 112.740                   | 45                | 9.05E-05                        | 43                    | 8.65E-05                         | 96%        | Pass      |
| 68       | 114.298                   | 44                | 8.85E-05                        | 42                    | 8.44E-05                         | 95%        | Pass      |
| 69       | 115.856                   | 43                | 8.65E-05                        | 40                    | 8.04E-05                         | 93%        | Pass      |
| 70       | 117.413                   | 41                | 8.24E-05                        | 39                    | 7.84E-05                         | 95%        | Pass      |
| 71       | 118.971                   | 40                | 8.04E-05                        | 38                    | 7.64E-05                         | 95%        | Pass      |
| 72       | 120.529                   | 37                | 7.44E-05                        | 37                    | 7.44E-05                         | 100%       | Pass      |
| 73       | 122.087                   | 37                | 7.44E-05                        | 37                    | 7.44E-05                         | 100%       | Pass      |
| 74       | 123.645                   | 35                | 7.04E-05                        | 37                    | 7.44E-05                         | 106%       | Pass      |
| 75       | 125.202                   | 33                | 6.63E-05                        | 34                    | 6.84E-05                         | 103%       | Pass      |
| 76       | 126.760                   | 32                | 6.43E-05                        | 29                    | 5.83E-05                         | 91%        | Pass      |
| 77       | 128.318                   | 31                | 6.23E-05                        | 27                    | 5.43E-05                         | 87%        | Pass      |
| 78       | 129.876                   | 30                | 6.03E-05                        | 26                    | 5.23E-05                         | 87%        | Pass      |
| 79       | 131.433                   | 30                | 6.03E-05                        | 25                    | 5.03E-05                         | 83%        | Pass      |
| 80       | 132.991                   | 29                | 5.83E-05                        | 25                    | 5.03E-05                         | 86%        | Pass      |
| 81       | 134.549                   | 28                | 5.63E-05                        | 24                    | 4.83E-05                         | 86%        | Pass      |
| 82       | 136.107                   | 26                | 5.23E-05                        | 23                    | 4.62E-05                         | 88%        | Pass      |
| 83       | 137.665                   | 24                | 4.83E-05                        | 23                    | 4.62E-05                         | 96%        | Pass      |
| 84       | 139.222                   | 22                | 4.42E-05                        | 22                    | 4.42E-05                         | 100%       | Pass      |
| 85       | 140.780                   | 21                | 4.22E-05                        | 22                    | 4.42E-05                         | 105%       | Pass      |
| 86       | 142.338                   | 20                | 4.02E-05                        | 22                    | 4.42E-05                         | 110%       | Pass      |
| 87       | 143.896                   | 20                | 4.02E-05                        | 22                    | 4.42E-05                         | 110%       | Pass      |
| 88       | 145.454                   | 20                | 4.02E-05                        | 20                    | 4.02E-05                         | 100%       | Pass      |
| 89       | 147.011                   | 20                | 4.02E-05                        | 20                    | 4.02E-05                         | 100%       | Pass      |
| 90       | 148.569                   | 20                | 4.02E-05                        | 20                    | 4.02E-05                         | 100%       | Pass      |
| 91       | 150.127                   | 18                | 3.62E-05                        | 19                    | 3.82E-05                         | 106%       | Pass      |
| 92       | 151.685                   | 18                | 3.62E-05                        | 19                    | 3.82E-05                         | 106%       | Pass      |
| 93       | 153.243                   | 18                | 3.62E-05                        | 18                    | 3.62E-05                         | 100%       | Pass      |
| 94       | 154.800                   | 17                | 3.42E-05                        | 17                    | 3.42E-05                         | 100%       | Pass      |
| 95       | 156.358                   | 17                | 3.42E-05                        | 17                    | 3.42E-05                         | 100%       | Pass      |
| 96       | 157.916                   | 17                | 3.42E-05                        | 17                    | 3.42E-05                         | 100%       | Pass      |
| 97       | 159.474                   | 16                | 3.22E-05                        | 16                    | 3.22E-05                         | 100%       | Pass      |
| 98       | 161.031                   | 15                | 3.02E-05                        | 14                    | 2.81E-05                         | 93%        | Pass      |
| 99       | 162.589                   | 14                | 2.81E-05                        | 14                    | 2.81E-05                         | 100%       | Pass      |
| 100      | 164.147                   | 14                | 2.81E-05                        | 14                    | 2.81E-05                         | 100%       | Pass      |

Flow Duration Curve - POC-2  
[Pre vs. Post (Mitigated)]



## Flow Duration Curve Analysis, Plot & Table

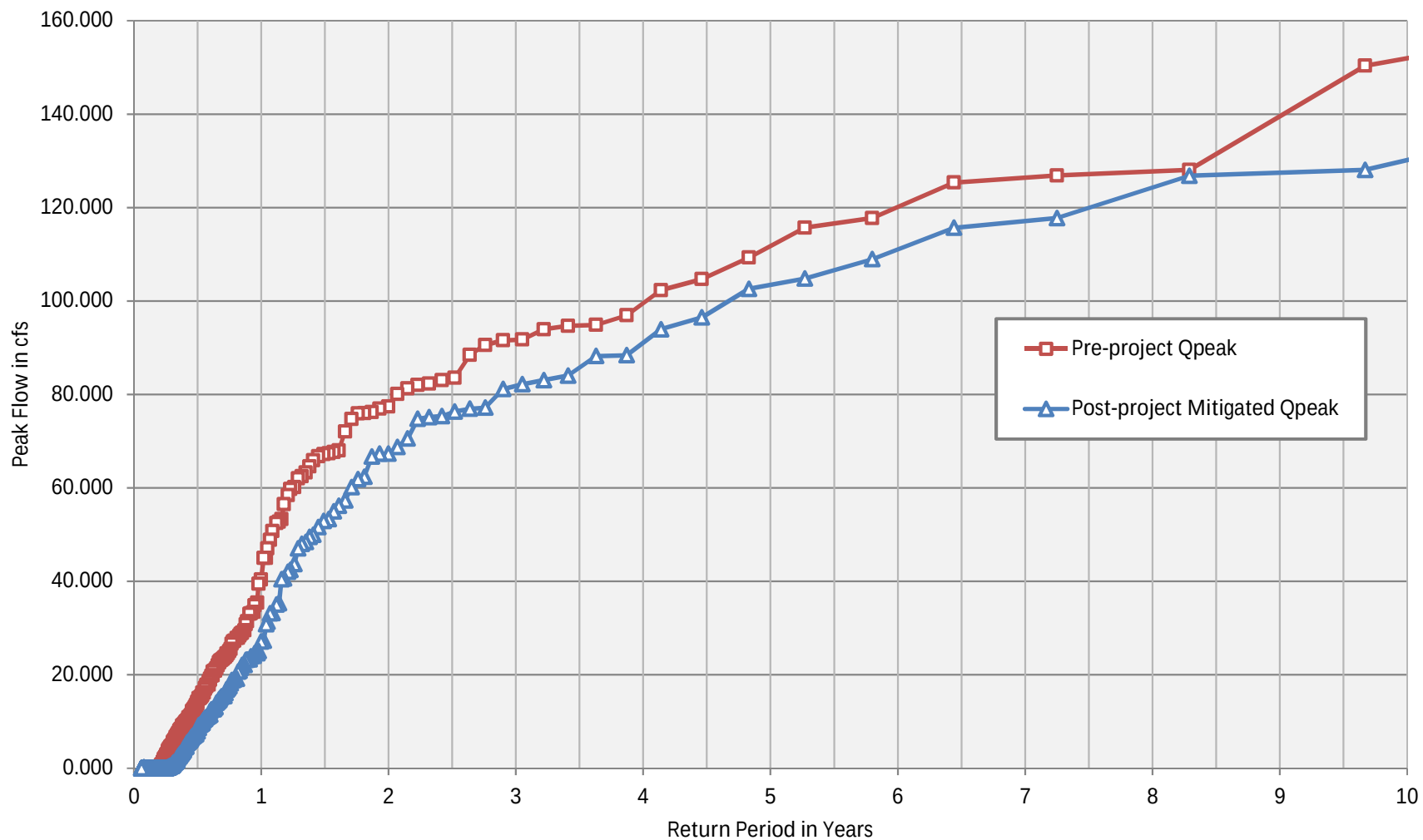
Figure 6 – POC 3 Flow Duration Curve

### Village 14 POC 3 BF-2-3

#### Peak Flow Frequency Summary

| Return Period | Pre-project Qpeak<br>(cfs) | Post-project - Mitigated Q<br>(cfs) | Reduction<br>(cfs) |
|---------------|----------------------------|-------------------------------------|--------------------|
| LF = 0.1xQ2   | 7.742                      | 6.731                               | 1.011              |
| 2-year        | 77.421                     | 67.308                              | 10.113             |
| 5-year        | 111.765                    | 103.439                             | 8.326              |
| 10-year       | 151.968                    | 130.146                             | 21.822             |

## Peak Flow Frequency Curves - POC-3





# Village 14 POC 3 BF-2-3

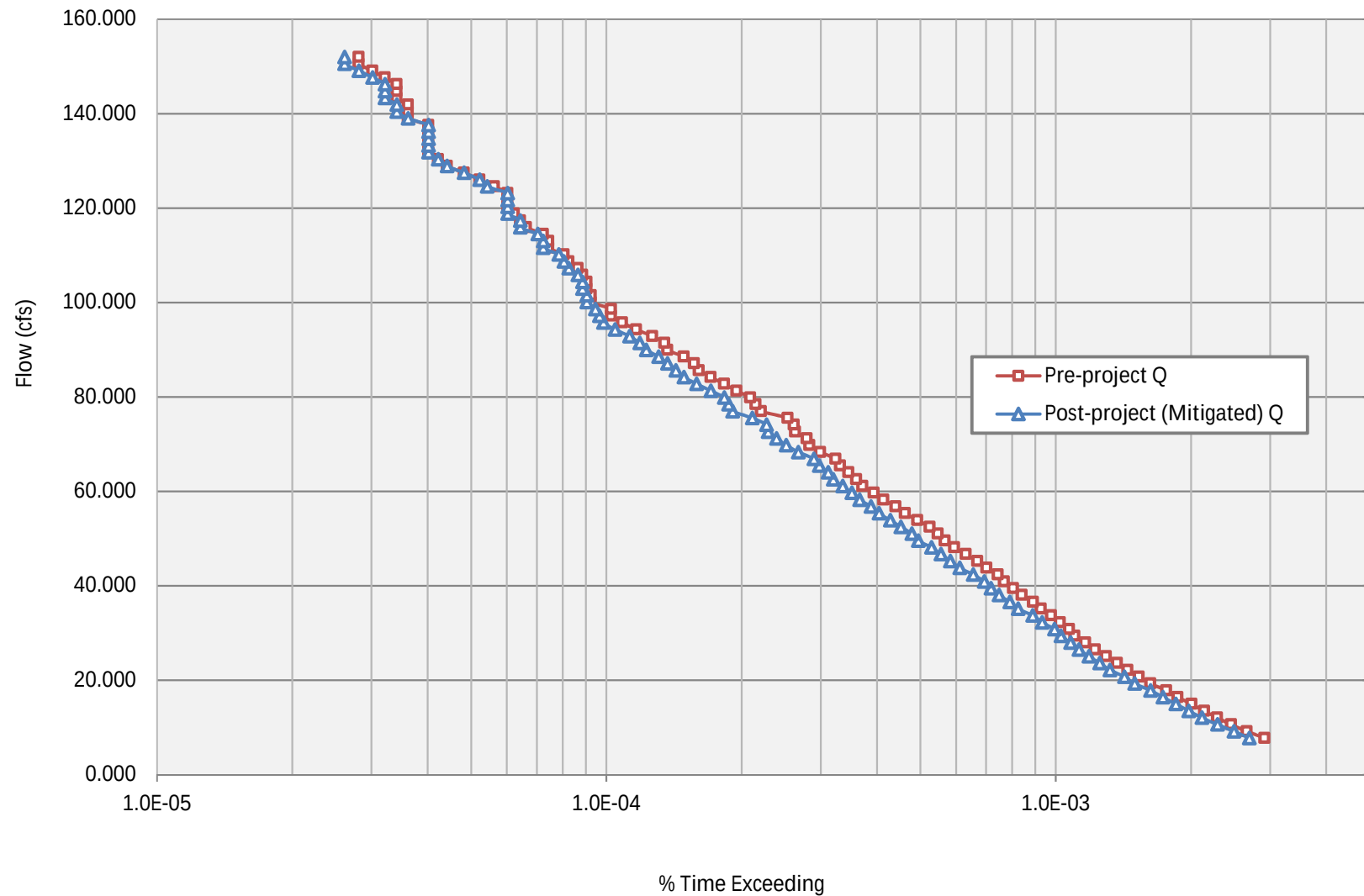
Low-flow Threshold: 10%  
 0.1xQ2 (Pre): 7.742 cfs  
 Q10 (Pre): 151.968 cfs  
 Ordinate #: 100  
 Incremental Q (Pre): 1.44226 cfs  
 Total Hourly Data: 497370 hours

The proposed BMP: PASSED

| Interval | Pre-project Flow (cfs) | Pre-project Hours | Pre-project % Time Exceeding | Post-project Hours | Post-project % Time Exceeding | Percentage | Pass/Fail |
|----------|------------------------|-------------------|------------------------------|--------------------|-------------------------------|------------|-----------|
| 0        | 7.742                  | 1450              | 2.92E-03                     | 1342               | 2.70E-03                      | 93%        | Pass      |
| 1        | 9.184                  | 1324              | 2.66E-03                     | 1239               | 2.49E-03                      | 94%        | Pass      |
| 2        | 10.627                 | 1222              | 2.46E-03                     | 1139               | 2.29E-03                      | 93%        | Pass      |
| 3        | 12.069                 | 1138              | 2.29E-03                     | 1052               | 2.12E-03                      | 92%        | Pass      |
| 4        | 13.511                 | 1065              | 2.14E-03                     | 984                | 1.98E-03                      | 92%        | Pass      |
| 5        | 14.953                 | 998               | 2.01E-03                     | 921                | 1.85E-03                      | 92%        | Pass      |
| 6        | 16.396                 | 930               | 1.87E-03                     | 862                | 1.73E-03                      | 93%        | Pass      |
| 7        | 17.838                 | 877               | 1.76E-03                     | 808                | 1.62E-03                      | 92%        | Pass      |
| 8        | 19.280                 | 808               | 1.62E-03                     | 745                | 1.50E-03                      | 92%        | Pass      |
| 9        | 20.722                 | 762               | 1.53E-03                     | 707                | 1.42E-03                      | 93%        | Pass      |
| 10       | 22.165                 | 719               | 1.45E-03                     | 657                | 1.32E-03                      | 91%        | Pass      |
| 11       | 23.607                 | 681               | 1.37E-03                     | 623                | 1.25E-03                      | 91%        | Pass      |
| 12       | 25.049                 | 644               | 1.29E-03                     | 590                | 1.19E-03                      | 92%        | Pass      |
| 13       | 26.491                 | 609               | 1.22E-03                     | 560                | 1.13E-03                      | 92%        | Pass      |
| 14       | 27.934                 | 579               | 1.16E-03                     | 537                | 1.08E-03                      | 93%        | Pass      |
| 15       | 29.376                 | 548               | 1.10E-03                     | 511                | 1.03E-03                      | 93%        | Pass      |
| 16       | 30.818                 | 533               | 1.07E-03                     | 494                | 9.93E-04                      | 93%        | Pass      |
| 17       | 32.261                 | 509               | 1.02E-03                     | 464                | 9.33E-04                      | 91%        | Pass      |
| 18       | 33.703                 | 486               | 9.77E-04                     | 442                | 8.89E-04                      | 91%        | Pass      |
| 19       | 35.145                 | 461               | 9.27E-04                     | 410                | 8.24E-04                      | 89%        | Pass      |
| 20       | 36.587                 | 443               | 8.91E-04                     | 393                | 7.90E-04                      | 89%        | Pass      |
| 21       | 38.030                 | 418               | 8.40E-04                     | 372                | 7.48E-04                      | 89%        | Pass      |
| 22       | 39.472                 | 400               | 8.04E-04                     | 357                | 7.18E-04                      | 89%        | Pass      |
| 23       | 40.914                 | 382               | 7.68E-04                     | 345                | 6.94E-04                      | 90%        | Pass      |
| 24       | 42.356                 | 370               | 7.44E-04                     | 326                | 6.55E-04                      | 88%        | Pass      |
| 25       | 43.799                 | 349               | 7.02E-04                     | 304                | 6.11E-04                      | 87%        | Pass      |
| 26       | 45.241                 | 333               | 6.70E-04                     | 290                | 5.83E-04                      | 87%        | Pass      |
| 27       | 46.683                 | 314               | 6.31E-04                     | 276                | 5.55E-04                      | 88%        | Pass      |
| 28       | 48.125                 | 296               | 5.95E-04                     | 263                | 5.29E-04                      | 89%        | Pass      |
| 29       | 49.568                 | 282               | 5.67E-04                     | 246                | 4.95E-04                      | 87%        | Pass      |
| 30       | 51.010                 | 272               | 5.47E-04                     | 238                | 4.79E-04                      | 88%        | Pass      |
| 31       | 52.452                 | 261               | 5.25E-04                     | 225                | 4.52E-04                      | 86%        | Pass      |
| 32       | 53.894                 | 245               | 4.93E-04                     | 213                | 4.28E-04                      | 87%        | Pass      |
| 33       | 55.337                 | 230               | 4.62E-04                     | 201                | 4.04E-04                      | 87%        | Pass      |
| 34       | 56.779                 | 219               | 4.40E-04                     | 193                | 3.88E-04                      | 88%        | Pass      |
| 35       | 58.221                 | 206               | 4.14E-04                     | 182                | 3.66E-04                      | 88%        | Pass      |
| 36       | 59.664                 | 196               | 3.94E-04                     | 175                | 3.52E-04                      | 89%        | Pass      |
| 37       | 61.106                 | 185               | 3.72E-04                     | 167                | 3.36E-04                      | 90%        | Pass      |
| 38       | 62.548                 | 179               | 3.60E-04                     | 159                | 3.20E-04                      | 89%        | Pass      |
| 39       | 63.990                 | 172               | 3.46E-04                     | 155                | 3.12E-04                      | 90%        | Pass      |
| 40       | 65.433                 | 165               | 3.32E-04                     | 148                | 2.98E-04                      | 90%        | Pass      |
| 41       | 66.875                 | 161               | 3.24E-04                     | 144                | 2.90E-04                      | 89%        | Pass      |
| 42       | 68.317                 | 149               | 3.00E-04                     | 133                | 2.67E-04                      | 89%        | Pass      |
| 43       | 69.759                 | 141               | 2.83E-04                     | 125                | 2.51E-04                      | 89%        | Pass      |
| 44       | 71.202                 | 139               | 2.79E-04                     | 119                | 2.39E-04                      | 86%        | Pass      |
| 45       | 72.644                 | 131               | 2.63E-04                     | 114                | 2.29E-04                      | 87%        | Pass      |
| 46       | 74.086                 | 130               | 2.61E-04                     | 113                | 2.27E-04                      | 87%        | Pass      |
| 47       | 75.528                 | 126               | 2.53E-04                     | 105                | 2.11E-04                      | 83%        | Pass      |
| 48       | 76.971                 | 110               | 2.21E-04                     | 95                 | 1.91E-04                      | 86%        | Pass      |

| Interval | Pre-project Flow<br>(cfs) | Pre-project Hours | Pre-project %<br>Time Exceeding | Post-project<br>Hours | Post-project %<br>Time Exceeding | Percentage | Pass/Fail |
|----------|---------------------------|-------------------|---------------------------------|-----------------------|----------------------------------|------------|-----------|
| 49       | 78.413                    | 107               | 2.15E-04                        | 93                    | 1.87E-04                         | 87%        | Pass      |
| 50       | 79.855                    | 104               | 2.09E-04                        | 91                    | 1.83E-04                         | 88%        | Pass      |
| 51       | 81.297                    | 97                | 1.95E-04                        | 85                    | 1.71E-04                         | 88%        | Pass      |
| 52       | 82.740                    | 91                | 1.83E-04                        | 79                    | 1.59E-04                         | 87%        | Pass      |
| 53       | 84.182                    | 85                | 1.71E-04                        | 74                    | 1.49E-04                         | 87%        | Pass      |
| 54       | 85.624                    | 80                | 1.61E-04                        | 71                    | 1.43E-04                         | 89%        | Pass      |
| 55       | 87.066                    | 78                | 1.57E-04                        | 68                    | 1.37E-04                         | 87%        | Pass      |
| 56       | 88.509                    | 74                | 1.49E-04                        | 65                    | 1.31E-04                         | 88%        | Pass      |
| 57       | 89.951                    | 68                | 1.37E-04                        | 61                    | 1.23E-04                         | 90%        | Pass      |
| 58       | 91.393                    | 67                | 1.35E-04                        | 59                    | 1.19E-04                         | 88%        | Pass      |
| 59       | 92.836                    | 63                | 1.27E-04                        | 56                    | 1.13E-04                         | 89%        | Pass      |
| 60       | 94.278                    | 58                | 1.17E-04                        | 52                    | 1.05E-04                         | 90%        | Pass      |
| 61       | 95.720                    | 54                | 1.09E-04                        | 49                    | 9.85E-05                         | 91%        | Pass      |
| 62       | 97.162                    | 51                | 1.03E-04                        | 48                    | 9.65E-05                         | 94%        | Pass      |
| 63       | 98.605                    | 51                | 1.03E-04                        | 47                    | 9.45E-05                         | 92%        | Pass      |
| 64       | 100.047                   | 46                | 9.25E-05                        | 45                    | 9.05E-05                         | 98%        | Pass      |
| 65       | 101.489                   | 46                | 9.25E-05                        | 45                    | 9.05E-05                         | 98%        | Pass      |
| 66       | 102.931                   | 45                | 9.05E-05                        | 44                    | 8.85E-05                         | 98%        | Pass      |
| 67       | 104.374                   | 45                | 9.05E-05                        | 44                    | 8.85E-05                         | 98%        | Pass      |
| 68       | 105.816                   | 44                | 8.85E-05                        | 43                    | 8.65E-05                         | 98%        | Pass      |
| 69       | 107.258                   | 43                | 8.65E-05                        | 41                    | 8.24E-05                         | 95%        | Pass      |
| 70       | 108.700                   | 41                | 8.24E-05                        | 40                    | 8.04E-05                         | 98%        | Pass      |
| 71       | 110.143                   | 40                | 8.04E-05                        | 39                    | 7.84E-05                         | 98%        | Pass      |
| 72       | 111.585                   | 37                | 7.44E-05                        | 36                    | 7.24E-05                         | 97%        | Pass      |
| 73       | 113.027                   | 37                | 7.44E-05                        | 36                    | 7.24E-05                         | 97%        | Pass      |
| 74       | 114.469                   | 36                | 7.24E-05                        | 35                    | 7.04E-05                         | 97%        | Pass      |
| 75       | 115.912                   | 33                | 6.63E-05                        | 32                    | 6.43E-05                         | 97%        | Pass      |
| 76       | 117.354                   | 32                | 6.43E-05                        | 32                    | 6.43E-05                         | 100%       | Pass      |
| 77       | 118.796                   | 31                | 6.23E-05                        | 30                    | 6.03E-05                         | 97%        | Pass      |
| 78       | 120.238                   | 30                | 6.03E-05                        | 30                    | 6.03E-05                         | 100%       | Pass      |
| 79       | 121.681                   | 30                | 6.03E-05                        | 30                    | 6.03E-05                         | 100%       | Pass      |
| 80       | 123.123                   | 30                | 6.03E-05                        | 30                    | 6.03E-05                         | 100%       | Pass      |
| 81       | 124.565                   | 28                | 5.63E-05                        | 27                    | 5.43E-05                         | 96%        | Pass      |
| 82       | 126.008                   | 26                | 5.23E-05                        | 26                    | 5.23E-05                         | 100%       | Pass      |
| 83       | 127.450                   | 24                | 4.83E-05                        | 24                    | 4.83E-05                         | 100%       | Pass      |
| 84       | 128.892                   | 22                | 4.42E-05                        | 22                    | 4.42E-05                         | 100%       | Pass      |
| 85       | 130.334                   | 21                | 4.22E-05                        | 21                    | 4.22E-05                         | 100%       | Pass      |
| 86       | 131.777                   | 20                | 4.02E-05                        | 20                    | 4.02E-05                         | 100%       | Pass      |
| 87       | 133.219                   | 20                | 4.02E-05                        | 20                    | 4.02E-05                         | 100%       | Pass      |
| 88       | 134.661                   | 20                | 4.02E-05                        | 20                    | 4.02E-05                         | 100%       | Pass      |
| 89       | 136.103                   | 20                | 4.02E-05                        | 20                    | 4.02E-05                         | 100%       | Pass      |
| 90       | 137.546                   | 20                | 4.02E-05                        | 20                    | 4.02E-05                         | 100%       | Pass      |
| 91       | 138.988                   | 18                | 3.62E-05                        | 18                    | 3.62E-05                         | 100%       | Pass      |
| 92       | 140.430                   | 18                | 3.62E-05                        | 17                    | 3.42E-05                         | 94%        | Pass      |
| 93       | 141.872                   | 18                | 3.62E-05                        | 17                    | 3.42E-05                         | 94%        | Pass      |
| 94       | 143.315                   | 17                | 3.42E-05                        | 16                    | 3.22E-05                         | 94%        | Pass      |
| 95       | 144.757                   | 17                | 3.42E-05                        | 16                    | 3.22E-05                         | 94%        | Pass      |
| 96       | 146.199                   | 17                | 3.42E-05                        | 16                    | 3.22E-05                         | 94%        | Pass      |
| 97       | 147.641                   | 16                | 3.22E-05                        | 15                    | 3.02E-05                         | 94%        | Pass      |
| 98       | 149.084                   | 15                | 3.02E-05                        | 14                    | 2.81E-05                         | 93%        | Pass      |
| 99       | 150.526                   | 14                | 2.81E-05                        | 13                    | 2.61E-05                         | 93%        | Pass      |
| 100      | 151.968                   | 14                | 2.81E-05                        | 13                    | 2.61E-05                         | 93%        | Pass      |

# Flow Duration Curve - POC-3 [Pre vs. Post (Mitigated)]



## Flow Duration Curve Analysis, Plot & Table

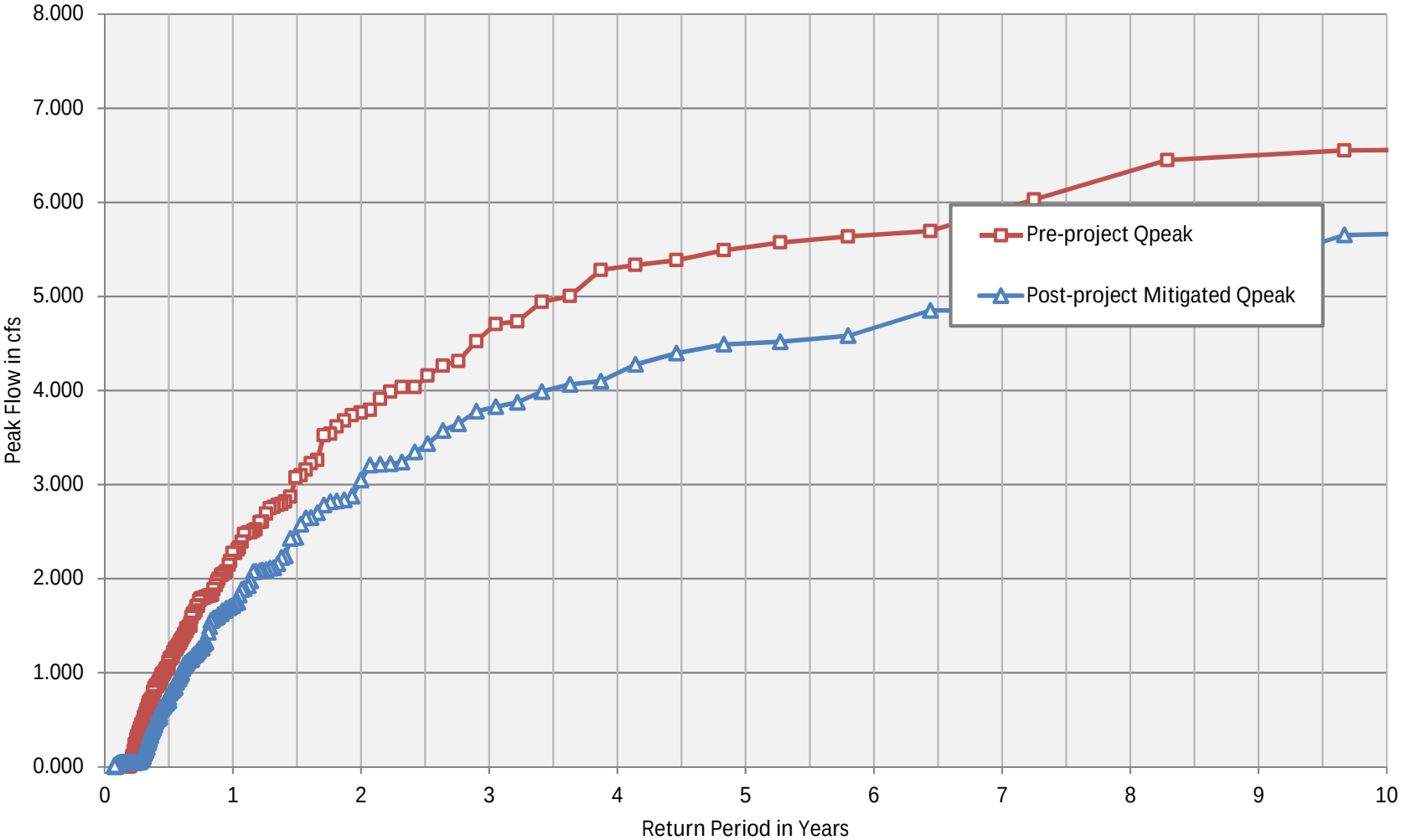
Figure 7 – POC 4 Flow Duration Curve

## Village 14 POC 4 BF-2-4

### Peak Flow Frequency Summary

| Return Period | Pre-project Qpeak<br>(cfs) | Post-project - Mitigated Q<br>(cfs) | Reduction<br>(cfs) |
|---------------|----------------------------|-------------------------------------|--------------------|
| LF = 0.1xQ2   | 0.376                      | 0.305                               | 0.072              |
| 2-year        | 3.764                      | 3.046                               | 0.718              |
| 5-year        | 5.522                      | 4.500                               | 1.021              |
| 10-year       | 6.554                      | 5.662                               | 0.892              |

Peak Flow Frequency Curves - POC-4



# Village 14 POC 4 BF-2-4

Low-flow Threshold: 10%

0.1xQ2 (Pre): 0.376 cfs

Q10 (Pre): 6.554 cfs

Ordinate #: 100

Incremental Q (Pre): 0.06178 cfs

Total Hourly Data: 497370 hours

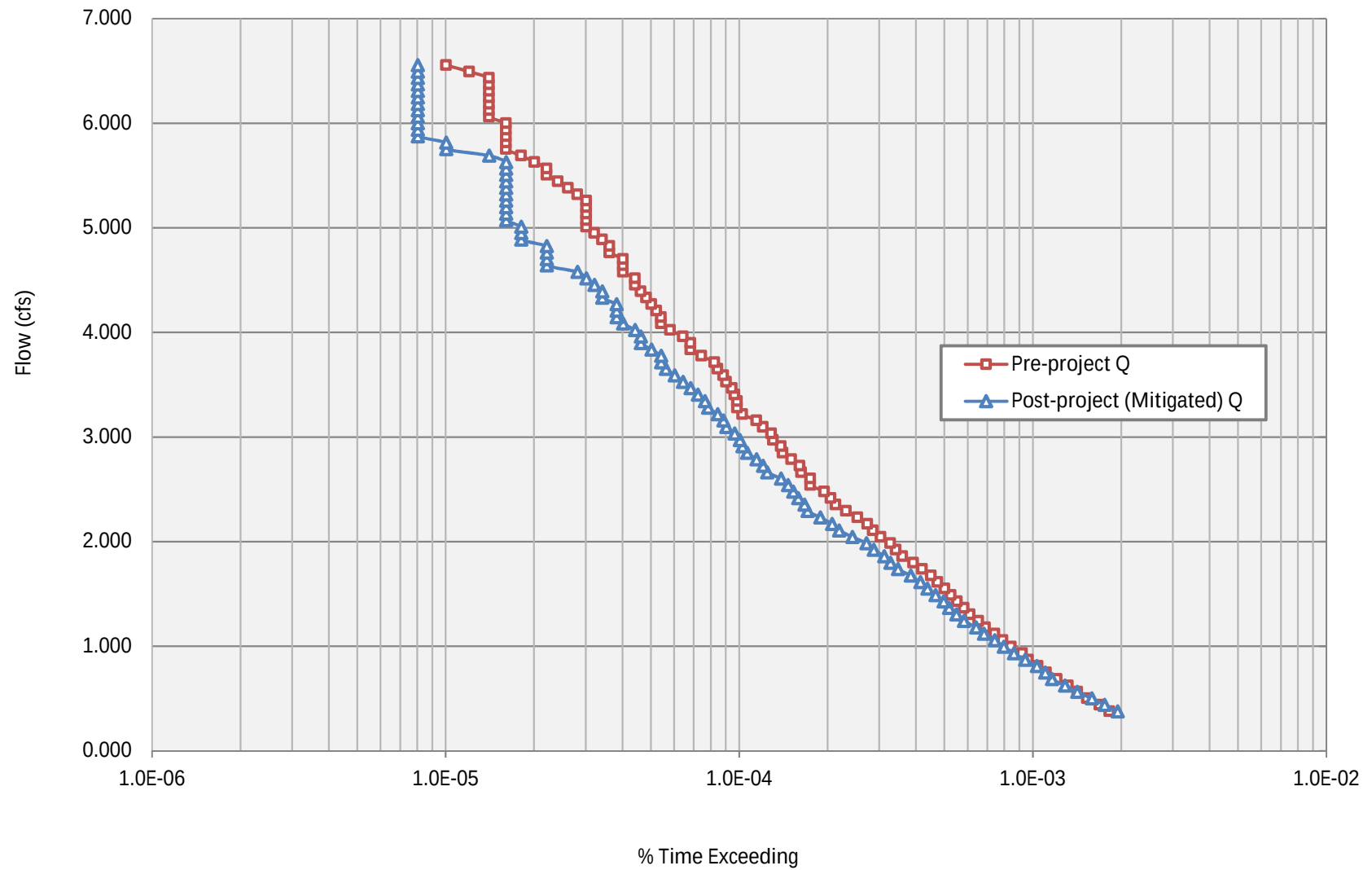
The proposed BMP: PASSED

| Interval | Pre-project Flow (cfs) | Pre-project Hours | Pre-project % Time Exceeding | Post-project Hours | Post-project % Time Exceeding | Percentage | Pass/Fail |
|----------|------------------------|-------------------|------------------------------|--------------------|-------------------------------|------------|-----------|
| 0        | 0.376                  | 909               | 1.83E-03                     | 968                | 1.95E-03                      | 106%       | Pass      |
| 1        | 0.438                  | 841               | 1.69E-03                     | 874                | 1.76E-03                      | 104%       | Pass      |
| 2        | 0.500                  | 763               | 1.53E-03                     | 791                | 1.59E-03                      | 104%       | Pass      |
| 3        | 0.562                  | 707               | 1.42E-03                     | 706                | 1.42E-03                      | 100%       | Pass      |
| 4        | 0.624                  | 657               | 1.32E-03                     | 641                | 1.29E-03                      | 98%        | Pass      |
| 5        | 0.685                  | 601               | 1.21E-03                     | 579                | 1.16E-03                      | 96%        | Pass      |
| 6        | 0.747                  | 553               | 1.11E-03                     | 549                | 1.10E-03                      | 99%        | Pass      |
| 7        | 0.809                  | 518               | 1.04E-03                     | 514                | 1.03E-03                      | 99%        | Pass      |
| 8        | 0.871                  | 480               | 9.65E-04                     | 469                | 9.43E-04                      | 98%        | Pass      |
| 9        | 0.932                  | 458               | 9.21E-04                     | 429                | 8.63E-04                      | 94%        | Pass      |
| 10       | 0.994                  | 420               | 8.44E-04                     | 396                | 7.96E-04                      | 94%        | Pass      |
| 11       | 1.056                  | 393               | 7.90E-04                     | 369                | 7.42E-04                      | 94%        | Pass      |
| 12       | 1.118                  | 369               | 7.42E-04                     | 339                | 6.82E-04                      | 92%        | Pass      |
| 13       | 1.179                  | 343               | 6.90E-04                     | 319                | 6.41E-04                      | 93%        | Pass      |
| 14       | 1.241                  | 325               | 6.53E-04                     | 290                | 5.83E-04                      | 89%        | Pass      |
| 15       | 1.303                  | 304               | 6.11E-04                     | 273                | 5.49E-04                      | 90%        | Pass      |
| 16       | 1.365                  | 290               | 5.83E-04                     | 258                | 5.19E-04                      | 89%        | Pass      |
| 17       | 1.427                  | 275               | 5.53E-04                     | 247                | 4.97E-04                      | 90%        | Pass      |
| 18       | 1.488                  | 262               | 5.27E-04                     | 232                | 4.66E-04                      | 89%        | Pass      |
| 19       | 1.550                  | 249               | 5.01E-04                     | 218                | 4.38E-04                      | 88%        | Pass      |
| 20       | 1.612                  | 236               | 4.74E-04                     | 206                | 4.14E-04                      | 87%        | Pass      |
| 21       | 1.674                  | 224               | 4.50E-04                     | 191                | 3.84E-04                      | 85%        | Pass      |
| 22       | 1.735                  | 209               | 4.20E-04                     | 173                | 3.48E-04                      | 83%        | Pass      |
| 23       | 1.797                  | 195               | 3.92E-04                     | 163                | 3.28E-04                      | 84%        | Pass      |
| 24       | 1.859                  | 179               | 3.60E-04                     | 155                | 3.12E-04                      | 87%        | Pass      |
| 25       | 1.921                  | 170               | 3.42E-04                     | 143                | 2.88E-04                      | 84%        | Pass      |
| 26       | 1.983                  | 163               | 3.28E-04                     | 135                | 2.71E-04                      | 83%        | Pass      |
| 27       | 2.044                  | 151               | 3.04E-04                     | 121                | 2.43E-04                      | 80%        | Pass      |
| 28       | 2.106                  | 142               | 2.86E-04                     | 109                | 2.19E-04                      | 77%        | Pass      |
| 29       | 2.168                  | 136               | 2.73E-04                     | 103                | 2.07E-04                      | 76%        | Pass      |
| 30       | 2.230                  | 126               | 2.53E-04                     | 94                 | 1.89E-04                      | 75%        | Pass      |
| 31       | 2.291                  | 115               | 2.31E-04                     | 85                 | 1.71E-04                      | 74%        | Pass      |
| 32       | 2.353                  | 106               | 2.13E-04                     | 83                 | 1.67E-04                      | 78%        | Pass      |
| 33       | 2.415                  | 102               | 2.05E-04                     | 79                 | 1.59E-04                      | 77%        | Pass      |
| 34       | 2.477                  | 97                | 1.95E-04                     | 76                 | 1.53E-04                      | 78%        | Pass      |
| 35       | 2.539                  | 87                | 1.75E-04                     | 73                 | 1.47E-04                      | 84%        | Pass      |
| 36       | 2.600                  | 87                | 1.75E-04                     | 69                 | 1.39E-04                      | 79%        | Pass      |
| 37       | 2.662                  | 81                | 1.63E-04                     | 62                 | 1.25E-04                      | 77%        | Pass      |
| 38       | 2.724                  | 80                | 1.61E-04                     | 60                 | 1.21E-04                      | 75%        | Pass      |
| 39       | 2.786                  | 75                | 1.51E-04                     | 57                 | 1.15E-04                      | 76%        | Pass      |
| 40       | 2.847                  | 70                | 1.41E-04                     | 53                 | 1.07E-04                      | 76%        | Pass      |
| 41       | 2.909                  | 69                | 1.39E-04                     | 51                 | 1.03E-04                      | 74%        | Pass      |
| 42       | 2.971                  | 65                | 1.31E-04                     | 50                 | 1.01E-04                      | 77%        | Pass      |
| 43       | 3.033                  | 64                | 1.29E-04                     | 48                 | 9.65E-05                      | 75%        | Pass      |
| 44       | 3.095                  | 60                | 1.21E-04                     | 45                 | 9.05E-05                      | 75%        | Pass      |
| 45       | 3.156                  | 57                | 1.15E-04                     | 44                 | 8.85E-05                      | 77%        | Pass      |
| 46       | 3.218                  | 51                | 1.03E-04                     | 42                 | 8.44E-05                      | 82%        | Pass      |
| 47       | 3.280                  | 49                | 9.85E-05                     | 39                 | 7.84E-05                      | 80%        | Pass      |
| 48       | 3.342                  | 49                | 9.85E-05                     | 38                 | 7.64E-05                      | 78%        | Pass      |

| Interval | Pre-project Flow<br>(cfs) | Pre-project Hours | Pre-project %<br>Time Exceeding | Post-project<br>Hours | Post-project %<br>Time Exceeding | Percentage | Pass/Fail |
|----------|---------------------------|-------------------|---------------------------------|-----------------------|----------------------------------|------------|-----------|
| 49       | 3.403                     | 48                | 9.65E-05                        | 36                    | 7.24E-05                         | 75%        | Pass      |
| 50       | 3.465                     | 47                | 9.45E-05                        | 34                    | 6.84E-05                         | 72%        | Pass      |
| 51       | 3.527                     | 45                | 9.05E-05                        | 32                    | 6.43E-05                         | 71%        | Pass      |
| 52       | 3.589                     | 44                | 8.85E-05                        | 30                    | 6.03E-05                         | 68%        | Pass      |
| 53       | 3.651                     | 42                | 8.44E-05                        | 28                    | 5.63E-05                         | 67%        | Pass      |
| 54       | 3.712                     | 41                | 8.24E-05                        | 27                    | 5.43E-05                         | 66%        | Pass      |
| 55       | 3.774                     | 37                | 7.44E-05                        | 27                    | 5.43E-05                         | 73%        | Pass      |
| 56       | 3.836                     | 34                | 6.84E-05                        | 25                    | 5.03E-05                         | 74%        | Pass      |
| 57       | 3.898                     | 34                | 6.84E-05                        | 23                    | 4.62E-05                         | 68%        | Pass      |
| 58       | 3.959                     | 32                | 6.43E-05                        | 23                    | 4.62E-05                         | 72%        | Pass      |
| 59       | 4.021                     | 29                | 5.83E-05                        | 22                    | 4.42E-05                         | 76%        | Pass      |
| 60       | 4.083                     | 27                | 5.43E-05                        | 20                    | 4.02E-05                         | 74%        | Pass      |
| 61       | 4.145                     | 27                | 5.43E-05                        | 19                    | 3.82E-05                         | 70%        | Pass      |
| 62       | 4.207                     | 26                | 5.23E-05                        | 19                    | 3.82E-05                         | 73%        | Pass      |
| 63       | 4.268                     | 25                | 5.03E-05                        | 19                    | 3.82E-05                         | 76%        | Pass      |
| 64       | 4.330                     | 24                | 4.83E-05                        | 17                    | 3.42E-05                         | 71%        | Pass      |
| 65       | 4.392                     | 23                | 4.62E-05                        | 17                    | 3.42E-05                         | 74%        | Pass      |
| 66       | 4.454                     | 22                | 4.42E-05                        | 16                    | 3.22E-05                         | 73%        | Pass      |
| 67       | 4.515                     | 22                | 4.42E-05                        | 15                    | 3.02E-05                         | 68%        | Pass      |
| 68       | 4.577                     | 20                | 4.02E-05                        | 14                    | 2.81E-05                         | 70%        | Pass      |
| 69       | 4.639                     | 20                | 4.02E-05                        | 11                    | 2.21E-05                         | 55%        | Pass      |
| 70       | 4.701                     | 20                | 4.02E-05                        | 11                    | 2.21E-05                         | 55%        | Pass      |
| 71       | 4.763                     | 18                | 3.62E-05                        | 11                    | 2.21E-05                         | 61%        | Pass      |
| 72       | 4.824                     | 18                | 3.62E-05                        | 11                    | 2.21E-05                         | 61%        | Pass      |
| 73       | 4.886                     | 17                | 3.42E-05                        | 9                     | 1.81E-05                         | 53%        | Pass      |
| 74       | 4.948                     | 16                | 3.22E-05                        | 9                     | 1.81E-05                         | 56%        | Pass      |
| 75       | 5.010                     | 15                | 3.02E-05                        | 9                     | 1.81E-05                         | 60%        | Pass      |
| 76       | 5.071                     | 15                | 3.02E-05                        | 8                     | 1.61E-05                         | 53%        | Pass      |
| 77       | 5.133                     | 15                | 3.02E-05                        | 8                     | 1.61E-05                         | 53%        | Pass      |
| 78       | 5.195                     | 15                | 3.02E-05                        | 8                     | 1.61E-05                         | 53%        | Pass      |
| 79       | 5.257                     | 15                | 3.02E-05                        | 8                     | 1.61E-05                         | 53%        | Pass      |
| 80       | 5.319                     | 14                | 2.81E-05                        | 8                     | 1.61E-05                         | 57%        | Pass      |
| 81       | 5.380                     | 13                | 2.61E-05                        | 8                     | 1.61E-05                         | 62%        | Pass      |
| 82       | 5.442                     | 12                | 2.41E-05                        | 8                     | 1.61E-05                         | 67%        | Pass      |
| 83       | 5.504                     | 11                | 2.21E-05                        | 8                     | 1.61E-05                         | 73%        | Pass      |
| 84       | 5.566                     | 11                | 2.21E-05                        | 8                     | 1.61E-05                         | 73%        | Pass      |
| 85       | 5.627                     | 10                | 2.01E-05                        | 8                     | 1.61E-05                         | 80%        | Pass      |
| 86       | 5.689                     | 9                 | 1.81E-05                        | 7                     | 1.41E-05                         | 78%        | Pass      |
| 87       | 5.751                     | 8                 | 1.61E-05                        | 5                     | 1.01E-05                         | 63%        | Pass      |
| 88       | 5.813                     | 8                 | 1.61E-05                        | 5                     | 1.01E-05                         | 63%        | Pass      |
| 89       | 5.875                     | 8                 | 1.61E-05                        | 4                     | 8.04E-06                         | 50%        | Pass      |
| 90       | 5.936                     | 8                 | 1.61E-05                        | 4                     | 8.04E-06                         | 50%        | Pass      |
| 91       | 5.998                     | 8                 | 1.61E-05                        | 4                     | 8.04E-06                         | 50%        | Pass      |
| 92       | 6.060                     | 7                 | 1.41E-05                        | 4                     | 8.04E-06                         | 57%        | Pass      |
| 93       | 6.122                     | 7                 | 1.41E-05                        | 4                     | 8.04E-06                         | 57%        | Pass      |
| 94       | 6.183                     | 7                 | 1.41E-05                        | 4                     | 8.04E-06                         | 57%        | Pass      |
| 95       | 6.245                     | 7                 | 1.41E-05                        | 4                     | 8.04E-06                         | 57%        | Pass      |
| 96       | 6.307                     | 7                 | 1.41E-05                        | 4                     | 8.04E-06                         | 57%        | Pass      |
| 97       | 6.369                     | 7                 | 1.41E-05                        | 4                     | 8.04E-06                         | 57%        | Pass      |
| 98       | 6.431                     | 7                 | 1.41E-05                        | 4                     | 8.04E-06                         | 57%        | Pass      |
| 99       | 6.492                     | 6                 | 1.21E-05                        | 4                     | 8.04E-06                         | 67%        | Pass      |
| 100      | 6.554                     | 5                 | 1.01E-05                        | 4                     | 8.04E-06                         | 80%        | Pass      |



Flow Duration Curve - POC-4  
[Pre vs. Post (Mitigated)]



## Flow Duration Curve Analysis, Plot & Table

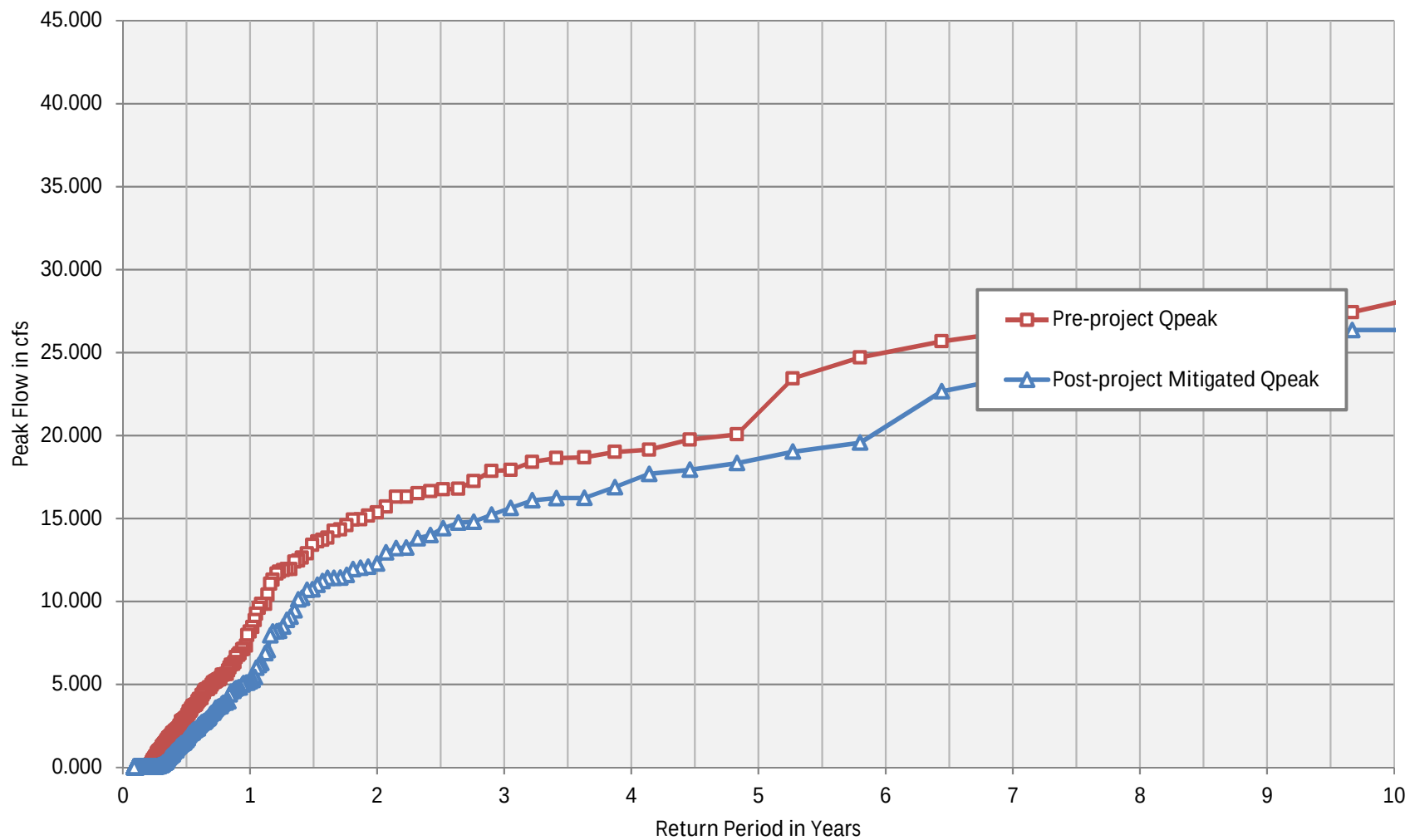
Figure 8 – POC 5 Flow Duration Curve

## Village 14 POC 5 BF-2-5

### Peak Flow Frequency Summary

| Return Period | Pre-project Qpeak<br>(cfs) | Post-project - Mitigated Q<br>(cfs) | Reduction<br>(cfs) |
|---------------|----------------------------|-------------------------------------|--------------------|
| LF = 0.1xQ2   | 1.537                      | 1.228                               | 0.309              |
| 2-year        | 15.368                     | 12.282                              | 3.086              |
| 5-year        | 21.369                     | 18.604                              | 2.766              |
| 10-year       | 27.995                     | 26.355                              | 1.640              |

## Peak Flow Frequency Curves - POC-5



# Village 14 POC 5 BF-2-5

Low-flow Threshold: 10%

0.1xQ2 (Pre): 1.537 cfs

Q10 (Pre): 27.995 cfs

Ordinate #: 100

Incremental Q (Pre): 0.26458 cfs

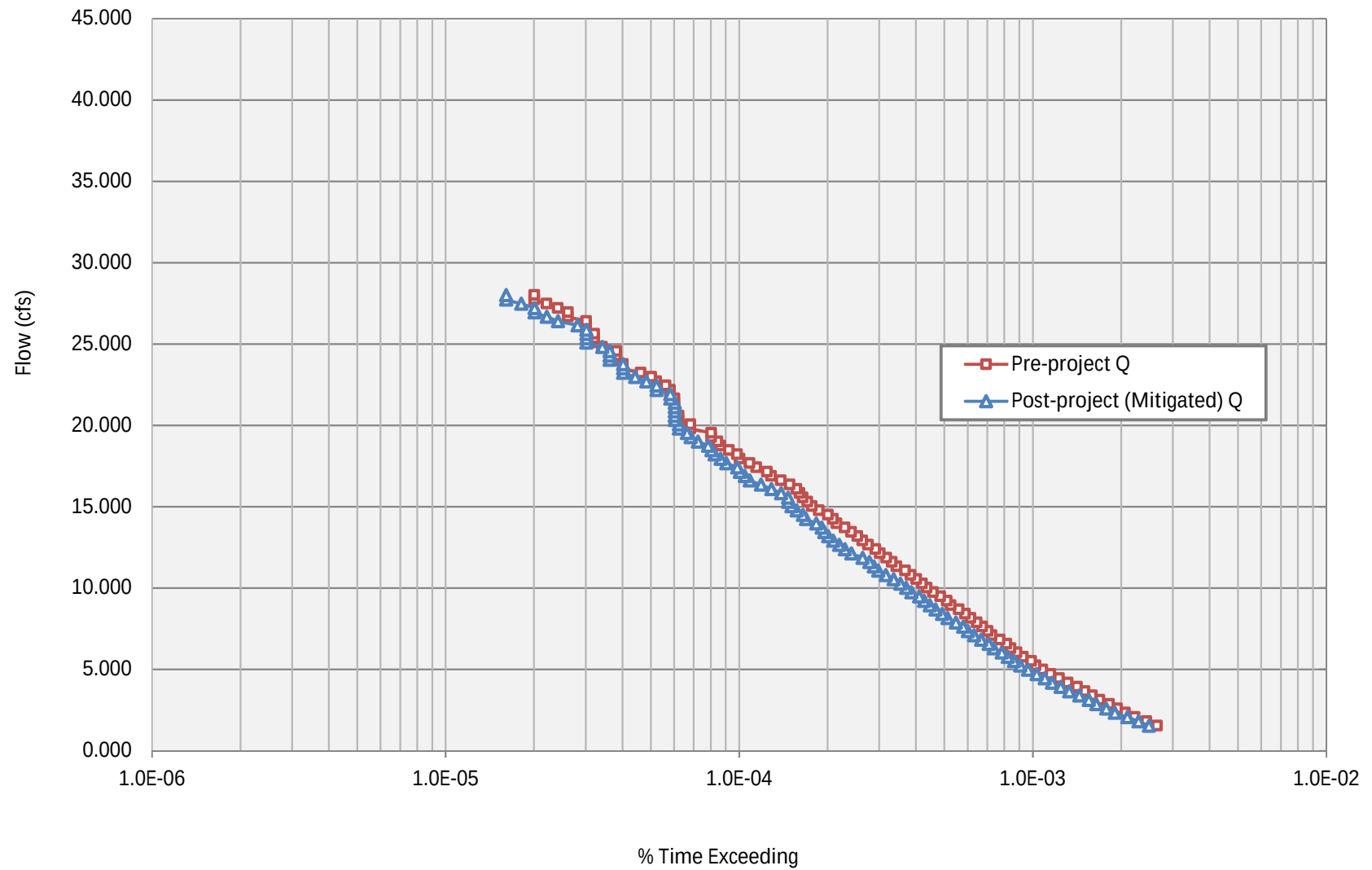
Total Hourly Data: 497370 hours

The proposed BMP: PASSED

| Interval | Pre-project Flow (cfs) | Pre-project Hours | Pre-project % Time Exceeding | Post-project Hours | Post-project % Time Exceeding | Percentage | Pass/Fail |
|----------|------------------------|-------------------|------------------------------|--------------------|-------------------------------|------------|-----------|
| 0        | 1.537                  | 1321              | 2.66E-03                     | 1237               | 2.49E-03                      | 94%        | Pass      |
| 1        | 1.801                  | 1214              | 2.44E-03                     | 1140               | 2.29E-03                      | 94%        | Pass      |
| 2        | 2.066                  | 1109              | 2.23E-03                     | 1044               | 2.10E-03                      | 94%        | Pass      |
| 3        | 2.331                  | 1028              | 2.07E-03                     | 947                | 1.90E-03                      | 92%        | Pass      |
| 4        | 2.595                  | 966               | 1.94E-03                     | 885                | 1.78E-03                      | 92%        | Pass      |
| 5        | 2.860                  | 907               | 1.82E-03                     | 819                | 1.65E-03                      | 90%        | Pass      |
| 6        | 3.124                  | 841               | 1.69E-03                     | 771                | 1.55E-03                      | 92%        | Pass      |
| 7        | 3.389                  | 793               | 1.59E-03                     | 717                | 1.44E-03                      | 90%        | Pass      |
| 8        | 3.653                  | 748               | 1.50E-03                     | 662                | 1.33E-03                      | 89%        | Pass      |
| 9        | 3.918                  | 706               | 1.42E-03                     | 619                | 1.24E-03                      | 88%        | Pass      |
| 10       | 4.183                  | 655               | 1.32E-03                     | 578                | 1.16E-03                      | 88%        | Pass      |
| 11       | 4.447                  | 612               | 1.23E-03                     | 546                | 1.10E-03                      | 89%        | Pass      |
| 12       | 4.712                  | 572               | 1.15E-03                     | 513                | 1.03E-03                      | 90%        | Pass      |
| 13       | 4.976                  | 537               | 1.08E-03                     | 479                | 9.63E-04                      | 89%        | Pass      |
| 14       | 5.241                  | 510               | 1.03E-03                     | 451                | 9.07E-04                      | 88%        | Pass      |
| 15       | 5.506                  | 492               | 9.89E-04                     | 429                | 8.63E-04                      | 87%        | Pass      |
| 16       | 5.770                  | 461               | 9.27E-04                     | 409                | 8.22E-04                      | 89%        | Pass      |
| 17       | 6.035                  | 439               | 8.83E-04                     | 390                | 7.84E-04                      | 89%        | Pass      |
| 18       | 6.299                  | 419               | 8.42E-04                     | 366                | 7.36E-04                      | 87%        | Pass      |
| 19       | 6.564                  | 405               | 8.14E-04                     | 352                | 7.08E-04                      | 87%        | Pass      |
| 20       | 6.828                  | 384               | 7.72E-04                     | 332                | 6.68E-04                      | 86%        | Pass      |
| 21       | 7.093                  | 361               | 7.26E-04                     | 314                | 6.31E-04                      | 87%        | Pass      |
| 22       | 7.358                  | 350               | 7.04E-04                     | 299                | 6.01E-04                      | 85%        | Pass      |
| 23       | 7.622                  | 335               | 6.74E-04                     | 288                | 5.79E-04                      | 86%        | Pass      |
| 24       | 7.887                  | 321               | 6.45E-04                     | 272                | 5.47E-04                      | 85%        | Pass      |
| 25       | 8.151                  | 306               | 6.15E-04                     | 255                | 5.13E-04                      | 83%        | Pass      |
| 26       | 8.416                  | 293               | 5.89E-04                     | 244                | 4.91E-04                      | 83%        | Pass      |
| 27       | 8.681                  | 279               | 5.61E-04                     | 232                | 4.66E-04                      | 83%        | Pass      |
| 28       | 8.945                  | 262               | 5.27E-04                     | 222                | 4.46E-04                      | 85%        | Pass      |
| 29       | 9.210                  | 254               | 5.11E-04                     | 212                | 4.26E-04                      | 83%        | Pass      |
| 30       | 9.474                  | 241               | 4.85E-04                     | 204                | 4.10E-04                      | 85%        | Pass      |
| 31       | 9.739                  | 228               | 4.58E-04                     | 192                | 3.86E-04                      | 84%        | Pass      |
| 32       | 10.003                 | 217               | 4.36E-04                     | 184                | 3.70E-04                      | 85%        | Pass      |
| 33       | 10.268                 | 209               | 4.20E-04                     | 176                | 3.54E-04                      | 84%        | Pass      |
| 34       | 10.533                 | 200               | 4.02E-04                     | 167                | 3.36E-04                      | 84%        | Pass      |
| 35       | 10.797                 | 191               | 3.84E-04                     | 157                | 3.16E-04                      | 82%        | Pass      |
| 36       | 11.062                 | 183               | 3.68E-04                     | 148                | 2.98E-04                      | 81%        | Pass      |
| 37       | 11.326                 | 171               | 3.44E-04                     | 143                | 2.88E-04                      | 84%        | Pass      |
| 38       | 11.591                 | 165               | 3.32E-04                     | 138                | 2.77E-04                      | 84%        | Pass      |
| 39       | 11.856                 | 158               | 3.18E-04                     | 131                | 2.63E-04                      | 83%        | Pass      |
| 40       | 12.120                 | 150               | 3.02E-04                     | 120                | 2.41E-04                      | 80%        | Pass      |
| 41       | 12.385                 | 145               | 2.92E-04                     | 114                | 2.29E-04                      | 79%        | Pass      |
| 42       | 12.649                 | 137               | 2.75E-04                     | 109                | 2.19E-04                      | 80%        | Pass      |
| 43       | 12.914                 | 131               | 2.63E-04                     | 104                | 2.09E-04                      | 79%        | Pass      |
| 44       | 13.178                 | 126               | 2.53E-04                     | 100                | 2.01E-04                      | 79%        | Pass      |
| 45       | 13.443                 | 120               | 2.41E-04                     | 97                 | 1.95E-04                      | 81%        | Pass      |
| 46       | 13.708                 | 114               | 2.29E-04                     | 95                 | 1.91E-04                      | 83%        | Pass      |
| 47       | 13.972                 | 107               | 2.15E-04                     | 91                 | 1.83E-04                      | 85%        | Pass      |
| 48       | 14.237                 | 104               | 2.09E-04                     | 84                 | 1.69E-04                      | 81%        | Pass      |

| Interval | Pre-project Flow<br>(cfs) | Pre-project Hours | Pre-project %<br>Time Exceeding | Post-project<br>Hours | Post-project %<br>Time Exceeding | Percentage | Pass/Fail |
|----------|---------------------------|-------------------|---------------------------------|-----------------------|----------------------------------|------------|-----------|
| 49       | 14.501                    | 100               | 2.01E-04                        | 82                    | 1.65E-04                         | 82%        | Pass      |
| 50       | 14.766                    | 93                | 1.87E-04                        | 78                    | 1.57E-04                         | 84%        | Pass      |
| 51       | 15.031                    | 88                | 1.77E-04                        | 75                    | 1.51E-04                         | 85%        | Pass      |
| 52       | 15.295                    | 85                | 1.71E-04                        | 73                    | 1.47E-04                         | 86%        | Pass      |
| 53       | 15.560                    | 82                | 1.65E-04                        | 73                    | 1.47E-04                         | 89%        | Pass      |
| 54       | 15.824                    | 80                | 1.61E-04                        | 69                    | 1.39E-04                         | 86%        | Pass      |
| 55       | 16.089                    | 78                | 1.57E-04                        | 64                    | 1.29E-04                         | 82%        | Pass      |
| 56       | 16.353                    | 74                | 1.49E-04                        | 59                    | 1.19E-04                         | 80%        | Pass      |
| 57       | 16.618                    | 69                | 1.39E-04                        | 54                    | 1.09E-04                         | 78%        | Pass      |
| 58       | 16.883                    | 64                | 1.29E-04                        | 52                    | 1.05E-04                         | 81%        | Pass      |
| 59       | 17.147                    | 62                | 1.25E-04                        | 50                    | 1.01E-04                         | 81%        | Pass      |
| 60       | 17.412                    | 57                | 1.15E-04                        | 49                    | 9.85E-05                         | 86%        | Pass      |
| 61       | 17.676                    | 54                | 1.09E-04                        | 45                    | 9.05E-05                         | 83%        | Pass      |
| 62       | 17.941                    | 50                | 1.01E-04                        | 43                    | 8.65E-05                         | 86%        | Pass      |
| 63       | 18.205                    | 49                | 9.85E-05                        | 41                    | 8.24E-05                         | 84%        | Pass      |
| 64       | 18.470                    | 46                | 9.25E-05                        | 40                    | 8.04E-05                         | 87%        | Pass      |
| 65       | 18.735                    | 43                | 8.65E-05                        | 39                    | 7.84E-05                         | 91%        | Pass      |
| 66       | 18.999                    | 42                | 8.44E-05                        | 36                    | 7.24E-05                         | 86%        | Pass      |
| 67       | 19.264                    | 40                | 8.04E-05                        | 34                    | 6.84E-05                         | 85%        | Pass      |
| 68       | 19.528                    | 40                | 8.04E-05                        | 33                    | 6.63E-05                         | 83%        | Pass      |
| 69       | 19.793                    | 34                | 6.84E-05                        | 31                    | 6.23E-05                         | 91%        | Pass      |
| 70       | 20.058                    | 34                | 6.84E-05                        | 31                    | 6.23E-05                         | 91%        | Pass      |
| 71       | 20.322                    | 31                | 6.23E-05                        | 30                    | 6.03E-05                         | 97%        | Pass      |
| 72       | 20.587                    | 31                | 6.23E-05                        | 30                    | 6.03E-05                         | 97%        | Pass      |
| 73       | 20.851                    | 30                | 6.03E-05                        | 30                    | 6.03E-05                         | 100%       | Pass      |
| 74       | 21.116                    | 30                | 6.03E-05                        | 30                    | 6.03E-05                         | 100%       | Pass      |
| 75       | 21.380                    | 30                | 6.03E-05                        | 30                    | 6.03E-05                         | 100%       | Pass      |
| 76       | 21.645                    | 30                | 6.03E-05                        | 29                    | 5.83E-05                         | 97%        | Pass      |
| 77       | 21.910                    | 29                | 5.83E-05                        | 29                    | 5.83E-05                         | 100%       | Pass      |
| 78       | 22.174                    | 29                | 5.83E-05                        | 26                    | 5.23E-05                         | 90%        | Pass      |
| 79       | 22.439                    | 28                | 5.63E-05                        | 26                    | 5.23E-05                         | 93%        | Pass      |
| 80       | 22.703                    | 26                | 5.23E-05                        | 24                    | 4.83E-05                         | 92%        | Pass      |
| 81       | 22.968                    | 25                | 5.03E-05                        | 22                    | 4.42E-05                         | 88%        | Pass      |
| 82       | 23.233                    | 23                | 4.62E-05                        | 20                    | 4.02E-05                         | 87%        | Pass      |
| 83       | 23.497                    | 20                | 4.02E-05                        | 20                    | 4.02E-05                         | 100%       | Pass      |
| 84       | 23.762                    | 20                | 4.02E-05                        | 20                    | 4.02E-05                         | 100%       | Pass      |
| 85       | 24.026                    | 19                | 3.82E-05                        | 18                    | 3.62E-05                         | 95%        | Pass      |
| 86       | 24.291                    | 19                | 3.82E-05                        | 18                    | 3.62E-05                         | 95%        | Pass      |
| 87       | 24.555                    | 19                | 3.82E-05                        | 18                    | 3.62E-05                         | 95%        | Pass      |
| 88       | 24.820                    | 17                | 3.42E-05                        | 17                    | 3.42E-05                         | 100%       | Pass      |
| 89       | 25.085                    | 16                | 3.22E-05                        | 15                    | 3.02E-05                         | 94%        | Pass      |
| 90       | 25.349                    | 16                | 3.22E-05                        | 15                    | 3.02E-05                         | 94%        | Pass      |
| 91       | 25.614                    | 16                | 3.22E-05                        | 15                    | 3.02E-05                         | 94%        | Pass      |
| 92       | 25.878                    | 15                | 3.02E-05                        | 15                    | 3.02E-05                         | 100%       | Pass      |
| 93       | 26.143                    | 15                | 3.02E-05                        | 14                    | 2.81E-05                         | 93%        | Pass      |
| 94       | 26.408                    | 15                | 3.02E-05                        | 12                    | 2.41E-05                         | 80%        | Pass      |
| 95       | 26.672                    | 13                | 2.61E-05                        | 11                    | 2.21E-05                         | 85%        | Pass      |
| 96       | 26.937                    | 13                | 2.61E-05                        | 10                    | 2.01E-05                         | 77%        | Pass      |
| 97       | 27.201                    | 12                | 2.41E-05                        | 10                    | 2.01E-05                         | 83%        | Pass      |
| 98       | 27.466                    | 11                | 2.21E-05                        | 9                     | 1.81E-05                         | 82%        | Pass      |
| 99       | 27.730                    | 10                | 2.01E-05                        | 8                     | 1.61E-05                         | 80%        | Pass      |
| 100      | 27.995                    | 10                | 2.01E-05                        | 8                     | 1.61E-05                         | 80%        | Pass      |

# Flow Duration Curve - POC-5 [Pre vs. Post (Mitigated)]



## Flow Duration Curve Analysis, Plot & Table

Figure 9 – POC 6 Flow Duration Curve

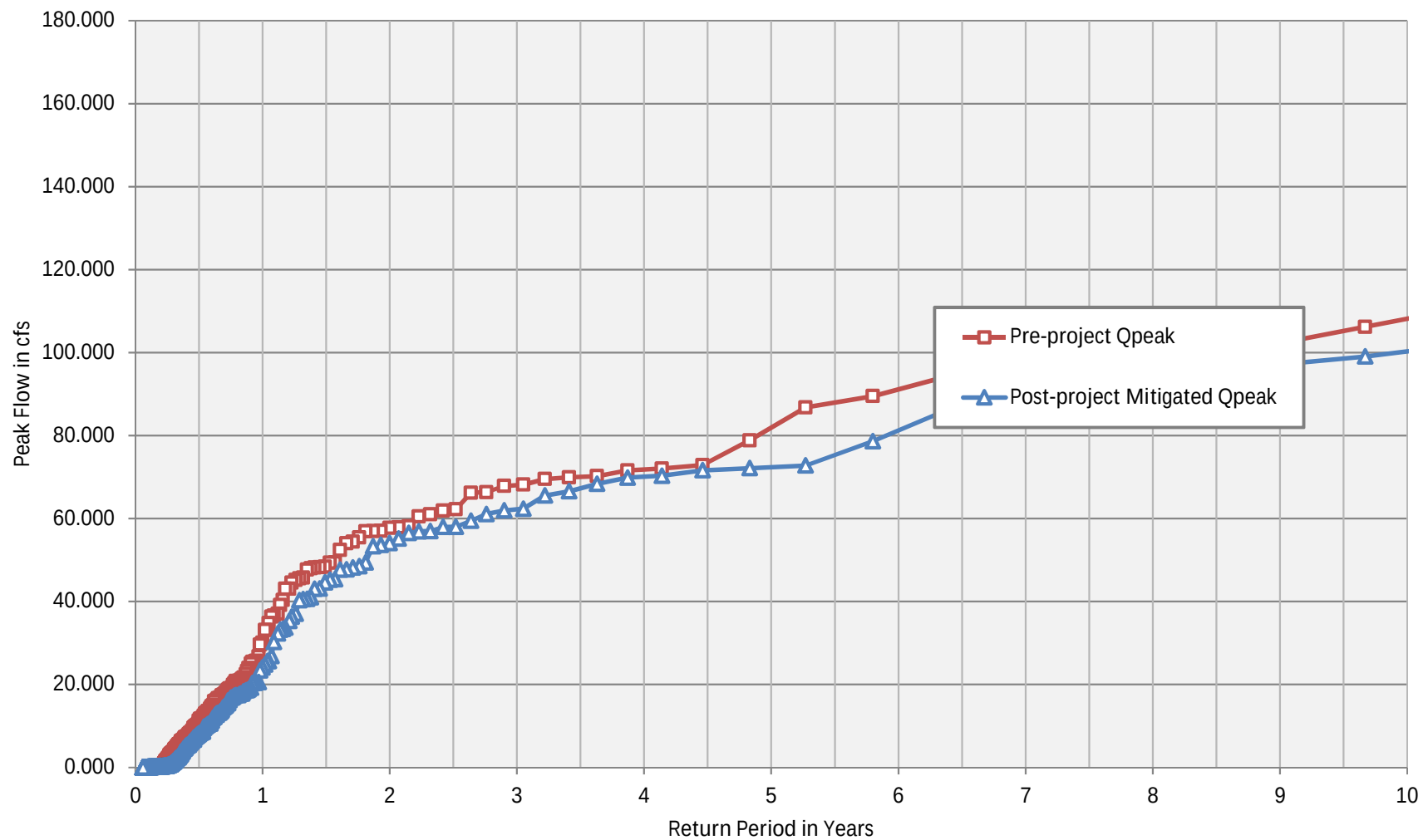


## Village 14 POC 6 BF-2-8

### Peak Flow Frequency Summary

| Return Period | Pre-project Qpeak<br>(cfs) | Post-project - Mitigated Q<br>(cfs) | Reduction<br>(cfs) |
|---------------|----------------------------|-------------------------------------|--------------------|
| LF = 0.1xQ2   | 5.774                      | 5.411                               | 0.363              |
| 2-year        | 57.740                     | 54.106                              | 3.634              |
| 5-year        | 81.898                     | 72.377                              | 9.521              |
| 10-year       | 108.120                    | 100.289                             | 7.831              |

## Peak Flow Frequency Curves - POC-6



# Village 14 POC 6 BF-2-8

Low-flow Threshold: 10%

0.1xQ2 (Pre): 5.774 cfs

Q10 (Pre): 108.120 cfs

Ordinate #: 100

Incremental Q (Pre): 1.02346 cfs

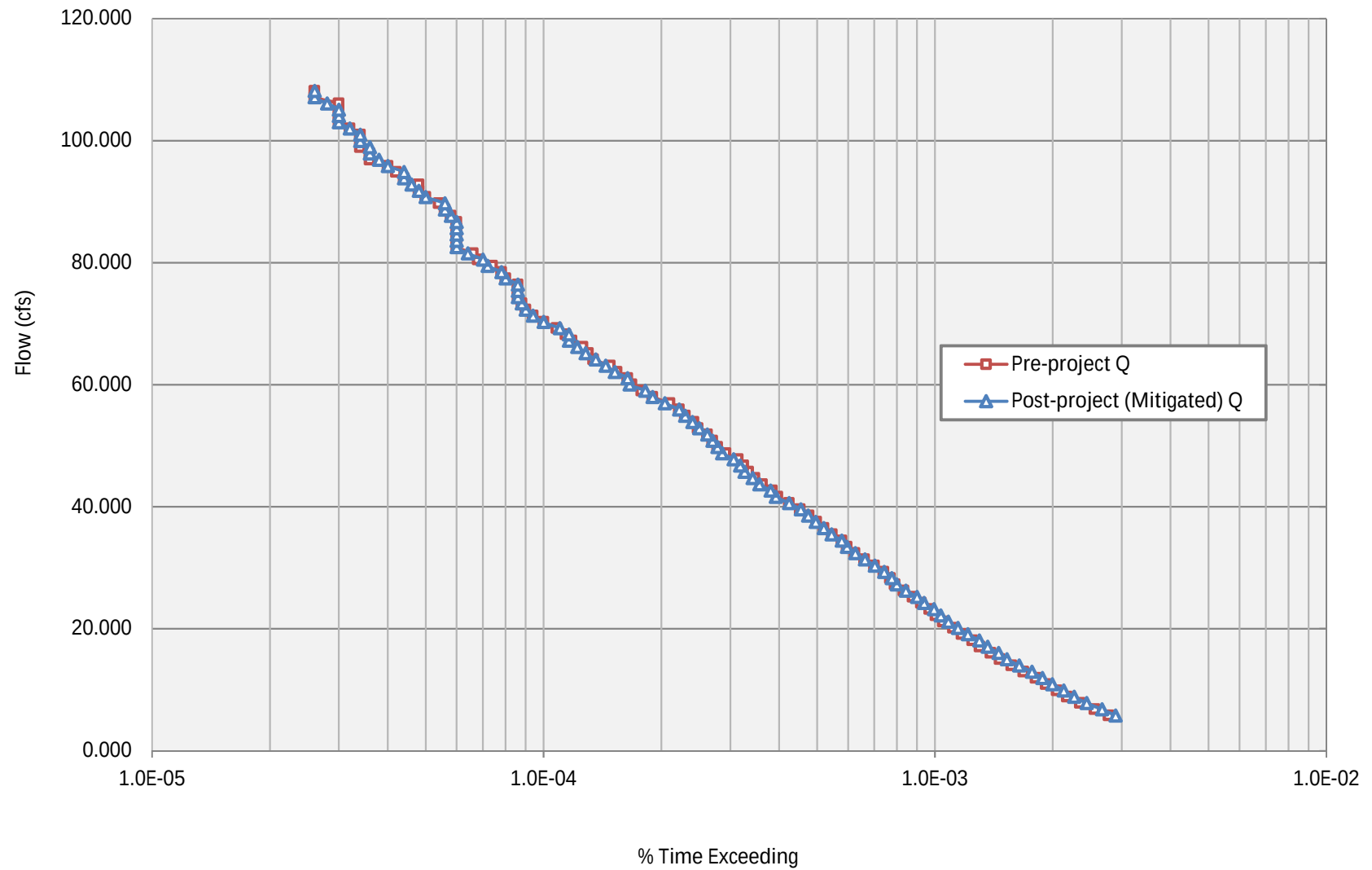
Total Hourly Data: 499677 hours

The proposed BMP: PASSED

| Interval | Pre-project Flow (cfs) | Pre-project Hours | Pre-project % Time Exceeding | Post-project Hours | Post-project % Time Exceeding | Percentage | Pass/Fail |
|----------|------------------------|-------------------|------------------------------|--------------------|-------------------------------|------------|-----------|
| 0        | 5.774                  | 1390              | 2.78E-03                     | 1446               | 2.89E-03                      | 104%       | Pass      |
| 1        | 6.797                  | 1279              | 2.56E-03                     | 1335               | 2.67E-03                      | 104%       | Pass      |
| 2        | 7.821                  | 1175              | 2.35E-03                     | 1220               | 2.44E-03                      | 104%       | Pass      |
| 3        | 8.844                  | 1088              | 2.18E-03                     | 1133               | 2.27E-03                      | 104%       | Pass      |
| 4        | 9.868                  | 1025              | 2.05E-03                     | 1067               | 2.14E-03                      | 104%       | Pass      |
| 5        | 10.891                 | 960               | 1.92E-03                     | 997                | 2.00E-03                      | 104%       | Pass      |
| 6        | 11.915                 | 905               | 1.81E-03                     | 941                | 1.88E-03                      | 104%       | Pass      |
| 7        | 12.938                 | 842               | 1.69E-03                     | 884                | 1.77E-03                      | 105%       | Pass      |
| 8        | 13.962                 | 785               | 1.57E-03                     | 820                | 1.64E-03                      | 104%       | Pass      |
| 9        | 14.985                 | 732               | 1.46E-03                     | 763                | 1.53E-03                      | 104%       | Pass      |
| 10       | 16.009                 | 694               | 1.39E-03                     | 727                | 1.45E-03                      | 105%       | Pass      |
| 11       | 17.032                 | 651               | 1.30E-03                     | 682                | 1.36E-03                      | 105%       | Pass      |
| 12       | 18.056                 | 624               | 1.25E-03                     | 649                | 1.30E-03                      | 104%       | Pass      |
| 13       | 19.079                 | 586               | 1.17E-03                     | 607                | 1.21E-03                      | 104%       | Pass      |
| 14       | 20.102                 | 557               | 1.11E-03                     | 572                | 1.14E-03                      | 103%       | Pass      |
| 15       | 21.126                 | 524               | 1.05E-03                     | 541                | 1.08E-03                      | 103%       | Pass      |
| 16       | 22.149                 | 502               | 1.00E-03                     | 517                | 1.03E-03                      | 103%       | Pass      |
| 17       | 23.173                 | 484               | 9.69E-04                     | 497                | 9.95E-04                      | 103%       | Pass      |
| 18       | 24.196                 | 461               | 9.23E-04                     | 469                | 9.39E-04                      | 102%       | Pass      |
| 19       | 25.220                 | 439               | 8.79E-04                     | 450                | 9.01E-04                      | 103%       | Pass      |
| 20       | 26.243                 | 416               | 8.33E-04                     | 421                | 8.43E-04                      | 101%       | Pass      |
| 21       | 27.267                 | 395               | 7.91E-04                     | 399                | 7.99E-04                      | 101%       | Pass      |
| 22       | 28.290                 | 384               | 7.68E-04                     | 388                | 7.77E-04                      | 101%       | Pass      |
| 23       | 29.314                 | 370               | 7.40E-04                     | 371                | 7.42E-04                      | 100%       | Pass      |
| 24       | 30.337                 | 350               | 7.00E-04                     | 351                | 7.02E-04                      | 100%       | Pass      |
| 25       | 31.361                 | 330               | 6.60E-04                     | 331                | 6.62E-04                      | 100%       | Pass      |
| 26       | 32.384                 | 312               | 6.24E-04                     | 313                | 6.26E-04                      | 100%       | Pass      |
| 27       | 33.408                 | 298               | 5.96E-04                     | 298                | 5.96E-04                      | 100%       | Pass      |
| 28       | 34.431                 | 289               | 5.78E-04                     | 289                | 5.78E-04                      | 100%       | Pass      |
| 29       | 35.454                 | 273               | 5.46E-04                     | 272                | 5.44E-04                      | 100%       | Pass      |
| 30       | 36.478                 | 260               | 5.20E-04                     | 260                | 5.20E-04                      | 100%       | Pass      |
| 31       | 37.501                 | 249               | 4.98E-04                     | 248                | 4.96E-04                      | 100%       | Pass      |
| 32       | 38.525                 | 238               | 4.76E-04                     | 237                | 4.74E-04                      | 100%       | Pass      |
| 33       | 39.548                 | 226               | 4.52E-04                     | 227                | 4.54E-04                      | 100%       | Pass      |
| 34       | 40.572                 | 212               | 4.24E-04                     | 212                | 4.24E-04                      | 100%       | Pass      |
| 35       | 41.595                 | 198               | 3.96E-04                     | 196                | 3.92E-04                      | 99%        | Pass      |
| 36       | 42.619                 | 192               | 3.84E-04                     | 190                | 3.80E-04                      | 99%        | Pass      |
| 37       | 43.642                 | 181               | 3.62E-04                     | 178                | 3.56E-04                      | 98%        | Pass      |
| 38       | 44.666                 | 173               | 3.46E-04                     | 171                | 3.42E-04                      | 99%        | Pass      |
| 39       | 45.689                 | 167               | 3.34E-04                     | 163                | 3.26E-04                      | 98%        | Pass      |
| 40       | 46.713                 | 162               | 3.24E-04                     | 159                | 3.18E-04                      | 98%        | Pass      |
| 41       | 47.736                 | 157               | 3.14E-04                     | 153                | 3.06E-04                      | 97%        | Pass      |
| 42       | 48.759                 | 146               | 2.92E-04                     | 143                | 2.86E-04                      | 98%        | Pass      |
| 43       | 49.783                 | 139               | 2.78E-04                     | 139                | 2.78E-04                      | 100%       | Pass      |
| 44       | 50.806                 | 135               | 2.70E-04                     | 135                | 2.70E-04                      | 100%       | Pass      |
| 45       | 51.830                 | 131               | 2.62E-04                     | 131                | 2.62E-04                      | 100%       | Pass      |
| 46       | 52.853                 | 124               | 2.48E-04                     | 125                | 2.50E-04                      | 101%       | Pass      |
| 47       | 53.877                 | 121               | 2.42E-04                     | 120                | 2.40E-04                      | 99%        | Pass      |
| 48       | 54.900                 | 115               | 2.30E-04                     | 115                | 2.30E-04                      | 100%       | Pass      |

| Interval | Pre-project Flow<br>(cfs) | Pre-project Hours | Pre-project %<br>Time Exceeding | Post-project<br>Hours | Post-project %<br>Time Exceeding | Percentage | Pass/Fail |
|----------|---------------------------|-------------------|---------------------------------|-----------------------|----------------------------------|------------|-----------|
| 49       | 55.924                    | 111               | 2.22E-04                        | 111                   | 2.22E-04                         | 100%       | Pass      |
| 50       | 56.947                    | 105               | 2.10E-04                        | 102                   | 2.04E-04                         | 97%        | Pass      |
| 51       | 57.971                    | 95                | 1.90E-04                        | 95                    | 1.90E-04                         | 100%       | Pass      |
| 52       | 58.994                    | 89                | 1.78E-04                        | 91                    | 1.82E-04                         | 102%       | Pass      |
| 53       | 60.018                    | 84                | 1.68E-04                        | 83                    | 1.66E-04                         | 99%        | Pass      |
| 54       | 61.041                    | 82                | 1.64E-04                        | 82                    | 1.64E-04                         | 100%       | Pass      |
| 55       | 62.064                    | 77                | 1.54E-04                        | 76                    | 1.52E-04                         | 99%        | Pass      |
| 56       | 63.088                    | 74                | 1.48E-04                        | 72                    | 1.44E-04                         | 97%        | Pass      |
| 57       | 64.111                    | 67                | 1.34E-04                        | 68                    | 1.36E-04                         | 101%       | Pass      |
| 58       | 65.135                    | 65                | 1.30E-04                        | 64                    | 1.28E-04                         | 98%        | Pass      |
| 59       | 66.158                    | 63                | 1.26E-04                        | 61                    | 1.22E-04                         | 97%        | Pass      |
| 60       | 67.182                    | 59                | 1.18E-04                        | 58                    | 1.16E-04                         | 98%        | Pass      |
| 61       | 68.205                    | 57                | 1.14E-04                        | 58                    | 1.16E-04                         | 102%       | Pass      |
| 62       | 69.229                    | 54                | 1.08E-04                        | 55                    | 1.10E-04                         | 102%       | Pass      |
| 63       | 70.252                    | 50                | 1.00E-04                        | 50                    | 1.00E-04                         | 100%       | Pass      |
| 64       | 71.276                    | 47                | 9.41E-05                        | 47                    | 9.41E-05                         | 100%       | Pass      |
| 65       | 72.299                    | 45                | 9.01E-05                        | 45                    | 9.01E-05                         | 100%       | Pass      |
| 66       | 73.323                    | 44                | 8.81E-05                        | 44                    | 8.81E-05                         | 100%       | Pass      |
| 67       | 74.346                    | 43                | 8.61E-05                        | 43                    | 8.61E-05                         | 100%       | Pass      |
| 68       | 75.369                    | 43                | 8.61E-05                        | 43                    | 8.61E-05                         | 100%       | Pass      |
| 69       | 76.393                    | 43                | 8.61E-05                        | 43                    | 8.61E-05                         | 100%       | Pass      |
| 70       | 77.416                    | 40                | 8.01E-05                        | 40                    | 8.01E-05                         | 100%       | Pass      |
| 71       | 78.440                    | 39                | 7.81E-05                        | 39                    | 7.81E-05                         | 100%       | Pass      |
| 72       | 79.463                    | 37                | 7.40E-05                        | 36                    | 7.20E-05                         | 97%        | Pass      |
| 73       | 80.487                    | 34                | 6.80E-05                        | 35                    | 7.00E-05                         | 103%       | Pass      |
| 74       | 81.510                    | 33                | 6.60E-05                        | 32                    | 6.40E-05                         | 97%        | Pass      |
| 75       | 82.534                    | 30                | 6.00E-05                        | 30                    | 6.00E-05                         | 100%       | Pass      |
| 76       | 83.557                    | 30                | 6.00E-05                        | 30                    | 6.00E-05                         | 100%       | Pass      |
| 77       | 84.581                    | 30                | 6.00E-05                        | 30                    | 6.00E-05                         | 100%       | Pass      |
| 78       | 85.604                    | 30                | 6.00E-05                        | 30                    | 6.00E-05                         | 100%       | Pass      |
| 79       | 86.628                    | 30                | 6.00E-05                        | 30                    | 6.00E-05                         | 100%       | Pass      |
| 80       | 87.651                    | 29                | 5.80E-05                        | 29                    | 5.80E-05                         | 100%       | Pass      |
| 81       | 88.675                    | 28                | 5.60E-05                        | 28                    | 5.60E-05                         | 100%       | Pass      |
| 82       | 89.698                    | 27                | 5.40E-05                        | 28                    | 5.60E-05                         | 104%       | Pass      |
| 83       | 90.721                    | 25                | 5.00E-05                        | 25                    | 5.00E-05                         | 100%       | Pass      |
| 84       | 91.745                    | 24                | 4.80E-05                        | 24                    | 4.80E-05                         | 100%       | Pass      |
| 85       | 92.768                    | 24                | 4.80E-05                        | 23                    | 4.60E-05                         | 96%        | Pass      |
| 86       | 93.792                    | 22                | 4.40E-05                        | 22                    | 4.40E-05                         | 100%       | Pass      |
| 87       | 94.815                    | 21                | 4.20E-05                        | 22                    | 4.40E-05                         | 105%       | Pass      |
| 88       | 95.839                    | 20                | 4.00E-05                        | 20                    | 4.00E-05                         | 100%       | Pass      |
| 89       | 96.862                    | 18                | 3.60E-05                        | 19                    | 3.80E-05                         | 106%       | Pass      |
| 90       | 97.886                    | 18                | 3.60E-05                        | 18                    | 3.60E-05                         | 100%       | Pass      |
| 91       | 98.909                    | 17                | 3.40E-05                        | 18                    | 3.60E-05                         | 106%       | Pass      |
| 92       | 99.933                    | 17                | 3.40E-05                        | 17                    | 3.40E-05                         | 100%       | Pass      |
| 93       | 100.956                   | 17                | 3.40E-05                        | 17                    | 3.40E-05                         | 100%       | Pass      |
| 94       | 101.980                   | 16                | 3.20E-05                        | 16                    | 3.20E-05                         | 100%       | Pass      |
| 95       | 103.003                   | 15                | 3.00E-05                        | 15                    | 3.00E-05                         | 100%       | Pass      |
| 96       | 104.026                   | 15                | 3.00E-05                        | 15                    | 3.00E-05                         | 100%       | Pass      |
| 97       | 105.050                   | 15                | 3.00E-05                        | 15                    | 3.00E-05                         | 100%       | Pass      |
| 98       | 106.073                   | 15                | 3.00E-05                        | 14                    | 2.80E-05                         | 93%        | Pass      |
| 99       | 107.097                   | 13                | 2.60E-05                        | 13                    | 2.60E-05                         | 100%       | Pass      |
| 100      | 108.120                   | 13                | 2.60E-05                        | 13                    | 2.60E-05                         | 100%       | Pass      |

# Flow Duration Curve - POC-6 [Pre vs. Post (Mitigated)]



## Flow Duration Curve Analysis, Plot & Table

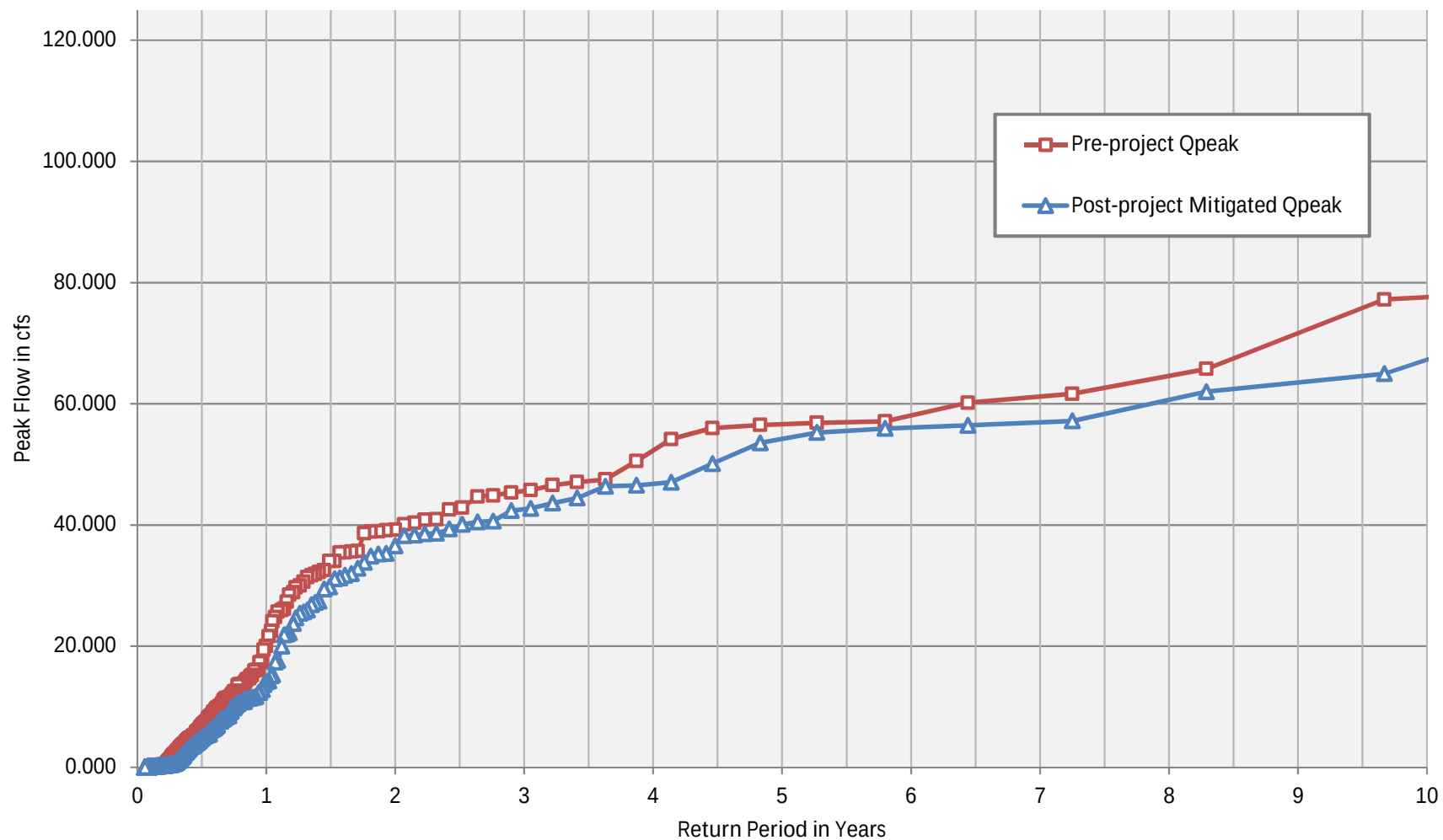
Figure 10 – POC 7 Flow Duration Curve

## Village 14 POC 7 BF-2-10

### Peak Flow Frequency Summary

| Return Period | Pre-project Qpeak<br>(cfs) | Post-project - Mitigated Q<br>(cfs) |
|---------------|----------------------------|-------------------------------------|
| LF = 0.1xQ2   | 3.922                      | 3.652                               |
| 2-year        | 39.221                     | 36.520                              |
| 5-year        | 56.646                     | 54.200                              |
| 10-year       | 77.582                     | 67.287                              |

## Peak Flow Frequency Curves - POC-7





# Village 14 POC 7 BF-2-10

Low-flow Threshold: 10%

0.1xQ2 (Pre): 3.922 cfs

Q10 (Pre): 77.582 cfs

Ordinate #: 100

Incremental Q (Pre): 0.73660 cfs

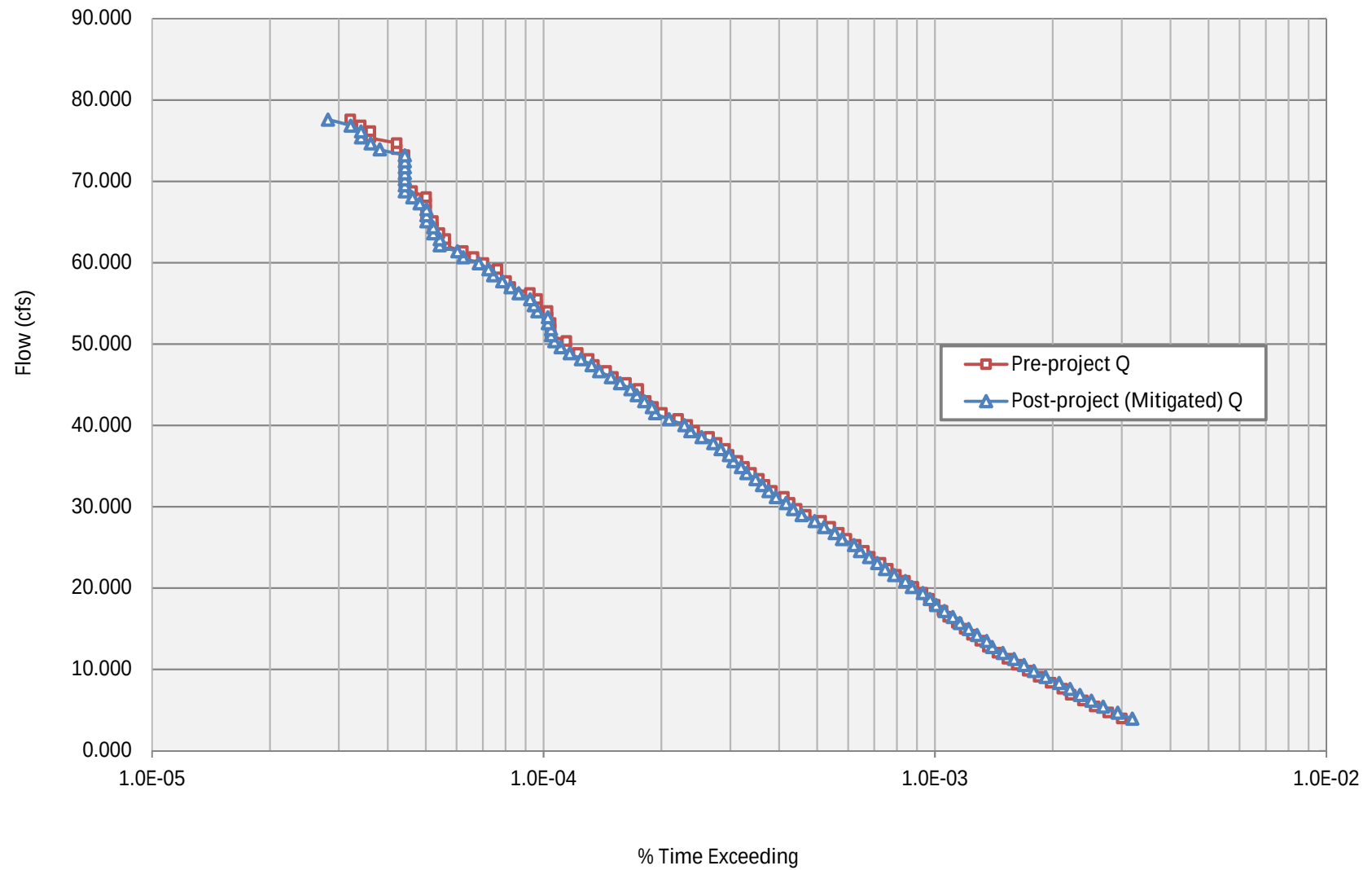
Total Hourly Data: 497370 hours

The proposed BMP: PASSED

| Interval | Pre-project Flow (cfs) | Pre-project Hours | Pre-project % Time Exceeding | Post-project Hours | Post-project % Time Exceeding | Percentage | Pass/Fail |
|----------|------------------------|-------------------|------------------------------|--------------------|-------------------------------|------------|-----------|
| 0        | 3.922                  | 1496              | 3.01E-03                     | 1588               | 3.19E-03                      | 106%       | Pass      |
| 1        | 4.659                  | 1381              | 2.78E-03                     | 1457               | 2.93E-03                      | 106%       | Pass      |
| 2        | 5.395                  | 1275              | 2.56E-03                     | 1338               | 2.69E-03                      | 105%       | Pass      |
| 3        | 6.132                  | 1190              | 2.39E-03                     | 1249               | 2.51E-03                      | 105%       | Pass      |
| 4        | 6.869                  | 1108              | 2.23E-03                     | 1167               | 2.35E-03                      | 105%       | Pass      |
| 5        | 7.605                  | 1055              | 2.12E-03                     | 1101               | 2.21E-03                      | 104%       | Pass      |
| 6        | 8.342                  | 985               | 1.98E-03                     | 1032               | 2.07E-03                      | 105%       | Pass      |
| 7        | 9.078                  | 918               | 1.85E-03                     | 954                | 1.92E-03                      | 104%       | Pass      |
| 8        | 9.815                  | 860               | 1.73E-03                     | 890                | 1.79E-03                      | 103%       | Pass      |
| 9        | 10.552                 | 807               | 1.62E-03                     | 839                | 1.69E-03                      | 104%       | Pass      |
| 10       | 11.288                 | 763               | 1.53E-03                     | 792                | 1.59E-03                      | 104%       | Pass      |
| 11       | 12.025                 | 720               | 1.45E-03                     | 741                | 1.49E-03                      | 103%       | Pass      |
| 12       | 12.761                 | 680               | 1.37E-03                     | 696                | 1.40E-03                      | 102%       | Pass      |
| 13       | 13.498                 | 651               | 1.31E-03                     | 674                | 1.36E-03                      | 104%       | Pass      |
| 14       | 14.235                 | 620               | 1.25E-03                     | 637                | 1.28E-03                      | 103%       | Pass      |
| 15       | 14.971                 | 594               | 1.19E-03                     | 607                | 1.22E-03                      | 102%       | Pass      |
| 16       | 15.708                 | 567               | 1.14E-03                     | 576                | 1.16E-03                      | 102%       | Pass      |
| 17       | 16.444                 | 539               | 1.08E-03                     | 552                | 1.11E-03                      | 102%       | Pass      |
| 18       | 17.181                 | 521               | 1.05E-03                     | 526                | 1.06E-03                      | 101%       | Pass      |
| 19       | 17.918                 | 498               | 1.00E-03                     | 501                | 1.01E-03                      | 101%       | Pass      |
| 20       | 18.654                 | 481               | 9.67E-04                     | 483                | 9.71E-04                      | 100%       | Pass      |
| 21       | 19.391                 | 463               | 9.31E-04                     | 463                | 9.31E-04                      | 100%       | Pass      |
| 22       | 20.127                 | 439               | 8.83E-04                     | 434                | 8.73E-04                      | 99%        | Pass      |
| 23       | 20.864                 | 418               | 8.40E-04                     | 418                | 8.40E-04                      | 100%       | Pass      |
| 24       | 21.601                 | 396               | 7.96E-04                     | 391                | 7.86E-04                      | 99%        | Pass      |
| 25       | 22.337                 | 378               | 7.60E-04                     | 371                | 7.46E-04                      | 98%        | Pass      |
| 26       | 23.074                 | 362               | 7.28E-04                     | 354                | 7.12E-04                      | 98%        | Pass      |
| 27       | 23.810                 | 340               | 6.84E-04                     | 338                | 6.80E-04                      | 99%        | Pass      |
| 28       | 24.547                 | 328               | 6.59E-04                     | 320                | 6.43E-04                      | 98%        | Pass      |
| 29       | 25.284                 | 313               | 6.29E-04                     | 309                | 6.21E-04                      | 99%        | Pass      |
| 30       | 26.020                 | 296               | 5.95E-04                     | 288                | 5.79E-04                      | 97%        | Pass      |
| 31       | 26.757                 | 283               | 5.69E-04                     | 276                | 5.55E-04                      | 98%        | Pass      |
| 32       | 27.493                 | 269               | 5.41E-04                     | 259                | 5.21E-04                      | 96%        | Pass      |
| 33       | 28.230                 | 255               | 5.13E-04                     | 245                | 4.93E-04                      | 96%        | Pass      |
| 34       | 28.967                 | 233               | 4.68E-04                     | 227                | 4.56E-04                      | 97%        | Pass      |
| 35       | 29.703                 | 221               | 4.44E-04                     | 216                | 4.34E-04                      | 98%        | Pass      |
| 36       | 30.440                 | 212               | 4.26E-04                     | 207                | 4.16E-04                      | 98%        | Pass      |
| 37       | 31.176                 | 205               | 4.12E-04                     | 195                | 3.92E-04                      | 95%        | Pass      |
| 38       | 31.913                 | 191               | 3.84E-04                     | 187                | 3.76E-04                      | 98%        | Pass      |
| 39       | 32.650                 | 183               | 3.68E-04                     | 180                | 3.62E-04                      | 98%        | Pass      |
| 40       | 33.386                 | 177               | 3.56E-04                     | 173                | 3.48E-04                      | 98%        | Pass      |
| 41       | 34.123                 | 169               | 3.40E-04                     | 164                | 3.30E-04                      | 97%        | Pass      |
| 42       | 34.859                 | 162               | 3.26E-04                     | 159                | 3.20E-04                      | 98%        | Pass      |
| 43       | 35.596                 | 156               | 3.14E-04                     | 152                | 3.06E-04                      | 97%        | Pass      |
| 44       | 36.333                 | 148               | 2.98E-04                     | 148                | 2.98E-04                      | 100%       | Pass      |
| 45       | 37.069                 | 145               | 2.92E-04                     | 141                | 2.83E-04                      | 97%        | Pass      |
| 46       | 37.806                 | 138               | 2.77E-04                     | 135                | 2.71E-04                      | 98%        | Pass      |
| 47       | 38.542                 | 132               | 2.65E-04                     | 126                | 2.53E-04                      | 95%        | Pass      |
| 48       | 39.279                 | 121               | 2.43E-04                     | 118                | 2.37E-04                      | 98%        | Pass      |

| Interval | Pre-project Flow<br>(cfs) | Pre-project Hours | Pre-project %<br>Time Exceeding | Post-project<br>Hours | Post-project %<br>Time Exceeding | Percentage | Pass/Fail |
|----------|---------------------------|-------------------|---------------------------------|-----------------------|----------------------------------|------------|-----------|
| 49       | 40.016                    | 116               | 2.33E-04                        | 114                   | 2.29E-04                         | 98%        | Pass      |
| 50       | 40.752                    | 110               | 2.21E-04                        | 104                   | 2.09E-04                         | 95%        | Pass      |
| 51       | 41.489                    | 100               | 2.01E-04                        | 96                    | 1.93E-04                         | 96%        | Pass      |
| 52       | 42.225                    | 95                | 1.91E-04                        | 94                    | 1.89E-04                         | 99%        | Pass      |
| 53       | 42.962                    | 91                | 1.83E-04                        | 90                    | 1.81E-04                         | 99%        | Pass      |
| 54       | 43.699                    | 87                | 1.75E-04                        | 86                    | 1.73E-04                         | 99%        | Pass      |
| 55       | 44.435                    | 87                | 1.75E-04                        | 83                    | 1.67E-04                         | 95%        | Pass      |
| 56       | 45.172                    | 81                | 1.63E-04                        | 78                    | 1.57E-04                         | 96%        | Pass      |
| 57       | 45.908                    | 75                | 1.51E-04                        | 74                    | 1.49E-04                         | 99%        | Pass      |
| 58       | 46.645                    | 72                | 1.45E-04                        | 69                    | 1.39E-04                         | 96%        | Pass      |
| 59       | 47.382                    | 67                | 1.35E-04                        | 66                    | 1.33E-04                         | 99%        | Pass      |
| 60       | 48.118                    | 65                | 1.31E-04                        | 62                    | 1.25E-04                         | 95%        | Pass      |
| 61       | 48.855                    | 61                | 1.23E-04                        | 58                    | 1.17E-04                         | 95%        | Pass      |
| 62       | 49.591                    | 57                | 1.15E-04                        | 55                    | 1.11E-04                         | 96%        | Pass      |
| 63       | 50.328                    | 57                | 1.15E-04                        | 53                    | 1.07E-04                         | 93%        | Pass      |
| 64       | 51.065                    | 52                | 1.05E-04                        | 52                    | 1.05E-04                         | 100%       | Pass      |
| 65       | 51.801                    | 52                | 1.05E-04                        | 52                    | 1.05E-04                         | 100%       | Pass      |
| 66       | 52.538                    | 52                | 1.05E-04                        | 51                    | 1.03E-04                         | 98%        | Pass      |
| 67       | 53.274                    | 51                | 1.03E-04                        | 51                    | 1.03E-04                         | 100%       | Pass      |
| 68       | 54.011                    | 51                | 1.03E-04                        | 48                    | 9.65E-05                         | 94%        | Pass      |
| 69       | 54.748                    | 48                | 9.65E-05                        | 47                    | 9.45E-05                         | 98%        | Pass      |
| 70       | 55.484                    | 48                | 9.65E-05                        | 46                    | 9.25E-05                         | 96%        | Pass      |
| 71       | 56.221                    | 46                | 9.25E-05                        | 43                    | 8.65E-05                         | 93%        | Pass      |
| 72       | 56.957                    | 41                | 8.24E-05                        | 41                    | 8.24E-05                         | 100%       | Pass      |
| 73       | 57.694                    | 40                | 8.04E-05                        | 39                    | 7.84E-05                         | 98%        | Pass      |
| 74       | 58.431                    | 38                | 7.64E-05                        | 37                    | 7.44E-05                         | 97%        | Pass      |
| 75       | 59.167                    | 38                | 7.64E-05                        | 36                    | 7.24E-05                         | 95%        | Pass      |
| 76       | 59.904                    | 35                | 7.04E-05                        | 34                    | 6.84E-05                         | 97%        | Pass      |
| 77       | 60.641                    | 33                | 6.63E-05                        | 31                    | 6.23E-05                         | 94%        | Pass      |
| 78       | 61.377                    | 31                | 6.23E-05                        | 30                    | 6.03E-05                         | 97%        | Pass      |
| 79       | 62.114                    | 28                | 5.63E-05                        | 27                    | 5.43E-05                         | 96%        | Pass      |
| 80       | 62.850                    | 28                | 5.63E-05                        | 27                    | 5.43E-05                         | 96%        | Pass      |
| 81       | 63.587                    | 27                | 5.43E-05                        | 26                    | 5.23E-05                         | 96%        | Pass      |
| 82       | 64.324                    | 26                | 5.23E-05                        | 26                    | 5.23E-05                         | 100%       | Pass      |
| 83       | 65.060                    | 26                | 5.23E-05                        | 25                    | 5.03E-05                         | 96%        | Pass      |
| 84       | 65.797                    | 25                | 5.03E-05                        | 25                    | 5.03E-05                         | 100%       | Pass      |
| 85       | 66.533                    | 25                | 5.03E-05                        | 25                    | 5.03E-05                         | 100%       | Pass      |
| 86       | 67.270                    | 25                | 5.03E-05                        | 24                    | 4.83E-05                         | 96%        | Pass      |
| 87       | 68.007                    | 25                | 5.03E-05                        | 23                    | 4.62E-05                         | 92%        | Pass      |
| 88       | 68.743                    | 23                | 4.62E-05                        | 22                    | 4.42E-05                         | 96%        | Pass      |
| 89       | 69.480                    | 22                | 4.42E-05                        | 22                    | 4.42E-05                         | 100%       | Pass      |
| 90       | 70.216                    | 22                | 4.42E-05                        | 22                    | 4.42E-05                         | 100%       | Pass      |
| 91       | 70.953                    | 22                | 4.42E-05                        | 22                    | 4.42E-05                         | 100%       | Pass      |
| 92       | 71.690                    | 22                | 4.42E-05                        | 22                    | 4.42E-05                         | 100%       | Pass      |
| 93       | 72.426                    | 22                | 4.42E-05                        | 22                    | 4.42E-05                         | 100%       | Pass      |
| 94       | 73.163                    | 22                | 4.42E-05                        | 22                    | 4.42E-05                         | 100%       | Pass      |
| 95       | 73.899                    | 21                | 4.22E-05                        | 19                    | 3.82E-05                         | 90%        | Pass      |
| 96       | 74.636                    | 21                | 4.22E-05                        | 18                    | 3.62E-05                         | 86%        | Pass      |
| 97       | 75.373                    | 18                | 3.62E-05                        | 17                    | 3.42E-05                         | 94%        | Pass      |
| 98       | 76.109                    | 18                | 3.62E-05                        | 17                    | 3.42E-05                         | 94%        | Pass      |
| 99       | 76.846                    | 17                | 3.42E-05                        | 16                    | 3.22E-05                         | 94%        | Pass      |
| 100      | 77.582                    | 16                | 3.22E-05                        | 14                    | 2.81E-05                         | 88%        | Pass      |

# Flow Duration Curve - POC-7 [Pre vs. Post (Mitigated)]



#### **IV. ELEVATION VS DISCHARGE, ELEVATION VS AREA, DRAWDOWN, SWMM INPUT PARAMETER CALCULATIONS**

##### Elevation vs. Area

For the flow diverted each respective receiving detention basin, a pond is used to route the hydrographs. The elevation vs area curve in the model is calculated in Excel and imported into the model at a 0.05- 1 ft. interval range.

##### Elevation vs Discharge

The total discharge peak flow data is imported from an Excel spreadsheet that calculated the elevation vs discharge of the multiple outlet system for each basin.

The orifices have been selected to maximize their size while still restricting flows to conform to the required 10% of the Q2 event flow as mandated in the Final Hydromodification Management Plan by Brown & Caldwell, dated March 2011. While we acknowledge that these orifices may be small, increasing the size of these outlets would impact the ability of the basins to restrict flows beneath the HMP thresholds, thus preventing the BMP from conforming with the HMP requirements.

In order to prevent blockage of the orifices, a debris screen will be fitted to the base invert of the lower orifices located within each basin. Regular maintenance of the riser and orifices will be performed to ensure potential blockages are minimized. A detail of the orifice and riser structure is provided in Section 3 of this attachment. The stage-storage and stage-discharge calculations have been provided on the following pages.

Otay Ranch Village 14 BF-2-1

Discharge vs Elevation Table

|                          |         |                       |           |
|--------------------------|---------|-----------------------|-----------|
| Bottom orifice diameter: | 6 "     | Top orifice diameter: | 6 "       |
| Number:                  | 1       | Number:               | 1         |
| Cg-low:                  | 0.61    | Cg-low:               | 0.61      |
| Invert elev:             | 0.50 ft | Invert elev:          | 3.00 ft   |
| Middle orifice diameter: | 1 "     | Emergency weir:       |           |
| number of orif:          | 0       | Invert:               | 4.00 ft   |
| Cg-middle:               | 0.61    | Weir Length (ft)      | 40.0 ft   |
| Invert elev:             | 1.50 ft |                       | 10x10 box |

| h<br>(ft) | H/D-low<br>- | H/D-mid<br>- | H/D-top<br>- | H/D-peak<br>- | Qlow-orif<br>(cfs) | Qlow-weir<br>(cfs) | Qtot-low<br>(cfs) | Qmid-orif<br>(cfs) | Qmid-weir<br>(cfs) | Qtot-med<br>(cfs) | Qtop-orif<br>(cfs) | Qtop-weir<br>(cfs) | Qtot-top<br>(cfs) | Qpeak-top<br>(cfs) | Qtot<br>(cfs) | Qtot w/SubDrain<br>(cfs) |
|-----------|--------------|--------------|--------------|---------------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|---------------|--------------------------|
| 0         | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.972                    |
| 0.05      | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.972                    |
| 0.1       | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.972                    |
| 0.15      | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.972                    |
| 0.2       | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.972                    |
| 0.25      | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.972                    |
| 0.3       | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.972                    |
| 0.35      | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.972                    |
| 0.4       | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.972                    |
| 0.45      | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.972                    |
| 0.5       | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.972                    |
| 0.55      | 0.10         | 0.00         | 0.00         | 0.00          | 0.00               | 0.01               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0061        | 0.978                    |
| 0.6       | 0.20         | 0.00         | 0.00         | 0.00          | 0.00               | 0.02               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0235        | 0.995                    |
| 0.65      | 0.30         | 0.00         | 0.00         | 0.00          | 0.00               | 0.05               | 0.05              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0514        | 1.023                    |
| 0.7       | 0.40         | 0.00         | 0.00         | 0.00          | 0.00               | 0.09               | 0.09              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0891        | 1.061                    |
| 0.75      | 0.50         | 0.00         | 0.00         | 0.00          | 0.00               | 0.14               | 0.14              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.1355        | 1.107                    |
| 0.8       | 0.60         | 0.00         | 0.00         | 0.00          | 0.21               | 0.19               | 0.19              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.1895        | 1.161                    |
| 0.85      | 0.70         | 0.00         | 0.00         | 0.00          | 0.30               | 0.25               | 0.25              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2501        | 1.222                    |
| 0.9       | 0.80         | 0.00         | 0.00         | 0.00          | 0.37               | 0.32               | 0.32              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3161        | 1.288                    |
| 0.95      | 0.90         | 0.00         | 0.00         | 0.00          | 0.43               | 0.39               | 0.39              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3861        | 1.358                    |
| 1         | 1.00         | 0.00         | 0.00         | 0.00          | 0.48               | 0.46               | 0.46              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.4592        | 1.431                    |
| 1.05      | 1.10         | 0.00         | 0.00         | 0.00          | 0.53               | 0.53               | 0.53              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.5265        | 1.498                    |
| 1.1       | 1.20         | 0.00         | 0.00         | 0.00          | 0.57               | 0.61               | 0.57              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.5886        | 1.540                    |
| 1.15      | 1.30         | 0.00         | 0.00         | 0.00          | 0.61               | 0.68               | 0.61              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.6079        | 1.580                    |
| 1.2       | 1.40         | 0.00         | 0.00         | 0.00          | 0.64               | 0.76               | 0.64              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.6448        | 1.617                    |
| 1.25      | 1.50         | 0.00         | 0.00         | 0.00          | 0.68               | 0.83               | 0.68              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.6797        | 1.651                    |
| 1.3       | 1.60         | 0.00         | 0.00         | 0.00          | 0.71               | 0.89               | 0.71              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.7128        | 1.685                    |
| 1.35      | 1.70         | 0.00         | 0.00         | 0.00          | 0.74               | 0.95               | 0.74              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.7445        | 1.716                    |
| 1.4       | 1.80         | 0.00         | 0.00         | 0.00          | 0.77               | 1.01               | 0.77              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.7749        | 1.747                    |
| 1.45      | 1.90         | 0.00         | 0.00         | 0.00          | 0.80               | 1.06               | 0.80              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.8042        | 1.776                    |
| 1.5       | 2.00         | 0.00         | 0.00         | 0.00          | 0.83               | 1.11               | 0.83              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.8324        | 1.804                    |
| 1.55      | 2.10         | 0.60         | 0.00         | 0.00          | 0.86               | 1.14               | 0.86              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.8597        | 1.832                    |
| 1.6       | 2.20         | 1.20         | 0.00         | 0.00          | 0.89               | 1.17               | 0.89              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.8862        | 1.858                    |
| 1.65      | 2.30         | 1.80         | 0.00         | 0.00          | 0.91               | 1.20               | 0.91              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.9119        | 1.884                    |
| 1.7       | 2.40         | 2.40         | 0.00         | 0.00          | 0.94               | 1.22               | 0.94              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.9368        | 1.909                    |
| 1.75      | 2.50         | 3.00         | 0.00         | 0.00          | 0.96               | 1.23               | 0.96              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.9612        | 1.933                    |
| 1.8       | 2.60         | 3.60         | 0.00         | 0.00          | 0.98               | 1.24               | 0.98              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.9849        | 1.957                    |
| 1.85      | 2.70         | 4.20         | 0.00         | 0.00          | 1.01               | 1.24               | 1.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.0081        | 1.980                    |
| 1.9       | 2.80         | 4.80         | 0.00         | 0.00          | 1.03               | 1.24               | 1.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.0307        | 2.003                    |
| 1.95      | 2.90         | 5.40         | 0.00         | 0.00          | 1.05               | 1.24               | 1.05              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.0529        | 2.025                    |
| 2         | 3.00         | 6.00         | 0.00         | 0.00          | 1.07               | 1.25               | 1.07              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.0746        | 2.046                    |
| 2.05      | 3.10         | 6.60         | 0.00         | 0.00          | 1.10               | 1.26               | 1.10              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.0959        | 2.068                    |
| 2.1       | 3.20         | 7.20         | 0.00         | 0.00          | 1.12               | 1.27               | 1.12              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.1168        | 2.089                    |
| 2.15      | 3.30         | 7.80         | 0.00         | 0.00          | 1.14               | 1.29               | 1.14              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.1373        | 2.109                    |
| 2.2       | 3.40         | 8.40         | 0.00         | 0.00          | 1.16               | 1.33               | 1.16              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.1574        | 2.129                    |
| 2.25      | 3.50         | 9.00         | 0.00         | 0.00          | 1.18               | 1.38               | 1.18              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.1772        | 2.149                    |
| 2.3       | 3.60         | 9.60         | 0.00         | 0.00          | 1.20               | 1.46               | 1.20              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.1967        | 2.168                    |
| 2.35      | 3.70         | 10.20        | 0.00         | 0.00          | 1.22               | 1.56               | 1.22              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.2158        | 2.188                    |
| 2.4       | 3.80         | 10.80        | 0.00         | 0.00          | 1.23               | 1.70               | 1.23              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.2347        | 2.206                    |
| 2.45      | 3.90         | 11.40        | 0.00         | 0.00          | 1.25               | 1.87               | 1.25              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.2532        | 2.225                    |
| 2.5       | 4.00         | 12.00        | 0.00         | 0.00          | 1.27               | 2.09               | 1.27              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.2715        | 2.243                    |
| 2.55      | 4.10         | 12.60        | 0.00         | 0.00          | 1.29               | 2.35               | 1.29              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.2896        | 2.261                    |
| 2.6       | 4.20         | 13.20        | 0.00         | 0.00          | 1.31               | 2.68               | 1.31              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.3073        | 2.279                    |
| 2.65      | 4.30         | 13.80        | 0.00         | 0.00          | 1.32               | 3.07               | 1.32              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.3249        | 2.297                    |
| 2.7       | 4.40         | 14.40        | 0.00         | 0.00          | 1.34               | 3.53               | 1.34              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.3422        | 2.314                    |
| 2.75      | 4.50         | 15.00        | 0.00         | 0.00          | 1.36               | 4.08               | 1.36              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.3593        | 2.331                    |
| 2.8       | 4.60         | 15.60        | 0.00         | 0.00          | 1.38               | 4.72               | 1.38              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.3762        | 2.348                    |
| 2.85      | 4.70         | 16.20        | 0.00         | 0.00          | 1.39               | 5.46               | 1.39              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.3929        | 2.365                    |
| 2.9       | 4.80         | 16.80        | 0.00         | 0.00          | 1.41               | 6.32               | 1.41              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.4094        | 2.381                    |
| 2.95      | 4.90         | 17.40        | 0.00         | 0.00          | 1.43               | 7.30               | 1.43              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.4257        | 2.397                    |
| 3         | 5.00         | 18.00        | 0.00         | 0.00          | 1.44               | 8.42               | 1.44              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 1.4418        | 2.414                    |
| 3.05      | 5.10         | 18.60        | 0.10         | 0.00          | 1.46               | 9.68               | 1.46              | 0.00               | 0.00               | 0.00              | 0.00               | 0.01               | 0.01              | 0.00               | 1.4638        | 2.436                    |
| 3.1       | 5.20         | 19.20        | 0.20         | 0.00          | 1.47               | 11.11              | 1.47              | 0.00               | 0.00               | 0.00              | 0.00               | 0.02               | 0.02              | 0.00               | 1.4969        | 2.469                    |
| 3.15      | 5.30         | 19.80        | 0.30         | 0.00          | 1.49               | 12.72              | 1.49              | 0.00               | 0.00               | 0.00              | 0.00               | 0.05               | 0.05              | 0.00               | 1.5405        | 2.512                    |
| 3.2       | 5.40         |              |              |               |                    |                    |                   |                    |                    |                   |                    |                    |                   |                    |               |                          |

Otay Ranch Village 14 BF-2-1

Discharge vs Elevation Table

|                          |         |                       |           |
|--------------------------|---------|-----------------------|-----------|
| Bottom orifice diameter: | 6 "     | Top orifice diameter: | 6 "       |
| Number:                  | 1       | Number:               | 1         |
| Cg-low:                  | 0.61    | Cg-low:               | 0.61      |
| Invert elev:             | 0.50 ft | Invert elev:          | 3.00 ft   |
| Middle orifice diameter: | 1 "     | Emergency weir:       |           |
| number of orif:          | 0       | Invert:               | 4.00 ft   |
| Cg-middle:               | 0.61    | Weir Length (ft)      | 40.0 ft   |
| Invert elev:             | 1.50 ft |                       | 10x10 box |

|      |       |       |      |      |      |         |      |      |      |      |      |       |      |        |          |         |
|------|-------|-------|------|------|------|---------|------|------|------|------|------|-------|------|--------|----------|---------|
| 4.6  | 8.20  | 37.20 | 3.20 | 0.18 | 1.89 | 230.35  | 1.89 | 0.00 | 0.00 | 0.00 | 1.12 | 1.27  | 1.12 | 61.91  | 64.9085  | 65.880  |
| 4.65 | 8.30  | 37.80 | 3.30 | 0.20 | 1.90 | 248.15  | 1.90 | 0.00 | 0.00 | 0.00 | 1.14 | 1.29  | 1.14 | 69.80  | 72.8385  | 73.810  |
| 4.7  | 8.40  | 38.40 | 3.40 | 0.21 | 1.91 | 267.01  | 1.91 | 0.00 | 0.00 | 0.00 | 1.16 | 1.33  | 1.16 | 78.01  | 81.0779  | 82.050  |
| 4.75 | 8.50  | 39.00 | 3.50 | 0.23 | 1.92 | 286.98  | 1.92 | 0.00 | 0.00 | 0.00 | 1.18 | 1.38  | 1.18 | 86.52  | 89.6155  | 90.587  |
| 4.8  | 8.60  | 39.60 | 3.60 | 0.24 | 1.93 | 308.12  | 1.93 | 0.00 | 0.00 | 0.00 | 1.20 | 1.46  | 1.20 | 95.31  | 98.4411  | 99.413  |
| 4.85 | 8.70  | 40.20 | 3.70 | 0.26 | 1.95 | 330.46  | 1.95 | 0.00 | 0.00 | 0.00 | 1.22 | 1.56  | 1.22 | 104.38 | 107.5457 | 108.518 |
| 4.9  | 8.80  | 40.80 | 3.80 | 0.27 | 1.96 | 354.06  | 1.96 | 0.00 | 0.00 | 0.00 | 1.23 | 1.70  | 1.23 | 113.73 | 116.9209 | 117.893 |
| 4.95 | 8.90  | 41.40 | 3.90 | 0.29 | 1.97 | 378.97  | 1.97 | 0.00 | 0.00 | 0.00 | 1.25 | 1.87  | 1.25 | 123.34 | 126.5590 | 127.531 |
| 5    | 9.00  | 42.00 | 4.00 | 0.30 | 1.98 | 405.24  | 1.98 | 0.00 | 0.00 | 0.00 | 1.27 | 2.09  | 1.27 | 133.20 | 136.4530 | 137.425 |
| 5.05 | 9.10  | 42.60 | 4.10 | 0.32 | 1.99 | 432.93  | 1.99 | 0.00 | 0.00 | 0.00 | 1.29 | 2.35  | 1.29 | 143.31 | 146.5965 | 147.568 |
| 5.1  | 9.20  | 43.20 | 4.20 | 0.33 | 2.00 | 462.09  | 2.00 | 0.00 | 0.00 | 0.00 | 1.31 | 2.68  | 1.31 | 153.67 | 156.9835 | 157.955 |
| 5.15 | 9.30  | 43.80 | 4.30 | 0.35 | 2.02 | 492.78  | 2.02 | 0.00 | 0.00 | 0.00 | 1.32 | 3.07  | 1.32 | 164.27 | 167.6083 | 168.580 |
| 5.2  | 9.40  | 44.40 | 4.40 | 0.36 | 2.03 | 525.06  | 2.03 | 0.00 | 0.00 | 0.00 | 1.34 | 3.53  | 1.34 | 175.10 | 178.4658 | 179.438 |
| 5.25 | 9.50  | 45.00 | 4.50 | 0.38 | 2.04 | 558.98  | 2.04 | 0.00 | 0.00 | 0.00 | 1.36 | 4.08  | 1.36 | 186.15 | 189.5509 | 190.523 |
| 5.3  | 9.60  | 45.60 | 4.60 | 0.39 | 2.05 | 594.60  | 2.05 | 0.00 | 0.00 | 0.00 | 1.38 | 4.72  | 1.38 | 197.43 | 200.8592 | 201.831 |
| 5.35 | 9.70  | 46.20 | 4.70 | 0.41 | 2.06 | 632.00  | 2.06 | 0.00 | 0.00 | 0.00 | 1.39 | 5.46  | 1.39 | 208.93 | 212.3863 | 213.358 |
| 5.4  | 9.80  | 46.80 | 4.80 | 0.42 | 2.07 | 671.23  | 2.07 | 0.00 | 0.00 | 0.00 | 1.41 | 6.32  | 1.41 | 220.65 | 224.1281 | 225.100 |
| 5.45 | 9.90  | 47.40 | 4.90 | 0.43 | 2.08 | 712.37  | 2.08 | 0.00 | 0.00 | 0.00 | 1.43 | 7.30  | 1.43 | 232.57 | 236.0808 | 237.053 |
| 5.5  | 10.00 | 48.00 | 5.00 | 0.45 | 2.09 | 755.46  | 2.09 | 0.00 | 0.00 | 0.00 | 1.44 | 8.42  | 1.44 | 244.70 | 248.2406 | 249.212 |
| 5.55 | 10.10 | 48.60 | 5.10 | 0.46 | 2.11 | 800.60  | 2.11 | 0.00 | 0.00 | 0.00 | 1.46 | 9.68  | 1.46 | 257.04 | 260.6042 | 261.576 |
| 5.6  | 10.20 | 49.20 | 5.20 | 0.48 | 2.12 | 847.83  | 2.12 | 0.00 | 0.00 | 0.00 | 1.47 | 11.11 | 1.47 | 269.58 | 273.1681 | 274.140 |
| 5.65 | 10.30 | 49.80 | 5.30 | 0.49 | 2.13 | 897.25  | 2.13 | 0.00 | 0.00 | 0.00 | 1.49 | 12.72 | 1.49 | 282.31 | 285.9292 | 286.901 |
| 5.7  | 10.40 | 50.40 | 5.40 | 0.51 | 2.14 | 948.91  | 2.14 | 0.00 | 0.00 | 0.00 | 1.50 | 14.52 | 1.50 | 295.24 | 298.8846 | 299.856 |
| 5.75 | 10.50 | 51.00 | 5.50 | 0.52 | 2.15 | 1002.90 | 2.15 | 0.00 | 0.00 | 0.00 | 1.52 | 16.53 | 1.52 | 308.36 | 312.0313 | 313.003 |
| 5.8  | 10.60 | 51.60 | 5.60 | 0.54 | 2.16 | 1059.29 | 2.16 | 0.00 | 0.00 | 0.00 | 1.53 | 18.77 | 1.53 | 321.67 | 325.3666 | 326.338 |
| 5.85 | 10.70 | 52.20 | 5.70 | 0.55 | 2.17 | 1118.16 | 2.17 | 0.00 | 0.00 | 0.00 | 1.55 | 21.25 | 1.55 | 335.17 | 338.8879 | 339.860 |
| 5.9  | 10.80 | 52.80 | 5.80 | 0.57 | 2.18 | 1179.58 | 2.18 | 0.00 | 0.00 | 0.00 | 1.56 | 23.98 | 1.56 | 348.85 | 352.5926 | 353.564 |
| 5.95 | 10.90 | 53.40 | 5.90 | 0.58 | 2.19 | 1243.65 | 2.19 | 0.00 | 0.00 | 0.00 | 1.58 | 27.00 | 1.58 | 362.71 | 366.4784 | 367.450 |
| 6    | 11.00 | 54.00 | 6.00 | 0.60 | 2.20 | 1310.44 | 2.20 | 0.00 | 0.00 | 0.00 | 1.59 | 30.31 | 1.59 | 376.75 | 380.5428 | 381.515 |

Otay Ranch Village 14 BF-2-1

Stage vs Area Table

| depth | area   | area (ac) | elevation | volume (cf) | volume (ac-ft) |
|-------|--------|-----------|-----------|-------------|----------------|
| 0.00  | 177707 | 4.080     | 0         | 0           | 0              |
| 0.05  | 177960 | 4.085     | 0.05      | 8892        | 0.2041         |
| 0.10  | 178213 | 4.091     | 0.10      | 17796       | 0.4085         |
| 0.15  | 178467 | 4.097     | 0.15      | 26713       | 0.6132         |
| 0.20  | 178720 | 4.103     | 0.20      | 35643       | 0.8182         |
| 0.25  | 178974 | 4.109     | 0.25      | 44585       | 1.0235         |
| 0.30  | 179228 | 4.115     | 0.30      | 53540       | 1.2291         |
| 0.35  | 179482 | 4.120     | 0.35      | 62508       | 1.4350         |
| 0.40  | 179736 | 4.126     | 0.40      | 71488       | 1.6411         |
| 0.45  | 179991 | 4.132     | 0.45      | 80481       | 1.8476         |
| 0.50  | 180245 | 4.138     | 0.50      | 89487       | 2.0543         |
| 0.55  | 180500 | 4.144     | 0.55      | 98506       | 2.2614         |
| 0.60  | 180755 | 4.150     | 0.60      | 107537      | 2.4687         |
| 0.65  | 181010 | 4.155     | 0.65      | 116581      | 2.6763         |
| 0.70  | 181266 | 4.161     | 0.70      | 125638      | 2.8843         |
| 0.75  | 181521 | 4.167     | 0.75      | 134708      | 3.0925         |
| 0.80  | 181777 | 4.173     | 0.80      | 143791      | 3.3010         |
| 0.85  | 182033 | 4.179     | 0.85      | 152886      | 3.5098         |
| 0.90  | 182289 | 4.185     | 0.90      | 161994      | 3.7189         |
| 0.95  | 182545 | 4.191     | 0.95      | 171115      | 3.9283         |
| 1.00  | 182802 | 4.197     | 1.00      | 180248      | 4.1379         |
| 1.05  | 183058 | 4.202     | 1.05      | 189395      | 4.3479         |
| 1.10  | 183315 | 4.208     | 1.10      | 198554      | 4.5582         |
| 1.15  | 183572 | 4.214     | 1.15      | 207726      | 4.7687         |
| 1.20  | 183829 | 4.220     | 1.20      | 216911      | 4.9796         |
| 1.25  | 184087 | 4.226     | 1.25      | 226109      | 5.1908         |
| 1.30  | 184344 | 4.232     | 1.30      | 235320      | 5.4022         |
| 1.35  | 184602 | 4.238     | 1.35      | 244544      | 5.6140         |
| 1.40  | 184860 | 4.244     | 1.40      | 253780      | 5.8260         |
| 1.45  | 185118 | 4.250     | 1.45      | 263030      | 6.0383         |
| 1.50  | 185376 | 4.256     | 1.50      | 272292      | 6.2510         |
| 1.55  | 185634 | 4.262     | 1.55      | 281567      | 6.4639         |
| 1.60  | 185893 | 4.268     | 1.60      | 290855      | 6.6771         |
| 1.65  | 186152 | 4.273     | 1.65      | 300157      | 6.8906         |
| 1.70  | 186411 | 4.279     | 1.70      | 309471      | 7.1045         |
| 1.75  | 186670 | 4.285     | 1.75      | 318798      | 7.3186         |
| 1.80  | 186929 | 4.291     | 1.80      | 328138      | 7.5330         |
| 1.85  | 187189 | 4.297     | 1.85      | 337491      | 7.7477         |
| 1.90  | 187448 | 4.303     | 1.90      | 346856      | 7.9627         |
| 1.95  | 187708 | 4.309     | 1.95      | 356235      | 8.1780         |
| 2.00  | 187968 | 4.315     | 2.00      | 365627      | 8.3936         |
| 2.05  | 188228 | 4.321     | 2.05      | 375032      | 8.6096         |
| 2.10  | 188489 | 4.327     | 2.10      | 384450      | 8.8258         |
| 2.15  | 188749 | 4.333     | 2.15      | 393881      | 9.0423         |
| 2.20  | 189010 | 4.339     | 2.20      | 403325      | 9.2591         |
| 2.25  | 189271 | 4.345     | 2.25      | 412782      | 9.4762         |
| 2.30  | 189532 | 4.351     | 2.30      | 422252      | 9.6936         |
| 2.35  | 189794 | 4.357     | 2.35      | 431735      | 9.9113         |
| 2.40  | 190055 | 4.363     | 2.40      | 441232      | 10.1293        |
| 2.45  | 190317 | 4.369     | 2.45      | 450741      | 10.3476        |
| 2.50  | 190579 | 4.375     | 2.50      | 460263      | 10.5662        |
| 2.55  | 190841 | 4.381     | 2.55      | 469799      | 10.7851        |
| 2.60  | 191103 | 4.387     | 2.60      | 479347      | 11.0043        |
| 2.65  | 191365 | 4.393     | 2.65      | 488909      | 11.2238        |
| 2.70  | 191628 | 4.399     | 2.70      | 498484      | 11.4436        |
| 2.75  | 191891 | 4.405     | 2.75      | 508072      | 11.6637        |
| 2.80  | 192153 | 4.411     | 2.80      | 517673      | 11.8841        |
| 2.85  | 192417 | 4.417     | 2.85      | 527287      | 12.1048        |
| 2.90  | 192680 | 4.423     | 2.90      | 536915      | 12.3259        |
| 2.95  | 192943 | 4.429     | 2.95      | 546555      | 12.5472        |
| 3.00  | 193207 | 4.435     | 3.00      | 556209      | 12.7688        |

|      |        |       |      |         |         |
|------|--------|-------|------|---------|---------|
| 3.05 | 193471 | 4.441 | 3.05 | 565876  | 12.9907 |
| 3.10 | 193735 | 4.448 | 3.10 | 575556  | 13.2129 |
| 3.15 | 193999 | 4.454 | 3.15 | 585249  | 13.4355 |
| 3.20 | 194263 | 4.460 | 3.20 | 594956  | 13.6583 |
| 3.25 | 194528 | 4.466 | 3.25 | 604676  | 13.8814 |
| 3.30 | 194793 | 4.472 | 3.30 | 614409  | 14.1049 |
| 3.35 | 195057 | 4.478 | 3.35 | 624155  | 14.3286 |
| 3.40 | 195323 | 4.484 | 3.40 | 633914  | 14.5527 |
| 3.45 | 195588 | 4.490 | 3.45 | 643687  | 14.7770 |
| 3.50 | 195853 | 4.496 | 3.50 | 653473  | 15.0017 |
| 3.55 | 196119 | 4.502 | 3.55 | 663273  | 15.2266 |
| 3.60 | 196385 | 4.508 | 3.60 | 673085  | 15.4519 |
| 3.65 | 196651 | 4.514 | 3.65 | 682911  | 15.6775 |
| 3.70 | 196917 | 4.521 | 3.70 | 692750  | 15.9034 |
| 3.75 | 197183 | 4.527 | 3.75 | 702603  | 16.1295 |
| 3.80 | 197450 | 4.533 | 3.80 | 712468  | 16.3560 |
| 3.85 | 197716 | 4.539 | 3.85 | 722348  | 16.5828 |
| 3.90 | 197983 | 4.545 | 3.90 | 732240  | 16.8099 |
| 3.95 | 198250 | 4.551 | 3.95 | 742146  | 17.0373 |
| 4.00 | 198518 | 4.557 | 4.00 | 752065  | 17.2650 |
| 4.05 | 198785 | 4.563 | 4.05 | 761998  | 17.4931 |
| 4.10 | 199053 | 4.570 | 4.10 | 771944  | 17.7214 |
| 4.15 | 199320 | 4.576 | 4.15 | 781903  | 17.9500 |
| 4.20 | 199588 | 4.582 | 4.20 | 791876  | 18.1790 |
| 4.25 | 199856 | 4.588 | 4.25 | 801862  | 18.4082 |
| 4.30 | 200125 | 4.594 | 4.30 | 811861  | 18.6378 |
| 4.35 | 200393 | 4.600 | 4.35 | 821874  | 18.8676 |
| 4.40 | 200662 | 4.607 | 4.40 | 831901  | 19.0978 |
| 4.45 | 200931 | 4.613 | 4.45 | 841940  | 19.3283 |
| 4.50 | 201200 | 4.619 | 4.50 | 851994  | 19.5591 |
| 4.55 | 201469 | 4.625 | 4.55 | 862060  | 19.7902 |
| 4.60 | 201738 | 4.631 | 4.60 | 872141  | 20.0216 |
| 4.65 | 202008 | 4.637 | 4.65 | 882234  | 20.2533 |
| 4.70 | 202278 | 4.644 | 4.70 | 892341  | 20.4853 |
| 4.75 | 202548 | 4.650 | 4.75 | 902462  | 20.7177 |
| 4.80 | 202818 | 4.656 | 4.80 | 912596  | 20.9503 |
| 4.85 | 203088 | 4.662 | 4.85 | 922744  | 21.1833 |
| 4.90 | 203359 | 4.668 | 4.90 | 932905  | 21.4166 |
| 4.95 | 203629 | 4.675 | 4.95 | 943080  | 21.6501 |
| 5.00 | 203900 | 4.681 | 5.00 | 953268  | 21.8840 |
| 5.05 | 204171 | 4.687 | 5.05 | 963470  | 22.1182 |
| 5.10 | 204442 | 4.693 | 5.10 | 973685  | 22.3527 |
| 5.15 | 204714 | 4.700 | 5.15 | 983914  | 22.5876 |
| 5.20 | 204985 | 4.706 | 5.20 | 994157  | 22.8227 |
| 5.25 | 205257 | 4.712 | 5.25 | 1004413 | 23.0581 |
| 5.30 | 205529 | 4.718 | 5.30 | 1014682 | 23.2939 |
| 5.35 | 205801 | 4.725 | 5.35 | 1024966 | 23.5300 |
| 5.40 | 206073 | 4.731 | 5.40 | 1035262 | 23.7664 |
| 5.45 | 206346 | 4.737 | 5.45 | 1045573 | 24.0030 |
| 5.50 | 206619 | 4.743 | 5.50 | 1055897 | 24.2401 |
| 5.55 | 206891 | 4.750 | 5.55 | 1066235 | 24.4774 |
| 5.60 | 207164 | 4.756 | 5.60 | 1076586 | 24.7150 |
| 5.65 | 207438 | 4.762 | 5.65 | 1086951 | 24.9530 |
| 5.70 | 207711 | 4.768 | 5.70 | 1097330 | 25.1912 |
| 5.75 | 207984 | 4.775 | 5.75 | 1107722 | 25.4298 |
| 5.80 | 208258 | 4.781 | 5.80 | 1118128 | 25.6687 |
| 5.85 | 208532 | 4.787 | 5.85 | 1128548 | 25.9079 |
| 5.90 | 208806 | 4.794 | 5.90 | 1138982 | 26.1474 |
| 5.95 | 209080 | 4.800 | 5.95 | 1149429 | 26.3873 |
| 6.00 | 209355 | 4.806 | 6.00 | 1159890 | 26.6274 |



| Draw Down |                        |         |         |         |
|-----------|------------------------|---------|---------|---------|
| Elevation | Q <sub>AVG</sub> (CFS) | DV (CF) | DT (HR) | Total T |
| 0.00      | 1.389                  | 8891.7  | 1.778   | 95.61   |
| 0.05      | 1.389                  | 8904.3  | 1.781   | 93.83   |
| 0.10      | 1.389                  | 8917.0  | 1.783   | 92.05   |
| 0.15      | 1.389                  | 8929.7  | 1.786   | 90.26   |
| 0.20      | 1.389                  | 8942.4  | 1.788   | 88.48   |
| 0.25      | 1.389                  | 8955.0  | 1.791   | 86.69   |
| 0.30      | 1.389                  | 8967.7  | 1.793   | 84.90   |
| 0.35      | 1.389                  | 8980.5  | 1.796   | 83.11   |
| 0.40      | 1.389                  | 8993.2  | 1.798   | 81.31   |
| 0.45      | 1.389                  | 9005.9  | 1.801   | 79.51   |
| 0.50      | 1.392                  | 9018.6  | 1.800   | 77.71   |
| 0.55      | 1.404                  | 9031.4  | 1.787   | 75.91   |
| 0.60      | 1.427                  | 9044.1  | 1.761   | 74.12   |
| 0.65      | 1.460                  | 9056.9  | 1.723   | 72.36   |
| 0.70      | 1.503                  | 9069.7  | 1.677   | 70.64   |
| 0.75      | 1.553                  | 9082.5  | 1.624   | 68.96   |
| 0.80      | 1.611                  | 9095.2  | 1.568   | 67.34   |
| 0.85      | 1.676                  | 9108.0  | 1.510   | 65.77   |
| 0.90      | 1.745                  | 9120.9  | 1.452   | 64.26   |
| 0.95      | 1.818                  | 9133.7  | 1.396   | 62.81   |
| 1.00      | 1.893                  | 9146.5  | 1.342   | 61.41   |
| 1.05      | 1.952                  | 9159.3  | 1.303   | 60.07   |
| 1.10      | 1.994                  | 9172.2  | 1.278   | 58.77   |
| 1.15      | 2.033                  | 9185.0  | 1.255   | 57.49   |
| 1.20      | 2.071                  | 9197.9  | 1.234   | 56.24   |
| 1.25      | 2.106                  | 9210.8  | 1.215   | 55.00   |
| 1.30      | 2.139                  | 9223.6  | 1.198   | 53.79   |
| 1.35      | 2.172                  | 9236.5  | 1.181   | 52.59   |
| 1.40      | 2.203                  | 9249.4  | 1.166   | 51.41   |
| 1.45      | 2.232                  | 9262.3  | 1.153   | 50.24   |
| 1.50      | 2.261                  | 9275.3  | 1.139   | 49.09   |
| 1.55      | 2.289                  | 9288.2  | 1.127   | 47.95   |
| 1.60      | 2.316                  | 9301.1  | 1.116   | 46.82   |
| 1.65      | 2.342                  | 9314.1  | 1.105   | 45.71   |
| 1.70      | 2.368                  | 9327.0  | 1.094   | 44.60   |
| 1.75      | 2.393                  | 9340.0  | 1.084   | 43.51   |
| 1.80      | 2.417                  | 9352.9  | 1.075   | 42.42   |
| 1.85      | 2.441                  | 9365.9  | 1.066   | 41.35   |
| 1.90      | 2.464                  | 9378.9  | 1.057   | 40.28   |
| 1.95      | 2.487                  | 9391.9  | 1.049   | 39.22   |
| 2.00      | 2.509                  | 9404.9  | 1.041   | 38.18   |
| 2.05      | 2.531                  | 9417.9  | 1.034   | 37.13   |
| 2.10      | 2.552                  | 9431.0  | 1.026   | 36.10   |
| 2.15      | 2.573                  | 9444.0  | 1.019   | 35.07   |
| 2.20      | 2.594                  | 9457.0  | 1.013   | 34.05   |

|      |        |         |       |       |
|------|--------|---------|-------|-------|
| 2.25 | 2.614  | 9470.1  | 1.006 | 33.04 |
| 2.30 | 2.634  | 9483.1  | 1.000 | 32.04 |
| 2.35 | 2.654  | 9496.2  | 0.994 | 31.04 |
| 2.40 | 2.673  | 9509.3  | 0.988 | 30.04 |
| 2.45 | 2.692  | 9522.4  | 0.982 | 29.05 |
| 2.50 | 2.711  | 9535.5  | 0.977 | 28.07 |
| 2.55 | 2.730  | 9548.6  | 0.972 | 27.09 |
| 2.60 | 2.748  | 9561.7  | 0.967 | 26.12 |
| 2.65 | 2.766  | 9574.8  | 0.962 | 25.16 |
| 2.70 | 2.784  | 9588.0  | 0.957 | 24.19 |
| 2.75 | 2.801  | 9601.1  | 0.952 | 23.24 |
| 2.80 | 2.819  | 9614.2  | 0.947 | 22.29 |
| 2.85 | 2.836  | 9627.4  | 0.943 | 21.34 |
| 2.90 | 2.853  | 9640.6  | 0.939 | 20.40 |
| 2.95 | 2.870  | 9653.8  | 0.935 | 19.46 |
| 3.00 | 2.889  | 9666.9  | 0.929 | 18.52 |
| 3.05 | 2.917  | 9680.1  | 0.922 | 17.59 |
| 3.10 | 2.956  | 9693.3  | 0.911 | 16.67 |
| 3.15 | 3.005  | 9706.6  | 0.897 | 15.76 |
| 3.20 | 3.063  | 9719.8  | 0.881 | 14.86 |
| 3.25 | 3.129  | 9733.0  | 0.864 | 13.98 |
| 3.30 | 3.202  | 9746.2  | 0.846 | 13.12 |
| 3.35 | 3.280  | 9759.5  | 0.826 | 12.27 |
| 3.40 | 3.364  | 9772.8  | 0.807 | 11.45 |
| 3.45 | 3.450  | 9786.0  | 0.788 | 10.64 |
| 3.50 | 3.536  | 9799.3  | 0.770 | 9.85  |
| 3.55 | 3.605  | 9812.6  | 0.756 | 9.08  |
| 3.60 | 3.661  | 9825.9  | 0.746 | 8.32  |
| 3.65 | 3.713  | 9839.2  | 0.736 | 7.58  |
| 3.70 | 3.764  | 9852.5  | 0.727 | 6.84  |
| 3.75 | 3.812  | 9865.8  | 0.719 | 6.12  |
| 3.80 | 3.859  | 9879.2  | 0.711 | 5.40  |
| 3.85 | 3.904  | 9892.5  | 0.704 | 4.69  |
| 3.90 | 3.948  | 9905.8  | 0.697 | 3.98  |
| 3.95 | 3.990  | 9919.2  | 0.691 | 3.28  |
| 4.00 | 4.776  | 9932.6  | 0.578 | 2.59  |
| 4.05 | 6.923  | 9945.9  | 0.399 | 2.02  |
| 4.10 | 10.087 | 9959.3  | 0.274 | 1.62  |
| 4.15 | 13.977 | 9972.7  | 0.198 | 1.34  |
| 4.20 | 18.471 | 9986.1  | 0.150 | 1.14  |
| 4.25 | 23.495 | 9999.5  | 0.118 | 0.99  |
| 4.30 | 28.997 | 10013.0 | 0.096 | 0.88  |
| 4.35 | 34.938 | 10026.4 | 0.080 | 0.78  |
| 4.40 | 41.287 | 10039.8 | 0.068 | 0.70  |
| 4.45 | 48.020 | 10053.3 | 0.058 | 0.63  |
| 4.50 | 55.116 | 10066.7 | 0.051 | 0.58  |
| 4.55 | 62.556 | 10080.2 | 0.045 | 0.52  |
| 4.60 | 70.325 | 10093.7 | 0.040 | 0.48  |

|      |         |         |       |      |
|------|---------|---------|-------|------|
| 4.65 | 78.410  | 10107.1 | 0.036 | 0.44 |
| 4.70 | 86.799  | 10120.6 | 0.032 | 0.40 |
| 4.75 | 95.481  | 10134.1 | 0.029 | 0.37 |
| 4.80 | 104.447 | 10147.7 | 0.027 | 0.34 |
| 4.85 | 113.687 | 10161.2 | 0.025 | 0.32 |
| 4.90 | 123.194 | 10174.7 | 0.023 | 0.29 |
| 4.95 | 132.960 | 10188.2 | 0.021 | 0.27 |
| 5.00 | 142.980 | 10201.8 | 0.020 | 0.25 |
| 5.05 | 153.245 | 10215.3 | 0.019 | 0.23 |
| 5.10 | 163.752 | 10228.9 | 0.017 | 0.21 |
| 5.15 | 174.493 | 10242.5 | 0.016 | 0.19 |
| 5.20 | 185.465 | 10256.1 | 0.015 | 0.17 |
| 5.25 | 196.662 | 10269.7 | 0.015 | 0.16 |
| 5.30 | 208.080 | 10283.3 | 0.014 | 0.14 |
| 5.35 | 219.715 | 10296.9 | 0.013 | 0.13 |
| 5.40 | 231.562 | 10310.5 | 0.012 | 0.12 |
| 5.45 | 243.619 | 10324.1 | 0.012 | 0.11 |
| 5.50 | 255.881 | 10337.7 | 0.011 | 0.09 |
| 5.55 | 268.345 | 10351.4 | 0.011 | 0.08 |
| 5.60 | 281.008 | 10365.0 | 0.010 | 0.07 |
| 5.65 | 293.867 | 10378.7 | 0.010 | 0.06 |
| 5.70 | 306.918 | 10392.4 | 0.009 | 0.05 |
| 5.75 | 320.160 | 10406.1 | 0.009 | 0.04 |
| 5.80 | 333.588 | 10419.8 | 0.009 | 0.03 |
| 5.85 | 347.202 | 10433.5 | 0.008 | 0.02 |
| 5.90 | 360.997 | 10447.2 | 0.008 | 0.02 |
| 5.95 | 374.973 | 10460.9 | 0.008 | 0.01 |
| 6.00 |         |         |       |      |

## Otay Ranch Village 14 BF-2-1

### SWMM Model Flow Coefficient Calculation

| PARAMETER                                    | ABBREV.    | Bio-Retention Cell |                 |
|----------------------------------------------|------------|--------------------|-----------------|
| Ponding Depth                                | PD         | 6                  | in              |
| Bioretention Soil Layer                      | S          | 18                 | in              |
| Gravel Layer (Measured From Subdrain Invert) | G          | 15                 | in              |
| TOTAL                                        |            | 3.3                | ft              |
|                                              |            | 39                 | in              |
|                                              |            |                    |                 |
| Orifice Coefficient                          | $c_g$      | 0.6                | --              |
| Low Flow Orifice Diameter                    | D          | 4.6                | in              |
| Drain (Flow) exponent                        | n          | 0.5                | --              |
|                                              |            |                    |                 |
|                                              |            |                    |                 |
| Flow Rate (volumetric)                       | Q          | 0.972              | cfs             |
|                                              |            |                    |                 |
| Ponding Depth Surface Area                   | $A_{PD}$   | 180245             | ft <sup>2</sup> |
| Bioretention Surface Area                    | $A_S, A_G$ | 177707             | ft <sup>2</sup> |
|                                              | $A_S, A_G$ | 4.0796             | ac              |
| Porosity of Bioretention Soil                | n          | 0.40               | -               |
| Flow Rate (per unit area)                    | q          | 0.591              | in/hr           |
|                                              |            |                    |                 |
| Effective Ponding Depth                      | $PD_{eff}$ | 6.04               | in              |
| Flow Coefficient                             | C          | 0.0975             | --              |
| Underlying Soil Conductivity                 | in/hr      | 0.100              |                 |
| Basin Conductivity                           | cfs        | 0.417              |                 |

Otay Ranch Village 14 BF-2-2

Discharge vs Elevation Table

|                          |         |                       |          |
|--------------------------|---------|-----------------------|----------|
| Bottom orifice diameter: | 4 "     | Top orifice diameter: | 6 "      |
| Number:                  | 1       | Number:               | 1        |
| Cg-low:                  | 0.61    | Cg-low:               | 0.61     |
| Invert elev:             | 0.50 ft | Invert elev:          | 3.00 ft  |
| Middle orifice diameter: | 1 "     | Emergency weir:       |          |
| number of orif:          | 0       | Invert:               | 4.00 ft  |
| Cg-middle:               | 0.61    | Weir Length (ft)      | 50.0 ft  |
| Invert elev:             | 1.50 ft |                       | 5x10 box |

| h<br>(ft) | H/D-low<br>- | H/D-mid<br>- | H/D-top<br>- | H/D-peak<br>- | Qlow-orif<br>(cfs) | Qlow-weir<br>(cfs) | Qtot-low<br>(cfs) | Qmid-orif<br>(cfs) | Qmid-weir<br>(cfs) | Qtot-med<br>(cfs) | Qtot-orif<br>(cfs) | Qtot-weir<br>(cfs) | Qtot-top<br>(cfs) | Qpeak-top<br>(cfs) | Qtot<br>(cfs) | Qtot w/SubDrain<br>(cfs) |
|-----------|--------------|--------------|--------------|---------------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|---------------|--------------------------|
| 0         | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.562                    |
| 0.05      | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.562                    |
| 0.1       | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.562                    |
| 0.15      | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.562                    |
| 0.2       | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.562                    |
| 0.25      | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.562                    |
| 0.3       | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.562                    |
| 0.35      | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.562                    |
| 0.4       | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.562                    |
| 0.45      | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.562                    |
| 0.5       | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.562                    |
| 0.55      | 0.15         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0049        | 0.567                    |
| 0.6       | 0.30         | 0.00         | 0.00         | 0.00          | 0.00               | 0.02               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0187        | 0.581                    |
| 0.65      | 0.45         | 0.00         | 0.00         | 0.00          | 0.00               | 0.04               | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0404        | 0.602                    |
| 0.7       | 0.60         | 0.00         | 0.00         | 0.00          | 0.08               | 0.07               | 0.07              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0688        | 0.631                    |
| 0.75      | 0.75         | 0.00         | 0.00         | 0.00          | 0.12               | 0.10               | 0.10              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.1025        | 0.664                    |
| 0.8       | 0.90         | 0.00         | 0.00         | 0.00          | 0.16               | 0.14               | 0.14              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.1401        | 0.702                    |
| 0.85      | 1.05         | 0.00         | 0.00         | 0.00          | 0.18               | 0.18               | 0.18              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.1801        | 0.742                    |
| 0.9       | 1.20         | 0.00         | 0.00         | 0.00          | 0.21               | 0.22               | 0.21              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2064        | 0.768                    |
| 0.95      | 1.35         | 0.00         | 0.00         | 0.00          | 0.23               | 0.26               | 0.23              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2274        | 0.789                    |
| 1         | 1.50         | 0.00         | 0.00         | 0.00          | 0.25               | 0.30               | 0.25              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2466        | 0.809                    |
| 1.05      | 1.65         | 0.00         | 0.00         | 0.00          | 0.26               | 0.34               | 0.26              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2645        | 0.826                    |
| 1.1       | 1.80         | 0.00         | 0.00         | 0.00          | 0.28               | 0.37               | 0.28              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2812        | 0.843                    |
| 1.15      | 1.95         | 0.00         | 0.00         | 0.00          | 0.30               | 0.39               | 0.30              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2970        | 0.859                    |
| 1.2       | 2.10         | 0.00         | 0.00         | 0.00          | 0.31               | 0.41               | 0.31              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3120        | 0.874                    |
| 1.25      | 2.25         | 0.00         | 0.00         | 0.00          | 0.33               | 0.43               | 0.33              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3263        | 0.888                    |
| 1.3       | 2.40         | 0.00         | 0.00         | 0.00          | 0.34               | 0.44               | 0.34              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3400        | 0.902                    |
| 1.35      | 2.55         | 0.00         | 0.00         | 0.00          | 0.35               | 0.45               | 0.35              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3531        | 0.915                    |
| 1.4       | 2.70         | 0.00         | 0.00         | 0.00          | 0.37               | 0.45               | 0.37              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3658        | 0.928                    |
| 1.45      | 2.85         | 0.00         | 0.00         | 0.00          | 0.38               | 0.45               | 0.38              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3781        | 0.940                    |
| 1.5       | 3.00         | 0.00         | 0.00         | 0.00          | 0.39               | 0.45               | 0.39              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3900        | 0.952                    |
| 1.55      | 3.15         | 0.60         | 0.00         | 0.00          | 0.40               | 0.46               | 0.40              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.4015        | 0.963                    |
| 1.6       | 3.30         | 1.20         | 0.00         | 0.00          | 0.41               | 0.47               | 0.41              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.4127        | 0.975                    |
| 1.65      | 3.45         | 1.80         | 0.00         | 0.00          | 0.42               | 0.49               | 0.42              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.4236        | 0.986                    |
| 1.7       | 3.60         | 2.40         | 0.00         | 0.00          | 0.43               | 0.53               | 0.43              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.4343        | 0.996                    |
| 1.75      | 3.75         | 3.00         | 0.00         | 0.00          | 0.44               | 0.59               | 0.44              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.4446        | 1.007                    |
| 1.8       | 3.90         | 3.60         | 0.00         | 0.00          | 0.45               | 0.68               | 0.45              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.4548        | 1.017                    |
| 1.85      | 4.05         | 4.20         | 0.00         | 0.00          | 0.46               | 0.80               | 0.46              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.4647        | 1.027                    |
| 1.9       | 4.20         | 4.80         | 0.00         | 0.00          | 0.47               | 0.97               | 0.47              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.4744        | 1.036                    |
| 1.95      | 4.35         | 5.40         | 0.00         | 0.00          | 0.48               | 1.19               | 0.48              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.4839        | 1.046                    |
| 2         | 4.50         | 6.00         | 0.00         | 0.00          | 0.49               | 1.48               | 0.49              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.4933        | 1.055                    |
| 2.05      | 4.65         | 6.60         | 0.00         | 0.00          | 0.50               | 1.84               | 0.50              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.5024        | 1.064                    |
| 2.1       | 4.80         | 7.20         | 0.00         | 0.00          | 0.51               | 2.29               | 0.51              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.5114        | 1.073                    |
| 2.15      | 4.95         | 7.80         | 0.00         | 0.00          | 0.52               | 2.84               | 0.52              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.5203        | 1.082                    |
| 2.2       | 5.10         | 8.40         | 0.00         | 0.00          | 0.53               | 3.51               | 0.53              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.5290        | 1.091                    |
| 2.25      | 5.25         | 9.00         | 0.00         | 0.00          | 0.54               | 4.32               | 0.54              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.5375        | 1.099                    |
| 2.3       | 5.40         | 9.60         | 0.00         | 0.00          | 0.55               | 5.27               | 0.55              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.5460        | 1.108                    |
| 2.35      | 5.55         | 10.20        | 0.00         | 0.00          | 0.55               | 6.40               | 0.55              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.5542        | 1.116                    |
| 2.4       | 5.70         | 10.80        | 0.00         | 0.00          | 0.56               | 7.71               | 0.56              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.5624        | 1.124                    |
| 2.45      | 5.85         | 11.40        | 0.00         | 0.00          | 0.57               | 9.24               | 0.57              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.5705        | 1.132                    |
| 2.5       | 6.00         | 12.00        | 0.00         | 0.00          | 0.58               | 11.00              | 0.58              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.5784        | 1.140                    |
| 2.55      | 6.15         | 12.60        | 0.00         | 0.00          | 0.59               | 13.02              | 0.59              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.5863        | 1.148                    |
| 2.6       | 6.30         | 13.20        | 0.00         | 0.00          | 0.59               | 15.34              | 0.59              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.5940        | 1.156                    |
| 2.65      | 6.45         | 13.80        | 0.00         | 0.00          | 0.60               | 17.96              | 0.60              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.6016        | 1.164                    |
| 2.7       | 6.60         | 14.40        | 0.00         | 0.00          | 0.61               | 20.93              | 0.61              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.6092        | 1.171                    |
| 2.75      | 6.75         | 15.00        | 0.00         | 0.00          | 0.62               | 24.28              | 0.62              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.6166        | 1.179                    |
| 2.8       | 6.90         | 15.60        | 0.00         | 0.00          | 0.62               | 28.04              | 0.62              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.6239        | 1.186                    |
| 2.85      | 7.05         | 16.20        | 0.00         | 0.00          | 0.63               | 32.24              | 0.63              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.6312        | 1.193                    |
| 2.9       | 7.20         | 16.80        | 0.00         | 0.00          | 0.64               | 36.93              | 0.64              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.6384        | 1.200                    |
| 2.95      | 7.35         | 17.40        | 0.00         | 0.00          | 0.65               | 42.14              | 0.65              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.6455        | 1.207                    |
| 3         | 7.50         | 18.00        | 0.00         | 0.00          | 0.65               | 47.91              | 0.65              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.6525        | 1.214                    |
| 3.05      | 7.65         | 18.60        | 0.10         | 0.00          | 0.66               | 54.28              | 0.66              | 0.00               | 0.00               | 0.00              | 0.00               | 0.01               | 0.01              | 0.00               | 0.6656        | 1.228                    |
| 3.1       | 7.80         | 19.20        | 0.20         | 0.00          | 0.67               | 61.31              | 0.67              | 0.00               | 0.00               | 0.00              | 0.00               | 0.02               | 0.02              | 0.00               | 0.6898        | 1.252                    |
| 3.15      | 7.95         | 19.80        | 0.30         | 0.00          | 0.67               | 69.03              | 0.67              | 0.00               | 0.00               | 0.00              | 0.00               | 0.05</             |                   |                    |               |                          |

Otay Ranch Village 14 BF-2-2

Discharge vs Elevation Table

|                          |         |                       |          |
|--------------------------|---------|-----------------------|----------|
| Bottom orifice diameter: | 4 "     | Top orifice diameter: | 6 "      |
| Number:                  | 1       | Number:               | 1        |
| Cg-low:                  | 0.61    | Cg-low:               | 0.61     |
| Invert elev:             | 0.50 ft | Invert elev:          | 3.00 ft  |
| Middle orifice diameter: | 1 "     | Emergency weir:       |          |
| number of orif:          | 0       | Invert:               | 4.00 ft  |
| Cg-middle:               | 0.61    | Weir Length (ft)      | 50.0 ft  |
| Invert elev:             | 1.50 ft |                       | 5x10 box |

|      |       |       |      |      |      |         |      |      |      |      |      |       |      |        |          |         |
|------|-------|-------|------|------|------|---------|------|------|------|------|------|-------|------|--------|----------|---------|
| 4.5  | 12.00 | 36.00 | 3.00 | 0.12 | 0.84 | 779.36  | 0.84 | 0.00 | 0.00 | 0.00 | 1.07 | 1.25  | 1.07 | 58.87  | 60.7777  | 61.340  |
| 4.55 | 12.15 | 36.60 | 3.10 | 0.13 | 0.84 | 835.81  | 0.84 | 0.00 | 0.00 | 0.00 | 1.10 | 1.26  | 1.10 | 67.91  | 69.8516  | 70.414  |
| 4.6  | 12.30 | 37.20 | 3.20 | 0.14 | 0.85 | 895.44  | 0.85 | 0.00 | 0.00 | 0.00 | 1.12 | 1.27  | 1.12 | 77.38  | 79.3462  | 79.908  |
| 4.65 | 12.45 | 37.80 | 3.30 | 0.16 | 0.85 | 958.41  | 0.85 | 0.00 | 0.00 | 0.00 | 1.14 | 1.29  | 1.14 | 87.25  | 89.2437  | 89.806  |
| 4.7  | 12.60 | 38.40 | 3.40 | 0.17 | 0.86 | 1024.83 | 0.86 | 0.00 | 0.00 | 0.00 | 1.16 | 1.33  | 1.16 | 97.51  | 99.5281  | 100.090 |
| 4.75 | 12.75 | 39.00 | 3.50 | 0.18 | 0.86 | 1094.86 | 0.86 | 0.00 | 0.00 | 0.00 | 1.18 | 1.38  | 1.18 | 108.14 | 110.1853 | 110.747 |
| 4.8  | 12.90 | 39.60 | 3.60 | 0.19 | 0.87 | 1168.62 | 0.87 | 0.00 | 0.00 | 0.00 | 1.20 | 1.46  | 1.20 | 119.14 | 121.2029 | 121.765 |
| 4.85 | 13.05 | 40.20 | 3.70 | 0.20 | 0.87 | 1246.29 | 0.87 | 0.00 | 0.00 | 0.00 | 1.22 | 1.56  | 1.22 | 130.48 | 132.5691 | 133.131 |
| 4.9  | 13.20 | 40.80 | 3.80 | 0.22 | 0.88 | 1327.99 | 0.88 | 0.00 | 0.00 | 0.00 | 1.23 | 1.70  | 1.23 | 142.16 | 144.2738 | 144.836 |
| 4.95 | 13.35 | 41.40 | 3.90 | 0.23 | 0.88 | 1413.88 | 0.88 | 0.00 | 0.00 | 0.00 | 1.25 | 1.87  | 1.25 | 154.17 | 156.3073 | 156.869 |
| 5    | 13.50 | 42.00 | 4.00 | 0.24 | 0.89 | 1504.14 | 0.89 | 0.00 | 0.00 | 0.00 | 1.27 | 2.09  | 1.27 | 166.50 | 168.6608 | 169.223 |
| 5.05 | 13.65 | 42.60 | 4.10 | 0.25 | 0.89 | 1598.90 | 0.89 | 0.00 | 0.00 | 0.00 | 1.29 | 2.35  | 1.29 | 179.14 | 181.3262 | 181.888 |
| 5.1  | 13.80 | 43.20 | 4.20 | 0.26 | 0.90 | 1698.35 | 0.90 | 0.00 | 0.00 | 0.00 | 1.31 | 2.68  | 1.31 | 192.09 | 194.2961 | 194.858 |
| 5.15 | 13.95 | 43.80 | 4.30 | 0.28 | 0.90 | 1802.65 | 0.90 | 0.00 | 0.00 | 0.00 | 1.32 | 3.07  | 1.32 | 205.33 | 207.5635 | 208.125 |
| 5.2  | 14.10 | 44.40 | 4.40 | 0.29 | 0.91 | 1911.98 | 0.91 | 0.00 | 0.00 | 0.00 | 1.34 | 3.53  | 1.34 | 218.87 | 221.1217 | 221.684 |
| 5.25 | 14.25 | 45.00 | 4.50 | 0.30 | 0.91 | 2026.51 | 0.91 | 0.00 | 0.00 | 0.00 | 1.36 | 4.08  | 1.36 | 232.69 | 234.9647 | 235.527 |
| 5.3  | 14.40 | 45.60 | 4.60 | 0.31 | 0.92 | 2146.43 | 0.92 | 0.00 | 0.00 | 0.00 | 1.38 | 4.72  | 1.38 | 246.79 | 249.0867 | 249.649 |
| 5.35 | 14.55 | 46.20 | 4.70 | 0.32 | 0.92 | 2271.92 | 0.92 | 0.00 | 0.00 | 0.00 | 1.39 | 5.46  | 1.39 | 261.16 | 263.4823 | 264.044 |
| 5.4  | 14.70 | 46.80 | 4.80 | 0.34 | 0.93 | 2403.17 | 0.93 | 0.00 | 0.00 | 0.00 | 1.41 | 6.32  | 1.41 | 275.81 | 278.1464 | 278.708 |
| 5.45 | 14.85 | 47.40 | 4.90 | 0.35 | 0.93 | 2540.38 | 0.93 | 0.00 | 0.00 | 0.00 | 1.43 | 7.30  | 1.43 | 290.71 | 293.0741 | 293.636 |
| 5.5  | 15.00 | 48.00 | 5.00 | 0.36 | 0.94 | 2683.75 | 0.94 | 0.00 | 0.00 | 0.00 | 1.44 | 8.42  | 1.44 | 305.88 | 308.2610 | 308.823 |
| 5.55 | 15.15 | 48.60 | 5.10 | 0.37 | 0.94 | 2833.48 | 0.94 | 0.00 | 0.00 | 0.00 | 1.46 | 9.68  | 1.46 | 321.30 | 323.7025 | 324.264 |
| 5.6  | 15.30 | 49.20 | 5.20 | 0.38 | 0.95 | 2989.77 | 0.95 | 0.00 | 0.00 | 0.00 | 1.47 | 11.11 | 1.47 | 336.97 | 339.3946 | 339.957 |
| 5.65 | 15.45 | 49.80 | 5.30 | 0.40 | 0.95 | 3152.85 | 0.95 | 0.00 | 0.00 | 0.00 | 1.49 | 12.72 | 1.49 | 352.89 | 355.3333 | 355.895 |
| 5.7  | 15.60 | 50.40 | 5.40 | 0.41 | 0.96 | 3322.92 | 0.96 | 0.00 | 0.00 | 0.00 | 1.50 | 14.52 | 1.50 | 369.05 | 371.5149 | 372.077 |
| 5.75 | 15.75 | 51.00 | 5.50 | 0.42 | 0.96 | 3500.22 | 0.96 | 0.00 | 0.00 | 0.00 | 1.52 | 16.53 | 1.52 | 385.45 | 387.9358 | 388.498 |
| 5.8  | 15.90 | 51.60 | 5.60 | 0.43 | 0.97 | 3684.96 | 0.97 | 0.00 | 0.00 | 0.00 | 1.53 | 18.77 | 1.53 | 402.09 | 404.5925 | 405.154 |
| 5.85 | 16.05 | 52.20 | 5.70 | 0.44 | 0.97 | 3877.37 | 0.97 | 0.00 | 0.00 | 0.00 | 1.55 | 21.25 | 1.55 | 418.96 | 421.4817 | 422.044 |
| 5.9  | 16.20 | 52.80 | 5.80 | 0.46 | 0.98 | 4077.70 | 0.98 | 0.00 | 0.00 | 0.00 | 1.56 | 23.98 | 1.56 | 436.06 | 438.6003 | 439.162 |
| 5.95 | 16.35 | 53.40 | 5.90 | 0.47 | 0.98 | 4286.17 | 0.98 | 0.00 | 0.00 | 0.00 | 1.58 | 27.00 | 1.58 | 453.38 | 455.9453 | 456.507 |
| 6    | 16.50 | 54.00 | 6.00 | 0.48 | 0.99 | 4503.05 | 0.99 | 0.00 | 0.00 | 0.00 | 1.59 | 30.31 | 1.59 | 470.93 | 473.5136 | 474.076 |

Stage vs Area Table

| depth | area  | area (ac) | elevation | volume (cf) | volume (ac-ft) |
|-------|-------|-----------|-----------|-------------|----------------|
| 0.00  | 82774 | 1.900     | 0         | 0           | 0              |
| 0.05  | 82947 | 1.904     | 0.05      | 4143        | 0.0951         |
| 0.10  | 83120 | 1.908     | 0.10      | 8295        | 0.1904         |
| 0.15  | 83293 | 1.912     | 0.15      | 12455       | 0.2859         |
| 0.20  | 83466 | 1.916     | 0.20      | 16624       | 0.3816         |
| 0.25  | 83639 | 1.920     | 0.25      | 20802       | 0.4775         |
| 0.30  | 83813 | 1.924     | 0.30      | 24988       | 0.5736         |
| 0.35  | 83987 | 1.928     | 0.35      | 29183       | 0.6699         |
| 0.40  | 84161 | 1.932     | 0.40      | 33387       | 0.7665         |
| 0.45  | 84335 | 1.936     | 0.45      | 37599       | 0.8632         |
| 0.50  | 84509 | 1.940     | 0.50      | 41820       | 0.9601         |
| 0.55  | 84684 | 1.944     | 0.55      | 46050       | 1.0572         |
| 0.60  | 84858 | 1.948     | 0.60      | 50288       | 1.1545         |
| 0.65  | 85033 | 1.952     | 0.65      | 54536       | 1.2520         |
| 0.70  | 85208 | 1.956     | 0.70      | 58792       | 1.3497         |
| 0.75  | 85384 | 1.960     | 0.75      | 63057       | 1.4476         |
| 0.80  | 85559 | 1.964     | 0.80      | 67330       | 1.5457         |
| 0.85  | 85735 | 1.968     | 0.85      | 71612       | 1.6440         |
| 0.90  | 85910 | 1.972     | 0.90      | 75904       | 1.7425         |
| 0.95  | 86086 | 1.976     | 0.95      | 80204       | 1.8412         |
| 1.00  | 86262 | 1.980     | 1.00      | 84512       | 1.9401         |
| 1.05  | 86439 | 1.984     | 1.05      | 88830       | 2.0393         |
| 1.10  | 86615 | 1.988     | 1.10      | 93156       | 2.1386         |
| 1.15  | 86792 | 1.992     | 1.15      | 97491       | 2.2381         |
| 1.20  | 86969 | 1.997     | 1.20      | 101835      | 2.3378         |
| 1.25  | 87146 | 2.001     | 1.25      | 106188      | 2.4377         |
| 1.30  | 87323 | 2.005     | 1.30      | 110550      | 2.5379         |
| 1.35  | 87500 | 2.009     | 1.35      | 114920      | 2.6382         |
| 1.40  | 87678 | 2.013     | 1.40      | 119300      | 2.7388         |
| 1.45  | 87856 | 2.017     | 1.45      | 123688      | 2.8395         |
| 1.50  | 88034 | 2.021     | 1.50      | 128086      | 2.9404         |
| 1.55  | 88212 | 2.025     | 1.55      | 132492      | 3.0416         |
| 1.60  | 88390 | 2.029     | 1.60      | 136907      | 3.1429         |
| 1.65  | 88569 | 2.033     | 1.65      | 141331      | 3.2445         |
| 1.70  | 88747 | 2.037     | 1.70      | 145764      | 3.3463         |
| 1.75  | 88926 | 2.041     | 1.75      | 150205      | 3.4482         |
| 1.80  | 89105 | 2.046     | 1.80      | 154656      | 3.5504         |
| 1.85  | 89284 | 2.050     | 1.85      | 159116      | 3.6528         |
| 1.90  | 89464 | 2.054     | 1.90      | 163585      | 3.7554         |
| 1.95  | 89643 | 2.058     | 1.95      | 168062      | 3.8582         |
| 2.00  | 89823 | 2.062     | 2.00      | 172549      | 3.9612         |
| 2.05  | 90003 | 2.066     | 2.05      | 177045      | 4.0644         |
| 2.10  | 90183 | 2.070     | 2.10      | 181549      | 4.1678         |
| 2.15  | 90363 | 2.074     | 2.15      | 186063      | 4.2714         |
| 2.20  | 90544 | 2.079     | 2.20      | 190586      | 4.3752         |
| 2.25  | 90724 | 2.083     | 2.25      | 195117      | 4.4793         |
| 2.30  | 90905 | 2.087     | 2.30      | 199658      | 4.5835         |
| 2.35  | 91086 | 2.091     | 2.35      | 204208      | 4.6880         |
| 2.40  | 91267 | 2.095     | 2.40      | 208767      | 4.7926         |
| 2.45  | 91449 | 2.099     | 2.45      | 213334      | 4.8975         |
| 2.50  | 91630 | 2.104     | 2.50      | 217911      | 5.0026         |
| 2.55  | 91812 | 2.108     | 2.55      | 222498      | 5.1078         |
| 2.60  | 91994 | 2.112     | 2.60      | 227093      | 5.2133         |
| 2.65  | 92176 | 2.116     | 2.65      | 231697      | 5.3190         |
| 2.70  | 92358 | 2.120     | 2.70      | 236310      | 5.4249         |
| 2.75  | 92541 | 2.124     | 2.75      | 240933      | 5.5311         |
| 2.80  | 92723 | 2.129     | 2.80      | 245564      | 5.6374         |
| 2.85  | 92906 | 2.133     | 2.85      | 250205      | 5.7439         |
| 2.90  | 93089 | 2.137     | 2.90      | 254855      | 5.8507         |
| 2.95  | 93272 | 2.141     | 2.95      | 259514      | 5.9576         |
| 3.00  | 93455 | 2.145     | 3.00      | 264182      | 6.0648         |

|      |        |       |      |        |         |
|------|--------|-------|------|--------|---------|
| 3.05 | 93639  | 2.150 | 3.05 | 268859 | 6.1722  |
| 3.10 | 93823  | 2.154 | 3.10 | 273546 | 6.2798  |
| 3.15 | 94006  | 2.158 | 3.15 | 278242 | 6.3876  |
| 3.20 | 94191  | 2.162 | 3.20 | 282947 | 6.4956  |
| 3.25 | 94375  | 2.167 | 3.25 | 287661 | 6.6038  |
| 3.30 | 94559  | 2.171 | 3.30 | 292384 | 6.7122  |
| 3.35 | 94744  | 2.175 | 3.35 | 297117 | 6.8209  |
| 3.40 | 94929  | 2.179 | 3.40 | 301858 | 6.9297  |
| 3.45 | 95113  | 2.184 | 3.45 | 306610 | 7.0388  |
| 3.50 | 95299  | 2.188 | 3.50 | 311370 | 7.1481  |
| 3.55 | 95484  | 2.192 | 3.55 | 316139 | 7.2576  |
| 3.60 | 95669  | 2.196 | 3.60 | 320918 | 7.3673  |
| 3.65 | 95855  | 2.201 | 3.65 | 325706 | 7.4772  |
| 3.70 | 96041  | 2.205 | 3.70 | 330504 | 7.5873  |
| 3.75 | 96227  | 2.209 | 3.75 | 335310 | 7.6977  |
| 3.80 | 96413  | 2.213 | 3.80 | 340126 | 7.8082  |
| 3.85 | 96600  | 2.218 | 3.85 | 344952 | 7.9190  |
| 3.90 | 96786  | 2.222 | 3.90 | 349786 | 8.0300  |
| 3.95 | 96973  | 2.226 | 3.95 | 354630 | 8.1412  |
| 4.00 | 97160  | 2.230 | 4.00 | 359484 | 8.2526  |
| 4.05 | 97347  | 2.235 | 4.05 | 364346 | 8.3642  |
| 4.10 | 97534  | 2.239 | 4.10 | 369218 | 8.4761  |
| 4.15 | 97722  | 2.243 | 4.15 | 374100 | 8.5881  |
| 4.20 | 97909  | 2.248 | 4.20 | 378991 | 8.7004  |
| 4.25 | 98097  | 2.252 | 4.25 | 383891 | 8.8129  |
| 4.30 | 98285  | 2.256 | 4.30 | 388800 | 8.9256  |
| 4.35 | 98473  | 2.261 | 4.35 | 393719 | 9.0386  |
| 4.40 | 98662  | 2.265 | 4.40 | 398648 | 9.1517  |
| 4.45 | 98850  | 2.269 | 4.45 | 403585 | 9.2650  |
| 4.50 | 99039  | 2.274 | 4.50 | 408533 | 9.3786  |
| 4.55 | 99228  | 2.278 | 4.55 | 413489 | 9.4924  |
| 4.60 | 99417  | 2.282 | 4.60 | 418455 | 9.6064  |
| 4.65 | 99606  | 2.287 | 4.65 | 423431 | 9.7206  |
| 4.70 | 99796  | 2.291 | 4.70 | 428416 | 9.8351  |
| 4.75 | 99985  | 2.295 | 4.75 | 433411 | 9.9497  |
| 4.80 | 100175 | 2.300 | 4.80 | 438415 | 10.0646 |
| 4.85 | 100365 | 2.304 | 4.85 | 443428 | 10.1797 |
| 4.90 | 100555 | 2.308 | 4.90 | 448451 | 10.2950 |
| 4.95 | 100746 | 2.313 | 4.95 | 453484 | 10.4106 |
| 5.00 | 100936 | 2.317 | 5.00 | 458526 | 10.5263 |
| 5.05 | 101127 | 2.322 | 5.05 | 463577 | 10.6423 |
| 5.10 | 101318 | 2.326 | 5.10 | 468638 | 10.7585 |
| 5.15 | 101509 | 2.330 | 5.15 | 473709 | 10.8749 |
| 5.20 | 101700 | 2.335 | 5.20 | 478789 | 10.9915 |
| 5.25 | 101892 | 2.339 | 5.25 | 483879 | 11.1083 |
| 5.30 | 102083 | 2.344 | 5.30 | 488979 | 11.2254 |
| 5.35 | 102275 | 2.348 | 5.35 | 494088 | 11.3427 |
| 5.40 | 102467 | 2.352 | 5.40 | 499206 | 11.4602 |
| 5.45 | 102659 | 2.357 | 5.45 | 504334 | 11.5779 |
| 5.50 | 102852 | 2.361 | 5.50 | 509472 | 11.6959 |
| 5.55 | 103044 | 2.366 | 5.55 | 514619 | 11.8140 |
| 5.60 | 103237 | 2.370 | 5.60 | 519776 | 11.9324 |
| 5.65 | 103430 | 2.374 | 5.65 | 524943 | 12.0510 |
| 5.70 | 103623 | 2.379 | 5.70 | 530119 | 12.1699 |
| 5.75 | 103816 | 2.383 | 5.75 | 535305 | 12.2889 |
| 5.80 | 104009 | 2.388 | 5.80 | 540501 | 12.4082 |
| 5.85 | 104203 | 2.392 | 5.85 | 545706 | 12.5277 |
| 5.90 | 104397 | 2.397 | 5.90 | 550921 | 12.6474 |
| 5.95 | 104591 | 2.401 | 5.95 | 556146 | 12.7674 |
| 6.00 | 104785 | 2.406 | 6.00 | 561380 | 12.8875 |



## Otay Ranch Village 14 BF-2-2

| <u>Draw Down</u> |                        |         |         |         |
|------------------|------------------------|---------|---------|---------|
| Elevation        | Q <sub>AVG</sub> (CFS) | DV (CF) | DT (HR) | Total T |
| 0.00             | 0.660                  | 4143.0  | 1.744   | 93.84   |
| 0.05             | 0.660                  | 4151.7  | 1.748   | 92.09   |
| 0.10             | 0.660                  | 4160.3  | 1.752   | 90.35   |
| 0.15             | 0.660                  | 4169.0  | 1.755   | 88.59   |
| 0.20             | 0.660                  | 4177.6  | 1.759   | 86.84   |
| 0.25             | 0.660                  | 4186.3  | 1.763   | 85.08   |
| 0.30             | 0.660                  | 4195.0  | 1.766   | 83.32   |
| 0.35             | 0.660                  | 4203.7  | 1.770   | 81.55   |
| 0.40             | 0.660                  | 4212.4  | 1.774   | 79.78   |
| 0.45             | 0.660                  | 4221.1  | 1.777   | 78.01   |
| 0.50             | 0.662                  | 4229.8  | 1.774   | 76.23   |
| 0.55             | 0.672                  | 4238.6  | 1.753   | 74.46   |
| 0.60             | 0.689                  | 4247.3  | 1.712   | 72.70   |
| 0.65             | 0.714                  | 4256.0  | 1.655   | 70.99   |
| 0.70             | 0.745                  | 4264.8  | 1.589   | 69.34   |
| 0.75             | 0.781                  | 4273.6  | 1.520   | 67.75   |
| 0.80             | 0.820                  | 4282.3  | 1.451   | 66.23   |
| 0.85             | 0.853                  | 4291.1  | 1.397   | 64.78   |
| 0.90             | 0.877                  | 4299.9  | 1.363   | 63.38   |
| 0.95             | 0.897                  | 4308.7  | 1.335   | 62.02   |
| 1.00             | 0.915                  | 4317.5  | 1.310   | 60.68   |
| 1.05             | 0.933                  | 4326.4  | 1.289   | 59.37   |
| 1.10             | 0.949                  | 4335.2  | 1.269   | 58.08   |
| 1.15             | 0.964                  | 4344.0  | 1.251   | 56.81   |
| 1.20             | 0.979                  | 4352.9  | 1.235   | 55.56   |
| 1.25             | 0.993                  | 4361.7  | 1.220   | 54.33   |
| 1.30             | 1.006                  | 4370.6  | 1.206   | 53.11   |
| 1.35             | 1.019                  | 4379.5  | 1.194   | 51.90   |
| 1.40             | 1.032                  | 4388.3  | 1.182   | 50.71   |
| 1.45             | 1.044                  | 4397.2  | 1.170   | 49.53   |
| 1.50             | 1.055                  | 4406.1  | 1.160   | 48.35   |
| 1.55             | 1.067                  | 4415.0  | 1.150   | 47.20   |
| 1.60             | 1.078                  | 4424.0  | 1.140   | 46.05   |
| 1.65             | 1.089                  | 4432.9  | 1.131   | 44.91   |
| 1.70             | 1.099                  | 4441.8  | 1.122   | 43.77   |
| 1.75             | 1.109                  | 4450.8  | 1.114   | 42.65   |
| 1.80             | 1.119                  | 4459.7  | 1.107   | 41.54   |
| 1.85             | 1.129                  | 4468.7  | 1.099   | 40.43   |
| 1.90             | 1.139                  | 4477.7  | 1.092   | 39.33   |
| 1.95             | 1.148                  | 4486.7  | 1.085   | 38.24   |
| 2.00             | 1.158                  | 4495.6  | 1.079   | 37.15   |
| 2.05             | 1.167                  | 4504.6  | 1.073   | 36.08   |
| 2.10             | 1.176                  | 4513.7  | 1.066   | 35.00   |

|      |        |        |       |       |
|------|--------|--------|-------|-------|
| 2.15 | 1.184  | 4522.7 | 1.061 | 33.94 |
| 2.20 | 1.193  | 4531.7 | 1.055 | 32.88 |
| 2.25 | 1.202  | 4540.7 | 1.050 | 31.82 |
| 2.30 | 1.210  | 4549.8 | 1.045 | 30.77 |
| 2.35 | 1.218  | 4558.8 | 1.040 | 29.73 |
| 2.40 | 1.226  | 4567.9 | 1.035 | 28.69 |
| 2.45 | 1.234  | 4577.0 | 1.030 | 27.65 |
| 2.50 | 1.242  | 4586.0 | 1.026 | 26.62 |
| 2.55 | 1.250  | 4595.1 | 1.021 | 25.60 |
| 2.60 | 1.258  | 4604.2 | 1.017 | 24.58 |
| 2.65 | 1.265  | 4613.3 | 1.013 | 23.56 |
| 2.70 | 1.273  | 4622.5 | 1.009 | 22.55 |
| 2.75 | 1.280  | 4631.6 | 1.005 | 21.54 |
| 2.80 | 1.287  | 4640.7 | 1.001 | 20.53 |
| 2.85 | 1.295  | 4649.9 | 0.998 | 19.53 |
| 2.90 | 1.302  | 4659.0 | 0.994 | 18.53 |
| 2.95 | 1.309  | 4668.2 | 0.991 | 17.54 |
| 3.00 | 1.319  | 4677.4 | 0.985 | 16.55 |
| 3.05 | 1.337  | 4686.5 | 0.973 | 15.56 |
| 3.10 | 1.367  | 4695.7 | 0.954 | 14.59 |
| 3.15 | 1.407  | 4704.9 | 0.929 | 13.63 |
| 3.20 | 1.455  | 4714.1 | 0.900 | 12.71 |
| 3.25 | 1.512  | 4723.3 | 0.868 | 11.81 |
| 3.30 | 1.576  | 4732.6 | 0.834 | 10.94 |
| 3.35 | 1.646  | 4741.8 | 0.800 | 10.10 |
| 3.40 | 1.720  | 4751.0 | 0.767 | 9.30  |
| 3.45 | 1.798  | 4760.3 | 0.735 | 8.54  |
| 3.50 | 1.875  | 4769.6 | 0.707 | 7.80  |
| 3.55 | 1.936  | 4778.8 | 0.686 | 7.09  |
| 3.60 | 1.983  | 4788.1 | 0.671 | 6.41  |
| 3.65 | 2.027  | 4797.4 | 0.657 | 5.74  |
| 3.70 | 2.069  | 4806.7 | 0.645 | 5.08  |
| 3.75 | 2.109  | 4816.0 | 0.634 | 4.44  |
| 3.80 | 2.148  | 4825.3 | 0.624 | 3.80  |
| 3.85 | 2.185  | 4834.6 | 0.615 | 3.18  |
| 3.90 | 2.220  | 4844.0 | 0.606 | 2.56  |
| 3.95 | 2.255  | 4853.3 | 0.598 | 1.96  |
| 4.00 | 3.219  | 4862.7 | 0.420 | 1.36  |
| 4.05 | 5.885  | 4872.0 | 0.230 | 0.94  |
| 4.10 | 9.822  | 4881.4 | 0.138 | 0.71  |
| 4.15 | 14.667 | 4890.8 | 0.093 | 0.57  |
| 4.20 | 20.267 | 4900.2 | 0.067 | 0.48  |
| 4.25 | 26.530 | 4909.6 | 0.051 | 0.41  |
| 4.30 | 33.391 | 4919.0 | 0.041 | 0.36  |
| 4.35 | 40.801 | 4928.4 | 0.034 | 0.32  |
| 4.40 | 48.721 | 4937.8 | 0.028 | 0.29  |
| 4.45 | 57.121 | 4947.2 | 0.024 | 0.26  |
| 4.50 | 65.974 | 4956.7 | 0.021 | 0.23  |

|      |         |        |       |      |
|------|---------|--------|-------|------|
| 4.55 | 75.259  | 4966.1 | 0.018 | 0.21 |
| 4.60 | 84.955  | 4975.6 | 0.016 | 0.19 |
| 4.65 | 95.046  | 4985.1 | 0.015 | 0.18 |
| 4.70 | 105.516 | 4994.5 | 0.013 | 0.16 |
| 4.75 | 116.354 | 5004.0 | 0.012 | 0.15 |
| 4.80 | 127.546 | 5013.5 | 0.011 | 0.14 |
| 4.85 | 139.081 | 5023.0 | 0.010 | 0.13 |
| 4.90 | 150.950 | 5032.5 | 0.009 | 0.12 |
| 4.95 | 163.144 | 5042.1 | 0.009 | 0.11 |
| 5.00 | 175.653 | 5051.6 | 0.008 | 0.10 |
| 5.05 | 188.471 | 5061.1 | 0.007 | 0.09 |
| 5.10 | 201.590 | 5070.7 | 0.007 | 0.08 |
| 5.15 | 215.002 | 5080.2 | 0.007 | 0.08 |
| 5.20 | 228.703 | 5089.8 | 0.006 | 0.07 |
| 5.25 | 242.685 | 5099.4 | 0.006 | 0.06 |
| 5.30 | 256.944 | 5109.0 | 0.006 | 0.06 |
| 5.35 | 271.474 | 5118.6 | 0.005 | 0.05 |
| 5.40 | 286.270 | 5128.2 | 0.005 | 0.05 |
| 5.45 | 301.327 | 5137.8 | 0.005 | 0.04 |
| 5.50 | 316.641 | 5147.4 | 0.005 | 0.04 |
| 5.55 | 332.208 | 5157.0 | 0.004 | 0.03 |
| 5.60 | 348.024 | 5166.7 | 0.004 | 0.03 |
| 5.65 | 364.084 | 5176.3 | 0.004 | 0.02 |
| 5.70 | 380.385 | 5186.0 | 0.004 | 0.02 |
| 5.75 | 396.924 | 5195.6 | 0.004 | 0.02 |
| 5.80 | 413.697 | 5205.3 | 0.003 | 0.01 |
| 5.85 | 430.701 | 5215.0 | 0.003 | 0.01 |
| 5.90 | 447.933 | 5224.7 | 0.003 | 0.01 |
| 5.95 | 465.389 | 5234.4 | 0.003 | 0.00 |
| 6.00 |         |        |       |      |

## Otay Ranch Village 14 BF-2-2

### SWMM Model Flow Coefficient Calculation

| PARAMETER                                    | ABBREV.    | Bio-Retention Cell |                 |
|----------------------------------------------|------------|--------------------|-----------------|
| Ponding Depth                                | PD         | 6                  | in              |
| Bioretention Soil Layer                      | S          | 18                 | in              |
| Gravel Layer (Measured From Subdrain Invert) | G          | 15                 | in              |
| TOTAL                                        |            | 3.3                | ft              |
|                                              |            | 39                 | in              |
|                                              |            |                    |                 |
| Orifice Coefficient                          | $c_g$      | 0.6                | --              |
| Low Flow Orifice Diameter                    | D          | 3.2                | in              |
| Drain (Flow) exponent                        | n          | 0.5                | --              |
|                                              |            |                    |                 |
|                                              |            |                    |                 |
| Flow Rate (volumetric)                       | Q          | 0.475              | cfs             |
|                                              |            |                    |                 |
| Ponding Depth Surface Area                   | $A_{PD}$   | 84509              | ft <sup>2</sup> |
| Bioretention Surface Area                    | $A_S, A_G$ | 82774              | ft <sup>2</sup> |
|                                              | $A_S, A_G$ | 1.9002             | ac              |
| Porosity of Bioretention Soil                | n          | 0.40               | -               |
| Flow Rate (per unit area)                    | q          | 0.619              | in/hr           |
|                                              |            |                    |                 |
| Effective Ponding Depth                      | $PD_{eff}$ | 6.06               | in              |
| Flow Coefficient                             | C          | 0.1013             | --              |
| Underlying Soil Conductivity                 | in/hr      | 0.050              |                 |
| Basin Conductivity                           | cfs        | 0.098              |                 |

# Otay Ranch Village 14 BF-2-3

Discharge vs Elevation Table

|                          |         |                       |         |
|--------------------------|---------|-----------------------|---------|
| Bottom orifice diameter: | 1 "     | Top orifice diameter: | 3 "     |
| Number:                  | 1       | Number:               | 1       |
| Cg-low:                  | 0.61    | Cg-low:               | 0.61    |
| Invert elev:             | 0.50 ft | Invert elev:          | 3.00 ft |
| Middle orifice diameter: | 1 "     | Emergency weir:       |         |
| number of orif:          | 0       | Invert:               | 4.00 ft |
| Cg-middle:               | 0.61    | Weir Length (ft)      | 4.0 ft  |
| Invert elev:             | 1.50 ft |                       | 1x1 box |

| h<br>(ft) | H/D-low | H/D-mid | H/D-top | H/D-peak | Qlow-orif<br>(cfs) | Qlow-weir<br>(cfs) | Qtot-low<br>(cfs) | Qmid-orif<br>(cfs) | Qmid-weir<br>(cfs) | Qtot-med<br>(cfs) | Qtop-orif<br>(cfs) | Qtop-weir<br>(cfs) | Qtot-top<br>(cfs) | Qpeak-top<br>(cfs) | Qtot<br>(cfs) | Qtot <sub>w/Subdrain</sub><br>(cfs) |
|-----------|---------|---------|---------|----------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|---------------|-------------------------------------|
| 0         | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.05      | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.1       | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.15      | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.2       | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.25      | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.3       | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.35      | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.4       | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.45      | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.5       | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.55      | 0.60    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0021        | 0.049                               |
| 0.6       | 1.20    | 0.00    | 0.00    | 0.00     | 0.01               | 0.01               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0064        | 0.053                               |
| 0.65      | 1.80    | 0.00    | 0.00    | 0.00     | 0.01               | 0.01               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0088        | 0.056                               |
| 0.7       | 2.40    | 0.00    | 0.00    | 0.00     | 0.01               | 0.01               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0106        | 0.058                               |
| 0.75      | 3.00    | 0.00    | 0.00    | 0.00     | 0.01               | 0.01               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0122        | 0.059                               |
| 0.8       | 3.60    | 0.00    | 0.00    | 0.00     | 0.01               | 0.02               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0136        | 0.061                               |
| 0.85      | 4.20    | 0.00    | 0.00    | 0.00     | 0.01               | 0.03               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0148        | 0.062                               |
| 0.9       | 4.80    | 0.00    | 0.00    | 0.00     | 0.02               | 0.07               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0160        | 0.063                               |
| 0.95      | 5.40    | 0.00    | 0.00    | 0.00     | 0.02               | 0.16               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0171        | 0.064                               |
| 1         | 6.00    | 0.00    | 0.00    | 0.00     | 0.02               | 0.34               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0181        | 0.065                               |
| 1.05      | 6.60    | 0.00    | 0.00    | 0.00     | 0.02               | 0.65               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0190        | 0.066                               |
| 1.1       | 7.20    | 0.00    | 0.00    | 0.00     | 0.02               | 1.15               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0200        | 0.067                               |
| 1.15      | 7.80    | 0.00    | 0.00    | 0.00     | 0.02               | 1.92               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0208        | 0.068                               |
| 1.2       | 8.40    | 0.00    | 0.00    | 0.00     | 0.02               | 3.03               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0217        | 0.069                               |
| 1.25      | 9.00    | 0.00    | 0.00    | 0.00     | 0.02               | 4.60               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0225        | 0.070                               |
| 1.3       | 9.60    | 0.00    | 0.00    | 0.00     | 0.02               | 6.74               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0233        | 0.070                               |
| 1.35      | 10.20   | 0.00    | 0.00    | 0.00     | 0.02               | 9.61               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0240        | 0.071                               |
| 1.4       | 10.80   | 0.00    | 0.00    | 0.00     | 0.02               | 13.38              | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0247        | 0.072                               |
| 1.45      | 11.40   | 0.00    | 0.00    | 0.00     | 0.03               | 18.22              | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0254        | 0.072                               |
| 1.5       | 12.00   | 0.00    | 0.00    | 0.00     | 0.03               | 24.36              | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0261        | 0.073                               |
| 1.55      | 12.60   | 0.60    | 0.00    | 0.00     | 0.03               | 32.03              | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0268        | 0.074                               |
| 1.6       | 13.20   | 1.20    | 0.00    | 0.00     | 0.03               | 41.50              | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0275        | 0.075                               |
| 1.65      | 13.80   | 1.80    | 0.00    | 0.00     | 0.03               | 53.07              | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0281        | 0.075                               |
| 1.7       | 14.40   | 2.40    | 0.00    | 0.00     | 0.03               | 67.08              | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0287        | 0.076                               |
| 1.75      | 15.00   | 3.00    | 0.00    | 0.00     | 0.03               | 83.87              | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0293        | 0.076                               |
| 1.8       | 15.60   | 3.60    | 0.00    | 0.00     | 0.03               | 103.84             | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0300        | 0.077                               |
| 1.85      | 16.20   | 4.20    | 0.00    | 0.00     | 0.03               | 127.43             | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0305        | 0.078                               |
| 1.9       | 16.80   | 4.80    | 0.00    | 0.00     | 0.03               | 155.09             | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0311        | 0.078                               |
| 1.95      | 17.40   | 5.40    | 0.00    | 0.00     | 0.03               | 187.34             | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0317        | 0.079                               |
| 2         | 18.00   | 6.00    | 0.00    | 0.00     | 0.03               | 224.72             | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0322        | 0.079                               |
| 2.05      | 18.60   | 6.60    | 0.00    | 0.00     | 0.03               | 267.80             | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0328        | 0.080                               |
| 2.1       | 19.20   | 7.20    | 0.00    | 0.00     | 0.03               | 317.23             | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0333        | 0.080                               |
| 2.15      | 19.80   | 7.80    | 0.00    | 0.00     | 0.03               | 373.67             | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0339        | 0.081                               |
| 2.2       | 20.40   | 8.40    | 0.00    | 0.00     | 0.03               | 437.84             | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0344        | 0.081                               |
| 2.25      | 21.00   | 9.00    | 0.00    | 0.00     | 0.03               | 510.51             | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0349        | 0.082                               |
| 2.3       | 21.60   | 9.60    | 0.00    | 0.00     | 0.04               | 592.48             | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0354        | 0.082                               |
| 2.35      | 22.20   | 10.20   | 0.00    | 0.00     | 0.04               | 684.63             | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0359        | 0.083                               |
| 2.4       | 22.80   | 10.80   | 0.00    | 0.00     | 0.04               | 787.87             | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0364        | 0.083                               |
| 2.45      | 23.40   | 11.40   | 0.00    | 0.00     | 0.04               | 903.17             | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0369        | 0.084                               |
| 2.5       | 24.00   | 12.00   | 0.00    | 0.00     | 0.04               | 1031.55            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0374        | 0.084                               |
| 2.55      | 24.60   | 12.60   | 0.00    | 0.00     | 0.04               | 1174.09            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0378        | 0.085                               |
| 2.6       | 25.20   | 13.20   | 0.00    | 0.00     | 0.04               | 1331.93            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0383        | 0.085                               |
| 2.65      | 25.80   | 13.80   | 0.00    | 0.00     | 0.04               | 1506.26            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0388        | 0.086                               |
| 2.7       | 26.40   | 14.40   | 0.00    | 0.00     | 0.04               | 1698.35            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0392        | 0.086                               |
| 2.75      | 27.00   | 15.00   | 0.00    | 0.00     | 0.04               | 1909.52            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0397        | 0.087                               |
| 2.8       | 27.60   | 15.60   | 0.00    | 0.00     | 0.04               | 2141.14            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0401        | 0.087                               |
| 2.85      | 28.20   | 16.20   | 0.00    | 0.00     | 0.04               | 2394.66            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0406        | 0.088                               |
| 2.9       | 28.80   | 16.80   | 0.00    | 0.00     | 0.04               | 2671.61            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0410        | 0.088                               |
| 2.95      | 29.40   | 17.40   | 0.00    | 0.00     | 0.04               | 2973.56            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0414        | 0.088                               |
| 3         | 30.00   | 18.00   | 0.00    | 0.00     | 0.04               | 3302.17            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0419        | 0.089                               |
| 3.05      | 30.60   | 18.60   | 0.20    | 0.00     | 0.04               | 3659.16            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0464        | 0.093                               |
| 3.1       | 31.20   | 19.20   | 0.40    | 0.00     | 0.04               | 4046.33            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.02               | 0.02              | 0.00               | 0.0585        | 0.105                               |
| 3.15      | 31.80   | 19.80   | 0.60    | 0.00     | 0.04               | 4465.55            | 0.04              | 0                  |                    |                   |                    |                    |                   |                    |               |                                     |

Otay Ranch Village 14 BF-2-3

Discharge vs Elevation Table

|                          |         |                       |         |
|--------------------------|---------|-----------------------|---------|
| Bottom orifice diameter: | 1 "     | Top orifice diameter: | 3 "     |
| Number:                  | 1       | Number:               | 1       |
| Cg-low:                  | 0.61    | Cg-low:               | 0.61    |
| Invert elev:             | 0.50 ft | Invert elev:          | 3.00 ft |
| Middle orifice diameter: | 1 "     | Emergency weir:       |         |
| number of orif:          | 0       | Invert:               | 4.00 ft |
| Cg-middle:               | 0.61    | Weir Length (ft)      | 4.0 ft  |
| Invert elev:             | 1.50 ft |                       | 1x1 box |

|      |       |       |       |      |      |           |      |      |      |      |      |        |      |       |         |        |
|------|-------|-------|-------|------|------|-----------|------|------|------|------|------|--------|------|-------|---------|--------|
| 4.5  | 48.00 | 36.00 | 6.00  | 1.50 | 0.05 | 37023.56  | 0.05 | 0.00 | 0.00 | 0.00 | 0.28 | 5.36   | 0.28 | 4.71  | 5.0442  | 5.091  |
| 4.55 | 48.60 | 36.60 | 6.20  | 1.65 | 0.05 | 39448.12  | 0.05 | 0.00 | 0.00 | 0.00 | 0.29 | 6.70   | 0.29 | 5.43  | 5.7734  | 5.820  |
| 4.6  | 49.20 | 37.20 | 6.40  | 1.80 | 0.05 | 41997.99  | 0.05 | 0.00 | 0.00 | 0.00 | 0.29 | 8.31   | 0.29 | 6.19  | 6.5362  | 6.583  |
| 4.65 | 49.80 | 37.80 | 6.60  | 1.95 | 0.05 | 44677.97  | 0.05 | 0.00 | 0.00 | 0.00 | 0.30 | 10.20  | 0.30 | 6.98  | 7.3312  | 7.378  |
| 4.7  | 50.40 | 38.40 | 6.80  | 2.10 | 0.05 | 47492.96  | 0.05 | 0.00 | 0.00 | 0.00 | 0.30 | 12.42  | 0.30 | 7.80  | 8.1570  | 8.204  |
| 4.75 | 51.00 | 39.00 | 7.00  | 2.25 | 0.05 | 50448.01  | 0.05 | 0.00 | 0.00 | 0.00 | 0.31 | 15.00  | 0.31 | 8.65  | 9.0127  | 9.060  |
| 4.8  | 51.60 | 39.60 | 7.20  | 2.40 | 0.06 | 53548.26  | 0.06 | 0.00 | 0.00 | 0.00 | 0.31 | 17.99  | 0.31 | 9.53  | 9.8971  | 9.944  |
| 4.85 | 52.20 | 40.20 | 7.40  | 2.55 | 0.06 | 56799.02  | 0.06 | 0.00 | 0.00 | 0.00 | 0.32 | 21.43  | 0.32 | 10.44 | 10.8094 | 10.856 |
| 4.9  | 52.80 | 40.80 | 7.60  | 2.70 | 0.06 | 60205.68  | 0.06 | 0.00 | 0.00 | 0.00 | 0.32 | 25.37  | 0.32 | 11.37 | 11.7487 | 11.796 |
| 4.95 | 53.40 | 41.40 | 7.80  | 2.85 | 0.06 | 63773.78  | 0.06 | 0.00 | 0.00 | 0.00 | 0.32 | 29.87  | 0.32 | 12.33 | 12.7143 | 12.761 |
| 5    | 54.00 | 42.00 | 8.00  | 3.00 | 0.06 | 67509.00  | 0.06 | 0.00 | 0.00 | 0.00 | 0.33 | 34.96  | 0.33 | 13.32 | 13.7054 | 13.752 |
| 5.05 | 54.60 | 42.60 | 8.20  | 3.15 | 0.06 | 71417.13  | 0.06 | 0.00 | 0.00 | 0.00 | 0.33 | 40.72  | 0.33 | 14.33 | 14.7215 | 14.769 |
| 5.1  | 55.20 | 43.20 | 8.40  | 3.30 | 0.06 | 75504.11  | 0.06 | 0.00 | 0.00 | 0.00 | 0.34 | 47.20  | 0.34 | 15.37 | 15.7618 | 15.809 |
| 5.15 | 55.80 | 43.80 | 8.60  | 3.45 | 0.06 | 79776.00  | 0.06 | 0.00 | 0.00 | 0.00 | 0.34 | 54.47  | 0.34 | 16.43 | 16.8260 | 16.873 |
| 5.2  | 56.40 | 44.40 | 8.80  | 3.60 | 0.06 | 84239.00  | 0.06 | 0.00 | 0.00 | 0.00 | 0.35 | 62.59  | 0.35 | 17.51 | 17.9134 | 17.960 |
| 5.25 | 57.00 | 45.00 | 9.00  | 3.75 | 0.06 | 88899.46  | 0.06 | 0.00 | 0.00 | 0.00 | 0.35 | 71.64  | 0.35 | 18.62 | 19.0235 | 19.071 |
| 5.3  | 57.60 | 45.60 | 9.20  | 3.90 | 0.06 | 93763.84  | 0.06 | 0.00 | 0.00 | 0.00 | 0.35 | 81.69  | 0.35 | 19.74 | 20.1559 | 20.203 |
| 5.35 | 58.20 | 46.20 | 9.40  | 4.05 | 0.06 | 98838.78  | 0.06 | 0.00 | 0.00 | 0.00 | 0.36 | 92.82  | 0.36 | 20.89 | 21.3102 | 21.357 |
| 5.4  | 58.80 | 46.80 | 9.60  | 4.20 | 0.06 | 104131.02 | 0.06 | 0.00 | 0.00 | 0.00 | 0.36 | 105.11 | 0.36 | 22.06 | 22.4859 | 22.533 |
| 5.45 | 59.40 | 47.40 | 9.80  | 4.35 | 0.06 | 109647.47 | 0.06 | 0.00 | 0.00 | 0.00 | 0.37 | 118.66 | 0.37 | 23.26 | 23.6827 | 23.730 |
| 5.5  | 60.00 | 48.00 | 10.00 | 4.50 | 0.06 | 115395.17 | 0.06 | 0.00 | 0.00 | 0.00 | 0.37 | 133.55 | 0.37 | 24.47 | 24.9002 | 24.947 |
| 5.55 | 60.60 | 48.60 | 10.20 | 4.65 | 0.06 | 121381.33 | 0.06 | 0.00 | 0.00 | 0.00 | 0.37 | 149.88 | 0.37 | 25.70 | 26.1380 | 26.185 |
| 5.6  | 61.20 | 49.20 | 10.40 | 4.80 | 0.06 | 127613.27 | 0.06 | 0.00 | 0.00 | 0.00 | 0.38 | 167.75 | 0.38 | 26.96 | 27.3959 | 27.443 |
| 5.65 | 61.80 | 49.80 | 10.60 | 4.95 | 0.06 | 134098.49 | 0.06 | 0.00 | 0.00 | 0.00 | 0.38 | 187.26 | 0.38 | 28.23 | 28.6734 | 28.720 |
| 5.7  | 62.40 | 50.40 | 10.80 | 5.10 | 0.06 | 140844.63 | 0.06 | 0.00 | 0.00 | 0.00 | 0.39 | 208.52 | 0.39 | 29.52 | 29.9704 | 30.017 |
| 5.75 | 63.00 | 51.00 | 11.00 | 5.25 | 0.06 | 147859.48 | 0.06 | 0.00 | 0.00 | 0.00 | 0.39 | 231.66 | 0.39 | 30.84 | 31.2865 | 31.334 |
| 5.8  | 63.60 | 51.60 | 11.20 | 5.40 | 0.06 | 155150.98 | 0.06 | 0.00 | 0.00 | 0.00 | 0.39 | 256.77 | 0.39 | 32.17 | 32.6214 | 32.668 |
| 5.85 | 64.20 | 52.20 | 11.40 | 5.55 | 0.06 | 162727.25 | 0.06 | 0.00 | 0.00 | 0.00 | 0.40 | 284.00 | 0.40 | 33.52 | 33.9749 | 34.022 |
| 5.9  | 64.80 | 52.80 | 11.60 | 5.70 | 0.06 | 170596.52 | 0.06 | 0.00 | 0.00 | 0.00 | 0.40 | 313.47 | 0.40 | 34.88 | 35.3468 | 35.394 |
| 5.95 | 65.40 | 53.40 | 11.80 | 5.85 | 0.06 | 178767.23 | 0.06 | 0.00 | 0.00 | 0.00 | 0.40 | 345.31 | 0.40 | 36.27 | 36.7367 | 36.784 |
| 6    | 66.00 | 54.00 | 12.00 | 6.00 | 0.06 | 187247.94 | 0.06 | 0.00 | 0.00 | 0.00 | 0.41 | 379.66 | 0.41 | 37.67 | 38.1445 | 38.192 |

Otay Ranch Village 14 BF-2-3

Stage vs Area Table

| depth | area | area (ac) | elevation | volume (cf) | volume (ac-ft) |
|-------|------|-----------|-----------|-------------|----------------|
| 0.00  | 5627 | 0.129     | 0         | 0           | 0              |
| 0.05  | 5672 | 0.130     | 0.05      | 282         | 0.0065         |
| 0.10  | 5717 | 0.131     | 0.10      | 567         | 0.0130         |
| 0.15  | 5763 | 0.132     | 0.15      | 854         | 0.0196         |
| 0.20  | 5808 | 0.133     | 0.20      | 1144        | 0.0263         |
| 0.25  | 5854 | 0.134     | 0.25      | 1435        | 0.0329         |
| 0.30  | 5900 | 0.135     | 0.30      | 1729        | 0.0397         |
| 0.35  | 5946 | 0.137     | 0.35      | 2025        | 0.0465         |
| 0.40  | 5993 | 0.138     | 0.40      | 2324        | 0.0533         |
| 0.45  | 6039 | 0.139     | 0.45      | 2624        | 0.0602         |
| 0.50  | 6086 | 0.140     | 0.50      | 2928        | 0.0672         |
| 0.55  | 6133 | 0.141     | 0.55      | 3233        | 0.0742         |
| 0.60  | 6180 | 0.142     | 0.60      | 3541        | 0.0813         |
| 0.65  | 6227 | 0.143     | 0.65      | 3851        | 0.0884         |
| 0.70  | 6275 | 0.144     | 0.70      | 4164        | 0.0956         |
| 0.75  | 6322 | 0.145     | 0.75      | 4478        | 0.1028         |
| 0.80  | 6370 | 0.146     | 0.80      | 4796        | 0.1101         |
| 0.85  | 6418 | 0.147     | 0.85      | 5116        | 0.1174         |
| 0.90  | 6466 | 0.148     | 0.90      | 5438        | 0.1248         |
| 0.95  | 6515 | 0.150     | 0.95      | 5762        | 0.1323         |
| 1.00  | 6563 | 0.151     | 1.00      | 6089        | 0.1398         |
| 1.05  | 6612 | 0.152     | 1.05      | 6418        | 0.1473         |
| 1.10  | 6661 | 0.153     | 1.10      | 6750        | 0.1550         |
| 1.15  | 6710 | 0.154     | 1.15      | 7085        | 0.1626         |
| 1.20  | 6759 | 0.155     | 1.20      | 7421        | 0.1704         |
| 1.25  | 6808 | 0.156     | 1.25      | 7760        | 0.1782         |
| 1.30  | 6858 | 0.157     | 1.30      | 8102        | 0.1860         |
| 1.35  | 6908 | 0.159     | 1.35      | 8446        | 0.1939         |
| 1.40  | 6958 | 0.160     | 1.40      | 8793        | 0.2019         |
| 1.45  | 7008 | 0.161     | 1.45      | 9142        | 0.2099         |
| 1.50  | 7058 | 0.162     | 1.50      | 9494        | 0.2179         |
| 1.55  | 7109 | 0.163     | 1.55      | 9848        | 0.2261         |
| 1.60  | 7159 | 0.164     | 1.60      | 10205       | 0.2343         |
| 1.65  | 7210 | 0.166     | 1.65      | 10564       | 0.2425         |
| 1.70  | 7261 | 0.167     | 1.70      | 10926       | 0.2508         |
| 1.75  | 7313 | 0.168     | 1.75      | 11290       | 0.2592         |
| 1.80  | 7364 | 0.169     | 1.80      | 11657       | 0.2676         |
| 1.85  | 7416 | 0.170     | 1.85      | 12026       | 0.2761         |
| 1.90  | 7467 | 0.171     | 1.90      | 12398       | 0.2846         |
| 1.95  | 7519 | 0.173     | 1.95      | 12773       | 0.2932         |
| 2.00  | 7571 | 0.174     | 2.00      | 13150       | 0.3019         |
| 2.05  | 7624 | 0.175     | 2.05      | 13530       | 0.3106         |
| 2.10  | 7676 | 0.176     | 2.10      | 13913       | 0.3194         |
| 2.15  | 7729 | 0.177     | 2.15      | 14298       | 0.3282         |
| 2.20  | 7782 | 0.179     | 2.20      | 14686       | 0.3371         |
| 2.25  | 7835 | 0.180     | 2.25      | 15076       | 0.3461         |
| 2.30  | 7888 | 0.181     | 2.30      | 15469       | 0.3551         |
| 2.35  | 7941 | 0.182     | 2.35      | 15865       | 0.3642         |
| 2.40  | 7995 | 0.184     | 2.40      | 16263       | 0.3734         |
| 2.45  | 8048 | 0.185     | 2.45      | 16664       | 0.3826         |
| 2.50  | 8102 | 0.186     | 2.50      | 17068       | 0.3918         |
| 2.55  | 8156 | 0.187     | 2.55      | 17475       | 0.4012         |
| 2.60  | 8211 | 0.188     | 2.60      | 17884       | 0.4106         |
| 2.65  | 8265 | 0.190     | 2.65      | 18296       | 0.4200         |
| 2.70  | 8320 | 0.191     | 2.70      | 18710       | 0.4295         |
| 2.75  | 8375 | 0.192     | 2.75      | 19128       | 0.4391         |
| 2.80  | 8430 | 0.194     | 2.80      | 19548       | 0.4488         |
| 2.85  | 8485 | 0.195     | 2.85      | 19971       | 0.4585         |
| 2.90  | 8540 | 0.196     | 2.90      | 20396       | 0.4682         |
| 2.95  | 8596 | 0.197     | 2.95      | 20825       | 0.4781         |
| 3.00  | 8651 | 0.199     | 3.00      | 21256       | 0.4880         |

|      |       |       |      |       |        |
|------|-------|-------|------|-------|--------|
| 3.05 | 8707  | 0.200 | 3.05 | 21690 | 0.4979 |
| 3.10 | 8763  | 0.201 | 3.10 | 22127 | 0.5080 |
| 3.15 | 8820  | 0.202 | 3.15 | 22566 | 0.5180 |
| 3.20 | 8876  | 0.204 | 3.20 | 23008 | 0.5282 |
| 3.25 | 8933  | 0.205 | 3.25 | 23454 | 0.5384 |
| 3.30 | 8990  | 0.206 | 3.30 | 23902 | 0.5487 |
| 3.35 | 9047  | 0.208 | 3.35 | 24353 | 0.5591 |
| 3.40 | 9104  | 0.209 | 3.40 | 24806 | 0.5695 |
| 3.45 | 9161  | 0.210 | 3.45 | 25263 | 0.5800 |
| 3.50 | 9219  | 0.212 | 3.50 | 25723 | 0.5905 |
| 3.55 | 9276  | 0.213 | 3.55 | 26185 | 0.6011 |
| 3.60 | 9334  | 0.214 | 3.60 | 26650 | 0.6118 |
| 3.65 | 9392  | 0.216 | 3.65 | 27118 | 0.6226 |
| 3.70 | 9450  | 0.217 | 3.70 | 27589 | 0.6334 |
| 3.75 | 9509  | 0.218 | 3.75 | 28063 | 0.6442 |
| 3.80 | 9567  | 0.220 | 3.80 | 28540 | 0.6552 |
| 3.85 | 9626  | 0.221 | 3.85 | 29020 | 0.6662 |
| 3.90 | 9685  | 0.222 | 3.90 | 29503 | 0.6773 |
| 3.95 | 9744  | 0.224 | 3.95 | 29989 | 0.6884 |
| 4.00 | 9804  | 0.225 | 4.00 | 30477 | 0.6997 |
| 4.05 | 9863  | 0.226 | 4.05 | 30969 | 0.7110 |
| 4.10 | 9923  | 0.228 | 4.10 | 31464 | 0.7223 |
| 4.15 | 9983  | 0.229 | 4.15 | 31961 | 0.7337 |
| 4.20 | 10043 | 0.231 | 4.20 | 32462 | 0.7452 |
| 4.25 | 10103 | 0.232 | 4.25 | 32966 | 0.7568 |
| 4.30 | 10163 | 0.233 | 4.30 | 33472 | 0.7684 |
| 4.35 | 10224 | 0.235 | 4.35 | 33982 | 0.7801 |
| 4.40 | 10285 | 0.236 | 4.40 | 34495 | 0.7919 |
| 4.45 | 10346 | 0.238 | 4.45 | 35010 | 0.8037 |
| 4.50 | 10407 | 0.239 | 4.50 | 35529 | 0.8156 |
| 4.55 | 10468 | 0.240 | 4.55 | 36051 | 0.8276 |
| 4.60 | 10529 | 0.242 | 4.60 | 36576 | 0.8397 |
| 4.65 | 10591 | 0.243 | 4.65 | 37104 | 0.8518 |
| 4.70 | 10653 | 0.245 | 4.70 | 37635 | 0.8640 |
| 4.75 | 10715 | 0.246 | 4.75 | 38169 | 0.8762 |
| 4.80 | 10777 | 0.247 | 4.80 | 38707 | 0.8886 |
| 4.85 | 10840 | 0.249 | 4.85 | 39247 | 0.9010 |
| 4.90 | 10902 | 0.250 | 4.90 | 39791 | 0.9135 |
| 4.95 | 10965 | 0.252 | 4.95 | 40337 | 0.9260 |
| 5.00 | 11028 | 0.253 | 5.00 | 40887 | 0.9386 |
| 5.05 | 11091 | 0.255 | 5.05 | 41440 | 0.9513 |
| 5.10 | 11154 | 0.256 | 5.10 | 41996 | 0.9641 |
| 5.15 | 11218 | 0.258 | 5.15 | 42555 | 0.9769 |
| 5.20 | 11281 | 0.259 | 5.20 | 43118 | 0.9899 |
| 5.25 | 11345 | 0.260 | 5.25 | 43684 | 1.0028 |
| 5.30 | 11409 | 0.262 | 5.30 | 44252 | 1.0159 |
| 5.35 | 11473 | 0.263 | 5.35 | 44825 | 1.0290 |
| 5.40 | 11538 | 0.265 | 5.40 | 45400 | 1.0422 |
| 5.45 | 11602 | 0.266 | 5.45 | 45978 | 1.0555 |
| 5.50 | 11667 | 0.268 | 5.50 | 46560 | 1.0689 |
| 5.55 | 11732 | 0.269 | 5.55 | 47145 | 1.0823 |
| 5.60 | 11797 | 0.271 | 5.60 | 47733 | 1.0958 |
| 5.65 | 11862 | 0.272 | 5.65 | 48325 | 1.1094 |
| 5.70 | 11928 | 0.274 | 5.70 | 48919 | 1.1230 |
| 5.75 | 11993 | 0.275 | 5.75 | 49517 | 1.1368 |
| 5.80 | 12059 | 0.277 | 5.80 | 50119 | 1.1506 |
| 5.85 | 12125 | 0.278 | 5.85 | 50723 | 1.1644 |
| 5.90 | 12191 | 0.280 | 5.90 | 51331 | 1.1784 |
| 5.95 | 12257 | 0.281 | 5.95 | 51942 | 1.1924 |
| 6.00 | 12324 | 0.283 | 6.00 | 52557 | 1.2065 |



## Otay Ranch Village 14 BF-2-3

| <u>Draw Down</u> |                        |         |         |         |
|------------------|------------------------|---------|---------|---------|
| Elevation        | Q <sub>AVG</sub> (CFS) | DV (CF) | DT (HR) | Total T |
| 0.00             | 0.051                  | 282.5   | 1.552   | 95.89   |
| 0.05             | 0.051                  | 284.7   | 1.564   | 94.33   |
| 0.10             | 0.051                  | 287.0   | 1.577   | 92.77   |
| 0.15             | 0.051                  | 289.3   | 1.589   | 91.19   |
| 0.20             | 0.051                  | 291.6   | 1.602   | 89.60   |
| 0.25             | 0.051                  | 293.9   | 1.614   | 88.00   |
| 0.30             | 0.051                  | 296.2   | 1.627   | 86.39   |
| 0.35             | 0.051                  | 298.5   | 1.640   | 84.76   |
| 0.40             | 0.051                  | 300.8   | 1.653   | 83.12   |
| 0.45             | 0.051                  | 303.1   | 1.665   | 81.47   |
| 0.50             | 0.052                  | 305.5   | 1.643   | 79.80   |
| 0.55             | 0.055                  | 307.8   | 1.559   | 78.16   |
| 0.60             | 0.058                  | 310.2   | 1.481   | 76.60   |
| 0.65             | 0.060                  | 312.6   | 1.441   | 75.12   |
| 0.70             | 0.062                  | 314.9   | 1.412   | 73.68   |
| 0.75             | 0.063                  | 317.3   | 1.389   | 72.27   |
| 0.80             | 0.065                  | 319.7   | 1.371   | 70.88   |
| 0.85             | 0.066                  | 322.1   | 1.356   | 69.51   |
| 0.90             | 0.067                  | 324.5   | 1.344   | 68.15   |
| 0.95             | 0.068                  | 326.9   | 1.333   | 66.81   |
| 1.00             | 0.069                  | 329.4   | 1.324   | 65.47   |
| 1.05             | 0.070                  | 331.8   | 1.316   | 64.15   |
| 1.10             | 0.071                  | 334.3   | 1.309   | 62.83   |
| 1.15             | 0.072                  | 336.7   | 1.303   | 61.53   |
| 1.20             | 0.073                  | 339.2   | 1.297   | 60.22   |
| 1.25             | 0.073                  | 341.7   | 1.293   | 58.93   |
| 1.30             | 0.074                  | 344.1   | 1.289   | 57.63   |
| 1.35             | 0.075                  | 346.6   | 1.285   | 56.34   |
| 1.40             | 0.076                  | 349.1   | 1.282   | 55.06   |
| 1.45             | 0.076                  | 351.7   | 1.279   | 53.78   |
| 1.50             | 0.077                  | 354.2   | 1.277   | 52.50   |
| 1.55             | 0.078                  | 356.7   | 1.275   | 51.22   |
| 1.60             | 0.078                  | 359.2   | 1.274   | 49.95   |
| 1.65             | 0.079                  | 361.8   | 1.272   | 48.67   |
| 1.70             | 0.080                  | 364.3   | 1.271   | 47.40   |
| 1.75             | 0.080                  | 366.9   | 1.271   | 46.13   |
| 1.80             | 0.081                  | 369.5   | 1.270   | 44.86   |
| 1.85             | 0.081                  | 372.1   | 1.270   | 43.59   |
| 1.90             | 0.082                  | 374.7   | 1.270   | 42.32   |
| 1.95             | 0.083                  | 377.3   | 1.270   | 41.05   |
| 2.00             | 0.083                  | 379.9   | 1.270   | 39.78   |
| 2.05             | 0.084                  | 382.5   | 1.271   | 38.51   |
| 2.10             | 0.084                  | 385.1   | 1.271   | 37.24   |

|      |       |       |       |       |
|------|-------|-------|-------|-------|
| 2.15 | 0.085 | 387.8 | 1.272 | 35.97 |
| 2.20 | 0.085 | 390.4 | 1.273 | 34.69 |
| 2.25 | 0.086 | 393.1 | 1.274 | 33.42 |
| 2.30 | 0.086 | 395.7 | 1.275 | 32.15 |
| 2.35 | 0.087 | 398.4 | 1.276 | 30.87 |
| 2.40 | 0.087 | 401.1 | 1.278 | 29.60 |
| 2.45 | 0.088 | 403.8 | 1.279 | 28.32 |
| 2.50 | 0.088 | 406.5 | 1.281 | 27.04 |
| 2.55 | 0.089 | 409.2 | 1.282 | 25.76 |
| 2.60 | 0.089 | 411.9 | 1.284 | 24.48 |
| 2.65 | 0.090 | 414.6 | 1.286 | 23.19 |
| 2.70 | 0.090 | 417.4 | 1.288 | 21.91 |
| 2.75 | 0.090 | 420.1 | 1.290 | 20.62 |
| 2.80 | 0.091 | 422.9 | 1.292 | 19.33 |
| 2.85 | 0.091 | 425.6 | 1.294 | 18.04 |
| 2.90 | 0.092 | 428.4 | 1.297 | 16.74 |
| 2.95 | 0.092 | 431.2 | 1.299 | 15.45 |
| 3.00 | 0.095 | 434.0 | 1.273 | 14.15 |
| 3.05 | 0.103 | 436.8 | 1.178 | 12.87 |
| 3.10 | 0.118 | 439.6 | 1.034 | 11.70 |
| 3.15 | 0.139 | 442.4 | 0.887 | 10.66 |
| 3.20 | 0.163 | 445.2 | 0.760 | 9.78  |
| 3.25 | 0.186 | 448.1 | 0.671 | 9.02  |
| 3.30 | 0.202 | 450.9 | 0.619 | 8.35  |
| 3.35 | 0.215 | 453.8 | 0.585 | 7.73  |
| 3.40 | 0.227 | 456.6 | 0.558 | 7.14  |
| 3.45 | 0.238 | 459.5 | 0.535 | 6.58  |
| 3.50 | 0.249 | 462.4 | 0.517 | 6.05  |
| 3.55 | 0.258 | 465.3 | 0.501 | 5.53  |
| 3.60 | 0.267 | 468.2 | 0.487 | 5.03  |
| 3.65 | 0.276 | 471.1 | 0.474 | 4.54  |
| 3.70 | 0.284 | 474.0 | 0.463 | 4.07  |
| 3.75 | 0.292 | 476.9 | 0.453 | 3.61  |
| 3.80 | 0.300 | 479.8 | 0.444 | 3.15  |
| 3.85 | 0.307 | 482.8 | 0.436 | 2.71  |
| 3.90 | 0.315 | 485.7 | 0.429 | 2.27  |
| 3.95 | 0.322 | 488.7 | 0.422 | 1.84  |
| 4.00 | 0.403 | 491.7 | 0.339 | 1.42  |
| 4.05 | 0.620 | 494.6 | 0.222 | 1.08  |
| 4.10 | 0.939 | 497.6 | 0.147 | 0.86  |
| 4.15 | 1.330 | 500.6 | 0.105 | 0.71  |
| 4.20 | 1.782 | 503.6 | 0.079 | 0.61  |
| 4.25 | 2.287 | 506.7 | 0.062 | 0.53  |
| 4.30 | 2.839 | 509.7 | 0.050 | 0.47  |
| 4.35 | 3.435 | 512.7 | 0.041 | 0.42  |
| 4.40 | 4.072 | 515.8 | 0.035 | 0.38  |
| 4.45 | 4.748 | 518.8 | 0.030 | 0.34  |
| 4.50 | 5.459 | 521.9 | 0.027 | 0.31  |

|      |        |       |       |      |
|------|--------|-------|-------|------|
| 4.55 | 6.205  | 524.9 | 0.023 | 0.29 |
| 4.60 | 6.984  | 528.0 | 0.021 | 0.26 |
| 4.65 | 7.795  | 531.1 | 0.019 | 0.24 |
| 4.70 | 8.635  | 534.2 | 0.017 | 0.22 |
| 4.75 | 9.505  | 537.3 | 0.016 | 0.21 |
| 4.80 | 10.404 | 540.4 | 0.014 | 0.19 |
| 4.85 | 11.330 | 543.5 | 0.013 | 0.18 |
| 4.90 | 12.282 | 546.7 | 0.012 | 0.16 |
| 4.95 | 13.260 | 549.8 | 0.012 | 0.15 |
| 5.00 | 14.264 | 553.0 | 0.011 | 0.14 |
| 5.05 | 15.292 | 556.1 | 0.010 | 0.13 |
| 5.10 | 16.344 | 559.3 | 0.010 | 0.12 |
| 5.15 | 17.420 | 562.5 | 0.009 | 0.11 |
| 5.20 | 18.519 | 565.7 | 0.008 | 0.10 |
| 5.25 | 19.640 | 568.9 | 0.008 | 0.09 |
| 5.30 | 20.784 | 572.1 | 0.008 | 0.08 |
| 5.35 | 21.949 | 575.3 | 0.007 | 0.07 |
| 5.40 | 23.135 | 578.5 | 0.007 | 0.07 |
| 5.45 | 24.342 | 581.7 | 0.007 | 0.06 |
| 5.50 | 25.570 | 585.0 | 0.006 | 0.05 |
| 5.55 | 26.817 | 588.2 | 0.006 | 0.05 |
| 5.60 | 28.085 | 591.5 | 0.006 | 0.04 |
| 5.65 | 29.372 | 594.7 | 0.006 | 0.04 |
| 5.70 | 30.679 | 598.0 | 0.005 | 0.03 |
| 5.75 | 32.005 | 601.3 | 0.005 | 0.02 |
| 5.80 | 33.349 | 604.6 | 0.005 | 0.02 |
| 5.85 | 34.711 | 607.9 | 0.005 | 0.01 |
| 5.90 | 36.092 | 611.2 | 0.005 | 0.01 |
| 5.95 | 37.491 | 614.5 | 0.005 | 0.00 |
| 6.00 |        |       |       |      |

## Otay Ranch Village 14 BF-2-3

### SWMM Model Flow Coefficient Calculation

| PARAMETER                                    | ABBREV.    | Bio-Retention Cell |                 |
|----------------------------------------------|------------|--------------------|-----------------|
| Ponding Depth                                | PD         | 6                  | in              |
| Bioretention Soil Layer                      | S          | 18                 | in              |
| Gravel Layer (Measured From Subdrain Invert) | G          | 15                 | in              |
| TOTAL                                        |            | 3.3                | ft              |
|                                              |            | 39                 | in              |
|                                              |            |                    |                 |
| Orifice Coefficient                          | $c_g$      | 0.6                | --              |
| Low Flow Orifice Diameter                    | D          | 1                  | in              |
| Drain (Flow) exponent                        | n          | 0.5                | --              |
|                                              |            |                    |                 |
|                                              |            |                    |                 |
| Flow Rate (volumetric)                       | Q          | 0.047              | cfs             |
|                                              |            |                    |                 |
| Ponding Depth Surface Area                   | $A_{PD}$   | 6086               | ft <sup>2</sup> |
| Bioretention Surface Area                    | $A_S, A_G$ | 5627               | ft <sup>2</sup> |
|                                              | $A_S, A_G$ | 0.1292             | ac              |
| Porosity of Bioretention Soil                | n          | 0.40               | -               |
| Flow Rate (per unit area)                    | q          | 0.903              | in/hr           |
|                                              |            |                    |                 |
| Effective Ponding Depth                      | $PD_{eff}$ | 6.24               | in              |
| Flow Coefficient                             | C          | 0.1455             | --              |
| Underlying Soil Conductivity                 | in/hr      | 0.025              |                 |
| Basin Conductivity                           | cfs        | 0.004              |                 |

# Otay Ranch Village 14 BF-2-4

Discharge vs Elevation Table

|                          |         |                       |         |
|--------------------------|---------|-----------------------|---------|
| Bottom orifice diameter: | 0.75 "  | Top orifice diameter: | 2 "     |
| Number:                  | 1       | Number:               | 1       |
| Cg-low:                  | 0.61    | Cg-low:               | 0.61    |
| Invert elev:             | 0.50 ft | Invert elev:          | 3.00 ft |
| Middle orifice diameter: | 1 "     | Emergency weir:       |         |
| number of orif:          | 0       | Invert:               | 4.00 ft |
| Cg-middle:               | 0.61    | Weir Length (ft)      | 4.0 ft  |
| Invert elev:             | 1.50 ft |                       | 1x1 box |

| h    | H/D-low | H/D-mid | H/D-top | H/D-peak | Qlow-orif | Qlow-weir | Qtot-low | Qmid-orif | Qmid-weir | Qtot-med | Qtop-orif | Qtop-weir | Qtot-top | Qpeak-top | Qtot   |
|------|---------|---------|---------|----------|-----------|-----------|----------|-----------|-----------|----------|-----------|-----------|----------|-----------|--------|
| (ft) | -       | -       | -       | -        | (cfs)     | (cfs)     | (cfs)    | (cfs)     | (cfs)     | (cfs)    | (cfs)     | (cfs)     | (cfs)    | (cfs)     | (cfs)  |
| 0    | 0.00    | 0.00    | 0.00    | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0000 |
| 0.05 | 0.00    | 0.00    | 0.00    | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0000 |
| 0.1  | 0.00    | 0.00    | 0.00    | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0000 |
| 0.15 | 0.00    | 0.00    | 0.00    | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0000 |
| 0.2  | 0.00    | 0.00    | 0.00    | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0000 |
| 0.25 | 0.00    | 0.00    | 0.00    | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0000 |
| 0.3  | 0.00    | 0.00    | 0.00    | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0000 |
| 0.35 | 0.00    | 0.00    | 0.00    | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0000 |
| 0.4  | 0.00    | 0.00    | 0.00    | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0000 |
| 0.45 | 0.00    | 0.00    | 0.00    | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0000 |
| 0.5  | 0.00    | 0.00    | 0.00    | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0000 |
| 0.55 | 0.80    | 0.00    | 0.00    | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0017 |
| 0.6  | 1.60    | 0.00    | 0.00    | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0039 |
| 0.65 | 2.40    | 0.00    | 0.00    | 0.00     | 0.01      | 0.01      | 0.01     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0052 |
| 0.7  | 3.20    | 0.00    | 0.00    | 0.00     | 0.01      | 0.01      | 0.01     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0062 |
| 0.75 | 4.00    | 0.00    | 0.00    | 0.00     | 0.01      | 0.01      | 0.01     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0070 |
| 0.8  | 4.80    | 0.00    | 0.00    | 0.00     | 0.01      | 0.03      | 0.01     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0078 |
| 0.85 | 5.60    | 0.00    | 0.00    | 0.00     | 0.01      | 0.10      | 0.01     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0085 |
| 0.9  | 6.40    | 0.00    | 0.00    | 0.00     | 0.01      | 0.26      | 0.01     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0091 |
| 0.95 | 7.20    | 0.00    | 0.00    | 0.00     | 0.01      | 0.56      | 0.01     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0097 |
| 1    | 8.00    | 0.00    | 0.00    | 0.00     | 0.01      | 1.09      | 0.01     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0103 |
| 1.05 | 8.80    | 0.00    | 0.00    | 0.00     | 0.01      | 1.96      | 0.01     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0108 |
| 1.1  | 9.60    | 0.00    | 0.00    | 0.00     | 0.01      | 3.28      | 0.01     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0113 |
| 1.15 | 10.40   | 0.00    | 0.00    | 0.00     | 0.01      | 5.24      | 0.01     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0118 |
| 1.2  | 11.20   | 0.00    | 0.00    | 0.00     | 0.01      | 8.02      | 0.01     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0123 |
| 1.25 | 12.00   | 0.00    | 0.00    | 0.00     | 0.01      | 11.86     | 0.01     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0127 |
| 1.3  | 12.80   | 0.00    | 0.00    | 0.00     | 0.01      | 17.03     | 0.01     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0132 |
| 1.35 | 13.60   | 0.00    | 0.00    | 0.00     | 0.01      | 23.85     | 0.01     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0136 |
| 1.4  | 14.40   | 0.00    | 0.00    | 0.00     | 0.01      | 32.68     | 0.01     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0140 |
| 1.45 | 15.20   | 0.00    | 0.00    | 0.00     | 0.01      | 43.92     | 0.01     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0144 |
| 1.5  | 16.00   | 0.00    | 0.00    | 0.00     | 0.01      | 58.04     | 0.01     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0148 |
| 1.55 | 16.80   | 0.60    | 0.00    | 0.00     | 0.02      | 75.55     | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0152 |
| 1.6  | 17.60   | 1.20    | 0.00    | 0.00     | 0.02      | 97.04     | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0155 |
| 1.65 | 18.40   | 1.80    | 0.00    | 0.00     | 0.02      | 123.13    | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0159 |
| 1.7  | 19.20   | 2.40    | 0.00    | 0.00     | 0.02      | 154.54    | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0162 |
| 1.75 | 20.00   | 3.00    | 0.00    | 0.00     | 0.02      | 192.01    | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0166 |
| 1.8  | 20.80   | 3.60    | 0.00    | 0.00     | 0.02      | 236.40    | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0169 |
| 1.85 | 21.60   | 4.20    | 0.00    | 0.00     | 0.02      | 288.62    | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0172 |
| 1.9  | 22.40   | 4.80    | 0.00    | 0.00     | 0.02      | 349.65    | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0176 |
| 1.95 | 23.20   | 5.40    | 0.00    | 0.00     | 0.02      | 420.56    | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0179 |
| 2    | 24.00   | 6.00    | 0.00    | 0.00     | 0.02      | 502.51    | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0182 |
| 2.05 | 24.80   | 6.60    | 0.00    | 0.00     | 0.02      | 596.72    | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0185 |
| 2.1  | 25.60   | 7.20    | 0.00    | 0.00     | 0.02      | 704.52    | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0188 |
| 2.15 | 26.40   | 7.80    | 0.00    | 0.00     | 0.02      | 827.33    | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0191 |
| 2.2  | 27.20   | 8.40    | 0.00    | 0.00     | 0.02      | 966.67    | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0194 |
| 2.25 | 28.00   | 9.00    | 0.00    | 0.00     | 0.02      | 1124.14   | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0197 |
| 2.3  | 28.80   | 9.60    | 0.00    | 0.00     | 0.02      | 1301.45   | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0200 |
| 2.35 | 29.60   | 10.20   | 0.00    | 0.00     | 0.02      | 1500.42   | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0203 |
| 2.4  | 30.40   | 10.80   | 0.00    | 0.00     | 0.02      | 1722.96   | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0205 |
| 2.45 | 31.20   | 11.40   | 0.00    | 0.00     | 0.02      | 1971.13   | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0208 |
| 2.5  | 32.00   | 12.00   | 0.00    | 0.00     | 0.02      | 2247.05   | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0211 |
| 2.55 | 32.80   | 12.60   | 0.00    | 0.00     | 0.02      | 2552.99   | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0213 |
| 2.6  | 33.60   | 13.20   | 0.00    | 0.00     | 0.02      | 2891.34   | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0216 |
| 2.65 | 34.40   | 13.80   | 0.00    | 0.00     | 0.02      | 3264.61   | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0219 |
| 2.7  | 35.20   | 14.40   | 0.00    | 0.00     | 0.02      | 3675.41   | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0221 |
| 2.75 | 36.00   | 15.00   | 0.00    | 0.00     | 0.02      | 4126.51   | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0224 |
| 2.8  | 36.80   | 15.60   | 0.00    | 0.00     | 0.02      | 4620.81   | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0226 |
| 2.85 | 37.60   | 16.20   | 0.00    | 0.00     | 0.02      | 5161.32   | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0229 |
| 2.9  | 38.40   | 16.80   | 0.00    | 0.00     | 0.02      | 5751.22   | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0231 |
| 2.95 | 39.20   | 17.40   | 0.00    | 0.00     | 0.02      | 6393.81   | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0234 |
| 3    | 40.00   | 18.00   | 0.00    | 0.00     | 0.02      | 7092.54   | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0236 |
| 3.05 | 40.80   | 18.60   | 0.30    | 0.00     | 0.02      | 7851.00   | 0.02     | 0.00      | 0.00      | 0.00     | 0.00      | 0.00      | 0.00     | 0.00      | 0.0271 |
| 3.1  | 41.60   | 19.20   | 0.60    | 0.00     | 0.02      | 8672.94   | 0.02     | 0.00      | 0.00      | 0.00     | 0.01      | 0.01      | 0.01     | 0.00      | 0.0362 |
| 3.15 | 42.40   | 19.80   | 0.90    | 0.00     | 0.02      | 9562.27   | 0.02     | 0.00      | 0.00      | 0.00     | 0.03      | 0.02      | 0.02     | 0.00      | 0.0491 |
| 3.2  | 43.20   | 20.40   | 1.20    | 0.00     | 0.02      | 10523.04  | 0.02     | 0.00      | 0.00      | 0.00     | 0.04      | 0.04      | 0.04     | 0.00      | 0.0610 |
| 3.25 | 44.00   | 21.00   | 1.50    | 0.00     | 0.02      | 11559.47  | 0.02     | 0.00      | 0.00      | 0.00     | 0.04      | 0.05      | 0.04     | 0.00      | 0.0684 |
| 3.3  | 44.80   | 21.60   | 1.80    | 0.00     | 0.02      | 12675.94  | 0.02     | 0.00      | 0.00      | 0.00     | 0.05      | 0.06      | 0.05     | 0.00      | 0.0747 |

# Otay Ranch Village 14 BF-2-4

Discharge vs Elevation Table

|                          |         |                       |         |
|--------------------------|---------|-----------------------|---------|
| Bottom orifice diameter: | 0.75 "  | Top orifice diameter: | 2 "     |
| Number:                  | 1       | Number:               | 1       |
| Cg-low:                  | 0.61    | Cg-low:               | 0.61    |
| Invert elev:             | 0.50 ft | Invert elev:          | 3.00 ft |
| Middle orifice diameter: | 1 "     | Emergency weir:       |         |
| number of orif:          | 0       | Invert:               | 4.00 ft |
| Cg-middle:               | 0.61    | Weir Length (ft)      | 4.0 ft  |
| Invert elev:             | 1.50 ft |                       | 1x1 box |

|      |       |       |       |      |      |           |      |      |      |      |      |         |      |       |         |
|------|-------|-------|-------|------|------|-----------|------|------|------|------|------|---------|------|-------|---------|
| 4.1  | 57.60 | 31.20 | 6.60  | 0.30 | 0.03 | 45676.05  | 0.03 | 0.00 | 0.00 | 0.00 | 0.11 | 3.70    | 0.11 | 0.42  | 0.5573  |
| 4.15 | 58.40 | 31.80 | 6.90  | 0.45 | 0.03 | 48995.68  | 0.03 | 0.00 | 0.00 | 0.00 | 0.11 | 4.96    | 0.11 | 0.77  | 0.9127  |
| 4.2  | 59.20 | 32.40 | 7.20  | 0.60 | 0.03 | 52505.48  | 0.03 | 0.00 | 0.00 | 0.00 | 0.11 | 6.53    | 0.11 | 1.19  | 1.3330  |
| 4.25 | 60.00 | 33.00 | 7.50  | 0.75 | 0.03 | 56213.52  | 0.03 | 0.00 | 0.00 | 0.00 | 0.12 | 8.47    | 0.12 | 1.67  | 1.8093  |
| 4.3  | 60.80 | 33.60 | 7.80  | 0.90 | 0.03 | 60128.07  | 0.03 | 0.00 | 0.00 | 0.00 | 0.12 | 10.84   | 0.12 | 2.19  | 2.3357  |
| 4.35 | 61.60 | 34.20 | 8.10  | 1.05 | 0.03 | 64257.64  | 0.03 | 0.00 | 0.00 | 0.00 | 0.12 | 13.70   | 0.12 | 2.76  | 2.9076  |
| 4.4  | 62.40 | 34.80 | 8.40  | 1.20 | 0.03 | 68610.95  | 0.03 | 0.00 | 0.00 | 0.00 | 0.12 | 17.13   | 0.12 | 3.37  | 3.5218  |
| 4.45 | 63.20 | 35.40 | 8.70  | 1.35 | 0.03 | 73196.99  | 0.03 | 0.00 | 0.00 | 0.00 | 0.12 | 21.20   | 0.12 | 4.02  | 4.1755  |
| 4.5  | 64.00 | 36.00 | 9.00  | 1.50 | 0.03 | 78024.94  | 0.03 | 0.00 | 0.00 | 0.00 | 0.13 | 26.00   | 0.13 | 4.71  | 4.8664  |
| 4.55 | 64.80 | 36.60 | 9.30  | 1.65 | 0.03 | 83104.27  | 0.03 | 0.00 | 0.00 | 0.00 | 0.13 | 31.61   | 0.13 | 5.43  | 5.5926  |
| 4.6  | 65.60 | 37.20 | 9.60  | 1.80 | 0.03 | 88444.65  | 0.03 | 0.00 | 0.00 | 0.00 | 0.13 | 38.14   | 0.13 | 6.19  | 6.3524  |
| 4.65 | 66.40 | 37.80 | 9.90  | 1.95 | 0.03 | 94056.02  | 0.03 | 0.00 | 0.00 | 0.00 | 0.13 | 45.70   | 0.13 | 6.98  | 7.1445  |
| 4.7  | 67.20 | 38.40 | 10.20 | 2.10 | 0.03 | 99948.55  | 0.03 | 0.00 | 0.00 | 0.00 | 0.14 | 54.39   | 0.14 | 7.80  | 7.9675  |
| 4.75 | 68.00 | 39.00 | 10.50 | 2.25 | 0.03 | 106132.69 | 0.03 | 0.00 | 0.00 | 0.00 | 0.14 | 64.34   | 0.14 | 8.65  | 8.8203  |
| 4.8  | 68.80 | 39.60 | 10.80 | 2.40 | 0.03 | 112619.11 | 0.03 | 0.00 | 0.00 | 0.00 | 0.14 | 75.67   | 0.14 | 9.53  | 9.7020  |
| 4.85 | 69.60 | 40.20 | 11.10 | 2.55 | 0.03 | 119418.77 | 0.03 | 0.00 | 0.00 | 0.00 | 0.14 | 88.53   | 0.14 | 10.44 | 10.6115 |
| 4.9  | 70.40 | 40.80 | 11.40 | 2.70 | 0.03 | 126542.87 | 0.03 | 0.00 | 0.00 | 0.00 | 0.14 | 103.06  | 0.14 | 11.37 | 11.5482 |
| 4.95 | 71.20 | 41.40 | 11.70 | 2.85 | 0.03 | 134002.88 | 0.03 | 0.00 | 0.00 | 0.00 | 0.15 | 119.42  | 0.15 | 12.33 | 12.5111 |
| 5    | 72.00 | 42.00 | 12.00 | 3.00 | 0.03 | 141810.54 | 0.03 | 0.00 | 0.00 | 0.00 | 0.15 | 137.77  | 0.15 | 13.32 | 13.4996 |
| 5.05 | 72.80 | 42.60 | 12.30 | 3.15 | 0.03 | 149977.86 | 0.03 | 0.00 | 0.00 | 0.00 | 0.15 | 158.29  | 0.15 | 14.33 | 14.5131 |
| 5.1  | 73.60 | 43.20 | 12.60 | 3.30 | 0.03 | 158517.12 | 0.03 | 0.00 | 0.00 | 0.00 | 0.15 | 181.17  | 0.15 | 15.37 | 15.5509 |
| 5.15 | 74.40 | 43.80 | 12.90 | 3.45 | 0.03 | 167440.87 | 0.03 | 0.00 | 0.00 | 0.00 | 0.15 | 206.59  | 0.15 | 16.43 | 16.6125 |
| 5.2  | 75.20 | 44.40 | 13.20 | 3.60 | 0.03 | 176761.96 | 0.03 | 0.00 | 0.00 | 0.00 | 0.16 | 234.76  | 0.16 | 17.51 | 17.6974 |
| 5.25 | 76.00 | 45.00 | 13.50 | 3.75 | 0.03 | 186493.51 | 0.03 | 0.00 | 0.00 | 0.00 | 0.16 | 265.90  | 0.16 | 18.62 | 18.8051 |
| 5.3  | 76.80 | 45.60 | 13.80 | 3.90 | 0.03 | 196648.91 | 0.03 | 0.00 | 0.00 | 0.00 | 0.16 | 300.23  | 0.16 | 19.74 | 19.9351 |
| 5.35 | 77.60 | 46.20 | 14.10 | 4.05 | 0.03 | 207241.87 | 0.03 | 0.00 | 0.00 | 0.00 | 0.16 | 337.99  | 0.16 | 20.89 | 21.0870 |
| 5.4  | 78.40 | 46.80 | 14.40 | 4.20 | 0.03 | 218286.37 | 0.03 | 0.00 | 0.00 | 0.00 | 0.16 | 379.44  | 0.16 | 22.06 | 22.2603 |
| 5.45 | 79.20 | 47.40 | 14.70 | 4.35 | 0.03 | 229796.69 | 0.03 | 0.00 | 0.00 | 0.00 | 0.16 | 424.82  | 0.16 | 23.26 | 23.4547 |
| 5.5  | 80.00 | 48.00 | 15.00 | 4.50 | 0.03 | 241787.40 | 0.03 | 0.00 | 0.00 | 0.00 | 0.17 | 474.42  | 0.17 | 24.47 | 24.6699 |
| 5.55 | 80.80 | 48.60 | 15.30 | 4.65 | 0.03 | 254273.40 | 0.03 | 0.00 | 0.00 | 0.00 | 0.17 | 528.52  | 0.17 | 25.70 | 25.9054 |
| 5.6  | 81.60 | 49.20 | 15.60 | 4.80 | 0.03 | 267269.86 | 0.03 | 0.00 | 0.00 | 0.00 | 0.17 | 587.42  | 0.17 | 26.96 | 27.1610 |
| 5.65 | 82.40 | 49.80 | 15.90 | 4.95 | 0.03 | 280792.27 | 0.03 | 0.00 | 0.00 | 0.00 | 0.17 | 651.41  | 0.17 | 28.23 | 28.4363 |
| 5.7  | 83.20 | 50.40 | 16.20 | 5.10 | 0.03 | 294856.44 | 0.03 | 0.00 | 0.00 | 0.00 | 0.17 | 720.84  | 0.17 | 29.52 | 29.7311 |
| 5.75 | 84.00 | 51.00 | 16.50 | 5.25 | 0.03 | 309478.48 | 0.03 | 0.00 | 0.00 | 0.00 | 0.17 | 796.03  | 0.17 | 30.84 | 31.0449 |
| 5.8  | 84.80 | 51.60 | 16.80 | 5.40 | 0.03 | 324674.81 | 0.03 | 0.00 | 0.00 | 0.00 | 0.18 | 877.34  | 0.18 | 32.17 | 32.3777 |
| 5.85 | 85.60 | 52.20 | 17.10 | 5.55 | 0.03 | 340462.19 | 0.03 | 0.00 | 0.00 | 0.00 | 0.18 | 965.12  | 0.18 | 33.52 | 33.7290 |
| 5.9  | 86.40 | 52.80 | 17.40 | 5.70 | 0.03 | 356857.70 | 0.03 | 0.00 | 0.00 | 0.00 | 0.18 | 1059.76 | 0.18 | 34.88 | 35.0987 |
| 5.95 | 87.20 | 53.40 | 17.70 | 5.85 | 0.03 | 373878.73 | 0.03 | 0.00 | 0.00 | 0.00 | 0.18 | 1161.65 | 0.18 | 36.27 | 36.4865 |
| 6    | 88.00 | 54.00 | 18.00 | 6.00 | 0.04 | 391543.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.18 | 1271.19 | 0.18 | 37.67 | 37.8922 |

Otay Ranch Village 14 BF-2-4

Stage vs Area Table

| depth | area | area (ac) | elevation | volume (cf) | volume (ac-ft) |
|-------|------|-----------|-----------|-------------|----------------|
| 0.00  | 3363 | 0.077     | 0         | 0           | 0              |
| 0.05  | 3398 | 0.078     | 0.05      | 169         | 0.0039         |
| 0.10  | 3433 | 0.079     | 0.10      | 340         | 0.0078         |
| 0.15  | 3468 | 0.080     | 0.15      | 512         | 0.0118         |
| 0.20  | 3504 | 0.080     | 0.20      | 687         | 0.0158         |
| 0.25  | 3539 | 0.081     | 0.25      | 863         | 0.0198         |
| 0.30  | 3575 | 0.082     | 0.30      | 1041        | 0.0239         |
| 0.35  | 3611 | 0.083     | 0.35      | 1220        | 0.0280         |
| 0.40  | 3647 | 0.084     | 0.40      | 1402        | 0.0322         |
| 0.45  | 3683 | 0.085     | 0.45      | 1585        | 0.0364         |
| 0.50  | 3720 | 0.085     | 0.50      | 1770        | 0.0406         |
| 0.55  | 3757 | 0.086     | 0.55      | 1957        | 0.0449         |
| 0.60  | 3793 | 0.087     | 0.60      | 2146        | 0.0493         |
| 0.65  | 3831 | 0.088     | 0.65      | 2336        | 0.0536         |
| 0.70  | 3868 | 0.089     | 0.70      | 2529        | 0.0581         |
| 0.75  | 3905 | 0.090     | 0.75      | 2723        | 0.0625         |
| 0.80  | 3943 | 0.091     | 0.80      | 2919        | 0.0670         |
| 0.85  | 3981 | 0.091     | 0.85      | 3117        | 0.0716         |
| 0.90  | 4018 | 0.092     | 0.90      | 3317        | 0.0762         |
| 0.95  | 4057 | 0.093     | 0.95      | 3519        | 0.0808         |
| 1.00  | 4095 | 0.094     | 1.00      | 3723        | 0.0855         |
| 1.05  | 4133 | 0.095     | 1.05      | 3929        | 0.0902         |
| 1.10  | 4172 | 0.096     | 1.10      | 4136        | 0.0950         |
| 1.15  | 4211 | 0.097     | 1.15      | 4346        | 0.0998         |
| 1.20  | 4250 | 0.098     | 1.20      | 4557        | 0.1046         |
| 1.25  | 4289 | 0.098     | 1.25      | 4771        | 0.1095         |
| 1.30  | 4329 | 0.099     | 1.30      | 4986        | 0.1145         |
| 1.35  | 4368 | 0.100     | 1.35      | 5204        | 0.1195         |
| 1.40  | 4408 | 0.101     | 1.40      | 5423        | 0.1245         |
| 1.45  | 4448 | 0.102     | 1.45      | 5645        | 0.1296         |
| 1.50  | 4488 | 0.103     | 1.50      | 5868        | 0.1347         |
| 1.55  | 4528 | 0.104     | 1.55      | 6093        | 0.1399         |
| 1.60  | 4569 | 0.105     | 1.60      | 6321        | 0.1451         |
| 1.65  | 4609 | 0.106     | 1.65      | 6550        | 0.1504         |
| 1.70  | 4650 | 0.107     | 1.70      | 6782        | 0.1557         |
| 1.75  | 4691 | 0.108     | 1.75      | 7015        | 0.1610         |
| 1.80  | 4732 | 0.109     | 1.80      | 7251        | 0.1665         |
| 1.85  | 4774 | 0.110     | 1.85      | 7488        | 0.1719         |
| 1.90  | 4815 | 0.111     | 1.90      | 7728        | 0.1774         |
| 1.95  | 4857 | 0.111     | 1.95      | 7970        | 0.1830         |
| 2.00  | 4899 | 0.112     | 2.00      | 8214        | 0.1886         |
| 2.05  | 4941 | 0.113     | 2.05      | 8460        | 0.1942         |
| 2.10  | 4983 | 0.114     | 2.10      | 8708        | 0.1999         |
| 2.15  | 5026 | 0.115     | 2.15      | 8958        | 0.2057         |
| 2.20  | 5068 | 0.116     | 2.20      | 9210        | 0.2114         |
| 2.25  | 5111 | 0.117     | 2.25      | 9465        | 0.2173         |
| 2.30  | 5154 | 0.118     | 2.30      | 9722        | 0.2232         |
| 2.35  | 5197 | 0.119     | 2.35      | 9980        | 0.2291         |
| 2.40  | 5241 | 0.120     | 2.40      | 10241       | 0.2351         |
| 2.45  | 5284 | 0.121     | 2.45      | 10504       | 0.2411         |
| 2.50  | 5328 | 0.122     | 2.50      | 10770       | 0.2472         |
| 2.55  | 5372 | 0.123     | 2.55      | 11037       | 0.2534         |
| 2.60  | 5416 | 0.124     | 2.60      | 11307       | 0.2596         |
| 2.65  | 5460 | 0.125     | 2.65      | 11579       | 0.2658         |
| 2.70  | 5504 | 0.126     | 2.70      | 11853       | 0.2721         |
| 2.75  | 5549 | 0.127     | 2.75      | 12129       | 0.2784         |
| 2.80  | 5594 | 0.128     | 2.80      | 12408       | 0.2848         |
| 2.85  | 5639 | 0.129     | 2.85      | 12689       | 0.2913         |
| 2.90  | 5684 | 0.130     | 2.90      | 12972       | 0.2978         |
| 2.95  | 5729 | 0.132     | 2.95      | 13257       | 0.3043         |
| 3.00  | 5775 | 0.133     | 3.00      | 13545       | 0.3109         |

|      |      |       |      |       |        |
|------|------|-------|------|-------|--------|
| 3.05 | 5820 | 0.134 | 3.05 | 13834 | 0.3176 |
| 3.10 | 5866 | 0.135 | 3.10 | 14127 | 0.3243 |
| 3.15 | 5912 | 0.136 | 3.15 | 14421 | 0.3311 |
| 3.20 | 5959 | 0.137 | 3.20 | 14718 | 0.3379 |
| 3.25 | 6005 | 0.138 | 3.25 | 15017 | 0.3447 |
| 3.30 | 6051 | 0.139 | 3.30 | 15318 | 0.3517 |
| 3.35 | 6098 | 0.140 | 3.35 | 15622 | 0.3586 |
| 3.40 | 6145 | 0.141 | 3.40 | 15928 | 0.3657 |
| 3.45 | 6192 | 0.142 | 3.45 | 16237 | 0.3727 |
| 3.50 | 6240 | 0.143 | 3.50 | 16547 | 0.3799 |
| 3.55 | 6287 | 0.144 | 3.55 | 16861 | 0.3871 |
| 3.60 | 6335 | 0.145 | 3.60 | 17176 | 0.3943 |
| 3.65 | 6383 | 0.147 | 3.65 | 17494 | 0.4016 |
| 3.70 | 6431 | 0.148 | 3.70 | 17814 | 0.4090 |
| 3.75 | 6479 | 0.149 | 3.75 | 18137 | 0.4164 |
| 3.80 | 6527 | 0.150 | 3.80 | 18462 | 0.4238 |
| 3.85 | 6576 | 0.151 | 3.85 | 18790 | 0.4314 |
| 3.90 | 6625 | 0.152 | 3.90 | 19120 | 0.4389 |
| 3.95 | 6673 | 0.153 | 3.95 | 19452 | 0.4466 |
| 4.00 | 6723 | 0.154 | 4.00 | 19787 | 0.4543 |
| 4.05 | 6772 | 0.155 | 4.05 | 20125 | 0.4620 |
| 4.10 | 6821 | 0.157 | 4.10 | 20464 | 0.4698 |
| 4.15 | 6871 | 0.158 | 4.15 | 20807 | 0.4777 |
| 4.20 | 6921 | 0.159 | 4.20 | 21152 | 0.4856 |
| 4.25 | 6971 | 0.160 | 4.25 | 21499 | 0.4935 |
| 4.30 | 7021 | 0.161 | 4.30 | 21849 | 0.5016 |
| 4.35 | 7071 | 0.162 | 4.35 | 22201 | 0.5097 |
| 4.40 | 7122 | 0.163 | 4.40 | 22556 | 0.5178 |
| 4.45 | 7173 | 0.165 | 4.45 | 22913 | 0.5260 |
| 4.50 | 7224 | 0.166 | 4.50 | 23273 | 0.5343 |
| 4.55 | 7275 | 0.167 | 4.55 | 23635 | 0.5426 |
| 4.60 | 7326 | 0.168 | 4.60 | 24000 | 0.5510 |
| 4.65 | 7377 | 0.169 | 4.65 | 24368 | 0.5594 |
| 4.70 | 7429 | 0.171 | 4.70 | 24738 | 0.5679 |
| 4.75 | 7481 | 0.172 | 4.75 | 25111 | 0.5765 |
| 4.80 | 7533 | 0.173 | 4.80 | 25486 | 0.5851 |
| 4.85 | 7585 | 0.174 | 4.85 | 25864 | 0.5938 |
| 4.90 | 7637 | 0.175 | 4.90 | 26245 | 0.6025 |
| 4.95 | 7690 | 0.177 | 4.95 | 26628 | 0.6113 |
| 5.00 | 7742 | 0.178 | 5.00 | 27014 | 0.6202 |
| 5.05 | 7795 | 0.179 | 5.05 | 27402 | 0.6291 |
| 5.10 | 7848 | 0.180 | 5.10 | 27793 | 0.6380 |
| 5.15 | 7902 | 0.181 | 5.15 | 28187 | 0.6471 |
| 5.20 | 7955 | 0.183 | 5.20 | 28583 | 0.6562 |
| 5.25 | 8009 | 0.184 | 5.25 | 28983 | 0.6653 |
| 5.30 | 8062 | 0.185 | 5.30 | 29384 | 0.6746 |
| 5.35 | 8116 | 0.186 | 5.35 | 29789 | 0.6839 |
| 5.40 | 8171 | 0.188 | 5.40 | 30196 | 0.6932 |
| 5.45 | 8225 | 0.189 | 5.45 | 30606 | 0.7026 |
| 5.50 | 8279 | 0.190 | 5.50 | 31019 | 0.7121 |
| 5.55 | 8334 | 0.191 | 5.55 | 31434 | 0.7216 |
| 5.60 | 8389 | 0.193 | 5.60 | 31852 | 0.7312 |
| 5.65 | 8444 | 0.194 | 5.65 | 32273 | 0.7409 |
| 5.70 | 8499 | 0.195 | 5.70 | 32696 | 0.7506 |
| 5.75 | 8555 | 0.196 | 5.75 | 33123 | 0.7604 |
| 5.80 | 8610 | 0.198 | 5.80 | 33552 | 0.7702 |
| 5.85 | 8666 | 0.199 | 5.85 | 33984 | 0.7802 |
| 5.90 | 8722 | 0.200 | 5.90 | 34418 | 0.7901 |
| 5.95 | 8778 | 0.202 | 5.95 | 34856 | 0.8002 |
| 6.00 | 8834 | 0.203 | 6.00 | 35296 | 0.8103 |



| HMP-4 Draw Down |                        |         |         |         |
|-----------------|------------------------|---------|---------|---------|
| Elevation       | Q <sub>AVG</sub> (CFS) | DV (CF) | DT (HR) | Total T |
| 0.00            | 0.040                  | 169.0   | 1.166   | 86.28   |
| 0.05            | 0.040                  | 170.8   | 1.178   | 85.11   |
| 0.10            | 0.040                  | 172.5   | 1.190   | 83.94   |
| 0.15            | 0.040                  | 174.3   | 1.202   | 82.75   |
| 0.20            | 0.040                  | 176.1   | 1.214   | 81.54   |
| 0.25            | 0.040                  | 177.9   | 1.227   | 80.33   |
| 0.30            | 0.040                  | 179.6   | 1.239   | 79.10   |
| 0.35            | 0.040                  | 181.5   | 1.251   | 77.86   |
| 0.40            | 0.040                  | 183.3   | 1.264   | 76.61   |
| 0.45            | 0.040                  | 185.1   | 1.276   | 75.35   |
| 0.50            | 0.041                  | 186.9   | 1.262   | 74.07   |
| 0.55            | 0.043                  | 188.8   | 1.216   | 72.81   |
| 0.60            | 0.045                  | 190.6   | 1.181   | 71.59   |
| 0.65            | 0.046                  | 192.5   | 1.163   | 70.41   |
| 0.70            | 0.047                  | 194.3   | 1.152   | 69.25   |
| 0.75            | 0.048                  | 196.2   | 1.143   | 68.10   |
| 0.80            | 0.048                  | 198.1   | 1.137   | 66.96   |
| 0.85            | 0.049                  | 200.0   | 1.132   | 65.82   |
| 0.90            | 0.050                  | 201.9   | 1.128   | 64.69   |
| 0.95            | 0.050                  | 203.8   | 1.126   | 63.56   |
| 1.00            | 0.051                  | 205.7   | 1.124   | 62.43   |
| 1.05            | 0.051                  | 207.6   | 1.123   | 61.31   |
| 1.10            | 0.052                  | 209.6   | 1.123   | 60.19   |
| 1.15            | 0.052                  | 211.5   | 1.123   | 59.06   |
| 1.20            | 0.053                  | 213.5   | 1.123   | 57.94   |
| 1.25            | 0.053                  | 215.4   | 1.124   | 56.82   |
| 1.30            | 0.054                  | 217.4   | 1.126   | 55.69   |
| 1.35            | 0.054                  | 219.4   | 1.127   | 54.57   |
| 1.40            | 0.054                  | 221.4   | 1.129   | 53.44   |
| 1.45            | 0.055                  | 223.4   | 1.131   | 52.31   |
| 1.50            | 0.055                  | 225.4   | 1.133   | 51.18   |
| 1.55            | 0.056                  | 227.4   | 1.136   | 50.05   |
| 1.60            | 0.056                  | 229.4   | 1.138   | 48.91   |
| 1.65            | 0.056                  | 231.5   | 1.141   | 47.77   |
| 1.70            | 0.057                  | 233.5   | 1.144   | 46.63   |
| 1.75            | 0.057                  | 235.6   | 1.148   | 45.49   |
| 1.80            | 0.057                  | 237.6   | 1.151   | 44.34   |
| 1.85            | 0.058                  | 239.7   | 1.154   | 43.19   |
| 1.90            | 0.058                  | 241.8   | 1.158   | 42.03   |
| 1.95            | 0.058                  | 243.9   | 1.162   | 40.88   |
| 2.00            | 0.059                  | 246.0   | 1.165   | 39.72   |
| 2.05            | 0.059                  | 248.1   | 1.169   | 38.55   |
| 2.10            | 0.059                  | 250.2   | 1.173   | 37.38   |
| 2.15            | 0.060                  | 252.3   | 1.177   | 36.21   |
| 2.20            | 0.060                  | 254.5   | 1.182   | 35.03   |

|      |       |       |       |       |
|------|-------|-------|-------|-------|
| 2.25 | 0.060 | 256.6 | 1.186 | 33.85 |
| 2.30 | 0.060 | 258.8 | 1.190 | 32.66 |
| 2.35 | 0.061 | 260.9 | 1.195 | 31.47 |
| 2.40 | 0.061 | 263.1 | 1.199 | 30.28 |
| 2.45 | 0.061 | 265.3 | 1.204 | 29.08 |
| 2.50 | 0.061 | 267.5 | 1.208 | 27.87 |
| 2.55 | 0.062 | 269.7 | 1.213 | 26.67 |
| 2.60 | 0.062 | 271.9 | 1.218 | 25.45 |
| 2.65 | 0.062 | 274.1 | 1.223 | 24.23 |
| 2.70 | 0.063 | 276.3 | 1.228 | 23.01 |
| 2.75 | 0.063 | 278.6 | 1.233 | 21.78 |
| 2.80 | 0.063 | 280.8 | 1.238 | 20.55 |
| 2.85 | 0.063 | 283.1 | 1.243 | 19.31 |
| 2.90 | 0.064 | 285.3 | 1.248 | 18.07 |
| 2.95 | 0.064 | 287.6 | 1.253 | 16.82 |
| 3.00 | 0.066 | 289.9 | 1.227 | 15.57 |
| 3.05 | 0.072 | 292.2 | 1.128 | 14.34 |
| 3.10 | 0.083 | 294.5 | 0.986 | 13.22 |
| 3.15 | 0.095 | 296.8 | 0.865 | 12.23 |
| 3.20 | 0.105 | 299.1 | 0.791 | 11.36 |
| 3.25 | 0.112 | 301.4 | 0.749 | 10.57 |
| 3.30 | 0.118 | 303.7 | 0.716 | 9.82  |
| 3.35 | 0.123 | 306.1 | 0.690 | 9.11  |
| 3.40 | 0.128 | 308.4 | 0.668 | 8.42  |
| 3.45 | 0.133 | 310.8 | 0.650 | 7.75  |
| 3.50 | 0.137 | 313.2 | 0.634 | 7.10  |
| 3.55 | 0.141 | 315.5 | 0.620 | 6.47  |
| 3.60 | 0.145 | 317.9 | 0.608 | 5.85  |
| 3.65 | 0.149 | 320.3 | 0.597 | 5.24  |
| 3.70 | 0.153 | 322.7 | 0.587 | 4.64  |
| 3.75 | 0.156 | 325.2 | 0.578 | 4.05  |
| 3.80 | 0.159 | 327.6 | 0.571 | 3.48  |
| 3.85 | 0.163 | 330.0 | 0.563 | 2.90  |
| 3.90 | 0.166 | 332.5 | 0.557 | 2.34  |
| 3.95 | 0.169 | 334.9 | 0.551 | 1.79  |
| 4.00 | 0.246 | 337.4 | 0.380 | 1.23  |
| 4.05 | 0.460 | 339.8 | 0.205 | 0.85  |
| 4.10 | 0.775 | 342.3 | 0.123 | 0.65  |
| 4.15 | 1.163 | 344.8 | 0.082 | 0.53  |
| 4.20 | 1.611 | 347.3 | 0.060 | 0.44  |
| 4.25 | 2.113 | 349.8 | 0.046 | 0.38  |
| 4.30 | 2.662 | 352.3 | 0.037 | 0.34  |
| 4.35 | 3.255 | 354.8 | 0.030 | 0.30  |
| 4.40 | 3.889 | 357.4 | 0.026 | 0.27  |
| 4.45 | 4.561 | 359.9 | 0.022 | 0.25  |
| 4.50 | 5.270 | 362.5 | 0.019 | 0.22  |
| 4.55 | 6.013 | 365.0 | 0.017 | 0.20  |
| 4.60 | 6.789 | 367.6 | 0.015 | 0.19  |

|      |        |       |       |      |
|------|--------|-------|-------|------|
| 4.65 | 7.596  | 370.2 | 0.014 | 0.17 |
| 4.70 | 8.434  | 372.7 | 0.012 | 0.16 |
| 4.75 | 9.301  | 375.3 | 0.011 | 0.15 |
| 4.80 | 10.197 | 377.9 | 0.010 | 0.14 |
| 4.85 | 11.120 | 380.6 | 0.010 | 0.13 |
| 4.90 | 12.070 | 383.2 | 0.009 | 0.12 |
| 4.95 | 13.046 | 385.8 | 0.008 | 0.11 |
| 5.00 | 14.047 | 388.4 | 0.008 | 0.10 |
| 5.05 | 15.072 | 391.1 | 0.007 | 0.09 |
| 5.10 | 16.122 | 393.8 | 0.007 | 0.08 |
| 5.15 | 17.195 | 396.4 | 0.006 | 0.08 |
| 5.20 | 18.292 | 399.1 | 0.006 | 0.07 |
| 5.25 | 19.410 | 401.8 | 0.006 | 0.06 |
| 5.30 | 20.551 | 404.5 | 0.005 | 0.06 |
| 5.35 | 21.714 | 407.2 | 0.005 | 0.05 |
| 5.40 | 22.898 | 409.9 | 0.005 | 0.05 |
| 5.45 | 24.103 | 412.6 | 0.005 | 0.04 |
| 5.50 | 25.328 | 415.3 | 0.005 | 0.04 |
| 5.55 | 26.574 | 418.1 | 0.004 | 0.03 |
| 5.60 | 27.839 | 420.8 | 0.004 | 0.03 |
| 5.65 | 29.124 | 423.6 | 0.004 | 0.03 |
| 5.70 | 30.428 | 426.3 | 0.004 | 0.02 |
| 5.75 | 31.752 | 429.1 | 0.004 | 0.02 |
| 5.80 | 33.094 | 431.9 | 0.004 | 0.01 |
| 5.85 | 34.454 | 434.7 | 0.004 | 0.01 |
| 5.90 | 35.833 | 437.5 | 0.003 | 0.01 |
| 5.95 | 37.230 | 440.3 | 0.003 | 0.00 |
| 6.00 |        |       |       |      |

## Otay Ranch Village 14 BF-2-4

### SWMM Model Flow Coefficient Calculation

| PARAMETER                                    | ABBREV.    | Bio-Retention Cell |                 |
|----------------------------------------------|------------|--------------------|-----------------|
| Ponding Depth                                | PD         | 6                  | in              |
| Bioretention Soil Layer                      | S          | 18                 | in              |
| Gravel Layer (Measured From Subdrain Invert) | G          | 15                 | in              |
| TOTAL                                        |            | 3.3                | ft              |
|                                              |            | 39                 | in              |
|                                              |            |                    |                 |
| Orifice Coefficient                          | $c_g$      | 0.6                | --              |
| Low Flow Orifice Diameter                    | D          | 0.9                | in              |
| Drain (Flow) exponent                        | n          | 0.5                | --              |
|                                              |            |                    |                 |
|                                              |            |                    |                 |
| Flow Rate (volumetric)                       | Q          | 0.038              | cfs             |
|                                              |            |                    |                 |
| Ponding Depth Surface Area                   | $A_{PD}$   | 3720               | ft <sup>2</sup> |
| Bioretention Surface Area                    | $A_S, A_G$ | 3363               | ft <sup>2</sup> |
|                                              | $A_S, A_G$ | 0.0772             | ac              |
| Porosity of Bioretention Soil                | n          | 0.40               | -               |
| Flow Rate (per unit area)                    | q          | 1.224              | in/hr           |
|                                              |            |                    |                 |
| Effective Ponding Depth                      | $PD_{eff}$ | 6.32               | in              |
| Flow Coefficient                             | C          | 0.1972             | --              |
| Underlying Soil Conductivity                 | in/hr      | 0.025              |                 |
| Basin Conductivity                           | cfs        | 0.002              |                 |

Otay Ranch Village 14 BF-2-5  
Discharge vs Elevation Table

|                          |         |                       |         |
|--------------------------|---------|-----------------------|---------|
| Bottom orifice diameter: | 1 "     | Top orifice diameter: | 3 "     |
| Number:                  | 1       | Number:               | 1       |
| Cg-low:                  | 0.61    | Cg-low:               | 0.61    |
| Invert elev:             | 0.50 ft | Invert elev:          | 3.00 ft |
| Middle orifice diameter: | 1 "     | Emergency weir:       |         |
| number of orif:          | 0       | Invert:               | 4.00 ft |
| Cg-middle:               | 0.61    | Weir Length (ft)      | 6.0 ft  |
| Invert elev:             | 3.00 ft |                       | 2x1 box |

| h<br>(ft) | H/D-low | H/D-mid | H/D-top | H/D-peak | Qlow-orif<br>(cfs) | Qlow-weir<br>(cfs) | Qtot-low<br>(cfs) | Qmid-orif<br>(cfs) | Qmid-weir<br>(cfs) | Qtot-med<br>(cfs) | Qtop-orif<br>(cfs) | Qtop-weir<br>(cfs) | Qtot-top<br>(cfs) | Qpeak-top<br>(cfs) | Qtot<br>(cfs) | Qtot <sub>w/Substram</sub><br>(cfs) |
|-----------|---------|---------|---------|----------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|---------------|-------------------------------------|
| 0         | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.05      | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.1       | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.15      | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.2       | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.25      | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.3       | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.35      | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.4       | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.45      | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.5       | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.047                               |
| 0.55      | 0.60    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0021        | 0.049                               |
| 0.6       | 1.20    | 0.00    | 0.00    | 0.00     | 0.01               | 0.01               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0064        | 0.053                               |
| 0.65      | 1.80    | 0.00    | 0.00    | 0.00     | 0.01               | 0.01               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0088        | 0.056                               |
| 0.7       | 2.40    | 0.00    | 0.00    | 0.00     | 0.01               | 0.01               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0106        | 0.058                               |
| 0.75      | 3.00    | 0.00    | 0.00    | 0.00     | 0.01               | 0.01               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0122        | 0.059                               |
| 0.8       | 3.60    | 0.00    | 0.00    | 0.00     | 0.01               | 0.02               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0136        | 0.061                               |
| 0.85      | 4.20    | 0.00    | 0.00    | 0.00     | 0.01               | 0.03               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0148        | 0.062                               |
| 0.9       | 4.80    | 0.00    | 0.00    | 0.00     | 0.02               | 0.07               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0160        | 0.063                               |
| 0.95      | 5.40    | 0.00    | 0.00    | 0.00     | 0.02               | 0.16               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0171        | 0.064                               |
| 1         | 6.00    | 0.00    | 0.00    | 0.00     | 0.02               | 0.34               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0181        | 0.065                               |
| 1.05      | 6.60    | 0.00    | 0.00    | 0.00     | 0.02               | 0.65               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0190        | 0.066                               |
| 1.1       | 7.20    | 0.00    | 0.00    | 0.00     | 0.02               | 1.15               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0200        | 0.067                               |
| 1.15      | 7.80    | 0.00    | 0.00    | 0.00     | 0.02               | 1.92               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0208        | 0.068                               |
| 1.2       | 8.40    | 0.00    | 0.00    | 0.00     | 0.02               | 3.03               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0217        | 0.069                               |
| 1.25      | 9.00    | 0.00    | 0.00    | 0.00     | 0.02               | 4.60               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0225        | 0.070                               |
| 1.3       | 9.60    | 0.00    | 0.00    | 0.00     | 0.02               | 6.74               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0233        | 0.070                               |
| 1.35      | 10.20   | 0.00    | 0.00    | 0.00     | 0.02               | 9.61               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0240        | 0.071                               |
| 1.4       | 10.80   | 0.00    | 0.00    | 0.00     | 0.02               | 13.38              | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0247        | 0.072                               |
| 1.45      | 11.40   | 0.00    | 0.00    | 0.00     | 0.03               | 18.22              | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0254        | 0.072                               |
| 1.5       | 12.00   | 0.00    | 0.00    | 0.00     | 0.03               | 24.36              | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0261        | 0.073                               |
| 1.55      | 12.60   | 0.00    | 0.00    | 0.00     | 0.03               | 32.03              | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0268        | 0.074                               |
| 1.6       | 13.20   | 0.00    | 0.00    | 0.00     | 0.03               | 41.50              | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0275        | 0.075                               |
| 1.65      | 13.80   | 0.00    | 0.00    | 0.00     | 0.03               | 53.07              | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0281        | 0.075                               |
| 1.7       | 14.40   | 0.00    | 0.00    | 0.00     | 0.03               | 67.08              | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0287        | 0.076                               |
| 1.75      | 15.00   | 0.00    | 0.00    | 0.00     | 0.03               | 83.87              | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0293        | 0.076                               |
| 1.8       | 15.60   | 0.00    | 0.00    | 0.00     | 0.03               | 103.84             | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0300        | 0.077                               |
| 1.85      | 16.20   | 0.00    | 0.00    | 0.00     | 0.03               | 127.43             | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0305        | 0.078                               |
| 1.9       | 16.80   | 0.00    | 0.00    | 0.00     | 0.03               | 155.09             | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0311        | 0.078                               |
| 1.95      | 17.40   | 0.00    | 0.00    | 0.00     | 0.03               | 187.34             | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0317        | 0.079                               |
| 2         | 18.00   | 0.00    | 0.00    | 0.00     | 0.03               | 224.72             | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0322        | 0.079                               |
| 2.05      | 18.60   | 0.00    | 0.00    | 0.00     | 0.03               | 267.80             | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0328        | 0.080                               |
| 2.1       | 19.20   | 0.00    | 0.00    | 0.00     | 0.03               | 317.23             | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0333        | 0.080                               |
| 2.15      | 19.80   | 0.00    | 0.00    | 0.00     | 0.03               | 373.67             | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0339        | 0.081                               |
| 2.2       | 20.40   | 0.00    | 0.00    | 0.00     | 0.03               | 437.84             | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0344        | 0.081                               |
| 2.25      | 21.00   | 0.00    | 0.00    | 0.00     | 0.03               | 510.51             | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0349        | 0.082                               |
| 2.3       | 21.60   | 0.00    | 0.00    | 0.00     | 0.04               | 592.48             | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0354        | 0.082                               |
| 2.35      | 22.20   | 0.00    | 0.00    | 0.00     | 0.04               | 684.63             | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0359        | 0.083                               |
| 2.4       | 22.80   | 0.00    | 0.00    | 0.00     | 0.04               | 787.87             | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0364        | 0.083                               |
| 2.45      | 23.40   | 0.00    | 0.00    | 0.00     | 0.04               | 903.17             | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0369        | 0.084                               |
| 2.5       | 24.00   | 0.00    | 0.00    | 0.00     | 0.04               | 1031.55            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0374        | 0.084                               |
| 2.55      | 24.60   | 0.00    | 0.00    | 0.00     | 0.04               | 1174.09            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0378        | 0.085                               |
| 2.6       | 25.20   | 0.00    | 0.00    | 0.00     | 0.04               | 1331.93            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0383        | 0.085                               |
| 2.65      | 25.80   | 0.00    | 0.00    | 0.00     | 0.04               | 1506.26            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0388        | 0.086                               |
| 2.7       | 26.40   | 0.00    | 0.00    | 0.00     | 0.04               | 1698.35            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0392        | 0.086                               |
| 2.75      | 27.00   | 0.00    | 0.00    | 0.00     | 0.04               | 1909.52            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0397        | 0.087                               |
| 2.8       | 27.60   | 0.00    | 0.00    | 0.00     | 0.04               | 2141.14            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0401        | 0.087                               |
| 2.85      | 28.20   | 0.00    | 0.00    | 0.00     | 0.04               | 2394.66            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0406        | 0.088                               |
| 2.9       | 28.80   | 0.00    | 0.00    | 0.00     | 0.04               | 2671.61            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0410        | 0.088                               |
| 2.95      | 29.40   | 0.00    | 0.00    | 0.00     | 0.04               | 2973.56            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0414        | 0.088                               |
| 3         | 30.00   | 0.00    | 0.00    | 0.00     | 0.04               | 3302.17            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0419        | 0.089                               |
| 3.05      | 30.60   | 0.60    | 0.20    | 0.00     | 0.04               | 3659.16            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0464        | 0.093                               |
| 3.1       | 31.20   | 1.20    | 0.40    | 0.00     | 0.04               | 4046.33            | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.02               | 0.02              | 0.00               | 0.0585        | 0.105                               |
| 3.15      | 31.80   | 1.80    | 0.60    | 0.00     | 0.04               |                    |                   |                    |                    |                   |                    |                    |                   |                    |               |                                     |

Otay Ranch Village 14 BF-2-5

Discharge vs Elevation Table

|                          |         |                       |         |
|--------------------------|---------|-----------------------|---------|
| Bottom orifice diameter: | 1 "     | Top orifice diameter: | 3 "     |
| Number:                  | 1       | Number:               | 1       |
| Cg-low:                  | 0.61    | Cg-low:               | 0.61    |
| Invert elev:             | 0.50 ft | Invert elev:          | 3.00 ft |
| Middle orifice diameter: | 1 "     | Emergency weir:       |         |
| number of orif:          | 0       | Invert:               | 4.00 ft |
| Cg-middle:               | 0.61    | Weir Length (ft)      | 6.0 ft  |
| Invert elev:             | 3.00 ft |                       | 2x1 box |

|      |       |       |       |      |      |           |      |      |      |      |      |        |      |       |         |        |
|------|-------|-------|-------|------|------|-----------|------|------|------|------|------|--------|------|-------|---------|--------|
| 4.5  | 48.00 | 18.00 | 6.00  | 1.00 | 0.05 | 37023.56  | 0.05 | 0.00 | 0.00 | 0.00 | 0.28 | 5.36   | 0.28 | 7.06  | 7.3989  | 7.446  |
| 4.55 | 48.60 | 18.60 | 6.20  | 1.10 | 0.05 | 39448.12  | 0.05 | 0.00 | 0.00 | 0.00 | 0.29 | 6.70   | 0.29 | 8.15  | 8.4900  | 8.537  |
| 4.6  | 49.20 | 19.20 | 6.40  | 1.20 | 0.05 | 41997.99  | 0.05 | 0.00 | 0.00 | 0.00 | 0.29 | 8.31   | 0.29 | 9.29  | 9.6315  | 9.679  |
| 4.65 | 49.80 | 19.80 | 6.60  | 1.30 | 0.05 | 44677.97  | 0.05 | 0.00 | 0.00 | 0.00 | 0.30 | 10.20  | 0.30 | 10.47 | 10.8213 | 10.868 |
| 4.7  | 50.40 | 20.40 | 6.80  | 1.40 | 0.05 | 47492.96  | 0.05 | 0.00 | 0.00 | 0.00 | 0.30 | 12.42  | 0.30 | 11.70 | 12.0575 | 12.105 |
| 4.75 | 51.00 | 21.00 | 7.00  | 1.50 | 0.05 | 50448.01  | 0.05 | 0.00 | 0.00 | 0.00 | 0.31 | 15.00  | 0.31 | 12.98 | 13.3385 | 13.386 |
| 4.8  | 51.60 | 21.60 | 7.20  | 1.60 | 0.06 | 53548.26  | 0.06 | 0.00 | 0.00 | 0.00 | 0.31 | 17.99  | 0.31 | 14.30 | 14.6626 | 14.710 |
| 4.85 | 52.20 | 22.20 | 7.40  | 1.70 | 0.06 | 56799.02  | 0.06 | 0.00 | 0.00 | 0.00 | 0.32 | 21.43  | 0.32 | 15.66 | 16.0286 | 16.076 |
| 4.9  | 52.80 | 22.80 | 7.60  | 1.80 | 0.06 | 60205.68  | 0.06 | 0.00 | 0.00 | 0.00 | 0.32 | 25.37  | 0.32 | 17.06 | 17.4351 | 17.482 |
| 4.95 | 53.40 | 23.40 | 7.80  | 1.90 | 0.06 | 63773.78  | 0.06 | 0.00 | 0.00 | 0.00 | 0.32 | 29.87  | 0.32 | 18.50 | 18.8811 | 18.928 |
| 5    | 54.00 | 24.00 | 8.00  | 2.00 | 0.06 | 67509.00  | 0.06 | 0.00 | 0.00 | 0.00 | 0.33 | 34.96  | 0.33 | 19.98 | 20.3654 | 20.412 |
| 5.05 | 54.60 | 24.60 | 8.20  | 2.10 | 0.06 | 71417.13  | 0.06 | 0.00 | 0.00 | 0.00 | 0.33 | 40.72  | 0.33 | 21.50 | 21.8872 | 21.934 |
| 5.1  | 55.20 | 25.20 | 8.40  | 2.20 | 0.06 | 75504.11  | 0.06 | 0.00 | 0.00 | 0.00 | 0.34 | 47.20  | 0.34 | 23.05 | 23.4454 | 23.492 |
| 5.15 | 55.80 | 25.80 | 8.60  | 2.30 | 0.06 | 79776.00  | 0.06 | 0.00 | 0.00 | 0.00 | 0.34 | 54.47  | 0.34 | 24.64 | 25.0393 | 25.086 |
| 5.2  | 56.40 | 26.40 | 8.80  | 2.40 | 0.06 | 84239.00  | 0.06 | 0.00 | 0.00 | 0.00 | 0.35 | 62.59  | 0.35 | 26.26 | 26.6682 | 26.715 |
| 5.25 | 57.00 | 27.00 | 9.00  | 2.50 | 0.06 | 88899.46  | 0.06 | 0.00 | 0.00 | 0.00 | 0.35 | 71.64  | 0.35 | 27.92 | 28.3311 | 28.378 |
| 5.3  | 57.60 | 27.60 | 9.20  | 2.60 | 0.06 | 93763.84  | 0.06 | 0.00 | 0.00 | 0.00 | 0.35 | 81.69  | 0.35 | 29.61 | 30.0275 | 30.075 |
| 5.35 | 58.20 | 28.20 | 9.40  | 2.70 | 0.06 | 98838.78  | 0.06 | 0.00 | 0.00 | 0.00 | 0.36 | 92.82  | 0.36 | 31.34 | 31.7568 | 31.804 |
| 5.4  | 58.80 | 28.80 | 9.60  | 2.80 | 0.06 | 104131.02 | 0.06 | 0.00 | 0.00 | 0.00 | 0.36 | 105.11 | 0.36 | 33.10 | 33.5182 | 33.565 |
| 5.45 | 59.40 | 29.40 | 9.80  | 2.90 | 0.06 | 109647.47 | 0.06 | 0.00 | 0.00 | 0.00 | 0.37 | 118.66 | 0.37 | 34.89 | 35.3113 | 35.358 |
| 5.5  | 60.00 | 30.00 | 10.00 | 3.00 | 0.06 | 115395.17 | 0.06 | 0.00 | 0.00 | 0.00 | 0.37 | 133.55 | 0.37 | 36.71 | 37.1354 | 37.182 |
| 5.55 | 60.60 | 30.60 | 10.20 | 3.10 | 0.06 | 121381.33 | 0.06 | 0.00 | 0.00 | 0.00 | 0.37 | 149.88 | 0.37 | 38.56 | 38.9900 | 39.037 |
| 5.6  | 61.20 | 31.20 | 10.40 | 3.20 | 0.06 | 127613.27 | 0.06 | 0.00 | 0.00 | 0.00 | 0.38 | 167.75 | 0.38 | 40.44 | 40.8748 | 40.922 |
| 5.65 | 61.80 | 31.80 | 10.60 | 3.30 | 0.06 | 134098.49 | 0.06 | 0.00 | 0.00 | 0.00 | 0.38 | 187.26 | 0.38 | 42.35 | 42.7891 | 42.836 |
| 5.7  | 62.40 | 32.40 | 10.80 | 3.40 | 0.06 | 140844.63 | 0.06 | 0.00 | 0.00 | 0.00 | 0.39 | 208.52 | 0.39 | 44.29 | 44.7325 | 44.780 |
| 5.75 | 63.00 | 33.00 | 11.00 | 3.50 | 0.06 | 147859.48 | 0.06 | 0.00 | 0.00 | 0.00 | 0.39 | 231.66 | 0.39 | 46.25 | 46.7046 | 46.752 |
| 5.8  | 63.60 | 33.60 | 11.20 | 3.60 | 0.06 | 155150.98 | 0.06 | 0.00 | 0.00 | 0.00 | 0.39 | 256.77 | 0.39 | 48.25 | 48.7050 | 48.752 |
| 5.85 | 64.20 | 34.20 | 11.40 | 3.70 | 0.06 | 162727.25 | 0.06 | 0.00 | 0.00 | 0.00 | 0.40 | 284.00 | 0.40 | 50.28 | 50.7333 | 50.780 |
| 5.9  | 64.80 | 34.80 | 11.60 | 3.80 | 0.06 | 170596.52 | 0.06 | 0.00 | 0.00 | 0.00 | 0.40 | 313.47 | 0.40 | 52.33 | 52.7891 | 52.836 |
| 5.95 | 65.40 | 35.40 | 11.80 | 3.90 | 0.06 | 178767.23 | 0.06 | 0.00 | 0.00 | 0.00 | 0.40 | 345.31 | 0.40 | 54.41 | 54.8720 | 54.919 |
| 6    | 66.00 | 36.00 | 12.00 | 4.00 | 0.06 | 187247.94 | 0.06 | 0.00 | 0.00 | 0.00 | 0.41 | 379.66 | 0.41 | 56.51 | 56.9818 | 57.029 |

Stage vs Area Table

| depth | area | area (ac) | elevation | volume (cf) | volume (ac-ft) |
|-------|------|-----------|-----------|-------------|----------------|
| 0.00  | 5576 | 0.128     | 0         | 0           | 0              |
| 0.05  | 5621 | 0.129     | 0.05      | 280         | 0.0064         |
| 0.10  | 5666 | 0.130     | 0.10      | 562         | 0.0129         |
| 0.15  | 5711 | 0.131     | 0.15      | 847         | 0.0194         |
| 0.20  | 5757 | 0.132     | 0.20      | 1133        | 0.0260         |
| 0.25  | 5802 | 0.133     | 0.25      | 1422        | 0.0326         |
| 0.30  | 5848 | 0.134     | 0.30      | 1713        | 0.0393         |
| 0.35  | 5894 | 0.135     | 0.35      | 2007        | 0.0461         |
| 0.40  | 5940 | 0.136     | 0.40      | 2303        | 0.0529         |
| 0.45  | 5987 | 0.137     | 0.45      | 2601        | 0.0597         |
| 0.50  | 6033 | 0.138     | 0.50      | 2902        | 0.0666         |
| 0.55  | 6080 | 0.140     | 0.55      | 3204        | 0.0736         |
| 0.60  | 6127 | 0.141     | 0.60      | 3509        | 0.0806         |
| 0.65  | 6174 | 0.142     | 0.65      | 3817        | 0.0876         |
| 0.70  | 6221 | 0.143     | 0.70      | 4127        | 0.0947         |
| 0.75  | 6268 | 0.144     | 0.75      | 4439        | 0.1019         |
| 0.80  | 6316 | 0.145     | 0.80      | 4754        | 0.1091         |
| 0.85  | 6364 | 0.146     | 0.85      | 5071        | 0.1164         |
| 0.90  | 6412 | 0.147     | 0.90      | 5390        | 0.1237         |
| 0.95  | 6460 | 0.148     | 0.95      | 5712        | 0.1311         |
| 1.00  | 6508 | 0.149     | 1.00      | 6036        | 0.1386         |
| 1.05  | 6557 | 0.151     | 1.05      | 6363        | 0.1461         |
| 1.10  | 6605 | 0.152     | 1.10      | 6692        | 0.1536         |
| 1.15  | 6654 | 0.153     | 1.15      | 7023        | 0.1612         |
| 1.20  | 6703 | 0.154     | 1.20      | 7357        | 0.1689         |
| 1.25  | 6752 | 0.155     | 1.25      | 7694        | 0.1766         |
| 1.30  | 6802 | 0.156     | 1.30      | 8032        | 0.1844         |
| 1.35  | 6851 | 0.157     | 1.35      | 8374        | 0.1922         |
| 1.40  | 6901 | 0.158     | 1.40      | 8717        | 0.2001         |
| 1.45  | 6951 | 0.160     | 1.45      | 9064        | 0.2081         |
| 1.50  | 7001 | 0.161     | 1.50      | 9413        | 0.2161         |
| 1.55  | 7051 | 0.162     | 1.55      | 9764        | 0.2241         |
| 1.60  | 7102 | 0.163     | 1.60      | 10118       | 0.2323         |
| 1.65  | 7153 | 0.164     | 1.65      | 10474       | 0.2405         |
| 1.70  | 7203 | 0.165     | 1.70      | 10833       | 0.2487         |
| 1.75  | 7254 | 0.167     | 1.75      | 11194       | 0.2570         |
| 1.80  | 7306 | 0.168     | 1.80      | 11558       | 0.2653         |
| 1.85  | 7357 | 0.169     | 1.85      | 11925       | 0.2738         |
| 1.90  | 7408 | 0.170     | 1.90      | 12294       | 0.2822         |
| 1.95  | 7460 | 0.171     | 1.95      | 12666       | 0.2908         |
| 2.00  | 7512 | 0.172     | 2.00      | 13040       | 0.2994         |
| 2.05  | 7564 | 0.174     | 2.05      | 13417       | 0.3080         |
| 2.10  | 7617 | 0.175     | 2.10      | 13797       | 0.3167         |
| 2.15  | 7669 | 0.176     | 2.15      | 14179       | 0.3255         |
| 2.20  | 7722 | 0.177     | 2.20      | 14564       | 0.3343         |
| 2.25  | 7774 | 0.178     | 2.25      | 14951       | 0.3432         |
| 2.30  | 7827 | 0.180     | 2.30      | 15341       | 0.3522         |
| 2.35  | 7881 | 0.181     | 2.35      | 15734       | 0.3612         |
| 2.40  | 7934 | 0.182     | 2.40      | 16129       | 0.3703         |
| 2.45  | 7987 | 0.183     | 2.45      | 16527       | 0.3794         |
| 2.50  | 8041 | 0.185     | 2.50      | 16928       | 0.3886         |
| 2.55  | 8095 | 0.186     | 2.55      | 17331       | 0.3979         |
| 2.60  | 8149 | 0.187     | 2.60      | 17737       | 0.4072         |
| 2.65  | 8203 | 0.188     | 2.65      | 18146       | 0.4166         |
| 2.70  | 8258 | 0.190     | 2.70      | 18558       | 0.4260         |
| 2.75  | 8312 | 0.191     | 2.75      | 18972       | 0.4355         |
| 2.80  | 8367 | 0.192     | 2.80      | 19389       | 0.4451         |
| 2.85  | 8422 | 0.193     | 2.85      | 19809       | 0.4547         |
| 2.90  | 8477 | 0.195     | 2.90      | 20231       | 0.4644         |
| 2.95  | 8533 | 0.196     | 2.95      | 20656       | 0.4742         |
| 3.00  | 8588 | 0.197     | 3.00      | 21084       | 0.4840         |

|      |       |       |      |       |        |
|------|-------|-------|------|-------|--------|
| 3.05 | 8644  | 0.198 | 3.05 | 21515 | 0.4939 |
| 3.10 | 8700  | 0.200 | 3.10 | 21949 | 0.5039 |
| 3.15 | 8756  | 0.201 | 3.15 | 22385 | 0.5139 |
| 3.20 | 8812  | 0.202 | 3.20 | 22824 | 0.5240 |
| 3.25 | 8868  | 0.204 | 3.25 | 23266 | 0.5341 |
| 3.30 | 8925  | 0.205 | 3.30 | 23711 | 0.5443 |
| 3.35 | 8982  | 0.206 | 3.35 | 24159 | 0.5546 |
| 3.40 | 9039  | 0.208 | 3.40 | 24609 | 0.5650 |
| 3.45 | 9096  | 0.209 | 3.45 | 25063 | 0.5754 |
| 3.50 | 9153  | 0.210 | 3.50 | 25519 | 0.5858 |
| 3.55 | 9211  | 0.211 | 3.55 | 25978 | 0.5964 |
| 3.60 | 9268  | 0.213 | 3.60 | 26440 | 0.6070 |
| 3.65 | 9326  | 0.214 | 3.65 | 26905 | 0.6177 |
| 3.70 | 9384  | 0.215 | 3.70 | 27373 | 0.6284 |
| 3.75 | 9443  | 0.217 | 3.75 | 27843 | 0.6392 |
| 3.80 | 9501  | 0.218 | 3.80 | 28317 | 0.6501 |
| 3.85 | 9559  | 0.219 | 3.85 | 28793 | 0.6610 |
| 3.90 | 9618  | 0.221 | 3.90 | 29273 | 0.6720 |
| 3.95 | 9677  | 0.222 | 3.95 | 29755 | 0.6831 |
| 4.00 | 9736  | 0.224 | 4.00 | 30241 | 0.6942 |
| 4.05 | 9796  | 0.225 | 4.05 | 30729 | 0.7054 |
| 4.10 | 9855  | 0.226 | 4.10 | 31220 | 0.7167 |
| 4.15 | 9915  | 0.228 | 4.15 | 31714 | 0.7281 |
| 4.20 | 9975  | 0.229 | 4.20 | 32212 | 0.7395 |
| 4.25 | 10035 | 0.230 | 4.25 | 32712 | 0.7510 |
| 4.30 | 10095 | 0.232 | 4.30 | 33215 | 0.7625 |
| 4.35 | 10155 | 0.233 | 4.35 | 33721 | 0.7741 |
| 4.40 | 10216 | 0.235 | 4.40 | 34231 | 0.7858 |
| 4.45 | 10276 | 0.236 | 4.45 | 34743 | 0.7976 |
| 4.50 | 10337 | 0.237 | 4.50 | 35258 | 0.8094 |
| 4.55 | 10398 | 0.239 | 4.55 | 35777 | 0.8213 |
| 4.60 | 10460 | 0.240 | 4.60 | 36298 | 0.8333 |
| 4.65 | 10521 | 0.242 | 4.65 | 36823 | 0.8453 |
| 4.70 | 10583 | 0.243 | 4.70 | 37350 | 0.8574 |
| 4.75 | 10645 | 0.244 | 4.75 | 37881 | 0.8696 |
| 4.80 | 10707 | 0.246 | 4.80 | 38415 | 0.8819 |
| 4.85 | 10769 | 0.247 | 4.85 | 38952 | 0.8942 |
| 4.90 | 10831 | 0.249 | 4.90 | 39492 | 0.9066 |
| 4.95 | 10894 | 0.250 | 4.95 | 40035 | 0.9191 |
| 5.00 | 10956 | 0.252 | 5.00 | 40581 | 0.9316 |
| 5.05 | 11019 | 0.253 | 5.05 | 41130 | 0.9442 |
| 5.10 | 11082 | 0.254 | 5.10 | 41683 | 0.9569 |
| 5.15 | 11146 | 0.256 | 5.15 | 42239 | 0.9697 |
| 5.20 | 11209 | 0.257 | 5.20 | 42797 | 0.9825 |
| 5.25 | 11273 | 0.259 | 5.25 | 43360 | 0.9954 |
| 5.30 | 11336 | 0.260 | 5.30 | 43925 | 1.0084 |
| 5.35 | 11400 | 0.262 | 5.35 | 44493 | 1.0214 |
| 5.40 | 11465 | 0.263 | 5.40 | 45065 | 1.0345 |
| 5.45 | 11529 | 0.265 | 5.45 | 45640 | 1.0477 |
| 5.50 | 11593 | 0.266 | 5.50 | 46218 | 1.0610 |
| 5.55 | 11658 | 0.268 | 5.55 | 46799 | 1.0744 |
| 5.60 | 11723 | 0.269 | 5.60 | 47383 | 1.0878 |
| 5.65 | 11788 | 0.271 | 5.65 | 47971 | 1.1013 |
| 5.70 | 11853 | 0.272 | 5.70 | 48562 | 1.1148 |
| 5.75 | 11919 | 0.274 | 5.75 | 49157 | 1.1285 |
| 5.80 | 11984 | 0.275 | 5.80 | 49754 | 1.1422 |
| 5.85 | 12050 | 0.277 | 5.85 | 50355 | 1.1560 |
| 5.90 | 12116 | 0.278 | 5.90 | 50959 | 1.1699 |
| 5.95 | 12182 | 0.280 | 5.95 | 51567 | 1.1838 |
| 6.00 | 12248 | 0.281 | 6.00 | 52177 | 1.1978 |



## Otay Ranch Village 14 BF-2-5

| <u>Draw Down</u> |                        |         |         |         |
|------------------|------------------------|---------|---------|---------|
| Elevation        | Q <sub>AVG</sub> (CFS) | DV (CF) | DT (HR) | Total T |
| 0.00             | 0.054                  | 279.9   | 1.439   | 90.68   |
| 0.05             | 0.054                  | 282.2   | 1.451   | 89.24   |
| 0.10             | 0.054                  | 284.4   | 1.463   | 87.79   |
| 0.15             | 0.054                  | 286.7   | 1.474   | 86.33   |
| 0.20             | 0.054                  | 289.0   | 1.486   | 84.85   |
| 0.25             | 0.054                  | 291.3   | 1.498   | 83.37   |
| 0.30             | 0.054                  | 293.6   | 1.509   | 81.87   |
| 0.35             | 0.054                  | 295.9   | 1.521   | 80.36   |
| 0.40             | 0.054                  | 298.2   | 1.533   | 78.84   |
| 0.45             | 0.054                  | 300.5   | 1.545   | 77.31   |
| 0.50             | 0.055                  | 302.8   | 1.527   | 75.76   |
| 0.55             | 0.058                  | 305.2   | 1.453   | 74.24   |
| 0.60             | 0.062                  | 307.5   | 1.386   | 72.78   |
| 0.65             | 0.064                  | 309.9   | 1.351   | 71.40   |
| 0.70             | 0.065                  | 312.2   | 1.326   | 70.05   |
| 0.75             | 0.067                  | 314.6   | 1.306   | 68.72   |
| 0.80             | 0.068                  | 317.0   | 1.291   | 67.41   |
| 0.85             | 0.069                  | 319.4   | 1.278   | 66.12   |
| 0.90             | 0.071                  | 321.8   | 1.267   | 64.85   |
| 0.95             | 0.072                  | 324.2   | 1.258   | 63.58   |
| 1.00             | 0.073                  | 326.6   | 1.250   | 62.32   |
| 1.05             | 0.074                  | 329.0   | 1.243   | 61.07   |
| 1.10             | 0.074                  | 331.5   | 1.237   | 59.83   |
| 1.15             | 0.075                  | 333.9   | 1.232   | 58.59   |
| 1.20             | 0.076                  | 336.4   | 1.228   | 57.36   |
| 1.25             | 0.077                  | 338.9   | 1.224   | 56.13   |
| 1.30             | 0.078                  | 341.3   | 1.221   | 54.90   |
| 1.35             | 0.078                  | 343.8   | 1.218   | 53.68   |
| 1.40             | 0.079                  | 346.3   | 1.216   | 52.47   |
| 1.45             | 0.080                  | 348.8   | 1.214   | 51.25   |
| 1.50             | 0.080                  | 351.3   | 1.212   | 50.04   |
| 1.55             | 0.081                  | 353.8   | 1.211   | 48.82   |
| 1.60             | 0.082                  | 356.4   | 1.210   | 47.61   |
| 1.65             | 0.082                  | 358.9   | 1.209   | 46.40   |
| 1.70             | 0.083                  | 361.4   | 1.209   | 45.19   |
| 1.75             | 0.084                  | 364.0   | 1.208   | 43.98   |
| 1.80             | 0.084                  | 366.6   | 1.208   | 42.78   |
| 1.85             | 0.085                  | 369.1   | 1.208   | 41.57   |
| 1.90             | 0.085                  | 371.7   | 1.209   | 40.36   |
| 1.95             | 0.086                  | 374.3   | 1.209   | 39.15   |
| 2.00             | 0.087                  | 376.9   | 1.210   | 37.94   |
| 2.05             | 0.087                  | 379.5   | 1.211   | 36.73   |
| 2.10             | 0.088                  | 382.1   | 1.212   | 35.52   |

|      |       |       |       |       |
|------|-------|-------|-------|-------|
| 2.15 | 0.088 | 384.8 | 1.213 | 34.31 |
| 2.20 | 0.089 | 387.4 | 1.214 | 33.10 |
| 2.25 | 0.089 | 390.0 | 1.215 | 31.88 |
| 2.30 | 0.090 | 392.7 | 1.216 | 30.67 |
| 2.35 | 0.090 | 395.4 | 1.218 | 29.45 |
| 2.40 | 0.091 | 398.0 | 1.220 | 28.23 |
| 2.45 | 0.091 | 400.7 | 1.221 | 27.01 |
| 2.50 | 0.092 | 403.4 | 1.223 | 25.79 |
| 2.55 | 0.092 | 406.1 | 1.225 | 24.57 |
| 2.60 | 0.093 | 408.8 | 1.227 | 23.34 |
| 2.65 | 0.093 | 411.5 | 1.229 | 22.12 |
| 2.70 | 0.093 | 414.3 | 1.231 | 20.89 |
| 2.75 | 0.094 | 417.0 | 1.233 | 19.66 |
| 2.80 | 0.094 | 419.7 | 1.236 | 18.42 |
| 2.85 | 0.095 | 422.5 | 1.238 | 17.19 |
| 2.90 | 0.095 | 425.3 | 1.240 | 15.95 |
| 2.95 | 0.096 | 428.0 | 1.243 | 14.71 |
| 3.00 | 0.098 | 430.8 | 1.219 | 13.47 |
| 3.05 | 0.106 | 433.6 | 1.131 | 12.25 |
| 3.10 | 0.122 | 436.4 | 0.997 | 11.12 |
| 3.15 | 0.142 | 439.2 | 0.859 | 10.12 |
| 3.20 | 0.166 | 442.0 | 0.738 | 9.26  |
| 3.25 | 0.189 | 444.8 | 0.654 | 8.52  |
| 3.30 | 0.206 | 447.7 | 0.604 | 7.87  |
| 3.35 | 0.219 | 450.5 | 0.572 | 7.27  |
| 3.40 | 0.231 | 453.4 | 0.546 | 6.69  |
| 3.45 | 0.242 | 456.2 | 0.524 | 6.15  |
| 3.50 | 0.252 | 459.1 | 0.506 | 5.62  |
| 3.55 | 0.262 | 462.0 | 0.490 | 5.12  |
| 3.60 | 0.271 | 464.9 | 0.477 | 4.63  |
| 3.65 | 0.279 | 467.8 | 0.465 | 4.15  |
| 3.70 | 0.288 | 470.7 | 0.454 | 3.69  |
| 3.75 | 0.296 | 473.6 | 0.445 | 3.23  |
| 3.80 | 0.303 | 476.5 | 0.436 | 2.79  |
| 3.85 | 0.311 | 479.4 | 0.428 | 2.35  |
| 3.90 | 0.318 | 482.4 | 0.421 | 1.92  |
| 3.95 | 0.325 | 485.3 | 0.415 | 1.50  |
| 4.00 | 0.443 | 488.3 | 0.306 | 1.09  |
| 4.05 | 0.766 | 491.3 | 0.178 | 0.78  |
| 4.10 | 1.241 | 494.2 | 0.111 | 0.60  |
| 4.15 | 1.825 | 497.2 | 0.076 | 0.49  |
| 4.20 | 2.500 | 500.2 | 0.056 | 0.42  |
| 4.25 | 3.254 | 503.2 | 0.043 | 0.36  |
| 4.30 | 4.079 | 506.2 | 0.034 | 0.32  |
| 4.35 | 4.971 | 509.3 | 0.028 | 0.28  |
| 4.40 | 5.924 | 512.3 | 0.024 | 0.25  |
| 4.45 | 6.934 | 515.3 | 0.021 | 0.23  |
| 4.50 | 7.998 | 518.4 | 0.018 | 0.21  |

|      |        |       |       |      |
|------|--------|-------|-------|------|
| 4.55 | 9.115  | 521.5 | 0.016 | 0.19 |
| 4.60 | 10.280 | 524.5 | 0.014 | 0.18 |
| 4.65 | 11.493 | 527.6 | 0.013 | 0.16 |
| 4.70 | 12.752 | 530.7 | 0.012 | 0.15 |
| 4.75 | 14.055 | 533.8 | 0.011 | 0.14 |
| 4.80 | 15.400 | 536.9 | 0.010 | 0.13 |
| 4.85 | 16.786 | 540.0 | 0.009 | 0.12 |
| 4.90 | 18.212 | 543.1 | 0.008 | 0.11 |
| 4.95 | 19.677 | 546.3 | 0.008 | 0.10 |
| 5.00 | 21.180 | 549.4 | 0.007 | 0.09 |
| 5.05 | 22.720 | 552.5 | 0.007 | 0.08 |
| 5.10 | 24.296 | 555.7 | 0.006 | 0.08 |
| 5.15 | 25.908 | 558.9 | 0.006 | 0.07 |
| 5.20 | 27.554 | 562.0 | 0.006 | 0.07 |
| 5.25 | 29.233 | 565.2 | 0.005 | 0.06 |
| 5.30 | 30.946 | 568.4 | 0.005 | 0.05 |
| 5.35 | 32.692 | 571.6 | 0.005 | 0.05 |
| 5.40 | 34.469 | 574.8 | 0.005 | 0.04 |
| 5.45 | 36.277 | 578.1 | 0.004 | 0.04 |
| 5.50 | 38.117 | 581.3 | 0.004 | 0.04 |
| 5.55 | 39.986 | 584.5 | 0.004 | 0.03 |
| 5.60 | 41.886 | 587.8 | 0.004 | 0.03 |
| 5.65 | 43.815 | 591.0 | 0.004 | 0.02 |
| 5.70 | 45.773 | 594.3 | 0.004 | 0.02 |
| 5.75 | 47.759 | 597.6 | 0.003 | 0.02 |
| 5.80 | 49.773 | 600.9 | 0.003 | 0.01 |
| 5.85 | 51.815 | 604.2 | 0.003 | 0.01 |
| 5.90 | 53.885 | 607.5 | 0.003 | 0.01 |
| 5.95 | 55.981 | 610.8 | 0.003 | 0.00 |
| 6.00 |        |       |       |      |

## Otay Ranch Village 14 BF-2-5

### SWMM Model Flow Coefficient Calculation

| PARAMETER                                    | ABBREV.    | Bio-Retention Cell |                 |
|----------------------------------------------|------------|--------------------|-----------------|
| Ponding Depth                                | PD         | 6                  | in              |
| Bioretention Soil Layer                      | S          | 18                 | in              |
| Gravel Layer (Measured From Subdrain Invert) | G          | 15                 | in              |
| TOTAL                                        |            | 3.3                | ft              |
|                                              |            | 39                 | in              |
|                                              |            |                    |                 |
| Orifice Coefficient                          | $c_g$      | 0.6                | --              |
| Low Flow Orifice Diameter                    | D          | 1                  | in              |
| Drain (Flow) exponent                        | n          | 0.5                | --              |
|                                              |            |                    |                 |
|                                              |            |                    |                 |
| Flow Rate (volumetric)                       | Q          | 0.047              | cfs             |
|                                              |            |                    |                 |
| Ponding Depth Surface Area                   | $A_{PD}$   | 6033               | ft <sup>2</sup> |
| Bioretention Surface Area                    | $A_S, A_G$ | 5576               | ft <sup>2</sup> |
|                                              | $A_S, A_G$ | 0.1280             | ac              |
| Porosity of Bioretention Soil                | n          | 0.40               | -               |
| Flow Rate (per unit area)                    | q          | 0.911              | in/hr           |
|                                              |            |                    |                 |
| Effective Ponding Depth                      | $PD_{eff}$ | 6.25               | in              |
| Flow Coefficient                             | C          | 0.1468             | --              |
| Underlying Soil Conductivity                 | in/hr      | 0.050              |                 |
| Basin Conductivity                           | cfs        | 0.007              |                 |

Otay Ranch Village 14 BF-2-6

Discharge vs Elevation Table

|                          |         |                       |         |
|--------------------------|---------|-----------------------|---------|
| Bottom orifice diameter: | 3 "     | Top orifice diameter: | 3 "     |
| Number:                  | 1       | Number:               | 1       |
| Cg-low:                  | 0.61    | Cg-low:               | 0.61    |
| Invert elev:             | 0.50 ft | Invert elev:          | 3.00 ft |
| Middle orifice diameter: | 1 "     | Emergency weir:       |         |
| number of orif:          | 0       | Invert:               | 4.00 ft |
| Cg-middle:               | 0.61    | Weir Length (ft)      | 44.0 ft |
| Invert elev:             | 1.50 ft |                       | 6x6 box |

| h<br>(ft) | H/D-low<br>- | H/D-mid<br>- | H/D-top<br>- | H/D-peak<br>- | Qlow-orif<br>(cfs) | Qlow-weir<br>(cfs) | Qtot-low<br>(cfs) | Qmid-orif<br>(cfs) | Qmid-weir<br>(cfs) | Qtot-med<br>(cfs) | Qtot-orif<br>(cfs) | Qtot-weir<br>(cfs) | Qtot-top<br>(cfs) | Qpeak-top<br>(cfs) | Qtot<br>(cfs) | Qtot w/SubDrain<br>(cfs) |
|-----------|--------------|--------------|--------------|---------------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|---------------|--------------------------|
| 0         | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.567                    |
| 0.05      | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.567                    |
| 0.1       | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.567                    |
| 0.15      | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.567                    |
| 0.2       | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.567                    |
| 0.25      | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.567                    |
| 0.3       | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.567                    |
| 0.35      | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.567                    |
| 0.4       | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.567                    |
| 0.45      | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.567                    |
| 0.5       | 0.00         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.567                    |
| 0.55      | 0.20         | 0.00         | 0.00         | 0.00          | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0041        | 0.571                    |
| 0.6       | 0.40         | 0.00         | 0.00         | 0.00          | 0.00               | 0.02               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0158        | 0.583                    |
| 0.65      | 0.60         | 0.00         | 0.00         | 0.00          | 0.04               | 0.03               | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0335        | 0.600                    |
| 0.7       | 0.80         | 0.00         | 0.00         | 0.00          | 0.07               | 0.06               | 0.06              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0559        | 0.623                    |
| 0.75      | 1.00         | 0.00         | 0.00         | 0.00          | 0.08               | 0.08               | 0.08              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0812        | 0.648                    |
| 0.8       | 1.20         | 0.00         | 0.00         | 0.00          | 0.10               | 0.11               | 0.10              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.1005        | 0.667                    |
| 0.85      | 1.40         | 0.00         | 0.00         | 0.00          | 0.11               | 0.13               | 0.11              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.1140        | 0.681                    |
| 0.9       | 1.60         | 0.00         | 0.00         | 0.00          | 0.13               | 0.16               | 0.13              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.1260        | 0.693                    |
| 0.95      | 1.80         | 0.00         | 0.00         | 0.00          | 0.14               | 0.18               | 0.14              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.1370        | 0.704                    |
| 1         | 2.00         | 0.00         | 0.00         | 0.00          | 0.15               | 0.20               | 0.15              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.1471        | 0.714                    |
| 1.05      | 2.20         | 0.00         | 0.00         | 0.00          | 0.16               | 0.21               | 0.16              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.1567        | 0.723                    |
| 1.1       | 2.40         | 0.00         | 0.00         | 0.00          | 0.17               | 0.22               | 0.17              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.1656        | 0.732                    |
| 1.15      | 2.60         | 0.00         | 0.00         | 0.00          | 0.17               | 0.22               | 0.17              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.1741        | 0.741                    |
| 1.2       | 2.80         | 0.00         | 0.00         | 0.00          | 0.18               | 0.22               | 0.18              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.1822        | 0.749                    |
| 1.25      | 3.00         | 0.00         | 0.00         | 0.00          | 0.19               | 0.22               | 0.19              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.1900        | 0.757                    |
| 1.3       | 3.20         | 0.00         | 0.00         | 0.00          | 0.20               | 0.22               | 0.20              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.1974        | 0.764                    |
| 1.35      | 3.40         | 0.00         | 0.00         | 0.00          | 0.20               | 0.24               | 0.20              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2046        | 0.771                    |
| 1.4       | 3.60         | 0.00         | 0.00         | 0.00          | 0.21               | 0.26               | 0.21              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2115        | 0.778                    |
| 1.45      | 3.80         | 0.00         | 0.00         | 0.00          | 0.22               | 0.30               | 0.22              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2183        | 0.785                    |
| 1.5       | 4.00         | 0.00         | 0.00         | 0.00          | 0.22               | 0.37               | 0.22              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2248        | 0.792                    |
| 1.55      | 4.20         | 0.60         | 0.00         | 0.00          | 0.23               | 0.47               | 0.23              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2311        | 0.798                    |
| 1.6       | 4.40         | 1.20         | 0.00         | 0.00          | 0.24               | 0.62               | 0.24              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2373        | 0.804                    |
| 1.65      | 4.60         | 1.80         | 0.00         | 0.00          | 0.24               | 0.83               | 0.24              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2433        | 0.810                    |
| 1.7       | 4.80         | 2.40         | 0.00         | 0.00          | 0.25               | 1.12               | 0.25              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2491        | 0.816                    |
| 1.75      | 5.00         | 3.00         | 0.00         | 0.00          | 0.25               | 1.49               | 0.25              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2549        | 0.822                    |
| 1.8       | 5.20         | 3.60         | 0.00         | 0.00          | 0.26               | 1.96               | 0.26              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2605        | 0.827                    |
| 1.85      | 5.40         | 4.20         | 0.00         | 0.00          | 0.27               | 2.57               | 0.27              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2660        | 0.833                    |
| 1.9       | 5.60         | 4.80         | 0.00         | 0.00          | 0.27               | 3.32               | 0.27              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2713        | 0.838                    |
| 1.95      | 5.80         | 5.40         | 0.00         | 0.00          | 0.28               | 4.24               | 0.28              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2766        | 0.843                    |
| 2         | 6.00         | 6.00         | 0.00         | 0.00          | 0.28               | 5.36               | 0.28              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2818        | 0.849                    |
| 2.05      | 6.20         | 6.60         | 0.00         | 0.00          | 0.29               | 6.70               | 0.29              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2868        | 0.854                    |
| 2.1       | 6.40         | 7.20         | 0.00         | 0.00          | 0.29               | 8.31               | 0.29              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2918        | 0.859                    |
| 2.15      | 6.60         | 7.80         | 0.00         | 0.00          | 0.30               | 10.20              | 0.30              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.2967        | 0.864                    |
| 2.2       | 6.80         | 8.40         | 0.00         | 0.00          | 0.30               | 12.42              | 0.30              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3016        | 0.868                    |
| 2.25      | 7.00         | 9.00         | 0.00         | 0.00          | 0.31               | 15.00              | 0.31              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3063        | 0.873                    |
| 2.3       | 7.20         | 9.60         | 0.00         | 0.00          | 0.31               | 17.99              | 0.31              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3110        | 0.878                    |
| 2.35      | 7.40         | 10.20        | 0.00         | 0.00          | 0.32               | 21.43              | 0.32              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3156        | 0.882                    |
| 2.4       | 7.60         | 10.80        | 0.00         | 0.00          | 0.32               | 25.37              | 0.32              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3201        | 0.887                    |
| 2.45      | 7.80         | 11.40        | 0.00         | 0.00          | 0.32               | 29.87              | 0.32              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3246        | 0.891                    |
| 2.5       | 8.00         | 12.00        | 0.00         | 0.00          | 0.33               | 34.96              | 0.33              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3290        | 0.896                    |
| 2.55      | 8.20         | 12.60        | 0.00         | 0.00          | 0.33               | 40.72              | 0.33              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3334        | 0.900                    |
| 2.6       | 8.40         | 13.20        | 0.00         | 0.00          | 0.34               | 47.20              | 0.34              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3377        | 0.904                    |
| 2.65      | 8.60         | 13.80        | 0.00         | 0.00          | 0.34               | 54.47              | 0.34              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3419        | 0.909                    |
| 2.7       | 8.80         | 14.40        | 0.00         | 0.00          | 0.35               | 62.59              | 0.35              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3461        | 0.913                    |
| 2.75      | 9.00         | 15.00        | 0.00         | 0.00          | 0.35               | 71.64              | 0.35              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3503        | 0.917                    |
| 2.8       | 9.20         | 15.60        | 0.00         | 0.00          | 0.35               | 81.69              | 0.35              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3544        | 0.921                    |
| 2.85      | 9.40         | 16.20        | 0.00         | 0.00          | 0.36               | 92.82              | 0.36              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3584        | 0.925                    |
| 2.9       | 9.60         | 16.80        | 0.00         | 0.00          | 0.36               | 105.11             | 0.36              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3624        | 0.929                    |
| 2.95      | 9.80         | 17.40        | 0.00         | 0.00          | 0.37               | 118.66             | 0.37              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3664        | 0.933                    |
| 3         | 10.00        | 18.00        | 0.00         | 0.00          | 0.37               | 133.55             | 0.37              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3703        | 0.937                    |
| 3.05      | 10.20        | 18.60        | 0.20         | 0.00          | 0.37               | 149.88             | 0.37              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.3783        | 0.945                    |
| 3.1       | 10.40        | 19.20        | 0.40         | 0.00          | 0.38               | 167.75             | 0.38              | 0.00               | 0.00               | 0.00              | 0.00               | 0.02               | 0.02              | 0.00               | 0.3938        | 0.961                    |
| 3.15      | 10.60        | 19.80        | 0.60         | 0.00          | 0.38               | 187.26             | 0.38              | 0.00               | 0.00               | 0.00              | 0.04               | 0.03               | 0.03              | 0.00               | 0.4153        |                          |

Otay Ranch Village 14 BF-2-6

Discharge vs Elevation Table

|                          |         |                       |         |
|--------------------------|---------|-----------------------|---------|
| Bottom orifice diameter: | 3 "     | Top orifice diameter: | 3 "     |
| Number:                  | 1       | Number:               | 1       |
| Cg-low:                  | 0.61    | Cg-low:               | 0.61    |
| Invert elev:             | 0.50 ft | Invert elev:          | 3.00 ft |
| Middle orifice diameter: | 1 "     | Emergency weir:       |         |
| number of orif:          | 0       | Invert:               | 4.00 ft |
| Cg-middle:               | 0.61    | Weir Length (ft)      | 44.0 ft |
| Invert elev:             | 1.50 ft |                       | 6x6 box |

|      |       |       |       |      |      |          |      |      |      |      |      |        |      |        |          |         |
|------|-------|-------|-------|------|------|----------|------|------|------|------|------|--------|------|--------|----------|---------|
| 4.6  | 16.40 | 37.20 | 6.40  | 0.16 | 0.48 | 2122.72  | 0.48 | 0.00 | 0.00 | 0.00 | 0.29 | 8.31   | 0.29 | 68.10  | 68.8673  | 69.434  |
| 4.65 | 16.60 | 37.80 | 6.60  | 0.18 | 0.48 | 2266.37  | 0.48 | 0.00 | 0.00 | 0.00 | 0.30 | 10.20  | 0.30 | 76.78  | 77.5622  | 78.129  |
| 4.7  | 16.80 | 38.40 | 6.80  | 0.19 | 0.49 | 2417.66  | 0.49 | 0.00 | 0.00 | 0.00 | 0.30 | 12.42  | 0.30 | 85.81  | 86.5978  | 87.165  |
| 4.75 | 17.00 | 39.00 | 7.00  | 0.20 | 0.49 | 2576.89  | 0.49 | 0.00 | 0.00 | 0.00 | 0.31 | 15.00  | 0.31 | 95.17  | 95.9619  | 96.529  |
| 4.8  | 17.20 | 39.60 | 7.20  | 0.22 | 0.49 | 2744.35  | 0.49 | 0.00 | 0.00 | 0.00 | 0.31 | 17.99  | 0.31 | 104.84 | 105.6432 | 106.210 |
| 4.85 | 17.40 | 40.20 | 7.40  | 0.23 | 0.49 | 2920.36  | 0.49 | 0.00 | 0.00 | 0.00 | 0.32 | 21.43  | 0.32 | 114.82 | 115.6316 | 116.198 |
| 4.9  | 17.60 | 40.80 | 7.60  | 0.25 | 0.50 | 3105.25  | 0.50 | 0.00 | 0.00 | 0.00 | 0.32 | 25.37  | 0.32 | 125.10 | 125.9179 | 126.485 |
| 4.95 | 17.80 | 41.40 | 7.80  | 0.26 | 0.50 | 3299.34  | 0.50 | 0.00 | 0.00 | 0.00 | 0.32 | 29.87  | 0.32 | 135.67 | 136.4939 | 137.061 |
| 5    | 18.00 | 42.00 | 8.00  | 0.27 | 0.50 | 3502.98  | 0.50 | 0.00 | 0.00 | 0.00 | 0.33 | 34.96  | 0.33 | 146.52 | 147.3516 | 147.918 |
| 5.05 | 18.20 | 42.60 | 8.20  | 0.29 | 0.51 | 3716.50  | 0.51 | 0.00 | 0.00 | 0.00 | 0.33 | 40.72  | 0.33 | 157.65 | 158.4841 | 159.051 |
| 5.1  | 18.40 | 43.20 | 8.40  | 0.30 | 0.51 | 3940.27  | 0.51 | 0.00 | 0.00 | 0.00 | 0.34 | 47.20  | 0.34 | 169.04 | 169.8846 | 170.451 |
| 5.15 | 18.60 | 43.80 | 8.60  | 0.31 | 0.51 | 4174.64  | 0.51 | 0.00 | 0.00 | 0.00 | 0.34 | 54.47  | 0.34 | 180.69 | 181.5471 | 182.114 |
| 5.2  | 18.80 | 44.40 | 8.80  | 0.33 | 0.51 | 4419.99  | 0.51 | 0.00 | 0.00 | 0.00 | 0.35 | 62.59  | 0.35 | 192.61 | 193.4657 | 194.032 |
| 5.25 | 19.00 | 45.00 | 9.00  | 0.34 | 0.52 | 4676.69  | 0.52 | 0.00 | 0.00 | 0.00 | 0.35 | 71.64  | 0.35 | 204.77 | 205.6350 | 206.202 |
| 5.3  | 19.20 | 45.60 | 9.20  | 0.35 | 0.52 | 4945.14  | 0.52 | 0.00 | 0.00 | 0.00 | 0.35 | 81.69  | 0.35 | 217.18 | 218.0500 | 218.617 |
| 5.35 | 19.40 | 46.20 | 9.40  | 0.37 | 0.52 | 5225.73  | 0.52 | 0.00 | 0.00 | 0.00 | 0.36 | 92.82  | 0.36 | 229.83 | 230.7059 | 231.273 |
| 5.4  | 19.60 | 46.80 | 9.60  | 0.38 | 0.53 | 5518.86  | 0.53 | 0.00 | 0.00 | 0.00 | 0.36 | 105.11 | 0.36 | 242.71 | 243.5982 | 244.165 |
| 5.45 | 19.80 | 47.40 | 9.80  | 0.40 | 0.53 | 5824.95  | 0.53 | 0.00 | 0.00 | 0.00 | 0.37 | 118.66 | 0.37 | 255.83 | 256.7227 | 257.290 |
| 5.5  | 20.00 | 48.00 | 10.00 | 0.41 | 0.53 | 6144.43  | 0.53 | 0.00 | 0.00 | 0.00 | 0.37 | 133.55 | 0.37 | 269.17 | 270.0753 | 270.642 |
| 5.55 | 20.20 | 48.60 | 10.20 | 0.42 | 0.53 | 6477.72  | 0.53 | 0.00 | 0.00 | 0.00 | 0.37 | 149.88 | 0.37 | 282.74 | 283.6522 | 284.219 |
| 5.6  | 20.40 | 49.20 | 10.40 | 0.44 | 0.54 | 6825.27  | 0.54 | 0.00 | 0.00 | 0.00 | 0.38 | 167.75 | 0.38 | 296.54 | 297.4496 | 298.016 |
| 5.65 | 20.60 | 49.80 | 10.60 | 0.45 | 0.54 | 7187.53  | 0.54 | 0.00 | 0.00 | 0.00 | 0.38 | 187.26 | 0.38 | 310.54 | 311.4643 | 312.031 |
| 5.7  | 20.80 | 50.40 | 10.80 | 0.46 | 0.54 | 7564.95  | 0.54 | 0.00 | 0.00 | 0.00 | 0.39 | 208.52 | 0.39 | 324.77 | 325.6927 | 326.260 |
| 5.75 | 21.00 | 51.00 | 11.00 | 0.48 | 0.54 | 7958.02  | 0.54 | 0.00 | 0.00 | 0.00 | 0.39 | 231.66 | 0.39 | 339.20 | 340.1319 | 340.699 |
| 5.8  | 21.20 | 51.60 | 11.20 | 0.49 | 0.55 | 8367.20  | 0.55 | 0.00 | 0.00 | 0.00 | 0.39 | 256.77 | 0.39 | 353.84 | 354.7786 | 355.345 |
| 5.85 | 21.40 | 52.20 | 11.40 | 0.50 | 0.55 | 8792.99  | 0.55 | 0.00 | 0.00 | 0.00 | 0.40 | 284.00 | 0.40 | 368.68 | 369.6301 | 370.197 |
| 5.9  | 21.60 | 52.80 | 11.60 | 0.52 | 0.55 | 9235.89  | 0.55 | 0.00 | 0.00 | 0.00 | 0.40 | 313.47 | 0.40 | 383.73 | 384.6836 | 385.250 |
| 5.95 | 21.80 | 53.40 | 11.80 | 0.53 | 0.55 | 9696.40  | 0.55 | 0.00 | 0.00 | 0.00 | 0.40 | 345.31 | 0.40 | 398.98 | 399.9363 | 400.503 |
| 6    | 22.00 | 54.00 | 12.00 | 0.55 | 0.56 | 10175.04 | 0.56 | 0.00 | 0.00 | 0.00 | 0.41 | 379.66 | 0.41 | 414.42 | 415.3857 | 415.952 |

Otay Ranch Village 14 BF-2-6

Stage vs Area Table

| depth | area  | area (ac) | elevation | volume (cf) | volume (ac-ft) |
|-------|-------|-----------|-----------|-------------|----------------|
| 0.00  | 65829 | 1.511     | 0         | 0           | 0              |
| 0.05  | 65983 | 1.515     | 0.05      | 3295        | 0.0756         |
| 0.10  | 66137 | 1.518     | 0.10      | 6598        | 0.1515         |
| 0.15  | 66292 | 1.522     | 0.15      | 9909        | 0.2275         |
| 0.20  | 66446 | 1.525     | 0.20      | 13227       | 0.3037         |
| 0.25  | 66601 | 1.529     | 0.25      | 16554       | 0.3800         |
| 0.30  | 66756 | 1.533     | 0.30      | 19888       | 0.4566         |
| 0.35  | 66911 | 1.536     | 0.35      | 23229       | 0.5333         |
| 0.40  | 67066 | 1.540     | 0.40      | 26579       | 0.6102         |
| 0.45  | 67222 | 1.543     | 0.45      | 29936       | 0.6872         |
| 0.50  | 67377 | 1.547     | 0.50      | 33301       | 0.7645         |
| 0.55  | 67533 | 1.550     | 0.55      | 36674       | 0.8419         |
| 0.60  | 67689 | 1.554     | 0.60      | 40054       | 0.9195         |
| 0.65  | 67845 | 1.558     | 0.65      | 43443       | 0.9973         |
| 0.70  | 68002 | 1.561     | 0.70      | 46839       | 1.0753         |
| 0.75  | 68158 | 1.565     | 0.75      | 50243       | 1.1534         |
| 0.80  | 68315 | 1.568     | 0.80      | 53655       | 1.2317         |
| 0.85  | 68472 | 1.572     | 0.85      | 57074       | 1.3102         |
| 0.90  | 68629 | 1.576     | 0.90      | 60502       | 1.3889         |
| 0.95  | 68786 | 1.579     | 0.95      | 63937       | 1.4678         |
| 1.00  | 68944 | 1.583     | 1.00      | 67380       | 1.5468         |
| 1.05  | 69101 | 1.586     | 1.05      | 70832       | 1.6261         |
| 1.10  | 69259 | 1.590     | 1.10      | 74291       | 1.7055         |
| 1.15  | 69417 | 1.594     | 1.15      | 77758       | 1.7851         |
| 1.20  | 69575 | 1.597     | 1.20      | 81232       | 1.8648         |
| 1.25  | 69734 | 1.601     | 1.25      | 84715       | 1.9448         |
| 1.30  | 69892 | 1.605     | 1.30      | 88206       | 2.0249         |
| 1.35  | 70051 | 1.608     | 1.35      | 91704       | 2.1052         |
| 1.40  | 70210 | 1.612     | 1.40      | 95211       | 2.1857         |
| 1.45  | 70369 | 1.615     | 1.45      | 98725       | 2.2664         |
| 1.50  | 70528 | 1.619     | 1.50      | 102248      | 2.3473         |
| 1.55  | 70688 | 1.623     | 1.55      | 105778      | 2.4283         |
| 1.60  | 70847 | 1.626     | 1.60      | 109317      | 2.5096         |
| 1.65  | 71007 | 1.630     | 1.65      | 112863      | 2.5910         |
| 1.70  | 71167 | 1.634     | 1.70      | 116417      | 2.6726         |
| 1.75  | 71327 | 1.637     | 1.75      | 119980      | 2.7544         |
| 1.80  | 71488 | 1.641     | 1.80      | 123550      | 2.8363         |
| 1.85  | 71648 | 1.645     | 1.85      | 127128      | 2.9185         |
| 1.90  | 71809 | 1.649     | 1.90      | 130715      | 3.0008         |
| 1.95  | 71970 | 1.652     | 1.95      | 134309      | 3.0833         |
| 2.00  | 72131 | 1.656     | 2.00      | 137912      | 3.1660         |
| 2.05  | 72292 | 1.660     | 2.05      | 141522      | 3.2489         |
| 2.10  | 72453 | 1.663     | 2.10      | 145141      | 3.3320         |
| 2.15  | 72615 | 1.667     | 2.15      | 148768      | 3.4152         |
| 2.20  | 72777 | 1.671     | 2.20      | 152402      | 3.4987         |
| 2.25  | 72939 | 1.674     | 2.25      | 156045      | 3.5823         |
| 2.30  | 73101 | 1.678     | 2.30      | 159696      | 3.6661         |
| 2.35  | 73263 | 1.682     | 2.35      | 163355      | 3.7501         |
| 2.40  | 73426 | 1.686     | 2.40      | 167023      | 3.8343         |
| 2.45  | 73588 | 1.689     | 2.45      | 170698      | 3.9187         |
| 2.50  | 73751 | 1.693     | 2.50      | 174381      | 4.0032         |
| 2.55  | 73914 | 1.697     | 2.55      | 178073      | 4.0880         |
| 2.60  | 74077 | 1.701     | 2.60      | 181773      | 4.1729         |
| 2.65  | 74241 | 1.704     | 2.65      | 185481      | 4.2581         |
| 2.70  | 74404 | 1.708     | 2.70      | 189197      | 4.3434         |
| 2.75  | 74568 | 1.712     | 2.75      | 192921      | 4.4289         |
| 2.80  | 74732 | 1.716     | 2.80      | 196654      | 4.5145         |
| 2.85  | 74896 | 1.719     | 2.85      | 200395      | 4.6004         |
| 2.90  | 75060 | 1.723     | 2.90      | 204143      | 4.6865         |
| 2.95  | 75225 | 1.727     | 2.95      | 207901      | 4.7727         |
| 3.00  | 75390 | 1.731     | 3.00      | 211666      | 4.8592         |

|      |       |       |      |        |         |
|------|-------|-------|------|--------|---------|
| 3.05 | 75554 | 1.734 | 3.05 | 215440 | 4.9458  |
| 3.10 | 75719 | 1.738 | 3.10 | 219221 | 5.0326  |
| 3.15 | 75885 | 1.742 | 3.15 | 223011 | 5.1196  |
| 3.20 | 76050 | 1.746 | 3.20 | 226810 | 5.2068  |
| 3.25 | 76216 | 1.750 | 3.25 | 230616 | 5.2942  |
| 3.30 | 76381 | 1.753 | 3.30 | 234431 | 5.3818  |
| 3.35 | 76547 | 1.757 | 3.35 | 238255 | 5.4696  |
| 3.40 | 76713 | 1.761 | 3.40 | 242086 | 5.5575  |
| 3.45 | 76880 | 1.765 | 3.45 | 245926 | 5.6457  |
| 3.50 | 77046 | 1.769 | 3.50 | 249774 | 5.7340  |
| 3.55 | 77213 | 1.773 | 3.55 | 253631 | 5.8226  |
| 3.60 | 77379 | 1.776 | 3.60 | 257495 | 5.9113  |
| 3.65 | 77546 | 1.780 | 3.65 | 261368 | 6.0002  |
| 3.70 | 77714 | 1.784 | 3.70 | 265250 | 6.0893  |
| 3.75 | 77881 | 1.788 | 3.75 | 269140 | 6.1786  |
| 3.80 | 78049 | 1.792 | 3.80 | 273038 | 6.2681  |
| 3.85 | 78216 | 1.796 | 3.85 | 276945 | 6.3578  |
| 3.90 | 78384 | 1.799 | 3.90 | 280860 | 6.4477  |
| 3.95 | 78552 | 1.803 | 3.95 | 284783 | 6.5377  |
| 4.00 | 78720 | 1.807 | 4.00 | 288715 | 6.6280  |
| 4.05 | 78889 | 1.811 | 4.05 | 292655 | 6.7184  |
| 4.10 | 79057 | 1.815 | 4.10 | 296604 | 6.8091  |
| 4.15 | 79226 | 1.819 | 4.15 | 300561 | 6.8999  |
| 4.20 | 79395 | 1.823 | 4.20 | 304526 | 6.9910  |
| 4.25 | 79564 | 1.827 | 4.25 | 308500 | 7.0822  |
| 4.30 | 79734 | 1.830 | 4.30 | 312483 | 7.1736  |
| 4.35 | 79903 | 1.834 | 4.35 | 316474 | 7.2652  |
| 4.40 | 80073 | 1.838 | 4.40 | 320473 | 7.3571  |
| 4.45 | 80243 | 1.842 | 4.45 | 324481 | 7.4491  |
| 4.50 | 80413 | 1.846 | 4.50 | 328498 | 7.5413  |
| 4.55 | 80583 | 1.850 | 4.55 | 332522 | 7.6337  |
| 4.60 | 80754 | 1.854 | 4.60 | 336556 | 7.7263  |
| 4.65 | 80924 | 1.858 | 4.65 | 340598 | 7.8190  |
| 4.70 | 81095 | 1.862 | 4.70 | 344648 | 7.9120  |
| 4.75 | 81266 | 1.866 | 4.75 | 348707 | 8.0052  |
| 4.80 | 81437 | 1.870 | 4.80 | 352775 | 8.0986  |
| 4.85 | 81608 | 1.873 | 4.85 | 356851 | 8.1922  |
| 4.90 | 81780 | 1.877 | 4.90 | 360936 | 8.2859  |
| 4.95 | 81951 | 1.881 | 4.95 | 365029 | 8.3799  |
| 5.00 | 82123 | 1.885 | 5.00 | 369131 | 8.4741  |
| 5.05 | 82295 | 1.889 | 5.05 | 373241 | 8.5684  |
| 5.10 | 82468 | 1.893 | 5.10 | 377360 | 8.6630  |
| 5.15 | 82640 | 1.897 | 5.15 | 381488 | 8.7578  |
| 5.20 | 82813 | 1.901 | 5.20 | 385624 | 8.8527  |
| 5.25 | 82985 | 1.905 | 5.25 | 389769 | 8.9479  |
| 5.30 | 83158 | 1.909 | 5.30 | 393923 | 9.0432  |
| 5.35 | 83331 | 1.913 | 5.35 | 398085 | 9.1388  |
| 5.40 | 83505 | 1.917 | 5.40 | 402256 | 9.2345  |
| 5.45 | 83678 | 1.921 | 5.45 | 406436 | 9.3305  |
| 5.50 | 83852 | 1.925 | 5.50 | 410624 | 9.4266  |
| 5.55 | 84026 | 1.929 | 5.55 | 414821 | 9.5230  |
| 5.60 | 84200 | 1.933 | 5.60 | 419026 | 9.6195  |
| 5.65 | 84374 | 1.937 | 5.65 | 423241 | 9.7163  |
| 5.70 | 84548 | 1.941 | 5.70 | 427464 | 9.8132  |
| 5.75 | 84723 | 1.945 | 5.75 | 431696 | 9.9104  |
| 5.80 | 84897 | 1.949 | 5.80 | 435936 | 10.0077 |
| 5.85 | 85072 | 1.953 | 5.85 | 440185 | 10.1053 |
| 5.90 | 85247 | 1.957 | 5.90 | 444443 | 10.2030 |
| 5.95 | 85423 | 1.961 | 5.95 | 448710 | 10.3010 |
| 6.00 | 85598 | 1.965 | 6.00 | 452986 | 10.3991 |



## Otay Ranch Village 14 BF-2-6

| <u>Draw Down</u> |                        |         |         |         |
|------------------|------------------------|---------|---------|---------|
| Elevation        | Q <sub>AVG</sub> (CFS) | DV (CF) | DT (HR) | Total T |
| 0.00             | 0.606                  | 3295.3  | 1.511   | 95.18   |
| 0.05             | 0.606                  | 3303.0  | 1.515   | 93.67   |
| 0.10             | 0.606                  | 3310.7  | 1.518   | 92.16   |
| 0.15             | 0.606                  | 3318.4  | 1.522   | 90.64   |
| 0.20             | 0.606                  | 3326.2  | 1.525   | 89.12   |
| 0.25             | 0.606                  | 3333.9  | 1.529   | 87.59   |
| 0.30             | 0.606                  | 3341.7  | 1.532   | 86.07   |
| 0.35             | 0.606                  | 3349.4  | 1.536   | 84.53   |
| 0.40             | 0.606                  | 3357.2  | 1.539   | 83.00   |
| 0.45             | 0.606                  | 3365.0  | 1.543   | 81.46   |
| 0.50             | 0.608                  | 3372.8  | 1.541   | 79.91   |
| 0.55             | 0.616                  | 3380.6  | 1.525   | 78.37   |
| 0.60             | 0.630                  | 3388.4  | 1.493   | 76.85   |
| 0.65             | 0.650                  | 3396.2  | 1.450   | 75.36   |
| 0.70             | 0.674                  | 3404.0  | 1.402   | 73.91   |
| 0.75             | 0.697                  | 3411.8  | 1.360   | 72.50   |
| 0.80             | 0.713                  | 3419.7  | 1.332   | 71.14   |
| 0.85             | 0.726                  | 3427.5  | 1.312   | 69.81   |
| 0.90             | 0.737                  | 3435.4  | 1.294   | 68.50   |
| 0.95             | 0.748                  | 3443.3  | 1.279   | 67.20   |
| 1.00             | 0.758                  | 3451.1  | 1.265   | 65.93   |
| 1.05             | 0.767                  | 3459.0  | 1.253   | 64.66   |
| 1.10             | 0.776                  | 3466.9  | 1.242   | 63.41   |
| 1.15             | 0.784                  | 3474.8  | 1.231   | 62.17   |
| 1.20             | 0.792                  | 3482.7  | 1.222   | 60.93   |
| 1.25             | 0.799                  | 3490.7  | 1.213   | 59.71   |
| 1.30             | 0.807                  | 3498.6  | 1.205   | 58.50   |
| 1.35             | 0.814                  | 3506.5  | 1.197   | 57.30   |
| 1.40             | 0.821                  | 3514.5  | 1.190   | 56.10   |
| 1.45             | 0.827                  | 3522.4  | 1.183   | 54.91   |
| 1.50             | 0.834                  | 3530.4  | 1.176   | 53.73   |
| 1.55             | 0.840                  | 3538.4  | 1.170   | 52.55   |
| 1.60             | 0.846                  | 3546.4  | 1.164   | 51.38   |
| 1.65             | 0.852                  | 3554.4  | 1.159   | 50.22   |
| 1.70             | 0.858                  | 3562.4  | 1.154   | 49.06   |
| 1.75             | 0.863                  | 3570.4  | 1.149   | 47.90   |
| 1.80             | 0.869                  | 3578.4  | 1.144   | 46.75   |
| 1.85             | 0.874                  | 3586.4  | 1.139   | 45.61   |
| 1.90             | 0.880                  | 3594.5  | 1.135   | 44.47   |
| 1.95             | 0.885                  | 3602.5  | 1.131   | 43.34   |
| 2.00             | 0.890                  | 3610.6  | 1.127   | 42.21   |
| 2.05             | 0.895                  | 3618.6  | 1.123   | 41.08   |
| 2.10             | 0.900                  | 3626.7  | 1.119   | 39.96   |

|      |        |        |       |       |
|------|--------|--------|-------|-------|
| 2.15 | 0.905  | 3634.8 | 1.116 | 38.84 |
| 2.20 | 0.910  | 3642.9 | 1.112 | 37.72 |
| 2.25 | 0.914  | 3651.0 | 1.109 | 36.61 |
| 2.30 | 0.919  | 3659.1 | 1.106 | 35.50 |
| 2.35 | 0.924  | 3667.2 | 1.103 | 34.39 |
| 2.40 | 0.928  | 3675.3 | 1.100 | 33.29 |
| 2.45 | 0.933  | 3683.5 | 1.097 | 32.19 |
| 2.50 | 0.937  | 3691.6 | 1.094 | 31.09 |
| 2.55 | 0.941  | 3699.8 | 1.092 | 30.00 |
| 2.60 | 0.946  | 3708.0 | 1.089 | 28.91 |
| 2.65 | 0.950  | 3716.1 | 1.087 | 27.82 |
| 2.70 | 0.954  | 3724.3 | 1.084 | 26.73 |
| 2.75 | 0.958  | 3732.5 | 1.082 | 25.65 |
| 2.80 | 0.962  | 3740.7 | 1.080 | 24.57 |
| 2.85 | 0.966  | 3748.9 | 1.078 | 23.49 |
| 2.90 | 0.970  | 3757.1 | 1.076 | 22.41 |
| 2.95 | 0.974  | 3765.4 | 1.074 | 21.33 |
| 3.00 | 0.980  | 3773.6 | 1.069 | 20.26 |
| 3.05 | 0.992  | 3781.8 | 1.059 | 19.19 |
| 3.10 | 1.010  | 3790.1 | 1.042 | 18.13 |
| 3.15 | 1.034  | 3798.4 | 1.020 | 17.09 |
| 3.20 | 1.062  | 3806.6 | 0.996 | 16.07 |
| 3.25 | 1.088  | 3814.9 | 0.974 | 15.07 |
| 3.30 | 1.108  | 3823.2 | 0.959 | 14.10 |
| 3.35 | 1.124  | 3831.5 | 0.947 | 13.14 |
| 3.40 | 1.139  | 3839.8 | 0.936 | 12.19 |
| 3.45 | 1.154  | 3848.1 | 0.927 | 11.26 |
| 3.50 | 1.167  | 3856.5 | 0.918 | 10.33 |
| 3.55 | 1.180  | 3864.8 | 0.910 | 9.41  |
| 3.60 | 1.192  | 3873.1 | 0.903 | 8.50  |
| 3.65 | 1.204  | 3881.5 | 0.896 | 7.60  |
| 3.70 | 1.215  | 3889.9 | 0.889 | 6.70  |
| 3.75 | 1.226  | 3898.2 | 0.883 | 5.81  |
| 3.80 | 1.237  | 3906.6 | 0.878 | 4.93  |
| 3.85 | 1.247  | 3915.0 | 0.872 | 4.05  |
| 3.90 | 1.257  | 3923.4 | 0.867 | 3.18  |
| 3.95 | 1.267  | 3931.8 | 0.862 | 2.31  |
| 4.00 | 2.096  | 3940.2 | 0.522 | 1.45  |
| 4.05 | 4.422  | 3948.7 | 0.248 | 0.93  |
| 4.10 | 7.868  | 3957.1 | 0.140 | 0.68  |
| 4.15 | 12.113 | 3965.5 | 0.091 | 0.54  |
| 4.20 | 17.024 | 3974.0 | 0.065 | 0.45  |
| 4.25 | 22.518 | 3982.5 | 0.049 | 0.39  |
| 4.30 | 28.538 | 3990.9 | 0.039 | 0.34  |
| 4.35 | 35.043 | 3999.4 | 0.032 | 0.30  |
| 4.40 | 41.997 | 4007.9 | 0.027 | 0.27  |
| 4.45 | 49.373 | 4016.4 | 0.023 | 0.24  |
| 4.50 | 57.148 | 4024.9 | 0.020 | 0.22  |

|      |         |        |       |      |
|------|---------|--------|-------|------|
| 4.55 | 65.303  | 4033.4 | 0.017 | 0.20 |
| 4.60 | 73.821  | 4041.9 | 0.015 | 0.18 |
| 4.65 | 82.686  | 4050.5 | 0.014 | 0.17 |
| 4.70 | 91.886  | 4059.0 | 0.012 | 0.15 |
| 4.75 | 101.408 | 4067.6 | 0.011 | 0.14 |
| 4.80 | 111.243 | 4076.1 | 0.010 | 0.13 |
| 4.85 | 121.381 | 4084.7 | 0.009 | 0.12 |
| 4.90 | 131.812 | 4093.3 | 0.009 | 0.11 |
| 4.95 | 142.529 | 4101.9 | 0.008 | 0.10 |
| 5.00 | 153.524 | 4110.5 | 0.007 | 0.09 |
| 5.05 | 164.790 | 4119.1 | 0.007 | 0.08 |
| 5.10 | 176.322 | 4127.7 | 0.007 | 0.08 |
| 5.15 | 188.112 | 4136.3 | 0.006 | 0.07 |
| 5.20 | 200.156 | 4144.9 | 0.006 | 0.07 |
| 5.25 | 212.448 | 4153.6 | 0.005 | 0.06 |
| 5.30 | 224.984 | 4162.2 | 0.005 | 0.05 |
| 5.35 | 237.758 | 4170.9 | 0.005 | 0.05 |
| 5.40 | 250.766 | 4179.6 | 0.005 | 0.04 |
| 5.45 | 264.005 | 4188.2 | 0.004 | 0.04 |
| 5.50 | 277.470 | 4196.9 | 0.004 | 0.03 |
| 5.55 | 291.157 | 4205.6 | 0.004 | 0.03 |
| 5.60 | 305.063 | 4214.3 | 0.004 | 0.03 |
| 5.65 | 319.184 | 4223.0 | 0.004 | 0.02 |
| 5.70 | 333.518 | 4231.8 | 0.004 | 0.02 |
| 5.75 | 348.061 | 4240.5 | 0.003 | 0.02 |
| 5.80 | 362.810 | 4249.2 | 0.003 | 0.01 |
| 5.85 | 377.763 | 4258.0 | 0.003 | 0.01 |
| 5.90 | 392.916 | 4266.8 | 0.003 | 0.01 |
| 5.95 | 408.267 | 4275.5 | 0.003 | 0.00 |
| 6.00 |         |        |       |      |

## Otay Ranch Village 14 BF-2-6

### SWMM Model Flow Coefficient Calculation

| PARAMETER                                    | ABBREV.    | Bio-Retention Cell |                 |
|----------------------------------------------|------------|--------------------|-----------------|
| Ponding Depth                                | PD         | 6                  | in              |
| Bioretention Soil Layer                      | S          | 18                 | in              |
| Gravel Layer (Measured From Subdrain Invert) | G          | 15                 | in              |
| TOTAL                                        |            | 3.3                | ft              |
|                                              |            | 39                 | in              |
|                                              |            |                    |                 |
| Orifice Coefficient                          | $c_g$      | 0.6                | --              |
| Low Flow Orifice Diameter                    | D          | 3.5                | in              |
| Drain (Flow) exponent                        | n          | 0.5                | --              |
|                                              |            |                    |                 |
|                                              |            |                    |                 |
| Flow Rate (volumetric)                       | Q          | 0.567              | cfs             |
|                                              |            |                    |                 |
| Ponding Depth Surface Area                   | $A_{PD}$   | 67377              | ft <sup>2</sup> |
| Bioretention Surface Area                    | $A_S, A_G$ | 65829              | ft <sup>2</sup> |
|                                              | $A_S, A_G$ | 1.5112             | ac              |
| Porosity of Bioretention Soil                | n          | 0.40               | -               |
| Flow Rate (per unit area)                    | q          | 0.930              | in/hr           |
|                                              |            |                    |                 |
| Effective Ponding Depth                      | $PD_{eff}$ | 6.07               | in              |
| Flow Coefficient                             | C          | 0.1524             | --              |
| Underlying Soil Conductivity                 | in/hr      | 0.025              |                 |
| Basin Conductivity                           | cfs        | 0.039              |                 |

Otay Ranch Village 14 BF-2-8

Discharge vs Elevation Table

|                          |         |                       |         |
|--------------------------|---------|-----------------------|---------|
| Bottom orifice diameter: | 0.75 "  | Top orifice diameter: | 3 "     |
| Number:                  | 1       | Number:               | 1       |
| Cg-low:                  | 0.61    | Cg-low:               | 0.61    |
| Invert elev:             | 0.50 ft | Invert elev:          | 3.00 ft |
| Middle orifice diameter: | 1 "     | Emergency weir:       |         |
| number of orif:          | 0       | Invert:               | 4.00 ft |
| Cg-middle:               | 0.61    | Weir Length (ft)      | 4.0 ft  |
| Invert elev:             | 1.50 ft |                       | 1x1 box |

| h<br>(ft) | H/D-low | H/D-mid | H/D-top | H/D-peak | Qlow-orif<br>(cfs) | Qlow-weir<br>(cfs) | Qtot-low<br>(cfs) | Qmid-orif<br>(cfs) | Qmid-weir<br>(cfs) | Qtot-med<br>(cfs) | Qtop-orif<br>(cfs) | Qtop-weir<br>(cfs) | Qtot-top<br>(cfs) | Qpeak-top<br>(cfs) | Qtot<br>(cfs) | Qtot <sub>w/subbrn</sub><br>(cfs) |
|-----------|---------|---------|---------|----------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|---------------|-----------------------------------|
| 0         | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.012                             |
| 0.05      | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.012                             |
| 0.1       | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.012                             |
| 0.15      | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.012                             |
| 0.2       | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.012                             |
| 0.25      | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.012                             |
| 0.3       | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.012                             |
| 0.35      | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.012                             |
| 0.4       | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.012                             |
| 0.45      | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.012                             |
| 0.5       | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.012                             |
| 0.55      | 0.80    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0017        | 0.014                             |
| 0.6       | 1.60    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0039        | 0.016                             |
| 0.65      | 2.40    | 0.00    | 0.00    | 0.00     | 0.01               | 0.01               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0052        | 0.017                             |
| 0.7       | 3.20    | 0.00    | 0.00    | 0.00     | 0.01               | 0.01               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0062        | 0.018                             |
| 0.75      | 4.00    | 0.00    | 0.00    | 0.00     | 0.01               | 0.01               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0070        | 0.019                             |
| 0.8       | 4.80    | 0.00    | 0.00    | 0.00     | 0.01               | 0.03               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0078        | 0.020                             |
| 0.85      | 5.60    | 0.00    | 0.00    | 0.00     | 0.01               | 0.10               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0085        | 0.020                             |
| 0.9       | 6.40    | 0.00    | 0.00    | 0.00     | 0.01               | 0.26               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0091        | 0.021                             |
| 0.95      | 7.20    | 0.00    | 0.00    | 0.00     | 0.01               | 0.56               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0097        | 0.022                             |
| 1         | 8.00    | 0.00    | 0.00    | 0.00     | 0.01               | 1.09               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0103        | 0.022                             |
| 1.05      | 8.80    | 0.00    | 0.00    | 0.00     | 0.01               | 1.96               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0108        | 0.023                             |
| 1.1       | 9.60    | 0.00    | 0.00    | 0.00     | 0.01               | 3.28               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0113        | 0.023                             |
| 1.15      | 10.40   | 0.00    | 0.00    | 0.00     | 0.01               | 5.24               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0118        | 0.024                             |
| 1.2       | 11.20   | 0.00    | 0.00    | 0.00     | 0.01               | 8.02               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0123        | 0.024                             |
| 1.25      | 12.00   | 0.00    | 0.00    | 0.00     | 0.01               | 11.86              | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0127        | 0.025                             |
| 1.3       | 12.80   | 0.00    | 0.00    | 0.00     | 0.01               | 17.03              | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0132        | 0.025                             |
| 1.35      | 13.60   | 0.00    | 0.00    | 0.00     | 0.01               | 23.85              | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0136        | 0.025                             |
| 1.4       | 14.40   | 0.00    | 0.00    | 0.00     | 0.01               | 32.68              | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0140        | 0.026                             |
| 1.45      | 15.20   | 0.00    | 0.00    | 0.00     | 0.01               | 43.92              | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0144        | 0.026                             |
| 1.5       | 16.00   | 0.00    | 0.00    | 0.00     | 0.01               | 58.04              | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0148        | 0.027                             |
| 1.55      | 16.80   | 0.60    | 0.00    | 0.00     | 0.02               | 75.55              | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0152        | 0.027                             |
| 1.6       | 17.60   | 1.20    | 0.00    | 0.00     | 0.02               | 97.04              | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0155        | 0.027                             |
| 1.65      | 18.40   | 1.80    | 0.00    | 0.00     | 0.02               | 123.13             | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0159        | 0.028                             |
| 1.7       | 19.20   | 2.40    | 0.00    | 0.00     | 0.02               | 154.54             | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0162        | 0.028                             |
| 1.75      | 20.00   | 3.00    | 0.00    | 0.00     | 0.02               | 192.01             | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0166        | 0.028                             |
| 1.8       | 20.80   | 3.60    | 0.00    | 0.00     | 0.02               | 236.40             | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0169        | 0.029                             |
| 1.85      | 21.60   | 4.20    | 0.00    | 0.00     | 0.02               | 288.62             | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0172        | 0.029                             |
| 1.9       | 22.40   | 4.80    | 0.00    | 0.00     | 0.02               | 349.65             | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0176        | 0.029                             |
| 1.95      | 23.20   | 5.40    | 0.00    | 0.00     | 0.02               | 420.56             | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0179        | 0.030                             |
| 2         | 24.00   | 6.00    | 0.00    | 0.00     | 0.02               | 502.51             | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0182        | 0.030                             |
| 2.05      | 24.80   | 6.60    | 0.00    | 0.00     | 0.02               | 596.72             | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0185        | 0.030                             |
| 2.1       | 25.60   | 7.20    | 0.00    | 0.00     | 0.02               | 704.52             | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0188        | 0.031                             |
| 2.15      | 26.40   | 7.80    | 0.00    | 0.00     | 0.02               | 827.33             | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0191        | 0.031                             |
| 2.2       | 27.20   | 8.40    | 0.00    | 0.00     | 0.02               | 966.67             | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0194        | 0.031                             |
| 2.25      | 28.00   | 9.00    | 0.00    | 0.00     | 0.02               | 1124.14            | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0197        | 0.031                             |
| 2.3       | 28.80   | 9.60    | 0.00    | 0.00     | 0.02               | 1301.45            | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0200        | 0.032                             |
| 2.35      | 29.60   | 10.20   | 0.00    | 0.00     | 0.02               | 1500.42            | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0203        | 0.032                             |
| 2.4       | 30.40   | 10.80   | 0.00    | 0.00     | 0.02               | 1722.96            | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0205        | 0.032                             |
| 2.45      | 31.20   | 11.40   | 0.00    | 0.00     | 0.02               | 1971.13            | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0208        | 0.033                             |
| 2.5       | 32.00   | 12.00   | 0.00    | 0.00     | 0.02               | 2247.05            | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0211        | 0.033                             |
| 2.55      | 32.80   | 12.60   | 0.00    | 0.00     | 0.02               | 2552.99            | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0213        | 0.033                             |
| 2.6       | 33.60   | 13.20   | 0.00    | 0.00     | 0.02               | 2891.34            | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0216        | 0.033                             |
| 2.65      | 34.40   | 13.80   | 0.00    | 0.00     | 0.02               | 3264.61            | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0219        | 0.034                             |
| 2.7       | 35.20   | 14.40   | 0.00    | 0.00     | 0.02               | 3675.41            | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0221        | 0.034                             |
| 2.75      | 36.00   | 15.00   | 0.00    | 0.00     | 0.02               | 4126.51            | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0224        | 0.034                             |
| 2.8       | 36.80   | 15.60   | 0.00    | 0.00     | 0.02               | 4620.81            | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0226        | 0.034                             |
| 2.85      | 37.60   | 16.20   | 0.00    | 0.00     | 0.02               | 5161.32            | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0229        | 0.035                             |
| 2.9       | 38.40   | 16.80   | 0.00    | 0.00     | 0.02               | 5751.22            | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0231        | 0.035                             |
| 2.95      | 39.20   | 17.40   | 0.00    | 0.00     | 0.02               | 6393.81            | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0234        | 0.035                             |
| 3         | 40.00   | 18.00   | 0.00    | 0.00     | 0.02               | 7092.54            | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0236        | 0.035                             |
| 3.05      | 40.80   | 18.60   | 0.20    | 0.00     | 0.02               | 7851.00            | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0280        | 0.040                             |
| 3.1       | 41.60   | 19.20   | 0.40    | 0.00     | 0.02               | 8672.94            | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.02               | 0.02              | 0.00               | 0.0398        | 0.052                             |
| 3.15      | 42.40   | 19.80   | 0.60    | 0.00     | 0.02               | 956                |                   |                    |                    |                   |                    |                    |                   |                    |               |                                   |

Otay Ranch Village 14 BF-2-8

Discharge vs Elevation Table

|                          |         |                       |         |
|--------------------------|---------|-----------------------|---------|
| Bottom orifice diameter: | 0.75 "  | Top orifice diameter: | 3 "     |
| Number:                  | 1       | Number:               | 1       |
| Cg-low:                  | 0.61    | Cg-low:               | 0.61    |
| Invert elev:             | 0.50 ft | Invert elev:          | 3.00 ft |
| Middle orifice diameter: | 1 "     | Emergency weir:       |         |
| number of orif:          | 0       | Invert:               | 4.00 ft |
| Cg-middle:               | 0.61    | Weir Length (ft)      | 4.0 ft  |
| Invert elev:             | 1.50 ft |                       | 1x1 box |

|      |       |       |       |      |      |           |      |      |      |      |      |        |      |       |         |        |
|------|-------|-------|-------|------|------|-----------|------|------|------|------|------|--------|------|-------|---------|--------|
| 4.5  | 64.00 | 36.00 | 6.00  | 1.50 | 0.03 | 78024.94  | 0.03 | 0.00 | 0.00 | 0.00 | 0.28 | 5.36   | 0.28 | 4.71  | 5.0210  | 5.033  |
| 4.55 | 64.80 | 36.60 | 6.20  | 1.65 | 0.03 | 83104.27  | 0.03 | 0.00 | 0.00 | 0.00 | 0.29 | 6.70   | 0.29 | 5.43  | 5.7501  | 5.762  |
| 4.6  | 65.60 | 37.20 | 6.40  | 1.80 | 0.03 | 88444.65  | 0.03 | 0.00 | 0.00 | 0.00 | 0.29 | 8.31   | 0.29 | 6.19  | 6.5127  | 6.525  |
| 4.65 | 66.40 | 37.80 | 6.60  | 1.95 | 0.03 | 94056.02  | 0.03 | 0.00 | 0.00 | 0.00 | 0.30 | 10.20  | 0.30 | 6.98  | 7.3075  | 7.319  |
| 4.7  | 67.20 | 38.40 | 6.80  | 2.10 | 0.03 | 99948.55  | 0.03 | 0.00 | 0.00 | 0.00 | 0.30 | 12.42  | 0.30 | 7.80  | 8.1332  | 8.145  |
| 4.75 | 68.00 | 39.00 | 7.00  | 2.25 | 0.03 | 106132.69 | 0.03 | 0.00 | 0.00 | 0.00 | 0.31 | 15.00  | 0.31 | 8.65  | 8.9888  | 9.001  |
| 4.8  | 68.80 | 39.60 | 7.20  | 2.40 | 0.03 | 112619.11 | 0.03 | 0.00 | 0.00 | 0.00 | 0.31 | 17.99  | 0.31 | 9.53  | 9.8730  | 9.885  |
| 4.85 | 69.60 | 40.20 | 7.40  | 2.55 | 0.03 | 119418.77 | 0.03 | 0.00 | 0.00 | 0.00 | 0.32 | 21.43  | 0.32 | 10.44 | 10.7852 | 10.797 |
| 4.9  | 70.40 | 40.80 | 7.60  | 2.70 | 0.03 | 126542.87 | 0.03 | 0.00 | 0.00 | 0.00 | 0.32 | 25.37  | 0.32 | 11.37 | 11.7243 | 11.736 |
| 4.95 | 71.20 | 41.40 | 7.80  | 2.85 | 0.03 | 134002.88 | 0.03 | 0.00 | 0.00 | 0.00 | 0.32 | 29.87  | 0.32 | 12.33 | 12.6898 | 12.702 |
| 5    | 72.00 | 42.00 | 8.00  | 3.00 | 0.03 | 141810.54 | 0.03 | 0.00 | 0.00 | 0.00 | 0.33 | 34.96  | 0.33 | 13.32 | 13.6808 | 13.693 |
| 5.05 | 72.80 | 42.60 | 8.20  | 3.15 | 0.03 | 149977.86 | 0.03 | 0.00 | 0.00 | 0.00 | 0.33 | 40.72  | 0.33 | 14.33 | 14.6967 | 14.709 |
| 5.1  | 73.60 | 43.20 | 8.40  | 3.30 | 0.03 | 158517.12 | 0.03 | 0.00 | 0.00 | 0.00 | 0.34 | 47.20  | 0.34 | 15.37 | 15.7369 | 15.749 |
| 5.15 | 74.40 | 43.80 | 8.60  | 3.45 | 0.03 | 167440.87 | 0.03 | 0.00 | 0.00 | 0.00 | 0.34 | 54.47  | 0.34 | 16.43 | 16.8009 | 16.813 |
| 5.2  | 75.20 | 44.40 | 8.80  | 3.60 | 0.03 | 176761.96 | 0.03 | 0.00 | 0.00 | 0.00 | 0.35 | 62.59  | 0.35 | 17.51 | 17.8882 | 17.900 |
| 5.25 | 76.00 | 45.00 | 9.00  | 3.75 | 0.03 | 186493.51 | 0.03 | 0.00 | 0.00 | 0.00 | 0.35 | 71.64  | 0.35 | 18.62 | 18.9982 | 19.010 |
| 5.3  | 76.80 | 45.60 | 9.20  | 3.90 | 0.03 | 196648.91 | 0.03 | 0.00 | 0.00 | 0.00 | 0.35 | 81.69  | 0.35 | 19.74 | 20.1305 | 20.142 |
| 5.35 | 77.60 | 46.20 | 9.40  | 4.05 | 0.03 | 207241.87 | 0.03 | 0.00 | 0.00 | 0.00 | 0.36 | 92.82  | 0.36 | 20.89 | 21.2846 | 21.296 |
| 5.4  | 78.40 | 46.80 | 9.60  | 4.20 | 0.03 | 218286.37 | 0.03 | 0.00 | 0.00 | 0.00 | 0.36 | 105.11 | 0.36 | 22.06 | 22.4602 | 22.472 |
| 5.45 | 79.20 | 47.40 | 9.80  | 4.35 | 0.03 | 229796.69 | 0.03 | 0.00 | 0.00 | 0.00 | 0.37 | 118.66 | 0.37 | 23.26 | 23.6568 | 23.669 |
| 5.5  | 80.00 | 48.00 | 10.00 | 4.50 | 0.03 | 241787.40 | 0.03 | 0.00 | 0.00 | 0.00 | 0.37 | 133.55 | 0.37 | 24.47 | 24.8742 | 24.886 |
| 5.55 | 80.80 | 48.60 | 10.20 | 4.65 | 0.03 | 254273.40 | 0.03 | 0.00 | 0.00 | 0.00 | 0.37 | 149.88 | 0.37 | 25.70 | 26.1119 | 26.124 |
| 5.6  | 81.60 | 49.20 | 10.40 | 4.80 | 0.03 | 267269.86 | 0.03 | 0.00 | 0.00 | 0.00 | 0.38 | 167.75 | 0.38 | 26.96 | 27.3696 | 27.381 |
| 5.65 | 82.40 | 49.80 | 10.60 | 4.95 | 0.03 | 280792.27 | 0.03 | 0.00 | 0.00 | 0.00 | 0.38 | 187.26 | 0.38 | 28.23 | 28.6471 | 28.659 |
| 5.7  | 83.20 | 50.40 | 10.80 | 5.10 | 0.03 | 294856.44 | 0.03 | 0.00 | 0.00 | 0.00 | 0.39 | 208.52 | 0.39 | 29.52 | 29.9439 | 29.956 |
| 5.75 | 84.00 | 51.00 | 11.00 | 5.25 | 0.03 | 309478.48 | 0.03 | 0.00 | 0.00 | 0.00 | 0.39 | 231.66 | 0.39 | 30.84 | 31.2599 | 31.272 |
| 5.8  | 84.80 | 51.60 | 11.20 | 5.40 | 0.03 | 324674.81 | 0.03 | 0.00 | 0.00 | 0.00 | 0.39 | 256.77 | 0.39 | 32.17 | 32.5947 | 32.606 |
| 5.85 | 85.60 | 52.20 | 11.40 | 5.55 | 0.03 | 340462.19 | 0.03 | 0.00 | 0.00 | 0.00 | 0.40 | 284.00 | 0.40 | 33.52 | 33.9480 | 33.960 |
| 5.9  | 86.40 | 52.80 | 11.60 | 5.70 | 0.03 | 356857.70 | 0.03 | 0.00 | 0.00 | 0.00 | 0.40 | 313.47 | 0.40 | 34.88 | 35.3198 | 35.332 |
| 5.95 | 87.20 | 53.40 | 11.80 | 5.85 | 0.03 | 373878.73 | 0.03 | 0.00 | 0.00 | 0.00 | 0.40 | 345.31 | 0.40 | 36.27 | 36.7096 | 36.721 |
| 6    | 88.00 | 54.00 | 12.00 | 6.00 | 0.04 | 391543.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.41 | 379.66 | 0.41 | 37.67 | 38.1172 | 38.129 |

Stage vs Area Table

| depth | area | area (ac) | elevation | volume (cf) | volume (ac-ft) |
|-------|------|-----------|-----------|-------------|----------------|
| 0.00  | 1537 | 0.035     | 0         | 0           | 0              |
| 0.05  | 1561 | 0.036     | 0.05      | 77          | 0.0018         |
| 0.10  | 1584 | 0.036     | 0.10      | 156         | 0.0036         |
| 0.15  | 1608 | 0.037     | 0.15      | 236         | 0.0054         |
| 0.20  | 1633 | 0.037     | 0.20      | 317         | 0.0073         |
| 0.25  | 1657 | 0.038     | 0.25      | 399         | 0.0092         |
| 0.30  | 1681 | 0.039     | 0.30      | 483         | 0.0111         |
| 0.35  | 1706 | 0.039     | 0.35      | 567         | 0.0130         |
| 0.40  | 1731 | 0.040     | 0.40      | 653         | 0.0150         |
| 0.45  | 1756 | 0.040     | 0.45      | 740         | 0.0170         |
| 0.50  | 1781 | 0.041     | 0.50      | 829         | 0.0190         |
| 0.55  | 1807 | 0.041     | 0.55      | 919         | 0.0211         |
| 0.60  | 1832 | 0.042     | 0.60      | 1009        | 0.0232         |
| 0.65  | 1858 | 0.043     | 0.65      | 1102        | 0.0253         |
| 0.70  | 1884 | 0.043     | 0.70      | 1195        | 0.0274         |
| 0.75  | 1910 | 0.044     | 0.75      | 1290        | 0.0296         |
| 0.80  | 1936 | 0.044     | 0.80      | 1386        | 0.0318         |
| 0.85  | 1963 | 0.045     | 0.85      | 1484        | 0.0341         |
| 0.90  | 1990 | 0.046     | 0.90      | 1583        | 0.0363         |
| 0.95  | 2016 | 0.046     | 0.95      | 1683        | 0.0386         |
| 1.00  | 2043 | 0.047     | 1.00      | 1784        | 0.0410         |
| 1.05  | 2071 | 0.048     | 1.05      | 1887        | 0.0433         |
| 1.10  | 2098 | 0.048     | 1.10      | 1991        | 0.0457         |
| 1.15  | 2126 | 0.049     | 1.15      | 2097        | 0.0481         |
| 1.20  | 2153 | 0.049     | 1.20      | 2204        | 0.0506         |
| 1.25  | 2181 | 0.050     | 1.25      | 2312        | 0.0531         |
| 1.30  | 2209 | 0.051     | 1.30      | 2422        | 0.0556         |
| 1.35  | 2238 | 0.051     | 1.35      | 2533        | 0.0582         |
| 1.40  | 2266 | 0.052     | 1.40      | 2646        | 0.0607         |
| 1.45  | 2295 | 0.053     | 1.45      | 2760        | 0.0634         |
| 1.50  | 2324 | 0.053     | 1.50      | 2875        | 0.0660         |
| 1.55  | 2353 | 0.054     | 1.55      | 2992        | 0.0687         |
| 1.60  | 2382 | 0.055     | 1.60      | 3111        | 0.0714         |
| 1.65  | 2411 | 0.055     | 1.65      | 3230        | 0.0742         |
| 1.70  | 2441 | 0.056     | 1.70      | 3352        | 0.0769         |
| 1.75  | 2471 | 0.057     | 1.75      | 3474        | 0.0798         |
| 1.80  | 2500 | 0.057     | 1.80      | 3599        | 0.0826         |
| 1.85  | 2531 | 0.058     | 1.85      | 3725        | 0.0855         |
| 1.90  | 2561 | 0.059     | 1.90      | 3852        | 0.0884         |
| 1.95  | 2591 | 0.059     | 1.95      | 3981        | 0.0914         |
| 2.00  | 2622 | 0.060     | 2.00      | 4111        | 0.0944         |
| 2.05  | 2653 | 0.061     | 2.05      | 4243        | 0.0974         |
| 2.10  | 2684 | 0.062     | 2.10      | 4376        | 0.1005         |
| 2.15  | 2715 | 0.062     | 2.15      | 4511        | 0.1036         |
| 2.20  | 2746 | 0.063     | 2.20      | 4648        | 0.1067         |
| 2.25  | 2778 | 0.064     | 2.25      | 4786        | 0.1099         |
| 2.30  | 2809 | 0.064     | 2.30      | 4925        | 0.1131         |
| 2.35  | 2841 | 0.065     | 2.35      | 5067        | 0.1163         |
| 2.40  | 2873 | 0.066     | 2.40      | 5210        | 0.1196         |
| 2.45  | 2906 | 0.067     | 2.45      | 5354        | 0.1229         |
| 2.50  | 2938 | 0.067     | 2.50      | 5500        | 0.1263         |
| 2.55  | 2971 | 0.068     | 2.55      | 5648        | 0.1297         |
| 2.60  | 3004 | 0.069     | 2.60      | 5797        | 0.1331         |
| 2.65  | 3037 | 0.070     | 2.65      | 5948        | 0.1366         |
| 2.70  | 3070 | 0.070     | 2.70      | 6101        | 0.1401         |
| 2.75  | 3103 | 0.071     | 2.75      | 6255        | 0.1436         |
| 2.80  | 3137 | 0.072     | 2.80      | 6411        | 0.1472         |
| 2.85  | 3170 | 0.073     | 2.85      | 6569        | 0.1508         |
| 2.90  | 3204 | 0.074     | 2.90      | 6728        | 0.1545         |
| 2.95  | 3238 | 0.074     | 2.95      | 6889        | 0.1582         |
| 3.00  | 3272 | 0.075     | 3.00      | 7052        | 0.1619         |

|      |      |       |      |       |        |
|------|------|-------|------|-------|--------|
| 3.05 | 3307 | 0.076 | 3.05 | 7217  | 0.1657 |
| 3.10 | 3341 | 0.077 | 3.10 | 7383  | 0.1695 |
| 3.15 | 3376 | 0.078 | 3.15 | 7551  | 0.1733 |
| 3.20 | 3411 | 0.078 | 3.20 | 7720  | 0.1772 |
| 3.25 | 3446 | 0.079 | 3.25 | 7892  | 0.1812 |
| 3.30 | 3482 | 0.080 | 3.30 | 8065  | 0.1851 |
| 3.35 | 3517 | 0.081 | 3.35 | 8240  | 0.1892 |
| 3.40 | 3553 | 0.082 | 3.40 | 8417  | 0.1932 |
| 3.45 | 3589 | 0.082 | 3.45 | 8595  | 0.1973 |
| 3.50 | 3625 | 0.083 | 3.50 | 8776  | 0.2015 |
| 3.55 | 3661 | 0.084 | 3.55 | 8958  | 0.2056 |
| 3.60 | 3697 | 0.085 | 3.60 | 9142  | 0.2099 |
| 3.65 | 3734 | 0.086 | 3.65 | 9327  | 0.2141 |
| 3.70 | 3771 | 0.087 | 3.70 | 9515  | 0.2184 |
| 3.75 | 3807 | 0.087 | 3.75 | 9705  | 0.2228 |
| 3.80 | 3845 | 0.088 | 3.80 | 9896  | 0.2272 |
| 3.85 | 3882 | 0.089 | 3.85 | 10089 | 0.2316 |
| 3.90 | 3919 | 0.090 | 3.90 | 10284 | 0.2361 |
| 3.95 | 3957 | 0.091 | 3.95 | 10481 | 0.2406 |
| 4.00 | 3995 | 0.092 | 4.00 | 10680 | 0.2452 |
| 4.05 | 4033 | 0.093 | 4.05 | 10880 | 0.2498 |
| 4.10 | 4071 | 0.093 | 4.10 | 11083 | 0.2544 |
| 4.15 | 4109 | 0.094 | 4.15 | 11287 | 0.2591 |
| 4.20 | 4148 | 0.095 | 4.20 | 11494 | 0.2639 |
| 4.25 | 4187 | 0.096 | 4.25 | 11702 | 0.2686 |
| 4.30 | 4226 | 0.097 | 4.30 | 11913 | 0.2735 |
| 4.35 | 4265 | 0.098 | 4.35 | 12125 | 0.2783 |
| 4.40 | 4304 | 0.099 | 4.40 | 12339 | 0.2833 |
| 4.45 | 4343 | 0.100 | 4.45 | 12555 | 0.2882 |
| 4.50 | 4383 | 0.101 | 4.50 | 12773 | 0.2932 |
| 4.55 | 4423 | 0.102 | 4.55 | 12994 | 0.2983 |
| 4.60 | 4463 | 0.102 | 4.60 | 13216 | 0.3034 |
| 4.65 | 4503 | 0.103 | 4.65 | 13440 | 0.3085 |
| 4.70 | 4543 | 0.104 | 4.70 | 13666 | 0.3137 |
| 4.75 | 4584 | 0.105 | 4.75 | 13894 | 0.3190 |
| 4.80 | 4625 | 0.106 | 4.80 | 14124 | 0.3243 |
| 4.85 | 4666 | 0.107 | 4.85 | 14357 | 0.3296 |
| 4.90 | 4707 | 0.108 | 4.90 | 14591 | 0.3350 |
| 4.95 | 4748 | 0.109 | 4.95 | 14827 | 0.3404 |
| 5.00 | 4789 | 0.110 | 5.00 | 15066 | 0.3459 |
| 5.05 | 4831 | 0.111 | 5.05 | 15306 | 0.3514 |
| 5.10 | 4873 | 0.112 | 5.10 | 15549 | 0.3570 |
| 5.15 | 4915 | 0.113 | 5.15 | 15794 | 0.3626 |
| 5.20 | 4957 | 0.114 | 5.20 | 16040 | 0.3682 |
| 5.25 | 4999 | 0.115 | 5.25 | 16289 | 0.3739 |
| 5.30 | 5042 | 0.116 | 5.30 | 16540 | 0.3797 |
| 5.35 | 5084 | 0.117 | 5.35 | 16793 | 0.3855 |
| 5.40 | 5127 | 0.118 | 5.40 | 17049 | 0.3914 |
| 5.45 | 5170 | 0.119 | 5.45 | 17306 | 0.3973 |
| 5.50 | 5214 | 0.120 | 5.50 | 17566 | 0.4033 |
| 5.55 | 5257 | 0.121 | 5.55 | 17827 | 0.4093 |
| 5.60 | 5301 | 0.122 | 5.60 | 18091 | 0.4153 |
| 5.65 | 5344 | 0.123 | 5.65 | 18358 | 0.4214 |
| 5.70 | 5388 | 0.124 | 5.70 | 18626 | 0.4276 |
| 5.75 | 5432 | 0.125 | 5.75 | 18896 | 0.4338 |
| 5.80 | 5477 | 0.126 | 5.80 | 19169 | 0.4401 |
| 5.85 | 5521 | 0.127 | 5.85 | 19444 | 0.4464 |
| 5.90 | 5566 | 0.128 | 5.90 | 19721 | 0.4527 |
| 5.95 | 5611 | 0.129 | 5.95 | 20001 | 0.4592 |
| 6.00 | 5656 | 0.130 | 6.00 | 20282 | 0.4656 |



## Otay Ranch Village 14 BF-2-8

| <u>Draw Down</u> |                        |         |         |         |
|------------------|------------------------|---------|---------|---------|
| Elevation        | Q <sub>AVG</sub> (CFS) | DV (CF) | DT (HR) | Total T |
| 0.00             | 0.012                  | 77.4    | 1.810   | 92.01   |
| 0.05             | 0.012                  | 78.6    | 1.838   | 90.20   |
| 0.10             | 0.012                  | 79.8    | 1.866   | 88.36   |
| 0.15             | 0.012                  | 81.0    | 1.894   | 86.50   |
| 0.20             | 0.012                  | 82.2    | 1.922   | 84.60   |
| 0.25             | 0.012                  | 83.5    | 1.951   | 82.68   |
| 0.30             | 0.012                  | 84.7    | 1.980   | 80.73   |
| 0.35             | 0.012                  | 85.9    | 2.009   | 78.75   |
| 0.40             | 0.012                  | 87.2    | 2.038   | 76.74   |
| 0.45             | 0.012                  | 88.4    | 2.067   | 74.71   |
| 0.50             | 0.013                  | 89.7    | 1.953   | 72.64   |
| 0.55             | 0.015                  | 91.0    | 1.716   | 70.68   |
| 0.60             | 0.016                  | 92.3    | 1.559   | 68.97   |
| 0.65             | 0.018                  | 93.5    | 1.480   | 67.41   |
| 0.70             | 0.018                  | 94.9    | 1.426   | 65.93   |
| 0.75             | 0.019                  | 96.2    | 1.385   | 64.50   |
| 0.80             | 0.020                  | 97.5    | 1.353   | 63.12   |
| 0.85             | 0.021                  | 98.8    | 1.327   | 61.77   |
| 0.90             | 0.021                  | 100.1   | 1.306   | 60.44   |
| 0.95             | 0.022                  | 101.5   | 1.288   | 59.13   |
| 1.00             | 0.022                  | 102.9   | 1.274   | 57.84   |
| 1.05             | 0.023                  | 104.2   | 1.261   | 56.57   |
| 1.10             | 0.023                  | 105.6   | 1.251   | 55.31   |
| 1.15             | 0.024                  | 107.0   | 1.242   | 54.06   |
| 1.20             | 0.024                  | 108.4   | 1.234   | 52.82   |
| 1.25             | 0.025                  | 109.8   | 1.228   | 51.58   |
| 1.30             | 0.025                  | 111.2   | 1.223   | 50.36   |
| 1.35             | 0.026                  | 112.6   | 1.218   | 49.13   |
| 1.40             | 0.026                  | 114.0   | 1.214   | 47.92   |
| 1.45             | 0.026                  | 115.5   | 1.212   | 46.70   |
| 1.50             | 0.027                  | 116.9   | 1.209   | 45.49   |
| 1.55             | 0.027                  | 118.4   | 1.208   | 44.28   |
| 1.60             | 0.028                  | 119.8   | 1.206   | 43.07   |
| 1.65             | 0.028                  | 121.3   | 1.206   | 41.87   |
| 1.70             | 0.028                  | 122.8   | 1.206   | 40.66   |
| 1.75             | 0.029                  | 124.3   | 1.206   | 39.45   |
| 1.80             | 0.029                  | 125.8   | 1.206   | 38.25   |
| 1.85             | 0.029                  | 127.3   | 1.207   | 37.04   |
| 1.90             | 0.030                  | 128.8   | 1.208   | 35.84   |
| 1.95             | 0.030                  | 130.3   | 1.210   | 34.63   |
| 2.00             | 0.030                  | 131.9   | 1.211   | 33.42   |
| 2.05             | 0.031                  | 133.4   | 1.213   | 32.21   |
| 2.10             | 0.031                  | 135.0   | 1.216   | 30.99   |

|      |       |       |       |       |
|------|-------|-------|-------|-------|
| 2.15 | 0.031 | 136.5 | 1.218 | 29.78 |
| 2.20 | 0.031 | 138.1 | 1.221 | 28.56 |
| 2.25 | 0.032 | 139.7 | 1.223 | 27.34 |
| 2.30 | 0.032 | 141.3 | 1.226 | 26.11 |
| 2.35 | 0.032 | 142.9 | 1.230 | 24.89 |
| 2.40 | 0.033 | 144.5 | 1.233 | 23.66 |
| 2.45 | 0.033 | 146.1 | 1.236 | 22.43 |
| 2.50 | 0.033 | 147.7 | 1.240 | 21.19 |
| 2.55 | 0.033 | 149.4 | 1.244 | 19.95 |
| 2.60 | 0.034 | 151.0 | 1.248 | 18.71 |
| 2.65 | 0.034 | 152.7 | 1.252 | 17.46 |
| 2.70 | 0.034 | 154.3 | 1.256 | 16.21 |
| 2.75 | 0.034 | 156.0 | 1.260 | 14.95 |
| 2.80 | 0.035 | 157.7 | 1.265 | 13.69 |
| 2.85 | 0.035 | 159.4 | 1.269 | 12.42 |
| 2.90 | 0.035 | 161.1 | 1.274 | 11.16 |
| 2.95 | 0.035 | 162.8 | 1.279 | 9.88  |
| 3.00 | 0.038 | 164.5 | 1.213 | 8.60  |
| 3.05 | 0.046 | 166.2 | 1.008 | 7.39  |
| 3.10 | 0.061 | 167.9 | 0.769 | 6.38  |
| 3.15 | 0.081 | 169.7 | 0.582 | 5.61  |
| 3.20 | 0.105 | 171.4 | 0.453 | 5.03  |
| 3.25 | 0.128 | 173.2 | 0.377 | 4.58  |
| 3.30 | 0.144 | 175.0 | 0.337 | 4.20  |
| 3.35 | 0.157 | 176.7 | 0.312 | 3.86  |
| 3.40 | 0.169 | 178.5 | 0.294 | 3.55  |
| 3.45 | 0.180 | 180.3 | 0.279 | 3.26  |
| 3.50 | 0.190 | 182.1 | 0.267 | 2.98  |
| 3.55 | 0.199 | 184.0 | 0.256 | 2.71  |
| 3.60 | 0.208 | 185.8 | 0.248 | 2.46  |
| 3.65 | 0.217 | 187.6 | 0.241 | 2.21  |
| 3.70 | 0.225 | 189.4 | 0.234 | 1.97  |
| 3.75 | 0.233 | 191.3 | 0.228 | 1.73  |
| 3.80 | 0.240 | 193.2 | 0.223 | 1.51  |
| 3.85 | 0.247 | 195.0 | 0.219 | 1.28  |
| 3.90 | 0.254 | 196.9 | 0.215 | 1.06  |
| 3.95 | 0.261 | 198.8 | 0.211 | 0.85  |
| 4.00 | 0.342 | 200.7 | 0.163 | 0.64  |
| 4.05 | 0.559 | 202.6 | 0.101 | 0.47  |
| 4.10 | 0.878 | 204.5 | 0.065 | 0.37  |
| 4.15 | 1.269 | 206.4 | 0.045 | 0.31  |
| 4.20 | 1.721 | 208.4 | 0.034 | 0.26  |
| 4.25 | 2.225 | 210.3 | 0.026 | 0.23  |
| 4.30 | 2.778 | 212.3 | 0.021 | 0.20  |
| 4.35 | 3.374 | 214.2 | 0.018 | 0.18  |
| 4.40 | 4.011 | 216.2 | 0.015 | 0.16  |
| 4.45 | 4.686 | 218.2 | 0.013 | 0.15  |
| 4.50 | 5.397 | 220.1 | 0.011 | 0.14  |

|      |        |       |       |      |
|------|--------|-------|-------|------|
| 4.55 | 6.143  | 222.1 | 0.010 | 0.13 |
| 4.60 | 6.922  | 224.1 | 0.009 | 0.12 |
| 4.65 | 7.732  | 226.2 | 0.008 | 0.11 |
| 4.70 | 8.573  | 228.2 | 0.007 | 0.10 |
| 4.75 | 9.443  | 230.2 | 0.007 | 0.09 |
| 4.80 | 10.341 | 232.3 | 0.006 | 0.08 |
| 4.85 | 11.267 | 234.3 | 0.006 | 0.08 |
| 4.90 | 12.219 | 236.4 | 0.005 | 0.07 |
| 4.95 | 13.197 | 238.4 | 0.005 | 0.07 |
| 5.00 | 14.201 | 240.5 | 0.005 | 0.06 |
| 5.05 | 15.229 | 242.6 | 0.004 | 0.06 |
| 5.10 | 16.281 | 244.7 | 0.004 | 0.05 |
| 5.15 | 17.356 | 246.8 | 0.004 | 0.05 |
| 5.20 | 18.455 | 248.9 | 0.004 | 0.04 |
| 5.25 | 19.576 | 251.0 | 0.004 | 0.04 |
| 5.30 | 20.719 | 253.1 | 0.003 | 0.04 |
| 5.35 | 21.884 | 255.3 | 0.003 | 0.03 |
| 5.40 | 23.070 | 257.4 | 0.003 | 0.03 |
| 5.45 | 24.277 | 259.6 | 0.003 | 0.03 |
| 5.50 | 25.505 | 261.8 | 0.003 | 0.02 |
| 5.55 | 26.753 | 263.9 | 0.003 | 0.02 |
| 5.60 | 28.020 | 266.1 | 0.003 | 0.02 |
| 5.65 | 29.307 | 268.3 | 0.003 | 0.02 |
| 5.70 | 30.614 | 270.5 | 0.002 | 0.01 |
| 5.75 | 31.939 | 272.7 | 0.002 | 0.01 |
| 5.80 | 33.283 | 274.9 | 0.002 | 0.01 |
| 5.85 | 34.646 | 277.2 | 0.002 | 0.01 |
| 5.90 | 36.027 | 279.4 | 0.002 | 0.00 |
| 5.95 | 37.425 | 281.7 | 0.002 | 0.00 |
| 6.00 |        |       |       |      |

## Otay Ranch Village 14 BF-2-8

### SWMM Model Flow Coefficient Calculation

| PARAMETER                                    | ABBREV.    | Bio-Retention Cell |                 |
|----------------------------------------------|------------|--------------------|-----------------|
| Ponding Depth                                | PD         | 6                  | in              |
| Bioretention Soil Layer                      | S          | 18                 | in              |
| Gravel Layer (Measured From Subdrain Invert) | G          | 15                 | in              |
| TOTAL                                        |            | 3.3                | ft              |
|                                              |            | 39                 | in              |
|                                              |            |                    |                 |
| Orifice Coefficient                          | $c_g$      | 0.6                | --              |
| Low Flow Orifice Diameter                    | D          | 0.5                | in              |
| Drain (Flow) exponent                        | n          | 0.5                | --              |
|                                              |            |                    |                 |
|                                              |            |                    |                 |
| Flow Rate (volumetric)                       | Q          | 0.012              | cfs             |
|                                              |            |                    |                 |
| Ponding Depth Surface Area                   | $A_{PD}$   | 1781               | ft <sup>2</sup> |
| Bioretention Surface Area                    | $A_S, A_G$ | 1537               | ft <sup>2</sup> |
|                                              | $A_S, A_G$ | 0.0353             | ac              |
| Porosity of Bioretention Soil                | n          | 0.40               | -               |
| Flow Rate (per unit area)                    | q          | 0.829              | in/hr           |
|                                              |            |                    |                 |
| Effective Ponding Depth                      | $PD_{eff}$ | 6.48               | in              |
| Flow Coefficient                             | C          | 0.1332             | --              |
| Underlying Soil Conductivity                 | in/hr      | 0.025              |                 |
| Basin Conductivity                           | cfs        | 0.000              |                 |

Otay Ranch Village 14 BF-2-10

Discharge vs Elevation Table

|                          |         |                       |         |
|--------------------------|---------|-----------------------|---------|
| Bottom orifice diameter: | 1.25 "  | Top orifice diameter: | 3 "     |
| Number:                  | 1       | Number:               | 1       |
| Cg-low:                  | 0.61    | Cg-low:               | 0.61    |
| Invert elev:             | 0.50 ft | Invert elev:          | 3.00 ft |
| Middle orifice diameter: | 1 "     | Emergency weir:       |         |
| number of orif:          | 0       | Invert:               | 4.00 ft |
| Cg-middle:               | 0.61    | Weir Length (ft)      | 6.0 ft  |
| Invert elev:             | 1.50 ft |                       | 2x1 box |

| h<br>(ft) | H/D-low | H/D-mid | H/D-top | H/D-peak | Qlow-orif<br>(cfs) | Qlow-weir<br>(cfs) | Qtot-low<br>(cfs) | Qmid-orif<br>(cfs) | Qmid-weir<br>(cfs) | Qtot-med<br>(cfs) | Qtop-orif<br>(cfs) | Qtop-weir<br>(cfs) | Qtot-top<br>(cfs) | Qpeak-top<br>(cfs) | Qtot<br>(cfs) | Qtot <sub>w/subrain</sub><br>(cfs) |
|-----------|---------|---------|---------|----------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|---------------|------------------------------------|
| 0         | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.092                              |
| 0.05      | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.092                              |
| 0.1       | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.092                              |
| 0.15      | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.092                              |
| 0.2       | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.092                              |
| 0.25      | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.092                              |
| 0.3       | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.092                              |
| 0.35      | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.092                              |
| 0.4       | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.092                              |
| 0.45      | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.092                              |
| 0.5       | 0.00    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0000        | 0.092                              |
| 0.55      | 0.48    | 0.00    | 0.00    | 0.00     | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0025        | 0.094                              |
| 0.6       | 0.96    | 0.00    | 0.00    | 0.00     | 0.01               | 0.01               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0085        | 0.100                              |
| 0.65      | 1.44    | 0.00    | 0.00    | 0.00     | 0.01               | 0.02               | 0.01              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0131        | 0.105                              |
| 0.7       | 1.92    | 0.00    | 0.00    | 0.00     | 0.02               | 0.02               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0160        | 0.108                              |
| 0.75      | 2.40    | 0.00    | 0.00    | 0.00     | 0.02               | 0.02               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0186        | 0.111                              |
| 0.8       | 2.88    | 0.00    | 0.00    | 0.00     | 0.02               | 0.02               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0208        | 0.113                              |
| 0.85      | 3.36    | 0.00    | 0.00    | 0.00     | 0.02               | 0.03               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0228        | 0.115                              |
| 0.9       | 3.84    | 0.00    | 0.00    | 0.00     | 0.02               | 0.03               | 0.02              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0246        | 0.117                              |
| 0.95      | 4.32    | 0.00    | 0.00    | 0.00     | 0.03               | 0.06               | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0263        | 0.118                              |
| 1         | 4.80    | 0.00    | 0.00    | 0.00     | 0.03               | 0.13               | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0279        | 0.120                              |
| 1.05      | 5.28    | 0.00    | 0.00    | 0.00     | 0.03               | 0.25               | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0294        | 0.121                              |
| 1.1       | 5.76    | 0.00    | 0.00    | 0.00     | 0.03               | 0.45               | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0309        | 0.123                              |
| 1.15      | 6.24    | 0.00    | 0.00    | 0.00     | 0.03               | 0.78               | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0323        | 0.124                              |
| 1.2       | 6.72    | 0.00    | 0.00    | 0.00     | 0.03               | 1.29               | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0336        | 0.126                              |
| 1.25      | 7.20    | 0.00    | 0.00    | 0.00     | 0.03               | 2.02               | 0.03              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0349        | 0.127                              |
| 1.3       | 7.68    | 0.00    | 0.00    | 0.00     | 0.04               | 3.04               | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0361        | 0.128                              |
| 1.35      | 8.16    | 0.00    | 0.00    | 0.00     | 0.04               | 4.43               | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0373        | 0.129                              |
| 1.4       | 8.64    | 0.00    | 0.00    | 0.00     | 0.04               | 6.28               | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0384        | 0.130                              |
| 1.45      | 9.12    | 0.00    | 0.00    | 0.00     | 0.04               | 8.69               | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0395        | 0.131                              |
| 1.5       | 9.60    | 0.00    | 0.00    | 0.00     | 0.04               | 11.78              | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0406        | 0.133                              |
| 1.55      | 10.08   | 0.60    | 0.00    | 0.00     | 0.04               | 15.68              | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0417        | 0.134                              |
| 1.6       | 10.56   | 1.20    | 0.00    | 0.00     | 0.04               | 20.53              | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0427        | 0.135                              |
| 1.65      | 11.04   | 1.80    | 0.00    | 0.00     | 0.04               | 26.51              | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0437        | 0.136                              |
| 1.7       | 11.52   | 2.40    | 0.00    | 0.00     | 0.04               | 33.78              | 0.04              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0447        | 0.137                              |
| 1.75      | 12.00   | 3.00    | 0.00    | 0.00     | 0.05               | 42.55              | 0.05              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0457        | 0.138                              |
| 1.8       | 12.48   | 3.60    | 0.00    | 0.00     | 0.05               | 53.03              | 0.05              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0466        | 0.139                              |
| 1.85      | 12.96   | 4.20    | 0.00    | 0.00     | 0.05               | 65.47              | 0.05              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0475        | 0.139                              |
| 1.9       | 13.44   | 4.80    | 0.00    | 0.00     | 0.05               | 80.11              | 0.05              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0484        | 0.140                              |
| 1.95      | 13.92   | 5.40    | 0.00    | 0.00     | 0.05               | 97.25              | 0.05              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0493        | 0.141                              |
| 2         | 14.40   | 6.00    | 0.00    | 0.00     | 0.05               | 117.18             | 0.05              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0502        | 0.142                              |
| 2.05      | 14.88   | 6.60    | 0.00    | 0.00     | 0.05               | 140.22             | 0.05              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0511        | 0.143                              |
| 2.1       | 15.36   | 7.20    | 0.00    | 0.00     | 0.05               | 166.73             | 0.05              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0519        | 0.144                              |
| 2.15      | 15.84   | 7.80    | 0.00    | 0.00     | 0.05               | 197.08             | 0.05              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0527        | 0.145                              |
| 2.2       | 16.32   | 8.40    | 0.00    | 0.00     | 0.05               | 231.68             | 0.05              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0536        | 0.146                              |
| 2.25      | 16.80   | 9.00    | 0.00    | 0.00     | 0.05               | 270.94             | 0.05              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0544        | 0.146                              |
| 2.3       | 17.28   | 9.60    | 0.00    | 0.00     | 0.06               | 315.32             | 0.06              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0552        | 0.147                              |
| 2.35      | 17.76   | 10.20   | 0.00    | 0.00     | 0.06               | 365.31             | 0.06              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0559        | 0.148                              |
| 2.4       | 18.24   | 10.80   | 0.00    | 0.00     | 0.06               | 421.41             | 0.06              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0567        | 0.149                              |
| 2.45      | 18.72   | 11.40   | 0.00    | 0.00     | 0.06               | 484.18             | 0.06              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0575        | 0.149                              |
| 2.5       | 19.20   | 12.00   | 0.00    | 0.00     | 0.06               | 554.18             | 0.06              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0582        | 0.150                              |
| 2.55      | 19.68   | 12.60   | 0.00    | 0.00     | 0.06               | 632.02             | 0.06              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0590        | 0.151                              |
| 2.6       | 20.16   | 13.20   | 0.00    | 0.00     | 0.06               | 718.33             | 0.06              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0597        | 0.152                              |
| 2.65      | 20.64   | 13.80   | 0.00    | 0.00     | 0.06               | 813.80             | 0.06              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0604        | 0.152                              |
| 2.7       | 21.12   | 14.40   | 0.00    | 0.00     | 0.06               | 919.11             | 0.06              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0611        | 0.153                              |
| 2.75      | 21.60   | 15.00   | 0.00    | 0.00     | 0.06               | 1035.02            | 0.06              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0618        | 0.154                              |
| 2.8       | 22.08   | 15.60   | 0.00    | 0.00     | 0.06               | 1162.31            | 0.06              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0625        | 0.155                              |
| 2.85      | 22.56   | 16.20   | 0.00    | 0.00     | 0.06               | 1301.78            | 0.06              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0632        | 0.155                              |
| 2.9       | 23.04   | 16.80   | 0.00    | 0.00     | 0.06               | 1454.29            | 0.06              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0639        | 0.156                              |
| 2.95      | 23.52   | 17.40   | 0.00    | 0.00     | 0.06               | 1620.73            | 0.06              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0646        | 0.157                              |
| 3         | 24.00   | 18.00   | 0.00    | 0.00     | 0.07               | 1802.04            | 0.07              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0653        | 0.157                              |
| 3.05      | 24.48   | 18.60   | 0.20    | 0.00     | 0.07               | 1999.17            | 0.07              | 0.00               | 0.00               | 0.00              | 0.00               | 0.00               | 0.00              | 0.00               | 0.0701        | 0.162                              |
| 3.1       | 24.96   | 19.20   | 0.40    | 0.00     | 0.07               | 2213.15            | 0.07              | 0.00               | 0.00               | 0.00              | 0.00               | 0.02               | 0.02              | 0.00               | 0.0823        | 0.174                              |
| 3.15      | 25.44   | 19.80   | 0.60    |          |                    |                    |                   |                    |                    |                   |                    |                    |                   |                    |               |                                    |

Otay Ranch Village 14 BF-2-10

Discharge vs Elevation Table

|                          |         |                       |         |
|--------------------------|---------|-----------------------|---------|
| Bottom orifice diameter: | 1.25 "  | Top orifice diameter: | 3 "     |
| Number:                  | 1       | Number:               | 1       |
| Cg-low:                  | 0.61    | Cg-low:               | 0.61    |
| Invert elev:             | 0.50 ft | Invert elev:          | 3.00 ft |
| Middle orifice diameter: | 1 "     | Emergency weir:       |         |
| number of orif:          | 0       | Invert:               | 4.00 ft |
| Cg-middle:               | 0.61    | Weir Length (ft)      | 6.0 ft  |
| Invert elev:             | 1.50 ft |                       | 2x1 box |

|      |       |       |       |      |      |           |      |      |      |      |      |        |      |       |         |        |
|------|-------|-------|-------|------|------|-----------|------|------|------|------|------|--------|------|-------|---------|--------|
| 4.5  | 38.40 | 36.00 | 6.00  | 1.00 | 0.08 | 20624.43  | 0.08 | 0.00 | 0.00 | 0.00 | 0.28 | 5.36   | 0.28 | 7.06  | 7.4287  | 7.521  |
| 4.55 | 38.88 | 36.60 | 6.20  | 1.10 | 0.08 | 21983.61  | 0.08 | 0.00 | 0.00 | 0.00 | 0.29 | 6.70   | 0.29 | 8.15  | 8.5199  | 8.612  |
| 4.6  | 39.36 | 37.20 | 6.40  | 1.20 | 0.08 | 23413.44  | 0.08 | 0.00 | 0.00 | 0.00 | 0.29 | 8.31   | 0.29 | 9.29  | 9.6616  | 9.754  |
| 4.65 | 39.84 | 37.80 | 6.60  | 1.30 | 0.08 | 24916.66  | 0.08 | 0.00 | 0.00 | 0.00 | 0.30 | 10.20  | 0.30 | 10.47 | 10.8516 | 10.944 |
| 4.7  | 40.32 | 38.40 | 6.80  | 1.40 | 0.08 | 26496.04  | 0.08 | 0.00 | 0.00 | 0.00 | 0.30 | 12.42  | 0.30 | 11.70 | 12.0881 | 12.180 |
| 4.75 | 40.80 | 39.00 | 7.00  | 1.50 | 0.09 | 28154.43  | 0.09 | 0.00 | 0.00 | 0.00 | 0.31 | 15.00  | 0.31 | 12.98 | 13.3692 | 13.461 |
| 4.8  | 41.28 | 39.60 | 7.20  | 1.60 | 0.09 | 29894.78  | 0.09 | 0.00 | 0.00 | 0.00 | 0.31 | 17.99  | 0.31 | 14.30 | 14.6935 | 14.785 |
| 4.85 | 41.76 | 40.20 | 7.40  | 1.70 | 0.09 | 31720.06  | 0.09 | 0.00 | 0.00 | 0.00 | 0.32 | 21.43  | 0.32 | 15.66 | 16.0596 | 16.152 |
| 4.9  | 42.24 | 40.80 | 7.60  | 1.80 | 0.09 | 33633.36  | 0.09 | 0.00 | 0.00 | 0.00 | 0.32 | 25.37  | 0.32 | 17.06 | 17.4664 | 17.558 |
| 4.95 | 42.72 | 41.40 | 7.80  | 1.90 | 0.09 | 35637.82  | 0.09 | 0.00 | 0.00 | 0.00 | 0.32 | 29.87  | 0.32 | 18.50 | 18.9125 | 19.004 |
| 5    | 43.20 | 42.00 | 8.00  | 2.00 | 0.09 | 37736.65  | 0.09 | 0.00 | 0.00 | 0.00 | 0.33 | 34.96  | 0.33 | 19.98 | 20.3970 | 20.489 |
| 5.05 | 43.68 | 42.60 | 8.20  | 2.10 | 0.09 | 39933.13  | 0.09 | 0.00 | 0.00 | 0.00 | 0.33 | 40.72  | 0.33 | 21.50 | 21.9189 | 22.011 |
| 5.1  | 44.16 | 43.20 | 8.40  | 2.20 | 0.09 | 42230.65  | 0.09 | 0.00 | 0.00 | 0.00 | 0.34 | 47.20  | 0.34 | 23.05 | 23.4774 | 23.569 |
| 5.15 | 44.64 | 43.80 | 8.60  | 2.30 | 0.09 | 44632.65  | 0.09 | 0.00 | 0.00 | 0.00 | 0.34 | 54.47  | 0.34 | 24.64 | 25.0715 | 25.163 |
| 5.2  | 45.12 | 44.40 | 8.80  | 2.40 | 0.09 | 47142.63  | 0.09 | 0.00 | 0.00 | 0.00 | 0.35 | 62.59  | 0.35 | 26.26 | 26.7005 | 26.792 |
| 5.25 | 45.60 | 45.00 | 9.00  | 2.50 | 0.09 | 49764.21  | 0.09 | 0.00 | 0.00 | 0.00 | 0.35 | 71.64  | 0.35 | 27.92 | 28.3636 | 28.456 |
| 5.3  | 46.08 | 45.60 | 9.20  | 2.60 | 0.09 | 52501.05  | 0.09 | 0.00 | 0.00 | 0.00 | 0.35 | 81.69  | 0.35 | 29.61 | 30.0602 | 30.152 |
| 5.35 | 46.56 | 46.20 | 9.40  | 2.70 | 0.09 | 55356.92  | 0.09 | 0.00 | 0.00 | 0.00 | 0.36 | 92.82  | 0.36 | 31.34 | 31.7896 | 31.882 |
| 5.4  | 47.04 | 46.80 | 9.60  | 2.80 | 0.09 | 58335.66  | 0.09 | 0.00 | 0.00 | 0.00 | 0.36 | 105.11 | 0.36 | 33.10 | 33.5512 | 33.643 |
| 5.45 | 47.52 | 47.40 | 9.80  | 2.90 | 0.09 | 61441.18  | 0.09 | 0.00 | 0.00 | 0.00 | 0.37 | 118.66 | 0.37 | 34.89 | 35.3444 | 35.436 |
| 5.5  | 48.00 | 48.00 | 10.00 | 3.00 | 0.09 | 64677.49  | 0.09 | 0.00 | 0.00 | 0.00 | 0.37 | 133.55 | 0.37 | 36.71 | 37.1687 | 37.261 |
| 5.55 | 48.48 | 48.60 | 10.20 | 3.10 | 0.09 | 68048.67  | 0.09 | 0.00 | 0.00 | 0.00 | 0.37 | 149.88 | 0.37 | 38.56 | 39.0236 | 39.116 |
| 5.6  | 48.96 | 49.20 | 10.40 | 3.20 | 0.09 | 71558.89  | 0.09 | 0.00 | 0.00 | 0.00 | 0.38 | 167.75 | 0.38 | 40.44 | 40.9084 | 41.000 |
| 5.65 | 49.44 | 49.80 | 10.60 | 3.30 | 0.09 | 75212.41  | 0.09 | 0.00 | 0.00 | 0.00 | 0.38 | 187.26 | 0.38 | 42.35 | 42.8229 | 42.915 |
| 5.7  | 49.92 | 50.40 | 10.80 | 3.40 | 0.09 | 79013.57  | 0.09 | 0.00 | 0.00 | 0.00 | 0.39 | 208.52 | 0.39 | 44.29 | 44.7665 | 44.858 |
| 5.75 | 50.40 | 51.00 | 11.00 | 3.50 | 0.10 | 82966.79  | 0.10 | 0.00 | 0.00 | 0.00 | 0.39 | 231.66 | 0.39 | 46.25 | 46.7388 | 46.831 |
| 5.8  | 50.88 | 51.60 | 11.20 | 3.60 | 0.10 | 87076.59  | 0.10 | 0.00 | 0.00 | 0.00 | 0.39 | 256.77 | 0.39 | 48.25 | 48.7393 | 48.831 |
| 5.85 | 51.36 | 52.20 | 11.40 | 3.70 | 0.10 | 91347.57  | 0.10 | 0.00 | 0.00 | 0.00 | 0.40 | 284.00 | 0.40 | 50.28 | 50.7678 | 50.860 |
| 5.9  | 51.84 | 52.80 | 11.60 | 3.80 | 0.10 | 95784.43  | 0.10 | 0.00 | 0.00 | 0.00 | 0.40 | 313.47 | 0.40 | 52.33 | 52.8238 | 52.916 |
| 5.95 | 52.32 | 53.40 | 11.80 | 3.90 | 0.10 | 100391.94 | 0.10 | 0.00 | 0.00 | 0.00 | 0.40 | 345.31 | 0.40 | 54.41 | 54.9069 | 54.999 |
| 6    | 52.80 | 54.00 | 12.00 | 4.00 | 0.10 | 105174.99 | 0.10 | 0.00 | 0.00 | 0.00 | 0.41 | 379.66 | 0.41 | 56.51 | 57.0168 | 57.109 |

Otay Ranch Village 14 BF-2-10

Stage vs Area Table

| depth | area  | area (ac) | elevation | volume (cf) | volume (ac-ft) |
|-------|-------|-----------|-----------|-------------|----------------|
| 0.00  | 10020 | 0.230     | 0         | 0           | 0              |
| 0.05  | 10080 | 0.231     | 0.05      | 503         | 0.0115         |
| 0.10  | 10140 | 0.233     | 0.10      | 1008        | 0.0231         |
| 0.15  | 10201 | 0.234     | 0.15      | 1517        | 0.0348         |
| 0.20  | 10262 | 0.236     | 0.20      | 2028        | 0.0466         |
| 0.25  | 10323 | 0.237     | 0.25      | 2543        | 0.0584         |
| 0.30  | 10384 | 0.238     | 0.30      | 3060        | 0.0703         |
| 0.35  | 10445 | 0.240     | 0.35      | 3581        | 0.0822         |
| 0.40  | 10506 | 0.241     | 0.40      | 4105        | 0.0942         |
| 0.45  | 10568 | 0.243     | 0.45      | 4632        | 0.1063         |
| 0.50  | 10630 | 0.244     | 0.50      | 5162        | 0.1185         |
| 0.55  | 10692 | 0.245     | 0.55      | 5695        | 0.1307         |
| 0.60  | 10754 | 0.247     | 0.60      | 6231        | 0.1430         |
| 0.65  | 10816 | 0.248     | 0.65      | 6770        | 0.1554         |
| 0.70  | 10878 | 0.250     | 0.70      | 7312        | 0.1679         |
| 0.75  | 10941 | 0.251     | 0.75      | 7858        | 0.1804         |
| 0.80  | 11004 | 0.253     | 0.80      | 8407        | 0.1930         |
| 0.85  | 11067 | 0.254     | 0.85      | 8958        | 0.2057         |
| 0.90  | 11130 | 0.256     | 0.90      | 9513        | 0.2184         |
| 0.95  | 11194 | 0.257     | 0.95      | 10071       | 0.2312         |
| 1.00  | 11257 | 0.258     | 1.00      | 10633       | 0.2441         |
| 1.05  | 11321 | 0.260     | 1.05      | 11197       | 0.2570         |
| 1.10  | 11385 | 0.261     | 1.10      | 11765       | 0.2701         |
| 1.15  | 11449 | 0.263     | 1.15      | 12336       | 0.2832         |
| 1.20  | 11513 | 0.264     | 1.20      | 12910       | 0.2964         |
| 1.25  | 11578 | 0.266     | 1.25      | 13487       | 0.3096         |
| 1.30  | 11642 | 0.267     | 1.30      | 14067       | 0.3229         |
| 1.35  | 11707 | 0.269     | 1.35      | 14651       | 0.3363         |
| 1.40  | 11772 | 0.270     | 1.40      | 15238       | 0.3498         |
| 1.45  | 11837 | 0.272     | 1.45      | 15828       | 0.3634         |
| 1.50  | 11903 | 0.273     | 1.50      | 16422       | 0.3770         |
| 1.55  | 11968 | 0.275     | 1.55      | 17019       | 0.3907         |
| 1.60  | 12034 | 0.276     | 1.60      | 17619       | 0.4045         |
| 1.65  | 12100 | 0.278     | 1.65      | 18222       | 0.4183         |
| 1.70  | 12166 | 0.279     | 1.70      | 18829       | 0.4322         |
| 1.75  | 12232 | 0.281     | 1.75      | 19439       | 0.4463         |
| 1.80  | 12299 | 0.282     | 1.80      | 20052       | 0.4603         |
| 1.85  | 12365 | 0.284     | 1.85      | 20669       | 0.4745         |
| 1.90  | 12432 | 0.285     | 1.90      | 21289       | 0.4887         |
| 1.95  | 12499 | 0.287     | 1.95      | 21912       | 0.5030         |
| 2.00  | 12566 | 0.288     | 2.00      | 22538       | 0.5174         |
| 2.05  | 12634 | 0.290     | 2.05      | 23168       | 0.5319         |
| 2.10  | 12701 | 0.292     | 2.10      | 23802       | 0.5464         |
| 2.15  | 12769 | 0.293     | 2.15      | 24439       | 0.5610         |
| 2.20  | 12837 | 0.295     | 2.20      | 25079       | 0.5757         |
| 2.25  | 12905 | 0.296     | 2.25      | 25722       | 0.5905         |
| 2.30  | 12973 | 0.298     | 2.30      | 26369       | 0.6054         |
| 2.35  | 13042 | 0.299     | 2.35      | 27020       | 0.6203         |
| 2.40  | 13110 | 0.301     | 2.40      | 27673       | 0.6353         |
| 2.45  | 13179 | 0.303     | 2.45      | 28331       | 0.6504         |
| 2.50  | 13248 | 0.304     | 2.50      | 28991       | 0.6655         |
| 2.55  | 13317 | 0.306     | 2.55      | 29655       | 0.6808         |
| 2.60  | 13386 | 0.307     | 2.60      | 30323       | 0.6961         |
| 2.65  | 13456 | 0.309     | 2.65      | 30994       | 0.7115         |
| 2.70  | 13526 | 0.311     | 2.70      | 31669       | 0.7270         |
| 2.75  | 13596 | 0.312     | 2.75      | 32347       | 0.7426         |
| 2.80  | 13666 | 0.314     | 2.80      | 33028       | 0.7582         |
| 2.85  | 13736 | 0.315     | 2.85      | 33713       | 0.7739         |
| 2.90  | 13806 | 0.317     | 2.90      | 34402       | 0.7898         |
| 2.95  | 13877 | 0.319     | 2.95      | 35094       | 0.8056         |
| 3.00  | 13948 | 0.320     | 3.00      | 35789       | 0.8216         |

|      |       |       |      |       |        |
|------|-------|-------|------|-------|--------|
| 3.05 | 14019 | 0.322 | 3.05 | 36489 | 0.8377 |
| 3.10 | 14090 | 0.323 | 3.10 | 37191 | 0.8538 |
| 3.15 | 14161 | 0.325 | 3.15 | 37898 | 0.8700 |
| 3.20 | 14232 | 0.327 | 3.20 | 38607 | 0.8863 |
| 3.25 | 14304 | 0.328 | 3.25 | 39321 | 0.9027 |
| 3.30 | 14376 | 0.330 | 3.30 | 40038 | 0.9191 |
| 3.35 | 14448 | 0.332 | 3.35 | 40758 | 0.9357 |
| 3.40 | 14520 | 0.333 | 3.40 | 41483 | 0.9523 |
| 3.45 | 14593 | 0.335 | 3.45 | 42210 | 0.9690 |
| 3.50 | 14665 | 0.337 | 3.50 | 42942 | 0.9858 |
| 3.55 | 14738 | 0.338 | 3.55 | 43677 | 1.0027 |
| 3.60 | 14811 | 0.340 | 3.60 | 44416 | 1.0196 |
| 3.65 | 14884 | 0.342 | 3.65 | 45158 | 1.0367 |
| 3.70 | 14957 | 0.343 | 3.70 | 45904 | 1.0538 |
| 3.75 | 15031 | 0.345 | 3.75 | 46654 | 1.0710 |
| 3.80 | 15104 | 0.347 | 3.80 | 47407 | 1.0883 |
| 3.85 | 15178 | 0.348 | 3.85 | 48164 | 1.1057 |
| 3.90 | 15252 | 0.350 | 3.90 | 48925 | 1.1232 |
| 3.95 | 15326 | 0.352 | 3.95 | 49689 | 1.1407 |
| 4.00 | 15401 | 0.354 | 4.00 | 50458 | 1.1583 |
| 4.05 | 15475 | 0.355 | 4.05 | 51230 | 1.1761 |
| 4.10 | 15550 | 0.357 | 4.10 | 52005 | 1.1939 |
| 4.15 | 15625 | 0.359 | 4.15 | 52785 | 1.2118 |
| 4.20 | 15700 | 0.360 | 4.20 | 53568 | 1.2297 |
| 4.25 | 15775 | 0.362 | 4.25 | 54355 | 1.2478 |
| 4.30 | 15851 | 0.364 | 4.30 | 55145 | 1.2660 |
| 4.35 | 15926 | 0.366 | 4.35 | 55940 | 1.2842 |
| 4.40 | 16002 | 0.367 | 4.40 | 56738 | 1.3025 |
| 4.45 | 16078 | 0.369 | 4.45 | 57540 | 1.3209 |
| 4.50 | 16154 | 0.371 | 4.50 | 58346 | 1.3394 |
| 4.55 | 16231 | 0.373 | 4.55 | 59155 | 1.3580 |
| 4.60 | 16307 | 0.374 | 4.60 | 59969 | 1.3767 |
| 4.65 | 16384 | 0.376 | 4.65 | 60786 | 1.3955 |
| 4.70 | 16461 | 0.378 | 4.70 | 61607 | 1.4143 |
| 4.75 | 16538 | 0.380 | 4.75 | 62432 | 1.4332 |
| 4.80 | 16615 | 0.381 | 4.80 | 63261 | 1.4523 |
| 4.85 | 16693 | 0.383 | 4.85 | 64094 | 1.4714 |
| 4.90 | 16770 | 0.385 | 4.90 | 64930 | 1.4906 |
| 4.95 | 16848 | 0.387 | 4.95 | 65771 | 1.5099 |
| 5.00 | 16926 | 0.389 | 5.00 | 66615 | 1.5293 |
| 5.05 | 17004 | 0.390 | 5.05 | 67463 | 1.5487 |
| 5.10 | 17082 | 0.392 | 5.10 | 68315 | 1.5683 |
| 5.15 | 17161 | 0.394 | 5.15 | 69172 | 1.5880 |
| 5.20 | 17240 | 0.396 | 5.20 | 70032 | 1.6077 |
| 5.25 | 17319 | 0.398 | 5.25 | 70896 | 1.6275 |
| 5.30 | 17398 | 0.399 | 5.30 | 71763 | 1.6475 |
| 5.35 | 17477 | 0.401 | 5.35 | 72635 | 1.6675 |
| 5.40 | 17556 | 0.403 | 5.40 | 73511 | 1.6876 |
| 5.45 | 17636 | 0.405 | 5.45 | 74391 | 1.7078 |
| 5.50 | 17716 | 0.407 | 5.50 | 75275 | 1.7281 |
| 5.55 | 17796 | 0.409 | 5.55 | 76163 | 1.7485 |
| 5.60 | 17876 | 0.410 | 5.60 | 77054 | 1.7689 |
| 5.65 | 17956 | 0.412 | 5.65 | 77950 | 1.7895 |
| 5.70 | 18036 | 0.414 | 5.70 | 78850 | 1.8101 |
| 5.75 | 18117 | 0.416 | 5.75 | 79754 | 1.8309 |
| 5.80 | 18198 | 0.418 | 5.80 | 80662 | 1.8517 |
| 5.85 | 18279 | 0.420 | 5.85 | 81574 | 1.8727 |
| 5.90 | 18360 | 0.421 | 5.90 | 82490 | 1.8937 |
| 5.95 | 18442 | 0.423 | 5.95 | 83410 | 1.9148 |
| 6.00 | 18523 | 0.425 | 6.00 | 84334 | 1.9360 |



## Otay Ranch Village 14 BF-2-10

| <u>Draw Down</u> |                        |         |         |         |
|------------------|------------------------|---------|---------|---------|
| Elevation        | Q <sub>AVG</sub> (CFS) | DV (CF) | DT (HR) | Total T |
| 0.00             | 0.098                  | 502.5   | 1.423   | 91.44   |
| 0.05             | 0.098                  | 505.5   | 1.431   | 90.01   |
| 0.10             | 0.098                  | 508.5   | 1.440   | 88.58   |
| 0.15             | 0.098                  | 511.6   | 1.448   | 87.14   |
| 0.20             | 0.098                  | 514.6   | 1.457   | 85.69   |
| 0.25             | 0.098                  | 517.7   | 1.466   | 84.24   |
| 0.30             | 0.098                  | 520.7   | 1.474   | 82.77   |
| 0.35             | 0.098                  | 523.8   | 1.483   | 81.30   |
| 0.40             | 0.098                  | 526.9   | 1.492   | 79.81   |
| 0.45             | 0.098                  | 529.9   | 1.500   | 78.32   |
| 0.50             | 0.099                  | 533.0   | 1.490   | 76.82   |
| 0.55             | 0.104                  | 536.1   | 1.437   | 75.33   |
| 0.60             | 0.109                  | 539.2   | 1.376   | 73.89   |
| 0.65             | 0.113                  | 542.4   | 1.337   | 72.52   |
| 0.70             | 0.115                  | 545.5   | 1.313   | 71.18   |
| 0.75             | 0.118                  | 548.6   | 1.294   | 69.87   |
| 0.80             | 0.120                  | 551.8   | 1.279   | 68.57   |
| 0.85             | 0.122                  | 554.9   | 1.266   | 67.30   |
| 0.90             | 0.124                  | 558.1   | 1.255   | 66.03   |
| 0.95             | 0.125                  | 561.3   | 1.245   | 64.78   |
| 1.00             | 0.127                  | 564.5   | 1.237   | 63.53   |
| 1.05             | 0.128                  | 567.6   | 1.229   | 62.29   |
| 1.10             | 0.130                  | 570.8   | 1.223   | 61.07   |
| 1.15             | 0.131                  | 574.1   | 1.217   | 59.84   |
| 1.20             | 0.132                  | 577.3   | 1.212   | 58.63   |
| 1.25             | 0.134                  | 580.5   | 1.207   | 57.41   |
| 1.30             | 0.135                  | 583.7   | 1.203   | 56.21   |
| 1.35             | 0.136                  | 587.0   | 1.199   | 55.00   |
| 1.40             | 0.137                  | 590.2   | 1.196   | 53.80   |
| 1.45             | 0.138                  | 593.5   | 1.193   | 52.61   |
| 1.50             | 0.139                  | 596.8   | 1.190   | 51.41   |
| 1.55             | 0.140                  | 600.1   | 1.188   | 50.22   |
| 1.60             | 0.141                  | 603.4   | 1.186   | 49.04   |
| 1.65             | 0.142                  | 606.7   | 1.184   | 47.85   |
| 1.70             | 0.143                  | 610.0   | 1.182   | 46.67   |
| 1.75             | 0.144                  | 613.3   | 1.181   | 45.48   |
| 1.80             | 0.145                  | 616.6   | 1.180   | 44.30   |
| 1.85             | 0.146                  | 619.9   | 1.179   | 43.12   |
| 1.90             | 0.147                  | 623.3   | 1.178   | 41.94   |
| 1.95             | 0.148                  | 626.6   | 1.177   | 40.77   |
| 2.00             | 0.149                  | 630.0   | 1.177   | 39.59   |
| 2.05             | 0.150                  | 633.4   | 1.176   | 38.41   |
| 2.10             | 0.150                  | 636.8   | 1.176   | 37.24   |

|      |       |       |       |       |
|------|-------|-------|-------|-------|
| 2.15 | 0.151 | 640.1 | 1.176 | 36.06 |
| 2.20 | 0.152 | 643.5 | 1.176 | 34.88 |
| 2.25 | 0.153 | 647.0 | 1.176 | 33.71 |
| 2.30 | 0.154 | 650.4 | 1.176 | 32.53 |
| 2.35 | 0.154 | 653.8 | 1.176 | 31.36 |
| 2.40 | 0.155 | 657.2 | 1.176 | 30.18 |
| 2.45 | 0.156 | 660.7 | 1.177 | 29.01 |
| 2.50 | 0.157 | 664.1 | 1.177 | 27.83 |
| 2.55 | 0.157 | 667.6 | 1.178 | 26.65 |
| 2.60 | 0.158 | 671.1 | 1.179 | 25.47 |
| 2.65 | 0.159 | 674.5 | 1.179 | 24.30 |
| 2.70 | 0.160 | 678.0 | 1.180 | 23.12 |
| 2.75 | 0.160 | 681.5 | 1.181 | 21.94 |
| 2.80 | 0.161 | 685.0 | 1.182 | 20.76 |
| 2.85 | 0.162 | 688.6 | 1.183 | 19.57 |
| 2.90 | 0.162 | 692.1 | 1.184 | 18.39 |
| 2.95 | 0.163 | 695.6 | 1.185 | 17.21 |
| 3.00 | 0.166 | 699.2 | 1.171 | 16.02 |
| 3.05 | 0.174 | 702.7 | 1.120 | 14.85 |
| 3.10 | 0.190 | 706.3 | 1.034 | 13.73 |
| 3.15 | 0.210 | 709.8 | 0.937 | 12.70 |
| 3.20 | 0.235 | 713.4 | 0.844 | 11.76 |
| 3.25 | 0.258 | 717.0 | 0.773 | 10.91 |
| 3.30 | 0.275 | 720.6 | 0.728 | 10.14 |
| 3.35 | 0.288 | 724.2 | 0.698 | 9.41  |
| 3.40 | 0.300 | 727.8 | 0.673 | 8.72  |
| 3.45 | 0.311 | 731.4 | 0.652 | 8.04  |
| 3.50 | 0.322 | 735.1 | 0.634 | 7.39  |
| 3.55 | 0.332 | 738.7 | 0.618 | 6.76  |
| 3.60 | 0.341 | 742.4 | 0.605 | 6.14  |
| 3.65 | 0.350 | 746.0 | 0.592 | 5.53  |
| 3.70 | 0.359 | 749.7 | 0.581 | 4.94  |
| 3.75 | 0.367 | 753.4 | 0.571 | 4.36  |
| 3.80 | 0.375 | 757.1 | 0.561 | 3.79  |
| 3.85 | 0.382 | 760.8 | 0.553 | 3.23  |
| 3.90 | 0.390 | 764.5 | 0.545 | 2.67  |
| 3.95 | 0.397 | 768.2 | 0.538 | 2.13  |
| 4.00 | 0.515 | 771.9 | 0.416 | 1.59  |
| 4.05 | 0.838 | 775.6 | 0.257 | 1.18  |
| 4.10 | 1.314 | 779.4 | 0.165 | 0.92  |
| 4.15 | 1.898 | 783.1 | 0.115 | 0.75  |
| 4.20 | 2.572 | 786.9 | 0.085 | 0.64  |
| 4.25 | 3.327 | 790.7 | 0.066 | 0.55  |
| 4.30 | 4.152 | 794.4 | 0.053 | 0.49  |
| 4.35 | 5.044 | 798.2 | 0.044 | 0.44  |
| 4.40 | 5.997 | 802.0 | 0.037 | 0.39  |
| 4.45 | 7.008 | 805.8 | 0.032 | 0.35  |
| 4.50 | 8.072 | 809.6 | 0.028 | 0.32  |

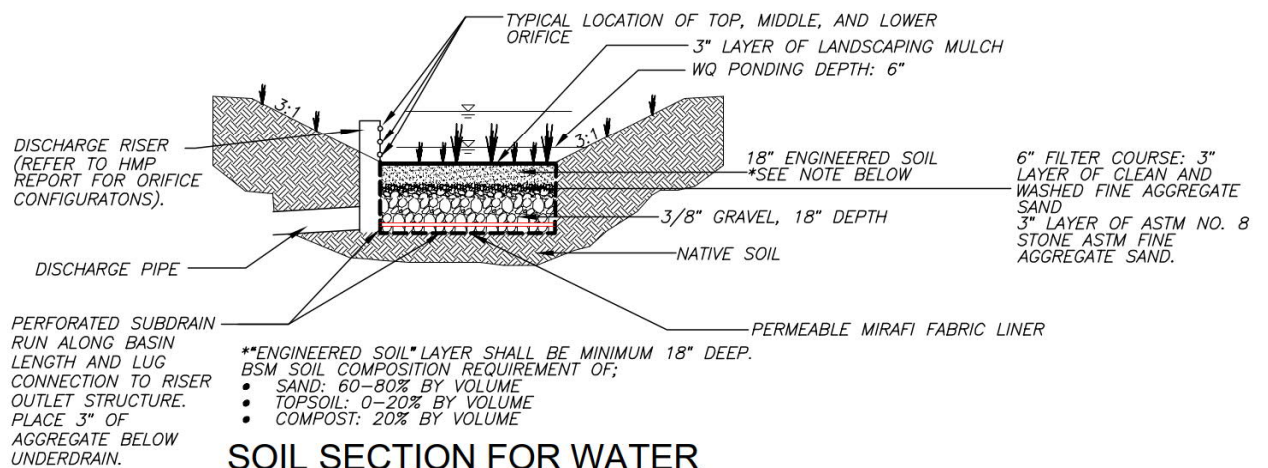
|      |        |       |       |      |
|------|--------|-------|-------|------|
| 4.55 | 9.189  | 813.5 | 0.025 | 0.29 |
| 4.60 | 10.355 | 817.3 | 0.022 | 0.27 |
| 4.65 | 11.568 | 821.1 | 0.020 | 0.25 |
| 4.70 | 12.827 | 825.0 | 0.018 | 0.23 |
| 4.75 | 14.129 | 828.8 | 0.016 | 0.21 |
| 4.80 | 15.475 | 832.7 | 0.015 | 0.19 |
| 4.85 | 16.861 | 836.6 | 0.014 | 0.18 |
| 4.90 | 18.288 | 840.5 | 0.013 | 0.17 |
| 4.95 | 19.753 | 844.4 | 0.012 | 0.15 |
| 5.00 | 21.256 | 848.3 | 0.011 | 0.14 |
| 5.05 | 22.796 | 852.2 | 0.010 | 0.13 |
| 5.10 | 24.373 | 856.1 | 0.010 | 0.12 |
| 5.15 | 25.984 | 860.0 | 0.009 | 0.11 |
| 5.20 | 27.630 | 864.0 | 0.009 | 0.10 |
| 5.25 | 29.310 | 867.9 | 0.008 | 0.09 |
| 5.30 | 31.023 | 871.9 | 0.008 | 0.08 |
| 5.35 | 32.769 | 875.8 | 0.007 | 0.08 |
| 5.40 | 34.546 | 879.8 | 0.007 | 0.07 |
| 5.45 | 36.355 | 883.8 | 0.007 | 0.06 |
| 5.50 | 38.194 | 887.8 | 0.006 | 0.05 |
| 5.55 | 40.064 | 891.8 | 0.006 | 0.05 |
| 5.60 | 41.964 | 895.8 | 0.006 | 0.04 |
| 5.65 | 43.893 | 899.8 | 0.006 | 0.04 |
| 5.70 | 45.851 | 903.8 | 0.005 | 0.03 |
| 5.75 | 47.837 | 907.9 | 0.005 | 0.02 |
| 5.80 | 49.852 | 911.9 | 0.005 | 0.02 |
| 5.85 | 51.894 | 916.0 | 0.005 | 0.01 |
| 5.90 | 53.963 | 920.0 | 0.005 | 0.01 |
| 5.95 | 56.060 | 924.1 | 0.005 | 0.00 |
| 6.00 |        |       |       |      |

## Otay Ranch Village 14 BF-2-10

### SWMM Model Flow Coefficient Calculation

| PARAMETER                                    | ABBREV.    | Bio-Retention Cell |                 |
|----------------------------------------------|------------|--------------------|-----------------|
| Ponding Depth                                | PD         | 6                  | in              |
| Bioretention Soil Layer                      | S          | 18                 | in              |
| Gravel Layer (Measured From Subdrain Invert) | G          | 15                 | in              |
| TOTAL                                        |            | 3.3                | ft              |
|                                              |            | 39                 | in              |
|                                              |            |                    |                 |
| Orifice Coefficient                          | $c_g$      | 0.6                | --              |
| Subdrain Orifice Diameter                    | D          | 1.4                | in              |
| Drain (Flow) exponent                        | n          | 0.5                | --              |
|                                              |            |                    |                 |
|                                              |            |                    |                 |
| Flow Rate (volumetric)                       | Q          | 0.092              | cfs             |
|                                              |            |                    |                 |
| Ponding Depth Surface Area                   | $A_{PD}$   | 10630              | ft <sup>2</sup> |
| Bioretention Surface Area                    | $A_S, A_G$ | 10020              | ft <sup>2</sup> |
|                                              | $A_S, A_G$ | 0.2300             | ac              |
| Porosity of Bioretention Soil                | n          | 0.40               | -               |
| Flow Rate (per unit area)                    | q          | 0.991              | in/hr           |
|                                              |            |                    |                 |
| Effective Ponding Depth                      | $PD_{eff}$ | 6.18               | in              |
| Flow Coefficient                             | C          | 0.1602             | --              |
| Underlying Soil Conductivity                 | in/hr      | 0.025              |                 |
| Basin Conductivity                           | cfs        | 0.006              |                 |

## V. BIOFILTRATION DETAILS



### SOIL SECTION FOR WATER QUALITY/HYDROMODIFICATION BIOFILTRATION BASIN

NOT TO SCALE

BASINS 1-6, 8, 10

## **VI. SWMM INPUT DATA (EXISTING AND PROPOSED MODELS)**

Attached are the EPA-SWMM Model outputs for pre-development and post-development conditions for each POC. Similar modeling was used for analyzing the remaining POC locations using the input data found in the previous section. Each area, i.e., sub-catchments, outfalls, storage units, LID controls for the biofiltration cells, ponding on top of the biofiltration (modeled as a storage unit), weir as a discharge, and outfalls (point of compliance), also are shown, as applicable.

Variables in the modeling are associated with typical recommended values by the EPA-SWMM model and typical values found in technical literature (such as Maidment's Handbook of Hydrology). Recommended values for the SWMM model have been obtained from the interim Orange County criteria established for their SWMM calibration. Currently, no recommended values have been established by the San Diego County HMP Permit for the SWMM Model.

Soil characteristics of the existing soils were determined based on data provided by Geotechnical Engineer/Geologist. KEY ASSUMPTIONS: Group D soils are representative of the existing conditions for the site.

Some values incorporated within the SWMM model have been determined from the professional experience of H&A using conservative assumptions that tend to increase the size of the needed BMP and also generate a long-term runoff as a percentage of rainfall similar to those measured in gage stations in Southern California by the USGS.

Description of model parameters and assumptions:

N-Imperv – Manning's N for impervious surfaces

0.012 (typical)

N-Perv – Manning's N for pervious surfaces

0.035 (Natural) & 0.10 (Developed Landscape)

Dstore-Imperv – Depth of depression storage on impervious area (in)

0.05 (typical)

Dstore-Perv – Depth of depression storage on pervious area (in)

0.100 (Developed)

0.065 (Natural)

%Zero-Imperv – Percentage of impervious area with no depression storage (%)

25 (typical)

Suction Head – Soil capillary suction head (in)

Conductivity – Soil saturated hydraulic conductivity (in/hr)

-75% of these values if subcatchment is graded/compacted

Initial Deficit – Initial moisture deficit (fraction)

| Soil Type | Suction Head | Conductivity | Initial Deficit |
|-----------|--------------|--------------|-----------------|
| A         | 1.5          | 0.3          | 0.33            |
| B         | 3            | 0.2          | 0.32            |
| C         | 6            | 0.1          | 0.31            |
| D         | 9            | 0.025        | 0.30            |

## POC 1 – Pre-Developed Condition



EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

\*\*\*\*\*

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 ..... 10/01/1951 00:00:00

Ending Date ..... 09/30/2008 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 .....  | 30360.464 | 591.380 |
| Evaporation Loss .....     | 1595.521  | 31.079  |
| Infiltration Loss .....    | 27042.564 | 526.752 |
| Surface Runoff .....       | 2351.750  | 45.809  |
| Final Storage .....        | 0.000     | 0.000   |
| Continuity Error (%) ..... | -2.073    |         |

| *****                    | Volume    | Volume   |
|--------------------------|-----------|----------|
| Flow Routing Continuity  | acre-feet | 10^6 gal |
| *****                    | -----     | -----    |
| Dry Weather Inflow ..... | 0.000     | 0.000    |
| Wet Weather Inflow ..... | 2351.750  | 766.353  |
| Groundwater Inflow ..... | 0.000     | 0.000    |
| RDII Inflow .....        | 0.000     | 0.000    |

1235 VILLAGE 14 POC1-EX - SWMM 5.1.rpt

|                            |          |         |
|----------------------------|----------|---------|
| External Inflow .....      | 0.000    | 0.000   |
| External Outflow .....     | 2351.750 | 766.353 |
| 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

\*\*\*\*\*

| Perv         | Total        | Total    | Total  | Total  | Total | Total | Imperv |
|--------------|--------------|----------|--------|--------|-------|-------|--------|
| Runoff       | Runoff       | Runoff   | Peak   | Runoff | Evap  | Infil | Runoff |
| Subcatchment | Subcatchment | Precip   | Runoff | Runoff |       |       |        |
| in           | in           | 10^6 gal | in     | Coeff  | in    | in    | in     |

|            |       |        |        |       |        |      |
|------------|-------|--------|--------|-------|--------|------|
| POC1EXArea |       | 591.38 | 0.00   | 31.08 | 526.75 | 0.00 |
| 45.81      | 45.81 | 766.30 | 134.87 | 0.077 |        |      |

Analysis begun on: Tue Nov 5 22:01:46 2019

Analysis ended on: Tue Nov 5 22:01:56 2019

Total elapsed time: 00:00:10

1235 VILLAGE 14 POC1-EX - SWMM 5.1.inp

[TITLE]

;;Project Title/Notes

[OPTIONS]

|                   |            |
|-------------------|------------|
| ;;Option          | Value      |
| FLOW_UNITS        | CFS        |
| INFILTRATION      | GREEN_AMPT |
| FLOW_ROUTING      | KINWAVE    |
| LINK_OFFSETS      | DEPTH      |
| MIN_SLOPE         | 0          |
| ALLOW_PONDING     | NO         |
| SKIP_STEADY_STATE | NO         |

|                   |            |
|-------------------|------------|
| START_DATE        | 10/01/1951 |
| START_TIME        | 00:00:00   |
| REPORT_START_DATE | 10/01/1951 |
| REPORT_START_TIME | 00:00:00   |
| END_DATE          | 09/30/2008 |
| END_TIME          | 22:00:00   |
| SWEEP_START       | 01/01      |
| SWEEP_END         | 12/31      |
| DRY_DAYS          | 0          |
| REPORT_STEP       | 01:00:00   |
| WET_STEP          | 00:15:00   |
| DRY_STEP          | 04:00:00   |
| ROUTING_STEP      | 0:01:00    |
| RULE_STEP         | 00:00:00   |

|                     |         |
|---------------------|---------|
| INERTIAL_DAMPING    | PARTIAL |
| NORMAL_FLOW_LIMITED | BOTH    |
| FORCE_MAIN_EQUATION | H-W     |
| VARIABLE_STEP       | 0.75    |
| LENGTHENING_STEP    | 0       |
| MIN_SURFAREA        | 0       |
| MAX_TRIALS          | 0       |
| HEAD_TOLERANCE      | 0       |
| SYS_FLOW_TOL        | 5       |
| LAT_FLOW_TOL        | 5       |
| MINIMUM_STEP        | 0.5     |
| THREADS             | 1       |

[EVAPORATION]

;;Data Source Parameters

;;-----

|           |      |      |      |      |      |      |      |      |      |     |
|-----------|------|------|------|------|------|------|------|------|------|-----|
| MONTHLY   | 0.05 | 0.09 | 0.13 | 0.19 | 0.25 | 0.29 | 0.30 | 0.27 | 0.21 | .14 |
| 0.08 0.05 |      |      |      |      |      |      |      |      |      |     |
| DRY_ONLY  | NO   |      |      |      |      |      |      |      |      |     |

[RAINGAGES]

```

1235 VILLAGE 14 POC1-EX - SWMM 5.1.inp
;;Name      Format      Interval SCF      Source
;;-----
LWR0tay     INTENSITY 1:00      1.0      TIMESERIES LWR0tay

[SUBCATCHMENTS]
;;Name      Rain Gage      Outlet      Area      %Imperv      Width      %Slope
;;CurbLen   SnowPack
;;-----
;Existing Area
POC1EXArea  LWR0tay      POC1Ex      616.06    0      2390      11.5
0

[SUBAREAS]
;;Subcatchment N-Imperv N-Perv S-Imperv S-Perv PctZero RouteTo
PctRouted
;;-----
POC1EXArea  .012      0.15      0.05      .10      25      OUTLET

[INFILTRATION]
;;Subcatchment Suction Ksat IMD
;;-----
POC1EXArea  9.0      .025      0.30

[OUTFALLS]
;;Name      Elevation Type      Stage Data      Gated      Route To
;;-----
POC1Ex      0      FREE      NO

[TIMESERIES]
;;Name      Date      Time      Value
;;-----
;From County
LWR0tay     FILE "R:\1235\Hyd\CALCS\SWMM\LWR0tay.dat.txt"

[REPORT]
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]

```

```

1235 VILLAGE 14 POC1-EX - SWMM 5.1.inp
;;Node      X-Coord      Y-Coord
;;-----
POC1Ex      1740.113      3977.401

[VERTICES]
;;Link      X-Coord      Y-Coord
;;-----

[Polygons]
;;Subcatchment X-Coord      Y-Coord
;;-----
POC1EXArea  890.923      5558.444

[SYMBOLS]
;;Gage      X-Coord      Y-Coord
;;-----
LWR0tay     2384.000      5666.000

```

## POC 1 – Developed Condition

1235 VILLAGE 14 POC1-PR - SWMM 5.1.inp

[TITLE]

;;Project Title/Notes  
POC 1-PR

[OPTIONS]

|                   |            |
|-------------------|------------|
| ;;Option          | Value      |
| FLOW_UNITS        | CFS        |
| INFILTRATION      | GREEN_AMPT |
| FLOW_ROUTING      | KINWAVE    |
| LINK_OFFSETS      | DEPTH      |
| MIN_SLOPE         | 0          |
| ALLOW_PONDING     | NO         |
| SKIP_STEADY_STATE | NO         |

|                   |            |
|-------------------|------------|
| START_DATE        | 08/28/1951 |
| START_TIME        | 05:00:00   |
| REPORT_START_DATE | 08/28/1951 |
| REPORT_START_TIME | 05:00:00   |
| END_DATE          | 05/23/2008 |
| END_TIME          | 23:00:00   |
| SWEEP_START       | 01/01      |
| SWEEP_END         | 12/31      |
| DRY_DAYS          | 0          |
| REPORT_STEP       | 01:00:00   |
| WET_STEP          | 00:15:00   |
| DRY_STEP          | 04:00:00   |
| ROUTING_STEP      | 0:01:00    |
| RULE_STEP         | 00:00:00   |

|                     |         |
|---------------------|---------|
| INERTIAL_DAMPING    | PARTIAL |
| NORMAL_FLOW_LIMITED | BOTH    |
| FORCE_MAIN_EQUATION | H-W     |
| VARIABLE_STEP       | 0.75    |
| LENGTHENING_STEP    | 0       |
| MIN_SURFAREA        | 12.566  |
| MAX_TRIALS          | 8       |
| HEAD_TOLERANCE      | 0.005   |
| SYS_FLOW_TOL        | 5       |
| LAT_FLOW_TOL        | 5       |
| MINIMUM_STEP        | 0.5     |
| THREADS             | 1       |

[EVAPORATION]

;;Data Source      Parameters

;;-----

|              |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|
| MONTHLY      | 0.05 | 0.09 | 0.13 | 0.19 | 0.25 | 0.29 | 0.30 | 0.27 | 0.21 | 0.14 |
| 0.08    0.05 |      |      |      |      |      |      |      |      |      |      |
| DRY_ONLY     | NO   |      |      |      |      |      |      |      |      |      |

1235 VILLAGE 14 POC1-PR - SWMM 5.1.inp

[RAINGAGES]

| ;;Name  | Format    | Interval | SCF | Source             |
|---------|-----------|----------|-----|--------------------|
| LWR0tay | INTENSITY | 1:00     | 1.0 | TIMESERIES LWR0tay |

[SUBCATCHMENTS]

| ;;Name                              | Rain Gage | Outlet     | Area   | %Imperv | Width | %Slope |
|-------------------------------------|-----------|------------|--------|---------|-------|--------|
| CurbLen                             | SnowPack  |            |        |         |       |        |
| ;Developed Area Tributary to BF-1-6 |           |            |        |         |       |        |
| DMA6                                | LWR0tay   | BF-2-6     | 83.83  | 49      | 1132  | 8.1    |
| 0                                   |           |            |        |         |       |        |
| BF-2-6                              | LWR0tay   | Div-6      | 1.547  | 0       | 188   | 0      |
| 0                                   |           |            |        |         |       |        |
| ;DEVELOPED AREA TRIBUTARY TO BF-1-1 |           |            |        |         |       |        |
| DMA1                                | LWR0tay   | BF-2-1     | 222.50 | 51      | 1562  | 5.9    |
| 0                                   |           |            |        |         |       |        |
| BF-2-1                              | LWR0tay   | Div-1      | 4.138  | 0       | 387   | 0      |
| 0                                   |           |            |        |         |       |        |
| 4                                   | LWR0tay   | Confluence | 304.04 | 0       | 753   | 17.4   |
| 0                                   |           |            |        |         |       |        |

[SUBAREAS]

| ;;Subcatchment | N-Imperv | N-Perv | S-Imperv | S-Perv | PctZero | RouteTo |
|----------------|----------|--------|----------|--------|---------|---------|
| PctRouted      |          |        |          |        |         |         |
| DMA6           | .012     | 0.15   | 0.05     | .10    | 25      | OUTLET  |
| BF-2-6         | 0.012    | 0.15   | 0.05     | .10    | 25      | OUTLET  |
| DMA1           | 0.012    | 0.15   | 0.05     | 0.10   | 25      | OUTLET  |
| BF-2-1         | 0.012    | 0.15   | 0.05     | 0.10   | 25      | OUTLET  |
| 4              | 0.012    | 0.15   | 0.05     | 0.10   | 25      | OUTLET  |

[INFILTRATION]

| ;;Subcatchment | Suction | Ksat  | IMD  |
|----------------|---------|-------|------|
| DMA6           | 9.0     | 0.025 | 0.30 |
| BF-2-6         | 1.5     | 0.3   | 0.33 |
| DMA1           | 9.0     | 0.025 | 0.30 |
| BF-2-1         | 1.5     | 0.3   | 0.33 |
| 4              | 9.0     | 0.025 | 0.30 |

[LID\_CONTROLS]

| ;;Name | Type/Layer | Parameters         |
|--------|------------|--------------------|
| LID-6  | BC         |                    |
| LID-6  | SURFACE    | 6 0 0 0 5          |
| LID-6  | SOIL       | 18 0.4 0.2 0.1 5 5 |



1235 VILLAGE 14 POC1-PR - SWMM 5.1.inp

|       |  |         |        |      |       |     |   |   |
|-------|--|---------|--------|------|-------|-----|---|---|
| 1.5   |  |         |        |      |       |     |   |   |
| LID-6 |  | STORAGE | 18     | .67  | 0.025 | 0   |   |   |
| LID-6 |  | DRAIN   | 0.1524 | 0.5  | 3     | 6   | 0 | 0 |
|       |  |         |        |      |       |     |   |   |
| LID-1 |  | BC      |        |      |       |     |   |   |
| LID-1 |  | SURFACE | 6      | 0.0  | 0     | 0   | 5 |   |
| LID-1 |  | SOIL    | 18     | .4   | 0.2   | 0.1 | 5 | 5 |
| 1.5   |  |         |        |      |       |     |   |   |
| LID-1 |  | STORAGE | 18     | 0.67 | 0.100 | 0   |   |   |
| LID-1 |  | DRAIN   | 0.0975 | 0.5  | 3     | 6   | 0 | 0 |

[LID\_USAGE]

| ;;Subcatchment | LID Process | Number  | Area      | Width    | InitSat | FromImp |
|----------------|-------------|---------|-----------|----------|---------|---------|
| ToPerv         | RptFile     | DrainTo |           | FromPerv |         |         |
| -----          |             |         |           |          |         |         |
| BF-2-6         | LID-6       | 1       | 65775.60  | 0        | 0       | 100     |
| 0              | *           | *       |           | 0        |         |         |
| BF-2-1         | LID-1       | 1       | 180251.28 | 0        | 1       | 100     |
| 0              | *           | *       |           | 0        |         |         |

[JUNCTIONS]

| ;;Name     | Elevation | MaxDepth | InitDepth | SurDepth | Apounded |
|------------|-----------|----------|-----------|----------|----------|
| -----      |           |          |           |          |          |
| Confluence | 730       | 0        | 0         | 0        | 0        |

[OUTFALLS]

| ;;Name | Elevation | Type | Stage Data | Gated | Route To |
|--------|-----------|------|------------|-------|----------|
| -----  |           |      |            |       |          |
| POC-1  | 620       | FREE |            | NO    |          |

[DIVIDERS]

| ;;Name | Elevation | Diverted Link | Type   | Parameters |
|--------|-----------|---------------|--------|------------|
| -----  |           |               |        |            |
| Div-6  | 734       | Bypass-6      | CUTOFF | 0.567 0 0  |
| 0      | 0         |               |        |            |
| Div-1  | 653.5     | Bypass-1      | CUTOFF | 0.972 0 0  |
| 0      | 0         |               |        |            |

[STORAGE]

| ;;Name         | Elev. | MaxDepth | InitDepth | Shape   | Curve Name/Params |
|----------------|-------|----------|-----------|---------|-------------------|
| N/A            | Fevap | Ksat     | IMD       |         |                   |
| -----          |       |          |           |         |                   |
| ;Basin #6      |       |          |           |         |                   |
| BF-2-6_STORAGE | 734   | 5.5      | 0         | TABULAR | Basin#6           |
| 165897         | 1     |          |           |         |                   |

1235 VILLAGE 14 POC1-PR - SWMM 5.1.inp

```
;Basin #1
BF-2-1_STORAGE 653.5 5.5 0 TABULAR Basin#1
0 1
```

[CONDUITS]

```
;;Name      From Node      To Node      Length      Roughness      InOffset
OutOffset  InitFlow  MaxFlow
;;-----
```

|          |            |                |      |       |   |
|----------|------------|----------------|------|-------|---|
| Bypass-6 | Div-6      | BF-2-6_STORAGE | 1    | 0.01  | 0 |
| 0        | 0          | 0              |      |       |   |
| 2        | Div-6      | Confluence     | 1    | 0.01  | 0 |
| 0        | 0          | 0              |      |       |   |
| 4        | Div-1      | POC-1          | 50   | 0.01  | 0 |
| 0        | 0          | 0              |      |       |   |
| Bypass-1 | Div-1      | BF-2-1_STORAGE | 1    | 0.01  | 0 |
| 0        | 0          | 0              |      |       |   |
| 9        | Confluence | POC-1          | 4636 | 0.013 | 0 |
| 0        | 0          | 0              |      |       |   |

[OUTLETS]

```
;;Name      From Node      To Node      Offset      Type
QTable/Qcoeff  Qexpon      Gated
;;-----
```

|                |                |            |   |               |
|----------------|----------------|------------|---|---------------|
| 6              | BF-2-6_STORAGE | Confluence | 0 | TABULAR/DEPTH |
| Basin#6Outlet  | NO             |            |   |               |
| 1              | BF-2-1_STORAGE | POC-1      | 0 | TABULAR/DEPTH |
| Basin#10Outlet | NO             |            |   |               |

[XSECTIONS]

```
;;Link      Shape      Geom1      Geom2      Geom3      Geom4
Barrels      Culvert
;;-----
```

|          |          |    |   |   |   |   |
|----------|----------|----|---|---|---|---|
| Bypass-6 | DUMMY    | 0  | 0 | 0 | 0 | 1 |
| 2        | DUMMY    | 0  | 0 | 0 | 0 | 1 |
| 4        | DUMMY    | 0  | 0 | 0 | 0 | 1 |
| Bypass-1 | DUMMY    | 0  | 0 | 0 | 0 | 1 |
| 9        | CIRCULAR | 20 | 0 | 0 | 0 | 1 |

[CURVES]

```
;;Name      Type      X-Value      Y-Value
;;-----
```

1235 VILLAGE 14 POC1-PR - SWMM 5.1.inp

|                |        |      |        |
|----------------|--------|------|--------|
| Basin#10outlet | Rating | 0    | 0.0000 |
| Basin#10outlet |        | 0.05 | 0.0061 |
| Basin#10outlet |        | 0.1  | 0.0235 |
| Basin#10outlet |        | 0.15 | 0.0514 |
| Basin#10outlet |        | 0.2  | 0.0891 |
| Basin#10outlet |        | 0.25 | 0.1355 |
| Basin#10outlet |        | 0.3  | 0.1895 |
| Basin#10outlet |        | 0.35 | 0.2501 |
| Basin#10outlet |        | 0.4  | 0.3161 |
| Basin#10outlet |        | 0.45 | 0.3861 |
| Basin#10outlet |        | 0.5  | 0.4592 |
| Basin#10outlet |        | 0.55 | 0.5265 |
| Basin#10outlet |        | 0.6  | 0.5686 |
| Basin#10outlet |        | 0.65 | 0.6079 |
| Basin#10outlet |        | 0.7  | 0.6448 |
| Basin#10outlet |        | 0.75 | 0.6797 |
| Basin#10outlet |        | 0.8  | 0.7128 |
| Basin#10outlet |        | 0.85 | 0.7445 |
| Basin#10outlet |        | 0.9  | 0.7749 |
| Basin#10outlet |        | 0.95 | 0.8042 |
| Basin#10outlet |        | 1    | 0.8324 |
| Basin#10outlet |        | 1.05 | 0.8597 |
| Basin#10outlet |        | 1.1  | 0.8862 |
| Basin#10outlet |        | 1.15 | 0.9119 |
| Basin#10outlet |        | 1.2  | 0.9368 |
| Basin#10outlet |        | 1.25 | 0.9612 |
| Basin#10outlet |        | 1.3  | 0.9849 |
| Basin#10outlet |        | 1.35 | 1.0081 |
| Basin#10outlet |        | 1.4  | 1.0307 |
| Basin#10outlet |        | 1.45 | 1.0529 |
| Basin#10outlet |        | 1.5  | 1.0746 |
| Basin#10outlet |        | 1.55 | 1.0959 |
| Basin#10outlet |        | 1.6  | 1.1168 |
| Basin#10outlet |        | 1.65 | 1.1373 |
| Basin#10outlet |        | 1.7  | 1.1574 |
| Basin#10outlet |        | 1.75 | 1.1772 |
| Basin#10outlet |        | 1.8  | 1.1967 |
| Basin#10outlet |        | 1.85 | 1.2158 |
| Basin#10outlet |        | 1.9  | 1.2347 |
| Basin#10outlet |        | 1.95 | 1.2532 |
| Basin#10outlet |        | 2    | 1.2715 |
| Basin#10outlet |        | 2.05 | 1.2896 |
| Basin#10outlet |        | 2.1  | 1.3073 |
| Basin#10outlet |        | 2.15 | 1.3249 |
| Basin#10outlet |        | 2.2  | 1.3422 |
| Basin#10outlet |        | 2.25 | 1.3593 |
| Basin#10outlet |        | 2.3  | 1.3762 |
| Basin#10outlet |        | 2.35 | 1.3929 |
| Basin#10outlet |        | 2.4  | 1.4094 |

1235 VILLAGE 14 POC1-PR - SWMM 5.1.inp

|                |      |          |
|----------------|------|----------|
| Basin#10outlet | 2.45 | 1.4257   |
| Basin#10outlet | 2.5  | 1.4418   |
| Basin#10outlet | 2.55 | 1.4638   |
| Basin#10outlet | 2.6  | 1.4969   |
| Basin#10outlet | 2.65 | 1.5405   |
| Basin#10outlet | 2.7  | 1.5936   |
| Basin#10outlet | 2.75 | 1.6553   |
| Basin#10outlet | 2.8  | 1.7244   |
| Basin#10outlet | 2.85 | 1.8000   |
| Basin#10outlet | 2.9  | 1.8807   |
| Basin#10outlet | 2.95 | 1.9655   |
| Basin#10outlet | 3    | 2.0531   |
| Basin#10outlet | 3.05 | 2.1348   |
| Basin#10outlet | 3.1  | 2.1913   |
| Basin#10outlet | 3.15 | 2.2447   |
| Basin#10outlet | 3.2  | 2.2956   |
| Basin#10outlet | 3.25 | 2.3445   |
| Basin#10outlet | 3.3  | 2.3914   |
| Basin#10outlet | 3.35 | 2.4368   |
| Basin#10outlet | 3.4  | 2.4808   |
| Basin#10outlet | 3.45 | 2.5236   |
| Basin#10outlet | 3.5  | 2.5652   |
| Basin#10outlet | 3.55 | 6.0682   |
| Basin#10outlet | 3.6  | 12.4387  |
| Basin#10outlet | 3.65 | 20.6755  |
| Basin#10outlet | 3.7  | 30.4217  |
| Basin#10outlet | 3.75 | 41.4706  |
| Basin#10outlet | 3.8  | 53.6832  |
| Basin#10outlet | 3.85 | 66.9571  |
| Basin#10outlet | 3.9  | 81.2131  |
| Basin#10outlet | 3.95 | 96.3876  |
| Basin#10outlet | 4    | 112.4279 |
| Basin#10outlet | 4.05 | 129.2893 |
| Basin#10outlet | 4.1  | 146.9337 |
| Basin#10outlet | 4.15 | 165.3275 |
| Basin#10outlet | 4.2  | 184.4414 |
| Basin#10outlet | 4.25 | 204.2491 |
| Basin#10outlet | 4.3  | 224.7271 |
| Basin#10outlet | 4.35 | 245.8541 |
| Basin#10outlet | 4.4  | 267.6107 |
| Basin#10outlet | 4.45 | 289.9791 |
| Basin#10outlet | 4.5  | 312.9430 |
| Basin#10outlet | 4.55 | 336.4874 |
| Basin#10outlet | 4.6  | 360.5982 |
| Basin#10outlet | 4.65 | 385.2624 |
| Basin#10outlet | 4.7  | 410.4679 |
| Basin#10outlet | 4.75 | 436.2032 |
| Basin#10outlet | 4.8  | 462.4577 |
| Basin#10outlet | 4.85 | 489.2212 |

1235 VILLAGE 14 POC1-PR - SWMM 5.1.inp

|                |      |          |
|----------------|------|----------|
| Basin#10outlet | 4.9  | 516.4842 |
| Basin#10outlet | 4.95 | 544.2378 |
| Basin#10outlet | 5    | 572.4735 |
| Basin#10outlet | 5.05 | 601.1830 |
| Basin#10outlet | 5.1  | 630.3587 |
| Basin#10outlet | 5.15 | 659.9933 |
| Basin#10outlet | 5.2  | 690.0798 |
| Basin#10outlet | 5.25 | 720.6114 |
| Basin#10outlet | 5.3  | 751.5818 |
| Basin#10outlet | 5.35 | 782.9848 |
| Basin#10outlet | 5.4  | 814.8145 |
| Basin#10outlet | 5.45 | 847.0654 |
| Basin#10outlet | 5.5  | 879.7319 |

;

| Basin#60outlet | Rating |        |
|----------------|--------|--------|
| Basin#60outlet | 0      | 0.0000 |
| Basin#60outlet | 0.05   | 0.0041 |
| Basin#60outlet | 0.1    | 0.0158 |
| Basin#60outlet | 0.15   | 0.0335 |
| Basin#60outlet | 0.2    | 0.0559 |
| Basin#60outlet | 0.25   | 0.0812 |
| Basin#60outlet | 0.3    | 0.1005 |
| Basin#60outlet | 0.35   | 0.1140 |
| Basin#60outlet | 0.4    | 0.1260 |
| Basin#60outlet | 0.45   | 0.1370 |
| Basin#60outlet | 0.5    | 0.1471 |
| Basin#60outlet | 0.55   | 0.1567 |
| Basin#60outlet | 0.6    | 0.1656 |
| Basin#60outlet | 0.65   | 0.1741 |
| Basin#60outlet | 0.7    | 0.1822 |
| Basin#60outlet | 0.75   | 0.1900 |
| Basin#60outlet | 0.8    | 0.1974 |
| Basin#60outlet | 0.85   | 0.2046 |
| Basin#60outlet | 0.9    | 0.2115 |
| Basin#60outlet | 0.95   | 0.2183 |
| Basin#60outlet | 1      | 0.2248 |
| Basin#60outlet | 1.05   | 0.2311 |
| Basin#60outlet | 1.1    | 0.2373 |
| Basin#60outlet | 1.15   | 0.2433 |
| Basin#60outlet | 1.2    | 0.2491 |
| Basin#60outlet | 1.25   | 0.2549 |
| Basin#60outlet | 1.3    | 0.2605 |
| Basin#60outlet | 1.35   | 0.2660 |
| Basin#60outlet | 1.4    | 0.2713 |
| Basin#60outlet | 1.45   | 0.2766 |
| Basin#60outlet | 1.5    | 0.2818 |
| Basin#60outlet | 1.55   | 0.2868 |
| Basin#60outlet | 1.6    | 0.2918 |
| Basin#60outlet | 1.65   | 0.2967 |
| Basin#60outlet | 1.7    | 0.3016 |

1235 VILLAGE 14 POC1-PR - SWMM 5.1.inp

|                |      |         |
|----------------|------|---------|
| Basin#60outlet | 1.75 | 0.3063  |
| Basin#60outlet | 1.8  | 0.3110  |
| Basin#60outlet | 1.85 | 0.3156  |
| Basin#60outlet | 1.9  | 0.3201  |
| Basin#60outlet | 1.95 | 0.3246  |
| Basin#60outlet | 2    | 0.3290  |
| Basin#60outlet | 2.05 | 0.3334  |
| Basin#60outlet | 2.1  | 0.3377  |
| Basin#60outlet | 2.15 | 0.3419  |
| Basin#60outlet | 2.2  | 0.3461  |
| Basin#60outlet | 2.25 | 0.3503  |
| Basin#60outlet | 2.3  | 0.3544  |
| Basin#60outlet | 2.35 | 0.3584  |
| Basin#60outlet | 2.4  | 0.3624  |
| Basin#60outlet | 2.45 | 0.3664  |
| Basin#60outlet | 2.5  | 0.3703  |
| Basin#60outlet | 2.55 | 0.3783  |
| Basin#60outlet | 2.6  | 0.3938  |
| Basin#60outlet | 2.65 | 0.4153  |
| Basin#60outlet | 2.7  | 0.4415  |
| Basin#60outlet | 2.75 | 0.4705  |
| Basin#60outlet | 2.8  | 0.4935  |
| Basin#60outlet | 2.85 | 0.5106  |
| Basin#60outlet | 2.9  | 0.5263  |
| Basin#60outlet | 2.95 | 0.5409  |
| Basin#60outlet | 3    | 0.5546  |
| Basin#60outlet | 3.05 | 0.5676  |
| Basin#60outlet | 3.1  | 0.5801  |
| Basin#60outlet | 3.15 | 0.5920  |
| Basin#60outlet | 3.2  | 0.6036  |
| Basin#60outlet | 3.25 | 0.6148  |
| Basin#60outlet | 3.3  | 0.6256  |
| Basin#60outlet | 3.35 | 0.6361  |
| Basin#60outlet | 3.4  | 0.6464  |
| Basin#60outlet | 3.45 | 0.6564  |
| Basin#60outlet | 3.5  | 0.6662  |
| Basin#60outlet | 3.55 | 2.3140  |
| Basin#60outlet | 3.6  | 5.3186  |
| Basin#60outlet | 3.65 | 9.2065  |
| Basin#60outlet | 3.7  | 13.8086 |
| Basin#60outlet | 3.75 | 19.0274 |
| Basin#60outlet | 3.8  | 24.7968 |
| Basin#60outlet | 3.85 | 31.0686 |
| Basin#60outlet | 3.9  | 37.8052 |
| Basin#60outlet | 3.95 | 44.9764 |
| Basin#60outlet | 4    | 52.5574 |
| Basin#60outlet | 4.05 | 60.5271 |
| Basin#60outlet | 4.1  | 68.8673 |
| Basin#60outlet | 4.15 | 77.5622 |

1235 VILLAGE 14 POC1-PR - SWMM 5.1.inp

|                |      |          |
|----------------|------|----------|
| Basin#60outlet | 4.2  | 86.5978  |
| Basin#60outlet | 4.25 | 95.9619  |
| Basin#60outlet | 4.3  | 105.6432 |
| Basin#60outlet | 4.35 | 115.6316 |
| Basin#60outlet | 4.4  | 125.9179 |
| Basin#60outlet | 4.45 | 136.4939 |
| Basin#60outlet | 4.5  | 147.3516 |
| Basin#60outlet | 4.55 | 158.4841 |
| Basin#60outlet | 4.6  | 169.8846 |
| Basin#60outlet | 4.65 | 181.5471 |
| Basin#60outlet | 4.7  | 193.4657 |
| Basin#60outlet | 4.75 | 205.6350 |
| Basin#60outlet | 4.8  | 218.0500 |
| Basin#60outlet | 4.85 | 230.7059 |
| Basin#60outlet | 4.9  | 243.5982 |
| Basin#60outlet | 4.95 | 256.7227 |
| Basin#60outlet | 5    | 270.0753 |
| Basin#60outlet | 5.05 | 283.6522 |
| Basin#60outlet | 5.1  | 297.4496 |
| Basin#60outlet | 5.15 | 311.4643 |
| Basin#60outlet | 5.2  | 325.6927 |
| Basin#60outlet | 5.25 | 340.1319 |
| Basin#60outlet | 5.3  | 354.7786 |
| Basin#60outlet | 5.35 | 369.6301 |
| Basin#60outlet | 5.4  | 384.6836 |
| Basin#60outlet | 5.45 | 399.9363 |
| Basin#60outlet | 5.5  | 415.3857 |

;

;Basin #6

|         |         |      |       |
|---------|---------|------|-------|
| Basin#6 | Storage | 0.00 | 67377 |
| Basin#6 |         | 0.05 | 67533 |
| Basin#6 |         | 0.10 | 67689 |
| Basin#6 |         | 0.15 | 67845 |
| Basin#6 |         | 0.20 | 68002 |
| Basin#6 |         | 0.25 | 68158 |
| Basin#6 |         | 0.30 | 68315 |
| Basin#6 |         | 0.35 | 68472 |
| Basin#6 |         | 0.40 | 68629 |
| Basin#6 |         | 0.45 | 68786 |
| Basin#6 |         | 0.50 | 68944 |
| Basin#6 |         | 0.55 | 69101 |
| Basin#6 |         | 0.60 | 69259 |
| Basin#6 |         | 0.65 | 69417 |
| Basin#6 |         | 0.70 | 69575 |
| Basin#6 |         | 0.75 | 69734 |
| Basin#6 |         | 0.80 | 69892 |
| Basin#6 |         | 0.85 | 70051 |
| Basin#6 |         | 0.90 | 70210 |
| Basin#6 |         | 0.95 | 70369 |

1235 VILLAGE 14 POC1-PR - SWMM 5.1.inp

|         |      |       |
|---------|------|-------|
| Basin#6 | 1.00 | 70528 |
| Basin#6 | 1.05 | 70688 |
| Basin#6 | 1.10 | 70847 |
| Basin#6 | 1.15 | 71007 |
| Basin#6 | 1.20 | 71167 |
| Basin#6 | 1.25 | 71327 |
| Basin#6 | 1.30 | 71488 |
| Basin#6 | 1.35 | 71648 |
| Basin#6 | 1.40 | 71809 |
| Basin#6 | 1.45 | 71970 |
| Basin#6 | 1.50 | 72131 |
| Basin#6 | 1.55 | 72292 |
| Basin#6 | 1.60 | 72453 |
| Basin#6 | 1.65 | 72615 |
| Basin#6 | 1.70 | 72777 |
| Basin#6 | 1.75 | 72939 |
| Basin#6 | 1.80 | 73101 |
| Basin#6 | 1.85 | 73263 |
| Basin#6 | 1.90 | 73426 |
| Basin#6 | 1.95 | 73588 |
| Basin#6 | 2.00 | 73751 |
| Basin#6 | 2.05 | 73914 |
| Basin#6 | 2.10 | 74077 |
| Basin#6 | 2.15 | 74241 |
| Basin#6 | 2.20 | 74404 |
| Basin#6 | 2.25 | 74568 |
| Basin#6 | 2.30 | 74732 |
| Basin#6 | 2.35 | 74896 |
| Basin#6 | 2.40 | 75060 |
| Basin#6 | 2.45 | 75225 |
| Basin#6 | 2.50 | 75390 |
| Basin#6 | 2.55 | 75554 |
| Basin#6 | 2.60 | 75719 |
| Basin#6 | 2.65 | 75885 |
| Basin#6 | 2.70 | 76050 |
| Basin#6 | 2.75 | 76216 |
| Basin#6 | 2.80 | 76381 |
| Basin#6 | 2.85 | 76547 |
| Basin#6 | 2.90 | 76713 |
| Basin#6 | 2.95 | 76880 |
| Basin#6 | 3.00 | 77046 |
| Basin#6 | 3.05 | 77213 |
| Basin#6 | 3.10 | 77379 |
| Basin#6 | 3.15 | 77546 |
| Basin#6 | 3.20 | 77714 |
| Basin#6 | 3.25 | 77881 |
| Basin#6 | 3.30 | 78049 |
| Basin#6 | 3.35 | 78216 |
| Basin#6 | 3.40 | 78384 |



1235 VILLAGE 14 POC1-PR - SWMM 5.1.inp

|         |         |      |        |
|---------|---------|------|--------|
| Basin#6 |         | 3.45 | 78552  |
| Basin#6 |         | 3.50 | 78720  |
| Basin#6 |         | 3.55 | 78889  |
| Basin#6 |         | 3.60 | 79057  |
| Basin#6 |         | 3.65 | 79226  |
| Basin#6 |         | 3.70 | 79395  |
| Basin#6 |         | 3.75 | 79564  |
| Basin#6 |         | 3.80 | 79734  |
| Basin#6 |         | 3.85 | 79903  |
| Basin#6 |         | 3.90 | 80073  |
| Basin#6 |         | 3.95 | 80243  |
| Basin#6 |         | 4.00 | 80413  |
| Basin#6 |         | 4.05 | 80583  |
| Basin#6 |         | 4.10 | 80754  |
| Basin#6 |         | 4.15 | 80924  |
| Basin#6 |         | 4.20 | 81095  |
| Basin#6 |         | 4.25 | 81266  |
| Basin#6 |         | 4.30 | 81437  |
| Basin#6 |         | 4.35 | 81608  |
| Basin#6 |         | 4.40 | 81780  |
| Basin#6 |         | 4.45 | 81951  |
| Basin#6 |         | 4.50 | 82123  |
| Basin#6 |         | 4.55 | 82295  |
| Basin#6 |         | 4.60 | 82468  |
| Basin#6 |         | 4.65 | 82640  |
| Basin#6 |         | 4.70 | 82813  |
| Basin#6 |         | 4.75 | 82985  |
| Basin#6 |         | 4.80 | 83158  |
| Basin#6 |         | 4.85 | 83331  |
| Basin#6 |         | 4.90 | 83505  |
| Basin#6 |         | 4.95 | 83678  |
| Basin#6 |         | 5.00 | 83852  |
| Basin#6 |         | 5.05 | 84026  |
| Basin#6 |         | 5.10 | 84200  |
| Basin#6 |         | 5.15 | 84374  |
| Basin#6 |         | 5.20 | 84548  |
| Basin#6 |         | 5.25 | 84723  |
| Basin#6 |         | 5.30 | 84897  |
| Basin#6 |         | 5.35 | 85072  |
| Basin#6 |         | 5.40 | 85247  |
| Basin#6 |         | 5.45 | 85423  |
| Basin#6 |         | 5.50 | 85598  |
| ;       |         |      |        |
| Basin#1 | Storage | 0.00 | 180245 |
| Basin#1 |         | 0.05 | 180500 |
| Basin#1 |         | 0.10 | 180755 |
| Basin#1 |         | 0.15 | 181010 |
| Basin#1 |         | 0.20 | 181266 |
| Basin#1 |         | 0.25 | 181521 |

1235 VILLAGE 14 POC1-PR - SWMM 5.1.inp

|         |      |        |
|---------|------|--------|
| Basin#1 | 0.30 | 181777 |
| Basin#1 | 0.35 | 182033 |
| Basin#1 | 0.40 | 182289 |
| Basin#1 | 0.45 | 182545 |
| Basin#1 | 0.50 | 182802 |
| Basin#1 | 0.55 | 183058 |
| Basin#1 | 0.60 | 183315 |
| Basin#1 | 0.65 | 183572 |
| Basin#1 | 0.70 | 183829 |
| Basin#1 | 0.75 | 184087 |
| Basin#1 | 0.80 | 184344 |
| Basin#1 | 0.85 | 184602 |
| Basin#1 | 0.90 | 184860 |
| Basin#1 | 0.95 | 185118 |
| Basin#1 | 1.00 | 185376 |
| Basin#1 | 1.05 | 185634 |
| Basin#1 | 1.10 | 185893 |
| Basin#1 | 1.15 | 186152 |
| Basin#1 | 1.20 | 186411 |
| Basin#1 | 1.25 | 186670 |
| Basin#1 | 1.30 | 186929 |
| Basin#1 | 1.35 | 187189 |
| Basin#1 | 1.40 | 187448 |
| Basin#1 | 1.45 | 187708 |
| Basin#1 | 1.50 | 187968 |
| Basin#1 | 1.55 | 188228 |
| Basin#1 | 1.60 | 188489 |
| Basin#1 | 1.65 | 188749 |
| Basin#1 | 1.70 | 189010 |
| Basin#1 | 1.75 | 189271 |
| Basin#1 | 1.80 | 189532 |
| Basin#1 | 1.85 | 189794 |
| Basin#1 | 1.90 | 190055 |
| Basin#1 | 1.95 | 190317 |
| Basin#1 | 2.00 | 190579 |
| Basin#1 | 2.05 | 190841 |
| Basin#1 | 2.10 | 191103 |
| Basin#1 | 2.15 | 191365 |
| Basin#1 | 2.20 | 191628 |
| Basin#1 | 2.25 | 191891 |
| Basin#1 | 2.30 | 192153 |
| Basin#1 | 2.35 | 192417 |
| Basin#1 | 2.40 | 192680 |
| Basin#1 | 2.45 | 192943 |
| Basin#1 | 2.50 | 193207 |
| Basin#1 | 2.55 | 193471 |
| Basin#1 | 2.60 | 193735 |
| Basin#1 | 2.65 | 193999 |
| Basin#1 | 2.70 | 194263 |

1235 VILLAGE 14 POC1-PR - SWMM 5.1.inp

|         |      |        |
|---------|------|--------|
| Basin#1 | 2.75 | 194528 |
| Basin#1 | 2.80 | 194793 |
| Basin#1 | 2.85 | 195057 |
| Basin#1 | 2.90 | 195323 |
| Basin#1 | 2.95 | 195588 |
| Basin#1 | 3.00 | 195853 |
| Basin#1 | 3.05 | 196119 |
| Basin#1 | 3.10 | 196385 |
| Basin#1 | 3.15 | 196651 |
| Basin#1 | 3.20 | 196917 |
| Basin#1 | 3.25 | 197183 |
| Basin#1 | 3.30 | 197450 |
| Basin#1 | 3.35 | 197716 |
| Basin#1 | 3.40 | 197983 |
| Basin#1 | 3.45 | 198250 |
| Basin#1 | 3.50 | 198518 |
| Basin#1 | 3.55 | 198785 |
| Basin#1 | 3.60 | 199053 |
| Basin#1 | 3.65 | 199320 |
| Basin#1 | 3.70 | 199588 |
| Basin#1 | 3.75 | 199856 |
| Basin#1 | 3.80 | 200125 |
| Basin#1 | 3.85 | 200393 |
| Basin#1 | 3.90 | 200662 |
| Basin#1 | 3.95 | 200931 |
| Basin#1 | 4.00 | 201200 |
| Basin#1 | 4.05 | 201469 |
| Basin#1 | 4.10 | 201738 |
| Basin#1 | 4.15 | 202008 |
| Basin#1 | 4.20 | 202278 |
| Basin#1 | 4.25 | 202548 |
| Basin#1 | 4.30 | 202818 |
| Basin#1 | 4.35 | 203088 |
| Basin#1 | 4.40 | 203359 |
| Basin#1 | 4.45 | 203629 |
| Basin#1 | 4.50 | 203900 |
| Basin#1 | 4.55 | 204171 |
| Basin#1 | 4.60 | 204442 |
| Basin#1 | 4.65 | 204714 |
| Basin#1 | 4.70 | 204985 |
| Basin#1 | 4.75 | 205257 |
| Basin#1 | 4.80 | 205529 |
| Basin#1 | 4.85 | 205801 |
| Basin#1 | 4.90 | 206073 |
| Basin#1 | 4.95 | 206346 |
| Basin#1 | 5.00 | 206619 |
| Basin#1 | 5.05 | 206891 |
| Basin#1 | 5.10 | 207164 |
| Basin#1 | 5.15 | 207438 |

1235 VILLAGE 14 POC1-PR - SWMM 5.1.inp

|         |      |        |
|---------|------|--------|
| Basin#1 | 5.20 | 207711 |
| Basin#1 | 5.25 | 207984 |
| Basin#1 | 5.30 | 208258 |
| Basin#1 | 5.35 | 208532 |
| Basin#1 | 5.40 | 208806 |
| Basin#1 | 5.45 | 209080 |
| Basin#1 | 5.50 | 209355 |

[TIMESERIES]

| ;;Name                                      | Date                                          | Time | Value |
|---------------------------------------------|-----------------------------------------------|------|-------|
| ;;-----                                     |                                               |      |       |
| ;Lower Otay Rain Gage from San Diego County |                                               |      |       |
| LWR0tay                                     | FILE "R:\1235\Hyd\CALCS\SWMM\LWR0tay.dat.txt" |      |       |

[REPORT]

;;Reporting Options  
 SUBCATCHMENTS ALL  
 NODES ALL  
 LINKS ALL

[TAGS]

[MAP]

DIMENSIONS 0.000 0.000 10000.000 10000.000  
 Units None

[COORDINATES]

| ;;Node         | X-Coord   | Y-Coord  |
|----------------|-----------|----------|
| ;;-----        |           |          |
| Confluence     | 1913.580  | 2635.802 |
| POC-1          | 656.155   | 1800.610 |
| Div-6          | 3371.458  | 3601.911 |
| Div-1          | -25.432   | 3245.168 |
| BF-2-6_STORAGE | 2190.010  | 3683.390 |
| BF-2-1_STORAGE | -1296.296 | 2240.741 |

[VERTICES]

| ;;Link  | X-Coord | Y-Coord |
|---------|---------|---------|
| ;;----- |         |         |

[Polygons]

| ;;Subcatchment | X-Coord  | Y-Coord  |
|----------------|----------|----------|
| ;;-----        |          |          |
| DMA6           | 3371.458 | 4864.838 |
| BF-2-6         | 3387.754 | 4188.561 |
| DMA1           | -422.177 | 4750.763 |
| BF-2-1         | -86.470  | 4120.041 |
| 4              | 3077.314 | 2166.836 |

[SYMBOLS]

;;Gage

X-Coord

Y-Coord

;;

LWR0tay

3190.709

7591.687

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

POC 1-PR

WARNING 04: minimum elevation drop used for Conduit Bypass-6

WARNING 08: elevation drop exceeds length for Conduit 2

WARNING 04: minimum elevation drop used for Conduit Bypass-1

\*\*\*\*\*

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 ..... 08/28/1951 05:00:00

Ending Date ..... 05/23/2008 23:00:00

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  |
| Initial LID Storage .....  | 0.891     | 0.017   |
| Total Precipitation .....  | 30374.078 | 591.650 |
| Evaporation Loss .....     | 2891.888  | 56.330  |
| Infiltration Loss .....    | 21623.455 | 421.199 |
| Surface Runoff .....       | 2195.208  | 42.760  |
| LID Drainage .....         | 2579.391  | 50.243  |
| Final Storage .....        | 1171.961  | 22.828  |

\*\*\*\*\*

Continuity Error (%) ..... -0.286

|                            | Volume<br>acre-feet | Volume<br>10^6 gal |
|----------------------------|---------------------|--------------------|
| Flow Routing Continuity    |                     |                    |
| Dry Weather Inflow .....   | 0.000               | 0.000              |
| Wet Weather Inflow .....   | 4774.599            | 1555.874           |
| Groundwater Inflow .....   | 0.000               | 0.000              |
| RDII Inflow .....          | 0.000               | 0.000              |
| External Inflow .....      | 0.000               | 0.000              |
| External Outflow .....     | 4619.998            | 1505.495           |
| Flooding Loss .....        | 0.000               | 0.000              |
| Evaporation Loss .....     | 154.888             | 50.473             |
| Exfiltration Loss .....    | 0.000               | 0.000              |
| Initial Stored Volume .... | 0.000               | 0.000              |
| Final Stored Volume .....  | 0.000               | 0.000              |
| Continuity Error (%) ..... | -0.006              |                    |

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

| Perv | Total<br>Runoff<br>Subcatchment | Total<br>Runoff | Total<br>Peak<br>Precip<br>Runoff<br>in | Total<br>Runoff<br>Coeff<br>in | Total<br>Evap<br>in | Total<br>Infil<br>in | Imperv<br>Runoff<br>in |
|------|---------------------------------|-----------------|-----------------------------------------|--------------------------------|---------------------|----------------------|------------------------|
|      |                                 |                 |                                         |                                |                     |                      |                        |

1235 VILLAGE 14 POC1-PR - SWMM 5.1.rpt

in in 10^6 gal CFS

|        |          |         |          |        |         |        |
|--------|----------|---------|----------|--------|---------|--------|
| DMA6   |          | 591.65  | 0.00     | 69.18  | 254.87  | 234.07 |
| 36.57  | 270.63   | 616.03  | 53.61    | 0.457  |         |        |
| BF-2-6 |          | 591.65  | 14665.24 | 537.26 | 5629.20 | 0.00   |
| 0.00   | 6.16     | 0.26    | 0.23     | 0.000  |         |        |
| DMA1   |          | 591.65  | 0.00     | 75.92  | 249.26  | 238.36 |
| 30.09  | 268.45   | 1621.86 | 124.52   | 0.454  |         |        |
| BF-2-1 |          | 591.65  | 14434.39 | 873.21 | 3514.28 | 0.00   |
| 0.00   | 10638.54 | 1195.35 | 124.58   | 0.708  |         |        |
| 4      |          | 591.65  | 0.00     | 24.89  | 524.29  | 0.00   |
| 43.62  | 43.62    | 360.15  | 63.10    | 0.074  |         |        |

\*\*\*\*\*

LID Performance Summary

\*\*\*\*\*

| Drain        | Initial     | Final   | Continuity | Total  | Evap | Infil | Surface |
|--------------|-------------|---------|------------|--------|------|-------|---------|
| Outflow      | Storage     | Storage | Error      | Inflow | Loss | Loss  | Outflow |
| Subcatchment | LID Control |         | %          | in     | in   | in    | in      |

|         |       |          |        |         |         |
|---------|-------|----------|--------|---------|---------|
| BF-2-6  | LID-6 | 591.65   | 463.87 | 121.46  | 0.00    |
| 6.31    | 1.80  | 1.80     | 0.00   |         |         |
| BF-2-1  | LID-1 | 15026.04 | 873.24 | 3514.41 | 3160.85 |
| 7478.08 | 1.93  | 1.80     | -0.00  |         |         |

\*\*\*\*\*

Node Depth Summary

\*\*\*\*\*

| Node       | Type     | Average Depth Feet | Maximum Depth Feet | Maximum HGL Feet | Time of Max Occurrence days hr:min | Reported Max Depth Feet |
|------------|----------|--------------------|--------------------|------------------|------------------------------------|-------------------------|
| Confluence | JUNCTION | 0.00               | 0.91               | 730.91           | 16971 12:01                        | 0.90                    |
| POC-1      | OUTFALL  | 0.00               | 0.90               | 620.90           | 16971 12:07                        | 0.88                    |
| Div-6      | DIVIDER  | 0.00               | 0.00               | 734.00           | 0 00:00                            | 0.00                    |



|                |                                        |      |      |        |       |       |      |
|----------------|----------------------------------------|------|------|--------|-------|-------|------|
|                | 1235 VILLAGE 14 POC1-PR - SWMM 5.1.rpt |      |      |        |       |       |      |
| Div-1          | DIVIDER                                | 0.00 | 0.00 | 653.50 | 0     | 00:00 | 0.00 |
| BF-2-6_STORAGE | STORAGE                                | 0.00 | 0.00 | 734.00 | 0     | 00:00 | 0.00 |
| BF-2-1_STORAGE | STORAGE                                | 0.07 | 3.93 | 657.43 | 16965 | 12:27 | 3.84 |

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

|                |           |          | Maximum | Maximum |             |  |          | Lateral |
|----------------|-----------|----------|---------|---------|-------------|--|----------|---------|
| Total          | Flow      |          | Lateral | Total   | Time of Max |  |          | Inflow  |
| Inflow         | Balance   |          | Inflow  | Inflow  | Occurrence  |  |          | Volume  |
| Volume         | Error     | Type     | CFS     | CFS     | days hr:min |  | 10^6 gal | 10^6    |
| Node           | Percent   |          |         |         |             |  |          |         |
| gal            |           |          |         |         |             |  |          |         |
| Confluence     |           | JUNCTION | 63.10   | 63.10   | 16971 12:01 |  | 360      |         |
| 360            | 0.000     |          |         |         |             |  |          |         |
| POC-1          |           | OUTFALL  | 0.00    | 144.45  | 16965 12:26 |  | 0        |         |
| 1.51e+03       | 0.000     |          |         |         |             |  |          |         |
| Div-6          |           | DIVIDER  | 0.23    | 0.23    | 5201 01:31  |  | 0.259    |         |
| 0.259          | 0.000     |          |         |         |             |  |          |         |
| Div-1          |           | DIVIDER  | 124.58  | 124.58  | 16971 12:16 |  | 1.2e+03  |         |
| 1.2e+03        | 0.000     |          |         |         |             |  |          |         |
| BF-2-6_STORAGE |           | STORAGE  | 0.00    | 0.00    | 0 00:00     |  | 0        |         |
| 0              | 0.000 gal |          |         |         |             |  |          |         |
| BF-2-1_STORAGE |           | STORAGE  | 0.00    | 123.61  | 16971 12:16 |  | 0        |         |
| 679            | 0.010     |          |         |         |             |  |          |         |

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

No nodes were flooded.

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

1235 VILLAGE 14 POC1-PR - SWMM 5.1.rpt

| of Max         | Maximum | Average  | Avg  | Evap | Exfil | Maximum  | Max  | Time  |
|----------------|---------|----------|------|------|-------|----------|------|-------|
| Occurrence     | Outflow | Volume   | Pcnt | Pcnt | Pcnt  | Volume   | Pcnt |       |
| Storage Unit   |         | 1000 ft3 | Full | Loss | Loss  | 1000 ft3 | Full | days  |
| hr:min         | CFS     |          |      |      |       |          |      |       |
| BF-2-6_STORAGE |         | 0.000    | 0    | 0    | 0     | 0.000    | 0    | 0     |
| 00:00          | 0.00    |          |      |      |       |          |      |       |
| BF-2-1_STORAGE |         | 12.031   | 1    | 7    | 0     | 748.367  | 70   | 16965 |
| 12:26          | 89.98   |          |      |      |       |          |      |       |

\*\*\*\*\*

Outfall Loading Summary

\*\*\*\*\*

| Outfall Node | Flow<br>Freq<br>Pcnt | Avg<br>Flow<br>CFS | Max<br>Flow<br>CFS | Total<br>Volume<br>10^6 gal |
|--------------|----------------------|--------------------|--------------------|-----------------------------|
| POC-1        | 21.79                | 0.52               | 144.45             | 1505.384                    |
| System       | 21.79                | 0.52               | 144.45             | 1505.384                    |

\*\*\*\*\*

Link Flow Summary

\*\*\*\*\*

| Link     | Type    | Maximum<br> Flow <br>CFS | Time of Max<br>Occurrence<br>days hr:min | Maximum<br> Veloc <br>ft/sec | Max/<br>Full<br>Flow | Max/<br>Full<br>Depth |
|----------|---------|--------------------------|------------------------------------------|------------------------------|----------------------|-----------------------|
| Bypass-6 | DUMMY   | 0.00                     | 0 00:00                                  |                              |                      |                       |
| 2        | DUMMY   | 0.23                     | 5201 01:31                               |                              |                      |                       |
| 4        | DUMMY   | 0.97                     | 124 04:26                                |                              |                      |                       |
| Bypass-1 | DUMMY   | 123.61                   | 16971 12:16                              |                              |                      |                       |
| 9        | CONDUIT | 62.38                    | 16971 12:07                              | 12.27                        | 0.00                 | 0.05                  |
| 6        | DUMMY   | 0.00                     | 0 00:00                                  |                              |                      |                       |
| 1        | DUMMY   | 89.97                    | 16965 12:27                              |                              |                      |                       |

1235 VILLAGE 14 POC1-PR - SWMM 5.1.rpt

\*\*\*\*\*

Conduit Surcharge Summary

\*\*\*\*\*

No conduits were surcharged.

Analysis begun on: Wed Nov 6 21:46:55 2019

Analysis ended on: Wed Nov 6 21:47:36 2019

Total elapsed time: 00:00:41

## POC 2 – Pre-Developed Condition

1235 VILLAGE 14 POC2-EX - SWMM 5.1.inp

[TITLE]

;;Project Title/Notes

[OPTIONS]

|                   |            |
|-------------------|------------|
| ;;Option          | Value      |
| FLOW_UNITS        | CFS        |
| INFILTRATION      | GREEN_AMPT |
| FLOW_ROUTING      | KINWAVE    |
| LINK_OFFSETS      | DEPTH      |
| MIN_SLOPE         | 0          |
| ALLOW_PONDING     | NO         |
| SKIP_STEADY_STATE | NO         |

|                   |            |
|-------------------|------------|
| START_DATE        | 10/01/1951 |
| START_TIME        | 00:00:00   |
| REPORT_START_DATE | 10/01/1951 |
| REPORT_START_TIME | 00:00:00   |
| END_DATE          | 09/30/2008 |
| END_TIME          | 22:00:00   |
| SWEEP_START       | 01/01      |
| SWEEP_END         | 12/31      |
| DRY_DAYS          | 0          |
| REPORT_STEP       | 01:00:00   |
| WET_STEP          | 00:15:00   |
| DRY_STEP          | 04:00:00   |
| ROUTING_STEP      | 0:01:00    |
| RULE_STEP         | 00:00:00   |

|                     |         |
|---------------------|---------|
| INERTIAL_DAMPING    | PARTIAL |
| NORMAL_FLOW_LIMITED | BOTH    |
| FORCE_MAIN_EQUATION | H-W     |
| VARIABLE_STEP       | 0.75    |
| LENGTHENING_STEP    | 0       |
| MIN_SURFAREA        | 0       |
| MAX_TRIALS          | 0       |
| HEAD_TOLERANCE      | 0       |
| SYS_FLOW_TOL        | 5       |
| LAT_FLOW_TOL        | 5       |
| MINIMUM_STEP        | 0.5     |
| THREADS             | 1       |

[EVAPORATION]

;;Data Source Parameters

;;-----

|           |      |      |       |      |      |      |      |      |      |     |
|-----------|------|------|-------|------|------|------|------|------|------|-----|
| MONTHLY   | 0.05 | 0.09 | 0.130 | 0.19 | 0.25 | 0.29 | 0.30 | 0.27 | 0.21 | .14 |
| 0.08 0.05 |      |      |       |      |      |      |      |      |      |     |
| DRY_ONLY  | NO   |      |       |      |      |      |      |      |      |     |

[RAINGAGES]

```

1235 VILLAGE 14 POC2-EX - SWMM 5.1.inp
;;Name      Format      Interval SCF      Source
;;-----
LWR0tay     INTENSITY 1:00      1.0      TIMESERIES LWR0tay

[SUBCATCHMENTS]
;;Name      Rain Gage      Outlet      Area      %Imperv      Width      %Slope
;;CurbLen    SnowPack
;;-----
;Existing Area
POC2EXArea  LWR0tay      POC2Ex      1361.4    0      4197      8.2
0

[SUBAREAS]
;;Subcatchment N-Imperv N-Perv S-Imperv S-Perv PctZero RouteTo
PctRouted
;;-----
POC2EXArea   .012      .15      0.05      .10      25      OUTLET

[INFILTRATION]
;;Subcatchment Suction Ksat IMD
;;-----
POC2EXArea   9.0      .025      0.30

[OUTFALLS]
;;Name      Elevation Type      Stage Data      Gated      Route To
;;-----
POC2Ex       0      FREE      NO

[TIMESERIES]
;;Name      Date      Time      Value
;;-----
;From County
LWR0tay      FILE "R:\1235\Hyd\CALCS\SWMM\LWR0tay.dat.txt"

[REPORT]
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]

```

```

1235 VILLAGE 14 POC2-EX - SWMM 5.1.inp
;;Node      X-Coord      Y-Coord
;;-----
POC2Ex      1740.113      3977.401

[VERTICES]
;;Link      X-Coord      Y-Coord
;;-----

[Polygons]
;;Subcatchment X-Coord      Y-Coord
;;-----
POC2EXArea  910.543      5548.456

[SYMBOLS]
;;Gage      X-Coord      Y-Coord
;;-----
LWR0tay     2384.000      5666.000

```

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

\*\*\*\*\*

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 ..... 10/01/1951 00:00:00

Ending Date ..... 09/30/2008 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 .....  | 67092.061 | 591.380 |
| Evaporation Loss .....     | 3589.265  | 31.637  |
| Infiltration Loss .....    | 60364.309 | 532.079 |
| Surface Runoff .....       | 4520.031  | 39.842  |
| Final Storage .....        | 0.000     | 0.000   |
| Continuity Error (%) ..... | -2.059    |         |

| *****                    | Volume    | Volume              |
|--------------------------|-----------|---------------------|
| Flow Routing Continuity  | acre-feet | 10 <sup>6</sup> gal |
| *****                    | -----     | -----               |
| Dry Weather Inflow ..... | 0.000     | 0.000               |
| Wet Weather Inflow ..... | 4520.031  | 1472.920            |
| Groundwater Inflow ..... | 0.000     | 0.000               |
| RDII Inflow .....        | 0.000     | 0.000               |



1235 VILLAGE 14 POC2-EX - SWMM 5.1.rpt

|                            |          |          |
|----------------------------|----------|----------|
| External Inflow .....      | 0.000    | 0.000    |
| External Outflow .....     | 4520.031 | 1472.920 |
| 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

\*\*\*\*\*

| Perv         | Total  | Total    | Total  | Total  | Total | Total | Imperv |
|--------------|--------|----------|--------|--------|-------|-------|--------|
| Runoff       | Runoff | Runoff   | Peak   | Runoff | Evap  | Infil | Runoff |
| Subcatchment | Runoff | Precip   | Runoff | Runoff |       |       |        |
| in           | in     | 10^6 gal | in     | Coeff  | in    | in    | in     |

|            |       |         |        |       |        |      |
|------------|-------|---------|--------|-------|--------|------|
| POC2EXArea |       | 591.38  | 0.00   | 31.64 | 532.08 | 0.00 |
| 39.84      | 39.84 | 1472.81 | 224.39 | 0.067 |        |      |

Analysis begun on: Wed Nov 6 18:11:24 2019

Analysis ended on: Wed Nov 6 18:11:35 2019

Total elapsed time: 00:00:11

## POC 2 – Developed Condition

1235 VILLAGE 14 POC2-PR - SWMM 5.1.inp

[TITLE]

;;Project Title/Notes

[OPTIONS]

|                   |            |
|-------------------|------------|
| ;;Option          | Value      |
| FLOW_UNITS        | CFS        |
| INFILTRATION      | GREEN_AMPT |
| FLOW_ROUTING      | KINWAVE    |
| LINK_OFFSETS      | DEPTH      |
| MIN_SLOPE         | 0          |
| ALLOW_PONDING     | NO         |
| SKIP_STEADY_STATE | NO         |

|                   |            |
|-------------------|------------|
| START_DATE        | 08/28/1951 |
| START_TIME        | 05:00:00   |
| REPORT_START_DATE | 08/28/1951 |
| REPORT_START_TIME | 05:00:00   |
| END_DATE          | 05/23/2008 |
| END_TIME          | 23:00:00   |
| SWEEP_START       | 01/01      |
| SWEEP_END         | 12/31      |
| DRY_DAYS          | 0          |
| REPORT_STEP       | 01:00:00   |
| WET_STEP          | 00:15:00   |
| DRY_STEP          | 04:00:00   |
| ROUTING_STEP      | 0:01:00    |
| RULE_STEP         | 00:00:00   |

|                     |         |
|---------------------|---------|
| INERTIAL_DAMPING    | PARTIAL |
| NORMAL_FLOW_LIMITED | BOTH    |
| FORCE_MAIN_EQUATION | H-W     |
| VARIABLE_STEP       | 0.75    |
| LENGTHENING_STEP    | 0       |
| MIN_SURFAREA        | 0       |
| MAX_TRIALS          | 0       |
| HEAD_TOLERANCE      | 0       |
| SYS_FLOW_TOL        | 5       |
| LAT_FLOW_TOL        | 5       |
| MINIMUM_STEP        | 0.5     |
| THREADS             | 1       |

[EVAPORATION]

;;Data Source Parameters

;;-----

|           |      |      |       |       |      |      |      |      |      |     |
|-----------|------|------|-------|-------|------|------|------|------|------|-----|
| MONTHLY   | 0.05 | 0.09 | 0.130 | 0.190 | 0.25 | 0.29 | 0.30 | 0.27 | 0.21 | .14 |
| 0.08 0.05 |      |      |       |       |      |      |      |      |      |     |
| DRY_ONLY  | NO   |      |       |       |      |      |      |      |      |     |

[RAINGAGES]

1235 VILLAGE 14 POC2-PR - SWMM 5.1.inp

```
;;Name      Format      Interval SCF      Source
;;-----
LWR0tay     INTENSITY 1:00      1.0      TIMESERIES LWR0tay
```

[SUBCATCHMENTS]

```
;;Name      Rain Gage      Outlet      Area      %Imperv      Width      %Slope
;;CurbLen    SnowPack
;;-----
;DMA#2 Tributary to BF-1-2
DMA2         LWR0tay         BF-2-2         101.90      52          390          11.1
0
BF-2-2       LWR0tay         Div-2          1.940      0           170          0
0
;Offsite area tributary to POC-2
DMA2_OFFISTE_NATURAL LWR0tay         POC-2          1257.56      0           3877
8.2          0
```

[SUBAREAS]

```
;;Subcatchment      N-Imperv      N-Perv      S-Imperv      S-Perv      PctZero      RouteTo
PctRouted
;;-----
DMA2                 .012         0.15         0.05         .10         25          OUTLET
BF-2-2              0.012         0.15         0.05         0.10         25          OUTLET
DMA2_OFFISTE_NATURAL 0.012         0.15         0.05         0.10         25          OUTLET
```

[INFILTRATION]

```
;;Subcatchment      Suction      Ksat      IMD
;;-----
DMA2                 9.0         0.025      0.30
BF-2-2              1.5         0.3        0.33
DMA2_OFFISTE_NATURAL 9.0         0.025      0.30
```

[LID\_CONTROLS]

```
;;Name      Type/Layer      Parameters
;;-----
LID-2       BC
LID-2       SURFACE      6          0          0          0          5
LID-2       SOIL        18         0.4        0.2        0.1        5          5
1.5
LID-2       STORAGE     18         .67        0.050      0
LID-2       DRAIN        0.1013     0.5        3          6          0          0
```

[LID\_USAGE]

```
;;Subcatchment      LID Process      Number      Area      Width      InitSat      FromImp
ToPerv      RptFile      DrainTo      FromPerv
```

1235 VILLAGE 14 POC2-PR - SWMM 5.1.inp

```

;;-----
BF-2-2      LID-2      1      84506.40  0      1      100
0          *          *          0

```

[OUTFALLS]

```

;;Name      Elevation  Type      Stage Data      Gated      Route To
;;-----
POC-2      0          FREE          NO

```

[DIVIDERS]

```

;;Name      Elevation  Diverted Link  Type      Parameters
;;-----
Div-2      0          Bypass-1      CUTOFF    0.562      0          0
0          0

```

[STORAGE]

```

;;Name      Elev.      MaxDepth      InitDepth      Shape      Curve Name/Params
      N/A      Fevap      Psi      Ksat      IMD
;;-----
;Basin #2
BF-2-2_STORAGE  580      5.5      0      TABULAR      Basin#2
0          1

```

[CONDUITS]

```

;;Name      From Node      To Node      Length      Roughness      InOffset
OutOffset  InitFlow      MaxFlow
;;-----
Bypass-1      Div-2      BF-2-2_STORAGE  1      0.01      0
0          0
2          Div-2      POC-2      1      0.01      0
0          0

```

[OUTLETS]

```

;;Name      From Node      To Node      Offset      Type
QTable/Qcoeff  Qexpon      Gated
;;-----
1          BF-2-2_STORAGE  POC-2      0      TABULAR/DEPTH
Basin#2Outlet      NO

```

[XSECTIONS]

```

;;Link      Shape      Geom1      Geom2      Geom3      Geom4
Barrels      Culvert
;;-----
Bypass-1      DUMMY      0          0          0          0          1

```

1235 VILLAGE 14 POC2-PR - SWMM 5.1.inp

2 DUMMY 0 0 0 0 1

[CURVES]

| ;;Name         | Type   | X-Value | Y-Value |
|----------------|--------|---------|---------|
| Basin#20outlet | Rating | 0       | 0.0000  |
| Basin#20outlet |        | 0.05    | 0.0049  |
| Basin#20outlet |        | 0.1     | 0.0187  |
| Basin#20outlet |        | 0.15    | 0.0404  |
| Basin#20outlet |        | 0.2     | 0.0688  |
| Basin#20outlet |        | 0.25    | 0.1025  |
| Basin#20outlet |        | 0.3     | 0.1401  |
| Basin#20outlet |        | 0.35    | 0.1801  |
| Basin#20outlet |        | 0.4     | 0.2064  |
| Basin#20outlet |        | 0.45    | 0.2274  |
| Basin#20outlet |        | 0.5     | 0.2466  |
| Basin#20outlet |        | 0.55    | 0.2645  |
| Basin#20outlet |        | 0.6     | 0.2812  |
| Basin#20outlet |        | 0.65    | 0.2970  |
| Basin#20outlet |        | 0.7     | 0.3120  |
| Basin#20outlet |        | 0.75    | 0.3263  |
| Basin#20outlet |        | 0.8     | 0.3400  |
| Basin#20outlet |        | 0.85    | 0.3531  |
| Basin#20outlet |        | 0.9     | 0.3658  |
| Basin#20outlet |        | 0.95    | 0.3781  |
| Basin#20outlet |        | 1       | 0.3900  |
| Basin#20outlet |        | 1.05    | 0.4015  |
| Basin#20outlet |        | 1.1     | 0.4127  |
| Basin#20outlet |        | 1.15    | 0.4236  |
| Basin#20outlet |        | 1.2     | 0.4343  |
| Basin#20outlet |        | 1.25    | 0.4446  |
| Basin#20outlet |        | 1.3     | 0.4548  |
| Basin#20outlet |        | 1.35    | 0.4647  |
| Basin#20outlet |        | 1.4     | 0.4744  |
| Basin#20outlet |        | 1.45    | 0.4839  |
| Basin#20outlet |        | 1.5     | 0.4933  |
| Basin#20outlet |        | 1.55    | 0.5024  |
| Basin#20outlet |        | 1.6     | 0.5114  |
| Basin#20outlet |        | 1.65    | 0.5203  |
| Basin#20outlet |        | 1.7     | 0.5290  |
| Basin#20outlet |        | 1.75    | 0.5375  |
| Basin#20outlet |        | 1.8     | 0.5460  |
| Basin#20outlet |        | 1.85    | 0.5542  |
| Basin#20outlet |        | 1.9     | 0.5624  |
| Basin#20outlet |        | 1.95    | 0.5705  |
| Basin#20outlet |        | 2       | 0.5784  |
| Basin#20outlet |        | 2.05    | 0.5863  |

1235 VILLAGE 14 POC2-PR - SWMM 5.1.inp

|                |      |          |
|----------------|------|----------|
| Basin#20outlet | 2.1  | 0.5940   |
| Basin#20outlet | 2.15 | 0.6016   |
| Basin#20outlet | 2.2  | 0.6092   |
| Basin#20outlet | 2.25 | 0.6166   |
| Basin#20outlet | 2.3  | 0.6239   |
| Basin#20outlet | 2.35 | 0.6312   |
| Basin#20outlet | 2.4  | 0.6384   |
| Basin#20outlet | 2.45 | 0.6455   |
| Basin#20outlet | 2.5  | 0.6525   |
| Basin#20outlet | 2.55 | 0.6656   |
| Basin#20outlet | 2.6  | 0.6898   |
| Basin#20outlet | 2.65 | 0.7246   |
| Basin#20outlet | 2.7  | 0.7690   |
| Basin#20outlet | 2.75 | 0.8221   |
| Basin#20outlet | 2.8  | 0.8828   |
| Basin#20outlet | 2.85 | 0.9499   |
| Basin#20outlet | 2.9  | 1.0223   |
| Basin#20outlet | 2.95 | 1.0988   |
| Basin#20outlet | 3    | 1.1782   |
| Basin#20outlet | 3.05 | 1.2518   |
| Basin#20outlet | 3.1  | 1.3003   |
| Basin#20outlet | 3.15 | 1.3458   |
| Basin#20outlet | 3.2  | 1.3888   |
| Basin#20outlet | 3.25 | 1.4298   |
| Basin#20outlet | 3.3  | 1.4690   |
| Basin#20outlet | 3.35 | 1.5067   |
| Basin#20outlet | 3.4  | 1.5431   |
| Basin#20outlet | 3.45 | 1.5782   |
| Basin#20outlet | 3.5  | 1.6123   |
| Basin#20outlet | 3.55 | 3.3953   |
| Basin#20outlet | 3.6  | 6.6270   |
| Basin#20outlet | 3.65 | 10.8016  |
| Basin#20outlet | 3.7  | 15.7385  |
| Basin#20outlet | 3.75 | 21.3336  |
| Basin#20outlet | 3.8  | 27.5164  |
| Basin#20outlet | 3.85 | 34.2353  |
| Basin#20outlet | 3.9  | 41.4504  |
| Basin#20outlet | 3.95 | 49.1294  |
| Basin#20outlet | 4    | 57.2457  |
| Basin#20outlet | 4.05 | 65.7767  |
| Basin#20outlet | 4.1  | 74.7033  |
| Basin#20outlet | 4.15 | 84.0084  |
| Basin#20outlet | 4.2  | 93.6773  |
| Basin#20outlet | 4.25 | 103.6967 |
| Basin#20outlet | 4.3  | 114.0546 |
| Basin#20outlet | 4.35 | 124.7404 |
| Basin#20outlet | 4.4  | 135.7442 |
| Basin#20outlet | 4.45 | 147.0571 |
| Basin#20outlet | 4.5  | 158.6708 |

1235 VILLAGE 14 POC2-PR - SWMM 5.1.inp

|                |      |          |
|----------------|------|----------|
| Basin#20outlet | 4.55 | 170.5777 |
| Basin#20outlet | 4.6  | 182.7708 |
| Basin#20outlet | 4.65 | 195.2434 |
| Basin#20outlet | 4.7  | 207.9895 |
| Basin#20outlet | 4.75 | 221.0032 |
| Basin#20outlet | 4.8  | 234.2792 |
| Basin#20outlet | 4.85 | 247.8124 |
| Basin#20outlet | 4.9  | 261.5979 |
| Basin#20outlet | 4.95 | 275.6313 |
| Basin#20outlet | 5    | 289.9082 |
| Basin#20outlet | 5.05 | 304.4244 |
| Basin#20outlet | 5.1  | 319.1763 |
| Basin#20outlet | 5.15 | 334.1599 |
| Basin#20outlet | 5.2  | 349.3718 |
| Basin#20outlet | 5.25 | 364.8086 |
| Basin#20outlet | 5.3  | 380.4671 |
| Basin#20outlet | 5.35 | 396.3442 |
| Basin#20outlet | 5.4  | 412.4368 |
| Basin#20outlet | 5.45 | 428.7422 |
| Basin#20outlet | 5.5  | 445.2576 |

;

;Basin #2

|         |         |      |       |
|---------|---------|------|-------|
| Basin#2 | Storage | 0    | 84509 |
| Basin#2 |         | 0.05 | 84684 |
| Basin#2 |         | 0.1  | 84858 |
| Basin#2 |         | 0.15 | 85033 |
| Basin#2 |         | 0.2  | 85208 |
| Basin#2 |         | 0.25 | 85384 |
| Basin#2 |         | 0.3  | 85559 |
| Basin#2 |         | 0.35 | 85735 |
| Basin#2 |         | 0.4  | 85910 |
| Basin#2 |         | 0.45 | 86086 |
| Basin#2 |         | 0.5  | 86262 |
| Basin#2 |         | 0.55 | 86439 |
| Basin#2 |         | 0.6  | 86615 |
| Basin#2 |         | 0.65 | 86792 |
| Basin#2 |         | 0.7  | 86969 |
| Basin#2 |         | 0.75 | 87146 |
| Basin#2 |         | 0.8  | 87323 |
| Basin#2 |         | 0.85 | 87500 |
| Basin#2 |         | 0.9  | 87678 |
| Basin#2 |         | 0.95 | 87856 |
| Basin#2 |         | 1    | 88034 |
| Basin#2 |         | 1.05 | 88212 |
| Basin#2 |         | 1.1  | 88390 |
| Basin#2 |         | 1.15 | 88569 |
| Basin#2 |         | 1.2  | 88747 |
| Basin#2 |         | 1.25 | 88926 |
| Basin#2 |         | 1.3  | 89105 |



1235 VILLAGE 14 POC2-PR - SWMM 5.1.inp

|         |      |       |
|---------|------|-------|
| Basin#2 | 1.35 | 89284 |
| Basin#2 | 1.4  | 89464 |
| Basin#2 | 1.45 | 89643 |
| Basin#2 | 1.5  | 89823 |
| Basin#2 | 1.55 | 90003 |
| Basin#2 | 1.6  | 90183 |
| Basin#2 | 1.65 | 90363 |
| Basin#2 | 1.7  | 90544 |
| Basin#2 | 1.75 | 90724 |
| Basin#2 | 1.8  | 90905 |
| Basin#2 | 1.85 | 91086 |
| Basin#2 | 1.9  | 91267 |
| Basin#2 | 1.95 | 91449 |
| Basin#2 | 2    | 91630 |
| Basin#2 | 2.05 | 91812 |
| Basin#2 | 2.1  | 91994 |
| Basin#2 | 2.15 | 92176 |
| Basin#2 | 2.2  | 92358 |
| Basin#2 | 2.25 | 92541 |
| Basin#2 | 2.3  | 92723 |
| Basin#2 | 2.35 | 92906 |
| Basin#2 | 2.4  | 93089 |
| Basin#2 | 2.45 | 93272 |
| Basin#2 | 2.5  | 93455 |
| Basin#2 | 2.55 | 93639 |
| Basin#2 | 2.6  | 93823 |
| Basin#2 | 2.65 | 94006 |
| Basin#2 | 2.7  | 94191 |
| Basin#2 | 2.75 | 94375 |
| Basin#2 | 2.8  | 94559 |
| Basin#2 | 2.85 | 94744 |
| Basin#2 | 2.9  | 94929 |
| Basin#2 | 2.95 | 95113 |
| Basin#2 | 3    | 95299 |
| Basin#2 | 3.05 | 95484 |
| Basin#2 | 3.1  | 95669 |
| Basin#2 | 3.15 | 95855 |
| Basin#2 | 3.2  | 96041 |
| Basin#2 | 3.25 | 96227 |
| Basin#2 | 3.3  | 96413 |
| Basin#2 | 3.35 | 96600 |
| Basin#2 | 3.4  | 96786 |
| Basin#2 | 3.45 | 96973 |
| Basin#2 | 3.5  | 97160 |
| Basin#2 | 3.55 | 97347 |
| Basin#2 | 3.6  | 97534 |
| Basin#2 | 3.65 | 97722 |
| Basin#2 | 3.7  | 97909 |
| Basin#2 | 3.75 | 98097 |

1235 VILLAGE 14 POC2-PR - SWMM 5.1.inp

|         |      |        |
|---------|------|--------|
| Basin#2 | 3.8  | 98285  |
| Basin#2 | 3.85 | 98473  |
| Basin#2 | 3.9  | 98662  |
| Basin#2 | 3.95 | 98850  |
| Basin#2 | 4    | 99039  |
| Basin#2 | 4.05 | 99228  |
| Basin#2 | 4.1  | 99417  |
| Basin#2 | 4.15 | 99606  |
| Basin#2 | 4.2  | 99796  |
| Basin#2 | 4.25 | 99985  |
| Basin#2 | 4.3  | 100175 |
| Basin#2 | 4.35 | 100365 |
| Basin#2 | 4.4  | 100555 |
| Basin#2 | 4.45 | 100746 |
| Basin#2 | 4.5  | 100936 |
| Basin#2 | 4.55 | 101127 |
| Basin#2 | 4.6  | 101318 |
| Basin#2 | 4.65 | 101509 |
| Basin#2 | 4.7  | 101700 |
| Basin#2 | 4.75 | 101892 |
| Basin#2 | 4.8  | 102083 |
| Basin#2 | 4.85 | 102275 |
| Basin#2 | 4.9  | 102467 |
| Basin#2 | 4.95 | 102659 |
| Basin#2 | 5    | 102852 |
| Basin#2 | 5.05 | 103044 |
| Basin#2 | 5.1  | 103237 |
| Basin#2 | 5.15 | 103430 |
| Basin#2 | 5.2  | 103623 |
| Basin#2 | 5.25 | 103816 |
| Basin#2 | 5.3  | 104009 |
| Basin#2 | 5.35 | 104203 |
| Basin#2 | 5.4  | 104397 |
| Basin#2 | 5.45 | 104591 |
| Basin#2 | 5.5  | 104785 |

[TIMESERIES]

| ;;Name                                      | Date                                          | Time | Value |
|---------------------------------------------|-----------------------------------------------|------|-------|
| ;;-----                                     |                                               |      |       |
| ;Lower Otay Rain Gage from San Diego County |                                               |      |       |
| LWR0tay                                     | FILE "R:\1235\Hyd\CALCS\SWMM\LWR0tay.dat.txt" |      |       |

[REPORT]

```
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL
```

[TAGS]

1235 VILLAGE 14 POC2-PR - SWMM 5.1.inp

[MAP]

DIMENSIONS 0.000 0.000 10000.000 10000.000

Units None

[COORDINATES]

| ;;Node         | X-Coord  | Y-Coord  |
|----------------|----------|----------|
| POC-2          | 1477.152 | 3687.566 |
| Div-2          | 981.151  | 4560.296 |
| BF-2-2_STORAGE | 757.884  | 4095.880 |

[VERTICES]

| ;;Link | X-Coord | Y-Coord |
|--------|---------|---------|
|--------|---------|---------|

[Polygons]

| ;;Subcatchment       | X-Coord  | Y-Coord  |
|----------------------|----------|----------|
| DMA2                 | 893.770  | 5542.011 |
| BF-2-2               | 904.472  | 4959.350 |
| DMA2_OFFISTE_NATURAL | 2441.489 | 4175.532 |

[SYMBOLS]

| ;;Gage  | X-Coord  | Y-Coord  |
|---------|----------|----------|
| LWR0tay | 1483.740 | 5365.854 |

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

-----

WARNING 08: elevation drop exceeds length for Conduit Bypass-1  
 WARNING 04: minimum elevation drop used for Conduit 2

\*\*\*\*\*

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 ..... 08/28/1951 05:00:00

Ending Date ..... 05/23/2008 23:00:00

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  |
| *****                      | -----     | -----   |
| Initial LID Storage .....  | 0.311     | 0.003   |
| Total Precipitation .....  | 67122.693 | 591.650 |
| Evaporation Loss .....     | 3438.183  | 30.306  |
| Infiltration Loss .....    | 57653.820 | 508.187 |
| Surface Runoff .....       | 4798.002  | 42.292  |
| LID Drainage .....         | 1367.518  | 12.054  |
| Final Storage .....        | 0.291     | 0.003   |
| Continuity Error (%) ..... | -0.201    |         |

1235 VILLAGE 14 POC2-PR - SWMM 5.1.rpt

```

*****
Flow Routing Continuity      Volume      Volume
                             acre-feet    10^6 gal
*****
Dry Weather Inflow .....    0.000      0.000
Wet Weather Inflow .....  6165.520    2009.127
Groundwater Inflow .....    0.000      0.000
RDII Inflow .....          0.000      0.000
External Inflow .....       0.000      0.000
External Outflow .....     6107.235    1990.134
Flooding Loss .....         0.000      0.000
Evaporation Loss .....      58.216     18.971
Exfiltration Loss .....      0.000      0.000
Initial Stored Volume ....    0.000      0.000
Final Stored Volume .....    0.000      0.000
Continuity Error (%) .....    0.001

```

```

*****
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
*****

```

```

-----
Perv      Total      Total      Total      Total      Total      Imperv
Runoff    Runoff    Precip    Peak      Runoff
Subcatchment  Runoff    Runoff    Runoff    Runoff    Evap      Infil      Runoff
in         in         10^6 gal  in        in        in        in        in

```

1235 VILLAGE 14 POC2-PR - SWMM 5.1.rpt

|                      |          |         |          |        |         |        |
|----------------------|----------|---------|----------|--------|---------|--------|
| DMA2                 |          | 591.65  | 0.00     | 79.07  | 246.36  | 240.78 |
| 27.14                | 267.91   | 741.30  | 54.14    | 0.453  |         |        |
| BF-2-2               |          | 591.65  | 14072.44 | 861.64 | 2322.82 | 0.00   |
| 0.00                 | 11479.63 | 604.72  | 54.27    | 0.783  |         |        |
| DMA2_OFFISTE_NATURAL |          | 591.65  | 0.00     | 25.07  | 526.60  | 0.00   |
| 41.12                | 41.12    | 1404.26 | 207.28   | 0.070  |         |        |

\*\*\*\*\*  
LID Performance Summary  
\*\*\*\*\*

| Drain        | Initial     | Final   | Continuity | Total  | Evap | Infil | Surface |
|--------------|-------------|---------|------------|--------|------|-------|---------|
| Outflow      | Storage     | Storage | Error      | Inflow | Loss | Loss  | Outflow |
| Subcatchment | LID Control |         |            |        |      |       |         |
| in           | in          | in      | %          | in     | in   | in    | in      |

|         |       |          |        |         |         |
|---------|-------|----------|--------|---------|---------|
| BF-2-2  | LID-2 | 14664.09 | 861.67 | 2322.90 | 3020.87 |
| 8459.19 | 1.93  | 1.80     | -0.00  |         |         |

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

| Node           | Type    | Average<br>Depth<br>Feet | Maximum<br>Depth<br>Feet | Maximum<br>HGL<br>Feet | Time of Max<br>Occurrence<br>days hr:min | Reported<br>Max Depth<br>Feet |
|----------------|---------|--------------------------|--------------------------|------------------------|------------------------------------------|-------------------------------|
| POC-2          | OUTFALL | 0.00                     | 0.00                     | 0.00                   | 0 00:00                                  | 0.00                          |
| Div-2          | DIVIDER | 0.00                     | 0.00                     | 0.00                   | 0 00:00                                  | 0.00                          |
| BF-2-2_STORAGE | STORAGE | 0.05                     | 3.83                     | 583.83                 | 16965 12:37                              | 3.80                          |

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

1235 VILLAGE 14 POC2-PR - SWMM 5.1.rpt

| Total Inflow Volume<br>Node<br>gal | Flow Balance<br>Error<br>Percent | Type | Maximum Lateral Inflow<br>CFS | Maximum Total Inflow<br>CFS | Time of Max Occurrence<br>days hr:min | Lateral Inflow Volume<br>10^6 gal | 10^6 |
|------------------------------------|----------------------------------|------|-------------------------------|-----------------------------|---------------------------------------|-----------------------------------|------|
|------------------------------------|----------------------------------|------|-------------------------------|-----------------------------|---------------------------------------|-----------------------------------|------|

|                       |       |         |        |        |             |         |  |
|-----------------------|-------|---------|--------|--------|-------------|---------|--|
| POC-2<br>1.99e+03     | 0.000 | OUTFALL | 207.28 | 225.72 | 16965 12:31 | 1.4e+03 |  |
| Div-2<br>605          | 0.000 | DIVIDER | 54.27  | 54.27  | 16971 12:16 | 605     |  |
| BF-2-2_STORAGE<br>292 | 0.008 | STORAGE | 0.00   | 53.70  | 16971 12:16 | 0       |  |

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

No nodes were flooded.

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

| of Max Occurrence<br>Storage Unit<br>hr:min | Maximum Outflow<br>CFS | Average Volume<br>1000 ft3 | Avg Pcmt<br>Full | Evap Loss | Exfil Loss | Maximum Volume<br>1000 ft3 | Max Pcmt<br>Full | Time<br>days |
|---------------------------------------------|------------------------|----------------------------|------------------|-----------|------------|----------------------------|------------------|--------------|
|---------------------------------------------|------------------------|----------------------------|------------------|-----------|------------|----------------------------|------------------|--------------|

|                         |       |       |   |   |   |         |    |       |
|-------------------------|-------|-------|---|---|---|---------|----|-------|
| BF-2-2_STORAGE<br>12:36 | 30.92 | 4.698 | 1 | 6 | 0 | 349.491 | 67 | 16965 |
|-------------------------|-------|-------|---|---|---|---------|----|-------|

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

1235 VILLAGE 14 POC2-PR - SWMM 5.1.rpt

| Outfall Node | Flow<br>Freq<br>Pcnt | Avg<br>Flow<br>CFS | Max<br>Flow<br>CFS | Total<br>Volume<br>10^6 gal |
|--------------|----------------------|--------------------|--------------------|-----------------------------|
| POC-2        | 17.48                | 0.85               | 225.72             | 1989.986                    |
| System       | 17.48                | 0.85               | 225.72             | 1989.986                    |

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

| Link     | Type  | Maximum<br> Flow <br>CFS | Time of Max<br>Occurrence<br>days hr:min | Maximum<br> Veloc <br>ft/sec | Max/<br>Full<br>Flow | Max/<br>Full<br>Depth |
|----------|-------|--------------------------|------------------------------------------|------------------------------|----------------------|-----------------------|
| Bypass-1 | DUMMY | 53.70                    | 16971 12:16                              |                              |                      |                       |
| 2        | DUMMY | 0.56                     | 124 04:58                                |                              |                      |                       |
| 1        | DUMMY | 30.91                    | 16965 12:37                              |                              |                      |                       |

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

No conduits were surcharged.

Analysis begun on: Wed Nov 6 21:45:11 2019  
Analysis ended on: Wed Nov 6 21:45:38 2019  
Total elapsed time: 00:00:27



### POC 3 – Pre-Developed Condition

1235 VILLAGE 14 POC3-EX.INP

[TITLE]

;;Project Title/Notes

[OPTIONS]

|                   |            |
|-------------------|------------|
| ;;Option          | Value      |
| FLOW_UNITS        | CFS        |
| INFILTRATION      | GREEN_AMPT |
| FLOW_ROUTING      | KINWAVE    |
| LINK_OFFSETS      | DEPTH      |
| MIN_SLOPE         | 0          |
| ALLOW_PONDING     | NO         |
| SKIP_STEADY_STATE | NO         |

|                   |            |
|-------------------|------------|
| START_DATE        | 10/01/1951 |
| START_TIME        | 00:00:00   |
| REPORT_START_DATE | 10/01/1951 |
| REPORT_START_TIME | 00:00:00   |
| END_DATE          | 09/30/2008 |
| END_TIME          | 22:00:00   |
| SWEEP_START       | 01/01      |
| SWEEP_END         | 12/31      |
| DRY_DAYS          | 0          |
| REPORT_STEP       | 01:00:00   |
| WET_STEP          | 00:15:00   |
| DRY_STEP          | 04:00:00   |
| ROUTING_STEP      | 0:01:00    |
| RULE_STEP         | 00:00:00   |

|                     |         |
|---------------------|---------|
| INERTIAL_DAMPING    | PARTIAL |
| NORMAL_FLOW_LIMITED | BOTH    |
| FORCE_MAIN_EQUATION | H-W     |
| VARIABLE_STEP       | 0.75    |
| LENGTHENING_STEP    | 0       |
| MIN_SURFAREA        | 0       |
| MAX_TRIALS          | 0       |
| HEAD_TOLERANCE      | 0       |
| SYS_FLOW_TOL        | 5       |
| LAT_FLOW_TOL        | 5       |
| MINIMUM_STEP        | 0.5     |
| THREADS             | 1       |

[EVAPORATION]

;;Data Source Parameters

|           |       |      |      |      |      |      |     |      |      |      |
|-----------|-------|------|------|------|------|------|-----|------|------|------|
| ;;-----   | ----- |      |      |      |      |      |     |      |      |      |
| MONTHLY   | 0.05  | 0.09 | 0.13 | 0.19 | 0.25 | 0.29 | .30 | 0.27 | 0.21 | 0.14 |
| 0.08 0.05 |       |      |      |      |      |      |     |      |      |      |
| DRY_ONLY  | NO    |      |      |      |      |      |     |      |      |      |

[RAINGAGES]

```

1235 VILLAGE 14 POC3-EX.INP
;;Name          Format      Interval SCF      Source
;;-----
LWR0tay         INTENSITY 1:00      1.0      TIMESERIES LWR0tay

[SUBCATCHMENTS]
;;Name          Rain Gage      Outlet          Area      %Imperv  Width      %Slope
  CurbLen  SnowPack
;;-----
;Existing Area
POC3ExArea      LWR0tay          POC3Ex          1263.67  0          3877      8.2
  0

[SUBAREAS]
;;Subcatchment  N-Imperv  N-Perv      S-Imperv  S-Perv      PctZero      RouteTo
PctRouted
;;-----
POC3ExArea      .012      0.15      0.05      0.10      25          OUTLET

[INFILTRATION]
;;Subcatchment  Suction      Ksat      IMD
;;-----
POC3ExArea      9.0      0.025      0.30

[OUTFALLS]
;;Name          Elevation  Type      Stage Data      Gated      Route To
;;-----
POC3Ex          0          FREE      NO          NO

[TIMESERIES]
;;Name          Date      Time      Value
;;-----
;From County
LWR0tay         FILE "R:\1235\Hyd\CALCS\SWMM\LWR0tay.dat.txt"

[REPORT]
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]

```

| ;;Node | X-Coord  | Y-Coord  |
|--------|----------|----------|
| POC3Ex | 1765.005 | 3987.792 |

## [VERTICES]

| ;;Link | X-Coord | Y-Coord |
|--------|---------|---------|
|--------|---------|---------|

## [Polygons]

| ;;Subcatchment | X-Coord | Y-Coord  |
|----------------|---------|----------|
| POC3ExArea     | 890.923 | 5558.444 |

## [SYMBOLS]

| ;;Gage  | X-Coord  | Y-Coord  |
|---------|----------|----------|
| LWR0tay | 2384.000 | 5666.000 |

\*\*\*\*\*  
 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 ..... 10/01/1951 00:00:00

Ending Date ..... 09/30/2008 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 .....  | 62275.764 | 591.380 |
| Evaporation Loss .....     | 3332.960  | 31.650  |
| Infiltration Loss .....    | 56036.933 | 532.135 |
| Surface Runoff .....       | 4188.164  | 39.771  |
| Final Storage .....        | 0.000     | 0.000   |
| Continuity Error (%) ..... | -2.059    |         |

| *****                    | Volume    | Volume              |
|--------------------------|-----------|---------------------|
| Flow Routing Continuity  | acre-feet | 10 <sup>6</sup> gal |
| *****                    | -----     | -----               |
| Dry Weather Inflow ..... | 0.000     | 0.000               |
| Wet Weather Inflow ..... | 4188.164  | 1364.776            |
| Groundwater Inflow ..... | 0.000     | 0.000               |
| RDII Inflow .....        | 0.000     | 0.000               |

1235 VILLAGE 14 POC3-EX.rpt

|                            |          |          |
|----------------------------|----------|----------|
| External Inflow .....      | 0.000    | 0.000    |
| External Outflow .....     | 4188.164 | 1364.776 |
| 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

\*\*\*\*\*

| Perv         | Total        | Total    | Total  | Total  | Total | Total | Imperv |
|--------------|--------------|----------|--------|--------|-------|-------|--------|
| Runoff       | Runoff       | Runoff   | Peak   | Runoff | Evap  | Infil | Runoff |
| Subcatchment | Subcatchment | Precip   | Runoff | Runoff |       |       |        |
| in           | in           | 10^6 gal | in     | Coeff  | in    | in    | in     |

|            |       |         |        |       |        |      |
|------------|-------|---------|--------|-------|--------|------|
| POC3ExArea |       | 591.38  | 0.00   | 31.65 | 532.14 | 0.00 |
| 39.77      | 39.77 | 1364.67 | 207.53 | 0.067 |        |      |

Analysis begun on: Wed Nov 6 20:42:03 2019

Analysis ended on: Wed Nov 6 20:42:13 2019

Total elapsed time: 00:00:10

### POC 3 – Developed Condition

1235 VILLAGE 14 POC3-PR.INP

[TITLE]

;;Project Title/Notes

[OPTIONS]

|                   |            |
|-------------------|------------|
| ;;Option          | Value      |
| FLOW_UNITS        | CFS        |
| INFILTRATION      | GREEN_AMPT |
| FLOW_ROUTING      | KINWAVE    |
| LINK_OFFSETS      | DEPTH      |
| MIN_SLOPE         | 0          |
| ALLOW_PONDING     | NO         |
| SKIP_STEADY_STATE | NO         |

|                   |            |
|-------------------|------------|
| START_DATE        | 08/28/1951 |
| START_TIME        | 05:00:00   |
| REPORT_START_DATE | 08/28/1951 |
| REPORT_START_TIME | 05:00:00   |
| END_DATE          | 05/23/2008 |
| END_TIME          | 23:00:00   |
| SWEEP_START       | 01/01      |
| SWEEP_END         | 12/31      |
| DRY_DAYS          | 0          |
| REPORT_STEP       | 01:00:00   |
| WET_STEP          | 00:15:00   |
| DRY_STEP          | 04:00:00   |
| ROUTING_STEP      | 0:01:00    |
| RULE_STEP         | 00:00:00   |

|                     |         |
|---------------------|---------|
| INERTIAL_DAMPING    | PARTIAL |
| NORMAL_FLOW_LIMITED | BOTH    |
| FORCE_MAIN_EQUATION | H-W     |
| VARIABLE_STEP       | 0.75    |
| LENGTHENING_STEP    | 0       |
| MIN_SURFAREA        | 0       |
| MAX_TRIALS          | 0       |
| HEAD_TOLERANCE      | 0       |
| SYS_FLOW_TOL        | 5       |
| LAT_FLOW_TOL        | 5       |
| MINIMUM_STEP        | 0.5     |
| THREADS             | 1       |

[EVAPORATION]

;;Data Source Parameters

|          |       |      |      |       |       |      |      |      |      |     |  |
|----------|-------|------|------|-------|-------|------|------|------|------|-----|--|
| ;;-----  | ----- |      |      |       |       |      |      |      |      |     |  |
| MONTHLY  | 0.50  | 0.09 | 0.13 | 0.190 | 0.250 | 0.29 | 0.30 | 0.27 | 0.21 | .14 |  |
| .08 0.05 |       |      |      |       |       |      |      |      |      |     |  |
| DRY_ONLY | NO    |      |      |       |       |      |      |      |      |     |  |

[RAINGAGES]



```

1235 VILLAGE 14 POC3-PR.INP
;;Name          Format      Interval SCF      Source
;;-----
LWR0tay         INTENSITY 1:00      1.0      TIMESERIES LWR0tay

[SUBCATCHMENTS]
;;Name          Rain Gage      Outlet          Area      %Imperv  Width      %Slope
  CurbLen  SnowPack
;;-----
;DMA#3 TRIBUTARY TO BF-1-3
DMA3            LWR0tay          Basin-BF-2-3    5.97      67        60        1.6
0
BASIN-BF-2-3    LWR0tay          Div-3           0.140     0         51         0
0
DMA3_Upstream   LWR0tay          POC-3           1257.56   0         3877       8.2
0

[SUBAREAS]
;;Subcatchment  N-Imperv  N-Perv      S-Imperv  S-Perv      PctZero      RouteTo
PctRouted
;;-----
DMA3            .012      0.15        0.05      0.10        25           OUTLET
BASIN-BF-2-3    0.012     0.15        0.05      .10         25           OUTLET
DMA3_Upstream   0.012     0.15        0.05      0.10        25           OUTLET

[INFILTRATION]
;;Subcatchment  Suction    Ksat        IMD
;;-----
DMA3            9.0        0.025       0.30
BASIN-BF-2-3    1.5        0.3         0.33
DMA3_Upstream    9.0        0.025       0.30

[LID_CONTROLS]
;;Name          Type/Layer  Parameters
;;-----
LID-3           BC
LID-3           SURFACE    6           0.1         0.1         0           5
LID-3           SOIL       18          0.4         0.25        0.05        5           5
1.5
LID-3           STORAGE    18          .67         0.025       0
LID-3           DRAIN      0.1455      0.5         3           6           0           0

[LID_USAGE]
;;Subcatchment  LID Process      Number Area      Width      InitSat      FromImp
ToPerv      RptFile          DrainTo      FromPerv
;;-----

```

1235 VILLAGE 14 POC3-PR.INP  
 BASIN-BF-2-3 LID-3 1 6098.40 0 1 100  
 0 \* 0

[OUTFALLS]

| ;;Name | Elevation | Type | Stage Data | Gated | Route To |
|--------|-----------|------|------------|-------|----------|
| POC-3  | 0         | FREE |            | NO    |          |

[DIVIDERS]

| ;;Name | Elevation | Diverted Link | Type   | Parameters |
|--------|-----------|---------------|--------|------------|
| Div-3  | 0         | Bypass-1      | CUTOFF | 0.047 0 0  |

[STORAGE]

| ;;Name               | Elev. | MaxDepth | InitDepth | Shape   | Curve Name/Params |
|----------------------|-------|----------|-----------|---------|-------------------|
| N/A                  | Fevap | Ksat     | IMD       |         |                   |
| Basin #3             |       |          |           |         |                   |
| BASIN-BF-2-3_STORAGE | 570   | 5.5      | 0         | TABULAR | Basin#3           |

[CONDUITS]

| ;;Name    | From Node | To Node              | Length | Roughness | InOffset |
|-----------|-----------|----------------------|--------|-----------|----------|
| OutOffset | InitFlow  | MaxFlow              |        |           |          |
| Bypass-1  | Div-3     | BASIN-BF-2-3_STORAGE | 1      | 0.01      | 0        |
| 2         | Div-3     | POC-3                | 50     | 0.013     | 0        |

[OUTLETS]

| ;;Name        | From Node            | To Node | Offset | Type          |
|---------------|----------------------|---------|--------|---------------|
| QTable/Qcoeff | Qexpon               | Gated   |        |               |
| 1             | BASIN-BF-2-3_STORAGE | POC-3   | 0      | TABULAR/DEPTH |
| Basin3Outlet  |                      | NO      |        |               |

[XSECTIONS]

| ;;Link   | Shape   | Geom1 | Geom2 | Geom3 | Geom4 |
|----------|---------|-------|-------|-------|-------|
| Barrels  | Culvert |       |       |       |       |
| Bypass-1 | DUMMY   | 0     | 0     | 0     | 1     |
| 2        | DUMMY   | 0     | 0     | 0     | 1     |

1235 VILLAGE 14 POC3-PR.INP

| [CURVES]      |        |         |         |
|---------------|--------|---------|---------|
| ;;Name        | Type   | X-Value | Y-Value |
| ;;-----       |        |         |         |
| Basin30outlet | Rating | 0       | 0.0000  |
| Basin30outlet |        | 0.05    | 0.0021  |
| Basin30outlet |        | 0.1     | 0.0064  |
| Basin30outlet |        | 0.15    | 0.0088  |
| Basin30outlet |        | 0.2     | 0.0106  |
| Basin30outlet |        | 0.25    | 0.0122  |
| Basin30outlet |        | 0.3     | 0.0136  |
| Basin30outlet |        | 0.35    | 0.0148  |
| Basin30outlet |        | 0.4     | 0.0160  |
| Basin30outlet |        | 0.45    | 0.0171  |
| Basin30outlet |        | 0.5     | 0.0181  |
| Basin30outlet |        | 0.55    | 0.0190  |
| Basin30outlet |        | 0.6     | 0.0200  |
| Basin30outlet |        | 0.65    | 0.0208  |
| Basin30outlet |        | 0.7     | 0.0217  |
| Basin30outlet |        | 0.75    | 0.0225  |
| Basin30outlet |        | 0.8     | 0.0233  |
| Basin30outlet |        | 0.85    | 0.0240  |
| Basin30outlet |        | 0.9     | 0.0247  |
| Basin30outlet |        | 0.95    | 0.0254  |
| Basin30outlet |        | 1       | 0.0261  |
| Basin30outlet |        | 1.05    | 0.0268  |
| Basin30outlet |        | 1.1     | 0.0275  |
| Basin30outlet |        | 1.15    | 0.0281  |
| Basin30outlet |        | 1.2     | 0.0287  |
| Basin30outlet |        | 1.25    | 0.0293  |
| Basin30outlet |        | 1.3     | 0.0300  |
| Basin30outlet |        | 1.35    | 0.0305  |
| Basin30outlet |        | 1.4     | 0.0311  |
| Basin30outlet |        | 1.45    | 0.0317  |
| Basin30outlet |        | 1.5     | 0.0322  |
| Basin30outlet |        | 1.55    | 0.0328  |
| Basin30outlet |        | 1.6     | 0.0333  |
| Basin30outlet |        | 1.65    | 0.0339  |
| Basin30outlet |        | 1.7     | 0.0344  |
| Basin30outlet |        | 1.75    | 0.0349  |
| Basin30outlet |        | 1.8     | 0.0354  |
| Basin30outlet |        | 1.85    | 0.0359  |
| Basin30outlet |        | 1.9     | 0.0364  |
| Basin30outlet |        | 1.95    | 0.0369  |
| Basin30outlet |        | 2       | 0.0374  |
| Basin30outlet |        | 2.05    | 0.0378  |
| Basin30outlet |        | 2.1     | 0.0383  |
| Basin30outlet |        | 2.15    | 0.0388  |

1235 VILLAGE 14 POC3-PR.INP

|               |      |         |
|---------------|------|---------|
| Basin30outlet | 2.2  | 0.0392  |
| Basin30outlet | 2.25 | 0.0397  |
| Basin30outlet | 2.3  | 0.0401  |
| Basin30outlet | 2.35 | 0.0406  |
| Basin30outlet | 2.4  | 0.0410  |
| Basin30outlet | 2.45 | 0.0414  |
| Basin30outlet | 2.5  | 0.0419  |
| Basin30outlet | 2.55 | 0.0464  |
| Basin30outlet | 2.6  | 0.0585  |
| Basin30outlet | 2.65 | 0.0766  |
| Basin30outlet | 2.7  | 0.0994  |
| Basin30outlet | 2.75 | 0.1251  |
| Basin30outlet | 2.8  | 0.1449  |
| Basin30outlet | 2.85 | 0.1587  |
| Basin30outlet | 2.9  | 0.1712  |
| Basin30outlet | 2.95 | 0.1825  |
| Basin30outlet | 3    | 0.1931  |
| Basin30outlet | 3.05 | 0.2030  |
| Basin30outlet | 3.1  | 0.2123  |
| Basin30outlet | 3.15 | 0.2212  |
| Basin30outlet | 3.2  | 0.2297  |
| Basin30outlet | 3.25 | 0.2378  |
| Basin30outlet | 3.3  | 0.2456  |
| Basin30outlet | 3.35 | 0.2532  |
| Basin30outlet | 3.4  | 0.2605  |
| Basin30outlet | 3.45 | 0.2675  |
| Basin30outlet | 3.5  | 0.2744  |
| Basin30outlet | 3.55 | 0.4300  |
| Basin30outlet | 3.6  | 0.7089  |
| Basin30outlet | 3.65 | 1.0678  |
| Basin30outlet | 3.7  | 1.4916  |
| Basin30outlet | 3.75 | 1.9713  |
| Basin30outlet | 3.8  | 2.5009  |
| Basin30outlet | 3.85 | 3.0761  |
| Basin30outlet | 3.9  | 3.6935  |
| Basin30outlet | 3.95 | 4.3503  |
| Basin30outlet | 4    | 5.0442  |
| Basin30outlet | 4.05 | 5.7734  |
| Basin30outlet | 4.1  | 6.5362  |
| Basin30outlet | 4.15 | 7.3312  |
| Basin30outlet | 4.2  | 8.1570  |
| Basin30outlet | 4.25 | 9.0127  |
| Basin30outlet | 4.3  | 9.8971  |
| Basin30outlet | 4.35 | 10.8094 |
| Basin30outlet | 4.4  | 11.7487 |
| Basin30outlet | 4.45 | 12.7143 |
| Basin30outlet | 4.5  | 13.7054 |
| Basin30outlet | 4.55 | 14.7215 |
| Basin30outlet | 4.6  | 15.7618 |

|              |         |                             |         |
|--------------|---------|-----------------------------|---------|
|              |         | 1235 VILLAGE 14 POC3-PR.INP |         |
| Basin3Outlet |         | 4.65                        | 16.8260 |
| Basin3Outlet |         | 4.7                         | 17.9134 |
| Basin3Outlet |         | 4.75                        | 19.0235 |
| Basin3Outlet |         | 4.8                         | 20.1559 |
| Basin3Outlet |         | 4.85                        | 21.3102 |
| Basin3Outlet |         | 4.9                         | 22.4859 |
| Basin3Outlet |         | 4.95                        | 23.6827 |
| Basin3Outlet |         | 5                           | 24.9002 |
| Basin3Outlet |         | 5.05                        | 26.1380 |
| Basin3Outlet |         | 5.1                         | 27.3959 |
| Basin3Outlet |         | 5.15                        | 28.6734 |
| Basin3Outlet |         | 5.2                         | 29.9704 |
| Basin3Outlet |         | 5.25                        | 31.2865 |
| Basin3Outlet |         | 5.3                         | 32.6214 |
| Basin3Outlet |         | 5.35                        | 33.9749 |
| Basin3Outlet |         | 5.4                         | 35.3468 |
| Basin3Outlet |         | 5.45                        | 36.7367 |
| Basin3Outlet |         | 5.5                         | 38.1445 |
| ;            |         |                             |         |
| ;Basin #5    |         |                             |         |
| Basin#3      | Storage | 0.00                        | 6086    |
| Basin#3      |         | 0.05                        | 6133    |
| Basin#3      |         | 0.10                        | 6180    |
| Basin#3      |         | 0.15                        | 6227    |
| Basin#3      |         | 0.20                        | 6275    |
| Basin#3      |         | 0.25                        | 6322    |
| Basin#3      |         | 0.30                        | 6370    |
| Basin#3      |         | 0.35                        | 6418    |
| Basin#3      |         | 0.40                        | 6466    |
| Basin#3      |         | 0.45                        | 6515    |
| Basin#3      |         | 0.50                        | 6563    |
| Basin#3      |         | 0.55                        | 6612    |
| Basin#3      |         | 0.60                        | 6661    |
| Basin#3      |         | 0.65                        | 6710    |
| Basin#3      |         | 0.70                        | 6759    |
| Basin#3      |         | 0.75                        | 6808    |
| Basin#3      |         | 0.80                        | 6858    |
| Basin#3      |         | 0.85                        | 6908    |
| Basin#3      |         | 0.90                        | 6958    |
| Basin#3      |         | 0.95                        | 7008    |
| Basin#3      |         | 1.00                        | 7058    |
| Basin#3      |         | 1.05                        | 7109    |
| Basin#3      |         | 1.10                        | 7159    |
| Basin#3      |         | 1.15                        | 7210    |
| Basin#3      |         | 1.20                        | 7261    |
| Basin#3      |         | 1.25                        | 7313    |
| Basin#3      |         | 1.30                        | 7364    |
| Basin#3      |         | 1.35                        | 7416    |
| Basin#3      |         | 1.40                        | 7467    |

1235 VILLAGE 14 POC3-PR.INP

|         |      |       |
|---------|------|-------|
| Basin#3 | 1.45 | 7519  |
| Basin#3 | 1.50 | 7571  |
| Basin#3 | 1.55 | 7624  |
| Basin#3 | 1.60 | 7676  |
| Basin#3 | 1.65 | 7729  |
| Basin#3 | 1.70 | 7782  |
| Basin#3 | 1.75 | 7835  |
| Basin#3 | 1.80 | 7888  |
| Basin#3 | 1.85 | 7941  |
| Basin#3 | 1.90 | 7995  |
| Basin#3 | 1.95 | 8048  |
| Basin#3 | 2.00 | 8102  |
| Basin#3 | 2.05 | 8156  |
| Basin#3 | 2.10 | 8211  |
| Basin#3 | 2.15 | 8265  |
| Basin#3 | 2.20 | 8320  |
| Basin#3 | 2.25 | 8375  |
| Basin#3 | 2.30 | 8430  |
| Basin#3 | 2.35 | 8485  |
| Basin#3 | 2.40 | 8540  |
| Basin#3 | 2.45 | 8596  |
| Basin#3 | 2.50 | 8651  |
| Basin#3 | 2.55 | 8707  |
| Basin#3 | 2.60 | 8763  |
| Basin#3 | 2.65 | 8820  |
| Basin#3 | 2.70 | 8876  |
| Basin#3 | 2.75 | 8933  |
| Basin#3 | 2.80 | 8990  |
| Basin#3 | 2.85 | 9047  |
| Basin#3 | 2.90 | 9104  |
| Basin#3 | 2.95 | 9161  |
| Basin#3 | 3.00 | 9219  |
| Basin#3 | 3.05 | 9276  |
| Basin#3 | 3.10 | 9334  |
| Basin#3 | 3.15 | 9392  |
| Basin#3 | 3.20 | 9450  |
| Basin#3 | 3.25 | 9509  |
| Basin#3 | 3.30 | 9567  |
| Basin#3 | 3.35 | 9626  |
| Basin#3 | 3.40 | 9685  |
| Basin#3 | 3.45 | 9744  |
| Basin#3 | 3.50 | 9804  |
| Basin#3 | 3.55 | 9863  |
| Basin#3 | 3.60 | 9923  |
| Basin#3 | 3.65 | 9983  |
| Basin#3 | 3.70 | 10043 |
| Basin#3 | 3.75 | 10103 |
| Basin#3 | 3.80 | 10163 |
| Basin#3 | 3.85 | 10224 |

1235 VILLAGE 14 POC3-PR.INP

|         |      |       |
|---------|------|-------|
| Basin#3 | 3.90 | 10285 |
| Basin#3 | 3.95 | 10346 |
| Basin#3 | 4.00 | 10407 |
| Basin#3 | 4.05 | 10468 |
| Basin#3 | 4.10 | 10529 |
| Basin#3 | 4.15 | 10591 |
| Basin#3 | 4.20 | 10653 |
| Basin#3 | 4.25 | 10715 |
| Basin#3 | 4.30 | 10777 |
| Basin#3 | 4.35 | 10840 |
| Basin#3 | 4.40 | 10902 |
| Basin#3 | 4.45 | 10965 |
| Basin#3 | 4.50 | 11028 |
| Basin#3 | 4.55 | 11091 |
| Basin#3 | 4.60 | 11154 |
| Basin#3 | 4.65 | 11218 |
| Basin#3 | 4.70 | 11281 |
| Basin#3 | 4.75 | 11345 |
| Basin#3 | 4.80 | 11409 |
| Basin#3 | 4.85 | 11473 |
| Basin#3 | 4.90 | 11538 |
| Basin#3 | 4.95 | 11602 |
| Basin#3 | 5.00 | 11667 |
| Basin#3 | 5.05 | 11732 |
| Basin#3 | 5.10 | 11797 |
| Basin#3 | 5.15 | 11862 |
| Basin#3 | 5.20 | 11928 |
| Basin#3 | 5.25 | 11993 |
| Basin#3 | 5.30 | 12059 |
| Basin#3 | 5.35 | 12125 |
| Basin#3 | 5.40 | 12191 |
| Basin#3 | 5.45 | 12257 |
| Basin#3 | 5.50 | 12324 |

[TIMESERIES]

| ;;Name                                      | Date                                          | Time | Value |
|---------------------------------------------|-----------------------------------------------|------|-------|
| ;;-----                                     |                                               |      |       |
| ;Lower Otay Rain Gage from San Diego County |                                               |      |       |
| LWR0tay                                     | FILE "R:\1235\Hyd\CALCS\SWMM\LWR0tay.dat.txt" |      |       |

[REPORT]

;;Reporting Options  
 SUBCATCHMENTS ALL  
 NODES ALL  
 LINKS ALL

[TAGS]

[MAP]

DIMENSIONS 0.000 0.000 10000.000 10000.000

Units None

[COORDINATES]

| ;;Node               | X-Coord  | Y-Coord  |
|----------------------|----------|----------|
| POC-3                | 1477.152 | 3687.566 |
| Div-3                | 976.562  | 4554.036 |
| BASIN-BF-2-3_STORAGE | 861.438  | 4179.678 |

[VERTICES]

| ;;Link | X-Coord | Y-Coord |
|--------|---------|---------|
|--------|---------|---------|

[Polygons]

| ;;Subcatchment | X-Coord  | Y-Coord  |
|----------------|----------|----------|
| DMA3           | 890.923  | 5558.444 |
| BASIN-BF-2-3   | 902.576  | 4953.490 |
| DMA3_Upstream  | 1827.765 | 3970.272 |

[SYMBOLS]

| ;;Gage  | X-Coord  | Y-Coord  |
|---------|----------|----------|
| LWR0tay | 1483.740 | 5365.854 |



EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

-----  
 WARNING 08: elevation drop exceeds length for Conduit Bypass-1  
 WARNING 04: minimum elevation drop used for Conduit 2

\*\*\*\*\*  
 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 ..... 08/28/1951 05:00:00  
 Ending Date ..... 05/23/2008 23:00:00  
 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  |
| *****                      | -----     | -----   |
| Initial LID Storage .....  | 0.012     | 0.000   |
| Total Precipitation .....  | 62304.196 | 591.650 |
| Evaporation Loss .....     | 4770.653  | 45.303  |
| Infiltration Loss .....    | 53801.769 | 510.910 |
| Surface Runoff .....       | 3832.511  | 36.394  |
| LID Drainage .....         | 98.757    | 0.938   |
| Final Storage .....        | 0.010     | 0.000   |
| Continuity Error (%) ..... | -0.320    |         |

1235 VILLAGE 14 POC3-PR.rpt

```

*****
Flow Routing Continuity      Volume      Volume
                             acre-feet    10^6 gal
*****
Dry Weather Inflow .....    0.000      0.000
Wet Weather Inflow .....   3931.268    1281.062
Groundwater Inflow .....    0.000      0.000
RDII Inflow .....          0.000      0.000
External Inflow .....       0.000      0.000
External Outflow .....     3926.855    1279.624
Flooding Loss .....         0.000      0.000
Evaporation Loss .....      4.411      1.438
Exfiltration Loss .....     0.000      0.000
Initial Stored Volume ....    0.000      0.000
Final Stored Volume .....    0.000      0.000
Continuity Error (%) .....    0.000

```

```

*****
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
*****

```

```

-----
-----
Perv      Total      Total      Total      Total      Total      Imperv
Runoff    Runoff    Precip    Peak      Runoff    Evap      Infil      Runoff
Subcatchment  Runoff    Runoff    Runoff    Runoff    in        in        in
in        in        10^6 gal  in        in        in        in        in
CFS
-----

```

1235 VILLAGE 14 POC3-PR.rpt

|               |                |          |         |         |        |
|---------------|----------------|----------|---------|---------|--------|
| DMA3          | 591.65         | 0.00     | 130.41  | 163.69  | 280.66 |
| 18.75 299.40  | 48.54 3.71     | 0.506    |         |         |        |
| BASIN-BF-2-3  | 591.65         | 12767.44 | 1420.98 | 1330.27 | 0.00   |
| 0.00 10611.95 | 40.34 3.68     | 0.794    |         |         |        |
| DMA3_Upstream | 591.65         | 0.00     | 44.75   | 512.47  | 0.00   |
| 36.33 36.33   | 1240.63 207.28 | 0.061    |         |         |        |

\*\*\*\*\*

LID Performance Summary

\*\*\*\*\*

| Drain        | Initial     | Final   | Continuity | Total  | Evap | Infil | Surface |
|--------------|-------------|---------|------------|--------|------|-------|---------|
| Outflow      | Storage     | Storage | Error      | Inflow | Loss | Loss  | Outflow |
| Subcatchment | LID Control |         |            | in     | in   | in    | in      |
| in           | in          | in      | %          |        |      |       |         |

|              |       |          |         |         |         |
|--------------|-------|----------|---------|---------|---------|
| BASIN-BF-2-3 | LID-3 | 13359.09 | 1421.04 | 1330.32 | 2147.15 |
| 8465.19      | 1.04  | 0.90     | -0.03   |         |         |

\*\*\*\*\*

Node Depth Summary

\*\*\*\*\*

| Node                 | Type    | Average<br>Depth<br>Feet | Maximum<br>Depth<br>Feet | Maximum<br>HGL<br>Feet | Time of Max<br>Occurrence<br>days hr:min | Reported<br>Max Depth<br>Feet |
|----------------------|---------|--------------------------|--------------------------|------------------------|------------------------------------------|-------------------------------|
| POC-3                | OUTFALL | 0.00                     | 0.00                     | 0.00                   | 0 00:00                                  | 0.00                          |
| Div-3                | DIVIDER | 0.00                     | 0.00                     | 0.00                   | 0 00:00                                  | 0.00                          |
| BASIN-BF-2-3_STORAGE | STORAGE | 0.04                     | 3.72                     | 573.72                 | 11509 13:30                              | 3.70                          |

\*\*\*\*\*

Node Inflow Summary

\*\*\*\*\*

| Total Inflow Volume Node gal | Flow Balance Error Percent | Type | Maximum Lateral Inflow CFS | Maximum Total Inflow CFS | Time of Occurrence days hr:min | Max Inflow Volume 10^6 gal | 10^6 |
|------------------------------|----------------------------|------|----------------------------|--------------------------|--------------------------------|----------------------------|------|
|------------------------------|----------------------------|------|----------------------------|--------------------------|--------------------------------|----------------------------|------|

|                      |       |         |        |        |             |          |  |
|----------------------|-------|---------|--------|--------|-------------|----------|--|
| POC-3                |       | OUTFALL | 207.28 | 207.50 | 16965 12:01 | 1.24e+03 |  |
| 1.28e+03             | 0.000 |         |        |        |             |          |  |
| Div-3                |       | DIVIDER | 3.68   | 3.68   | 16971 12:16 | 40.3     |  |
| 40.3                 | 0.000 |         |        |        |             |          |  |
| BASIN-BF-2-3_STORAGE |       | STORAGE | 0.00   | 3.63   | 16971 12:16 | 0        |  |
| 20.1                 | 0.003 |         |        |        |             |          |  |

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

No nodes were flooded.

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

| of Max Occurrence Storage Unit hr:min | Maximum Outflow CFS | Average Volume 1000 ft3 | Avg Pcmt Full | Evap Loss | Exfil Loss | Maximum Volume 1000 ft3 | Max Pcmt Full | Time days |
|---------------------------------------|---------------------|-------------------------|---------------|-----------|------------|-------------------------|---------------|-----------|
|---------------------------------------|---------------------|-------------------------|---------------|-----------|------------|-------------------------|---------------|-----------|

|                      |      |       |   |   |   |        |    |       |
|----------------------|------|-------|---|---|---|--------|----|-------|
| BASIN-BF-2-3_STORAGE |      | 0.303 | 1 | 7 | 0 | 29.769 | 60 | 11509 |
| 13:29                | 1.72 |       |   |   |   |        |    |       |

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

1235 VILLAGE 14 POC3-PR.rpt

| Outfall Node | Flow<br>Freq<br>Pcnt | Avg<br>Flow<br>CFS | Max<br>Flow<br>CFS | Total<br>Volume<br>10^6 gal |
|--------------|----------------------|--------------------|--------------------|-----------------------------|
| POC-3        | 9.33                 | 1.02               | 207.50             | 1279.529                    |
| System       | 9.33                 | 1.02               | 207.50             | 1279.529                    |

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

| Link     | Type  | Maximum<br> Flow <br>CFS | Time of Max<br>Occurrence<br>days hr:min | Maximum<br> Veloc <br>ft/sec | Max/<br>Full<br>Flow | Max/<br>Full<br>Depth |
|----------|-------|--------------------------|------------------------------------------|------------------------------|----------------------|-----------------------|
| Bypass-1 | DUMMY | 3.63                     | 16971 12:16                              |                              |                      |                       |
| 2        | DUMMY | 0.05                     | 124 06:56                                |                              |                      |                       |
| 1        | DUMMY | 1.71                     | 11509 13:30                              |                              |                      |                       |

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

No conduits were surcharged.

Analysis begun on: Wed Nov 6 21:43:57 2019  
Analysis ended on: Wed Nov 6 21:44:24 2019  
Total elapsed time: 00:00:27

#### POC 4 – Pre-Developed Condition

[TITLE]

;;Project Title/Notes

[OPTIONS]

|                   |            |
|-------------------|------------|
| ;;Option          | Value      |
| FLOW_UNITS        | CFS        |
| INFILTRATION      | GREEN_AMPT |
| FLOW_ROUTING      | KINWAVE    |
| LINK_OFFSETS      | DEPTH      |
| MIN_SLOPE         | 0          |
| ALLOW_PONDING     | NO         |
| SKIP_STEADY_STATE | NO         |

|                   |            |
|-------------------|------------|
| START_DATE        | 10/01/1951 |
| START_TIME        | 00:00:00   |
| REPORT_START_DATE | 10/01/1951 |
| REPORT_START_TIME | 00:00:00   |
| END_DATE          | 09/30/2008 |
| END_TIME          | 22:00:00   |
| SWEEP_START       | 01/01      |
| SWEEP_END         | 12/31      |
| DRY_DAYS          | 0          |
| REPORT_STEP       | 01:00:00   |
| WET_STEP          | 00:15:00   |
| DRY_STEP          | 04:00:00   |
| ROUTING_STEP      | 0:01:00    |
| RULE_STEP         | 00:00:00   |

|                     |         |
|---------------------|---------|
| INERTIAL_DAMPING    | PARTIAL |
| NORMAL_FLOW_LIMITED | BOTH    |
| FORCE_MAIN_EQUATION | H-W     |
| VARIABLE_STEP       | 0.75    |
| LENGTHENING_STEP    | 0       |
| MIN_SURFAREA        | 0       |
| MAX_TRIALS          | 0       |
| HEAD_TOLERANCE      | 0       |
| SYS_FLOW_TOL        | 5       |
| LAT_FLOW_TOL        | 5       |
| MINIMUM_STEP        | 0.5     |
| THREADS             | 1       |

[EVAPORATION]

;;Data Source Parameters

;;-----

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| MONTHLY | 0.05 | 0.09 | 0.13 | 0.19 | 0.25 | 0.29 | 0.30 | 0.27 | 0.21 | 0.14 |
|---------|------|------|------|------|------|------|------|------|------|------|

0.08 0.50

DRY\_ONLY NO

[RAINGAGES]

```

1235 VILLAGE 14 POC4-EX.INP
;;Name          Format      Interval SCF      Source
;;-----
LWR0tay         INTENSITY 1:00      1.0      TIMESERIES LWR0tay

[SUBCATCHMENTS]
;;Name          Rain Gage      Outlet          Area      %Imperv  Width      %Slope
;;CurbLen  SnowPack
;;-----
;Existing Area
POC4EXArea      LWR0tay          POC4Ex          17.77      0          455          10.6
0

[SUBAREAS]
;;Subcatchment  N-Imperv  N-Perv      S-Imperv  S-Perv      PctZero      RouteTo
PctRouted
;;-----
POC4EXArea      .012      0.15      0.05      .10          25          OUTLET

[INFILTRATION]
;;Subcatchment  Suction      Ksat          IMD
;;-----
POC4EXArea      9          .025      0.30

[OUTFALLS]
;;Name          Elevation  Type          Stage Data      Gated      Route To
;;-----
POC4Ex          0          FREE          NO          NO

[TIMESERIES]
;;Name          Date          Time          Value
;;-----
;From County
LWR0tay         FILE "R:\1235\Hyd\CALCS\SWMM\LWR0tay.dat.txt"

[REPORT]
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]

```



| ;;Node | X-Coord  | Y-Coord  |
|--------|----------|----------|
| POC4Ex | 1740.113 | 3977.401 |

[VERTICES]

| ;;Link | X-Coord | Y-Coord |
|--------|---------|---------|
|        |         |         |

[Polygons]

| ;;Subcatchment | X-Coord | Y-Coord  |
|----------------|---------|----------|
| POC4EXArea     | 890.923 | 5558.444 |

[SYMBOLS]

| ;;Gage  | X-Coord  | Y-Coord  |
|---------|----------|----------|
| LWR0tay | 2384.000 | 5666.000 |

\*\*\*\*\*  
 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 ..... 10/01/1951 00:00:00

Ending Date ..... 09/30/2008 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 .....  | 875.735   | 591.380 |
| Evaporation Loss .....     | 56.422    | 38.102  |
| Infiltration Loss .....    | 740.431   | 500.010 |
| Surface Runoff .....       | 102.727   | 69.371  |
| Final Storage .....        | 0.000     | 0.000   |
| Continuity Error (%) ..... | -2.723    |         |

| *****                    | Volume    | Volume   |
|--------------------------|-----------|----------|
| Flow Routing Continuity  | acre-feet | 10^6 gal |
| *****                    | -----     | -----    |
| Dry Weather Inflow ..... | 0.000     | 0.000    |
| Wet Weather Inflow ..... | 102.727   | 33.475   |
| Groundwater Inflow ..... | 0.000     | 0.000    |
| RDII Inflow .....        | 0.000     | 0.000    |

1235 VILLAGE 14 POC4-EX.rpt

|                            |         |        |
|----------------------------|---------|--------|
| External Inflow .....      | 0.000   | 0.000  |
| External Outflow .....     | 102.727 | 33.475 |
| 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

\*\*\*\*\*

| Perv         | Total        | Total    | Total  | Total  | Total | Total | Imperv |
|--------------|--------------|----------|--------|--------|-------|-------|--------|
| Runoff       | Runoff       | Runoff   | Peak   | Runoff | Evap  | Infil | Runoff |
| Subcatchment | Subcatchment | Precip   | Runoff | Runoff |       |       |        |
| in           | in           | 10^6 gal | in     | Coeff  | in    | in    | in     |
|              |              |          | CFS    |        |       |       |        |

|            |       |        |      |       |        |      |
|------------|-------|--------|------|-------|--------|------|
| POC4EXArea |       | 591.38 | 0.00 | 38.10 | 500.01 | 0.00 |
| 69.37      | 69.37 | 33.47  | 9.62 | 0.117 |        |      |

Analysis begun on: Wed Nov 6 20:57:05 2019

Analysis ended on: Wed Nov 6 20:57:15 2019

Total elapsed time: 00:00:10

#### POC 4 – Developed Condition

1235 VILLAGE 14 POC4-PR.INP

[TITLE]

;;Project Title/Notes

[OPTIONS]

|                   |            |
|-------------------|------------|
| ;;Option          | Value      |
| FLOW_UNITS        | CFS        |
| INFILTRATION      | GREEN_AMPT |
| FLOW_ROUTING      | KINWAVE    |
| LINK_OFFSETS      | DEPTH      |
| MIN_SLOPE         | 0          |
| ALLOW_PONDING     | NO         |
| SKIP_STEADY_STATE | NO         |

|                   |            |
|-------------------|------------|
| START_DATE        | 08/28/1951 |
| START_TIME        | 05:00:00   |
| REPORT_START_DATE | 08/28/1951 |
| REPORT_START_TIME | 05:00:00   |
| END_DATE          | 05/23/2008 |
| END_TIME          | 23:00:00   |
| SWEEP_START       | 01/01      |
| SWEEP_END         | 12/31      |
| DRY_DAYS          | 0          |
| REPORT_STEP       | 01:00:00   |
| WET_STEP          | 00:15:00   |
| DRY_STEP          | 04:00:00   |
| ROUTING_STEP      | 0:01:00    |
| RULE_STEP         | 00:00:00   |

|                     |         |
|---------------------|---------|
| INERTIAL_DAMPING    | PARTIAL |
| NORMAL_FLOW_LIMITED | BOTH    |
| FORCE_MAIN_EQUATION | H-W     |
| VARIABLE_STEP       | 0.75    |
| LENGTHENING_STEP    | 0       |
| MIN_SURFAREA        | 0       |
| MAX_TRIALS          | 0       |
| HEAD_TOLERANCE      | 0       |
| SYS_FLOW_TOL        | 5       |
| LAT_FLOW_TOL        | 5       |
| MINIMUM_STEP        | 0.5     |
| THREADS             | 1       |

[EVAPORATION]

;;Data Source Parameters

|           |       |      |      |      |      |      |      |      |      |      |  |
|-----------|-------|------|------|------|------|------|------|------|------|------|--|
| ;;-----   | ----- |      |      |      |      |      |      |      |      |      |  |
| MONTHLY   | 0.05  | 0.09 | 0.13 | 0.19 | 0.25 | 0.29 | 0.30 | 0.27 | 0.21 | 0.14 |  |
| 0.08 0.05 |       |      |      |      |      |      |      |      |      |      |  |
| DRY_ONLY  | NO    |      |      |      |      |      |      |      |      |      |  |

[RAINGAGES]

1235 VILLAGE 14 POC4-PR.INP

```
;;Name          Format      Interval SCF      Source
;;-----
LWR0tay         INTENSITY 1:00      1.0      TIMESERIES LWR0tay
```

[SUBCATCHMENTS]

```
;;Name          Rain Gage      Outlet          Area      %Imperv  Width      %Slope
CurbLen  SnowPack
;;-----
;Area Tributary to Basin #4
DMA4          LWR0tay          BF-2-4          3.46      70        95        1.8
0
BF-2-4        LWR0tay          Div-4           0.085     0         88        0
0
;Offsite natural area tributary to POC-4
DMA_4_Offsite_Natural LWR0tay          POC-4           14.22     0         410
11.9      0
```

[SUBAREAS]

```
;;Subcatchment  N-Imperv  N-Perv      S-Imperv  S-Perv      PctZero      RouteTo
PctRouted
;;-----
DMA4            .012      0.15        0.05      .10         25           OUTLET
BF-2-4          0.012     0.15        0.05      .10         25           OUTLET
DMA_4_Offsite_Natural .012      .15         0.05      0.10        25           OUTLET
```

[INFILTRATION]

```
;;Subcatchment  Suction      Ksat      IMD
;;-----
DMA4            9          0.025     0.30
BF-2-4          1.5        0.3       0.33
DMA_4_Offsite_Natural 9          .025     .30
```

[LID\_CONTROLS]

```
;;Name          Type/Layer  Parameters
;;-----
BR-4            BC
BR-4            SURFACE  6          0.1        0.1        0          5
BR-4            SOIL     18         0.4        0.2        0.1        5          5
1.5
BR-4            STORAGE  18         0.67       0.025      0
BR-4            DRAIN   0.2435     0.5        0          6          0          0
```

[LID\_USAGE]

```
;;Subcatchment  LID Process      Number Area      Width      InitSat      FromImp
ToPerv      RptFile      DrainTo      FromPerv
```

1235 VILLAGE 14 POC4-PR.INP

```

;;-----
BF-2-4      BR-4      1      3702.60      0      1      100
0      *      *      0

```

[OUTFALLS]

```

;;Name      Elevation  Type      Stage Data      Gated      Route To
;;-----
POC-4      0      FREE      NO

```

[DIVIDERS]

```

;;Name      Elevation  Diverted Link      Type      Parameters
;;-----
Div-4      0      Bypass-4      CUTOFF      0.038      0      0
0      0

```

[STORAGE]

```

;;Name      Elev.      MaxDepth      InitDepth      Shape      Curve Name/Params
N/A      Fevap      Psi      Ksat      IMD
;;-----
;Basin #4
BF-2-4_STORAGE      0      5.5      0      TABULAR      Basin#4
0      1

```

[CONDUITS]

```

;;Name      From Node      To Node      Length      Roughness      InOffset
OutOffset      InitFlow      MaxFlow
;;-----
Bypass-4      Div-4      BF-2-4_STORAGE      1      0.01      0
0      0
2      Div-4      POC-4      1      0.01      0
0      0

```

[OUTLETS]

```

;;Name      From Node      To Node      Offset      Type
QTable/Qcoeff      Qexpon      Gated
;;-----
1      BF-2-4_STORAGE      POC-4      0      TABULAR/DEPTH
Basin4Outlet      NO

```

[XSECTIONS]

```

;;Link      Shape      Geom1      Geom2      Geom3      Geom4
Barrels      Culvert
;;-----
Bypass-4      DUMMY      0      0      0      0      1

```

1235 VILLAGE 14 POC4-PR.INP

2 DUMMY 0 0 0 0 1

[CURVES]

| ;;Name       | Type   | X-Value | Y-Value |
|--------------|--------|---------|---------|
| Basin4Outlet | Rating | 0       | 0.0000  |
| Basin4Outlet |        | 0.05    | 0.0017  |
| Basin4Outlet |        | 0.1     | 0.0039  |
| Basin4Outlet |        | 0.15    | 0.0052  |
| Basin4Outlet |        | 0.2     | 0.0062  |
| Basin4Outlet |        | 0.25    | 0.0070  |
| Basin4Outlet |        | 0.3     | 0.0078  |
| Basin4Outlet |        | 0.35    | 0.0085  |
| Basin4Outlet |        | 0.4     | 0.0091  |
| Basin4Outlet |        | 0.45    | 0.0097  |
| Basin4Outlet |        | 0.5     | 0.0103  |
| Basin4Outlet |        | 0.55    | 0.0108  |
| Basin4Outlet |        | 0.6     | 0.0113  |
| Basin4Outlet |        | 0.65    | 0.0118  |
| Basin4Outlet |        | 0.7     | 0.0123  |
| Basin4Outlet |        | 0.75    | 0.0127  |
| Basin4Outlet |        | 0.8     | 0.0132  |
| Basin4Outlet |        | 0.85    | 0.0136  |
| Basin4Outlet |        | 0.9     | 0.0140  |
| Basin4Outlet |        | 0.95    | 0.0144  |
| Basin4Outlet |        | 1       | 0.0148  |
| Basin4Outlet |        | 1.05    | 0.0152  |
| Basin4Outlet |        | 1.1     | 0.0155  |
| Basin4Outlet |        | 1.15    | 0.0159  |
| Basin4Outlet |        | 1.2     | 0.0162  |
| Basin4Outlet |        | 1.25    | 0.0166  |
| Basin4Outlet |        | 1.3     | 0.0169  |
| Basin4Outlet |        | 1.35    | 0.0172  |
| Basin4Outlet |        | 1.4     | 0.0176  |
| Basin4Outlet |        | 1.45    | 0.0179  |
| Basin4Outlet |        | 1.5     | 0.0182  |
| Basin4Outlet |        | 1.55    | 0.0185  |
| Basin4Outlet |        | 1.6     | 0.0188  |
| Basin4Outlet |        | 1.65    | 0.0191  |
| Basin4Outlet |        | 1.7     | 0.0194  |
| Basin4Outlet |        | 1.75    | 0.0197  |
| Basin4Outlet |        | 1.8     | 0.0200  |
| Basin4Outlet |        | 1.85    | 0.0203  |
| Basin4Outlet |        | 1.9     | 0.0205  |
| Basin4Outlet |        | 1.95    | 0.0208  |
| Basin4Outlet |        | 2       | 0.0211  |
| Basin4Outlet |        | 2.05    | 0.0213  |



1235 VILLAGE 14 POC4-PR.INP

|               |      |         |
|---------------|------|---------|
| Basin40outlet | 2.1  | 0.0216  |
| Basin40outlet | 2.15 | 0.0219  |
| Basin40outlet | 2.2  | 0.0221  |
| Basin40outlet | 2.25 | 0.0224  |
| Basin40outlet | 2.3  | 0.0226  |
| Basin40outlet | 2.35 | 0.0229  |
| Basin40outlet | 2.4  | 0.0231  |
| Basin40outlet | 2.45 | 0.0234  |
| Basin40outlet | 2.5  | 0.0236  |
| Basin40outlet | 2.55 | 0.0271  |
| Basin40outlet | 2.6  | 0.0362  |
| Basin40outlet | 2.65 | 0.0491  |
| Basin40outlet | 2.7  | 0.0610  |
| Basin40outlet | 2.75 | 0.0684  |
| Basin40outlet | 2.8  | 0.0747  |
| Basin40outlet | 2.85 | 0.0804  |
| Basin40outlet | 2.9  | 0.0855  |
| Basin40outlet | 2.95 | 0.0903  |
| Basin40outlet | 3    | 0.0948  |
| Basin40outlet | 3.05 | 0.0991  |
| Basin40outlet | 3.1  | 0.1031  |
| Basin40outlet | 3.15 | 0.1069  |
| Basin40outlet | 3.2  | 0.1106  |
| Basin40outlet | 3.25 | 0.1141  |
| Basin40outlet | 3.3  | 0.1176  |
| Basin40outlet | 3.35 | 0.1209  |
| Basin40outlet | 3.4  | 0.1241  |
| Basin40outlet | 3.45 | 0.1272  |
| Basin40outlet | 3.5  | 0.1302  |
| Basin40outlet | 3.55 | 0.2821  |
| Basin40outlet | 3.6  | 0.5573  |
| Basin40outlet | 3.65 | 0.9127  |
| Basin40outlet | 3.7  | 1.3330  |
| Basin40outlet | 3.75 | 1.8093  |
| Basin40outlet | 3.8  | 2.3357  |
| Basin40outlet | 3.85 | 2.9076  |
| Basin40outlet | 3.9  | 3.5218  |
| Basin40outlet | 3.95 | 4.1755  |
| Basin40outlet | 4    | 4.8664  |
| Basin40outlet | 4.05 | 5.5926  |
| Basin40outlet | 4.1  | 6.3524  |
| Basin40outlet | 4.15 | 7.1445  |
| Basin40outlet | 4.2  | 7.9675  |
| Basin40outlet | 4.25 | 8.8203  |
| Basin40outlet | 4.3  | 9.7020  |
| Basin40outlet | 4.35 | 10.6115 |
| Basin40outlet | 4.4  | 11.5482 |
| Basin40outlet | 4.45 | 12.5111 |
| Basin40outlet | 4.5  | 13.4996 |

1235 VILLAGE 14 POC4-PR.INP

|              |      |         |
|--------------|------|---------|
| Basin4Outlet | 4.55 | 14.5131 |
| Basin4Outlet | 4.6  | 15.5509 |
| Basin4Outlet | 4.65 | 16.6125 |
| Basin4Outlet | 4.7  | 17.6974 |
| Basin4Outlet | 4.75 | 18.8051 |
| Basin4Outlet | 4.8  | 19.9351 |
| Basin4Outlet | 4.85 | 21.0870 |
| Basin4Outlet | 4.9  | 22.2603 |
| Basin4Outlet | 4.95 | 23.4547 |
| Basin4Outlet | 5    | 24.6699 |
| Basin4Outlet | 5.05 | 25.9054 |
| Basin4Outlet | 5.1  | 27.1610 |
| Basin4Outlet | 5.15 | 28.4363 |
| Basin4Outlet | 5.2  | 29.7311 |
| Basin4Outlet | 5.25 | 31.0449 |
| Basin4Outlet | 5.3  | 32.3777 |
| Basin4Outlet | 5.35 | 33.7290 |
| Basin4Outlet | 5.4  | 35.0987 |
| Basin4Outlet | 5.45 | 36.4865 |
| Basin4Outlet | 5.5  | 37.8922 |

;

;Basin #5

|         |         |      |      |
|---------|---------|------|------|
| Basin#4 | Storage | 0.5  | 3720 |
| Basin#4 |         | 0.55 | 3757 |
| Basin#4 |         | 0.6  | 3793 |
| Basin#4 |         | 0.65 | 3831 |
| Basin#4 |         | 0.7  | 3868 |
| Basin#4 |         | 0.75 | 3905 |
| Basin#4 |         | 0.8  | 3943 |
| Basin#4 |         | 0.85 | 3981 |
| Basin#4 |         | 0.9  | 4018 |
| Basin#4 |         | 0.95 | 4057 |
| Basin#4 |         | 1    | 4095 |
| Basin#4 |         | 1.05 | 4133 |
| Basin#4 |         | 1.1  | 4172 |
| Basin#4 |         | 1.15 | 4211 |
| Basin#4 |         | 1.2  | 4250 |
| Basin#4 |         | 1.25 | 4289 |
| Basin#4 |         | 1.3  | 4329 |
| Basin#4 |         | 1.35 | 4368 |
| Basin#4 |         | 1.4  | 4408 |
| Basin#4 |         | 1.45 | 4448 |
| Basin#4 |         | 1.5  | 4488 |
| Basin#4 |         | 1.55 | 4528 |
| Basin#4 |         | 1.6  | 4569 |
| Basin#4 |         | 1.65 | 4609 |
| Basin#4 |         | 1.7  | 4650 |
| Basin#4 |         | 1.75 | 4691 |
| Basin#4 |         | 1.8  | 4732 |

1235 VILLAGE 14 POC4-PR.INP

|         |      |      |
|---------|------|------|
| Basin#4 | 1.85 | 4774 |
| Basin#4 | 1.9  | 4815 |
| Basin#4 | 1.95 | 4857 |
| Basin#4 | 2    | 4899 |
| Basin#4 | 2.05 | 4941 |
| Basin#4 | 2.1  | 4983 |
| Basin#4 | 2.15 | 5026 |
| Basin#4 | 2.2  | 5068 |
| Basin#4 | 2.25 | 5111 |
| Basin#4 | 2.3  | 5154 |
| Basin#4 | 2.35 | 5197 |
| Basin#4 | 2.4  | 5241 |
| Basin#4 | 2.45 | 5284 |
| Basin#4 | 2.5  | 5328 |
| Basin#4 | 2.55 | 5372 |
| Basin#4 | 2.6  | 5416 |
| Basin#4 | 2.65 | 5460 |
| Basin#4 | 2.7  | 5504 |
| Basin#4 | 2.75 | 5549 |
| Basin#4 | 2.8  | 5594 |
| Basin#4 | 2.85 | 5639 |
| Basin#4 | 2.9  | 5684 |
| Basin#4 | 2.95 | 5729 |
| Basin#4 | 3    | 5775 |
| Basin#4 | 3.05 | 5820 |
| Basin#4 | 3.1  | 5866 |
| Basin#4 | 3.15 | 5912 |
| Basin#4 | 3.2  | 5959 |
| Basin#4 | 3.25 | 6005 |
| Basin#4 | 3.3  | 6051 |
| Basin#4 | 3.35 | 6098 |
| Basin#4 | 3.4  | 6145 |
| Basin#4 | 3.45 | 6192 |
| Basin#4 | 3.5  | 6240 |
| Basin#4 | 3.55 | 6287 |
| Basin#4 | 3.6  | 6335 |
| Basin#4 | 3.65 | 6383 |
| Basin#4 | 3.7  | 6431 |
| Basin#4 | 3.75 | 6479 |
| Basin#4 | 3.8  | 6527 |
| Basin#4 | 3.85 | 6576 |
| Basin#4 | 3.9  | 6625 |
| Basin#4 | 3.95 | 6673 |
| Basin#4 | 4    | 6723 |
| Basin#4 | 4.05 | 6772 |
| Basin#4 | 4.1  | 6821 |
| Basin#4 | 4.15 | 6871 |
| Basin#4 | 4.2  | 6921 |
| Basin#4 | 4.25 | 6971 |

1235 VILLAGE 14 POC4-PR.INP

|         |      |      |
|---------|------|------|
| Basin#4 | 4.3  | 7021 |
| Basin#4 | 4.35 | 7071 |
| Basin#4 | 4.4  | 7122 |
| Basin#4 | 4.45 | 7173 |
| Basin#4 | 4.5  | 7224 |
| Basin#4 | 4.55 | 7275 |
| Basin#4 | 4.6  | 7326 |
| Basin#4 | 4.65 | 7377 |
| Basin#4 | 4.7  | 7429 |
| Basin#4 | 4.75 | 7481 |
| Basin#4 | 4.8  | 7533 |
| Basin#4 | 4.85 | 7585 |
| Basin#4 | 4.9  | 7637 |
| Basin#4 | 4.95 | 7690 |
| Basin#4 | 5    | 7742 |
| Basin#4 | 5.05 | 7795 |
| Basin#4 | 5.1  | 7848 |
| Basin#4 | 5.15 | 7902 |
| Basin#4 | 5.2  | 7955 |
| Basin#4 | 5.25 | 8009 |
| Basin#4 | 5.3  | 8062 |
| Basin#4 | 5.35 | 8116 |
| Basin#4 | 5.4  | 8171 |
| Basin#4 | 5.45 | 8225 |
| Basin#4 | 5.5  | 8279 |
| Basin#4 | 5.55 | 8334 |
| Basin#4 | 5.6  | 8389 |
| Basin#4 | 5.65 | 8444 |
| Basin#4 | 5.7  | 8499 |
| Basin#4 | 5.75 | 8555 |
| Basin#4 | 5.8  | 8610 |
| Basin#4 | 5.85 | 8666 |
| Basin#4 | 5.9  | 8722 |
| Basin#4 | 5.95 | 8778 |
| Basin#4 | 6    | 8834 |

[TIMESERIES]

| ;;Name                                      | Date                                          | Time | Value |
|---------------------------------------------|-----------------------------------------------|------|-------|
| ;;-----                                     |                                               |      |       |
| ;Lower Otay Rain Gage from San Diego County |                                               |      |       |
| LWR0tay                                     | FILE "R:\1235\Hyd\CALCS\SWMM\LWR0tay.dat.txt" |      |       |

[REPORT]

;;Reporting Options  
 SUBCATCHMENTS ALL  
 NODES ALL  
 LINKS ALL

[TAGS]

1235 VILLAGE 14 POC4-PR.INP

[MAP]

DIMENSIONS 0.000 0.000 10000.000 10000.000

Units None

[COORDINATES]

| ;;Node         | X-Coord  | Y-Coord  |
|----------------|----------|----------|
| POC-4          | 1538.174 | 3662.051 |
| Div-4          | 981.151  | 4560.296 |
| BF-2-4_STORAGE | 619.266  | 3973.624 |

[VERTICES]

| ;;Link | X-Coord | Y-Coord |
|--------|---------|---------|
|--------|---------|---------|

[Polygons]

| ;;Subcatchment        | X-Coord  | Y-Coord  |
|-----------------------|----------|----------|
| DMA4                  | 880.044  | 5557.543 |
| BF-2-4                | 958.084  | 5020.584 |
| DMA_4_Offsite_Natural | 2095.808 | 4519.087 |

[SYMBOLS]

| ;;Gage  | X-Coord  | Y-Coord  |
|---------|----------|----------|
| LWR0tay | 1483.740 | 5365.854 |

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

-----

WARNING 04: minimum elevation drop used for Conduit Bypass-4  
 WARNING 04: minimum elevation drop used for Conduit 2

\*\*\*\*\*

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 ..... 08/28/1951 05:00:00

Ending Date ..... 05/23/2008 23:00:00

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  |
| *****                      | -----     | -----   |
| Initial LID Storage .....  | 0.014     | 0.009   |
| Total Precipitation .....  | 875.889   | 591.650 |
| Evaporation Loss .....     | 58.449    | 39.482  |
| Infiltration Loss .....    | 633.229   | 427.737 |
| Surface Runoff .....       | 102.254   | 69.071  |
| LID Drainage .....         | 84.728    | 57.232  |
| Final Storage .....        | 0.013     | 0.009   |
| Continuity Error (%) ..... | -0.316    |         |

1235 VILLAGE 14 POC4-PR.rpt

```

*****
Flow Routing Continuity      Volume      Volume
                             acre-feet    10^6 gal
*****
Dry Weather Inflow .....    0.000      0.000
Wet Weather Inflow .....   186.981     60.931
Groundwater Inflow .....    0.000      0.000
RDII Inflow .....           0.000      0.000
External Inflow .....       0.000      0.000
External Outflow .....     185.936     60.590
Flooding Loss .....         0.000      0.000
Evaporation Loss .....      1.044      0.340
Exfiltration Loss .....     0.000      0.000
Initial Stored Volume ....   0.000      0.000
Final Stored Volume .....   0.000      0.000
Continuity Error (%) .....   0.001

```

```

*****
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
*****

```

```

-----
Perv      Total      Total      Total      Total      Total      Imperv
Runoff    Runoff    Precip    Peak      Runoff    Evap      Infil      Runoff
Subcatchment  Runoff    Runoff    Runoff    Runoff    in        in        in
in        in        10^6 gal  in        in        in        in        in
CFS
-----

```

1235 VILLAGE 14 POC4-PR.rpt

|                       |          |        |          |        |        |        |
|-----------------------|----------|--------|----------|--------|--------|--------|
| DMA4                  |          | 591.65 | 0.00     | 91.87  | 148.39 | 331.18 |
| 23.24                 | 354.42   | 33.30  | 2.51     | 0.599  |        |        |
| BF-2-4                |          | 591.65 | 14426.91 | 883.61 | 494.37 | 0.00   |
| 0.00                  | 13648.72 | 31.50  | 2.48     | 0.909  |        |        |
| DMA_4_Offsite_Natural |          | 591.65 | 0.00     | 21.69  | 495.31 | 0.00   |
| 76.20                 | 76.20    | 29.42  | 8.15     | 0.129  |        |        |

\*\*\*\*\*

LID Performance Summary

\*\*\*\*\*

| Drain        | Initial | Final   | Continuity | Total  | Evap | Infil | Surface |
|--------------|---------|---------|------------|--------|------|-------|---------|
| Outflow      | Storage | Storage | Error      | Inflow | Loss | Loss  | Outflow |
| Subcatchment | LID     | Control |            | in     | in   | in    | in      |
| in           | in      | in      | %          |        |      |       |         |

|          |      |          |        |        |         |
|----------|------|----------|--------|--------|---------|
| BF-2-4   | BR-4 | 15018.56 | 883.64 | 494.39 | 1687.23 |
| 11961.99 | 1.93 | 1.80     | -0.06  |        |         |

\*\*\*\*\*

Node Depth Summary

\*\*\*\*\*

| Node           | Type    | Average<br>Depth<br>Feet | Maximum<br>Depth<br>Feet | Maximum<br>HGL<br>Feet | Time of Max<br>Occurrence<br>days hr:min | Reported<br>Max Depth<br>Feet |
|----------------|---------|--------------------------|--------------------------|------------------------|------------------------------------------|-------------------------------|
| POC-4          | OUTFALL | 0.00                     | 0.00                     | 0.00                   | 0 00:00                                  | 0.00                          |
| Div-4          | DIVIDER | 0.00                     | 0.00                     | 0.00                   | 0 00:00                                  | 0.00                          |
| BF-2-4_STORAGE | STORAGE | 0.07                     | 3.69                     | 3.69                   | 11509 13:18                              | 3.68                          |

\*\*\*\*\*

Node Inflow Summary

\*\*\*\*\*



| Total Inflow    | Flow Balance  | Type | Maximum Lateral Inflow | Maximum Total Inflow | Time of Max Occurrence | Maximum Lateral Inflow Volume | Maximum Total Inflow Volume |
|-----------------|---------------|------|------------------------|----------------------|------------------------|-------------------------------|-----------------------------|
| Volume Node gal | Error Percent |      | CFS                    | CFS                  | days hr:min            | 10^6 gal                      | 10^6                        |

|                |       |         |      |      |             |      |  |
|----------------|-------|---------|------|------|-------------|------|--|
| POC-4          | 0.000 | OUTFALL | 8.15 | 8.23 | 16971 12:01 | 29.4 |  |
| 60.6           |       |         |      |      |             |      |  |
| Div-4          | 0.000 | DIVIDER | 2.48 | 2.48 | 16971 12:16 | 31.5 |  |
| 31.5           |       |         |      |      |             |      |  |
| BF-2-4_STORAGE | 0.002 | STORAGE | 0.00 | 2.44 | 16971 12:16 | 0    |  |
| 15.6           |       |         |      |      |             |      |  |

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

No nodes were flooded.

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

| of Max Occurrence | Maximum Outflow | Average Volume | Avg Pcmt | Evap Loss | Exfil Loss | Maximum Volume | Max Pcmt | Time days |
|-------------------|-----------------|----------------|----------|-----------|------------|----------------|----------|-----------|
| Storage Unit      | CFS             | 1000 ft3       | Full     | Loss      | Loss       | 1000 ft3       | Full     |           |
| BF-2-4_STORAGE    | 1.24            | 0.204          | 1        | 2         | 0          | 16.904         | 56       | 11509     |
| 13:18             |                 |                |          |           |            |                |          |           |

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

1235 VILLAGE 14 POC4-PR.rpt

| Outfall Node | Flow<br>Freq<br>Pcnt | Avg<br>Flow<br>CFS | Max<br>Flow<br>CFS | Total<br>Volume<br>10^6 gal |
|--------------|----------------------|--------------------|--------------------|-----------------------------|
| POC-4        | 9.08                 | 0.05               | 8.23               | 60.586                      |
| System       | 9.08                 | 0.05               | 8.23               | 60.586                      |

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

| Link     | Type  | Maximum<br> Flow <br>CFS | Time of Max<br>Occurrence<br>days hr:min | Maximum<br> Veloc <br>ft/sec | Max/<br>Full<br>Flow | Max/<br>Full<br>Depth |
|----------|-------|--------------------------|------------------------------------------|------------------------------|----------------------|-----------------------|
| Bypass-4 | DUMMY | 2.44                     | 16971 12:16                              |                              |                      |                       |
| 2        | DUMMY | 0.04                     | 124 04:41                                |                              |                      |                       |
| 1        | DUMMY | 1.24                     | 11509 13:18                              |                              |                      |                       |

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

No conduits were surcharged.

Analysis begun on: Wed Nov 6 21:42:12 2019  
Analysis ended on: Wed Nov 6 21:42:40 2019  
Total elapsed time: 00:00:28

## POC 5 – Pre-Developed Condition

1235 VILLAGE 14 POC5-EX.INP

[TITLE]

;;Project Title/Notes

[OPTIONS]

|                   |            |
|-------------------|------------|
| ;;Option          | Value      |
| FLOW_UNITS        | CFS        |
| INFILTRATION      | GREEN_AMPT |
| FLOW_ROUTING      | KINWAVE    |
| LINK_OFFSETS      | DEPTH      |
| MIN_SLOPE         | 0          |
| ALLOW_PONDING     | NO         |
| SKIP_STEADY_STATE | NO         |

|                   |            |
|-------------------|------------|
| START_DATE        | 10/01/1951 |
| START_TIME        | 00:00:00   |
| REPORT_START_DATE | 10/01/1951 |
| REPORT_START_TIME | 00:00:00   |
| END_DATE          | 09/30/2008 |
| END_TIME          | 22:00:00   |
| SWEEP_START       | 01/01      |
| SWEEP_END         | 12/31      |
| DRY_DAYS          | 0          |
| REPORT_STEP       | 01:00:00   |
| WET_STEP          | 00:15:00   |
| DRY_STEP          | 04:00:00   |
| ROUTING_STEP      | 0:01:00    |
| RULE_STEP         | 00:00:00   |

|                     |         |
|---------------------|---------|
| INERTIAL_DAMPING    | PARTIAL |
| NORMAL_FLOW_LIMITED | BOTH    |
| FORCE_MAIN_EQUATION | H-W     |
| VARIABLE_STEP       | 0.75    |
| LENGTHENING_STEP    | 0       |
| MIN_SURFAREA        | 0       |
| MAX_TRIALS          | 0       |
| HEAD_TOLERANCE      | 0       |
| SYS_FLOW_TOL        | 5       |
| LAT_FLOW_TOL        | 5       |
| MINIMUM_STEP        | 0.5     |
| THREADS             | 1       |

[EVAPORATION]

;;Data Source Parameters

|           |       |      |      |      |      |      |     |      |      |      |  |
|-----------|-------|------|------|------|------|------|-----|------|------|------|--|
| ;;-----   | ----- |      |      |      |      |      |     |      |      |      |  |
| MONTHLY   | 0.05  | 0.09 | 0.13 | 0.19 | 0.25 | 0.29 | .30 | 0.27 | 0.21 | 0.14 |  |
| 0.08 0.05 |       |      |      |      |      |      |     |      |      |      |  |
| DRY_ONLY  | NO    |      |      |      |      |      |     |      |      |      |  |

[RAINGAGES]

```

1235 VILLAGE 14 POC5-EX.INP
;;Name          Format      Interval SCF      Source
;;-----
LWR0tay         INTENSITY 1:00      1.0      TIMESERIES LWR0tay

[SUBCATCHMENTS]
;;Name          Rain Gage      Outlet          Area      %Imperv  Width      %Slope
  CurbLen  SnowPack
;;-----
;Existing Area
POC5ExArea      LWR0tay          POC5Ex          182.02    0          1311      3.8
  0

[SUBAREAS]
;;Subcatchment  N-Imperv  N-Perv      S-Imperv  S-Perv      PctZero      RouteTo
PctRouted
;;-----
POC5ExArea      .012      0.15      0.05      .10          25          OUTLET

[INFILTRATION]
;;Subcatchment  Suction      Ksat          IMD
;;-----
POC5ExArea      9          .025      0.30

[OUTFALLS]
;;Name          Elevation  Type          Stage Data      Gated      Route To
;;-----
POC5Ex          0          FREE          NO          NO

[TIMESERIES]
;;Name          Date          Time          Value
;;-----
;From County
LWR0tay         FILE "R:\1235\Hyd\CALCS\SWMM\LWR0tay.dat.txt"

[REPORT]
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]

```

| ;;Node | X-Coord  | Y-Coord  |
|--------|----------|----------|
| POC5Ex | 1714.140 | 3947.101 |

## [VERTICES]

| ;;Link | X-Coord | Y-Coord |
|--------|---------|---------|
|--------|---------|---------|

## [Polygons]

| ;;Subcatchment | X-Coord | Y-Coord  |
|----------------|---------|----------|
| POC5ExArea     | 857.295 | 5569.755 |

## [SYMBOLS]

| ;;Gage  | X-Coord  | Y-Coord  |
|---------|----------|----------|
| LWR0tay | 2384.000 | 5666.000 |

\*\*\*\*\*  
 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 ..... 10/01/1951 00:00:00

Ending Date ..... 09/30/2008 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 .....  | 8970.249  | 591.380 |
| Evaporation Loss .....     | 470.168   | 30.997  |
| Infiltration Loss .....    | 7976.784  | 525.884 |
| Surface Runoff .....       | 709.602   | 46.782  |
| Final Storage .....        | 0.000     | 0.000   |
| Continuity Error (%) ..... | -2.077    |         |

| *****                    | Volume    | Volume              |
|--------------------------|-----------|---------------------|
| Flow Routing Continuity  | acre-feet | 10 <sup>6</sup> gal |
| *****                    | -----     | -----               |
| Dry Weather Inflow ..... | 0.000     | 0.000               |
| Wet Weather Inflow ..... | 709.602   | 231.234             |
| Groundwater Inflow ..... | 0.000     | 0.000               |
| RDII Inflow .....        | 0.000     | 0.000               |

1235 VILLAGE 14 POC5-EX.rpt

|                            |         |         |
|----------------------------|---------|---------|
| External Inflow .....      | 0.000   | 0.000   |
| External Outflow .....     | 709.602 | 231.234 |
| 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

\*\*\*\*\*

| Perv         | Total  | Total    | Total  | Total  | Total | Total | Imperv |
|--------------|--------|----------|--------|--------|-------|-------|--------|
| Runoff       | Runoff | Runoff   | Peak   | Runoff | Evap  | Infil | Runoff |
| Subcatchment | Runoff | Precip   | Runoff | Runoff |       |       |        |
| in           | in     | 10^6 gal | in     | Coeff  | in    | in    | in     |

|            |       |        |       |       |        |      |
|------------|-------|--------|-------|-------|--------|------|
| POC5ExArea |       | 591.38 | 0.00  | 31.00 | 525.88 | 0.00 |
| 46.78      | 46.78 | 231.22 | 41.61 | 0.079 |        |      |

Analysis begun on: Wed Nov 6 21:07:22 2019

Analysis ended on: Wed Nov 6 21:07:32 2019

Total elapsed time: 00:00:10



POC 5 – Developed Condition

1235 VILLAGE 14 POC5-PR.INP

[TITLE]

;;Project Title/Notes

[OPTIONS]

|                   |            |
|-------------------|------------|
| ;;Option          | Value      |
| FLOW_UNITS        | CFS        |
| INFILTRATION      | GREEN_AMPT |
| FLOW_ROUTING      | KINWAVE    |
| LINK_OFFSETS      | DEPTH      |
| MIN_SLOPE         | 0          |
| ALLOW_PONDING     | NO         |
| SKIP_STEADY_STATE | NO         |

|                   |            |
|-------------------|------------|
| START_DATE        | 08/28/1951 |
| START_TIME        | 05:00:00   |
| REPORT_START_DATE | 08/28/1951 |
| REPORT_START_TIME | 05:00:00   |
| END_DATE          | 05/23/2008 |
| END_TIME          | 23:00:00   |
| SWEEP_START       | 01/01      |
| SWEEP_END         | 12/31      |
| DRY_DAYS          | 0          |
| REPORT_STEP       | 01:00:00   |
| WET_STEP          | 00:15:00   |
| DRY_STEP          | 04:00:00   |
| ROUTING_STEP      | 0:01:00    |
| RULE_STEP         | 00:00:00   |

|                     |         |
|---------------------|---------|
| INERTIAL_DAMPING    | PARTIAL |
| NORMAL_FLOW_LIMITED | BOTH    |
| FORCE_MAIN_EQUATION | H-W     |
| VARIABLE_STEP       | 0.75    |
| LENGTHENING_STEP    | 0       |
| MIN_SURFAREA        | 0       |
| MAX_TRIALS          | 0       |
| HEAD_TOLERANCE      | 0       |
| SYS_FLOW_TOL        | 5       |
| LAT_FLOW_TOL        | 5       |
| MINIMUM_STEP        | 0.5     |
| THREADS             | 1       |

[EVAPORATION]

|               |            |
|---------------|------------|
| ;;Data Source | Parameters |
|---------------|------------|

;;

|          |      |      |      |       |       |      |      |      |      |     |
|----------|------|------|------|-------|-------|------|------|------|------|-----|
| MONTHLY  | 0.50 | 0.09 | 0.13 | 0.190 | 0.250 | 0.29 | 0.30 | 0.27 | 0.21 | .14 |
| .08 0.05 |      |      |      |       |       |      |      |      |      |     |
| DRY_ONLY | NO   |      |      |       |       |      |      |      |      |     |

[RAINGAGES]

```

1235 VILLAGE 14 POC5-PR.INP
;;Name          Format      Interval SCF      Source
;;-----
LWR0tay         INTENSITY 1:00      1.0      TIMESERIES LWR0tay

[SUBCATCHMENTS]
;;Name          Rain Gage      Outlet          Area      %Imperv  Width      %Slope
  CurbLen  SnowPack
;;-----
;DMA#3 TRIBUTARY TO BF-1-3
DMA5            LWR0tay          BF-2-5          6.50      56        125        2.6
0
BF-2-5          LWR0tay          Div-5           0.138     0         44         0.1
0
;Offsite area tributary to poc-5
DMA_5_OFFSITE_AREA LWR0tay          POC-5           175.38    0         1263       3.8
0

[SUBAREAS]
;;Subcatchment  N-Imperv  N-Perv      S-Imperv  S-Perv      PctZero      RouteTo
PctRouted
;;-----
DMA5            .012      0.15        0.05      .10         25           OUTLET
BF-2-5          0.012     0.15        0.05      .10         25           OUTLET
DMA_5_OFFSITE_AREA 0.012     0.15        0.05      0.10        25           OUTLET

[INFILTRATION]
;;Subcatchment  Suction      Ksat      IMD
;;-----
DMA5            9          0.025     0.30
BF-2-5          1.5        0.3       0.33
DMA_5_OFFSITE_AREA 9        .025     .30

[LID_CONTROLS]
;;Name          Type/Layer  Parameters
;;-----
bf-1-5          BC
bf-1-5          SURFACE    6          0.1        0.1        0          5
bf-1-5          SOIL       18         0.4        0.25       0.05       5          5
1.5
bf-1-5          STORAGE    18         .67        0.050      0
bf-1-5          DRAIN      0.3304     0.5        0          6          0          0

[LID_USAGE]
;;Subcatchment  LID Process      Number Area      Width      InitSat      FromImp
ToPerv      RptFile      DrainTo      FromPerv
;;-----

```

1235 VILLAGE 14 POC5-PR.INP

```

-----
BF-2-5      bf-1-5      1      6011.28      0      1      100
0          *          *          0

```

[OUTFALLS]

```

;;Name      Elevation  Type      Stage Data      Gated      Route To
;;-----
POC-5        0          FREE          NO

```

[DIVIDERS]

```

;;Name      Elevation  Diverted Link  Type      Parameters
;;-----
Div-5        0          Bypass-1      CUTOFF      0.047      0      0
0          0

```

[STORAGE]

```

;;Name      Elev.      MaxDepth  InitDepth  Shape      Curve Name/Params
N/A      Fevap      Psi      Ksat      IMD
;;-----
;Basin #3
BASIN-2-5_STORAGE 570      5.5      0      TABULAR      Basin#5
2004      1

```

[CONDUITS]

```

;;Name      From Node      To Node      Length      Roughness      InOffset
OutOffset  InitFlow      MaxFlow
;;-----
Bypass-1    Div-5          BASIN-2-5_STORAGE 1      0.01      0
0          0          0
2          Div-5          POC-5          1      0.01      0
0          0          0

```

[OUTLETS]

```

;;Name      From Node      To Node      Offset      Type
QTable/Qcoeff Qexpon      Gated
;;-----
1          BASIN-2-5_STORAGE POC-5          0      TABULAR/DEPTH
Basin50outlet NO

```

[XSECTIONS]

```

;;Link      Shape      Geom1      Geom2      Geom3      Geom4
Barrels      Culvert
;;-----
Bypass-1      DUMMY      0          0          0          0          1

```

|   |       |                             |   |   |   |   |   |
|---|-------|-----------------------------|---|---|---|---|---|
| 2 | DUMMY | 1235 VILLAGE 14 POC5-PR.INP | 0 | 0 | 0 | 0 | 1 |
|---|-------|-----------------------------|---|---|---|---|---|

[CURVES]

| ;;Name       | Type   | X-Value | Y-Value |
|--------------|--------|---------|---------|
| ;;-----      | -----  | -----   | -----   |
| Basin5Outlet | Rating | 0       | 0.0000  |
| Basin5Outlet |        | 0.05    | 0.0021  |
| Basin5Outlet |        | 0.1     | 0.0064  |
| Basin5Outlet |        | 0.15    | 0.0088  |
| Basin5Outlet |        | 0.2     | 0.0106  |
| Basin5Outlet |        | 0.25    | 0.0122  |
| Basin5Outlet |        | 0.3     | 0.0136  |
| Basin5Outlet |        | 0.35    | 0.0148  |
| Basin5Outlet |        | 0.4     | 0.0160  |
| Basin5Outlet |        | 0.45    | 0.0171  |
| Basin5Outlet |        | 0.5     | 0.0181  |
| Basin5Outlet |        | 0.55    | 0.0190  |
| Basin5Outlet |        | 0.6     | 0.0200  |
| Basin5Outlet |        | 0.65    | 0.0208  |
| Basin5Outlet |        | 0.7     | 0.0217  |
| Basin5Outlet |        | 0.75    | 0.0225  |
| Basin5Outlet |        | 0.8     | 0.0233  |
| Basin5Outlet |        | 0.85    | 0.0240  |
| Basin5Outlet |        | 0.9     | 0.0247  |
| Basin5Outlet |        | 0.95    | 0.0254  |
| Basin5Outlet |        | 1       | 0.0261  |
| Basin5Outlet |        | 1.05    | 0.0268  |
| Basin5Outlet |        | 1.1     | 0.0275  |
| Basin5Outlet |        | 1.15    | 0.0281  |
| Basin5Outlet |        | 1.2     | 0.0287  |
| Basin5Outlet |        | 1.25    | 0.0293  |
| Basin5Outlet |        | 1.3     | 0.0300  |
| Basin5Outlet |        | 1.35    | 0.0305  |
| Basin5Outlet |        | 1.4     | 0.0311  |
| Basin5Outlet |        | 1.45    | 0.0317  |
| Basin5Outlet |        | 1.5     | 0.0322  |
| Basin5Outlet |        | 1.55    | 0.0328  |
| Basin5Outlet |        | 1.6     | 0.0333  |
| Basin5Outlet |        | 1.65    | 0.0339  |
| Basin5Outlet |        | 1.7     | 0.0344  |
| Basin5Outlet |        | 1.75    | 0.0349  |
| Basin5Outlet |        | 1.8     | 0.0354  |
| Basin5Outlet |        | 1.85    | 0.0359  |
| Basin5Outlet |        | 1.9     | 0.0364  |
| Basin5Outlet |        | 1.95    | 0.0369  |
| Basin5Outlet |        | 2       | 0.0374  |
| Basin5Outlet |        | 2.05    | 0.0378  |
| Basin5Outlet |        | 2.1     | 0.0383  |

1235 VILLAGE 14 POC5-PR.INP

|               |      |         |
|---------------|------|---------|
| Basin50outlet | 2.15 | 0.0388  |
| Basin50outlet | 2.2  | 0.0392  |
| Basin50outlet | 2.25 | 0.0397  |
| Basin50outlet | 2.3  | 0.0401  |
| Basin50outlet | 2.35 | 0.0406  |
| Basin50outlet | 2.4  | 0.0410  |
| Basin50outlet | 2.45 | 0.0414  |
| Basin50outlet | 2.5  | 0.0419  |
| Basin50outlet | 2.55 | 0.0464  |
| Basin50outlet | 2.6  | 0.0585  |
| Basin50outlet | 2.65 | 0.0766  |
| Basin50outlet | 2.7  | 0.0994  |
| Basin50outlet | 2.75 | 0.1251  |
| Basin50outlet | 2.8  | 0.1449  |
| Basin50outlet | 2.85 | 0.1587  |
| Basin50outlet | 2.9  | 0.1712  |
| Basin50outlet | 2.95 | 0.1825  |
| Basin50outlet | 3    | 0.1931  |
| Basin50outlet | 3.05 | 0.2030  |
| Basin50outlet | 3.1  | 0.2123  |
| Basin50outlet | 3.15 | 0.2212  |
| Basin50outlet | 3.2  | 0.2297  |
| Basin50outlet | 3.25 | 0.2378  |
| Basin50outlet | 3.3  | 0.2456  |
| Basin50outlet | 3.35 | 0.2532  |
| Basin50outlet | 3.4  | 0.2605  |
| Basin50outlet | 3.45 | 0.2675  |
| Basin50outlet | 3.5  | 0.2744  |
| Basin50outlet | 3.55 | 0.5045  |
| Basin50outlet | 3.6  | 0.9195  |
| Basin50outlet | 3.65 | 1.4547  |
| Basin50outlet | 3.7  | 2.0873  |
| Basin50outlet | 3.75 | 2.8038  |
| Basin50outlet | 3.8  | 3.5953  |
| Basin50outlet | 3.85 | 4.4552  |
| Basin50outlet | 3.9  | 5.3784  |
| Basin50outlet | 3.95 | 6.3607  |
| Basin50outlet | 4    | 7.3989  |
| Basin50outlet | 4.05 | 8.4900  |
| Basin50outlet | 4.1  | 9.6315  |
| Basin50outlet | 4.15 | 10.8213 |
| Basin50outlet | 4.2  | 12.0575 |
| Basin50outlet | 4.25 | 13.3385 |
| Basin50outlet | 4.3  | 14.6626 |
| Basin50outlet | 4.35 | 16.0286 |
| Basin50outlet | 4.4  | 17.4351 |
| Basin50outlet | 4.45 | 18.8811 |
| Basin50outlet | 4.5  | 20.3654 |
| Basin50outlet | 4.55 | 21.8872 |

|              |         |                             |
|--------------|---------|-----------------------------|
|              |         | 1235 VILLAGE 14 POC5-PR.INP |
| Basin5Outlet |         | 4.6 23.4454                 |
| Basin5Outlet |         | 4.65 25.0393                |
| Basin5Outlet |         | 4.7 26.6682                 |
| Basin5Outlet |         | 4.75 28.3311                |
| Basin5Outlet |         | 4.8 30.0275                 |
| Basin5Outlet |         | 4.85 31.7568                |
| Basin5Outlet |         | 4.9 33.5182                 |
| Basin5Outlet |         | 4.95 35.3113                |
| Basin5Outlet |         | 5 37.1354                   |
| Basin5Outlet |         | 5.05 38.9900                |
| Basin5Outlet |         | 5.1 40.8748                 |
| Basin5Outlet |         | 5.15 42.7891                |
| Basin5Outlet |         | 5.2 44.7325                 |
| Basin5Outlet |         | 5.25 46.7046                |
| Basin5Outlet |         | 5.3 48.7050                 |
| Basin5Outlet |         | 5.35 50.7333                |
| Basin5Outlet |         | 5.4 52.7891                 |
| Basin5Outlet |         | 5.45 54.8720                |
| Basin5Outlet |         | 5.5 56.9818                 |
| ;            |         |                             |
| ;Basin #5    |         |                             |
| Basin#5      | Storage | 0 6033                      |
| Basin#5      |         | 0.05 6080                   |
| Basin#5      |         | 0.1 6127                    |
| Basin#5      |         | 0.15 6174                   |
| Basin#5      |         | 0.2 6221                    |
| Basin#5      |         | 0.25 6268                   |
| Basin#5      |         | 0.3 6316                    |
| Basin#5      |         | 0.35 6364                   |
| Basin#5      |         | 0.4 6412                    |
| Basin#5      |         | 0.45 6460                   |
| Basin#5      |         | 0.5 6508                    |
| Basin#5      |         | 0.55 6557                   |
| Basin#5      |         | 0.6 6605                    |
| Basin#5      |         | 0.65 6654                   |
| Basin#5      |         | 0.7 6703                    |
| Basin#5      |         | 0.75 6752                   |
| Basin#5      |         | 0.8 6802                    |
| Basin#5      |         | 0.85 6851                   |
| Basin#5      |         | 0.9 6901                    |
| Basin#5      |         | 0.95 6951                   |
| Basin#5      |         | 1 7001                      |
| Basin#5      |         | 1.05 7051                   |
| Basin#5      |         | 1.1 7102                    |
| Basin#5      |         | 1.15 7153                   |
| Basin#5      |         | 1.2 7203                    |
| Basin#5      |         | 1.25 7254                   |
| Basin#5      |         | 1.3 7306                    |
| Basin#5      |         | 1.35 7357                   |

1235 VILLAGE 14 POC5-PR.INP

|         |      |       |
|---------|------|-------|
| Basin#5 | 1.4  | 7408  |
| Basin#5 | 1.45 | 7460  |
| Basin#5 | 1.5  | 7512  |
| Basin#5 | 1.55 | 7564  |
| Basin#5 | 1.6  | 7617  |
| Basin#5 | 1.65 | 7669  |
| Basin#5 | 1.7  | 7722  |
| Basin#5 | 1.75 | 7774  |
| Basin#5 | 1.8  | 7827  |
| Basin#5 | 1.85 | 7881  |
| Basin#5 | 1.9  | 7934  |
| Basin#5 | 1.95 | 7987  |
| Basin#5 | 2    | 8041  |
| Basin#5 | 2.05 | 8095  |
| Basin#5 | 2.1  | 8149  |
| Basin#5 | 2.15 | 8203  |
| Basin#5 | 2.2  | 8258  |
| Basin#5 | 2.25 | 8312  |
| Basin#5 | 2.3  | 8367  |
| Basin#5 | 2.35 | 8422  |
| Basin#5 | 2.4  | 8477  |
| Basin#5 | 2.45 | 8533  |
| Basin#5 | 2.5  | 8588  |
| Basin#5 | 2.55 | 8644  |
| Basin#5 | 2.6  | 8700  |
| Basin#5 | 2.65 | 8756  |
| Basin#5 | 2.7  | 8812  |
| Basin#5 | 2.75 | 8868  |
| Basin#5 | 2.8  | 8925  |
| Basin#5 | 2.85 | 8982  |
| Basin#5 | 2.9  | 9039  |
| Basin#5 | 2.95 | 9096  |
| Basin#5 | 3    | 9153  |
| Basin#5 | 3.05 | 9211  |
| Basin#5 | 3.1  | 9268  |
| Basin#5 | 3.15 | 9326  |
| Basin#5 | 3.2  | 9384  |
| Basin#5 | 3.25 | 9443  |
| Basin#5 | 3.3  | 9501  |
| Basin#5 | 3.35 | 9559  |
| Basin#5 | 3.4  | 9618  |
| Basin#5 | 3.45 | 9677  |
| Basin#5 | 3.5  | 9736  |
| Basin#5 | 3.55 | 9796  |
| Basin#5 | 3.6  | 9855  |
| Basin#5 | 3.65 | 9915  |
| Basin#5 | 3.7  | 9975  |
| Basin#5 | 3.75 | 10035 |
| Basin#5 | 3.8  | 10095 |



1235 VILLAGE 14 POC5-PR.INP

|         |      |       |
|---------|------|-------|
| Basin#5 | 3.85 | 10155 |
| Basin#5 | 3.9  | 10216 |
| Basin#5 | 3.95 | 10276 |
| Basin#5 | 4    | 10337 |
| Basin#5 | 4.05 | 10398 |
| Basin#5 | 4.1  | 10460 |
| Basin#5 | 4.15 | 10521 |
| Basin#5 | 4.2  | 10583 |
| Basin#5 | 4.25 | 10645 |
| Basin#5 | 4.3  | 10707 |
| Basin#5 | 4.35 | 10769 |
| Basin#5 | 4.4  | 10831 |
| Basin#5 | 4.45 | 10894 |
| Basin#5 | 4.5  | 10956 |
| Basin#5 | 4.55 | 11019 |
| Basin#5 | 4.6  | 11082 |
| Basin#5 | 4.65 | 11146 |
| Basin#5 | 4.7  | 11209 |
| Basin#5 | 4.75 | 11273 |
| Basin#5 | 4.8  | 11336 |
| Basin#5 | 4.85 | 11400 |
| Basin#5 | 4.9  | 11465 |
| Basin#5 | 4.95 | 11529 |
| Basin#5 | 5    | 11593 |
| Basin#5 | 5.05 | 11658 |
| Basin#5 | 5.1  | 11723 |
| Basin#5 | 5.15 | 11788 |
| Basin#5 | 5.2  | 11853 |
| Basin#5 | 5.25 | 11919 |
| Basin#5 | 5.3  | 11984 |
| Basin#5 | 5.35 | 12050 |
| Basin#5 | 5.4  | 12116 |
| Basin#5 | 5.45 | 12182 |
| Basin#5 | 5.5  | 12248 |

[TIMESERIES]

| ;;Name                                      | Date                                          | Time | Value |
|---------------------------------------------|-----------------------------------------------|------|-------|
| ;;-----                                     |                                               |      |       |
| ;Lower Otay Rain Gage from San Diego County |                                               |      |       |
| LWR0tay                                     | FILE "R:\1235\Hyd\CALCS\SWMM\LWR0tay.dat.txt" |      |       |

[REPORT]

;;Reporting Options  
 SUBCATCHMENTS ALL  
 NODES ALL  
 LINKS ALL

[TAGS]

1235 VILLAGE 14 POC5-PR.INP

[MAP]

DIMENSIONS 0.000 0.000 10000.000 10000.000

Units None

[COORDINATES]

| ;;Node            | X-Coord  | Y-Coord  |
|-------------------|----------|----------|
| POC-5             | 1477.152 | 3687.566 |
| Div-5             | 981.151  | 4560.296 |
| BASIN-2-5_STORAGE | 649.013  | 4101.765 |

[VERTICES]

| ;;Link | X-Coord | Y-Coord |
|--------|---------|---------|
|--------|---------|---------|

[Polygons]

| ;;Subcatchment     | X-Coord  | Y-Coord  |
|--------------------|----------|----------|
| DMA5               | 875.870  | 5540.893 |
| BF-2-5             | 907.773  | 4960.847 |
| DMA_5_OFFSITE_AREA | 2997.262 | 5018.316 |

[SYMBOLS]

| ;;Gage  | X-Coord  | Y-Coord  |
|---------|----------|----------|
| LWR0tay | 1483.740 | 5365.854 |

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

-----  
 WARNING 08: elevation drop exceeds length for Conduit Bypass-1  
 WARNING 04: minimum elevation drop used for Conduit 2

\*\*\*\*\*  
 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 ..... 08/28/1951 05:00:00  
 Ending Date ..... 05/23/2008 23:00:00  
 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  |
| *****                      | -----     | -----   |
| Initial LID Storage .....  | 0.012     | 0.001   |
| Total Precipitation .....  | 8974.246  | 591.650 |
| Evaporation Loss .....     | 710.224   | 46.823  |
| Infiltration Loss .....    | 7545.522  | 497.458 |
| Surface Runoff .....       | 633.142   | 41.741  |
| LID Drainage .....         | 115.379   | 7.607   |
| Final Storage .....        | 0.010     | 0.001   |
| Continuity Error (%) ..... | -0.335    |         |

1235 VILLAGE 14 POC5-PR.rpt

```

*****
Flow Routing Continuity      Volume      Volume
                             acre-feet    10^6 gal
*****
Dry Weather Inflow .....    0.000      0.000
Wet Weather Inflow .....   748.521    243.917
Groundwater Inflow .....    0.000      0.000
RDII Inflow .....          0.000      0.000
External Inflow .....       0.000      0.000
External Outflow .....      742.559    241.974
Flooding Loss .....         0.000      0.000
Evaporation Loss .....       5.960      1.942
Exfiltration Loss .....      0.000      0.000
Initial Stored Volume ....    0.000      0.000
Final Stored Volume .....    0.000      0.000
Continuity Error (%) .....    0.000

```

```

*****
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
*****

```

```

-----
-----
Perv      Total      Total      Total      Total      Total      Imperv
Runoff    Runoff    Precip    Peak      Runoff
Subcatchment  Runoff    Runoff    Runoff    Runoff    Evap      Infil      Runoff
in        in        10^6 gal  in        in        in        in        in
CFS
-----

```

1235 VILLAGE 14 POC5-PR.rpt

|                    |          |        |          |         |        |        |
|--------------------|----------|--------|----------|---------|--------|--------|
| DMA5               |          | 591.65 | 0.00     | 106.23  | 215.54 | 244.56 |
| 28.42              | 272.98   | 48.18  | 4.22     | 0.461   |        |        |
| BF-2-5             |          | 591.65 | 12857.89 | 1460.30 | 679.94 | 0.00   |
| 0.00               | 11317.88 | 42.41  | 4.23     | 0.842   |        |        |
| DMA_5_OFFSITE_AREA |          | 591.65 | 0.00     | 43.51   | 507.76 | 0.00   |
| 42.31              | 42.31    | 201.49 | 40.09    | 0.072   |        |        |

\*\*\*\*\*  
LID Performance Summary  
\*\*\*\*\*

| Drain        | Initial | Final   | Continuity | Total  | Evap | Infil | Surface |
|--------------|---------|---------|------------|--------|------|-------|---------|
| Outflow      | Storage | Storage | Error      | Inflow | Loss | Loss  | Outflow |
| Subcatchment | LID     | Control |            | in     | in   | in    | in      |
| in           | in      | in      | %          |        |      |       |         |

|          |      |        |          |         |        |         |
|----------|------|--------|----------|---------|--------|---------|
| BF-2-5   |      | bf-1-5 | 13449.54 | 1460.35 | 679.97 | 1284.97 |
| 10033.32 | 1.04 | 0.90   | -0.07    |         |        |         |

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

| Node              | Type    | Average<br>Depth<br>Feet | Maximum<br>Depth<br>Feet | Maximum<br>HGL<br>Feet | Time of Max<br>Occurrence<br>days hr:min | Reported<br>Max Depth<br>Feet |
|-------------------|---------|--------------------------|--------------------------|------------------------|------------------------------------------|-------------------------------|
| POC-5             | OUTFALL | 0.00                     | 0.00                     | 0.00                   | 0 00:00                                  | 0.00                          |
| Div-5             | DIVIDER | 0.00                     | 0.00                     | 0.00                   | 0 00:00                                  | 0.00                          |
| BASIN-2-5_STORAGE | STORAGE | 0.06                     | 3.71                     | 573.71                 | 11509 13:19                              | 3.69                          |

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

| Total Inflow Volume Node gal | Flow Balance Error Percent | Type | Maximum Lateral Inflow CFS | Maximum Total Inflow CFS | Time of Occurrence days hr:min | Maximum Lateral Inflow Volume 10^6 gal | 10^6 |
|------------------------------|----------------------------|------|----------------------------|--------------------------|--------------------------------|----------------------------------------|------|
|------------------------------|----------------------------|------|----------------------------|--------------------------|--------------------------------|----------------------------------------|------|

|                   |       |         |       |       |             |      |  |
|-------------------|-------|---------|-------|-------|-------------|------|--|
| POC-5             |       | OUTFALL | 40.09 | 40.36 | 16965 12:01 | 201  |  |
| 242               | 0.000 |         |       |       |             |      |  |
| Div-5             |       | DIVIDER | 4.23  | 4.23  | 16971 12:16 | 42.4 |  |
| 42.4              | 0.000 |         |       |       |             |      |  |
| BASIN-2-5_STORAGE |       | STORAGE | 0.00  | 4.19  | 16971 12:16 | 0    |  |
| 27.8              | 0.003 |         |       |       |             |      |  |

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

No nodes were flooded.

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

| of Max Occurrence Storage Unit hr:min | Maximum Outflow CFS | Average Volume 1000 ft3 | Avg Pcmt Full | Evap Loss | Exfil Loss | Maximum Volume 1000 ft3 | Max Pcmt Full | Time days |
|---------------------------------------|---------------------|-------------------------|---------------|-----------|------------|-------------------------|---------------|-----------|
|---------------------------------------|---------------------|-------------------------|---------------|-----------|------------|-------------------------|---------------|-----------|

|                   |      |       |   |   |   |        |    |       |
|-------------------|------|-------|---|---|---|--------|----|-------|
| BASIN-2-5_STORAGE |      | 0.407 | 1 | 7 | 0 | 29.403 | 60 | 11509 |
| 13:18             | 2.22 |       |   |   |   |        |    |       |

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

1235 VILLAGE 14 POC5-PR.rpt

| Outfall Node | Flow<br>Freq<br>Pcnt | Avg<br>Flow<br>CFS | Max<br>Flow<br>CFS | Total<br>Volume<br>10^6 gal |
|--------------|----------------------|--------------------|--------------------|-----------------------------|
| POC-5        | 11.89                | 0.15               | 40.36              | 241.956                     |
| System       | 11.89                | 0.15               | 40.36              | 241.956                     |

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

| Link     | Type  | Maximum<br> Flow <br>CFS | Time of Max<br>Occurrence<br>days hr:min | Maximum<br> Veloc <br>ft/sec | Max/<br>Full<br>Flow | Max/<br>Full<br>Depth |
|----------|-------|--------------------------|------------------------------------------|------------------------------|----------------------|-----------------------|
| Bypass-1 | DUMMY | 4.19                     | 16971 12:16                              |                              |                      |                       |
| 2        | DUMMY | 0.05                     | 124 06:25                                |                              |                      |                       |
| 1        | DUMMY | 2.22                     | 11509 13:19                              |                              |                      |                       |

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

No conduits were surcharged.

Analysis begun on: Wed Nov 6 21:40:42 2019  
Analysis ended on: Wed Nov 6 21:41:09 2019  
Total elapsed time: 00:00:27

POC 6 – Existing Condition



1235 VILLAGE 14 POC6-EX - SWMM 5.1.inp

[TITLE]

;;Project Title/Notes

[OPTIONS]

|                   |            |
|-------------------|------------|
| ;;Option          | Value      |
| FLOW_UNITS        | CFS        |
| INFILTRATION      | GREEN_AMPT |
| FLOW_ROUTING      | KINWAVE    |
| LINK_OFFSETS      | DEPTH      |
| MIN_SLOPE         | 0          |
| ALLOW_PONDING     | NO         |
| SKIP_STEADY_STATE | NO         |

|                   |            |
|-------------------|------------|
| START_DATE        | 10/01/1951 |
| START_TIME        | 00:00:00   |
| REPORT_START_DATE | 10/01/1951 |
| REPORT_START_TIME | 00:00:00   |
| END_DATE          | 09/30/2008 |
| END_TIME          | 22:00:00   |
| SWEEP_START       | 01/01      |
| SWEEP_END         | 12/31      |
| DRY_DAYS          | 0          |
| REPORT_STEP       | 01:00:00   |
| WET_STEP          | 00:15:00   |
| DRY_STEP          | 04:00:00   |
| ROUTING_STEP      | 0:01:00    |
| RULE_STEP         | 00:00:00   |

|                     |         |
|---------------------|---------|
| INERTIAL_DAMPING    | PARTIAL |
| NORMAL_FLOW_LIMITED | BOTH    |
| FORCE_MAIN_EQUATION | H-W     |
| VARIABLE_STEP       | 0.75    |
| LENGTHENING_STEP    | 0       |
| MIN_SURFAREA        | 0       |
| MAX_TRIALS          | 0       |
| HEAD_TOLERANCE      | 0       |
| SYS_FLOW_TOL        | 5       |
| LAT_FLOW_TOL        | 5       |
| MINIMUM_STEP        | 0.5     |
| THREADS             | 1       |

[EVAPORATION]

;;Data Source Parameters

;;-----

|           |      |      |      |      |      |      |      |      |      |     |
|-----------|------|------|------|------|------|------|------|------|------|-----|
| MONTHLY   | 0.05 | 0.09 | 0.13 | 0.19 | 0.25 | 0.29 | 0.30 | 0.27 | 0.21 | .14 |
| 0.08 0.05 |      |      |      |      |      |      |      |      |      |     |
| DRY_ONLY  | NO   |      |      |      |      |      |      |      |      |     |

[RAINGAGES]

```

1235 VILLAGE 14 POC6-EX - SWMM 5.1.inp
;;Name      Format      Interval SCF      Source
;;-----
LWR0tay     INTENSITY 1:00      1.0      TIMESERIES LWR0tay

[SUBCATCHMENTS]
;;Name      Rain Gage      Outlet      Area      %Imperv      Width      %Slope
;;CurbLen   SnowPack
;;-----
;Existing Area
POC6EXArea  LWR0tay      POC6Ex      815.61    0      3233      7.3
0

[SUBAREAS]
;;Subcatchment N-Imperv N-Perv S-Imperv S-Perv PctZero RouteTo
PctRouted
;;-----
POC6EXArea   .012      0.15      0.05      .10      25      OUTLET

[INFILTRATION]
;;Subcatchment Suction Ksat IMD
;;-----
POC6EXArea   9      .025      0.30

[OUTFALLS]
;;Name      Elevation Type      Stage Data      Gated      Route To
;;-----
POC6Ex       0      FREE      NO

[TIMESERIES]
;;Name      Date      Time      Value
;;-----
;From County
LWR0tay      FILE "R:\1235\Hyd\CALCS\SWMM\LWR0tay.dat.txt"

[REPORT]
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]

```

```

1235 VILLAGE 14 POC6-EX - SWMM 5.1.inp
;;Node      X-Coord      Y-Coord
;;-----
POC6Ex      1744.659      3957.274

[VERTICES]
;;Link      X-Coord      Y-Coord
;;-----

[Polygons]
;;Subcatchment X-Coord      Y-Coord
;;-----
POC6EXArea  884.253      5544.732

[SYMBOLS]
;;Gage      X-Coord      Y-Coord
;;-----
LWR0tay     2384.000      5666.000

```

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

\*\*\*\*\*  
 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 ..... 10/01/1951 00:00:00  
 Ending Date ..... 09/30/2008 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 .....  | 40194.620 | 591.380 |
| Evaporation Loss .....     | 2133.343  | 31.388  |
| Infiltration Loss .....    | 35985.941 | 529.458 |
| Surface Runoff .....       | 2905.422  | 42.747  |
| Final Storage .....        | 0.000     | 0.000   |
| Continuity Error (%) ..... | -2.065    |         |

| *****                    | Volume    | Volume   |
|--------------------------|-----------|----------|
| Flow Routing Continuity  | acre-feet | 10^6 gal |
| *****                    | -----     | -----    |
| Dry Weather Inflow ..... | 0.000     | 0.000    |
| Wet Weather Inflow ..... | 2905.422  | 946.775  |
| Groundwater Inflow ..... | 0.000     | 0.000    |
| RDII Inflow .....        | 0.000     | 0.000    |

1235 VILLAGE 14 POC6-EX - SWMM 5.1.rpt

|                            |          |         |
|----------------------------|----------|---------|
| External Inflow .....      | 0.000    | 0.000   |
| External Outflow .....     | 2905.422 | 946.775 |
| 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

\*\*\*\*\*

| Perv         | Total        | Total    | Total  | Total  | Total | Total | Imperv |
|--------------|--------------|----------|--------|--------|-------|-------|--------|
| Runoff       | Runoff       | Runoff   | Peak   | Runoff | Evap  | Infil | Runoff |
| Subcatchment | Subcatchment | Precip   | Runoff | Runoff |       |       |        |
| in           | in           | 10^6 gal | in     | Coeff  | in    | in    | in     |

|            |       |        |        |       |        |      |
|------------|-------|--------|--------|-------|--------|------|
| POC6EXArea |       | 591.38 | 0.00   | 31.39 | 529.46 | 0.00 |
| 42.75      | 42.75 | 946.70 | 154.83 | 0.072 |        |      |

Analysis begun on: Wed Nov 6 21:20:31 2019

Analysis ended on: Wed Nov 6 21:20:41 2019

Total elapsed time: 00:00:10

POC 6 – Proposed Condition

1235 VILLAGE 14 POC6-PR - SWMM 5.1.inp

[TITLE]

;;Project Title/Notes

[OPTIONS]

|                   |            |
|-------------------|------------|
| ;;Option          | Value      |
| FLOW_UNITS        | CFS        |
| INFILTRATION      | GREEN_AMPT |
| FLOW_ROUTING      | KINWAVE    |
| LINK_OFFSETS      | DEPTH      |
| MIN_SLOPE         | 0          |
| ALLOW_PONDING     | NO         |
| SKIP_STEADY_STATE | NO         |

|                   |            |
|-------------------|------------|
| START_DATE        | 08/28/1951 |
| START_TIME        | 05:00:00   |
| REPORT_START_DATE | 08/28/1951 |
| REPORT_START_TIME | 05:00:00   |
| END_DATE          | 05/23/2008 |
| END_TIME          | 23:00:00   |
| SWEEP_START       | 01/01      |
| SWEEP_END         | 12/31      |
| DRY_DAYS          | 0          |
| REPORT_STEP       | 01:00:00   |
| WET_STEP          | 00:15:00   |
| DRY_STEP          | 04:00:00   |
| ROUTING_STEP      | 0:01:00    |
| RULE_STEP         | 00:00:00   |

|                     |         |
|---------------------|---------|
| INERTIAL_DAMPING    | PARTIAL |
| NORMAL_FLOW_LIMITED | BOTH    |
| FORCE_MAIN_EQUATION | H-W     |
| VARIABLE_STEP       | 0.75    |
| LENGTHENING_STEP    | 0       |
| MIN_SURFAREA        | 0       |
| MAX_TRIALS          | 0       |
| HEAD_TOLERANCE      | 0       |
| SYS_FLOW_TOL        | 5       |
| LAT_FLOW_TOL        | 5       |
| MINIMUM_STEP        | 0.5     |
| THREADS             | 1       |

[EVAPORATION]

;;Data Source Parameters

;;

|           |      |      |       |      |      |      |      |      |      |      |
|-----------|------|------|-------|------|------|------|------|------|------|------|
| MONTHLY   | 0.05 | 0.09 | 0.130 | 0.19 | 0.25 | 0.29 | 0.30 | 0.27 | 0.21 | 0.14 |
| 0.08 0.05 |      |      |       |      |      |      |      |      |      |      |
| DRY_ONLY  | NO   |      |       |      |      |      |      |      |      |      |

[RAINGAGES]

1235 VILLAGE 14 POC6-PR - SWMM 5.1.inp

```

;;Name          Format      Interval SCF      Source
;;-----
LWR0tay         INTENSITY 1:00      1.0      TIMESERIES LWR0tay

[SUBCATCHMENTS]
;;Name          Rain Gage      Outlet          Area      %Imperv  Width      %Slope
;;CurbLen  SnowPack
;;-----
;Developed Area Tributary to BF-1-8
DMA8            LWR0tay         BF-2-8          2.13      41        61        1.2
0
;DMA#7 TREATED BY MWS-3-7 AND ROUTED TO POC-6
DMA7            LWR0tay         POC-6           2.561     62        61        1.5
0
BF-2-8          LWR0tay         Div-BF-2-8      0.041     0         50        0
0
Natural         LWR0tay         POC-6           810.87    0         3214     7.3
0

[SUBAREAS]
;;Subcatchment  N-Imperv  N-Perv  S-Imperv  S-Perv  PctZero  RouteTo
PctRouted
;;-----
DMA8            .012      0.15    0.05      .10     25       OUTLET
DMA7            0.012     0.15    0.05      .10     25       OUTLET
BF-2-8          0.012     0.15    0.05      .10     25       OUTLET
Natural         0.012     0.15    0.05      0.10    25       OUTLET

[INFILTRATION]
;;Subcatchment  Suction  Ksat      IMD
;;-----
DMA8            9         0.025     0.30
DMA7            9         .025      0.30
BF-2-8          1.5       0.3       0.33
Natural         9         0.025     0.30

[LID_CONTROLS]
;;Name          Type/Layer  Parameters
;;-----
LID-8           BC
LID-8           SURFACE    6          0          0          0          5
LID-8           SOIL       18         0.4        0.2        0.1        5          5
1.5
LID-8           STORAGE    18         .67        0.025      0
LID-8           DRAIN      0.1332     0.5        0          6          0          0

```



1235 VILLAGE 14 POC6-PR - SWMM 5.1.inp

[LID\_USAGE]

| Subcatchment | LID Process | Number  | Area    | Width    | InitSat | FromImp |
|--------------|-------------|---------|---------|----------|---------|---------|
| ToPerv       | RptFile     | DrainTo |         | FromPerv |         |         |
| BF-2-8       | LID-8       | 1       | 1785.96 | 0        | 1       | 100     |
| 0            | *           | *       |         | 0        |         |         |

[OUTFALLS]

| Name  | Elevation | Type | Stage Data | Gated | Route To |
|-------|-----------|------|------------|-------|----------|
| POC-6 | 0         | FREE |            | NO    |          |

[DIVIDERS]

| Name       | Elevation | Diverted Link | Type   | Parameters |
|------------|-----------|---------------|--------|------------|
| Div-BF-2-8 | 0         | Bypass-8      | CUTOFF | 0.012      |
| 0          | 0         |               |        | 0          |

[STORAGE]

| Name           | Elev. | MaxDepth | InitDepth | Shape   | Curve Name/Params |
|----------------|-------|----------|-----------|---------|-------------------|
| N/A            | Fevap | Ksat     | IMD       |         |                   |
| Basin #6       |       |          |           |         |                   |
| BF-2-8_STORAGE | 0     | 5.5      | 0         | TABULAR | Basin#8           |
| 165897         | 1     |          |           |         |                   |

[CONDUITS]

| Name      | From Node  | To Node        | Length | Roughness | InOffset |
|-----------|------------|----------------|--------|-----------|----------|
| OutOffset | InitFlow   | MaxFlow        |        |           |          |
| Bypass-8  | Div-BF-2-8 | BF-2-8_STORAGE | 1      | 0.01      | 0        |
| 0         | 0          |                |        |           |          |
| 2         | Div-BF-2-8 | POC-6          | 1      | 0.01      | 0        |
| 0         | 0          |                |        |           |          |

[OUTLETS]

| Name          | From Node      | To Node | Offset | Type          |
|---------------|----------------|---------|--------|---------------|
| QTable/Qcoeff | Qexpon         | Gated   |        |               |
| 1             | BF-2-8_STORAGE | POC-6   | 0      | TABULAR/DEPTH |
| Basin#8Outlet | NO             |         |        |               |

[XSECTIONS]

| Link    | Shape   | Geom1 | Geom2 | Geom3 | Geom4 |
|---------|---------|-------|-------|-------|-------|
| Barrels | Culvert |       |       |       |       |

1235 VILLAGE 14 POC6-PR - SWMM 5.1.inp

```

;;-----
Bypass-8      DUMMY      0      0      0      0      1
2             DUMMY      0      0      0      0      1

```

[CURVES]

```

;;Name      Type      X-Value      Y-Value
;;-----
Basin#80outlet  Rating  0.00      0.0000
Basin#80outlet      0.05      0.0017
Basin#80outlet      0.10      0.0039
Basin#80outlet      0.15      0.0052
Basin#80outlet      0.20      0.0062
Basin#80outlet      0.25      0.0070
Basin#80outlet      0.30      0.0078
Basin#80outlet      0.35      0.0085
Basin#80outlet      0.40      0.0091
Basin#80outlet      0.45      0.0097
Basin#80outlet      0.50      0.0103
Basin#80outlet      0.55      0.0108
Basin#80outlet      0.60      0.0113
Basin#80outlet      0.65      0.0118
Basin#80outlet      0.70      0.0123
Basin#80outlet      0.75      0.0127
Basin#80outlet      0.80      0.0132
Basin#80outlet      0.85      0.0136
Basin#80outlet      0.90      0.0140
Basin#80outlet      0.95      0.0144
Basin#80outlet      1.00      0.0148
Basin#80outlet      1.05      0.0152
Basin#80outlet      1.10      0.0155
Basin#80outlet      1.15      0.0159
Basin#80outlet      1.20      0.0162
Basin#80outlet      1.25      0.0166
Basin#80outlet      1.30      0.0169
Basin#80outlet      1.35      0.0172
Basin#80outlet      1.40      0.0176
Basin#80outlet      1.45      0.0179
Basin#80outlet      1.50      0.0182
Basin#80outlet      1.55      0.0185
Basin#80outlet      1.60      0.0188
Basin#80outlet      1.65      0.0191
Basin#80outlet      1.70      0.0194
Basin#80outlet      1.75      0.0197
Basin#80outlet      1.80      0.0200
Basin#80outlet      1.85      0.0203
Basin#80outlet      1.90      0.0205

```

1235 VILLAGE 14 POC6-PR - SWMM 5.1.inp

|                |      |         |
|----------------|------|---------|
| Basin#80outlet | 1.95 | 0.0208  |
| Basin#80outlet | 2.00 | 0.0211  |
| Basin#80outlet | 2.05 | 0.0213  |
| Basin#80outlet | 2.10 | 0.0216  |
| Basin#80outlet | 2.15 | 0.0219  |
| Basin#80outlet | 2.20 | 0.0221  |
| Basin#80outlet | 2.25 | 0.0224  |
| Basin#80outlet | 2.30 | 0.0226  |
| Basin#80outlet | 2.35 | 0.0229  |
| Basin#80outlet | 2.40 | 0.0231  |
| Basin#80outlet | 2.45 | 0.0234  |
| Basin#80outlet | 2.50 | 0.0236  |
| Basin#80outlet | 2.55 | 0.0280  |
| Basin#80outlet | 2.60 | 0.0398  |
| Basin#80outlet | 2.65 | 0.0578  |
| Basin#80outlet | 2.70 | 0.0804  |
| Basin#80outlet | 2.75 | 0.1059  |
| Basin#80outlet | 2.80 | 0.1255  |
| Basin#80outlet | 2.85 | 0.1392  |
| Basin#80outlet | 2.90 | 0.1514  |
| Basin#80outlet | 2.95 | 0.1626  |
| Basin#80outlet | 3.00 | 0.1730  |
| Basin#80outlet | 3.05 | 0.1827  |
| Basin#80outlet | 3.10 | 0.1919  |
| Basin#80outlet | 3.15 | 0.2006  |
| Basin#80outlet | 3.20 | 0.2089  |
| Basin#80outlet | 3.25 | 0.2169  |
| Basin#80outlet | 3.30 | 0.2246  |
| Basin#80outlet | 3.35 | 0.2320  |
| Basin#80outlet | 3.40 | 0.2391  |
| Basin#80outlet | 3.45 | 0.2460  |
| Basin#80outlet | 3.50 | 0.2527  |
| Basin#80outlet | 3.55 | 0.4082  |
| Basin#80outlet | 3.60 | 0.6869  |
| Basin#80outlet | 3.65 | 1.0457  |
| Basin#80outlet | 3.70 | 1.4693  |
| Basin#80outlet | 3.75 | 1.9488  |
| Basin#80outlet | 3.80 | 2.4783  |
| Basin#80outlet | 3.85 | 3.0534  |
| Basin#80outlet | 3.90 | 3.6706  |
| Basin#80outlet | 3.95 | 4.3272  |
| Basin#80outlet | 4.00 | 5.0210  |
| Basin#80outlet | 4.05 | 5.7501  |
| Basin#80outlet | 4.10 | 6.5127  |
| Basin#80outlet | 4.15 | 7.3075  |
| Basin#80outlet | 4.20 | 8.1332  |
| Basin#80outlet | 4.25 | 8.9888  |
| Basin#80outlet | 4.30 | 9.8730  |
| Basin#80outlet | 4.35 | 10.7852 |

1235 VILLAGE 14 POC6-PR - SWMM 5.1.inp

|                |      |         |
|----------------|------|---------|
| Basin#80outlet | 4.40 | 11.7243 |
| Basin#80outlet | 4.45 | 12.6898 |
| Basin#80outlet | 4.50 | 13.6808 |
| Basin#80outlet | 4.55 | 14.6967 |
| Basin#80outlet | 4.60 | 15.7369 |
| Basin#80outlet | 4.65 | 16.8009 |
| Basin#80outlet | 4.70 | 17.8882 |
| Basin#80outlet | 4.75 | 18.9982 |
| Basin#80outlet | 4.80 | 20.1305 |
| Basin#80outlet | 4.85 | 21.2846 |
| Basin#80outlet | 4.90 | 22.4602 |
| Basin#80outlet | 4.95 | 23.6568 |
| Basin#80outlet | 5.00 | 24.8742 |
| Basin#80outlet | 5.05 | 26.1119 |
| Basin#80outlet | 5.10 | 27.3696 |
| Basin#80outlet | 5.15 | 28.6471 |
| Basin#80outlet | 5.20 | 29.9439 |
| Basin#80outlet | 5.25 | 31.2599 |
| Basin#80outlet | 5.30 | 32.5947 |
| Basin#80outlet | 5.35 | 33.9480 |
| Basin#80outlet | 5.40 | 35.3198 |
| Basin#80outlet | 5.45 | 36.7096 |
| Basin#80outlet | 5.50 | 38.1172 |

;

;Basin #8

|         |         |      |      |
|---------|---------|------|------|
| Basin#8 | Storage | 0.00 | 1781 |
| Basin#8 |         | 0.05 | 1807 |
| Basin#8 |         | 0.10 | 1832 |
| Basin#8 |         | 0.15 | 1858 |
| Basin#8 |         | 0.20 | 1884 |
| Basin#8 |         | 0.25 | 1910 |
| Basin#8 |         | 0.30 | 1936 |
| Basin#8 |         | 0.35 | 1963 |
| Basin#8 |         | 0.40 | 1990 |
| Basin#8 |         | 0.45 | 2016 |
| Basin#8 |         | 0.50 | 2043 |
| Basin#8 |         | 0.55 | 2071 |
| Basin#8 |         | 0.60 | 2098 |
| Basin#8 |         | 0.65 | 2126 |
| Basin#8 |         | 0.70 | 2153 |
| Basin#8 |         | 0.75 | 2181 |
| Basin#8 |         | 0.80 | 2209 |
| Basin#8 |         | 0.85 | 2238 |
| Basin#8 |         | 0.90 | 2266 |
| Basin#8 |         | 0.95 | 2295 |
| Basin#8 |         | 1.00 | 2324 |
| Basin#8 |         | 1.05 | 2353 |
| Basin#8 |         | 1.10 | 2382 |
| Basin#8 |         | 1.15 | 2411 |

1235 VILLAGE 14 POC6-PR - SWMM 5.1.inp

|         |      |      |
|---------|------|------|
| Basin#8 | 1.20 | 2441 |
| Basin#8 | 1.25 | 2471 |
| Basin#8 | 1.30 | 2500 |
| Basin#8 | 1.35 | 2531 |
| Basin#8 | 1.40 | 2561 |
| Basin#8 | 1.45 | 2591 |
| Basin#8 | 1.50 | 2622 |
| Basin#8 | 1.55 | 2653 |
| Basin#8 | 1.60 | 2684 |
| Basin#8 | 1.65 | 2715 |
| Basin#8 | 1.70 | 2746 |
| Basin#8 | 1.75 | 2778 |
| Basin#8 | 1.80 | 2809 |
| Basin#8 | 1.85 | 2841 |
| Basin#8 | 1.90 | 2873 |
| Basin#8 | 1.95 | 2906 |
| Basin#8 | 2.00 | 2938 |
| Basin#8 | 2.05 | 2971 |
| Basin#8 | 2.10 | 3004 |
| Basin#8 | 2.15 | 3037 |
| Basin#8 | 2.20 | 3070 |
| Basin#8 | 2.25 | 3103 |
| Basin#8 | 2.30 | 3137 |
| Basin#8 | 2.35 | 3170 |
| Basin#8 | 2.40 | 3204 |
| Basin#8 | 2.45 | 3238 |
| Basin#8 | 2.50 | 3272 |
| Basin#8 | 2.55 | 3307 |
| Basin#8 | 2.60 | 3341 |
| Basin#8 | 2.65 | 3376 |
| Basin#8 | 2.70 | 3411 |
| Basin#8 | 2.75 | 3446 |
| Basin#8 | 2.80 | 3482 |
| Basin#8 | 2.85 | 3517 |
| Basin#8 | 2.90 | 3553 |
| Basin#8 | 2.95 | 3589 |
| Basin#8 | 3.00 | 3625 |
| Basin#8 | 3.05 | 3661 |
| Basin#8 | 3.10 | 3697 |
| Basin#8 | 3.15 | 3734 |
| Basin#8 | 3.20 | 3771 |
| Basin#8 | 3.25 | 3807 |
| Basin#8 | 3.30 | 3845 |
| Basin#8 | 3.35 | 3882 |
| Basin#8 | 3.40 | 3919 |
| Basin#8 | 3.45 | 3957 |
| Basin#8 | 3.50 | 3995 |
| Basin#8 | 3.55 | 4033 |
| Basin#8 | 3.60 | 4071 |

1235 VILLAGE 14 POC6-PR - SWMM 5.1.inp

|         |      |      |
|---------|------|------|
| Basin#8 | 3.65 | 4109 |
| Basin#8 | 3.70 | 4148 |
| Basin#8 | 3.75 | 4187 |
| Basin#8 | 3.80 | 4226 |
| Basin#8 | 3.85 | 4265 |
| Basin#8 | 3.90 | 4304 |
| Basin#8 | 3.95 | 4343 |
| Basin#8 | 4.00 | 4383 |
| Basin#8 | 4.05 | 4423 |
| Basin#8 | 4.10 | 4463 |
| Basin#8 | 4.15 | 4503 |
| Basin#8 | 4.20 | 4543 |
| Basin#8 | 4.25 | 4584 |
| Basin#8 | 4.30 | 4625 |
| Basin#8 | 4.35 | 4666 |
| Basin#8 | 4.40 | 4707 |
| Basin#8 | 4.45 | 4748 |
| Basin#8 | 4.50 | 4789 |
| Basin#8 | 4.55 | 4831 |
| Basin#8 | 4.60 | 4873 |
| Basin#8 | 4.65 | 4915 |
| Basin#8 | 4.70 | 4957 |
| Basin#8 | 4.75 | 4999 |
| Basin#8 | 4.80 | 5042 |
| Basin#8 | 4.85 | 5084 |
| Basin#8 | 4.90 | 5127 |
| Basin#8 | 4.95 | 5170 |
| Basin#8 | 5.00 | 5214 |
| Basin#8 | 5.05 | 5257 |
| Basin#8 | 5.10 | 5301 |
| Basin#8 | 5.15 | 5344 |
| Basin#8 | 5.20 | 5388 |
| Basin#8 | 5.25 | 5432 |
| Basin#8 | 5.30 | 5477 |
| Basin#8 | 5.35 | 5521 |
| Basin#8 | 5.40 | 5566 |
| Basin#8 | 5.45 | 5611 |
| Basin#8 | 5.50 | 5656 |

[TIMESERIES]

| ;;Name                                      | Date                                          | Time | Value |
|---------------------------------------------|-----------------------------------------------|------|-------|
| ;;-----                                     |                                               |      |       |
| ;Lower Otay Rain Gage from San Diego County |                                               |      |       |
| LWR0tay                                     | FILE "R:\1235\Hyd\CALCS\SWMM\LWR0tay.dat.txt" |      |       |

[REPORT]

;;Reporting Options  
SUBCATCHMENTS ALL  
NODES ALL

LINKS ALL

[TAGS]

[MAP]

DIMENSIONS 0.000 0.000 10000.000 10000.000

Units None

[COORDINATES]

| ;;Node         | X-Coord  | Y-Coord  |
|----------------|----------|----------|
| POC-6          | 1497.548 | 3440.124 |
| Div-BF-2-8     | 1103.764 | 4516.785 |
| BF-2-8_STORAGE | 452.696  | 3926.755 |

[VERTICES]

| ;;Link | X-Coord | Y-Coord |
|--------|---------|---------|
|--------|---------|---------|

[Polygons]

| ;;Subcatchment | X-Coord  | Y-Coord  |
|----------------|----------|----------|
| DMA8           | 895.672  | 5658.981 |
| DMA7           | 1910.777 | 5030.155 |
| BF-2-8         | 900.305  | 5005.086 |
| Natural        | 2692.318 | 3404.191 |

[SYMBOLS]

| ;;Gage  | X-Coord  | Y-Coord  |
|---------|----------|----------|
| LWR0tay | 1713.146 | 6081.193 |

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

-----

WARNING 04: minimum elevation drop used for Conduit Bypass-8  
 WARNING 04: minimum elevation drop used for Conduit 2

\*\*\*\*\*

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 ..... 08/28/1951 05:00:00

Ending Date ..... 05/23/2008 23:00:00

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  |
| *****                      | -----     | -----   |
| Initial LID Storage .....  | 0.007     | 0.000   |
| Total Precipitation .....  | 40212.577 | 591.650 |
| Evaporation Loss .....     | 1722.041  | 25.336  |
| Infiltration Loss .....    | 35518.453 | 522.585 |
| Surface Runoff .....       | 3021.675  | 44.458  |
| LID Drainage .....         | 31.081    | 0.457   |
| Final Storage .....        | 0.006     | 0.000   |
| Continuity Error (%) ..... | -0.201    |         |



1235 VILLAGE 14 POC6-PR - SWMM 5.1.rpt

```

*****
Flow Routing Continuity      Volume      Volume
                             acre-feet    10^6 gal
*****
Dry Weather Inflow .....    0.000      0.000
Wet Weather Inflow .....  3052.756    994.786
Groundwater Inflow .....    0.000      0.000
RDII Inflow .....          0.000      0.000
External Inflow .....       0.000      0.000
External Outflow .....     3052.156    994.591
Flooding Loss .....         0.000      0.000
Evaporation Loss .....      0.599      0.195
Exfiltration Loss .....      0.000      0.000
Initial Stored Volume ....    0.000      0.000
Final Stored Volume .....    0.000      0.000
Continuity Error (%) .....    0.000

```

```

*****
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
*****

```

```

-----
Perv      Total      Total      Total      Total      Total      Total      Imperv
Runoff    Runoff    Precip    Peak      Runoff    Evap      Infil      Runoff
Subcatchment  Runoff    Runoff    Runoff    Runoff    in        in        in
in        in        10^6 gal  in        in        in        in        in
CFS
-----

```

1235 VILLAGE 14 POC6-PR - SWMM 5.1.rpt

|         |          |        |          |        |        |        |
|---------|----------|--------|----------|--------|--------|--------|
| DMA8    |          | 591.65 | 0.00     | 62.04  | 297.12 | 195.74 |
| 39.45   | 235.19   | 13.60  | 1.23     | 0.398  |        |        |
| DMA7    |          | 591.65 | 0.00     | 84.69  | 189.68 | 292.49 |
| 27.43   | 319.92   | 22.25  | 1.72     | 0.541  |        |        |
| BF-2-8  |          | 591.65 | 12218.16 | 871.04 | 643.73 | 0.00   |
| 0.00    | 11295.05 | 12.57  | 1.23     | 0.882  |        |        |
| Natural |          | 591.65 | 0.00     | 25.01  | 524.22 | 0.00   |
| 43.60   | 43.60    | 959.89 | 153.92   | 0.074  |        |        |

\*\*\*\*\*  
LID Performance Summary  
\*\*\*\*\*

| Drain        | Initial     | Final   | Continuity | Total    | Evap   | Infil  | Surface |
|--------------|-------------|---------|------------|----------|--------|--------|---------|
| Outflow      | Storage     | Storage | Error      | Inflow   | Loss   | Loss   | Outflow |
| Subcatchment | LID Control |         | %          | in       | in     | in     | in      |
| BF-2-8       | LID-8       |         |            | 12809.81 | 871.07 | 643.76 | 2198.20 |
| 9097.26      | 1.93        | 1.80    | -0.00      |          |        |        |         |

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

| Node           | Type    | Average<br>Depth<br>Feet | Maximum<br>Depth<br>Feet | Maximum<br>HGL<br>Feet | Time of Max<br>Occurrence<br>days hr:min | Reported<br>Max Depth<br>Feet |
|----------------|---------|--------------------------|--------------------------|------------------------|------------------------------------------|-------------------------------|
| POC-6          | OUTFALL | 0.00                     | 0.00                     | 0.00                   | 0 00:00                                  | 0.00                          |
| Div-BF-2-8     | DIVIDER | 0.00                     | 0.00                     | 0.00                   | 0 00:00                                  | 0.00                          |
| BF-2-8_STORAGE | STORAGE | 0.03                     | 3.58                     | 3.58                   | 11509 16:19                              | 3.55                          |

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

1235 VILLAGE 14 POC6-PR - SWMM 5.1.rpt

| Total Inflow Volume<br>Node<br>gal | Flow Balance<br>Error<br>Percent | Type | Maximum Lateral<br>Inflow<br>CFS | Maximum Total<br>Inflow<br>CFS | Time of Occurrence<br>days hr:min | Max<br>Inflow<br>Volume<br>10^6 gal | 10^6 |
|------------------------------------|----------------------------------|------|----------------------------------|--------------------------------|-----------------------------------|-------------------------------------|------|
|------------------------------------|----------------------------------|------|----------------------------------|--------------------------------|-----------------------------------|-------------------------------------|------|

|                        |       |         |        |        |             |      |  |
|------------------------|-------|---------|--------|--------|-------------|------|--|
| POC-6<br>995           | 0.000 | OUTFALL | 155.55 | 155.58 | 16965 12:01 | 982  |  |
| Div-BF-2-8<br>12.6     | 0.000 | DIVIDER | 1.23   | 1.23   | 16971 12:16 | 12.6 |  |
| BF-2-8_STORAGE<br>6.15 | 0.003 | STORAGE | 0.00   | 1.22   | 16971 12:16 | 0    |  |

\*\*\*\*\*

Node Flooding Summary

\*\*\*\*\*

No nodes were flooded.

\*\*\*\*\*

Storage Volume Summary

\*\*\*\*\*

| of Max Occurrence<br>Storage Unit<br>hr:min | Maximum Outflow<br>CFS | Average Volume<br>1000 ft3 | Avg Pcnt<br>Full | Evap Pcnt<br>Loss | Exfil Pcnt<br>Loss | Maximum Volume<br>1000 ft3 | Max Pcnt<br>Full | Time<br>days |
|---------------------------------------------|------------------------|----------------------------|------------------|-------------------|--------------------|----------------------------|------------------|--------------|
|---------------------------------------------|------------------------|----------------------------|------------------|-------------------|--------------------|----------------------------|------------------|--------------|

|                         |      |       |   |   |   |        |    |       |
|-------------------------|------|-------|---|---|---|--------|----|-------|
| BF-2-8_STORAGE<br>16:19 | 0.58 | 0.053 | 0 | 3 | 0 | 10.175 | 52 | 11509 |
|-------------------------|------|-------|---|---|---|--------|----|-------|

\*\*\*\*\*

Outfall Loading Summary

\*\*\*\*\*

| Outfall Node | Flow<br>Freq<br>Pcnt | Avg<br>Flow<br>CFS | Max<br>Flow<br>CFS | Total<br>Volume<br>10^6 gal |
|--------------|----------------------|--------------------|--------------------|-----------------------------|
| POC-6        | 7.51                 | 0.99               | 155.58             | 994.517                     |
| System       | 7.51                 | 0.99               | 155.58             | 994.517                     |

\*\*\*\*\*

Link Flow Summary

\*\*\*\*\*

| Link     | Type  | Maximum<br> Flow <br>CFS | Time of Max<br>Occurrence<br>days hr:min | Maximum<br> Veloc <br>ft/sec | Max/<br>Full<br>Flow | Max/<br>Full<br>Depth |
|----------|-------|--------------------------|------------------------------------------|------------------------------|----------------------|-----------------------|
| Bypass-8 | DUMMY | 1.22                     | 16971 12:16                              |                              |                      |                       |
| 2        | DUMMY | 0.01                     | 124 04:54                                |                              |                      |                       |
| 1        | DUMMY | 0.58                     | 11509 16:19                              |                              |                      |                       |

\*\*\*\*\*

Conduit Surcharge Summary

\*\*\*\*\*

No conduits were surcharged.

Analysis begun on: Wed Nov 6 21:37:48 2019

Analysis ended on: Wed Nov 6 21:38:16 2019

Total elapsed time: 00:00:28

POC 7 – Existing Condition

1235 VILLAGE 14 POC7-EX - SWMM 5.1.inp

[TITLE]

;;Project Title/Notes

[OPTIONS]

|                   |            |
|-------------------|------------|
| ;;Option          | Value      |
| FLOW_UNITS        | CFS        |
| INFILTRATION      | GREEN_AMPT |
| FLOW_ROUTING      | KINWAVE    |
| LINK_OFFSETS      | DEPTH      |
| MIN_SLOPE         | 0          |
| ALLOW_PONDING     | NO         |
| SKIP_STEADY_STATE | NO         |

|                   |            |
|-------------------|------------|
| START_DATE        | 10/01/1951 |
| START_TIME        | 00:00:00   |
| REPORT_START_DATE | 10/01/1951 |
| REPORT_START_TIME | 00:00:00   |
| END_DATE          | 09/30/2008 |
| END_TIME          | 22:00:00   |
| SWEEP_START       | 01/01      |
| SWEEP_END         | 12/31      |
| DRY_DAYS          | 0          |
| REPORT_STEP       | 01:00:00   |
| WET_STEP          | 00:15:00   |
| DRY_STEP          | 04:00:00   |
| ROUTING_STEP      | 0:01:00    |
| RULE_STEP         | 00:00:00   |

|                     |         |
|---------------------|---------|
| INERTIAL_DAMPING    | PARTIAL |
| NORMAL_FLOW_LIMITED | BOTH    |
| FORCE_MAIN_EQUATION | H-W     |
| VARIABLE_STEP       | 0.75    |
| LENGTHENING_STEP    | 0       |
| MIN_SURFAREA        | 0       |
| MAX_TRIALS          | 0       |
| HEAD_TOLERANCE      | 0       |
| SYS_FLOW_TOL        | 5       |
| LAT_FLOW_TOL        | 5       |
| MINIMUM_STEP        | 0.5     |
| THREADS             | 1       |

[EVAPORATION]

;;Data Source Parameters

;;

|           |      |      |      |      |      |      |      |      |      |      |
|-----------|------|------|------|------|------|------|------|------|------|------|
| MONTHLY   | 0.05 | 0.09 | 0.13 | 0.19 | 0.25 | 0.29 | 0.30 | 0.27 | 0.21 | 0.14 |
| 0.08 0.05 |      |      |      |      |      |      |      |      |      |      |
| DRY_ONLY  | NO   |      |      |      |      |      |      |      |      |      |

[RAINGAGES]

```

1235 VILLAGE 14 POC7-EX - SWMM 5.1.inp
;;Name      Format      Interval SCF      Source
;;-----
LWR0tay     INTENSITY 1:00      1.0      TIMESERIES LWR0tay

[SUBCATCHMENTS]
;;Name      Rain Gage      Outlet      Area      %Imperv      Width      %Slope
;;CurbLen   SnowPack
;;-----
;Existing Area
POC7EXArea  LWR0tay      POC7Ex      747.91    0      3229      2.6
0

[SUBAREAS]
;;Subcatchment N-Imperv N-Perv S-Imperv S-Perv PctZero RouteTo
PctRouted
;;-----
POC7EXArea   .012      0.15      0.05      .10      25      OUTLET

[INFILTRATION]
;;Subcatchment Suction Ksat IMD
;;-----
POC7EXArea   9      .025      0.30

[OUTFALLS]
;;Name      Elevation Type      Stage Data      Gated      Route To
;;-----
POC7Ex       0      FREE      NO

[TIMESERIES]
;;Name      Date      Time      Value
;;-----
;From County
LWR0tay      FILE "R:\1235\Hyd\CALCS\SWMM\LWR0tay.dat.txt"

[REPORT]
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]

```

```

1235 VILLAGE 14 POC7-EX - SWMM 5.1.inp
;;Node      X-Coord      Y-Coord
;;-----
POC7Ex      1740.113      3977.401

[VERTICES]
;;Link      X-Coord      Y-Coord
;;-----

[Polygons]
;;Subcatchment X-Coord      Y-Coord
;;-----
POC7EXArea  890.923      5558.444

[SYMBOLS]
;;Gage      X-Coord      Y-Coord
;;-----
LWR0tay     2384.000      5666.000

```



EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

\*\*\*\*\*  
 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 ..... 10/01/1951 00:00:00

Ending Date ..... 09/30/2008 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 .....  | 36858.251 | 591.380 |
| Evaporation Loss .....     | 1994.188  | 31.996  |
| Infiltration Loss .....    | 33354.271 | 535.160 |
| Surface Runoff .....       | 2267.269  | 36.378  |
| Final Storage .....        | 0.000     | 0.000   |
| Continuity Error (%) ..... | -2.055    |         |

| *****                    | Volume    | Volume   |
|--------------------------|-----------|----------|
| Flow Routing Continuity  | acre-feet | 10^6 gal |
| *****                    | -----     | -----    |
| Dry Weather Inflow ..... | 0.000     | 0.000    |
| Wet Weather Inflow ..... | 2267.269  | 738.824  |
| Groundwater Inflow ..... | 0.000     | 0.000    |
| RDII Inflow .....        | 0.000     | 0.000    |

1235 VILLAGE 14 POC7-EX - SWMM 5.1.rpt

|                            |          |         |
|----------------------------|----------|---------|
| External Inflow .....      | 0.000    | 0.000   |
| External Outflow .....     | 2267.269 | 738.824 |
| 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

\*\*\*\*\*

| Perv         | Total  | Total    | Total  | Total  | Total | Total | Imperv |
|--------------|--------|----------|--------|--------|-------|-------|--------|
| Runoff       | Runoff | Runoff   | Peak   | Runoff | Evap  | Infil | Runoff |
| Subcatchment | Runoff | Precip   | Runoff | Runon  |       |       |        |
| in           | in     | 10^6 gal | in     | Coeff  | in    | in    | in     |

|            |       |        |        |       |        |      |
|------------|-------|--------|--------|-------|--------|------|
| POC7EXArea |       | 591.38 | 0.00   | 32.00 | 535.16 | 0.00 |
| 36.38      | 36.38 | 738.77 | 110.89 | 0.062 |        |      |

Analysis begun on: Wed Nov 6 21:29:18 2019

Analysis ended on: Wed Nov 6 21:29:31 2019

Total elapsed time: 00:00:13

## POC 7 – Proposed Condition

1235 VILLAGE 14 POC7-PR - SWMM 5.1.inp

[TITLE]

;;Project Title/Notes

[OPTIONS]

|                   |            |
|-------------------|------------|
| ;;Option          | Value      |
| FLOW_UNITS        | CFS        |
| INFILTRATION      | GREEN_AMPT |
| FLOW_ROUTING      | KINWAVE    |
| LINK_OFFSETS      | DEPTH      |
| MIN_SLOPE         | 0          |
| ALLOW_PONDING     | NO         |
| SKIP_STEADY_STATE | NO         |

|                   |            |
|-------------------|------------|
| START_DATE        | 08/28/1951 |
| START_TIME        | 05:00:00   |
| REPORT_START_DATE | 08/28/1951 |
| REPORT_START_TIME | 05:00:00   |
| END_DATE          | 05/23/2008 |
| END_TIME          | 23:00:00   |
| SWEEP_START       | 01/01      |
| SWEEP_END         | 12/31      |
| DRY_DAYS          | 0          |
| REPORT_STEP       | 01:00:00   |
| WET_STEP          | 00:15:00   |
| DRY_STEP          | 04:00:00   |
| ROUTING_STEP      | 0:01:00    |
| RULE_STEP         | 00:00:00   |

|                     |         |
|---------------------|---------|
| INERTIAL_DAMPING    | PARTIAL |
| NORMAL_FLOW_LIMITED | BOTH    |
| FORCE_MAIN_EQUATION | H-W     |
| VARIABLE_STEP       | 0.75    |
| LENGTHENING_STEP    | 0       |
| MIN_SURFAREA        | 0       |
| MAX_TRIALS          | 0       |
| HEAD_TOLERANCE      | 0       |
| SYS_FLOW_TOL        | 5       |
| LAT_FLOW_TOL        | 5       |
| MINIMUM_STEP        | 0.5     |
| THREADS             | 1       |

[EVAPORATION]

;;Data Source Parameters

;;

|           |      |      |      |      |      |      |      |      |      |      |
|-----------|------|------|------|------|------|------|------|------|------|------|
| MONTHLY   | 0.05 | 0.09 | 0.13 | 0.19 | 0.25 | 0.29 | 0.30 | 0.27 | 0.21 | 0.14 |
| 0.08 0.05 |      |      |      |      |      |      |      |      |      |      |
| DRY_ONLY  | NO   |      |      |      |      |      |      |      |      |      |

[RAINGAGES]

1235 VILLAGE 14 POC7-PR - SWMM 5.1.inp

```

;;Name          Format      Interval SCF      Source
;;-----
LWR0tay         INTENSITY 1:00      1.0      TIMESERIES LWR0tay

[SUBCATCHMENTS]
;;Name          Rain Gage      Outlet      Area      %Imperv  Width      %Slope
;;CurbLen  SnowPack
;;-----
;DMA#10 TRIBUTARY TO BASIN-1-10
DMA10           LWR0tay         BASIN-2-10      12.41      29.5      60      1.1
0
;DMA #9 DISCHARGING TO POC7
DMA9            LWR0tay         POC-7-PR        2.458      67.0      60      1.9
0
BASIN-2-10      LWR0tay         DIV-10          0.244      0         100      0.1
0
;Offsite areas tributary to poc-7
DMA-9-10-OFFSITE-NATURAL LWR0tay         POC-7-PR        732.8      0         3164
2.6      0

[SUBAREAS]
;;Subcatchment  N-Imperv  N-Perv      S-Imperv  S-Perv      PctZero      RouteTo
PctRouted
;;-----
DMA10           .012      0.15      0.05      .10         25           OUTLET
DMA9            0.012      0.15      0.05      .10         25           OUTLET
BASIN-2-10      0.012      0.15      0.05      .10         25           OUTLET
DMA-9-10-OFFSITE-NATURAL .012      0.15      0.05      0.10        25
OUTLET

[INFILTRATION]
;;Subcatchment  Suction      Ksat      IMD
;;-----
DMA10           9           0.025      0.30
DMA9            9           .025      0.30
BASIN-2-10      1.5         0.3        0.33
DMA-9-10-OFFSITE-NATURAL 9           .025      .30

[LID_CONTROLS]
;;Name          Type/Layer  Parameters
;;-----
LID-10          BC
LID-10          SURFACE    6          0          0          0          5
LID-10          SOIL       18         0.4        0.2        0.1        5          5
1.5
LID-10          STORAGE    18         .67        0.025      0
LID-10          DRAIN      0.1602     0.5        3          6          0          0

```

1235 VILLAGE 14 POC7-PR - SWMM 5.1.inp

[LID\_USAGE]

| Subcatchment<br>ToPerv | LID Process<br>RptFile | Number<br>DrainTo | Area     | Width<br>FromPerv | InitSat | FromImp |
|------------------------|------------------------|-------------------|----------|-------------------|---------|---------|
| BASIN-2-10<br>0        | LID-10<br>*            | 1<br>*            | 10628.64 | 0<br>100          | 0       | 100     |

[OUTFALLS]

| Name     | Elevation | Type | Stage Data | Gated | Route To |
|----------|-----------|------|------------|-------|----------|
| POC-7-PR | 0         | FREE |            | NO    |          |

[DIVIDERS]

| Name        | Elevation | Diverted Link | Type   | Parameters |
|-------------|-----------|---------------|--------|------------|
| DIV-10<br>0 | 0<br>0    | Bypass-7      | CUTOFF | 0.092 0 0  |

[STORAGE]

| Name<br>N/A             | Elev.<br>Fevap | MaxDepth<br>Psi | InitDepth<br>Ksat | Shape<br>IMD | Curve Name/Params |
|-------------------------|----------------|-----------------|-------------------|--------------|-------------------|
| BASIN-2-10-STORAGE<br>0 | 0<br>1         | 5.5             | 0                 | TABULAR      | Basin#10          |

[CONDUITS]

| Name<br>OutOffset | From Node<br>InitFlow | To Node<br>MaxFlow      | Length | Roughness | InOffset |
|-------------------|-----------------------|-------------------------|--------|-----------|----------|
| Bypass-7<br>0     | DIV-10<br>0           | BASIN-2-10-STORAGE<br>0 | 1      | 0.01      | 0        |
| 2<br>0            | DIV-10<br>0           | POC-7-PR                | 1      | 0.01      | 0        |

[OUTLETS]

| Name<br>QTable/Qcoeff | From Node<br>Qexpon      | To Node<br>Gated | Offset | Type          |
|-----------------------|--------------------------|------------------|--------|---------------|
| 10<br>Basin#100outlet | BASIN-2-10-STORAGE<br>NO | POC-7-PR         | 0      | TABULAR/DEPTH |

[XSECTIONS]

| ;;Link<br>Barrels | Shape<br>Culvert | Geom1 | Geom2 | Geom3 | Geom4 |   |
|-------------------|------------------|-------|-------|-------|-------|---|
| Bypass-7          | DUMMY            | 0     | 0     | 0     | 0     | 1 |
| 2                 | DUMMY            | 0     | 0     | 0     | 0     | 1 |

## [CURVES]

| ;;Name          | Type   | X-Value | Y-Value |
|-----------------|--------|---------|---------|
| Basin#100Outlet | Rating | 0       | 0.0000  |
| Basin#100Outlet |        | 0.05    | 0.0025  |
| Basin#100Outlet |        | 0.1     | 0.0085  |
| Basin#100Outlet |        | 0.15    | 0.0131  |
| Basin#100Outlet |        | 0.2     | 0.0160  |
| Basin#100Outlet |        | 0.25    | 0.0186  |
| Basin#100Outlet |        | 0.3     | 0.0208  |
| Basin#100Outlet |        | 0.35    | 0.0228  |
| Basin#100Outlet |        | 0.4     | 0.0246  |
| Basin#100Outlet |        | 0.45    | 0.0263  |
| Basin#100Outlet |        | 0.5     | 0.0279  |
| Basin#100Outlet |        | 0.55    | 0.0294  |
| Basin#100Outlet |        | 0.6     | 0.0309  |
| Basin#100Outlet |        | 0.65    | 0.0323  |
| Basin#100Outlet |        | 0.7     | 0.0336  |
| Basin#100Outlet |        | 0.75    | 0.0349  |
| Basin#100Outlet |        | 0.8     | 0.0361  |
| Basin#100Outlet |        | 0.85    | 0.0373  |
| Basin#100Outlet |        | 0.9     | 0.0384  |
| Basin#100Outlet |        | 0.95    | 0.0395  |
| Basin#100Outlet |        | 1       | 0.0406  |
| Basin#100Outlet |        | 1.05    | 0.0417  |
| Basin#100Outlet |        | 1.1     | 0.0427  |
| Basin#100Outlet |        | 1.15    | 0.0437  |
| Basin#100Outlet |        | 1.2     | 0.0447  |
| Basin#100Outlet |        | 1.25    | 0.0457  |
| Basin#100Outlet |        | 1.3     | 0.0466  |
| Basin#100Outlet |        | 1.35    | 0.0475  |
| Basin#100Outlet |        | 1.4     | 0.0484  |
| Basin#100Outlet |        | 1.45    | 0.0493  |
| Basin#100Outlet |        | 1.5     | 0.0502  |
| Basin#100Outlet |        | 1.55    | 0.0511  |
| Basin#100Outlet |        | 1.6     | 0.0519  |
| Basin#100Outlet |        | 1.65    | 0.0527  |
| Basin#100Outlet |        | 1.7     | 0.0536  |
| Basin#100Outlet |        | 1.75    | 0.0544  |
| Basin#100Outlet |        | 1.8     | 0.0552  |

1235 VILLAGE 14 POC7-PR - SWMM 5.1.inp

|                 |      |         |
|-----------------|------|---------|
| Basin#100Outlet | 1.85 | 0.0559  |
| Basin#100Outlet | 1.9  | 0.0567  |
| Basin#100Outlet | 1.95 | 0.0575  |
| Basin#100Outlet | 2    | 0.0582  |
| Basin#100Outlet | 2.05 | 0.0590  |
| Basin#100Outlet | 2.1  | 0.0597  |
| Basin#100Outlet | 2.15 | 0.0604  |
| Basin#100Outlet | 2.2  | 0.0611  |
| Basin#100Outlet | 2.25 | 0.0618  |
| Basin#100Outlet | 2.3  | 0.0625  |
| Basin#100Outlet | 2.35 | 0.0632  |
| Basin#100Outlet | 2.4  | 0.0639  |
| Basin#100Outlet | 2.45 | 0.0646  |
| Basin#100Outlet | 2.5  | 0.0653  |
| Basin#100Outlet | 2.55 | 0.0701  |
| Basin#100Outlet | 2.6  | 0.0823  |
| Basin#100Outlet | 2.65 | 0.1007  |
| Basin#100Outlet | 2.7  | 0.1238  |
| Basin#100Outlet | 2.75 | 0.1497  |
| Basin#100Outlet | 2.8  | 0.1697  |
| Basin#100Outlet | 2.85 | 0.1838  |
| Basin#100Outlet | 2.9  | 0.1964  |
| Basin#100Outlet | 2.95 | 0.2080  |
| Basin#100Outlet | 3    | 0.2188  |
| Basin#100Outlet | 3.05 | 0.2289  |
| Basin#100Outlet | 3.1  | 0.2384  |
| Basin#100Outlet | 3.15 | 0.2475  |
| Basin#100Outlet | 3.2  | 0.2562  |
| Basin#100Outlet | 3.25 | 0.2646  |
| Basin#100Outlet | 3.3  | 0.2726  |
| Basin#100Outlet | 3.35 | 0.2804  |
| Basin#100Outlet | 3.4  | 0.2879  |
| Basin#100Outlet | 3.45 | 0.2952  |
| Basin#100Outlet | 3.5  | 0.3022  |
| Basin#100Outlet | 3.55 | 0.5325  |
| Basin#100Outlet | 3.6  | 0.9477  |
| Basin#100Outlet | 3.65 | 1.4831  |
| Basin#100Outlet | 3.7  | 2.1159  |
| Basin#100Outlet | 3.75 | 2.8326  |
| Basin#100Outlet | 3.8  | 3.6243  |
| Basin#100Outlet | 3.85 | 4.4844  |
| Basin#100Outlet | 3.9  | 5.4077  |
| Basin#100Outlet | 3.95 | 6.3903  |
| Basin#100Outlet | 4    | 7.4287  |
| Basin#100Outlet | 4.05 | 8.5199  |
| Basin#100Outlet | 4.1  | 9.6616  |
| Basin#100Outlet | 4.15 | 10.8516 |
| Basin#100Outlet | 4.2  | 12.0881 |
| Basin#100Outlet | 4.25 | 13.3692 |



1235 VILLAGE 14 POC7-PR - SWMM 5.1.inp

|                 |      |         |
|-----------------|------|---------|
| Basin#100outlet | 4.3  | 14.6935 |
| Basin#100outlet | 4.35 | 16.0596 |
| Basin#100outlet | 4.4  | 17.4664 |
| Basin#100outlet | 4.45 | 18.9125 |
| Basin#100outlet | 4.5  | 20.3970 |
| Basin#100outlet | 4.55 | 21.9189 |
| Basin#100outlet | 4.6  | 23.4774 |
| Basin#100outlet | 4.65 | 25.0715 |
| Basin#100outlet | 4.7  | 26.7005 |
| Basin#100outlet | 4.75 | 28.3636 |
| Basin#100outlet | 4.8  | 30.0602 |
| Basin#100outlet | 4.85 | 31.7896 |
| Basin#100outlet | 4.9  | 33.5512 |
| Basin#100outlet | 4.95 | 35.3444 |
| Basin#100outlet | 5    | 37.1687 |
| Basin#100outlet | 5.05 | 39.0236 |
| Basin#100outlet | 5.1  | 40.9084 |
| Basin#100outlet | 5.15 | 42.8229 |
| Basin#100outlet | 5.2  | 44.7665 |
| Basin#100outlet | 5.25 | 46.7388 |
| Basin#100outlet | 5.3  | 48.7393 |
| Basin#100outlet | 5.35 | 50.7678 |
| Basin#100outlet | 5.4  | 52.8238 |
| Basin#100outlet | 5.45 | 54.9069 |
| Basin#100outlet | 5.5  | 57.0168 |

;

;Basin #1

|          |         |      |       |
|----------|---------|------|-------|
| Basin#10 | Storage | 0    | 10630 |
| Basin#10 |         | 0.05 | 10692 |
| Basin#10 |         | 0.1  | 10754 |
| Basin#10 |         | 0.15 | 10816 |
| Basin#10 |         | 0.2  | 10878 |
| Basin#10 |         | 0.25 | 10941 |
| Basin#10 |         | 0.3  | 11004 |
| Basin#10 |         | 0.35 | 11067 |
| Basin#10 |         | 0.4  | 11130 |
| Basin#10 |         | 0.45 | 11194 |
| Basin#10 |         | 0.5  | 11257 |
| Basin#10 |         | 0.55 | 11321 |
| Basin#10 |         | 0.6  | 11385 |
| Basin#10 |         | 0.65 | 11449 |
| Basin#10 |         | 0.7  | 11513 |
| Basin#10 |         | 0.75 | 11578 |
| Basin#10 |         | 0.8  | 11642 |
| Basin#10 |         | 0.85 | 11707 |
| Basin#10 |         | 0.9  | 11772 |
| Basin#10 |         | 0.95 | 11837 |
| Basin#10 |         | 1    | 11903 |
| Basin#10 |         | 1.05 | 11968 |

1235 VILLAGE 14 POC7-PR - SWMM 5.1.inp

|          |      |       |
|----------|------|-------|
| Basin#10 | 1.1  | 12034 |
| Basin#10 | 1.15 | 12100 |
| Basin#10 | 1.2  | 12166 |
| Basin#10 | 1.25 | 12232 |
| Basin#10 | 1.3  | 12299 |
| Basin#10 | 1.35 | 12365 |
| Basin#10 | 1.4  | 12432 |
| Basin#10 | 1.45 | 12499 |
| Basin#10 | 1.5  | 12566 |
| Basin#10 | 1.55 | 12634 |
| Basin#10 | 1.6  | 12701 |
| Basin#10 | 1.65 | 12769 |
| Basin#10 | 1.7  | 12837 |
| Basin#10 | 1.75 | 12905 |
| Basin#10 | 1.8  | 12973 |
| Basin#10 | 1.85 | 13042 |
| Basin#10 | 1.9  | 13110 |
| Basin#10 | 1.95 | 13179 |
| Basin#10 | 2    | 13248 |
| Basin#10 | 2.05 | 13317 |
| Basin#10 | 2.1  | 13386 |
| Basin#10 | 2.15 | 13456 |
| Basin#10 | 2.2  | 13526 |
| Basin#10 | 2.25 | 13596 |
| Basin#10 | 2.3  | 13666 |
| Basin#10 | 2.35 | 13736 |
| Basin#10 | 2.4  | 13806 |
| Basin#10 | 2.45 | 13877 |
| Basin#10 | 2.5  | 13948 |
| Basin#10 | 2.55 | 14019 |
| Basin#10 | 2.6  | 14090 |
| Basin#10 | 2.65 | 14161 |
| Basin#10 | 2.7  | 14232 |
| Basin#10 | 2.75 | 14304 |
| Basin#10 | 2.8  | 14376 |
| Basin#10 | 2.85 | 14448 |
| Basin#10 | 2.9  | 14520 |
| Basin#10 | 2.95 | 14593 |
| Basin#10 | 3    | 14665 |
| Basin#10 | 3.05 | 14738 |
| Basin#10 | 3.1  | 14811 |
| Basin#10 | 3.15 | 14884 |
| Basin#10 | 3.2  | 14957 |
| Basin#10 | 3.25 | 15031 |
| Basin#10 | 3.3  | 15104 |
| Basin#10 | 3.35 | 15178 |
| Basin#10 | 3.4  | 15252 |
| Basin#10 | 3.45 | 15326 |
| Basin#10 | 3.5  | 15401 |

1235 VILLAGE 14 POC7-PR - SWMM 5.1.inp

|          |      |       |
|----------|------|-------|
| Basin#10 | 3.55 | 15475 |
| Basin#10 | 3.6  | 15550 |
| Basin#10 | 3.65 | 15625 |
| Basin#10 | 3.7  | 15700 |
| Basin#10 | 3.75 | 15775 |
| Basin#10 | 3.8  | 15851 |
| Basin#10 | 3.85 | 15926 |
| Basin#10 | 3.9  | 16002 |
| Basin#10 | 3.95 | 16078 |
| Basin#10 | 4    | 16154 |
| Basin#10 | 4.05 | 16231 |
| Basin#10 | 4.1  | 16307 |
| Basin#10 | 4.15 | 16384 |
| Basin#10 | 4.2  | 16461 |
| Basin#10 | 4.25 | 16538 |
| Basin#10 | 4.3  | 16615 |
| Basin#10 | 4.35 | 16693 |
| Basin#10 | 4.4  | 16770 |
| Basin#10 | 4.45 | 16848 |
| Basin#10 | 4.5  | 16926 |
| Basin#10 | 4.55 | 17004 |
| Basin#10 | 4.6  | 17082 |
| Basin#10 | 4.65 | 17161 |
| Basin#10 | 4.7  | 17240 |
| Basin#10 | 4.75 | 17319 |
| Basin#10 | 4.8  | 17398 |
| Basin#10 | 4.85 | 17477 |
| Basin#10 | 4.9  | 17556 |
| Basin#10 | 4.95 | 17636 |
| Basin#10 | 5    | 17716 |
| Basin#10 | 5.05 | 17796 |
| Basin#10 | 5.1  | 17876 |
| Basin#10 | 5.15 | 17956 |
| Basin#10 | 5.2  | 18036 |
| Basin#10 | 5.25 | 18117 |
| Basin#10 | 5.3  | 18198 |
| Basin#10 | 5.35 | 18279 |
| Basin#10 | 5.4  | 18360 |
| Basin#10 | 5.45 | 18442 |
| Basin#10 | 5.5  | 18523 |

[TIMESERIES]

| ;;Name                                      | Date                                          | Time | Value |
|---------------------------------------------|-----------------------------------------------|------|-------|
| ;;-----                                     |                                               |      |       |
| ;Lower Otay Rain Gage from San Diego County |                                               |      |       |
| LWR0tay                                     | FILE "R:\1235\Hyd\CALCS\SWMM\LWR0tay.dat.txt" |      |       |

[REPORT]

;;Reporting Options

SUBCATCHMENTS ALL

NODES ALL

LINKS ALL

[TAGS]

[MAP]

DIMENSIONS 0.000 0.000 10000.000 10000.000

Units None

[COORDINATES]

| ;;Node             | X-Coord  | Y-Coord  |
|--------------------|----------|----------|
| POC-7-PR           | 1571.101 | 3342.890 |
| DIV-10             | 1009.174 | 4581.422 |
| BASIN-2-10-STORAGE | 525.611  | 3797.097 |

[VERTICES]

| ;;Link | X-Coord | Y-Coord |
|--------|---------|---------|
|--------|---------|---------|

[Polygons]

| ;;Subcatchment           | X-Coord  | Y-Coord  |
|--------------------------|----------|----------|
| DMA10                    | 890.923  | 5558.444 |
| DMA9                     | 1988.494 | 4896.078 |
| BASIN-2-10               | 904.472  | 4959.350 |
| DMA-9-10-OFFSITE-NATURAL | 2736.451 | 3177.471 |

[SYMBOLS]

| ;;Gage  | X-Coord  | Y-Coord  |
|---------|----------|----------|
| LWR0tay | 1483.740 | 5365.854 |

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

-----

WARNING 04: minimum elevation drop used for Conduit Bypass-7  
 WARNING 04: minimum elevation drop used for Conduit 2

\*\*\*\*\*

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 ..... 08/28/1951 05:00:00

Ending Date ..... 05/23/2008 23:00:00

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  |
| *****                      | -----     | -----   |
| Initial LID Storage .....  | 0.037     | 0.001   |
| Total Precipitation .....  | 36875.178 | 591.650 |
| Evaporation Loss .....     | 1654.012  | 26.538  |
| Infiltration Loss .....    | 32821.131 | 526.604 |
| Surface Runoff .....       | 2350.135  | 37.707  |
| LID Drainage .....         | 121.121   | 1.943   |
| Final Storage .....        | 0.037     | 0.001   |
| Continuity Error (%) ..... | -0.193    |         |

1235 VILLAGE 14 POC7-PR - SWMM 5.1.rpt

```

*****
Flow Routing Continuity      Volume      Volume
                             acre-feet    10^6 gal
*****
Dry Weather Inflow .....    0.000      0.000
Wet Weather Inflow .....  2471.256    805.296
Groundwater Inflow .....    0.000      0.000
RDII Inflow .....          0.000      0.000
External Inflow .....       0.000      0.000
External Outflow .....     2467.896    804.201
Flooding Loss .....         0.000      0.000
Evaporation Loss .....      3.359      1.095
Exfiltration Loss .....     0.000      0.000
Initial Stored Volume ....    0.000      0.000
Final Stored Volume .....    0.000      0.000
Continuity Error (%) .....    0.000

```

```

*****
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
*****

```

```

-----
Perv      Total      Total      Total      Total      Total      Total      Imperv
Runoff    Runoff    Precip    Peak      Runoff    Evap      Infil      Runoff
Subcatchment  Runoff    Runoff    Runoff    Runoff    in        in        in
in        in        10^6 gal  in        in        in        in        in
CFS
-----

```

1235 VILLAGE 14 POC7-PR - SWMM 5.1.rpt

|                          |         |        |         |        |         |        |
|--------------------------|---------|--------|---------|--------|---------|--------|
| DMA10                    |         | 591.65 | 0.00    | 57.79  | 373.94  | 135.00 |
| 26.20                    | 161.19  | 54.32  | 3.69    | 0.272  |         |        |
| DMA9                     |         | 591.65 | 0.00    | 89.22  | 163.77  | 316.61 |
| 24.91                    | 341.52  | 22.79  | 1.73    | 0.577  |         |        |
| BASIN-2-10               |         | 591.65 | 8198.47 | 787.43 | 1260.04 | 0.00   |
| 0.00                     | 6742.43 | 44.67  | 3.71    | 0.767  |         |        |
| DMA-9-10-OFFSITE-NATURAL |         | 591.65 | 0.00    | 25.55  | 530.16  | 0.00   |
| 37.08                    | 37.08   | 737.77 | 108.37  | 0.063  |         |        |

\*\*\*\*\*

LID Performance Summary

\*\*\*\*\*

| Drain        | Initial     | Final   | Continuity | Total  | Evap | Infil | Surface |
|--------------|-------------|---------|------------|--------|------|-------|---------|
| Outflow      | Storage     | Storage | Error      | Inflow | Loss | Loss  | Outflow |
| Subcatchment | LID Control |         | %          | in     | in   | in    | in      |
| in           | in          | in      |            |        |      |       |         |

|            |        |         |        |         |        |
|------------|--------|---------|--------|---------|--------|
| BASIN-2-10 | LID-10 | 8790.12 | 787.46 | 1260.09 | 785.68 |
| 5956.99    | 1.80   | 1.80    | -0.00  |         |        |

\*\*\*\*\*

Node Depth Summary

\*\*\*\*\*

| Node               | Type    | Average<br>Depth<br>Feet | Maximum<br>Depth<br>Feet | Maximum<br>HGL<br>Feet | Time of Max<br>Occurrence<br>days hr:min | Reported<br>Max Depth<br>Feet |
|--------------------|---------|--------------------------|--------------------------|------------------------|------------------------------------------|-------------------------------|
| POC-7-PR           | OUTFALL | 0.00                     | 0.00                     | 0.00                   | 0 00:00                                  | 0.00                          |
| DIV-10             | DIVIDER | 0.00                     | 0.00                     | 0.00                   | 0 00:00                                  | 0.00                          |
| BASIN-2-10-STORAGE | STORAGE | 0.02                     | 3.66                     | 3.66                   | 11509 16:44                              | 3.65                          |

\*\*\*\*\*

Node Inflow Summary

\*\*\*\*\*

1235 VILLAGE 14 POC7-PR - SWMM 5.1.rpt

| Total Inflow Volume<br>Node<br>gal | Flow Balance<br>Error<br>Percent | Type | Maximum Lateral<br>Inflow<br>CFS | Maximum Total<br>Inflow<br>CFS | Time of Occurrence<br>days hr:min | Max<br>Inflow<br>Volume<br>10^6 gal | 10^6 |
|------------------------------------|----------------------------------|------|----------------------------------|--------------------------------|-----------------------------------|-------------------------------------|------|
|------------------------------------|----------------------------------|------|----------------------------------|--------------------------------|-----------------------------------|-------------------------------------|------|

|                            |       |         |        |        |             |      |  |
|----------------------------|-------|---------|--------|--------|-------------|------|--|
| POC-7-PR<br>804            | 0.000 | OUTFALL | 109.23 | 109.62 | 11509 16:01 | 761  |  |
| DIV-10<br>44.7             | 0.000 | DIVIDER | 3.71   | 3.71   | 16965 12:16 | 44.7 |  |
| BASIN-2-10-STORAGE<br>16.4 | 0.001 | STORAGE | 0.00   | 3.62   | 16965 12:16 | 0    |  |

\*\*\*\*\*

Node Flooding Summary

\*\*\*\*\*

No nodes were flooded.

\*\*\*\*\*

Storage Volume Summary

\*\*\*\*\*

| of Max Occurrence<br>Storage Unit<br>hr:min | Maximum Outflow<br>CFS | Average Volume<br>1000 ft3 | Avg Pcnt Full | Evap Loss | Exfil Loss | Maximum Volume<br>1000 ft3 | Max Pcnt Full | Time<br>days |
|---------------------------------------------|------------------------|----------------------------|---------------|-----------|------------|----------------------------|---------------|--------------|
|---------------------------------------------|------------------------|----------------------------|---------------|-----------|------------|----------------------------|---------------|--------------|

|                             |      |       |   |   |   |        |    |       |
|-----------------------------|------|-------|---|---|---|--------|----|-------|
| BASIN-2-10-STORAGE<br>16:43 | 1.60 | 0.279 | 0 | 7 | 0 | 47.770 | 60 | 11509 |
|-----------------------------|------|-------|---|---|---|--------|----|-------|

\*\*\*\*\*



Outfall Loading Summary

\*\*\*\*\*

| Outfall Node | Flow<br>Freq<br>Pcnt | Avg<br>Flow<br>CFS | Max<br>Flow<br>CFS | Total<br>Volume<br>10^6 gal |
|--------------|----------------------|--------------------|--------------------|-----------------------------|
| POC-7-PR     | 8.44                 | 0.71               | 109.62             | 804.141                     |
| System       | 8.44                 | 0.71               | 109.62             | 804.141                     |

\*\*\*\*\*

Link Flow Summary

\*\*\*\*\*

| Link     | Type  | Maximum<br> Flow <br>CFS | Time of Max<br>Occurrence<br>days hr:min | Maximum<br> Veloc <br>ft/sec | Max/<br>Full<br>Flow | Max/<br>Full<br>Depth |
|----------|-------|--------------------------|------------------------------------------|------------------------------|----------------------|-----------------------|
| Bypass-7 | DUMMY | 3.62                     | 16965 12:16                              |                              |                      |                       |
| 2        | DUMMY | 0.09                     | 124 06:19                                |                              |                      |                       |
| 10       | DUMMY | 1.60                     | 11509 16:44                              |                              |                      |                       |

\*\*\*\*\*

Conduit Surcharge Summary

\*\*\*\*\*

No conduits were surcharged.

Analysis begun on: Wed Nov 6 21:36:11 2019

Analysis ended on: Wed Nov 6 21:36:38 2019

Total elapsed time: 00:00:27

## EXPLANATION OF SELECTED VARIABLES

Parameters for the pre- and post-development models include soil type group D in accordance with the San Diego County Hydrology Manual and the USGS Soil Survey. Suction head, conductivity and initial deficit corresponds to average values expected for the soil types, according to sources consulted, professional experience, and approximate values obtained by the interim Orange County modeling approach.

H&A selected infiltration values, such that the percentage of total precipitation that becomes runoff, is realistic for soil type group D and slightly smaller than measured values for Southern California watersheds.

Selection of a Kinematic Approach: As the continuous model is based on hourly rainfall, and the time of concentration for the pre-development and post-development conditions is significantly smaller than 60 minutes, precise routing of the flows through the impervious surfaces, the underdrain pipe system, and the discharge pipe was considered unnecessary. The truncation error of the precipitation into hourly steps is much more significant than the precise routing in a system where the time of concentration is much smaller than 1 hour.

The area of 'POC1PRDevArea' + POC1PRBasin must be equal to the area of the development tributary to that particular biofiltration facility. Five (5) decimal places were given regarding the areas of the bio-retention to insure that the area used by the program for the LID subroutine corresponds exactly with these tributaries.

### LID Control Editor: Explanation of Significant Variables

#### Storage Depth:

The storage depth variable within the SWMM model is representative of the storage volume provided beneath the engineered soil and mulch components of the biofiltration facility. This storage volume is comprised of a gravel located bed beneath a layer of engineered soil and a 0.25 foot (3-inch) layer of landscaping mulch.

#### Porosity:

A porosity value of 0.4 has been selected for the model. The amended soil is to be highly sandy in content in order to have a saturated hydraulic conductivity of approximately 5 in/hr.

H&A considers this value to be slightly high; however, in order to comply with the HMP Permit, the value recommended by the Copermittees for the porosity of amended soil is 0.4, per Appendix A of the Final Hydromodification Management Plan by Brown & Caldwell, dated March 2011.

#### Void Ratio:

The ratio of the void volume divided by the soil volume is directly related to porosity as  $n/(1-n)$ . As the underdrain layer is composed of gravel, a porosity value of 0.4 has been selected, which results in a void ratio of  $0.4 / (1-0.4) = 0.67$  for the gravel detention layer.

#### Clogging factor:

A clogging factor was not used (0 indicates that there is not clogging assumed within the model). The reason for this is related to the fairness of a comparison with the SDHM model and the HMP sizing tables: a clogging factor was not considered, and instead, a conservative value of infiltration was recommended.

#### Drain (Flow) coefficient:

The flow coefficient in the SWMM Model is the coefficient needed to transform the orifice equation into a general power law equation of the form:

$$q = C(H - H_D)^n \quad (1)$$

where  $q$  is the peak flow in in/hr.,  $n$  is the exponent (typically 0.5 for orifice equation),  $H_D$  is the elevation of the centroid of the orifice in inches (assumed equal to the invert of the orifice for small orifices and in our design equal to 0) and  $H$  is the depth of the water in inches.

The general orifice equation can be expressed as:

$$Q = \frac{\pi}{4} c_g \frac{D^2}{144} \sqrt{2g \frac{(H-H_D)}{12}} \quad (2)$$

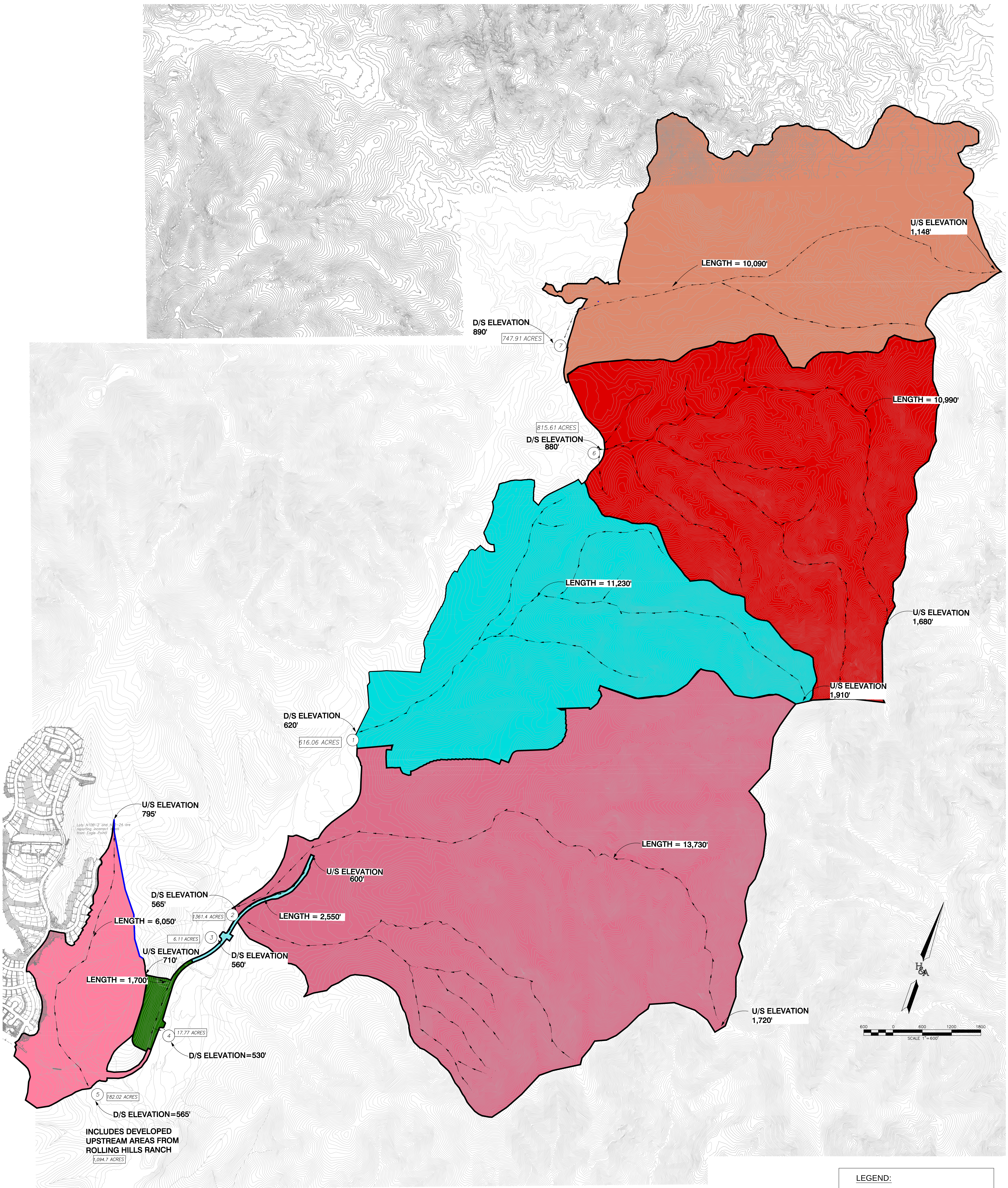
where  $Q$  is the peak flow in cfs,  $D$  is the diameter in inches,  $c_g$  is the typical discharge coefficient for orifices (0.61-0.63 for thin walls and around 0.75-0.8 for thick walls),  $g$  is the acceleration of gravity in  $\text{ft./s}^2$ , and  $H$  and  $H_D$  are defined above and are also used in inches in Equation (2).

#### Cutoff Flow:

This is the only significant variable in the diversion, as the type of diversion is defined by this value. Any excess of flow over this value will be diverted into a pond subroutine (the surface stage of the bio-retention basin) and routed there. The determination of this value equates to the value obtained with equation (2) above, plus 1%, when  $H$  = depth of gravel layer and  $H_D=0$  (orifice situated at the datum). Thus, once flows exceed the maximum discharge the LID orifice experiences a head of the storage depth, ponding occurs within the biofiltration basin, routing these additional flows via the pond riser.

## **VII. HYDROMODIFICATION WATERSHED MAPS**





**LEGEND:**

|           |                    |
|-----------|--------------------|
| xxx ACRES | POC DRAINAGE AREA  |
| #         | POC ID#            |
| —         | SUBAREA BOUNDARY   |
| — — — — — | DRAINAGE FLOW PATH |

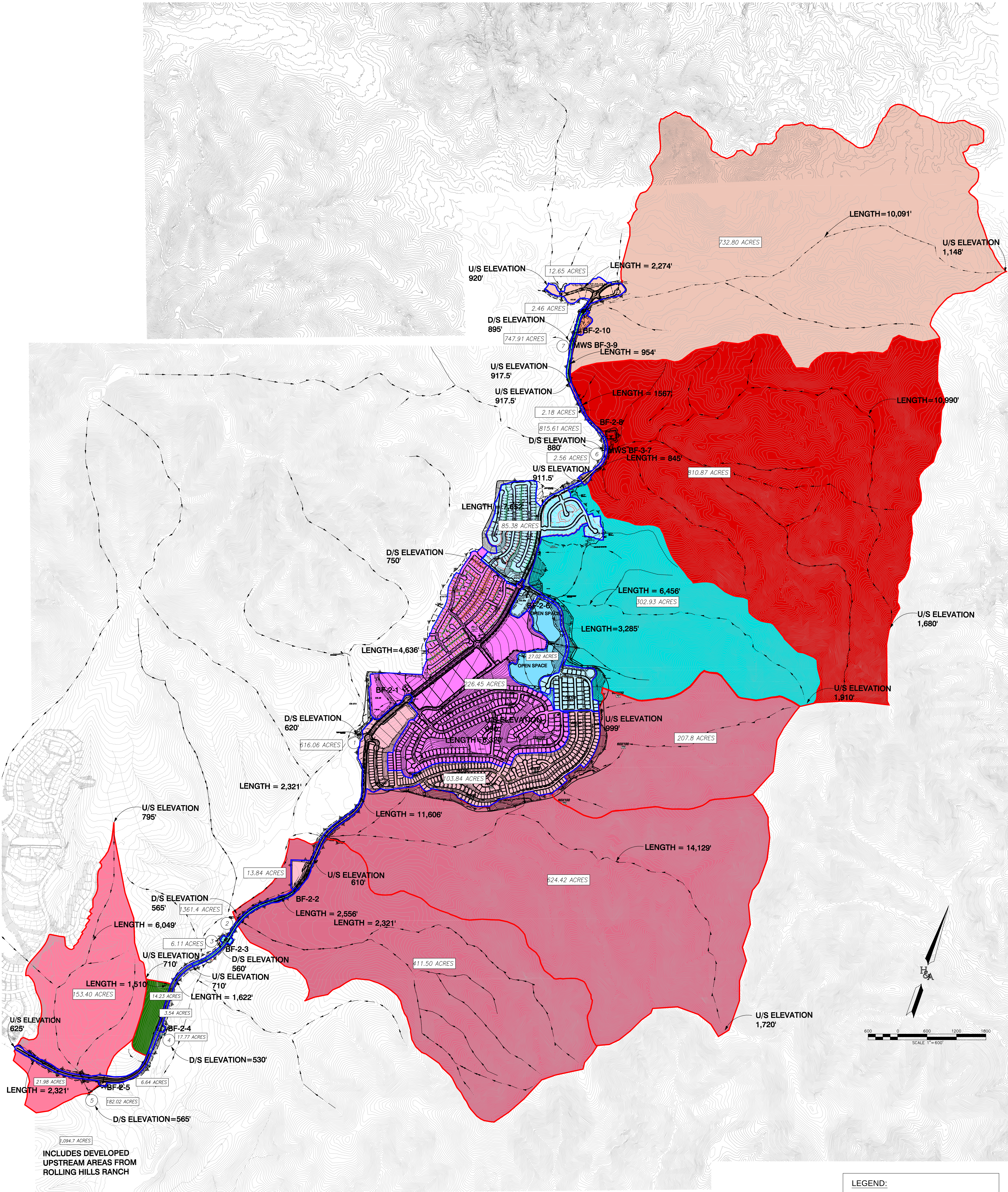
PREPARED BY:

**HUNSAKER & ASSOCIATES**  
SAN DIEGO, INC.

PLANNING: 9707 Waples Street  
ENGINEERING: San Diego, CA 92101  
SURVEYING: PH080508-4000; PH080508-1414

EXHIBIT 2b-1  
EXISTING CONDITION HYDROMOD MAP  
**VILLAGE 14 & PLANNING AREAS 16/19**  
COUNTY OF SAN DIEGO, CALIFORNIA





INCLUDES DEVELOPED  
UPSTREAM AREAS FROM  
ROLLING HILLS RANCH

| POC | Tributary to         |
|-----|----------------------|
| 1   | Proctor Valley Creek |
| 2   | Proctor Valley Creek |
| 3   | Proctor Valley Creek |
| 4   | Proctor Valley Creek |
| 5   | Proctor Valley Creek |
| 6   | unnamed creek        |
| 7   | unnamed creek        |

LEGEND:

xxx ACRES

POC DRAINAGE AREA

#

POC ID#

DEVELOPED SUBAREA  
BOUNDARY

UNDEVELOPED SUBAREA  
BOUNDARY

DRAINAGE FLOW PATH

PREPARED BY:

HUNSAKER  
& ASSOCIATES  
SAN DIEGO, INC.

PLANNING

ENGINEERING

SURVEYING

907 Waples Street  
San Diego, CA 92101  
PH: 619-594-6500 FAX: 619-594-5414

EXHIBIT 2b-2  
PROPOSED CONDITION HYDROMOD MAP

VILLAGE 14 & PLANNING AREAS 16/19

COUNTY OF SAN DIEGO, CALIFORNIA