

APPENDIX 3.1.2-4
Hydromodification Flow Control Study

**HMP Flow Control Facility Design for
OTAY RANCH
VILLAGE 14 AND PLANNING AREAS 16/19
County of San Diego, California**

Preparation/Revision Date:
February 5, 2018

Prepared for:

**Jackson- Pendo Development Company
2245 San Diego Avenue, Suite 223
San Diego, CA 92110**

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

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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.

OVERVIEW & BACKGROUND

The Proposed Project (defined below) is part of the overall Otay Ranch, an approximately 23,000-acre master-planned community in southern San Diego County designed as a series of villages and planning areas. The Proposed Project addressed by this technical report is located 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.

The underlying purpose of the Proposed Project is to implement the adopted Otay Ranch General Development Plan/Subregional Plan, Volume II (County of San Diego 1993), ("Otay Ranch GDP/SRP") and complete the planned development within Jackson Pendo Development Company's ("Applicant") ownership of Village 14 and Planning Areas 16/19. The Otay Ranch GDP/SRP is a component part of the County General Plan (County of San Diego 2011) and allows for a total of 2,123 homes in Otay Ranch Village 14 and Planning Areas 16/19. The Proposed Project's 1,119 homes represent a portion of the total 2,123 homes originally authorized in the Otay Ranch GDP/SRP.

The Proposed Project is designed to be consistent with the Otay Ranch GDP/SRP's Village Character Policy "to serve as a transitional area between urban densities to the west and Jamul to the east". The Proposed Project is therefore designed to provide a transitional village between the densities and character of eastern Chula Vista and the more rural community of Jamul. The Proposed Project proposes 1,119¹ homes of which 994¹ are in Village 14 and 125 homes in Planning Areas 16/19 as shown in Table 1 Site Utilization Plan Summary.

The following describes the major components and characteristics of the Proposed Project.

DEFINITIONS

"County" Defined: The "County" is the County of San Diego jurisdiction.

"Project Area" Defined: The "Project Area" is the Applicant's ownership within Otay Ranch Village 14 and Planning Areas 16/19 in addition to certain off-site areas for infrastructure as depicted in Figure 1. The Project Area covers approximately 1,283.6 acres owned by the

¹ Includes 97 residential units allocated to school site at 10 DU per Acre per Otay Ranch GDP/SRP policies in the event the school is not constructed. Each technical report evaluates the Proposed Project's impact assuming the more conservative land use, (i.e. the greater impact), as either an elementary school or as underlying allocated residential units. Footnote will not be repeated.



Figure 1
Regional Location Map

Table 1
Village 14 and Planning Areas 16/19
Site Utilization Plan Summary
January 9, 2018

Description	Village 14		Planning Area 16/19		Total Proposed Project	
	Gross Acres (1,2)	Target Units (3)	Gross Acres (4,5)	Target Units	Gross Acres	Target Units
Residential Subtotal	344.2	897.0	363.6	125	707.7	1,022
Residential Use on School Site (9.7 acres) (3)		97				97
Non-Residential Uses						
Mixed Use (6)	1.7				1.7	
Public Parks	13.8		1.4		15.2	
Private Parks/Recreation (2)	4.5				4.5	
Public Safety Site	2.3				2.3	
Elementary School Site (3)	9.7				9.7	
Open Space	27.6		2.1		29.7	
Conserved Open Space	36.9		35.5		72.4	
Otay Ranch RMP Preserve	270.2		156.5		426.7	
Circulation	12.7		0.8		13.6	
Non-Residential Uses Subtotal	379.5	-	196.3		575.8	-
Total Proposed Project	723.7	994	559.8	125	1283.5	1,119

Notes

- (1) Residential gross acres in Village 14 includes 96.0 acres of related internal slopes, fuel modification and/or preserve edge.
- (2) Village 14 has 5.0 acres of private pocket parks included in the residential acreage; therefore the subtotal including PPP is 9.5 acres.
- (3) Units allocated to school site at 10 DU/ac per the Otay Ranch GDP/SRP policies. Should school site not be needed, 97 units may be built.
Should the school site be needed, the Total Target Units is 897 in Village 14 and 1,022 total.
- (4) Residential gross acres in Planning Area 16/19 includes 14.1 acres of related private lift and pump stations.
- (5) Residential gross acres in Planning Area 16/19 includes 127.1 acres of limited development area (LDA). See Table 4 for details.
- (6) Village 14 Mixed Use acreage includes 10,000 sf of commercial use.
- (7) 85.4 acres of offsite impacts are in excluded from the acreage above. See Table 5 for details.

Applicant and approximately 85.4 acres of Off-site improvements described below, for a total of 1,369 acres.

“Proposed Project” Defined: The “Proposed Project” is the Applicant’s ownership as depicted in Figure 1. The specific plan for the Proposed Project is titled “Otay Ranch Village 14 and Planning Areas 16/19 Specific Plan.” The Proposed Project includes a Specific Plan, General Plan Amendments, EIR, Rezone, Tentative Map, and an Otay Ranch RMP Amendment. The Proposed Project is further defined in Section 1.0 of the EIR which is incorporated herein by reference. Except for the off-sites described below, the Proposed Project specifically excludes the State of California’s ownership in Village 14 and Planning Areas 16, which remains approved for development per the County’s General Plan and the Otay Ranch GDP/SRP. The underlying County General Plan and Otay Ranch GDP/SRP land uses on the State’s property will remain unchanged. In addition, the “Inverted L” is excluded from this analysis as it is not owned by the Applicant and is in the City of Chula Vista, (the property is owned by Otay Water District and the United States Fish and Wildlife Service).

“Otay Ranch Village 14” Defined: “Otay Ranch Village 14” or “Village 14” as referred to herein is a discrete subset of the Proposed Project and reflects approximately 723.7 acres of the Applicant’s ownership located exclusively within Village 14 as depicted in Figure 2. Approximately 994 homes are planned around a Village Core in this area, as shown in Table 2 Village 14 Site Utilization Plan Detail.

“Otay Ranch Planning Areas 16/19” Defined: “Otay Ranch Planning Areas 16/19” or “Planning Areas 16/19” is a discrete subset of the Proposed Project and reflects approximately 559.8 acres of the Applicant’s ownership located exclusively within Planning Areas 16/19 as depicted in Figure 2. Approximately 125 homes are planned on one-acre and three-acre average lots in this area, as shown in Table 3 Planning Area 16/19 Site Utilization Plan Detail. 127.1 acres of Limited Development Area (“LDA”), defined below, is further described in Table 4 LDA Detail.

Limited Development Area (“LDA”) Defined: LDA is a defined land use designation in the Otay Ranch GDP/SRP. “An open space easement will cover the areas designated as ‘Limited Development Area’...These areas will be left as natural open space with the exception that roads and utilities are anticipated to cross or lie within these areas...LDAs may be included within private lots but would have the following set of restrictions. Removal of native vegetation would be prohibited except as necessary for construction of roads and utilities. There would be no buildings or other structure, agriculture, landscaping, livestock, grazing, horses, trash disposal of fences allowed within these areas.” Fuel modification is allowed in the LDA as “brushing for fire control zones would conform to the local fire district regulations”. A total of 127.1 acres of LDA in Planning Areas 16/19 is further described in Table 4 LDA Detail. There is no LDA in Village 14.

“Otay Ranch RMP” and “MSCP Preserve” Defined: The Otay Ranch Resource Management Plan (RMP) provides for the conservation, funding and management of the entire 11,375-acre Otay Ranch RMP Preserve. The MSCP County Subarea Plan Implementing Agreement describes the

County's required contribution to the MSCP Preserve. The Implementing Agreement states that the required mitigation for Otay Ranch includes "protection of the areas identified as preserved in the boundaries of the Otay Ranch project including approximately 11,375 acres" of the Otay Ranch RMP Preserve. Therefore, the Otay Ranch RMP Preserve is a subset of the MSCP Preserve.

The portion of the Proposed Project's land use designated as Otay Ranch RMP Preserve, while considered a part of the MSCP County Subarea Plan Preserve, is unique to Otay Ranch because it specifically mitigates for direct and cumulative impacts associated with implementation of the Otay Ranch GDP/SRP. The Proposed Project includes 426.7 acres of Otay Ranch RMP Preserve, of which 270.2 acres are in Village 14 and 156.5 acres are in Planning Areas 16/19.

"Preserve Conveyance Obligation" Defined: To satisfy assemblage of the 11,375-acre Otay Ranch RMP Preserve ranch-wide, a "Preserve Conveyance Obligation" was prescribed in the Otay Ranch RMP. The Preserve Conveyance Obligation is 1.188 acre of Otay Ranch RMP (Preserve conveyed per 1 acre of development, as further defined in the adopted Otay Ranch RMP. This obligation, which is the primary basis of Proposed Project's required mitigation, may be achieved through conveyance of either the Applicant's RMP Preserve ownership or through off-site acquisition within the 11,375 acres Otay Ranch RMP Preserve.

"Conserved Open Space" Defined: "Conserved Open Space" refers to those areas with an Otay Ranch GDP/SRP land use designation other than Otay Ranch RMP Preserve that will be preserved on site and which will either be added to the Otay Ranch RMP Preserve (through a future RMP Amendment), managed under a separate Resource Management Plan, or utilized to mitigate impacts to the City of San Diego MSCP Cornerstone Lands. The approximately 72.4 acres of Conserved Open Space is comprised of 31.9 acres within the 127.1 acres of LDA and 3.6 acres of residential land use designation in Planning Area 16/19 plus 36.9 acres of residential land use designation within Village 14. The Conserved Open Space areas are located adjacent to Otay Ranch RMP Preserve and will be conserved by recording a biological open space easement over the land.

"Development Footprint" Defined: The Development Footprint includes areas where there will either be permanent or temporary ground disturbance. The Development Footprint includes: all on-site development; Off-site improvements; graded LDA; and impacts resulting from infrastructure and other allowable uses within the MSCP Preserve per Section 1.9.3 of the MSCP County Subarea Plan.

"Off-site Improvements" Defined: "Off-site Improvements" total approximately 85.4 acres of both temporary and permanent impacts as shown in Table 5 Off-Site Improvements and include the following: Proctor Valley Road, including related wet and dry utilities, drainage facilities and trails; access roads in Planning Area 16; 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.

Proctor Valley Road improvements include: South Proctor Valley Road (0.25 mile in the City of Chula Vista land and 0.2 acres privately owned in the County); South and Central Proctor Valley Road (1.5 miles in City of San Diego Cornerstone land); Central Proctor Valley Road (0.4 mile in CDFW Otay Ranch Village 14 land); and North Proctor Valley Road (0.75 mile in CDFW Otay Ranch land between Village 14 and Planning Area 16/19).

Proctor Valley Road Central and South are proposed to be improved and classified as a two-lane-with-median light collector with a width ranging from 68 to 74 feet, plus an additional 20-foot-wide fuel modification/construction easement on each side. Proctor Valley Road north is a two-lane interim road with a paved width of 28 feet in a 40-foot-side right-of-way. Improvements in Proctor Valley Road would include those typically in roadways, including wet and dry utilities, a sewer pump station, drainage, landscape, culverts, and trails. Proctor Valley Road is an approved County General Plan mobility element road and an approved facility in the MSCP County Subarea Plan.

In addition, there are three public off-site roads within Planning Area 16. These roads are located primarily within CDFW managed lands and are approved in the Otay Ranch GDP/SRP as facilities within designated development or LDA land use, (and are also approved facilities per the MSCP County Subarea Plan Section 1.9.3.3). Improvements in these off-site roads would include those typically in roadways, including wet and dry utilities, drainage, landscape, culverts, and trails.

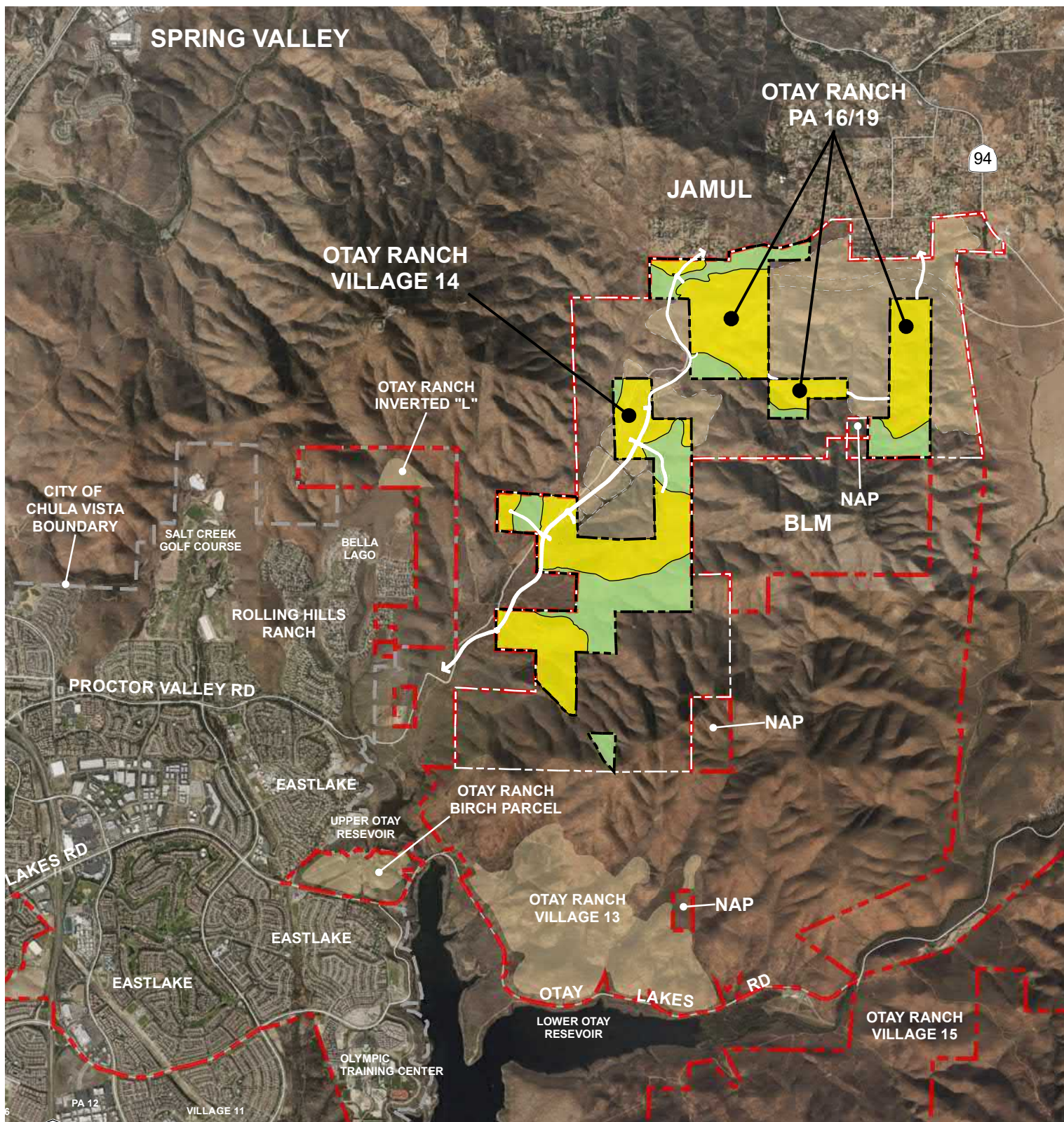
Proposed Specific Plan

Summary

The adopted Otay Ranch GDP/SRP requires the preparation of a Specific Plan, which includes a Site Utilization Plan to describe the land uses for the Proposed Project. Figures 2 and 3 depict the proposed Site Utilization Plan. Tables 1-5 quantify the proposed land uses.

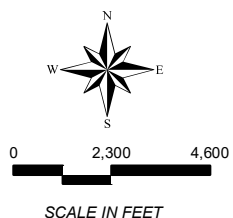
Approximately 994 homes are planned in Village 14, set in three distinct areas (referred to herein as the South, Central and North Village 14). 878 of these homes will be single-family homes located in gated enclaves and 116 will be detached courtyard homes. Twelve neighborhoods are planned with approximate densities ranging from 0.2 to 10.0 dwelling units per acre. Otay Ranch Village 14 is planned around a “Village Core”, centrally located in the heart of the village. The Village Core is comprised of a 9.7-acre elementary school; a 7.2-acre Village Green (public park); a 1.7-acre Mixed Use Site with up to 10,000 square feet of commercial/retail uses; and a 2.3-acre public safety site for a fire station and satellite sheriff’s facility. Additional public and private parks, swim clubs, trails and recreational facilities will be situated throughout South, Central and North Village 14. See Table 2 for detailed land uses in Village 14.

In addition to the homes in Village 14, there are 13 one-acre average sized estate lots proposed in Planning Area 19 and 112 three-acre average sized ranchettes proposed in Planning Area 16. Planning Area 16/19 neighborhoods will not be gated. The Limited Development Area may



SOURCE: LUEG-GIS 2014 AERIAL IMAGERY

LEGEND



- OTAY RANCH GDP/SRP BOUNDARY
- PROPOSED SPECIFIC PLAN BOUNDARY
- OTAY V14 & PA16/19 VILLAGE BOUNDARY
- MUNICIPAL BOUNDARY

- V14 & PA16/19 DEVELOPMENT AREAS
- V14 & PA16/19 MSCP OPEN SPACE
- OTHER APPROVED DEVELOPMENT

Figure 2
Otay Ranch Village 14 and Planning Area 16/19
and Surrounding Land Uses

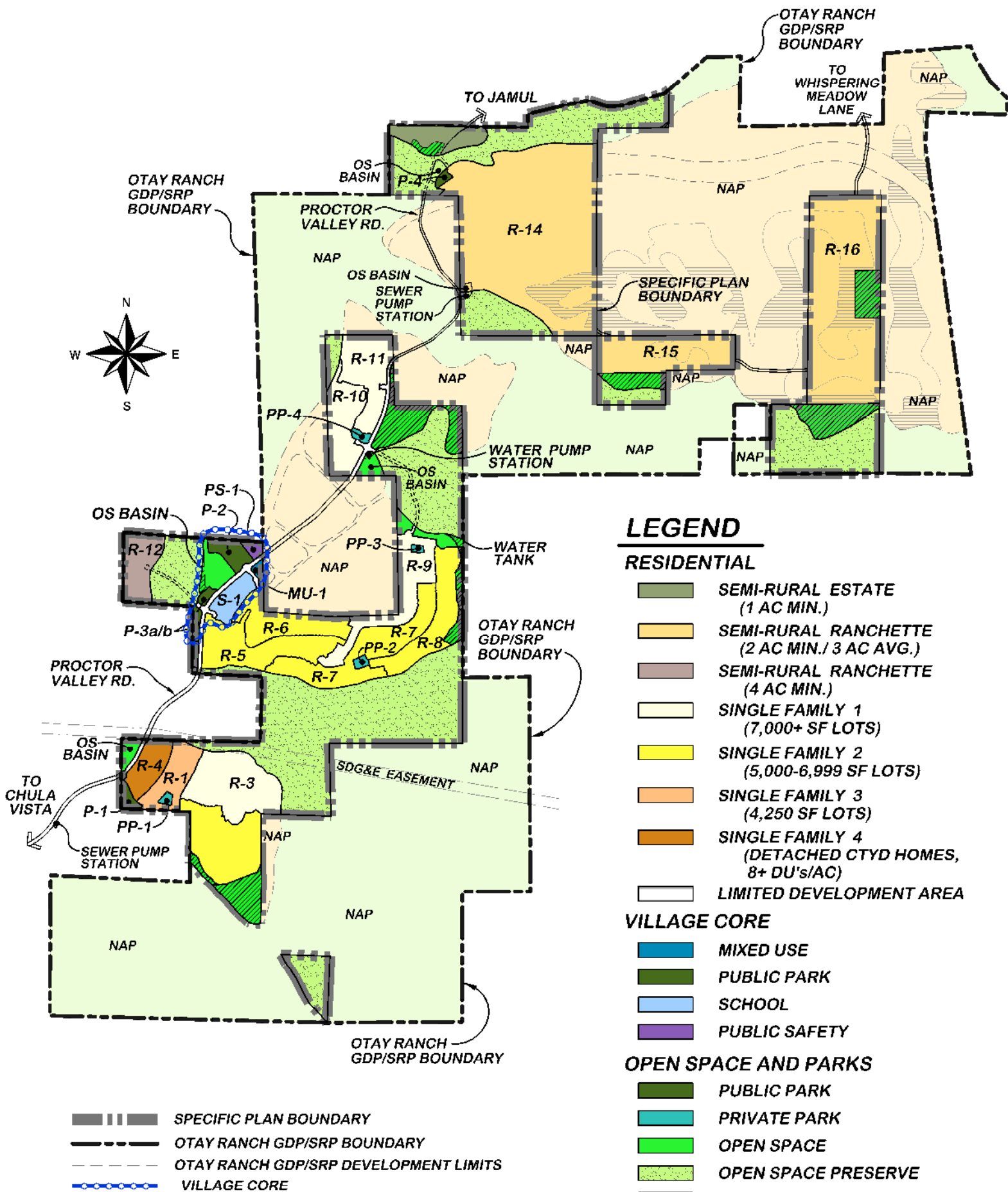


Figure 3

Table 2
Village 14
Site Utilization Plan Detail
January 9, 2018

Description	Gross Acres (1,2)	Target Units	Density
Single Family Residential			
R-1 50*85	18.0	81	4.5
R-2 60*100	38.5	82	2.1
R-3 71*100	41.1	73	1.8
R-4 Courtyard	13.8	116	8.4
R-5 50*100	35.0	103	2.9
R-6 60*100	25.7	71	2.8
R-7 60*85	40.7	108	2.7
R-8 60*100	28.7	75	2.6
R-9 75*100	30.0	74	2.5
R-10 70*85	25.1	49	1.9
R-11 80*100	28.6	61	2.1
R-12 4 ac min	18.9	4	0.2
Single Family Residential Subtotal	344.2	897	2.6
Residential Use on School Site (9.7 acres) (3)		97	
Non-Residential Uses			
Mixed Use (4) MU - C	1.7		
Public Parks			
P-1 South Park	2.9		
P-2 Village Green Park	7.2		
P-3 Scenic Park	3.7		
Public Parks Subtotal	13.8		
Private Parks & Recreation			
PP-1 South	1.0		
PP-2 Central	1.2		
PP-3 Private Park	0.7		
PP-4 North	1.5		
PPP (4) Various	0.0		
Private Parks/Recreation Subtotal	4.5		
Public Safety Site	2.3		
Elementary School Site (3)	9.7		
Open Space	27.6		
Conserved Open Space	36.9		
Otay Ranch RMP Preserve	270.2		
Circulation - Arterial	12.7		
Non-Residential Uses Subtotal	379.5		
Village 14 Subtotal	723.7	994	1.4

Notes

- (1) Residential gross acres includes 96.0 acres of related internal slopes, fuel modification and/or preserve edge open space lots.
- (2) Village 14 has 5.0 acres of private pocket parks included in the residential acreage; therefore the subtotal including PPP is 9.5 acres.
- (3) Units allocated to school site at 10 DU/ac per the Otay Ranch GDP/SRP policies. Should school site not be needed, 97 units may be built.
Should the school site be needed, the Total Target Units is 897.
- (4) Village 14 Mixed Use acreage includes 10,000 sf of commercial use.
- (5) Off-site impacts are in excluded from the acreage above. See Table 5 for details.

Table 3
Planning Areas 16/19
Site Utilization Plan Detail
January 9, 2018

Description	Gross Acres (1,2)	Target Units	Density
Residential Uses			
R-13 Estates 1 acre avg	13.4	13	1.0
R-14 Ranchettes 2 acre min	192.0	71	0.4
R-15 Ranchettes 2 acre min	41.9	11	0.3
R-16 Ranchettes 2 acre min	116.3	30	0.3
Residential Subtotal	363.55	125	0.3
Non-Residential Uses			
Public Park P-4 Northern Park	1.4		
Open Space	2.1		
Conserved Open Space	35.5		
Otay Ranch RMP Preserve	156.5		
Circulation Arterial	0.8		
Non-Residential Uses Subtotal	196.3		
Planning Area 16/19 Subtotal	559.8	125.0	0.2

Notes

- (1) Gross acres includes 127.1 acres of limited development area (LDA). See Table 4 for details.
- (2) Residential gross acres includes 14.1 acres of related private lift and pump stations open space lots.
- (3) Off-site impacts are in excluded from the acreage above. See Table 5 for details.

Table 4
Planning Areas 16/19
Limited Development Area (LDA) Detail
January 9, 2018

Description	Component Acres		Acres	
	LDA	Other	Total	
Residential Uses				
R-13	Estates 1 acre avg	0.0	13.4	13.4
R-14	Ranchettes 3 acre avg	17.3	174.7	192.0
R-15	Ranchettes 3 acre avg	27.1	14.8	41.9
R-16	Ranchettes 3 acre avg	50.9	65.4	116.3
Residential Subtotal (5)		95.3	268.3	363.6
Non-Residential Uses				
	Public Park P. Northern Park		1.4	1.4
	Open Space		2.1	2.1
	Conserved Open Space	31.9	3.6	35.5
	MSCP Preserve		156.5	156.5
	Circulation Arterial		0.8	0.8
Non-Residential Uses Subtotal		31.9	164.4	196.3
Planning Area 16/19 Subtotal		127.1	432.7	559.8

Table 5
Village 14 and Planning Areas 16/19
Off-Site Infrastructure (Temporary + Permanent)
January 9, 2018

Off-site (1)	Location	Acres		
		ROW	Temporary	Total
Proctor Valley Road - MSCP Planned Facility (2)				
South	City of Chula Vista	2.3	2.8	5.1
South	City of San Diego	10.1	17.6	27.7
Central	City of San Diego	2.8	4.3	7.1
Central	State	4.1	8.6	12.7
North	State	3.6	13.2	16.8
North	County of SD Easement	0.1	0.2	0.3
PA 16 Access Roads - MSCP Allowed Facility (2)				
R-14 to R-15	State	0.3	1.0	1.3
R-15 to R-16	State	1.6	7.2	8.8
R-16 to Whispering Meadows	State	1.5	4.2	5.7
Sewer Trunk Line to Salt Creek Interceptor (3)		--	--	--
Total		26.4	59.0	85.4

Notes

(1) Off-sites include all road improvements, sewer, water, drainage and related utilities.

(2) See section 1.9.3 of the MSCP for planned and allowed facilities.

(3) In existing improved Proctor Valley Road to approximate tie in at Hunte Parkway

include public infrastructure, and/or be conserved within private lots with a conservation easement. See Tables 3 and 4 for detailed land uses in Planning Area 16/19.

The Proposed Project's Specific Plan is designed around an active lifestyle and wellness recreation theme and includes a park and recreation system including four public parks totaling approximately 15.2 acres. The remaining private recreation facilities include three private swim clubs, and numerous pocket parks totaling approximately 9.5 acres. An approximately 4.5 mile, 10-foot wide decomposed granite Community Pathway is proposed along Proctor Valley Road from Chula Vista to Jamul. The Proposed Project includes approximately 27.6 acres of open space, (exclusive of the 110.1 acres of open space included in the residential gross acres), 127.1 acres of LDA and 426.7 acres of Otay Ranch RMP Preserve within the Applicant's ownership. Of note, there is approximately 72.4 acres of Conserved Open Space within the Proposed Project that will be conserved by recording a biological open space easement.

Circulation and Access

Regional access to Otay Ranch Village 14 is provided by State Route 125 (SR-125), located approximately three miles to the west. Interstate 805 (I-805), approximately eight miles to the west, provides secondary north/south access. State Route 54 (SR-54), located approximately six miles to the northwest, connects to SR-125 and I-805, and provides regional east/west access. SR-94, located approximately 3 miles to the northeast, provides access from the east through the Jamul community.

Proctor Valley Road would provide the main access to the Proposed Project. Four roundabouts in Village 14 and one roundabout in Planning Area 16/19 would identify the entrance into each residential area as well as provide traffic calming at key internal intersections. The internal circulation plan also includes a series of collectors and residential streets to provide access to the residential neighborhoods; with Planning Areas 16/19 designed to County Rural Road Standards. A secondary access to the easternmost portion of Planning Area 16 is the planned extension of existing Whispering Meadows Lane.

Proctor Valley Road is planned as a two-lane mobility element road and is designated as a scenic corridor. The northern connection of Otay Ranch Village 14 to the community of Jamul will remain substantially in the alignment of the existing partially-improved Proctor Valley Road and will be paved to provide both public access and secondary emergency access for the Proposed Project as well as for the community of Jamul.

Public Services

A recap of public services is provided as follows:

Sewer: Capacity will be provided by the County through annexation into the County Sanitation District. Sewer transportation will be provided by conveying flows to the Salt Creek Interceptor located in the City of Chula Vista pursuant to agreements between the City and County. Sewer will be provided in Village 14 and Planning Areas 16/19 per the Otay Ranch GDP/ SRP and

adopted sewer agreements. The Proposed Project includes sewer trunk line extensions and pump, or lift stations.

Water: The Proposed Project is located within the Otay Water District boundary and is already accommodated in the Otay Water District Water Resources Master Plan. A 980-pressure zone water tank adjacent to Central Village 14 is planned onsite. The Proposed Project includes water transmission lines, a 980 reservoir and pump stations.

Law Enforcement: County Sheriff's office will provide law enforcement services and will have a storefront facility co-located with the Fire Station at the public safety site in the Village Core.

Fire: Fire service will be provided by the San Diego County Fire Authority ("SDCFA") from a fire station built within the Proposed Project's public safety site in the Village Core.

Stormwater/Drainage: Biofiltration basins are planned.

Schools: Village 14 is planned to be served by the Chula Vista Elementary School District and Sweetwater Union High School District. Planning Areas 16/19 are planned to be served by the Jamul-Dulzura Union School District and the Grossmont High School District as prescribed in the adopted Otay Ranch GDP/SRP Facilities Implementation Plan and consistent with County Board of Supervisors Policy I-109, Policy II.

Options

The Proposed Project includes three options for internal circulation: (1) the Proctor Valley Road North Option, (2) the Preserve Trails Option and (3) the Perimeter Trail Option. The Draft EIR assesses each of these options and their respective impacts. This will allow the County to select the option (or combination of options) it considers best for the Proposed Project and the environment. Each of the options summarized below. For detailed descriptions with exhibits, see the Specific Plan Section VIII. Internal Circulation Options.

Proctor Valley Road North Option: The Proctor Valley Road North Option applies to the portion of Proctor Valley Road from Street AA in the North Village to Echo Valley Road, and includes two dedicated bike lanes (one on each side of the road) instead of the "sharrows" ^[1] proposed in street section 10 of the Proposed Project. Generally, the Proctor Valley Road North Option would increase the right-of-way width from 40 feet to 64 feet starting from the intersection of Street AA northward to the Applicant's Village 14 ownership boundary; from 40 feet to 48 feet within the offsite improvement area owned by the State; and from 40 feet to 64 feet onsite within the Applicant's ownership north of the State's property to Echo Valley Road.

Preserve Trails Option: The Preserve Trails Option consists of two segments of existing, disturbed trails approximately 1.0-mile in length within the Project Area, east of the Development Footprint. These segments would be located within the Otay Ranch RMP Preserve. The Preserve Trails Option includes segments "A" & "B" as identified in the Otay Ranch GDP/SRP, which are also identified as segments 52 & 49 in the County of San Diego's

Community Trails Master Plan (CTMP). Segment “A”/“52” is 2,350 lineal feet, located at the northern terminus of the Proctor Valley Community Pathway and extending east through the onsite Otay Ranch RMP Preserve to the eastern edge of the Echo Valley loop (CTMP Trail 53). Segment “B”/“49” is 2,328 lineal feet and is located between South and Central Village 14, along an existing, historic ranch road. This trail is located within onsite Otay Ranch RMP Preserve and bisects regional wildlife corridor R1. The Preserve Trails Option would retain these portions of trails in their existing conditions, which meet the CTMP primitive trail standard. No improvements to these Preserve Trails are contemplated.

Perimeter Trail Option: The Perimeter Trail Option is an approximately 3.6- mile perimeter trail located within the Development Footprint of South and Central Village 14. The Perimeter Trail Option is situated primarily within the Otay Ranch RMP 100-foot Preserve Edge. The Perimeter Trail Option is designed to CTMP primitive trail standards, and the trail tread varies from 2-6 feet. Due to topography, trail grades range from 2% to the maximum grade allowed of 30%. The Perimeter Trail Option requires the construction of approximately 3,545 lineal feet (0.7 miles) of 5 to-7-foot-high retaining walls due to steep topography and drainage constraints. The Perimeter Trail Option would be graded as part of overall project grading and does not encroach into the Otay Ranch RMP Preserve. The perimeter trail would be accessed at public parks and trailheads and would be maintained by the County of San Diego.

Hunsaker & Associates has evaluated these options and they are not material to the information presented in this technical report.

INTRODUCTION

This HMP report summarizes the approach used to model the Proposed Project site within San Diego County, California using the Environmental Protection Agency (EPA) Storm Water Management Model 5 (SWMM). SWMM models were prepared for pre- and post- developed conditions at each of the Proposed Project’s designated Point of Compliances (POC) in order to determine if 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 was subdivided into thirteen (13) 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:

POC1:

POC1 is the northernmost POC for areas within the Village 14 portion of the site. This POC encompasses 590.31 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 193.23 acres of developed area and 479.58 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-1-1]) will be located at the downstream end of the POC subwatershed directly adjacent to the Proctor Valley drainageway. Another basin (Basin #13 [BF-1-13]) 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 flows 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-4 park).

POC2:

POC2 is located south of POC1 and is immediately downstream of Basin #2 (BF-1-2). The existing condition tributary area to POC2 consists of about 431.84 acres of undisturbed native pervious land east of existing Proctor Valley Road. Similar to POC1, POC2 will include both developed areas as well as undeveloped/unimproved areas. About 329 acres will remain completely pervious and about 161 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.

POC3:

The POC3 existing and proposed condition subwatershed was delineated for areas tributary to the point of discharge from proposed Basin #3 (BF-1-3). 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.

POC4:

The POC4 existing and proposed condition subwatershed was delineated for areas tributary to the point of discharge from proposed Basin #4 (BF-1-4). 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.

POC5:

POC5 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-1-5). 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.

POC6:

POC6 is located within the northeast portion of the Proposed Project 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. Runoff from this POC will discharge into a tributary of Jamul Creek which discharges into the Lower Otay Reservoir downstream.

POC7:

POC7 is located within the northeast portion of the Proposed Project 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. Runoff from this POC will discharge into a tributary of Jamul Creek.

POC8:

POC8 is located within the northeast portion of the Proposed Project 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. Runoff from this POC will discharge into a tributary of Jamul Creek which discharges into the Lower Otay Reservoir downstream.

POC 9:

POC 9 is located within the northwest portion of the site within Planning Area 16. The existing area for this POC includes developed areas of the City of Jamul which are within the Proctor Valley watershed. When developed, this POC will include undeveloped areas as well as roadway, estate residential lots, and a treatment basin located adjacent to Proctor Valley. Runoff from this POC will discharge directly into Proctor Valley.

POC10:

POC10 is located within the northwest portion of the Proposed Project within Planning Area 16. 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. Runoff from this POC will discharge into a tributary of Proctor Valley.

POC11:

POC11 is located within the northwest portion of the Proposed Project within Planning Area 16. 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. Runoff from this POC will discharge into a tributary of Proctor Valley. This POC and the hydromodification analysis includes the upstream areas associated with POC 10 mentioned above.

POC12:

POC12 is located within the northwest portion of the Proposed Project within Planning Area 16. 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. Runoff from this POC will discharge into a tributary of Proctor Valley. This POC and the hydromodification analysis includes the upstream areas associated with POC10 and POC11.

POC13:

POC13 is located within the northeast portion of the Proposed Project within Planning Area 19. The existing area for this POC is undeveloped. When developed, this POC will consist of a roadway connecting Jamul and Planning Area 19. Treatment for this area will consist of a roadside biofiltration basin. Runoff from this POC will discharge into a tributary of Jamul Creek.

POC14:

POC14 is located within the northwest portion of the Proposed Project within Planning Area 16. The existing area for this POC is undeveloped. When developed, this POC will consist of roadway and offsite runoff prior to PVR connecting to Jamul. Treatment for this area will consist of a modular proprietary biofiltration. Runoff from this POC will discharge into PVR.

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.

BASIN SUMMARY TABLE														
	Basin 1 BF-1-1	Basin 2 BF- 1-2	Basin 3 POC3	Basin 4 POC4	Basin 5 POC5	Basin 6 POC6	Basin 7 POC7	Basin 8 POC8	Basin 9 POC9	Basin 10 POC10	Basin 11 POC11	Basin 12 POC12	Basin13 BF-1-13	Basin14 BF-1-14
Bottom Basin Area (sf)	129,891	90,985	4,231	3,380	5,200	4,350	3,250	4,151	31,041	5,295	3,800	21,150	34,454	1,325
Total Basin Depth (ft)	12.5	12.5	5	5	5	5.5	5	6	9.5	5	6.5	7.5	6.5	4
WQ Ponding Depth (in)	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Amended Soil Depth (in)	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Class 2 Perm. Depth (in)	24	12	12	24	24	12	12	12	12	12	12	12	24	12
Underdrain Orifice (in)	3.5	3.5	0.85	0.85	3	1	0.85	0.9	2	1	2	2	1.6	0.75
Riser Cross-section Dimensions	7' x 7'	6' x 6'	1' x 1'	1' x 1'	1' x 1'	2' x 2'	2' x 2'	2.5' x 2.5'	2' x 2'	3' x 3'	1' x 1'	5.5' x 5.5'	3' X 3'	1' x 1'
Riser Height (ft)*	8.5	8	3.25	3.7	3.25	4	3.5	4.75	5.5	3.5	5	6	5	3
Top Riser Orifce														
No. of Orifices	2	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A	N/A
Diameter (in)	3"	3"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3	N/A	N/A
Invert Hieght (ft)*	6.5	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5	N/A	N/A
Bottom Riser Orifce														
No. of Orifices	2	4	1	1	N/A	1	1	1	1	1	1	1	1	1
Diamter (in)	2"	2.75"	1"	1.5"	N/A	1.5"	1"	1.35	2"	2"	1.5"	2.75	2"	1"
Invert Hieght (ft)*	0.5'	0.5'	0.5'	1.5	N/A	0.5'	0.5'	0.5'	0.5'	0.5'	0.5	0.5	0.5'	0.5'
*-relative to basin bottom														

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.

Table 7: POC1 Area Summary

	Existing (AC)	Proposed (AC)
POC 1	590.31	193.23
Bypass Basin	N/A	479.58
TOTAL	590.31	672.81

Table 8: POC2 Area Summary

	Existing (AC)	Proposed (AC)
POC 2	431.84	161.23
Bypass Basin	N/A	328.68
TOTAL	431.84	489.91

Table 9: POC3 Area Summary

	Existing (AC)	Proposed (AC)
POC 3	10.62	4.63
Bypass Basin	N/A	6.45
TOTAL	10.62	11.08

Table 10: POC4 Area Summary

	Existing (AC)	Proposed (AC)
POC 4	18.32	3.47
Bypass Basin	N/A	15.97
TOTAL	18.32	19.44

Table 11: POC5 Area Summary

	Existing (AC)	Proposed (AC)
POC 5	1094.73	6.64
Bypass Basin	N/A	1090.75
TOTAL	1094.73	1097.39

Table 12: POC6 Area Summary

	Existing (AC)	Proposed (AC)
POC 6	31.56	11.36
Bypass Basin	N/A	21.53
TOTAL	31.56	28.90

Table 13: POC7 Area Summary

	Existing (AC)	Proposed (AC)
POC 7	33.72	6.73
Bypass Basin	N/A	30.05
TOTAL	33.72	36.78

Table 14: POC8 Area Summary

	Existing (AC)	Proposed (AC)
POC 8	19.21	10.49
Bypass Basin	N/A	16.47
TOTAL	19.21	26.96

Table 15: POC9 Area Summary

	Existing (AC)	Proposed (AC)
POC 9	757.48	57.82
Bypass Basin	N/A	706.61
TOTAL	757.48	764.43

Table 16: POC10 Area Summary

	Existing (AC)	Proposed (AC)
POC 10	31.69	9.88
Bypass Basin	N/A	26.69
TOTAL	31.69	36.57

Table 17: POC11 Area Summary

	Existing (AC)	Proposed (AC)
POC 11	637.92	18.36
Bypass Basin	N/A	598.34
TOTAL	637.92	616.70*

*-Includes 6.07 acres from POC10

Table 18: POC12 Area Summary

	Existing (AC)	Proposed (AC)
POC 12	801.97	62.01
Bypass Basin	N/A	738.63
TOTAL	801.97	800.64*

*-includes 18.36 acres from Basins 10 & 11.

Table 19a: POC13 Area Summary

	Existing (AC)	Proposed (AC)
POC 13	26.77	1.05
Bypass Basin	N/A	26.07
TOTAL	26.77	27.12

Table 19b: POC14 Area Summary

	Existing (AC)	Proposed (AC)
POC 14	23.40	N/A
Bypass Basin	N/A	12.23
TOTAL	23.40	12.23

This study has demonstrated that the proposed biofiltration basin footprints for the Proposed Project 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 site.

KEY ASSUMPTIONS

1. Group D soils are representative of the existing conditions for the site.

SECTIONS

1. Flow Duration Curve Analysis
2. Elevation vs. Area Curves, Elevation vs. Discharge Curves to be used in SWMM.
3. Biofiltration Details
4. SWMM Input Data (Existing and Proposed Models)
5. SWMM Screen and Explanation of Significant Variables
6. Hydromodification Watershed Maps

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

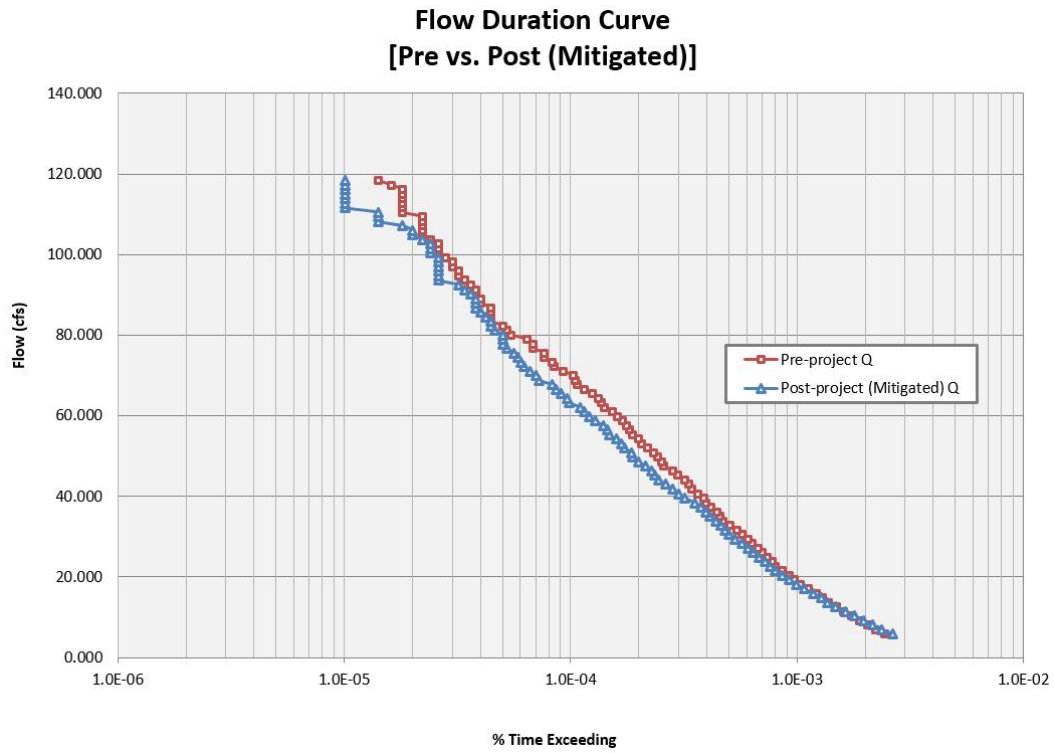


Figure 4 – POC 1 Flow Duration Curve

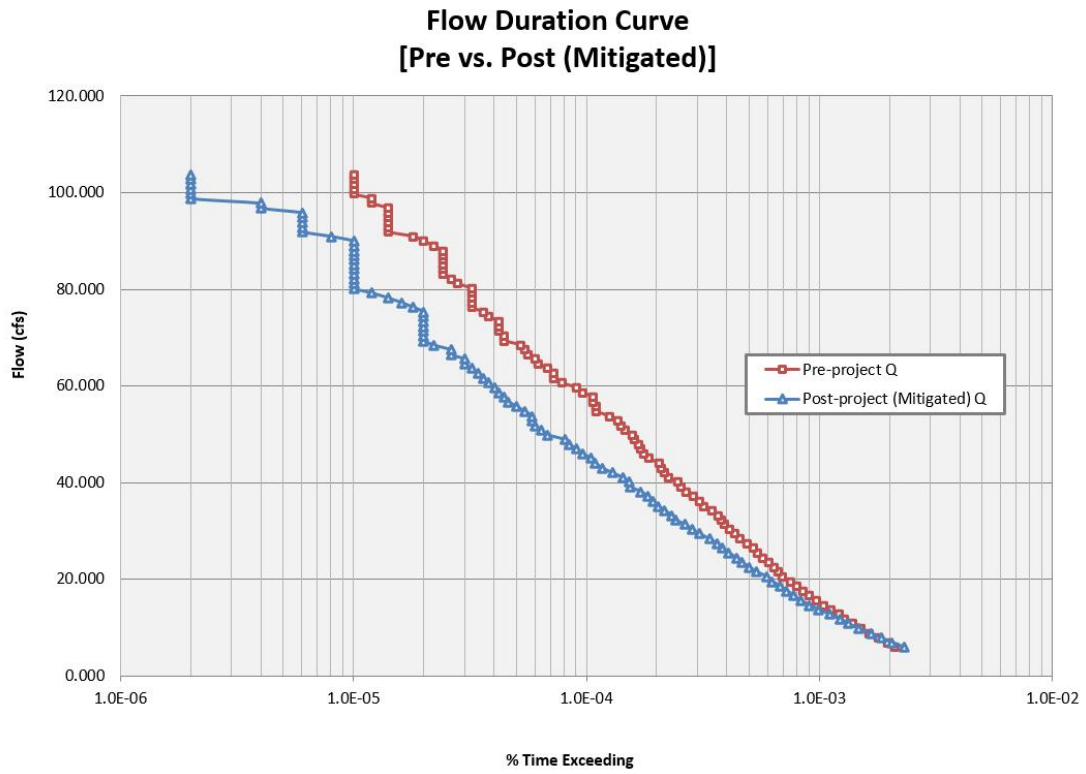


Figure 5 – POC 2 Flow Duration Curve

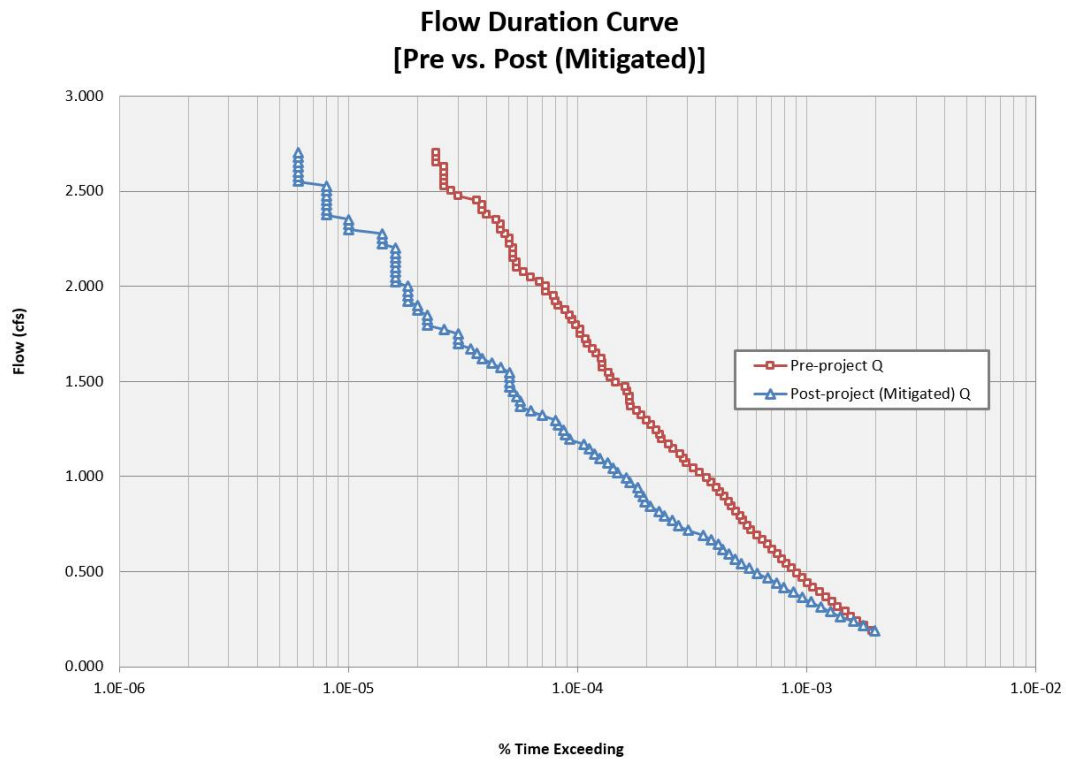


Figure 6 – POC 3 Flow Duration Curve

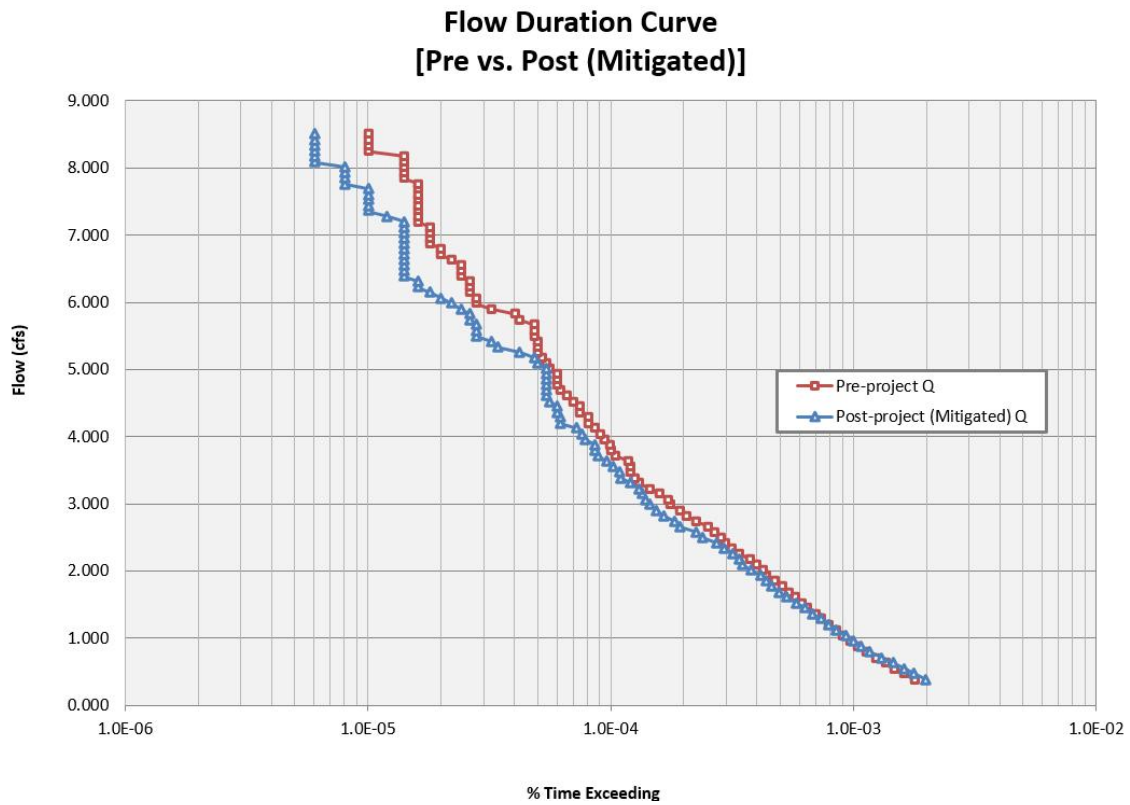


Figure 7 – POC 4 Flow Duration Curve

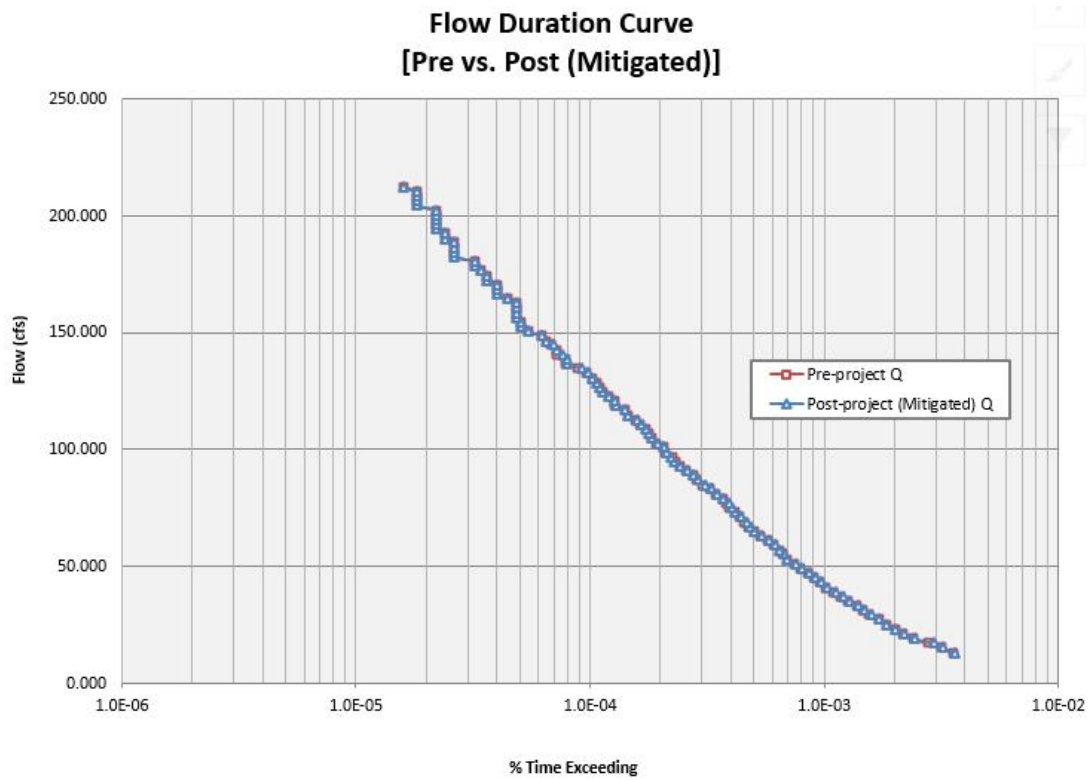


Figure 8 – POC 5 Flow Duration Curve

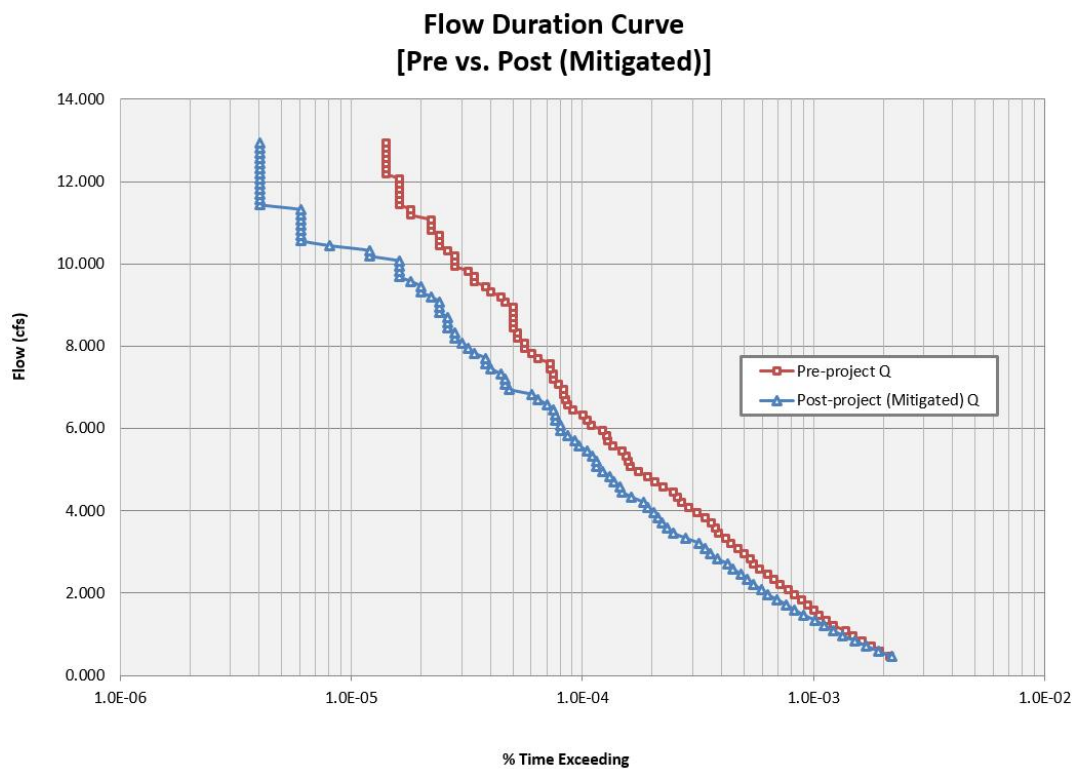


Figure 9 – POC 6 Flow Duration Curve

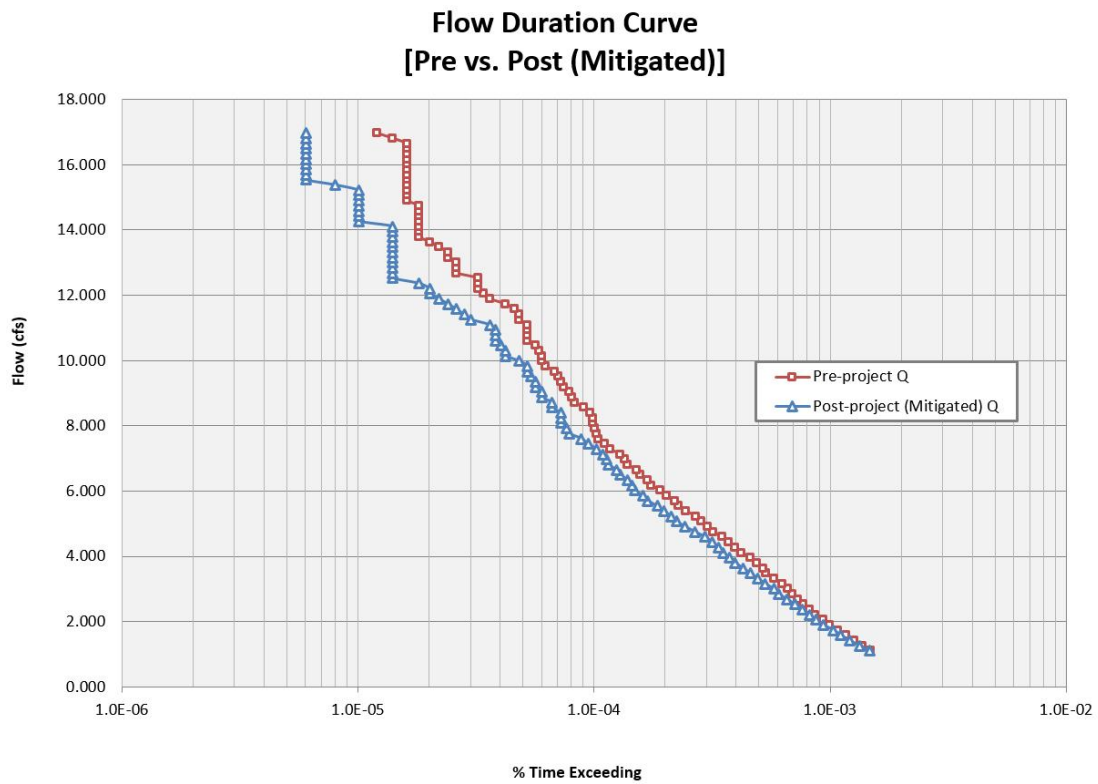


Figure 10 – POC 7 Flow Duration Curve

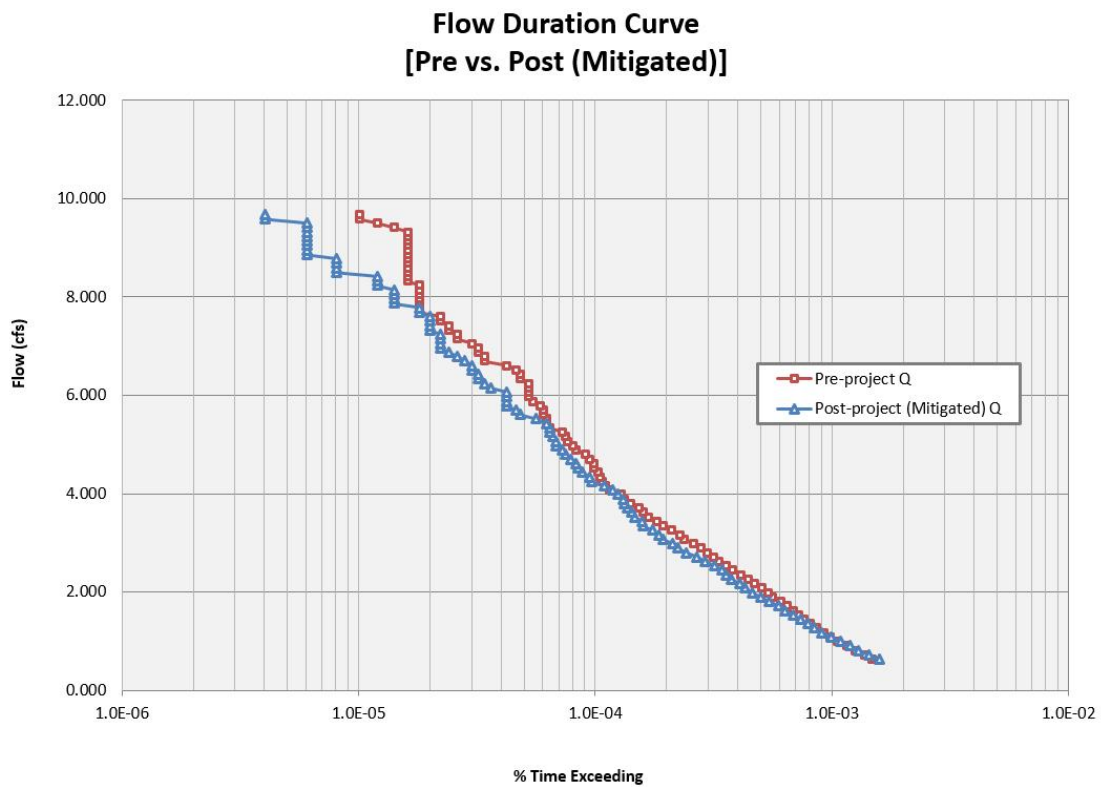


Figure 11 – POC 8 Flow Duration Curve

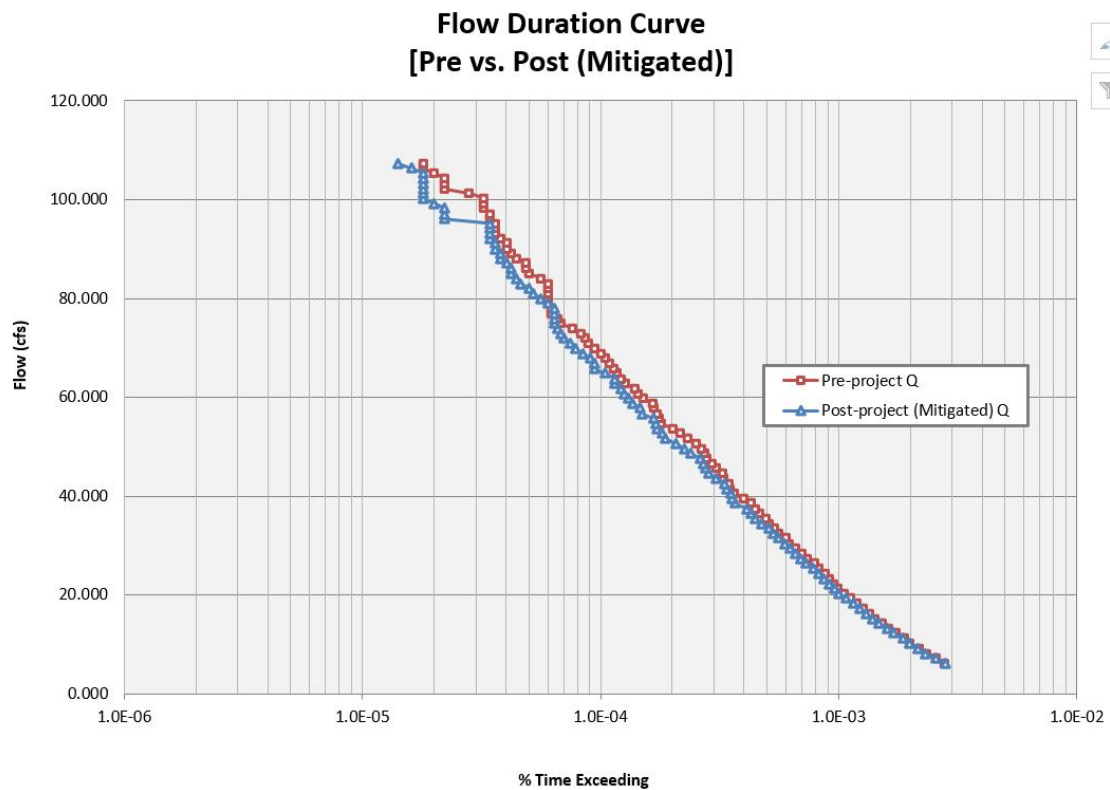


Figure 12 – POC 9 Flow Duration Curve

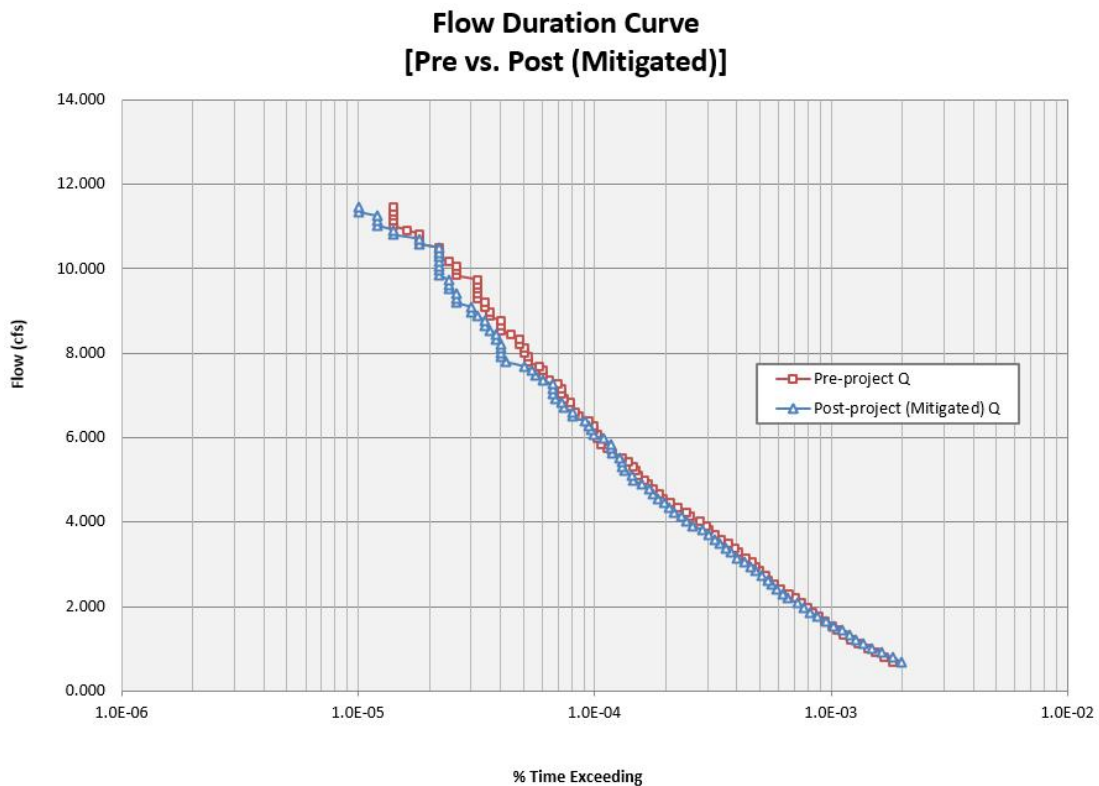


Figure 13 – POC 10 Flow Duration Curve

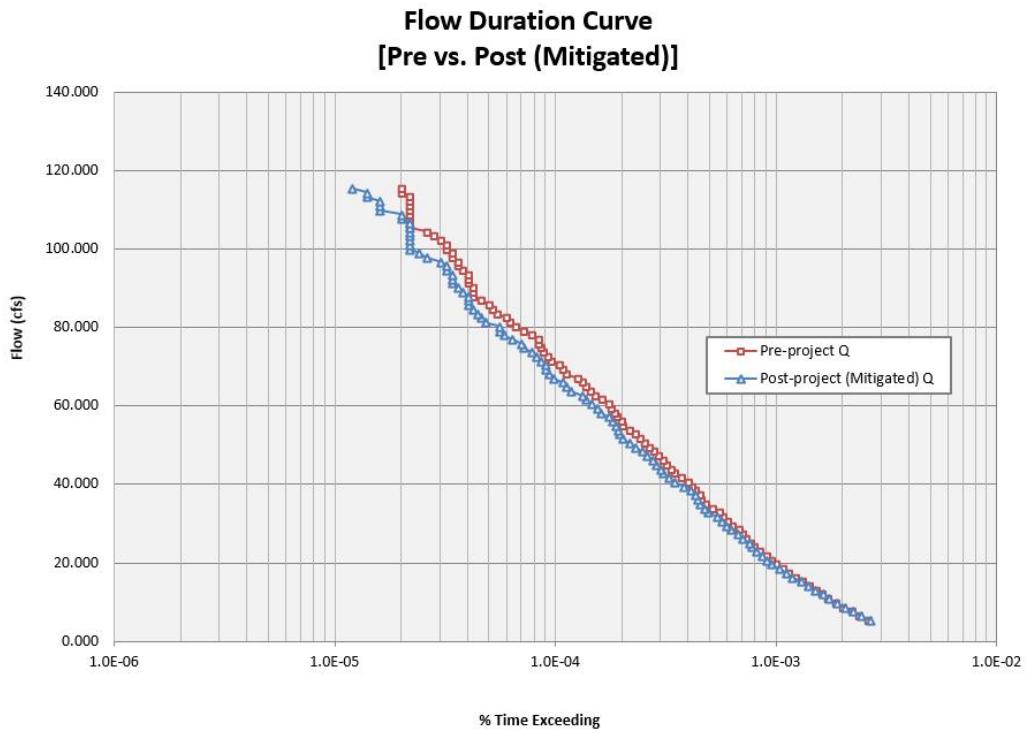


Figure 14 – POC 11 Flow Duration Curve

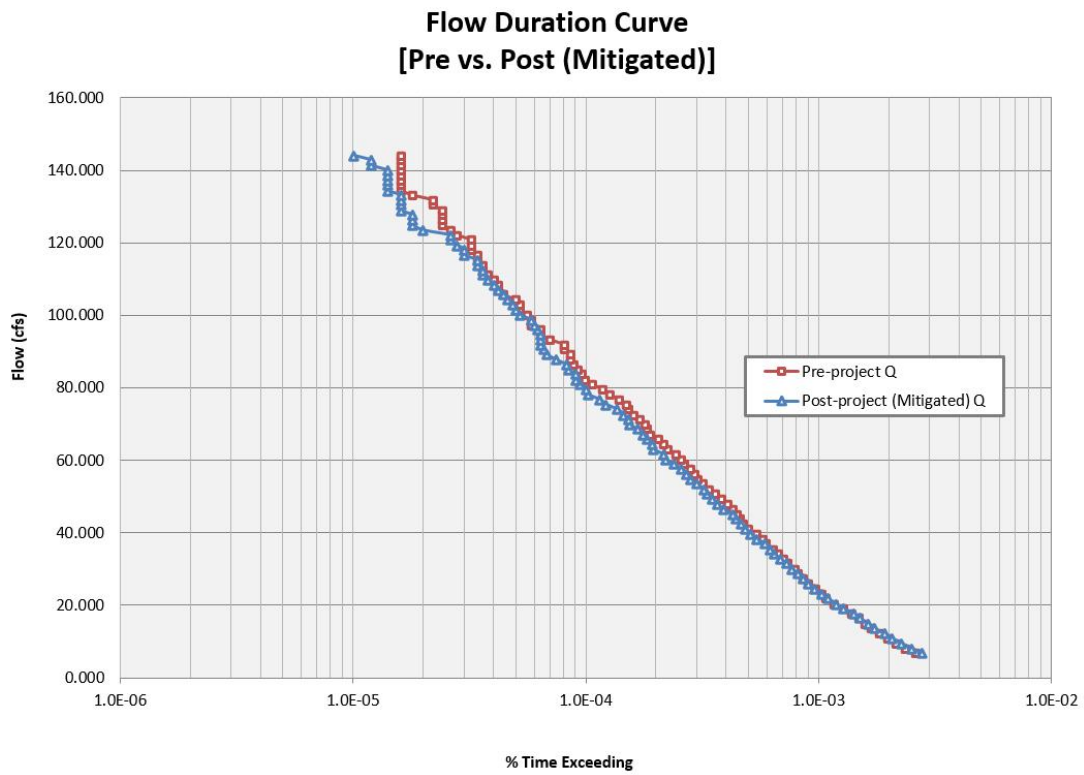


Figure 15 – POC 12 Flow Duration Curve

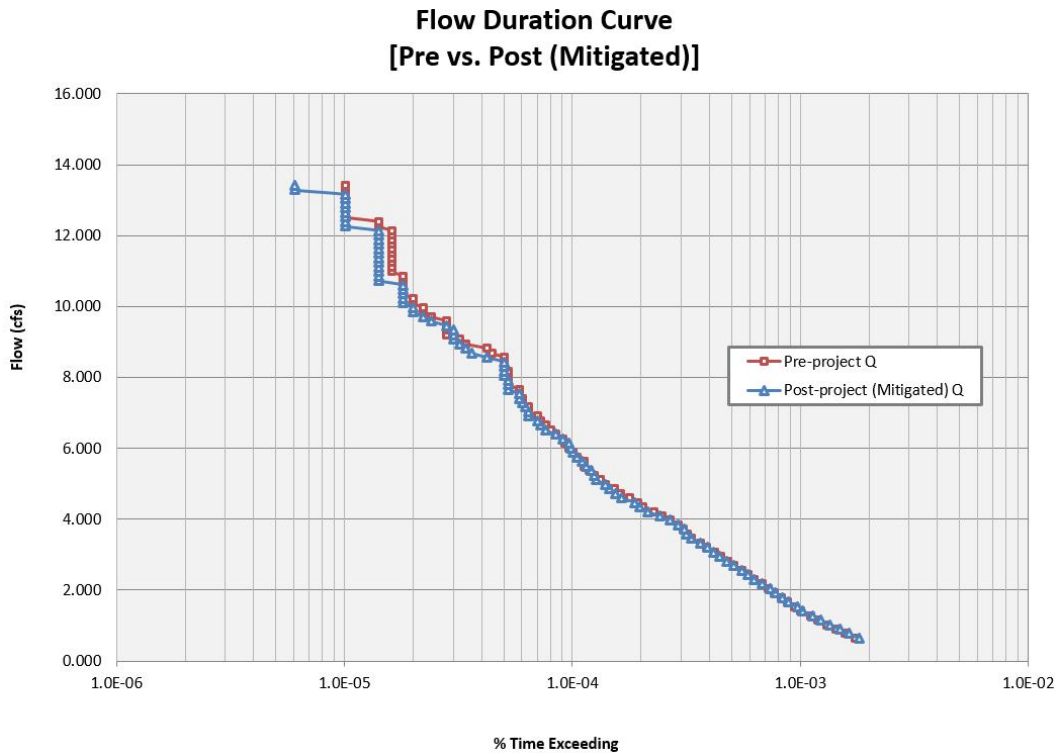


Figure 16 – POC 13 Flow Duration Curve

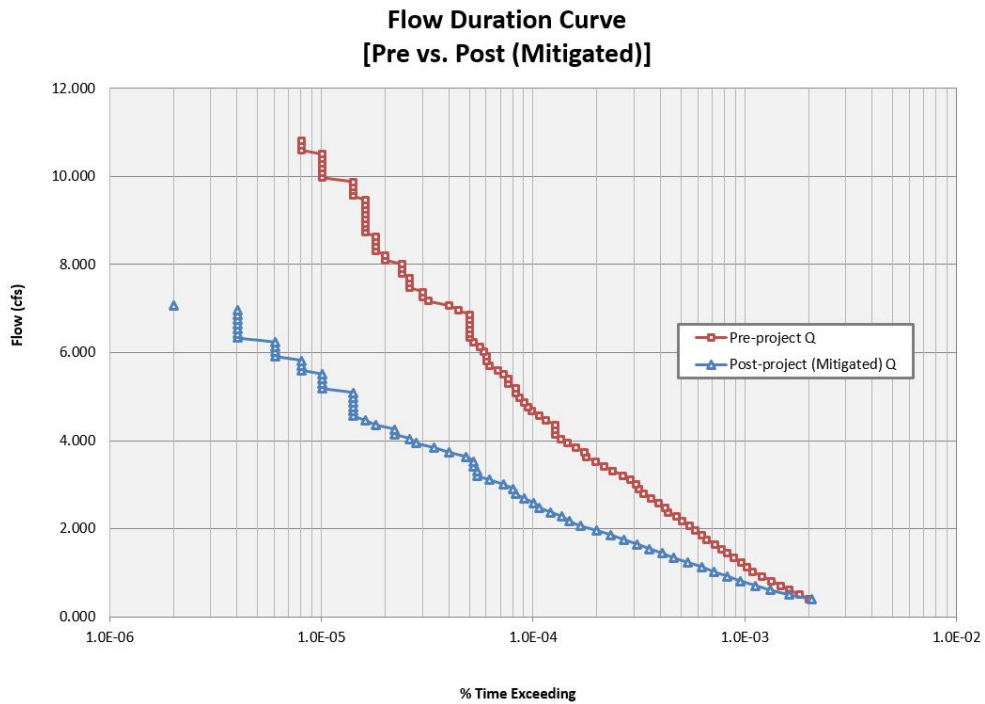


Figure 17 – POC 14 Flow Duration Curve

Low-flow Threshold: **10%**
 0.1xQ2 (Pre): 5.781 cfs
 Q10 (Pre): 118.343 cfs
 Ordinate #: 100
 Incremental Q (Pre): 1.12562 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	5.781	1208	2.43E-03	1320	2.65E-03	109%	Pass
1	6.907	1107	2.23E-03	1173	2.36E-03	106%	Pass
2	8.033	1016	2.04E-03	1076	2.16E-03	106%	Pass
3	9.158	936	1.88E-03	974	1.96E-03	104%	Pass
4	10.284	863	1.74E-03	892	1.79E-03	103%	Pass
5	11.409	796	1.60E-03	811	1.63E-03	102%	Pass
6	12.535	746	1.50E-03	737	1.48E-03	99%	Pass
7	13.661	686	1.38E-03	676	1.36E-03	99%	Pass
8	14.786	645	1.30E-03	635	1.28E-03	98%	Pass
9	15.912	604	1.21E-03	588	1.18E-03	97%	Pass
10	17.038	556	1.12E-03	533	1.07E-03	96%	Pass
11	18.163	513	1.03E-03	495	9.95E-04	96%	Pass
12	19.289	482	9.69E-04	457	9.19E-04	95%	Pass
13	20.414	459	9.23E-04	428	8.61E-04	93%	Pass
14	21.540	429	8.63E-04	397	7.98E-04	93%	Pass
15	22.666	400	8.04E-04	378	7.60E-04	95%	Pass
16	23.791	386	7.76E-04	359	7.22E-04	93%	Pass
17	24.917	365	7.34E-04	337	6.78E-04	92%	Pass
18	26.042	350	7.04E-04	319	6.41E-04	91%	Pass
19	27.168	335	6.74E-04	303	6.09E-04	90%	Pass
20	28.294	314	6.31E-04	283	5.69E-04	90%	Pass
21	29.419	301	6.05E-04	264	5.31E-04	88%	Pass
22	30.545	283	5.69E-04	248	4.99E-04	88%	Pass
23	31.671	271	5.45E-04	239	4.81E-04	88%	Pass
24	32.796	252	5.07E-04	230	4.62E-04	91%	Pass
25	33.922	235	4.72E-04	217	4.36E-04	92%	Pass
26	35.047	228	4.58E-04	205	4.12E-04	90%	Pass
27	36.173	221	4.44E-04	196	3.94E-04	89%	Pass
28	37.299	206	4.14E-04	187	3.76E-04	91%	Pass
29	38.424	197	3.96E-04	175	3.52E-04	89%	Pass
30	39.550	192	3.86E-04	159	3.20E-04	83%	Pass
31	40.675	182	3.66E-04	149	3.00E-04	82%	Pass
32	41.801	171	3.44E-04	141	2.83E-04	82%	Pass
33	42.927	165	3.32E-04	131	2.63E-04	79%	Pass
34	44.052	158	3.18E-04	122	2.45E-04	77%	Pass
35	45.178	147	2.96E-04	117	2.35E-04	80%	Pass
36	46.304	140	2.81E-04	113	2.27E-04	81%	Pass
37	47.429	128	2.57E-04	107	2.15E-04	84%	Pass
38	48.555	126	2.53E-04	99	1.99E-04	79%	Pass
39	49.680	120	2.41E-04	93	1.87E-04	78%	Pass
40	50.806	116	2.33E-04	92	1.85E-04	79%	Pass
41	51.932	109	2.19E-04	86	1.73E-04	79%	Pass
42	53.057	102	2.05E-04	83	1.67E-04	81%	Pass
43	54.183	99	1.99E-04	79	1.59E-04	80%	Pass
44	55.308	93	1.87E-04	74	1.49E-04	80%	Pass
45	56.434	90	1.81E-04	72	1.45E-04	80%	Pass
46	57.560	88	1.77E-04	69	1.39E-04	78%	Pass
47	58.685	84	1.69E-04	64	1.29E-04	76%	Pass
48	59.811	80	1.61E-04	60	1.21E-04	75%	Pass
49	60.937	76	1.53E-04	57	1.15E-04	75%	Pass

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
50	62.062	70	1.41E-04	55	1.11E-04	79%	Pass
51	63.188	68	1.37E-04	49	9.85E-05	72%	Pass
52	64.313	66	1.33E-04	48	9.65E-05	73%	Pass
53	65.439	62	1.25E-04	45	9.05E-05	73%	Pass
54	66.565	57	1.15E-04	43	8.65E-05	75%	Pass
55	67.690	53	1.07E-04	41	8.24E-05	77%	Pass
56	68.816	52	1.05E-04	36	7.24E-05	69%	Pass
57	69.941	51	1.03E-04	35	7.04E-05	69%	Pass
58	71.067	46	9.25E-05	33	6.63E-05	72%	Pass
59	72.193	42	8.44E-05	31	6.23E-05	74%	Pass
60	73.318	41	8.24E-05	30	6.03E-05	73%	Pass
61	74.444	38	7.64E-05	29	5.83E-05	76%	Pass
62	75.570	38	7.64E-05	28	5.63E-05	74%	Pass
63	76.695	34	6.84E-05	26	5.23E-05	76%	Pass
64	77.821	34	6.84E-05	25	5.03E-05	74%	Pass
65	78.946	32	6.43E-05	25	5.03E-05	78%	Pass
66	80.072	27	5.43E-05	25	5.03E-05	93%	Pass
67	81.198	26	5.23E-05	23	4.62E-05	88%	Pass
68	82.323	25	5.03E-05	22	4.42E-05	88%	Pass
69	83.449	22	4.42E-05	22	4.42E-05	100%	Pass
70	84.574	22	4.42E-05	21	4.22E-05	95%	Pass
71	85.700	22	4.42E-05	20	4.02E-05	91%	Pass
72	86.826	22	4.42E-05	19	3.82E-05	86%	Pass
73	87.951	20	4.02E-05	19	3.82E-05	95%	Pass
74	89.077	20	4.02E-05	19	3.82E-05	95%	Pass
75	90.203	19	3.82E-05	18	3.62E-05	95%	Pass
76	91.328	19	3.82E-05	17	3.42E-05	89%	Pass
77	92.454	18	3.62E-05	16	3.22E-05	89%	Pass
78	93.579	17	3.42E-05	13	2.61E-05	76%	Pass
79	94.705	16	3.22E-05	13	2.61E-05	81%	Pass
80	95.831	16	3.22E-05	13	2.61E-05	81%	Pass
81	96.956	15	3.02E-05	13	2.61E-05	87%	Pass
82	98.082	15	3.02E-05	13	2.61E-05	87%	Pass
83	99.207	14	2.81E-05	13	2.61E-05	93%	Pass
84	100.333	13	2.61E-05	12	2.41E-05	92%	Pass
85	101.459	13	2.61E-05	12	2.41E-05	92%	Pass
86	102.584	13	2.61E-05	12	2.41E-05	92%	Pass
87	103.710	12	2.41E-05	11	2.21E-05	92%	Pass
88	104.836	11	2.21E-05	10	2.01E-05	91%	Pass
89	105.961	11	2.21E-05	10	2.01E-05	91%	Pass
90	107.087	11	2.21E-05	9	1.81E-05	82%	Pass
91	108.212	11	2.21E-05	7	1.41E-05	64%	Pass
92	109.338	11	2.21E-05	7	1.41E-05	64%	Pass
93	110.464	9	1.81E-05	7	1.41E-05	78%	Pass
94	111.589	9	1.81E-05	5	1.01E-05	56%	Pass
95	112.715	9	1.81E-05	5	1.01E-05	56%	Pass
96	113.840	9	1.81E-05	5	1.01E-05	56%	Pass
97	114.966	9	1.81E-05	5	1.01E-05	56%	Pass
98	116.092	9	1.81E-05	5	1.01E-05	56%	Pass
99	117.217	8	1.61E-05	5	1.01E-05	63%	Pass
100	118.343	7	1.41E-05	5	1.01E-05	71%	Pass

Low-flow Threshold: 10%
 0.1xQ2 (Pre): 5.812 cfs
 Q10 (Pre): 103.629 cfs
 Ordinate #: 100
 Incremental Q (Pre): 0.97817 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	5.812	1045	2.10E-03	1147	2.31E-03	110%	Pass
1	6.790	972	1.95E-03	1024	2.06E-03	105%	Pass
2	7.768	889	1.79E-03	913	1.84E-03	103%	Pass
3	8.746	811	1.63E-03	823	1.65E-03	101%	Pass
4	9.724	751	1.51E-03	736	1.48E-03	98%	Pass
5	10.703	692	1.39E-03	665	1.34E-03	96%	Pass
6	11.681	636	1.28E-03	614	1.23E-03	97%	Pass
7	12.659	603	1.21E-03	551	1.11E-03	91%	Pass
8	13.637	559	1.12E-03	493	9.91E-04	88%	Pass
9	14.615	514	1.03E-03	451	9.07E-04	88%	Pass
10	15.593	481	9.67E-04	412	8.28E-04	86%	Pass
11	16.572	450	9.05E-04	385	7.74E-04	86%	Pass
12	17.550	424	8.52E-04	360	7.24E-04	85%	Pass
13	18.528	397	7.98E-04	338	6.80E-04	85%	Pass
14	19.506	372	7.48E-04	311	6.25E-04	84%	Pass
15	20.484	344	6.92E-04	296	5.95E-04	86%	Pass
16	21.462	332	6.68E-04	267	5.37E-04	80%	Pass
17	22.441	316	6.35E-04	249	5.01E-04	79%	Pass
18	23.419	301	6.05E-04	231	4.64E-04	77%	Pass
19	24.397	283	5.69E-04	220	4.42E-04	78%	Pass
20	25.375	271	5.45E-04	202	4.06E-04	75%	Pass
21	26.353	258	5.19E-04	190	3.82E-04	74%	Pass
22	27.332	242	4.87E-04	181	3.64E-04	75%	Pass
23	28.310	225	4.52E-04	167	3.36E-04	74%	Pass
24	29.288	216	4.34E-04	153	3.08E-04	71%	Pass
25	30.266	204	4.10E-04	142	2.86E-04	70%	Pass
26	31.244	195	3.92E-04	132	2.65E-04	68%	Pass
27	32.222	189	3.80E-04	120	2.41E-04	63%	Pass
28	33.201	182	3.66E-04	116	2.33E-04	64%	Pass
29	34.179	171	3.44E-04	107	2.15E-04	63%	Pass
30	35.157	159	3.20E-04	101	2.03E-04	64%	Pass
31	36.135	152	3.06E-04	96	1.93E-04	63%	Pass
32	37.113	143	2.88E-04	91	1.83E-04	64%	Pass
33	38.091	133	2.67E-04	85	1.71E-04	64%	Pass
34	39.070	126	2.53E-04	77	1.55E-04	61%	Pass
35	40.048	122	2.45E-04	76	1.53E-04	62%	Pass
36	41.026	111	2.23E-04	71	1.43E-04	64%	Pass
37	42.004	108	2.17E-04	64	1.29E-04	59%	Pass
38	42.982	104	2.09E-04	58	1.17E-04	56%	Pass
39	43.961	102	2.05E-04	54	1.09E-04	53%	Pass
40	44.939	92	1.85E-04	52	1.05E-04	57%	Pass
41	45.917	88	1.77E-04	48	9.65E-05	55%	Pass
42	46.895	85	1.71E-04	45	9.05E-05	53%	Pass
43	47.873	83	1.67E-04	42	8.44E-05	51%	Pass
44	48.851	80	1.61E-04	40	8.04E-05	50%	Pass
45	49.830	78	1.57E-04	34	6.84E-05	44%	Pass
46	50.808	73	1.47E-04	32	6.43E-05	44%	Pass
47	51.786	70	1.41E-04	30	6.03E-05	43%	Pass
48	52.764	68	1.37E-04	29	5.83E-05	43%	Pass
49	53.742	62	1.25E-04	29	5.83E-05	47%	Pass

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
50	54.720	55	1.11E-04	27	5.43E-05	49%	Pass
51	55.699	55	1.11E-04	25	5.03E-05	45%	Pass
52	56.677	53	1.07E-04	23	4.62E-05	43%	Pass
53	57.655	53	1.07E-04	22	4.42E-05	42%	Pass
54	58.633	48	9.65E-05	21	4.22E-05	44%	Pass
55	59.611	45	9.05E-05	20	4.02E-05	44%	Pass
56	60.589	39	7.84E-05	19	3.82E-05	49%	Pass
57	61.568	36	7.24E-05	18	3.62E-05	50%	Pass
58	62.546	36	7.24E-05	17	3.42E-05	47%	Pass
59	63.524	34	6.84E-05	16	3.22E-05	47%	Pass
60	64.502	31	6.23E-05	15	3.02E-05	48%	Pass
61	65.480	30	6.03E-05	15	3.02E-05	50%	Pass
62	66.459	28	5.63E-05	13	2.61E-05	46%	Pass
63	67.437	27	5.43E-05	13	2.61E-05	48%	Pass
64	68.415	26	5.23E-05	11	2.21E-05	42%	Pass
65	69.393	22	4.42E-05	10	2.01E-05	45%	Pass
66	70.371	22	4.42E-05	10	2.01E-05	45%	Pass
67	71.349	21	4.22E-05	10	2.01E-05	48%	Pass
68	72.328	21	4.22E-05	10	2.01E-05	48%	Pass
69	73.306	21	4.22E-05	10	2.01E-05	48%	Pass
70	74.284	19	3.82E-05	10	2.01E-05	53%	Pass
71	75.262	18	3.62E-05	10	2.01E-05	56%	Pass
72	76.240	16	3.22E-05	9	1.81E-05	56%	Pass
73	77.218	16	3.22E-05	8	1.61E-05	50%	Pass
74	78.197	16	3.22E-05	7	1.41E-05	44%	Pass
75	79.175	16	3.22E-05	6	1.21E-05	38%	Pass
76	80.153	16	3.22E-05	5	1.01E-05	31%	Pass
77	81.131	14	2.81E-05	5	1.01E-05	36%	Pass
78	82.109	13	2.61E-05	5	1.01E-05	38%	Pass
79	83.087	12	2.41E-05	5	1.01E-05	42%	Pass
80	84.066	12	2.41E-05	5	1.01E-05	42%	Pass
81	85.044	12	2.41E-05	5	1.01E-05	42%	Pass
82	86.022	12	2.41E-05	5	1.01E-05	42%	Pass
83	87.000	12	2.41E-05	5	1.01E-05	42%	Pass
84	87.978	12	2.41E-05	5	1.01E-05	42%	Pass
85	88.957	11	2.21E-05	5	1.01E-05	45%	Pass
86	89.935	10	2.01E-05	5	1.01E-05	50%	Pass
87	90.913	9	1.81E-05	4	8.04E-06	44%	Pass
88	91.891	7	1.41E-05	3	6.03E-06	43%	Pass
89	92.869	7	1.41E-05	3	6.03E-06	43%	Pass
90	93.847	7	1.41E-05	3	6.03E-06	43%	Pass
91	94.826	7	1.41E-05	3	6.03E-06	43%	Pass
92	95.804	7	1.41E-05	3	6.03E-06	43%	Pass
93	96.782	7	1.41E-05	2	4.02E-06	29%	Pass
94	97.760	6	1.21E-05	2	4.02E-06	33%	Pass
95	98.738	6	1.21E-05	1	2.01E-06	17%	Pass
96	99.716	5	1.01E-05	1	2.01E-06	20%	Pass
97	100.695	5	1.01E-05	1	2.01E-06	20%	Pass
98	101.673	5	1.01E-05	1	2.01E-06	20%	Pass
99	102.651	5	1.01E-05	1	2.01E-06	20%	Pass
100	103.629	5	1.01E-05	1	2.01E-06	20%	Pass

TABLE 22

Low-flow Threshold: 10%
 0.1xQ2 (Pre): 0.190 cfs
 Q10 (Pre): 2.703 cfs
 Ordinate #: 100
 Incremental Q (Pre): 0.02514 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	0.190	959	1.93E-03	988	1.99E-03	103%	Pass
1	0.215	881	1.77E-03	874	1.76E-03	99%	Pass
2	0.240	822	1.65E-03	792	1.59E-03	96%	Pass
3	0.265	776	1.56E-03	694	1.40E-03	89%	Pass
4	0.290	735	1.48E-03	631	1.27E-03	86%	Pass
5	0.315	679	1.37E-03	572	1.15E-03	84%	Pass
6	0.340	640	1.29E-03	517	1.04E-03	81%	Pass
7	0.366	605	1.22E-03	473	9.51E-04	78%	Pass
8	0.391	565	1.14E-03	434	8.73E-04	77%	Pass
9	0.416	527	1.06E-03	393	7.90E-04	75%	Pass
10	0.441	500	1.01E-03	367	7.38E-04	73%	Pass
11	0.466	473	9.51E-04	336	6.76E-04	71%	Pass
12	0.491	450	9.05E-04	301	6.05E-04	67%	Pass
13	0.516	426	8.57E-04	278	5.59E-04	65%	Pass
14	0.541	403	8.10E-04	258	5.19E-04	64%	Pass
15	0.567	386	7.76E-04	241	4.85E-04	62%	Pass
16	0.592	369	7.42E-04	228	4.58E-04	62%	Pass
17	0.617	352	7.08E-04	214	4.30E-04	61%	Pass
18	0.642	336	6.76E-04	205	4.12E-04	61%	Pass
19	0.667	318	6.39E-04	190	3.82E-04	60%	Pass
20	0.692	302	6.07E-04	175	3.52E-04	58%	Pass
21	0.717	283	5.69E-04	151	3.04E-04	53%	Pass
22	0.743	273	5.49E-04	137	2.75E-04	50%	Pass
23	0.768	263	5.29E-04	129	2.59E-04	49%	Pass
24	0.793	254	5.11E-04	119	2.39E-04	47%	Pass
25	0.818	244	4.91E-04	113	2.27E-04	46%	Pass
26	0.843	233	4.68E-04	103	2.07E-04	44%	Pass
27	0.868	227	4.56E-04	98	1.97E-04	43%	Pass
28	0.893	218	4.38E-04	96	1.93E-04	44%	Pass
29	0.919	208	4.18E-04	93	1.87E-04	45%	Pass
30	0.944	201	4.04E-04	91	1.83E-04	45%	Pass
31	0.969	190	3.82E-04	84	1.69E-04	44%	Pass
32	0.994	182	3.66E-04	81	1.63E-04	45%	Pass
33	1.019	170	3.42E-04	74	1.49E-04	44%	Pass
34	1.044	159	3.20E-04	71	1.43E-04	45%	Pass
35	1.069	148	2.98E-04	67	1.35E-04	45%	Pass
36	1.095	144	2.90E-04	62	1.25E-04	43%	Pass
37	1.120	139	2.79E-04	59	1.19E-04	42%	Pass
38	1.145	130	2.61E-04	56	1.13E-04	43%	Pass
39	1.170	124	2.49E-04	53	1.07E-04	43%	Pass
40	1.195	116	2.33E-04	46	9.25E-05	40%	Pass
41	1.220	114	2.29E-04	44	8.85E-05	39%	Pass
42	1.245	110	2.21E-04	43	8.65E-05	39%	Pass
43	1.271	104	2.09E-04	41	8.24E-05	39%	Pass
44	1.296	99	1.99E-04	40	8.04E-05	40%	Pass
45	1.321	94	1.89E-04	35	7.04E-05	37%	Pass
46	1.346	90	1.81E-04	31	6.23E-05	34%	Pass
47	1.371	85	1.71E-04	28	5.63E-05	33%	Pass
48	1.396	84	1.69E-04	28	5.63E-05	33%	Pass
49	1.421	84	1.69E-04	27	5.43E-05	32%	Pass

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
50	1.446	82	1.65E-04	26	5.23E-05	32%	Pass
51	1.472	80	1.61E-04	25	5.03E-05	31%	Pass
52	1.497	73	1.47E-04	25	5.03E-05	34%	Pass
53	1.522	69	1.39E-04	25	5.03E-05	36%	Pass
54	1.547	68	1.37E-04	25	5.03E-05	37%	Pass
55	1.572	64	1.29E-04	23	4.62E-05	36%	Pass
56	1.597	64	1.29E-04	21	4.22E-05	33%	Pass
57	1.622	63	1.27E-04	19	3.82E-05	30%	Pass
58	1.648	60	1.21E-04	18	3.62E-05	30%	Pass
59	1.673	58	1.17E-04	17	3.42E-05	29%	Pass
60	1.698	55	1.11E-04	15	3.02E-05	27%	Pass
61	1.723	54	1.09E-04	15	3.02E-05	28%	Pass
62	1.748	51	1.03E-04	15	3.02E-05	29%	Pass
63	1.773	51	1.03E-04	13	2.61E-05	25%	Pass
64	1.798	49	9.85E-05	11	2.21E-05	22%	Pass
65	1.824	47	9.45E-05	11	2.21E-05	23%	Pass
66	1.849	46	9.25E-05	11	2.21E-05	24%	Pass
67	1.874	44	8.85E-05	10	2.01E-05	23%	Pass
68	1.899	41	8.24E-05	10	2.01E-05	24%	Pass
69	1.924	40	8.04E-05	9	1.81E-05	23%	Pass
70	1.949	39	7.84E-05	9	1.81E-05	23%	Pass
71	1.974	36	7.24E-05	9	1.81E-05	25%	Pass
72	2.000	36	7.24E-05	9	1.81E-05	25%	Pass
73	2.025	34	6.84E-05	8	1.61E-05	24%	Pass
74	2.050	31	6.23E-05	8	1.61E-05	26%	Pass
75	2.075	29	5.83E-05	8	1.61E-05	28%	Pass
76	2.100	27	5.43E-05	8	1.61E-05	30%	Pass
77	2.125	27	5.43E-05	8	1.61E-05	30%	Pass
78	2.150	26	5.23E-05	8	1.61E-05	31%	Pass
79	2.176	26	5.23E-05	8	1.61E-05	31%	Pass
80	2.201	26	5.23E-05	8	1.61E-05	31%	Pass
81	2.226	25	5.03E-05	7	1.41E-05	28%	Pass
82	2.251	25	5.03E-05	7	1.41E-05	28%	Pass
83	2.276	24	4.83E-05	7	1.41E-05	29%	Pass
84	2.301	23	4.62E-05	5	1.01E-05	22%	Pass
85	2.326	23	4.62E-05	5	1.01E-05	22%	Pass
86	2.351	22	4.42E-05	5	1.01E-05	23%	Pass
87	2.377	20	4.02E-05	4	8.04E-06	20%	Pass
88	2.402	19	3.82E-05	4	8.04E-06	21%	Pass
89	2.427	19	3.82E-05	4	8.04E-06	21%	Pass
90	2.452	18	3.62E-05	4	8.04E-06	22%	Pass
91	2.477	15	3.02E-05	4	8.04E-06	27%	Pass
92	2.502	14	2.81E-05	4	8.04E-06	29%	Pass
93	2.527	13	2.61E-05	4	8.04E-06	31%	Pass
94	2.553	13	2.61E-05	3	6.03E-06	23%	Pass
95	2.578	13	2.61E-05	3	6.03E-06	23%	Pass
96	2.603	13	2.61E-05	3	6.03E-06	23%	Pass
97	2.628	13	2.61E-05	3	6.03E-06	23%	Pass
98	2.653	12	2.41E-05	3	6.03E-06	25%	Pass
99	2.678	12	2.41E-05	3	6.03E-06	25%	Pass
100	2.703	12	2.41E-05	3	6.03E-06	25%	Pass

Low-flow Threshold: 10%
 0.1xQ2 (Pre): 0.390 cfs
 Q10 (Pre): 8.501 cfs
 Ordinate #: 100
 Incremental Q (Pre): 0.08111 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	0.390	891	1.79E-03	981	1.97E-03	110%	Pass
1	0.471	804	1.62E-03	883	1.78E-03	110%	Pass
2	0.552	735	1.48E-03	800	1.61E-03	109%	Pass
3	0.634	672	1.35E-03	721	1.45E-03	107%	Pass
4	0.715	616	1.24E-03	648	1.30E-03	105%	Pass
5	0.796	560	1.13E-03	579	1.16E-03	103%	Pass
6	0.877	516	1.04E-03	536	1.08E-03	104%	Pass
7	0.958	483	9.71E-04	500	1.01E-03	104%	Pass
8	1.039	447	8.99E-04	461	9.27E-04	103%	Pass
9	1.120	422	8.48E-04	424	8.52E-04	100%	Pass
10	1.201	395	7.94E-04	395	7.94E-04	100%	Pass
11	1.282	367	7.38E-04	364	7.32E-04	99%	Pass
12	1.364	349	7.02E-04	338	6.80E-04	97%	Pass
13	1.445	318	6.39E-04	315	6.33E-04	99%	Pass
14	1.526	304	6.11E-04	289	5.81E-04	95%	Pass
15	1.607	286	5.75E-04	265	5.33E-04	93%	Pass
16	1.688	269	5.41E-04	247	4.97E-04	92%	Pass
17	1.769	252	5.07E-04	229	4.60E-04	91%	Pass
18	1.850	234	4.70E-04	217	4.36E-04	93%	Pass
19	1.931	217	4.36E-04	206	4.14E-04	95%	Pass
20	2.012	210	4.22E-04	188	3.78E-04	90%	Pass
21	2.094	199	4.00E-04	174	3.50E-04	87%	Pass
22	2.175	185	3.72E-04	167	3.36E-04	90%	Pass
23	2.256	169	3.40E-04	158	3.18E-04	93%	Pass
24	2.337	157	3.16E-04	146	2.94E-04	93%	Pass
25	2.418	148	2.98E-04	135	2.71E-04	91%	Pass
26	2.499	141	2.83E-04	119	2.39E-04	84%	Pass
27	2.580	133	2.67E-04	111	2.23E-04	83%	Pass
28	2.661	125	2.51E-04	96	1.93E-04	77%	Pass
29	2.742	111	2.23E-04	91	1.83E-04	82%	Pass
30	2.824	102	2.05E-04	82	1.65E-04	80%	Pass
31	2.905	96	1.93E-04	77	1.55E-04	80%	Pass
32	2.986	87	1.75E-04	72	1.45E-04	83%	Pass
33	3.067	86	1.73E-04	69	1.39E-04	80%	Pass
34	3.148	79	1.59E-04	67	1.35E-04	85%	Pass
35	3.229	72	1.45E-04	65	1.31E-04	90%	Pass
36	3.310	65	1.31E-04	60	1.21E-04	92%	Pass
37	3.391	62	1.25E-04	55	1.11E-04	89%	Pass
38	3.472	60	1.21E-04	54	1.09E-04	90%	Pass
39	3.554	60	1.21E-04	51	1.03E-04	85%	Pass
40	3.635	59	1.19E-04	48	9.65E-05	81%	Pass
41	3.716	52	1.05E-04	44	8.85E-05	85%	Pass
42	3.797	50	1.01E-04	43	8.65E-05	86%	Pass
43	3.878	49	9.85E-05	43	8.65E-05	88%	Pass
44	3.959	47	9.45E-05	39	7.84E-05	83%	Pass
45	4.040	45	9.05E-05	38	7.64E-05	84%	Pass
46	4.121	43	8.65E-05	36	7.24E-05	84%	Pass
47	4.202	40	8.04E-05	31	6.23E-05	78%	Pass
48	4.284	40	8.04E-05	31	6.23E-05	78%	Pass
49	4.365	37	7.44E-05	30	6.03E-05	81%	Pass
50	4.446	37	7.44E-05	30	6.03E-05	81%	Pass
51	4.527	35	7.04E-05	28	5.63E-05	80%	Pass
52	4.608	33	6.63E-05	27	5.43E-05	82%	Pass
53	4.689	31	6.23E-05	27	5.43E-05	87%	Pass
54	4.770	30	6.03E-05	27	5.43E-05	90%	Pass
55	4.851	30	6.03E-05	27	5.43E-05	90%	Pass
56	4.932	30	6.03E-05	27	5.43E-05	90%	Pass
57	5.014	28	5.63E-05	27	5.43E-05	96%	Pass
58	5.095	27	5.43E-05	25	5.03E-05	93%	Pass
59	5.176	26	5.23E-05	24	4.83E-05	92%	Pass
60	5.257	25	5.03E-05	21	4.22E-05	84%	Pass
61	5.338	25	5.03E-05	17	3.42E-05	68%	Pass
62	5.419	25	5.03E-05	16	3.22E-05	64%	Pass
63	5.500	24	4.83E-05	14	2.81E-05	58%	Pass
64	5.581	24	4.83E-05	14	2.81E-05	58%	Pass
65	5.662	24	4.83E-05	14	2.81E-05	58%	Pass
66	5.744	21	4.22E-05	13	2.61E-05	62%	Pass

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
67	5.825	20	4.02E-05	13	2.61E-05	65%	Pass
68	5.906	16	3.22E-05	12	2.41E-05	75%	Pass
69	5.987	14	2.81E-05	11	2.21E-05	79%	Pass
70	6.068	14	2.81E-05	10	2.01E-05	71%	Pass
71	6.149	13	2.61E-05	9	1.81E-05	69%	Pass
72	6.230	13	2.61E-05	8	1.61E-05	62%	Pass
73	6.311	13	2.61E-05	8	1.61E-05	62%	Pass
74	6.392	12	2.41E-05	7	1.41E-05	58%	Pass
75	6.474	12	2.41E-05	7	1.41E-05	58%	Pass
76	6.555	12	2.41E-05	7	1.41E-05	58%	Pass
77	6.636	11	2.21E-05	7	1.41E-05	64%	Pass
78	6.717	10	2.01E-05	7	1.41E-05	70%	Pass
79	6.798	10	2.01E-05	7	1.41E-05	70%	Pass
80	6.879	9	1.81E-05	7	1.41E-05	78%	Pass
81	6.960	9	1.81E-05	7	1.41E-05	78%	Pass
82	7.041	9	1.81E-05	7	1.41E-05	78%	Pass
83	7.123	9	1.81E-05	7	1.41E-05	78%	Pass
84	7.204	8	1.61E-05	7	1.41E-05	88%	Pass
85	7.285	8	1.61E-05	6	1.21E-05	75%	Pass
86	7.366	8	1.61E-05	5	1.01E-05	63%	Pass
87	7.447	8	1.61E-05	5	1.01E-05	63%	Pass
88	7.528	8	1.61E-05	5	1.01E-05	63%	Pass
89	7.609	8	1.61E-05	5	1.01E-05	63%	Pass
90	7.690	8	1.61E-05	5	1.01E-05	63%	Pass
91	7.771	8	1.61E-05	4	8.04E-06	50%	Pass
92	7.853	7	1.41E-05	4	8.04E-06	57%	Pass
93	7.934	7	1.41E-05	4	8.04E-06	57%	Pass
94	8.015	7	1.41E-05	4	8.04E-06	57%	Pass
95	8.096	7	1.41E-05	3	6.03E-06	43%	Pass
96	8.177	7	1.41E-05	3	6.03E-06	43%	Pass
97	8.258	5	1.01E-05	3	6.03E-06	60%	Pass
98	8.339	5	1.01E-05	3	6.03E-06	60%	Pass
99	8.420	5	1.01E-05	3	6.03E-06	60%	Pass
100	8.501	5	1.01E-05	3	6.03E-06	60%	Pass

TABLE 24

Low-flow Threshold: 10%
 0.1xQ2 (Pre): 12.473 cfs
 Q10 (Pre): 211.938 cfs
 Ordinate #: 100
 Incremental Q (Pre): 1.99465 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	12.473	1814	3.65E-03	1856	3.73E-03	102%	Pass
1	14.468	1605	3.23E-03	1637	3.29E-03	102%	Pass
2	16.462	1472	2.96E-03	1516	3.05E-03	103%	Pass
3	18.457	1209	2.43E-03	1253	2.52E-03	104%	Pass
4	20.452	1097	2.21E-03	1133	2.28E-03	103%	Pass
5	22.446	997	2.00E-03	1038	2.09E-03	104%	Pass
6	24.441	921	1.85E-03	952	1.91E-03	103%	Pass
7	26.436	852	1.71E-03	884	1.78E-03	104%	Pass
8	28.430	786	1.58E-03	822	1.65E-03	105%	Pass
9	30.425	724	1.46E-03	750	1.51E-03	104%	Pass
10	32.420	686	1.38E-03	704	1.42E-03	103%	Pass
11	34.414	636	1.28E-03	659	1.32E-03	104%	Pass
12	36.409	596	1.20E-03	622	1.25E-03	104%	Pass
13	38.404	547	1.10E-03	570	1.15E-03	104%	Pass
14	40.398	504	1.01E-03	530	1.07E-03	105%	Pass
15	42.393	474	9.53E-04	490	9.85E-04	103%	Pass
16	44.387	450	9.05E-04	463	9.31E-04	103%	Pass
17	46.382	418	8.40E-04	430	8.65E-04	103%	Pass
18	48.377	392	7.88E-04	406	8.16E-04	104%	Pass
19	50.371	366	7.36E-04	383	7.70E-04	105%	Pass
20	52.366	339	6.82E-04	351	7.06E-04	104%	Pass
21	54.361	330	6.63E-04	340	6.84E-04	103%	Pass
22	56.355	316	6.35E-04	326	6.55E-04	103%	Pass
23	58.350	297	5.97E-04	313	6.29E-04	105%	Pass
24	60.345	280	5.63E-04	294	5.91E-04	105%	Pass
25	62.339	263	5.29E-04	275	5.53E-04	105%	Pass
26	64.334	247	4.97E-04	256	5.15E-04	104%	Pass
27	66.329	234	4.70E-04	240	4.83E-04	103%	Pass
28	68.323	225	4.52E-04	234	4.70E-04	104%	Pass
29	70.318	216	4.34E-04	224	4.50E-04	104%	Pass
30	72.313	200	4.02E-04	211	4.24E-04	106%	Pass
31	74.307	195	3.92E-04	199	4.00E-04	102%	Pass
32	76.302	190	3.82E-04	192	3.86E-04	101%	Pass
33	78.296	180	3.62E-04	185	3.72E-04	103%	Pass
34	80.291	171	3.44E-04	174	3.50E-04	102%	Pass
35	82.286	158	3.18E-04	168	3.38E-04	106%	Pass
36	84.280	151	3.04E-04	156	3.14E-04	103%	Pass
37	86.275	140	2.81E-04	144	2.90E-04	103%	Pass
38	88.270	135	2.71E-04	138	2.77E-04	102%	Pass
39	90.264	124	2.49E-04	130	2.61E-04	105%	Pass
40	92.259	118	2.37E-04	122	2.45E-04	103%	Pass
41	94.254	113	2.27E-04	115	2.31E-04	102%	Pass
42	96.248	110	2.21E-04	112	2.25E-04	102%	Pass
43	98.243	104	2.09E-04	107	2.15E-04	103%	Pass
44	100.238	102	2.05E-04	104	2.09E-04	102%	Pass
45	102.232	95	1.91E-04	100	2.01E-04	105%	Pass
46	104.227	91	1.83E-04	96	1.93E-04	105%	Pass
47	106.222	88	1.77E-04	90	1.81E-04	102%	Pass
48	108.216	83	1.67E-04	86	1.73E-04	104%	Pass
49	110.211	80	1.61E-04	82	1.65E-04	103%	Pass

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
50	112.206	77	1.55E-04	79	1.59E-04	103%	Pass
51	114.200	71	1.43E-04	75	1.51E-04	106%	Pass
52	116.195	69	1.39E-04	70	1.41E-04	101%	Pass
53	118.189	63	1.27E-04	64	1.29E-04	102%	Pass
54	120.184	62	1.25E-04	63	1.27E-04	102%	Pass
55	122.179	59	1.19E-04	60	1.21E-04	102%	Pass
56	124.173	55	1.11E-04	57	1.15E-04	104%	Pass
57	126.168	54	1.09E-04	54	1.09E-04	100%	Pass
58	128.163	52	1.05E-04	52	1.05E-04	100%	Pass
59	130.157	50	1.01E-04	49	9.85E-05	98%	Pass
60	132.152	47	9.45E-05	48	9.65E-05	102%	Pass
61	134.147	43	8.65E-05	44	8.85E-05	102%	Pass
62	136.141	38	7.64E-05	40	8.04E-05	105%	Pass
63	138.136	38	7.64E-05	38	7.64E-05	100%	Pass
64	140.131	35	7.04E-05	36	7.24E-05	103%	Pass
65	142.125	35	7.04E-05	35	7.04E-05	100%	Pass
66	144.120	33	6.63E-05	34	6.84E-05	103%	Pass
67	146.115	31	6.23E-05	31	6.23E-05	100%	Pass
68	148.109	30	6.03E-05	31	6.23E-05	103%	Pass
69	150.104	26	5.23E-05	27	5.43E-05	104%	Pass
70	152.099	25	5.03E-05	25	5.03E-05	100%	Pass
71	154.093	25	5.03E-05	25	5.03E-05	100%	Pass
72	156.088	24	4.83E-05	24	4.83E-05	100%	Pass
73	158.082	24	4.83E-05	24	4.83E-05	100%	Pass
74	160.077	24	4.83E-05	24	4.83E-05	100%	Pass
75	162.072	22	4.42E-05	24	4.83E-05	109%	Pass
76	164.066	21	4.22E-05	21	4.22E-05	100%	Pass
77	166.061	19	3.82E-05	19	3.82E-05	100%	Pass
78	168.056	19	3.82E-05	19	3.82E-05	100%	Pass
79	170.050	19	3.82E-05	19	3.82E-05	100%	Pass
80	172.045	17	3.42E-05	18	3.62E-05	106%	Pass
81	174.040	17	3.42E-05	17	3.42E-05	100%	Pass
82	176.034	17	3.42E-05	17	3.42E-05	100%	Pass
83	178.029	15	3.02E-05	15	3.02E-05	100%	Pass
84	180.024	14	2.81E-05	15	3.02E-05	107%	Pass
85	182.018	12	2.41E-05	12	2.41E-05	100%	Pass
86	184.013	12	2.41E-05	12	2.41E-05	100%	Pass
87	186.008	12	2.41E-05	12	2.41E-05	100%	Pass
88	188.002	12	2.41E-05	12	2.41E-05	100%	Pass
89	189.997	11	2.21E-05	12	2.41E-05	109%	Pass
90	191.992	11	2.21E-05	11	2.21E-05	100%	Pass
91	193.986	10	2.01E-05	11	2.21E-05	110%	Pass
92	195.981	10	2.01E-05	10	2.01E-05	100%	Pass
93	197.975	10	2.01E-05	10	2.01E-05	100%	Pass
94	199.970	10	2.01E-05	10	2.01E-05	100%	Pass
95	201.965	10	2.01E-05	10	2.01E-05	100%	Pass
96	203.959	8	1.61E-05	8	1.61E-05	100.00%	Pass
97	205.954	8	1.61E-05	8	1.61E-05	100%	Pass
98	207.949	8	1.61E-05	8	1.61E-05	100%	Pass
99	209.943	7	1.41E-05	7	1.41E-05	100%	Pass
100	211.938	7	1.41E-05	7	1.41E-05	100%	Pass

Low-flow Threshold: 10%
 0.1xQ2 (Pre): 0.470 cfs
 Q10 (Pre): 12.949 cfs
 Ordinate #: 100
 Incremental Q (Pre): 0.12480 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	0.470	1061	2.13E-03	1079	2.17E-03	102%	Pass
1	0.595	957	1.92E-03	950	1.91E-03	99%	Pass
2	0.719	879	1.77E-03	840	1.69E-03	96%	Pass
3	0.844	806	1.62E-03	751	1.51E-03	93%	Pass
4	0.969	735	1.48E-03	664	1.34E-03	90%	Pass
5	1.094	681	1.37E-03	605	1.22E-03	89%	Pass
6	1.219	608	1.22E-03	552	1.11E-03	91%	Pass
7	1.343	563	1.13E-03	504	1.01E-03	90%	Pass
8	1.468	527	1.06E-03	452	9.09E-04	86%	Pass
9	1.593	500	1.01E-03	411	8.26E-04	82%	Pass
10	1.718	470	9.45E-04	380	7.64E-04	81%	Pass
11	1.843	442	8.89E-04	346	6.96E-04	78%	Pass
12	1.967	412	8.28E-04	315	6.33E-04	76%	Pass
13	2.092	384	7.72E-04	296	5.95E-04	77%	Pass
14	2.217	357	7.18E-04	272	5.47E-04	76%	Pass
15	2.342	336	6.76E-04	256	5.15E-04	76%	Pass
16	2.467	314	6.31E-04	240	4.83E-04	76%	Pass
17	2.591	291	5.85E-04	223	4.48E-04	77%	Pass
18	2.716	273	5.49E-04	211	4.24E-04	77%	Pass
19	2.841	264	5.31E-04	190	3.82E-04	72%	Pass
20	2.966	249	5.01E-04	178	3.58E-04	71%	Pass
21	3.091	234	4.70E-04	168	3.38E-04	72%	Pass
22	3.215	217	4.36E-04	159	3.20E-04	73%	Pass
23	3.340	207	4.16E-04	139	2.79E-04	67%	Pass
24	3.465	193	3.88E-04	123	2.47E-04	64%	Pass
25	3.590	187	3.76E-04	116	2.33E-04	62%	Pass
26	3.715	180	3.62E-04	110	2.21E-04	61%	Pass
27	3.839	168	3.38E-04	105	2.11E-04	63%	Pass
28	3.964	155	3.12E-04	101	2.03E-04	65%	Pass
29	4.089	143	2.88E-04	95	1.91E-04	66%	Pass
30	4.214	134	2.69E-04	91	1.83E-04	68%	Pass
31	4.338	128	2.57E-04	81	1.63E-04	63%	Pass
32	4.463	123	2.47E-04	74	1.49E-04	60%	Pass
33	4.588	111	2.23E-04	72	1.45E-04	65%	Pass
34	4.713	102	2.05E-04	68	1.37E-04	67%	Pass
35	4.838	95	1.91E-04	65	1.31E-04	68%	Pass
36	4.962	87	1.75E-04	61	1.23E-04	70%	Pass
37	5.087	80	1.61E-04	57	1.15E-04	71%	Pass
38	5.212	78	1.57E-04	57	1.15E-04	73%	Pass
39	5.337	77	1.55E-04	55	1.11E-04	71%	Pass
40	5.462	74	1.49E-04	52	1.05E-04	70%	Pass
41	5.586	67	1.35E-04	48	9.65E-05	72%	Pass
42	5.711	64	1.29E-04	46	9.25E-05	72%	Pass
43	5.836	63	1.27E-04	43	8.65E-05	68%	Pass
44	5.961	61	1.23E-04	40	8.04E-05	66%	Pass
45	6.086	54	1.09E-04	40	8.04E-05	74%	Pass
46	6.210	52	1.05E-04	38	7.64E-05	73%	Pass
47	6.335	50	1.01E-04	38	7.64E-05	76%	Pass
48	6.460	45	9.05E-05	37	7.44E-05	82%	Pass
49	6.585	43	8.65E-05	35	7.04E-05	81%	Pass

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
50	6.710	42	8.44E-05	32	6.43E-05	76%	Pass
51	6.834	41	8.24E-05	30	6.03E-05	73%	Pass
52	6.959	41	8.24E-05	24	4.83E-05	59%	Pass
53	7.084	39	7.84E-05	23	4.62E-05	59%	Pass
54	7.209	37	7.44E-05	23	4.62E-05	62%	Pass
55	7.334	37	7.44E-05	22	4.42E-05	59%	Pass
56	7.458	36	7.24E-05	20	4.02E-05	56%	Pass
57	7.583	36	7.24E-05	19	3.82E-05	53%	Pass
58	7.708	32	6.43E-05	19	3.82E-05	59%	Pass
59	7.833	30	6.03E-05	17	3.42E-05	57%	Pass
60	7.958	28	5.63E-05	16	3.22E-05	57%	Pass
61	8.082	28	5.63E-05	15	3.02E-05	54%	Pass
62	8.207	26	5.23E-05	14	2.81E-05	54%	Pass
63	8.332	26	5.23E-05	14	2.81E-05	54%	Pass
64	8.457	25	5.03E-05	13	2.61E-05	52%	Pass
65	8.582	25	5.03E-05	13	2.61E-05	52%	Pass
66	8.706	25	5.03E-05	13	2.61E-05	52%	Pass
67	8.831	25	5.03E-05	12	2.41E-05	48%	Pass
68	8.956	25	5.03E-05	12	2.41E-05	48%	Pass
69	9.081	23	4.62E-05	12	2.41E-05	52%	Pass
70	9.206	22	4.42E-05	11	2.21E-05	50%	Pass
71	9.330	20	4.02E-05	10	2.01E-05	50%	Pass
72	9.455	19	3.82E-05	10	2.01E-05	53%	Pass
73	9.580	17	3.42E-05	9	1.81E-05	53%	Pass
74	9.705	17	3.42E-05	8	1.61E-05	47%	Pass
75	9.830	16	3.22E-05	8	1.61E-05	50%	Pass
76	9.954	14	2.81E-05	8	1.61E-05	57%	Pass
77	10.079	14	2.81E-05	8	1.61E-05	57%	Pass
78	10.204	14	2.81E-05	6	1.21E-05	43%	Pass
79	10.329	13	2.61E-05	6	1.21E-05	46%	Pass
80	10.454	12	2.41E-05	4	8.04E-06	33%	Pass
81	10.578	12	2.41E-05	3	6.03E-06	25%	Pass
82	10.703	12	2.41E-05	3	6.03E-06	25%	Pass
83	10.828	11	2.21E-05	3	6.03E-06	27%	Pass
84	10.953	11	2.21E-05	3	6.03E-06	27%	Pass
85	11.078	11	2.21E-05	3	6.03E-06	27%	Pass
86	11.202	9	1.81E-05	3	6.03E-06	33%	Pass
87	11.327	9	1.81E-05	3	6.03E-06	33%	Pass
88	11.452	8	1.61E-05	2	4.02E-06	25%	Pass
89	11.577	8	1.61E-05	2	4.02E-06	25%	Pass
90	11.702	8	1.61E-05	2	4.02E-06	25%	Pass
91	11.826	8	1.61E-05	2	4.02E-06	25%	Pass
92	11.951	8	1.61E-05	2	4.02E-06	25%	Pass
93	12.076	8	1.61E-05	2	4.02E-06	25%	Pass
94	12.201	7	1.41E-05	2	4.02E-06	29%	Pass
95	12.325	7	1.41E-05	2	4.02E-06	29%	Pass
96	12.450	7	1.41E-05	2	4.02E-06	29%	Pass
97	12.575	7	1.41E-05	2	4.02E-06	29%	Pass
98	12.700	7	1.41E-05	2	4.02E-06	29%	Pass
99	12.825	7	1.41E-05	2	4.02E-06	29%	Pass
100	12.949	7	1.41E-05	2	4.02E-06	29%	Pass

Low-flow Threshold: 10%
 0.1xQ2 (Pre): 1.105 cfs
 Q10 (Pre): 16.962 cfs
 Ordinate #: 100
 Incremental Q (Pre): 0.15858 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	1.105	738	1.48E-03	732	1.47E-03	99%	Pass
1	1.263	679	1.37E-03	662	1.33E-03	97%	Pass
2	1.422	627	1.26E-03	603	1.21E-03	96%	Pass
3	1.581	580	1.17E-03	553	1.11E-03	95%	Pass
4	1.739	534	1.07E-03	514	1.03E-03	96%	Pass
5	1.898	494	9.93E-04	467	9.39E-04	95%	Pass
6	2.056	466	9.37E-04	435	8.75E-04	93%	Pass
7	2.215	431	8.67E-04	406	8.16E-04	94%	Pass
8	2.373	406	8.16E-04	380	7.64E-04	94%	Pass
9	2.532	382	7.68E-04	353	7.10E-04	92%	Pass
10	2.691	363	7.30E-04	325	6.53E-04	90%	Pass
11	2.849	344	6.92E-04	302	6.07E-04	88%	Pass
12	3.008	328	6.59E-04	287	5.77E-04	88%	Pass
13	3.166	311	6.25E-04	263	5.29E-04	85%	Pass
14	3.325	289	5.81E-04	246	4.95E-04	85%	Pass
15	3.483	265	5.33E-04	228	4.58E-04	86%	Pass
16	3.642	258	5.19E-04	213	4.28E-04	83%	Pass
17	3.801	244	4.91E-04	197	3.96E-04	81%	Pass
18	3.959	228	4.58E-04	186	3.74E-04	82%	Pass
19	4.118	210	4.22E-04	175	3.52E-04	83%	Pass
20	4.276	197	3.96E-04	168	3.38E-04	85%	Pass
21	4.435	185	3.72E-04	158	3.18E-04	85%	Pass
22	4.593	173	3.48E-04	147	2.96E-04	85%	Pass
23	4.752	159	3.20E-04	133	2.67E-04	84%	Pass
24	4.911	151	3.04E-04	121	2.43E-04	80%	Pass
25	5.069	142	2.86E-04	111	2.23E-04	78%	Pass
26	5.228	134	2.69E-04	106	2.13E-04	79%	Pass
27	5.386	122	2.45E-04	98	1.97E-04	80%	Pass
28	5.545	113	2.27E-04	92	1.85E-04	81%	Pass
29	5.703	109	2.19E-04	84	1.69E-04	77%	Pass
30	5.862	101	2.03E-04	80	1.61E-04	79%	Pass
31	6.021	95	1.91E-04	74	1.49E-04	78%	Pass
32	6.179	87	1.75E-04	72	1.45E-04	83%	Pass
33	6.338	84	1.69E-04	69	1.39E-04	82%	Pass
34	6.496	78	1.57E-04	64	1.29E-04	82%	Pass
35	6.655	75	1.51E-04	62	1.25E-04	83%	Pass
36	6.814	69	1.39E-04	57	1.15E-04	83%	Pass
37	6.972	67	1.35E-04	56	1.13E-04	84%	Pass
38	7.131	64	1.29E-04	54	1.09E-04	84%	Pass
39	7.289	58	1.17E-04	51	1.03E-04	88%	Pass
40	7.448	55	1.11E-04	47	9.45E-05	85%	Pass
41	7.606	52	1.05E-04	44	8.85E-05	85%	Pass
42	7.765	51	1.03E-04	39	7.84E-05	76%	Pass
43	7.924	50	1.01E-04	38	7.64E-05	76%	Pass
44	8.082	49	9.85E-05	36	7.24E-05	73%	Pass
45	8.241	49	9.85E-05	36	7.24E-05	73%	Pass
46	8.399	48	9.65E-05	36	7.24E-05	75%	Pass
47	8.558	45	9.05E-05	33	6.63E-05	73%	Pass
48	8.716	41	8.24E-05	33	6.63E-05	80%	Pass
49	8.875	40	8.04E-05	30	6.03E-05	75%	Pass

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
50	9.034	39	7.84E-05	30	6.03E-05	77%	Pass
51	9.192	37	7.44E-05	28	5.63E-05	76%	Pass
52	9.351	36	7.24E-05	28	5.63E-05	78%	Pass
53	9.509	35	7.04E-05	27	5.43E-05	77%	Pass
54	9.668	34	6.84E-05	26	5.23E-05	76%	Pass
55	9.826	31	6.23E-05	26	5.23E-05	84%	Pass
56	9.985	30	6.03E-05	24	4.83E-05	80%	Pass
57	10.144	30	6.03E-05	21	4.22E-05	70%	Pass
58	10.302	29	5.83E-05	21	4.22E-05	72%	Pass
59	10.461	28	5.63E-05	20	4.02E-05	71%	Pass
60	10.619	26	5.23E-05	19	3.82E-05	73%	Pass
61	10.778	26	5.23E-05	19	3.82E-05	73%	Pass
62	10.936	26	5.23E-05	19	3.82E-05	73%	Pass
63	11.095	26	5.23E-05	18	3.62E-05	69%	Pass
64	11.254	24	4.83E-05	15	3.02E-05	63%	Pass
65	11.412	24	4.83E-05	14	2.81E-05	58%	Pass
66	11.571	23	4.62E-05	13	2.61E-05	57%	Pass
67	11.729	21	4.22E-05	12	2.41E-05	57%	Pass
68	11.888	18	3.62E-05	11	2.21E-05	61%	Pass
69	12.047	17	3.42E-05	10	2.01E-05	59%	Pass
70	12.205	16	3.22E-05	10	2.01E-05	63%	Pass
71	12.364	16	3.22E-05	9	1.81E-05	56%	Pass
72	12.522	16	3.22E-05	7	1.41E-05	44%	Pass
73	12.681	13	2.61E-05	7	1.41E-05	54%	Pass
74	12.839	13	2.61E-05	7	1.41E-05	54%	Pass
75	12.998	13	2.61E-05	7	1.41E-05	54%	Pass
76	13.157	12	2.41E-05	7	1.41E-05	58%	Pass
77	13.315	12	2.41E-05	7	1.41E-05	58%	Pass
78	13.474	11	2.21E-05	7	1.41E-05	64%	Pass
79	13.632	10	2.01E-05	7	1.41E-05	70%	Pass
80	13.791	9	1.81E-05	7	1.41E-05	78%	Pass
81	13.949	9	1.81E-05	7	1.41E-05	78%	Pass
82	14.108	9	1.81E-05	7	1.41E-05	78%	Pass
83	14.267	9	1.81E-05	5	1.01E-05	56%	Pass
84	14.425	9	1.81E-05	5	1.01E-05	56%	Pass
85	14.584	9	1.81E-05	5	1.01E-05	56%	Pass
86	14.742	9	1.81E-05	5	1.01E-05	56%	Pass
87	14.901	8	1.61E-05	5	1.01E-05	63%	Pass
88	15.059	8	1.61E-05	5	1.01E-05	63%	Pass
89	15.218	8	1.61E-05	5	1.01E-05	63%	Pass
90	15.377	8	1.61E-05	4	8.04E-06	50%	Pass
91	15.535	8	1.61E-05	3	6.03E-06	38%	Pass
92	15.694	8	1.61E-05	3	6.03E-06	38%	Pass
93	15.852	8	1.61E-05	3	6.03E-06	38%	Pass
94	16.011	8	1.61E-05	3	6.03E-06	38%	Pass
95	16.170	8	1.61E-05	3	6.03E-06	38%	Pass
96	16.328	8	1.61E-05	3	6.03E-06	38%	Pass
97	16.487	8	1.61E-05	3	6.03E-06	38%	Pass
98	16.645	8	1.61E-05	3	6.03E-06	38%	Pass
99	16.804	7	1.41E-05	3	6.03E-06	43%	Pass
100	16.962	6	1.21E-05	3	6.03E-06	50%	Pass

Low-flow Threshold: 10%
 0.1xQ2 (Pre): 0.629 cfs
 Q10 (Pre): 9.684 cfs
 Ordinate #: 100
 Incremental Q (Pre): 0.09056 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	0.629	732	1.47E-03	793	1.59E-03	108%	Pass
1	0.719	682	1.37E-03	715	1.44E-03	105%	Pass
2	0.810	621	1.25E-03	646	1.30E-03	104%	Pass
3	0.900	574	1.15E-03	591	1.19E-03	103%	Pass
4	0.991	527	1.06E-03	541	1.09E-03	103%	Pass
5	1.082	490	9.85E-04	495	9.95E-04	101%	Pass
6	1.172	458	9.21E-04	452	9.09E-04	99%	Pass
7	1.263	428	8.61E-04	420	8.44E-04	98%	Pass
8	1.353	402	8.08E-04	392	7.88E-04	98%	Pass
9	1.444	377	7.58E-04	367	7.38E-04	97%	Pass
10	1.534	360	7.24E-04	340	6.84E-04	94%	Pass
11	1.625	342	6.88E-04	315	6.33E-04	92%	Pass
12	1.715	320	6.43E-04	296	5.95E-04	93%	Pass
13	1.806	302	6.07E-04	270	5.43E-04	89%	Pass
14	1.897	277	5.57E-04	248	4.99E-04	90%	Pass
15	1.987	266	5.35E-04	229	4.60E-04	86%	Pass
16	2.078	251	5.05E-04	214	4.30E-04	85%	Pass
17	2.168	233	4.68E-04	203	4.08E-04	87%	Pass
18	2.259	219	4.40E-04	187	3.76E-04	85%	Pass
19	2.349	204	4.10E-04	177	3.56E-04	87%	Pass
20	2.440	189	3.80E-04	170	3.42E-04	90%	Pass
21	2.530	177	3.56E-04	159	3.20E-04	90%	Pass
22	2.621	166	3.34E-04	145	2.92E-04	87%	Pass
23	2.712	157	3.16E-04	134	2.69E-04	85%	Pass
24	2.802	148	2.98E-04	120	2.41E-04	81%	Pass
25	2.893	139	2.79E-04	111	2.23E-04	80%	Pass
26	2.983	129	2.59E-04	105	2.11E-04	81%	Pass
27	3.074	118	2.37E-04	96	1.93E-04	81%	Pass
28	3.164	113	2.27E-04	92	1.85E-04	81%	Pass
29	3.255	104	2.09E-04	87	1.75E-04	84%	Pass
30	3.345	96	1.93E-04	79	1.59E-04	82%	Pass
31	3.436	90	1.81E-04	78	1.57E-04	87%	Pass
32	3.527	83	1.67E-04	73	1.47E-04	88%	Pass
33	3.617	79	1.59E-04	71	1.43E-04	90%	Pass
34	3.708	76	1.53E-04	68	1.37E-04	89%	Pass
35	3.798	70	1.41E-04	66	1.33E-04	94%	Pass
36	3.889	66	1.33E-04	65	1.31E-04	98%	Pass
37	3.979	64	1.29E-04	62	1.25E-04	97%	Pass
38	4.070	57	1.15E-04	59	1.19E-04	104%	Pass
39	4.160	55	1.11E-04	54	1.09E-04	98%	Pass
40	4.251	53	1.07E-04	48	9.65E-05	91%	Pass
41	4.342	52	1.05E-04	47	9.45E-05	90%	Pass
42	4.432	51	1.03E-04	44	8.85E-05	86%	Pass
43	4.523	49	9.85E-05	42	8.44E-05	86%	Pass
44	4.613	49	9.85E-05	41	8.24E-05	84%	Pass
45	4.704	47	9.45E-05	39	7.84E-05	83%	Pass
46	4.794	45	9.05E-05	37	7.44E-05	82%	Pass
47	4.885	41	8.24E-05	36	7.24E-05	88%	Pass
48	4.975	40	8.04E-05	34	6.84E-05	85%	Pass
49	5.066	38	7.64E-05	34	6.84E-05	89%	Pass

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
50	5.157	37	7.44E-05	33	6.63E-05	89%	Pass
51	5.247	36	7.24E-05	32	6.43E-05	89%	Pass
52	5.338	32	6.43E-05	32	6.43E-05	100%	Pass
53	5.428	31	6.23E-05	31	6.23E-05	100%	Pass
54	5.519	31	6.23E-05	28	5.63E-05	90%	Pass
55	5.609	30	6.03E-05	24	4.83E-05	80%	Pass
56	5.700	30	6.03E-05	23	4.62E-05	77%	Pass
57	5.790	29	5.83E-05	21	4.22E-05	72%	Pass
58	5.881	27	5.43E-05	21	4.22E-05	78%	Pass
59	5.972	26	5.23E-05	21	4.22E-05	81%	Pass
60	6.062	26	5.23E-05	21	4.22E-05	81%	Pass
61	6.153	26	5.23E-05	18	3.62E-05	69%	Pass
62	6.243	26	5.23E-05	17	3.42E-05	65%	Pass
63	6.334	24	4.83E-05	16	3.22E-05	67%	Pass
64	6.424	24	4.83E-05	16	3.22E-05	67%	Pass
65	6.515	23	4.62E-05	15	3.02E-05	65%	Pass
66	6.605	21	4.22E-05	15	3.02E-05	71%	Pass
67	6.696	17	3.42E-05	14	2.81E-05	82%	Pass
68	6.787	17	3.42E-05	13	2.61E-05	76%	Pass
69	6.877	16	3.22E-05	12	2.41E-05	75%	Pass
70	6.968	16	3.22E-05	11	2.21E-05	69%	Pass
71	7.058	15	3.02E-05	11	2.21E-05	73%	Pass
72	7.149	13	2.61E-05	11	2.21E-05	85%	Pass
73	7.239	13	2.61E-05	11	2.21E-05	85%	Pass
74	7.330	12	2.41E-05	10	2.01E-05	83%	Pass
75	7.420	12	2.41E-05	10	2.01E-05	83%	Pass
76	7.511	11	2.21E-05	10	2.01E-05	91%	Pass
77	7.602	11	2.21E-05	10	2.01E-05	91%	Pass
78	7.692	9	1.81E-05	9	1.81E-05	100%	Pass
79	7.783	9	1.81E-05	9	1.81E-05	100%	Pass
80	7.873	9	1.81E-05	7	1.41E-05	78%	Pass
81	7.964	9	1.81E-05	7	1.41E-05	78%	Pass
82	8.054	9	1.81E-05	7	1.41E-05	78%	Pass
83	8.145	9	1.81E-05	7	1.41E-05	78%	Pass
84	8.235	9	1.81E-05	6	1.21E-05	67%	Pass
85	8.326	8	1.61E-05	6	1.21E-05	75%	Pass
86	8.417	8	1.61E-05	6	1.21E-05	75%	Pass
87	8.507	8	1.61E-05	4	8.04E-06	50%	Pass
88	8.598	8	1.61E-05	4	8.04E-06	50%	Pass
89	8.688	8	1.61E-05	4	8.04E-06	50%	Pass
90	8.779	8	1.61E-05	4	8.04E-06	50%	Pass
91	8.869	8	1.61E-05	3	6.03E-06	38%	Pass
92	8.960	8	1.61E-05	3	6.03E-06	38%	Pass
93	9.050	8	1.61E-05	3	6.03E-06	38%	Pass
94	9.141	8	1.61E-05	3	6.03E-06	38%	Pass
95	9.232	8	1.61E-05	3	6.03E-06	38%	Pass
96	9.322	8	1.61E-05	3	6.03E-06	38%	Pass
97	9.413	7	1.41E-05	3	6.03E-06	43%	Pass
98	9.503	6	1.21E-05	3	6.03E-06	50%	Pass
99	9.594	5	1.01E-05	2	4.02E-06	40%	Pass
100	9.684	5	1.01E-05	2	4.02E-06	40%	Pass

Low-flow Threshold: 10%
 0.1xQ2 (Pre): 5.815 cfs
 Q10 (Pre): 106.577 cfs
 Ordinate #: 100
 Incremental Q (Pre): 1.00762 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	5.815	1435	2.89E-03	1470	2.96E-03	102%	Pass
1	6.822	1304	2.62E-03	1333	2.68E-03	102%	Pass
2	7.830	1192	2.40E-03	1214	2.44E-03	102%	Pass
3	8.838	1107	2.23E-03	1114	2.24E-03	101%	Pass
4	9.845	1030	2.07E-03	1034	2.08E-03	100%	Pass
5	10.853	960	1.93E-03	973	1.96E-03	101%	Pass
6	11.861	900	1.81E-03	895	1.80E-03	99%	Pass
7	12.868	834	1.68E-03	827	1.66E-03	99%	Pass
8	13.876	789	1.59E-03	781	1.57E-03	99%	Pass
9	14.883	732	1.47E-03	726	1.46E-03	99%	Pass
10	15.891	698	1.40E-03	680	1.37E-03	97%	Pass
11	16.899	661	1.33E-03	638	1.28E-03	97%	Pass
12	17.906	617	1.24E-03	593	1.19E-03	96%	Pass
13	18.914	580	1.17E-03	561	1.13E-03	97%	Pass
14	19.921	547	1.10E-03	524	1.05E-03	96%	Pass
15	20.929	518	1.04E-03	495	9.95E-04	96%	Pass
16	21.937	490	9.85E-04	472	9.49E-04	96%	Pass
17	22.944	474	9.53E-04	451	9.07E-04	95%	Pass
18	23.952	450	9.05E-04	427	8.59E-04	95%	Pass
19	24.960	431	8.67E-04	406	8.16E-04	94%	Pass
20	25.967	413	8.30E-04	390	7.84E-04	94%	Pass
21	26.975	390	7.84E-04	368	7.40E-04	94%	Pass
22	27.982	364	7.32E-04	343	6.90E-04	94%	Pass
23	28.990	348	7.00E-04	327	6.57E-04	94%	Pass
24	29.998	330	6.63E-04	310	6.23E-04	94%	Pass
25	31.005	313	6.29E-04	298	5.99E-04	95%	Pass
26	32.013	299	6.01E-04	282	5.67E-04	94%	Pass
27	33.021	284	5.71E-04	267	5.37E-04	94%	Pass
28	34.028	271	5.45E-04	255	5.13E-04	94%	Pass
29	35.036	258	5.19E-04	242	4.87E-04	94%	Pass
30	36.043	244	4.91E-04	234	4.70E-04	96%	Pass
31	37.051	236	4.74E-04	222	4.46E-04	94%	Pass
32	38.059	226	4.54E-04	209	4.20E-04	92%	Pass
33	39.066	219	4.40E-04	196	3.94E-04	89%	Pass
34	40.074	202	4.06E-04	179	3.60E-04	89%	Pass
35	41.081	187	3.76E-04	178	3.58E-04	95%	Pass
36	42.089	180	3.62E-04	173	3.48E-04	96%	Pass
37	43.097	180	3.62E-04	167	3.36E-04	93%	Pass
38	44.104	170	3.42E-04	162	3.26E-04	95%	Pass
39	45.112	167	3.36E-04	152	3.06E-04	91%	Pass
40	46.120	156	3.14E-04	146	2.94E-04	94%	Pass
41	47.127	148	2.98E-04	141	2.83E-04	95%	Pass
42	48.135	142	2.86E-04	134	2.69E-04	94%	Pass
43	49.142	138	2.77E-04	130	2.61E-04	94%	Pass
44	50.150	135	2.71E-04	120	2.41E-04	89%	Pass
45	51.158	129	2.59E-04	115	2.31E-04	89%	Pass
46	52.165	119	2.39E-04	101	2.03E-04	85%	Pass
47	53.173	114	2.29E-04	96	1.93E-04	84%	Pass
48	54.181	103	2.07E-04	90	1.81E-04	87%	Pass
49	55.188	96	1.93E-04	86	1.73E-04	90%	Pass

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
50	56.196	94	1.89E-04	85	1.71E-04	90%	Pass
51	57.203	89	1.79E-04	83	1.67E-04	93%	Pass
52	58.211	87	1.75E-04	75	1.51E-04	86%	Pass
53	59.219	84	1.69E-04	73	1.47E-04	87%	Pass
54	60.226	78	1.57E-04	71	1.43E-04	91%	Pass
55	61.234	75	1.51E-04	69	1.39E-04	92%	Pass
56	62.241	72	1.45E-04	63	1.27E-04	88%	Pass
57	63.249	68	1.37E-04	61	1.23E-04	90%	Pass
58	64.257	64	1.29E-04	58	1.17E-04	91%	Pass
59	65.264	62	1.25E-04	56	1.13E-04	90%	Pass
60	66.272	58	1.17E-04	54	1.09E-04	93%	Pass
61	67.280	57	1.15E-04	54	1.09E-04	95%	Pass
62	68.287	55	1.11E-04	49	9.85E-05	89%	Pass
63	69.295	53	1.07E-04	48	9.65E-05	91%	Pass
64	70.302	49	9.85E-05	46	9.25E-05	94%	Pass
65	71.310	46	9.25E-05	43	8.65E-05	93%	Pass
66	72.318	44	8.85E-05	41	8.24E-05	93%	Pass
67	73.325	42	8.44E-05	39	7.84E-05	93%	Pass
68	74.333	39	7.84E-05	37	7.44E-05	95%	Pass
69	75.341	37	7.44E-05	34	6.84E-05	92%	Pass
70	76.348	36	7.24E-05	32	6.43E-05	89%	Pass
71	77.356	33	6.63E-05	32	6.43E-05	97%	Pass
72	78.363	33	6.63E-05	32	6.43E-05	97%	Pass
73	79.371	32	6.43E-05	32	6.43E-05	100%	Pass
74	80.379	32	6.43E-05	32	6.43E-05	100%	Pass
75	81.386	32	6.43E-05	29	5.83E-05	91%	Pass
76	82.394	31	6.23E-05	28	5.63E-05	90%	Pass
77	83.401	31	6.23E-05	28	5.63E-05	90%	Pass
78	84.409	28	5.63E-05	27	5.43E-05	96%	Pass
79	85.417	26	5.23E-05	26	5.23E-05	100%	Pass
80	86.424	26	5.23E-05	26	5.23E-05	100%	Pass
81	87.432	26	5.23E-05	25	5.03E-05	96%	Pass
82	88.440	25	5.03E-05	25	5.03E-05	100%	Pass
83	89.447	24	4.83E-05	24	4.83E-05	100%	Pass
84	90.455	22	4.42E-05	23	4.62E-05	105%	Pass
85	91.462	22	4.42E-05	21	4.22E-05	95%	Pass
86	92.470	22	4.42E-05	21	4.22E-05	95%	Pass
87	93.478	20	4.02E-05	21	4.22E-05	105%	Pass
88	94.485	20	4.02E-05	21	4.22E-05	105%	Pass
89	95.493	20	4.02E-05	20	4.02E-05	100%	Pass
90	96.501	20	4.02E-05	18	3.62E-05	90%	Pass
91	97.508	20	4.02E-05	18	3.62E-05	90%	Pass
92	98.516	18	3.62E-05	15	3.02E-05	83%	Pass
93	99.523	17	3.42E-05	14	2.81E-05	82%	Pass
94	100.531	17	3.42E-05	12	2.41E-05	71%	Pass
95	101.539	15	3.02E-05	12	2.41E-05	80%	Pass
96	102.546	13	2.61E-05	11	2.21E-05	85%	Pass
97	103.554	13	2.61E-05	11	2.21E-05	85%	Pass
98	104.561	13	2.61E-05	11	2.21E-05	85%	Pass
99	105.569	13	2.61E-05	11	2.21E-05	85%	Pass
100	106.577	12	2.41E-05	11	2.21E-05	92%	Pass

Low-flow Threshold: 10%
 0.1xQ2 (Pre): 0.678 cfs
 Q10 (Pre): 11.424 cfs
 Ordinate #: 100
 Incremental Q (Pre): 0.10746 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	0.678	900	1.81E-03	991	1.99E-03	110%	Pass
1	0.786	831	1.67E-03	911	1.83E-03	110%	Pass
2	0.893	763	1.53E-03	818	1.64E-03	107%	Pass
3	1.001	711	1.43E-03	750	1.51E-03	105%	Pass
4	1.108	647	1.30E-03	689	1.39E-03	106%	Pass
5	1.215	602	1.21E-03	637	1.28E-03	106%	Pass
6	1.323	561	1.13E-03	592	1.19E-03	106%	Pass
7	1.430	527	1.06E-03	553	1.11E-03	105%	Pass
8	1.538	503	1.01E-03	516	1.04E-03	103%	Pass
9	1.645	468	9.41E-04	476	9.57E-04	102%	Pass
10	1.753	442	8.89E-04	438	8.81E-04	99%	Pass
11	1.860	412	8.28E-04	409	8.22E-04	99%	Pass
12	1.968	392	7.88E-04	389	7.82E-04	99%	Pass
13	2.075	373	7.50E-04	361	7.26E-04	97%	Pass
14	2.183	349	7.02E-04	332	6.68E-04	95%	Pass
15	2.290	330	6.63E-04	311	6.25E-04	94%	Pass
16	2.398	302	6.07E-04	295	5.93E-04	98%	Pass
17	2.505	287	5.77E-04	277	5.57E-04	97%	Pass
18	2.612	272	5.47E-04	265	5.33E-04	97%	Pass
19	2.720	260	5.23E-04	252	5.07E-04	97%	Pass
20	2.827	249	5.01E-04	242	4.87E-04	97%	Pass
21	2.935	237	4.77E-04	229	4.60E-04	97%	Pass
22	3.042	229	4.60E-04	212	4.26E-04	93%	Pass
23	3.150	216	4.34E-04	198	3.98E-04	92%	Pass
24	3.257	201	4.04E-04	190	3.82E-04	95%	Pass
25	3.365	194	3.90E-04	176	3.54E-04	91%	Pass
26	3.472	183	3.68E-04	167	3.36E-04	91%	Pass
27	3.580	171	3.44E-04	160	3.22E-04	94%	Pass
28	3.687	160	3.22E-04	150	3.02E-04	94%	Pass
29	3.794	151	3.04E-04	140	2.81E-04	93%	Pass
30	3.902	146	2.94E-04	130	2.61E-04	89%	Pass
31	4.009	137	2.75E-04	120	2.41E-04	88%	Pass
32	4.117	126	2.53E-04	112	2.25E-04	89%	Pass
33	4.224	122	2.45E-04	104	2.09E-04	85%	Pass
34	4.332	111	2.23E-04	99	1.99E-04	89%	Pass
35	4.439	104	2.09E-04	94	1.89E-04	90%	Pass
36	4.547	96	1.93E-04	91	1.83E-04	95%	Pass
37	4.654	93	1.87E-04	86	1.73E-04	92%	Pass
38	4.762	88	1.77E-04	84	1.69E-04	95%	Pass
39	4.869	84	1.69E-04	80	1.61E-04	95%	Pass
40	4.976	82	1.65E-04	74	1.49E-04	90%	Pass
41	5.084	76	1.53E-04	72	1.45E-04	95%	Pass
42	5.191	75	1.51E-04	68	1.37E-04	91%	Pass
43	5.299	73	1.47E-04	65	1.31E-04	89%	Pass
44	5.406	69	1.39E-04	64	1.29E-04	93%	Pass
45	5.514	65	1.31E-04	61	1.23E-04	94%	Pass
46	5.621	59	1.19E-04	59	1.19E-04	100%	Pass
47	5.729	57	1.15E-04	58	1.17E-04	102%	Pass
48	5.836	53	1.07E-04	57	1.15E-04	108%	Pass
49	5.944	51	1.03E-04	53	1.07E-04	104%	Pass

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
50	6.051	51	1.03E-04	52	1.05E-04	102%	Pass
51	6.159	50	1.01E-04	49	9.85E-05	98%	Pass
52	6.266	49	9.85E-05	48	9.65E-05	98%	Pass
53	6.373	47	9.45E-05	45	9.05E-05	96%	Pass
54	6.481	43	8.65E-05	41	8.24E-05	95%	Pass
55	6.588	41	8.24E-05	41	8.24E-05	100%	Pass
56	6.696	39	7.84E-05	38	7.64E-05	97%	Pass
57	6.803	39	7.84E-05	38	7.64E-05	97%	Pass
58	6.911	38	7.64E-05	35	7.04E-05	92%	Pass
59	7.018	36	7.24E-05	35	7.04E-05	97%	Pass
60	7.126	36	7.24E-05	35	7.04E-05	97%	Pass
61	7.233	34	6.84E-05	34	6.84E-05	100%	Pass
62	7.341	32	6.43E-05	33	6.63E-05	103%	Pass
63	7.448	30	6.03E-05	29	5.83E-05	97%	Pass
64	7.555	30	6.03E-05	27	5.43E-05	90%	Pass
65	7.663	29	5.83E-05	25	5.03E-05	86%	Pass
66	7.770	26	5.23E-05	21	4.22E-05	81%	Pass
67	7.878	26	5.23E-05	20	4.02E-05	77%	Pass
68	7.985	25	5.03E-05	20	4.02E-05	80%	Pass
69	8.093	25	5.03E-05	20	4.02E-05	80%	Pass
70	8.200	24	4.83E-05	20	4.02E-05	83%	Pass
71	8.308	24	4.83E-05	19	3.82E-05	79%	Pass
72	8.415	22	4.42E-05	19	3.82E-05	86%	Pass
73	8.523	20	4.02E-05	19	3.82E-05	95%	Pass
74	8.630	20	4.02E-05	17	3.42E-05	85%	Pass
75	8.738	20	4.02E-05	17	3.42E-05	85%	Pass
76	8.845	18	3.62E-05	16	3.22E-05	89%	Pass
77	8.952	18	3.62E-05	15	3.02E-05	83%	Pass
78	9.060	17	3.42E-05	15	3.02E-05	88%	Pass
79	9.167	17	3.42E-05	14	2.81E-05	82%	Pass
80	9.275	16	3.22E-05	13	2.61E-05	81%	Pass
81	9.382	16	3.22E-05	13	2.61E-05	81%	Pass
82	9.490	16	3.22E-05	12	2.41E-05	75%	Pass
83	9.597	16	3.22E-05	12	2.41E-05	75%	Pass
84	9.705	16	3.22E-05	12	2.41E-05	75%	Pass
85	9.812	13	2.61E-05	12	2.41E-05	92%	Pass
86	9.920	13	2.61E-05	12	2.41E-05	92%	Pass
87	10.027	13	2.61E-05	11	2.21E-05	85%	Pass
88	10.134	11	2.21E-05	10	2.01E-05	91%	Pass
89	10.242	11	2.21E-05	10	2.01E-05	91%	Pass
90	10.349	11	2.21E-05	10	2.01E-05	91%	Pass
91	10.457	11	2.21E-05	10	2.01E-05	91%	Pass
92	10.564	9	1.81E-05	9	1.81E-05	100%	Pass
93	10.672	9	1.81E-05	8	1.61E-05	89%	Pass
94	10.779	9	1.81E-05	8	1.61E-05	89%	Pass
95	10.887	9	1.81E-05	6	1.21E-05	67%	Pass
96	10.994	7	1.41E-05	6	1.21E-05	86%	Pass
97	11.102	7	1.41E-05	6	1.21E-05	86%	Pass
98	11.209	7	1.41E-05	6	1.21E-05	86%	Pass
99	11.317	7	1.41E-05	6	1.21E-05	86%	Pass
100	11.424	7	1.41E-05	5	1.01E-05	71%	Pass

Low-flow Threshold: 10%
 0.1xQ2 (Pre): 5.281 cfs
 Q10 (Pre): 115.384 cfs
 Ordinate #: 100
 Incremental Q (Pre): 1.10104 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	5.281	1301	2.62E-03	1336	2.69E-03	103%	Pass
1	6.382	1190	2.39E-03	1213	2.44E-03	102%	Pass
2	7.483	1099	2.21E-03	1115	2.24E-03	101%	Pass
3	8.584	1006	2.02E-03	1019	2.05E-03	101%	Pass
4	9.685	929	1.87E-03	935	1.88E-03	101%	Pass
5	10.786	862	1.73E-03	868	1.75E-03	101%	Pass
6	11.887	806	1.62E-03	810	1.63E-03	100%	Pass
7	12.988	756	1.52E-03	747	1.50E-03	99%	Pass
8	14.089	705	1.42E-03	695	1.40E-03	99%	Pass
9	15.190	659	1.32E-03	647	1.30E-03	98%	Pass
10	16.291	608	1.22E-03	590	1.19E-03	97%	Pass
11	17.392	571	1.15E-03	556	1.12E-03	97%	Pass
12	18.493	536	1.08E-03	515	1.04E-03	96%	Pass
13	19.594	496	9.97E-04	477	9.59E-04	96%	Pass
14	20.695	474	9.53E-04	455	9.15E-04	96%	Pass
15	21.796	450	9.05E-04	433	8.71E-04	96%	Pass
16	22.897	425	8.54E-04	405	8.14E-04	95%	Pass
17	23.998	395	7.94E-04	389	7.82E-04	98%	Pass
18	25.099	382	7.68E-04	375	7.54E-04	98%	Pass
19	26.200	364	7.32E-04	351	7.06E-04	96%	Pass
20	27.301	351	7.06E-04	334	6.72E-04	95%	Pass
21	28.402	336	6.76E-04	312	6.27E-04	93%	Pass
22	29.503	316	6.35E-04	297	5.97E-04	94%	Pass
23	30.604	299	6.01E-04	283	5.69E-04	95%	Pass
24	31.705	285	5.73E-04	268	5.39E-04	94%	Pass
25	32.806	274	5.51E-04	247	4.97E-04	90%	Pass
26	33.908	259	5.21E-04	237	4.77E-04	92%	Pass
27	35.009	240	4.83E-04	226	4.54E-04	94%	Pass
28	36.110	230	4.62E-04	218	4.38E-04	95%	Pass
29	37.211	225	4.52E-04	213	4.28E-04	95%	Pass
30	38.312	215	4.32E-04	204	4.10E-04	95%	Pass
31	39.413	207	4.16E-04	191	3.84E-04	92%	Pass
32	40.514	200	4.02E-04	173	3.48E-04	87%	Pass
33	41.615	186	3.74E-04	163	3.28E-04	88%	Pass
34	42.716	173	3.48E-04	154	3.10E-04	89%	Pass
35	43.817	168	3.38E-04	150	3.02E-04	89%	Pass
36	44.918	159	3.20E-04	143	2.88E-04	90%	Pass
37	46.019	154	3.10E-04	138	2.77E-04	90%	Pass
38	47.120	147	2.96E-04	129	2.59E-04	88%	Pass
39	48.221	140	2.81E-04	124	2.49E-04	89%	Pass
40	49.322	133	2.67E-04	115	2.31E-04	86%	Pass
41	50.423	127	2.55E-04	108	2.17E-04	85%	Pass
42	51.524	120	2.41E-04	101	2.03E-04	84%	Pass
43	52.625	115	2.31E-04	97	1.95E-04	84%	Pass
44	53.726	109	2.19E-04	96	1.93E-04	88%	Pass
45	54.827	101	2.03E-04	94	1.89E-04	93%	Pass
46	55.928	99	1.99E-04	91	1.83E-04	92%	Pass
47	57.029	95	1.91E-04	87	1.75E-04	92%	Pass
48	58.130	93	1.87E-04	80	1.61E-04	86%	Pass
49	59.231	89	1.79E-04	77	1.55E-04	87%	Pass

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
50	60.332	87	1.75E-04	73	1.47E-04	84%	Pass
51	61.433	81	1.63E-04	69	1.39E-04	85%	Pass
52	62.535	75	1.51E-04	66	1.33E-04	88%	Pass
53	63.636	72	1.45E-04	59	1.19E-04	82%	Pass
54	64.737	69	1.39E-04	56	1.13E-04	81%	Pass
55	65.838	66	1.33E-04	54	1.09E-04	82%	Pass
56	66.939	63	1.27E-04	49	9.85E-05	78%	Pass
57	68.040	56	1.13E-04	47	9.45E-05	84%	Pass
58	69.141	54	1.09E-04	45	9.05E-05	83%	Pass
59	70.242	52	1.05E-04	45	9.05E-05	87%	Pass
60	71.343	48	9.65E-05	43	8.65E-05	90%	Pass
61	72.444	46	9.25E-05	41	8.24E-05	89%	Pass
62	73.545	44	8.85E-05	39	7.84E-05	89%	Pass
63	74.646	43	8.65E-05	36	7.24E-05	84%	Pass
64	75.747	42	8.44E-05	35	7.04E-05	83%	Pass
65	76.848	42	8.44E-05	32	6.43E-05	76%	Pass
66	77.949	39	7.84E-05	29	5.83E-05	74%	Pass
67	79.050	36	7.24E-05	28	5.63E-05	78%	Pass
68	80.151	33	6.63E-05	28	5.63E-05	85%	Pass
69	81.252	31	6.23E-05	24	4.83E-05	77%	Pass
70	82.353	30	6.03E-05	23	4.62E-05	77%	Pass
71	83.454	27	5.43E-05	22	4.42E-05	81%	Pass
72	84.555	26	5.23E-05	21	4.22E-05	81%	Pass
73	85.656	25	5.03E-05	20	4.02E-05	80%	Pass
74	86.757	23	4.62E-05	20	4.02E-05	87%	Pass
75	87.858	21	4.22E-05	20	4.02E-05	95%	Pass
76	88.959	21	4.22E-05	19	3.82E-05	90%	Pass
77	90.061	21	4.22E-05	18	3.62E-05	86%	Pass
78	91.162	20	4.02E-05	17	3.42E-05	85%	Pass
79	92.263	20	4.02E-05	17	3.42E-05	85%	Pass
80	93.364	20	4.02E-05	17	3.42E-05	85%	Pass
81	94.465	19	3.82E-05	16	3.22E-05	84%	Pass
82	95.566	18	3.62E-05	16	3.22E-05	89%	Pass
83	96.667	18	3.62E-05	15	3.02E-05	83%	Pass
84	97.768	17	3.42E-05	13	2.61E-05	76%	Pass
85	98.869	17	3.42E-05	12	2.41E-05	71%	Pass
86	99.970	16	3.22E-05	11	2.21E-05	69%	Pass
87	101.071	16	3.22E-05	11	2.21E-05	69%	Pass
88	102.172	15	3.02E-05	11	2.21E-05	73%	Pass
89	103.273	14	2.81E-05	11	2.21E-05	79%	Pass
90	104.374	13	2.61E-05	11	2.21E-05	85%	Pass
91	105.475	11	2.21E-05	11	2.21E-05	100%	Pass
92	106.576	11	2.21E-05	11	2.21E-05	100%	Pass
93	107.677	11	2.21E-05	10	2.01E-05	91%	Pass
94	108.778	11	2.21E-05	10	2.01E-05	91%	Pass
95	109.879	11	2.21E-05	8	1.61E-05	73%	Pass
96	110.980	11	2.21E-05	8	1.61E-05	73%	Pass
97	112.081	11	2.21E-05	8	1.61E-05	73%	Pass
98	113.182	11	2.21E-05	7	1.41E-05	64%	Pass
99	114.283	10	2.01E-05	7	1.41E-05	70%	Pass
100	115.384	10	2.01E-05	6	1.21E-05	60%	Pass

TABLE 31

Low-flow Threshold: 10%
 0.1xQ2 (Pre): 6.616 cfs
 Q10 (Pre): 144.030 cfs
 Ordinate #: 100
 Incremental Q (Pre): 1.37415 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	6.616	1288	2.59E-03	1379	2.77E-03	107%	Pass
1	7.990	1163	2.34E-03	1254	2.52E-03	108%	Pass
2	9.364	1072	2.16E-03	1133	2.28E-03	106%	Pass
3	10.738	988	1.99E-03	1033	2.08E-03	105%	Pass
4	12.113	910	1.83E-03	951	1.91E-03	105%	Pass
5	13.487	841	1.69E-03	865	1.74E-03	103%	Pass
6	14.861	785	1.58E-03	810	1.63E-03	103%	Pass
7	16.235	738	1.48E-03	748	1.50E-03	101%	Pass
8	17.609	691	1.39E-03	702	1.41E-03	102%	Pass
9	18.983	631	1.27E-03	637	1.28E-03	101%	Pass
10	20.357	580	1.17E-03	589	1.18E-03	102%	Pass
11	21.732	537	1.08E-03	543	1.09E-03	101%	Pass
12	23.106	511	1.03E-03	512	1.03E-03	100%	Pass
13	24.480	484	9.73E-04	475	9.55E-04	98%	Pass
14	25.854	452	9.09E-04	450	9.05E-04	100%	Pass
15	27.228	428	8.61E-04	428	8.61E-04	100%	Pass
16	28.602	408	8.20E-04	407	8.18E-04	100%	Pass
17	29.976	391	7.86E-04	381	7.66E-04	97%	Pass
18	31.351	368	7.40E-04	361	7.26E-04	98%	Pass
19	32.725	352	7.08E-04	340	6.84E-04	97%	Pass
20	34.099	335	6.74E-04	320	6.43E-04	96%	Pass
21	35.473	317	6.37E-04	307	6.17E-04	97%	Pass
22	36.847	296	5.95E-04	293	5.89E-04	99%	Pass
23	38.221	285	5.73E-04	271	5.45E-04	95%	Pass
24	39.595	268	5.39E-04	254	5.11E-04	95%	Pass
25	40.970	249	5.01E-04	241	4.85E-04	97%	Pass
26	42.344	234	4.70E-04	232	4.66E-04	99%	Pass
27	43.718	227	4.56E-04	220	4.42E-04	97%	Pass
28	45.092	223	4.48E-04	212	4.26E-04	95%	Pass
29	46.466	213	4.28E-04	195	3.92E-04	92%	Pass
30	47.840	203	4.08E-04	182	3.66E-04	90%	Pass
31	49.214	190	3.82E-04	174	3.50E-04	92%	Pass
32	50.589	179	3.60E-04	165	3.32E-04	92%	Pass
33	51.963	168	3.38E-04	160	3.22E-04	95%	Pass
34	53.337	159	3.20E-04	149	3.00E-04	94%	Pass
35	54.711	150	3.02E-04	140	2.81E-04	93%	Pass
36	56.085	145	2.92E-04	134	2.69E-04	92%	Pass
37	57.459	140	2.81E-04	128	2.57E-04	91%	Pass
38	58.833	132	2.65E-04	119	2.39E-04	90%	Pass
39	60.208	127	2.55E-04	110	2.21E-04	87%	Pass
40	61.582	121	2.43E-04	107	2.15E-04	88%	Pass
41	62.956	112	2.25E-04	97	1.95E-04	87%	Pass
42	64.330	107	2.15E-04	96	1.93E-04	90%	Pass
43	65.704	102	2.05E-04	91	1.83E-04	89%	Pass
44	67.078	94	1.89E-04	87	1.75E-04	93%	Pass
45	68.453	91	1.83E-04	83	1.67E-04	91%	Pass
46	69.827	89	1.79E-04	77	1.55E-04	87%	Pass
47	71.201	85	1.71E-04	76	1.53E-04	89%	Pass
48	72.575	80	1.61E-04	72	1.45E-04	90%	Pass
49	73.949	76	1.53E-04	68	1.37E-04	89%	Pass

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
50	75.323	74	1.49E-04	61	1.23E-04	82%	Pass
51	76.697	69	1.39E-04	57	1.15E-04	83%	Pass
52	78.072	63	1.27E-04	51	1.03E-04	81%	Pass
53	79.446	59	1.19E-04	50	1.01E-04	85%	Pass
54	80.820	53	1.07E-04	47	9.45E-05	89%	Pass
55	82.194	49	9.85E-05	45	9.05E-05	92%	Pass
56	83.568	48	9.65E-05	45	9.05E-05	94%	Pass
57	84.942	46	9.25E-05	42	8.44E-05	91%	Pass
58	86.316	44	8.85E-05	41	8.24E-05	93%	Pass
59	87.691	43	8.65E-05	37	7.44E-05	86%	Pass
60	89.065	43	8.65E-05	34	6.84E-05	79%	Pass
61	90.439	40	8.04E-05	33	6.63E-05	83%	Pass
62	91.813	40	8.04E-05	32	6.43E-05	80%	Pass
63	93.187	35	7.04E-05	32	6.43E-05	91%	Pass
64	94.561	32	6.43E-05	32	6.43E-05	100%	Pass
65	95.935	32	6.43E-05	31	6.23E-05	97%	Pass
66	97.310	29	5.83E-05	30	6.03E-05	103%	Pass
67	98.684	29	5.83E-05	29	5.83E-05	100%	Pass
68	100.058	28	5.63E-05	26	5.23E-05	93%	Pass
69	101.432	26	5.23E-05	25	5.03E-05	96%	Pass
70	102.806	26	5.23E-05	24	4.83E-05	92%	Pass
71	104.180	25	5.03E-05	23	4.62E-05	92%	Pass
72	105.554	22	4.42E-05	22	4.42E-05	100%	Pass
73	106.929	21	4.22E-05	21	4.22E-05	100%	Pass
74	108.303	21	4.22E-05	20	4.02E-05	95%	Pass
75	109.677	20	4.02E-05	19	3.82E-05	95%	Pass
76	111.051	19	3.82E-05	18	3.62E-05	95%	Pass
77	112.425	18	3.62E-05	18	3.62E-05	100%	Pass
78	113.799	18	3.62E-05	17	3.42E-05	94%	Pass
79	115.173	17	3.42E-05	17	3.42E-05	100%	Pass
80	116.548	17	3.42E-05	15	3.02E-05	88%	Pass
81	117.922	16	3.22E-05	15	3.02E-05	94%	Pass
82	119.296	16	3.22E-05	14	2.81E-05	88%	Pass
83	120.670	16	3.22E-05	13	2.61E-05	81%	Pass
84	122.044	14	2.81E-05	13	2.61E-05	93%	Pass
85	123.418	13	2.61E-05	10	2.01E-05	77%	Pass
86	124.792	12	2.41E-05	9	1.81E-05	75%	Pass
87	126.167	12	2.41E-05	9	1.81E-05	75%	Pass
88	127.541	12	2.41E-05	9	1.81E-05	75%	Pass
89	128.915	12	2.41E-05	8	1.61E-05	67%	Pass
90	130.289	11	2.21E-05	8	1.61E-05	73%	Pass
91	131.663	11	2.21E-05	8	1.61E-05	73%	Pass
92	133.037	9	1.81E-05	8	1.61E-05	89%	Pass
93	134.411	8	1.61E-05	7	1.41E-05	88%	Pass
94	135.786	8	1.61E-05	7	1.41E-05	88%	Pass
95	137.160	8	1.61E-05	7	1.41E-05	88%	Pass
96	138.534	8	1.61E-05	7	1.41E-05	88%	Pass
97	139.908	8	1.61E-05	7	1.41E-05	88%	Pass
98	141.282	8	1.61E-05	6	1.21E-05	75%	Pass
99	142.656	8	1.61E-05	6	1.21E-05	75%	Pass
100	144.030	8	1.61E-05	5	1.01E-05	63%	Pass

TABLE 32

Low-flow Threshold: 10%
 0.1xQ2 (Pre): 0.644 cfs
 Q10 (Pre): 13.419 cfs
 Ordinate #: 100
 Incremental Q (Pre): 0.12775 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	0.644	869	1.75E-03	904	1.82E-03	104%	Pass
1	0.771	781	1.57E-03	811	1.63E-03	104%	Pass
2	0.899	712	1.43E-03	742	1.49E-03	104%	Pass
3	1.027	650	1.31E-03	673	1.35E-03	104%	Pass
4	1.155	592	1.19E-03	610	1.23E-03	103%	Pass
5	1.282	550	1.11E-03	561	1.13E-03	102%	Pass
6	1.410	499	1.00E-03	509	1.02E-03	102%	Pass
7	1.538	467	9.39E-04	485	9.75E-04	104%	Pass
8	1.666	437	8.79E-04	442	8.89E-04	101%	Pass
9	1.794	411	8.26E-04	417	8.38E-04	101%	Pass
10	1.921	382	7.68E-04	388	7.80E-04	102%	Pass
11	2.049	361	7.26E-04	365	7.34E-04	101%	Pass
12	2.177	338	6.80E-04	338	6.80E-04	100%	Pass
13	2.305	313	6.29E-04	313	6.29E-04	100%	Pass
14	2.432	294	5.91E-04	293	5.89E-04	100%	Pass
15	2.560	276	5.55E-04	276	5.55E-04	100%	Pass
16	2.688	254	5.11E-04	255	5.13E-04	100%	Pass
17	2.816	239	4.81E-04	237	4.77E-04	99%	Pass
18	2.943	222	4.46E-04	221	4.44E-04	100%	Pass
19	3.071	208	4.18E-04	206	4.14E-04	99%	Pass
20	3.199	193	3.88E-04	194	3.90E-04	101%	Pass
21	3.327	182	3.66E-04	181	3.64E-04	99%	Pass
22	3.454	165	3.32E-04	166	3.34E-04	101%	Pass
23	3.582	159	3.20E-04	157	3.16E-04	99%	Pass
24	3.710	153	3.08E-04	154	3.10E-04	101%	Pass
25	3.838	145	2.92E-04	145	2.92E-04	100%	Pass
26	3.965	134	2.69E-04	134	2.69E-04	100%	Pass
27	4.093	123	2.47E-04	121	2.43E-04	98%	Pass
28	4.221	113	2.27E-04	106	2.13E-04	94%	Pass
29	4.349	101	2.03E-04	98	1.97E-04	97%	Pass
30	4.476	96	1.93E-04	93	1.87E-04	97%	Pass
31	4.604	89	1.79E-04	83	1.67E-04	93%	Pass
32	4.732	81	1.63E-04	77	1.55E-04	95%	Pass
33	4.860	76	1.53E-04	72	1.45E-04	95%	Pass
34	4.987	69	1.39E-04	69	1.39E-04	100%	Pass
35	5.115	66	1.33E-04	63	1.27E-04	95%	Pass
36	5.243	62	1.25E-04	62	1.25E-04	100%	Pass
37	5.371	59	1.19E-04	60	1.21E-04	102%	Pass
38	5.498	56	1.13E-04	57	1.15E-04	102%	Pass
39	5.626	56	1.13E-04	56	1.13E-04	100%	Pass
40	5.754	52	1.05E-04	52	1.05E-04	100%	Pass
41	5.882	50	1.01E-04	50	1.01E-04	100%	Pass
42	6.009	48	9.65E-05	49	9.85E-05	102%	Pass
43	6.137	46	9.25E-05	48	9.65E-05	104%	Pass
44	6.265	45	9.05E-05	45	9.05E-05	100%	Pass
45	6.393	42	8.44E-05	42	8.44E-05	100%	Pass
46	6.520	40	8.04E-05	39	7.84E-05	98%	Pass
47	6.648	38	7.64E-05	36	7.24E-05	95%	Pass
48	6.776	36	7.24E-05	35	7.04E-05	97%	Pass
49	6.904	35	7.04E-05	32	6.43E-05	91%	Pass

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
50	7.031	32	6.43E-05	32	6.43E-05	100%	Pass
51	7.159	32	6.43E-05	31	6.23E-05	97%	Pass
52	7.287	30	6.03E-05	30	6.03E-05	100%	Pass
53	7.415	30	6.03E-05	29	5.83E-05	97%	Pass
54	7.542	29	5.83E-05	29	5.83E-05	100%	Pass
55	7.670	29	5.83E-05	26	5.23E-05	90%	Pass
56	7.798	26	5.23E-05	26	5.23E-05	100%	Pass
57	7.926	26	5.23E-05	26	5.23E-05	100%	Pass
58	8.053	26	5.23E-05	25	5.03E-05	96%	Pass
59	8.181	26	5.23E-05	25	5.03E-05	96%	Pass
60	8.309	25	5.03E-05	25	5.03E-05	100%	Pass
61	8.437	25	5.03E-05	25	5.03E-05	100%	Pass
62	8.564	25	5.03E-05	21	4.22E-05	84%	Pass
63	8.692	22	4.42E-05	18	3.62E-05	82%	Pass
64	8.820	21	4.22E-05	17	3.42E-05	81%	Pass
65	8.948	17	3.42E-05	16	3.22E-05	94%	Pass
66	9.075	16	3.22E-05	15	3.02E-05	94%	Pass
67	9.203	14	2.81E-05	15	3.02E-05	107%	Pass
68	9.331	14	2.81E-05	15	3.02E-05	107%	Pass
69	9.459	14	2.81E-05	14	2.81E-05	100%	Pass
70	9.586	14	2.81E-05	12	2.41E-05	86%	Pass
71	9.714	12	2.41E-05	11	2.21E-05	92%	Pass
72	9.842	11	2.21E-05	10	2.01E-05	91%	Pass
73	9.970	11	2.21E-05	10	2.01E-05	91%	Pass
74	10.097	10	2.01E-05	9	1.81E-05	90%	Pass
75	10.225	10	2.01E-05	9	1.81E-05	90%	Pass
76	10.353	9	1.81E-05	9	1.81E-05	100%	Pass
77	10.481	9	1.81E-05	9	1.81E-05	100%	Pass
78	10.608	9	1.81E-05	9	1.81E-05	100%	Pass
79	10.736	9	1.81E-05	7	1.41E-05	78%	Pass
80	10.864	9	1.81E-05	7	1.41E-05	78%	Pass
81	10.992	8	1.61E-05	7	1.41E-05	88%	Pass
82	11.120	8	1.61E-05	7	1.41E-05	88%	Pass
83	11.247	8	1.61E-05	7	1.41E-05	88%	Pass
84	11.375	8	1.61E-05	7	1.41E-05	88%	Pass
85	11.503	8	1.61E-05	7	1.41E-05	88%	Pass
86	11.631	8	1.61E-05	7	1.41E-05	88%	Pass
87	11.758	8	1.61E-05	7	1.41E-05	88%	Pass
88	11.886	8	1.61E-05	7	1.41E-05	88%	Pass
89	12.014	8	1.61E-05	7	1.41E-05	88%	Pass
90	12.142	8	1.61E-05	7	1.41E-05	88%	Pass
91	12.269	7	1.41E-05	5	1.01E-05	71%	Pass
92	12.397	7	1.41E-05	5	1.01E-05	71%	Pass
93	12.525	5	1.01E-05	5	1.01E-05	100%	Pass
94	12.653	5	1.01E-05	5	1.01E-05	100%	Pass
95	12.780	5	1.01E-05	5	1.01E-05	100%	Pass
96	12.908	5	1.01E-05	5	1.01E-05	100%	Pass
97	13.036	5	1.01E-05	5	1.01E-05	100%	Pass
98	13.164	5	1.01E-05	5	1.01E-05	100%	Pass
99	13.291	5	1.01E-05	3	6.03E-06	60%	Pass
100	13.419	5	1.01E-05	3	6.03E-06	60%	Pass

Low-flow Threshold: 10%
 0.1xQ2 (Pre): 0.392 cfs
 Q10 (Pre): 10.815 cfs
 Ordinate #: 100
 Incremental Q (Pre): 0.10423 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	0.392	995	2.00E-03	1028	2.07E-03	103%	Pass
1	0.496	898	1.81E-03	802	1.61E-03	89%	Pass
2	0.601	809	1.63E-03	655	1.32E-03	81%	Pass
3	0.705	735	1.48E-03	558	1.12E-03	76%	Pass
4	0.809	661	1.33E-03	472	9.49E-04	71%	Pass
5	0.913	601	1.21E-03	412	8.28E-04	69%	Pass
6	1.018	543	1.09E-03	354	7.12E-04	65%	Pass
7	1.122	509	1.02E-03	313	6.29E-04	61%	Pass
8	1.226	479	9.63E-04	268	5.39E-04	56%	Pass
9	1.330	443	8.91E-04	230	4.62E-04	52%	Pass
10	1.435	412	8.28E-04	203	4.08E-04	49%	Pass
11	1.539	384	7.72E-04	176	3.54E-04	46%	Pass
12	1.643	360	7.24E-04	154	3.10E-04	43%	Pass
13	1.747	329	6.61E-04	133	2.67E-04	40%	Pass
14	1.851	311	6.25E-04	116	2.33E-04	37%	Pass
15	1.956	291	5.85E-04	99	1.99E-04	34%	Pass
16	2.060	272	5.47E-04	83	1.67E-04	31%	Pass
17	2.164	251	5.05E-04	74	1.49E-04	29%	Pass
18	2.268	236	4.74E-04	68	1.37E-04	29%	Pass
19	2.373	216	4.34E-04	60	1.21E-04	28%	Pass
20	2.477	210	4.22E-04	53	1.07E-04	25%	Pass
21	2.581	194	3.90E-04	50	1.01E-04	26%	Pass
22	2.685	179	3.60E-04	45	9.05E-05	25%	Pass
23	2.790	165	3.32E-04	41	8.24E-05	25%	Pass
24	2.894	157	3.16E-04	40	8.04E-05	25%	Pass
25	2.998	153	3.08E-04	36	7.24E-05	24%	Pass
26	3.102	143	2.88E-04	31	6.23E-05	22%	Pass
27	3.206	132	2.65E-04	27	5.43E-05	20%	Pass
28	3.311	118	2.37E-04	27	5.43E-05	23%	Pass
29	3.415	108	2.17E-04	26	5.23E-05	24%	Pass
30	3.519	98	1.97E-04	26	5.23E-05	27%	Pass
31	3.623	89	1.79E-04	24	4.83E-05	27%	Pass
32	3.728	87	1.75E-04	20	4.02E-05	23%	Pass
33	3.832	79	1.59E-04	17	3.42E-05	22%	Pass
34	3.936	72	1.45E-04	14	2.81E-05	19%	Pass
35	4.040	67	1.35E-04	13	2.61E-05	19%	Pass
36	4.144	63	1.27E-04	11	2.21E-05	17%	Pass
37	4.249	63	1.27E-04	11	2.21E-05	17%	Pass
38	4.353	63	1.27E-04	9	1.81E-05	14%	Pass
39	4.457	57	1.15E-04	8	1.61E-05	14%	Pass
40	4.561	53	1.07E-04	7	1.41E-05	13%	Pass
41	4.666	49	9.85E-05	7	1.41E-05	14%	Pass
42	4.770	47	9.45E-05	7	1.41E-05	15%	Pass
43	4.874	45	9.05E-05	7	1.41E-05	16%	Pass
44	4.978	43	8.65E-05	7	1.41E-05	16%	Pass
45	5.083	41	8.24E-05	7	1.41E-05	17%	Pass
46	5.187	41	8.24E-05	5	1.01E-05	12%	Pass
47	5.291	38	7.64E-05	5	1.01E-05	13%	Pass
48	5.395	38	7.64E-05	5	1.01E-05	13%	Pass
49	5.499	36	7.24E-05	5	1.01E-05	14%	Pass

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
50	5.604	34	6.84E-05	4	8.04E-06	12%	Pass
51	5.708	31	6.23E-05	4	8.04E-06	13%	Pass
52	5.812	30	6.03E-05	4	8.04E-06	13%	Pass
53	5.916	30	6.03E-05	3	6.03E-06	10%	Pass
54	6.021	29	5.83E-05	3	6.03E-06	10%	Pass
55	6.125	28	5.63E-05	3	6.03E-06	11%	Pass
56	6.229	26	5.23E-05	3	6.03E-06	12%	Pass
57	6.333	25	5.03E-05	2	4.02E-06	8%	Pass
58	6.437	25	5.03E-05	2	4.02E-06	8%	Pass
59	6.542	25	5.03E-05	2	4.02E-06	8%	Pass
60	6.646	25	5.03E-05	2	4.02E-06	8%	Pass
61	6.750	25	5.03E-05	2	4.02E-06	8%	Pass
62	6.854	25	5.03E-05	2	4.02E-06	8%	Pass
63	6.959	22	4.42E-05	2	4.02E-06	9%	Pass
64	7.063	20	4.02E-05	1	2.01E-06	5%	Pass
65	7.167	16	3.22E-05	0	0.00E+00	0%	Pass
66	7.271	15	3.02E-05	0	0.00E+00	0%	Pass
67	7.376	15	3.02E-05	0	0.00E+00	0%	Pass
68	7.480	13	2.61E-05	0	0.00E+00	0%	Pass
69	7.584	13	2.61E-05	0	0.00E+00	0%	Pass
70	7.688	13	2.61E-05	0	0.00E+00	0%	Pass
71	7.792	12	2.41E-05	0	0.00E+00	0%	Pass
72	7.897	12	2.41E-05	0	0.00E+00	0%	Pass
73	8.001	12	2.41E-05	0	0.00E+00	0%	Pass
74	8.105	10	2.01E-05	0	0.00E+00	0%	Pass
75	8.209	10	2.01E-05	0	0.00E+00	0%	Pass
76	8.314	9	1.81E-05	0	0.00E+00	0%	Pass
77	8.418	9	1.81E-05	0	0.00E+00	0%	Pass
78	8.522	9	1.81E-05	0	0.00E+00	0%	Pass
79	8.626	9	1.81E-05	0	0.00E+00	0%	Pass
80	8.731	8	1.61E-05	0	0.00E+00	0%	Pass
81	8.835	8	1.61E-05	0	0.00E+00	0%	Pass
82	8.939	8	1.61E-05	0	0.00E+00	0%	Pass
83	9.043	8	1.61E-05	0	0.00E+00	0%	Pass
84	9.147	8	1.61E-05	0	0.00E+00	0%	Pass
85	9.252	8	1.61E-05	0	0.00E+00	0%	Pass
86	9.356	8	1.61E-05	0	0.00E+00	0%	Pass
87	9.460	8	1.61E-05	0	0.00E+00	0%	Pass
88	9.564	7	1.41E-05	0	0.00E+00	0%	Pass
89	9.669	7	1.41E-05	0	0.00E+00	0%	Pass
90	9.773	7	1.41E-05	0	0.00E+00	0%	Pass
91	9.877	7	1.41E-05	0	0.00E+00	0%	Pass
92	9.981	5	1.01E-05	0	0.00E+00	0%	Pass
93	10.085	5	1.01E-05	0	0.00E+00	0%	Pass
94	10.190	5	1.01E-05	0	0.00E+00	0%	Pass
95	10.294	5	1.01E-05	0	0.00E+00	0%	Pass
96	10.398	5	1.01E-05	0	0.00E+00	0%	Pass
97	10.502	5	1.01E-05	0	0.00E+00	0%	Pass
98	10.607	4	8.04E-06	0	0.00E+00	0%	Pass
99	10.711	4	8.04E-06	0	0.00E+00	0%	Pass
100	10.815	4	8.04E-06	0	0.00E+00	0%	Pass

SECTION 2 - Elevation vs. Area Curves vs. Discharge Curves to be used in SWMM

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 0.1- 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.

Storage Curve Editor

Curve Name
Basin#1

Description


	Depth (ft)	Area (ft2)
1	0	132301
2	12	188859
3		
4		
5		
6		
7		
8		
9		
10		
11		

View... Load... Save... OK Cancel Help

Storage Curve Editor

Curve Name
Basin#13

Description
Basin #1 

	Depth (ft)	Area (ft2)
1	0	40825
2	6	58395
3		
4		
5		
6		
7		
8		
9		
10		
11		

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Storage Curve Editor

Curve Name
Basin#2

Description
Basin #2 

	Depth (ft)	Area (ft2)
1	0	93212
2	9.5	138162
3		
4		
5		
6		
7		
8		
9		
10		
11		

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Storage Curve Editor

Curve Name
Basin#3

Description
Basin #5 

	Depth (ft)	Area (ft2)
1	0	4597
2	4.5	8987
3		
4		
5		
6		
7		
8		
9		
10		
11		

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Storage Curve Editor

Curve Name
Basin#4

Description
Basin #5

	Depth (ft)	Area (ft2)
1	0	3746
2	4.5	7676
3		
4		
5		
6		
7		
8		
9		
10		
11		

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Storage Curve Editor

Curve Name
Basin#5

Description
Basin #5

	Depth (ft)	Area (ft2)
1	0	5650
2	6	12163
3		
4		
5		
6		
7		
8		
9		
10		
11		

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Storage Curve Editor

Curve Name
Basin#6

Description
Basin #1

	Depth (ft)	Area (ft2)
1	0	4754
2	6	6798
3		
4		
5		
6		
7		
8		
9		
10		
11		

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Storage Curve Editor

Curve Name
Basin#7

Description
Basin #1

	Depth (ft)	Area (ft2)
1	0	3600
2	4.5	7569
3		
4		
5		
6		
7		
8		
9		
10		
11		

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Storage Curve Editor

Curve Name
Basin#8

Description
Basin #1

	Depth (ft)	Area (ft2)
1	0	4567
2	5	9421
3		
4		
5		
6		
7		
8		
9		
10		
11		

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Storage Curve Editor

Curve Name
Basin#9

Description
Basin #W

	Depth (ft)	Area (ft2)
1	0	32314
2	9	57641
3		
4		
5		
6		
7		
8		
9		
10		
11		

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Storage Curve Editor

Curve Name
Basin#10

Description
Basin #10

	Depth (ft)	Area (ft2)
1	0	5740
2	3.5	9363
3		
4		
5		
6		
7		
8		
9		
10		
11		

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Storage Curve Editor

Curve Name
Basin#11

Description

	Depth (ft)	Area (ft2)
1	0	4178
2	5	8957
3		
4		
5		
6		
7		
8		
9		
10		
11		

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Storage Curve Editor [X]

Curve Name

Description
 

	Depth (ft)	Area (ft2)
1	0	22031
2	7	36264
3		
4		
5		
6		
7		
8		
9		
10		
11		

Storage Curve Editor [X]

Curve Name

Description
 

	Depth (ft)	Area (ft2)
1	0	1515
2	3.5	3648
3		
4		
5		
6		
7		
8		
9		
10		
11		

Heights/Elevations on this sheet are relative to top of ponding depth.

Cutoff flow from underdrain is added to Qtot for actual flow input in SWMM discharge rating curve.

Basin #1 Discharge

Discharge vs Elevation Table

Low orifice:	2 "	Top orifice:	14 "
Number:	2	Number:	0
Cg-low:	0.61	Cg-low:	0.61
invert elev:	0.00 ft	invert elev:	6.50 ft
Middle orifice:	3 "	Emergency inlet:	
number of orif:	2	Rim height:	8.00 ft
Cg-middle:	0.61	Area	49.00 sq ft
invert elev:	6.00 ft	Circumference	28.00 ft

h (ft)	H/D-low -	H/D-mid -	H/D-top -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qtop-orif (cfs)	Qtop-weir (cfs)	Qtot-top (cfs)	Qemerg (cfs)	Qtot (cfs)
0.0	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.1	0.60	0.00	0.00	0.028	0.024	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.024
0.2	1.20	0.00	0.00	0.073	0.078	0.073	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.073
0.3	1.80	0.00	0.00	0.099	0.130	0.099	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.099
0.4	2.40	0.00	0.00	0.120	0.156	0.120	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.120
0.5	3.00	0.00	0.00	0.138	0.160	0.138	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.138
0.6	3.60	0.00	0.00	0.154	0.187	0.154	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.154
0.7	4.20	0.00	0.00	0.168	0.344	0.168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.168
0.8	4.80	0.00	0.00	0.181	0.810	0.181	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.181
0.9	5.40	0.00	0.00	0.193	1.864	0.193	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.193
1.0	6.00	0.00	0.00	0.205	3.889	0.205	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.205
1.1	6.60	0.00	0.00	0.215	7.401	0.215	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.215
1.2	7.20	0.00	0.00	0.226	13.057	0.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.226
1.3	7.80	0.00	0.00	0.236	21.676	0.236	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.236
1.4	8.40	0.00	0.00	0.245	34.257	0.245	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.245
1.5	9.00	0.00	0.00	0.254	51.993	0.254	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.254
1.6	9.60	0.00	0.00	0.263	76.288	0.263	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.263
1.7	10.20	0.00	0.00	0.272	108.777	0.272	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.272
1.8	10.80	0.00	0.00	0.280	151.341	0.280	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.280
1.9	11.40	0.00	0.00	0.288	206.123	0.288	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.288
2.0	12.00	0.00	0.00	0.296	275.546	0.296	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.296
2.1	12.60	0.00	0.00	0.303	362.332	0.303	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.303
2.2	13.20	0.00	0.00	0.311	469.514	0.311	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.311
2.3	13.80	0.00	0.00	0.318	600.458	0.318	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.318
2.4	14.40	0.00	0.00	0.325	758.877	0.325	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.325
2.5	15.00	0.00	0.00	0.332	948.848	0.332	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.332
2.6	15.60	0.00	0.00	0.339	1174.831	0.339	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.339
2.7	16.20	0.00	0.00	0.346	1441.684	0.346	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.346
2.8	16.80	0.00	0.00	0.352	1754.679	0.352	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.352
2.9	17.40	0.00	0.00	0.358	2119.524	0.358	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.358
3.0	18.00	0.00	0.00	0.365	2542.374	0.365	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.365
3.1	18.60	0.00	0.00	0.371	3029.850	0.371	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.371
3.2	19.20	0.00	0.00	0.377	3589.058	0.377	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.377
3.3	19.80	0.00	0.00	0.383	4227.603	0.383	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.383
3.4	20.40	0.00	0.00	0.389	4953.608	0.389	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.389
3.5	21.00	0.00	0.00	0.395	5775.729	0.395	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.395
3.6	21.60	0.00	0.00	0.401	6703.175	0.401	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.401
3.7	22.20	0.00	0.00	0.406	7745.722	0.406	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.406
3.8	22.80	0.00	0.00	0.412	8913.730	0.412	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.412
3.9	23.40	0.00	0.00	0.417	10218.163	0.417	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.417
4.0	24.00	0.00	0.00	0.423	11670.603	0.423	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.423
4.1	24.60	0.00	0.00	0.428	13283.267	0.428	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.428
4.2	25.20	0.00	0.00	0.433	15069.025	0.433	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.433
4.3	25.80	0.00	0.00	0.439	17041.419	0.439	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.439
4.4	26.40	0.00	0.00	0.444	19214.674	0.444	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.444
4.5	27.00	0.00	0.00	0.449	21603.722	0.449	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.449
4.6	27.60	0.00	0.00	0.454	24224.213	0.454	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.454
4.7	28.20	0.00	0.00	0.459	27092.536	0.459	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.459
4.8	28.80	0.00	0.00	0.464	30225.835	0.464	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.464
4.9	29.40	0.00	0.00	0.469	33642.023	0.469	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.469
5.0	30.00	0.00	0.00	0.474	37359.803	0.474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.474
5.1	30.60	0.00	0.00	0.478	41398.683	0.478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.478
5.2	31.20	0.00	0.00	0.483	45778.995	0.483	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.483
5.3	31.80	0.00	0.00	0.488	50521.907	0.488	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.488
5.4	32.40	0.00	0.00	0.493	55649.444	0.493	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.493
5.5	33.00	0.00	0.00	0.497	61184.507	0.497	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.497
5.6	33.60	0.00	0.00	0.502	67150.882	0.502	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.502
5.7	34.20	0.00	0.00	0.506	73573.267	0.506	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.506
5.8	34.80	0.00	0.00	0.511	80477.280	0.511	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.511
5.9	35.40	0.00	0.00	0.515	87889.482	0.515	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.515
6.0	36.00	0.00	0.00	0.520	95837.392	0.520	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.520
6.1	36.60	0.40	0.00	0.524	104349.502	0.524	0.000	0.032	0.032	0.000	0.000	0.000	0.000	0.555
6.2	37.20	0.80	0.00	0.528	113455.296	0.528	0.132	0.112	0.112	0.000	0.000	0.000	0.000	0.640
6.3	37.80	1.20	0.00	0.533	123185.269	0.533	0.201	0.215	0.201	0.000	0.000	0.000	0.000	0.734
6.4	38.40	1.60	0.00	0.537	133570.939	0.537	0.252	0.316	0.252	0.000	0.000	0.000	0.000	0.789
6.5	39.00	2.00	0.00	0.541	144644.868	0.541	0.294	0.391	0.294	0.000	0.000	0.000	0.000	0.835

6.6	39.60	2.40	0.09	0.545	156440.676	0.545	0.331	0.430	0.331	0.000	0.000	0.000	0.000	0.876
6.7	40.20	2.80	0.17	0.549	168993.060	0.549	0.364	0.439	0.364	0.000	0.000	0.000	0.000	0.914
6.8	40.80	3.20	0.26	0.554	182337.812	0.554	0.395	0.449	0.395	0.000	0.000	0.000	0.000	0.948
6.9	41.40	3.60	0.34	0.558	196511.832	0.558	0.423	0.517	0.423	0.000	0.000	0.000	0.000	0.981
7.0	42.00	4.00	0.43	0.562	211553.149	0.562	0.450	0.738	0.450	0.000	0.000	0.000	0.000	1.011
7.1	42.60	4.40	0.51	0.566	227500.934	0.566	0.475	1.249	0.475	0.000	0.000	0.000	0.000	1.040
7.2	43.20	4.80	0.60	0.570	244395.522	0.570	0.498	2.233	0.498	0.000	0.000	0.000	0.000	1.068
7.3	43.80	5.20	0.69	0.574	262278.423	0.574	0.521	3.930	0.521	0.000	0.000	0.000	0.000	1.095
7.4	44.40	5.60	0.77	0.578	281192.345	0.578	0.543	6.636	0.543	0.000	0.000	0.000	0.000	1.120
7.5	45.00	6.00	0.86	0.582	301181.206	0.582	0.564	10.717	0.564	0.000	0.000	0.000	0.000	1.145
7.6	45.60	6.40	0.94	0.586	322290.154	0.586	0.584	16.611	0.584	0.000	0.000	0.000	0.000	1.169
7.7	46.20	6.80	1.03	0.589	344565.582	0.589	0.603	24.831	0.603	0.000	0.000	0.000	0.000	1.193
7.8	46.80	7.20	1.11	0.593	368055.146	0.593	0.622	35.980	0.622	0.000	0.000	0.000	0.000	1.215
7.9	47.40	7.60	1.20	0.597	392807.782	0.597	0.640	50.749	0.640	0.000	0.000	0.000	0.000	1.237
8.0	48.00	8.00	1.29	0.601	418873.723	0.601	0.658	69.926	0.658	0.000	0.000	0.000	0.000	1.259
8.1	48.60	8.40	1.37	0.605	446304.515	0.605	0.675	94.402	0.675	0.000	0.000	0.000	2.745	4.025
8.2	49.20	8.80	1.46	0.609	475153.035	0.609	0.692	125.180	0.692	0.000	0.000	0.000	7.764	9.064
8.3	49.80	9.20	1.54	0.612	505473.508	0.612	0.709	163.374	0.709	0.000	0.000	0.000	14.263	15.584
8.4	50.40	9.60	1.63	0.616	537321.522	0.616	0.725	210.225	0.725	0.000	0.000	0.000	21.959	23.300
8.5	51.00	10.00	1.71	0.620	570754.047	0.620	0.741	267.097	0.741	0.000	0.000	0.000	30.688	32.049
8.6	51.60	10.40	1.80	0.623	605829.453	0.623	0.756	335.490	0.756	0.000	0.000	0.000	40.341	41.720
8.7	52.20	10.80	1.89	0.627	642607.523	0.627	0.771	417.046	0.771	0.000	0.000	0.000	50.835	52.234
8.8	52.80	11.20	1.97	0.631	681149.474	0.631	0.786	513.550	0.786	0.000	0.000	0.000	62.109	63.526
8.9	53.40	11.60	2.06	0.634	721517.971	0.634	0.801	626.941	0.801	0.000	0.000	0.000	74.111	75.546
9.0	54.00	12.00	2.14	0.638	763777.145	0.638	0.815	759.316	0.815	0.000	0.000	0.000	86.800	88.253
9.1	54.60	12.40	2.23	0.641	807992.612	0.641	0.829	912.938	0.829	0.000	0.000	0.000	100.140	101.611
9.2	55.20	12.80	2.31	0.645	854231.486	0.645	0.843	1090.239	0.843	0.000	0.000	0.000	114.102	115.589
9.3	55.80	13.20	2.40	0.648	902562.399	0.648	0.856	1293.829	0.856	0.000	0.000	0.000	128.657	130.162
9.4	56.40	13.60	2.49	0.652	953055.516	0.652	0.870	1526.502	0.870	0.000	0.000	0.000	143.784	145.306
9.5	57.00	14.00	2.57	0.655	1005787.941	0.655	0.883	1791.267	0.883	0.000	0.000	0.000	159.463	161.002
9.6	57.60	14.40	2.66	0.659	1060822.419	0.659	0.896	2091.251	0.896	0.000	0.000	0.000	175.672	177.227
9.7	58.20	14.80	2.74	0.662	1118238.980	0.662	0.909	2429.857	0.909	0.000	0.000	0.000	192.396	193.967
9.8	58.80	15.20	2.83	0.666	1178114.093	0.666	0.921	2810.673	0.921	0.000	0.000	0.000	209.620	211.207
9.9	59.40	15.60	2.91	0.669	1240525.850	0.669	0.934	3237.499	0.934	0.000	0.000	0.000	227.328	228.931
10.0	60.00	16.00	3.00	0.673	1305620.339	0.673	0.946	3714.860	0.946	0.000	0.000	0.000	245.528	247.146
10.1	60.60	16.40	3.09	0.676	1373348.948	0.676	0.958	4246.054	0.958	0.000	0.000	0.000	264.170	265.804
10.2	61.20	16.80	3.17	0.679	1443858.435	0.679	0.970	4836.011	0.970	0.000	0.000	0.000	283.261	284.910
10.3	61.80	17.20	3.26	0.683	1517233.534	0.683	0.982	5489.450	0.982	0.000	0.000	0.000	302.791	304.455
10.4	62.40	17.60	3.34	0.686	1593560.684	0.686	0.994	6211.333	0.994	0.000	0.000	0.000	322.750	324.430
10.5	63.00	18.00	3.43	0.689	1672928.045	0.689	1.005	7006.876	1.005	0.000	0.000	0.000	343.130	344.824
10.6	63.60	18.40	3.51	0.693	1755425.513	0.693	1.017	7881.549	1.017	0.000	0.000	0.000	363.921	365.630
10.7	64.20	18.80	3.60	0.696	1841144.738	0.696	1.028	8841.085	1.028	0.000	0.000	0.000	385.116	386.840
10.8	64.80	19.20	3.69	0.699	1930179.144	0.699	1.039	9891.488	1.039	0.000	0.000	0.000	401.381	403.119
10.9	65.40	19.60	3.77	0.702	2022623.938	0.702	1.050	11039.037	1.050	0.000	0.000	0.000	408.485	410.238
11.0	66.00	20.00	3.86	0.706	2118576.138	0.706	1.061	12290.291	1.061	0.000	0.000	0.000	415.468	417.235
11.1	66.60	20.40	3.94	0.709	2218134.579	0.709	1.072	13652.099	1.072	0.000	0.000	0.000	422.335	424.116
11.2	67.20	20.80	4.03	0.712	2321399.938	0.712	1.083	15131.602	1.083	0.000	0.000	0.000	429.093	430.888
11.3	67.80	21.20	4.11	0.715	2428474.748	0.715	1.093	16736.242	1.093	0.000	0.000	0.000	435.746	437.554
11.4	68.40	21.60	4.20	0.719	2539463.411	0.719	1.104	18473.766	1.104	0.000	0.000	0.000	442.298	444.121
11.5	69.00	22.00	4.29	0.722	2654472.224	0.722	1.114	20352.235	1.114	0.000	0.000	0.000	448.755	450.591
11.6	69.60	22.40	4.37	0.725	2773609.388	0.725	1.125	22380.028	1.125	0.000	0.000	0.000	455.121	456.970
11.7	70.20	22.80	4.46	0.728	2896985.027	0.728	1.135	24565.847	1.135	0.000	0.000	0.000	461.398	463.261
11.8	70.80	23.20	4.54	0.731	3024711.208	0.731	1.145	26918.727	1.145	0.000	0.000	0.000	467.592	469.468
11.9	71.40	23.60	4.63	0.734	3156901.953	0.734	1.155	29448.037	1.155	0.000	0.000	0.000	473.704	475.593
12.0	72.00	24.00	4.71	0.737	3293673.261	0.737	1.165	32163.493	1.165	0.000	0.000	0.000	479.739	481.641

Heights/Elevations on this sheet are relative to top of ponding depth.

Cutoff flow from underdrain is added to Qtot for actual flow input in SWMM discharge rating curve.

Basin #2 Discharge

Discharge vs Elevation Table

Low orifice:	2.75 "	Top orifice:	8 "
Number:	4	Number:	0
Cg-low:	0.61	Cg-low:	0.61
invert elev:	0.00 ft	invert elev:	0.00 ft
Middle orifice:	3 "	Emergency inlet:	
number of orif:	1	Rim height:	7.50 ft
Cg-middle:	0.61	Xsect. Area	36.00 sq ft
invert elev:	2.50 ft	Circumference	24.00 ft

<--- 6' x 6'

h (ft)	H/D-low -	H/D-mid -	H/D-top -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qtot-orif (cfs)	Qtot-weir (cfs)	Qtot-top (cfs)	Qemerg (cfs)	Qtot (cfs)
0.0	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.1	0.44	0.00	0.15	0.000	0.060	0.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.060
0.2	0.87	0.00	0.30	0.236	0.209	0.209	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.209
0.3	1.31	0.00	0.45	0.348	0.393	0.348	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.348
0.4	1.75	0.00	0.60	0.431	0.558	0.431	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.431
0.5	2.18	0.00	0.75	0.501	0.665	0.501	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.501
0.6	2.62	0.00	0.90	0.563	0.704	0.563	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.563
0.7	3.05	0.00	1.05	0.618	0.712	0.618	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.618
0.8	3.49	0.00	1.20	0.669	0.785	0.669	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.669
0.9	3.93	0.00	1.35	0.716	1.095	0.716	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.716
1.0	4.36	0.00	1.50	0.760	1.908	0.760	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.760
1.1	4.80	0.00	1.65	0.802	3.593	0.802	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.802
1.2	5.24	0.00	1.80	0.841	6.643	0.841	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.841
1.3	5.67	0.00	1.95	0.879	11.688	0.879	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.879
1.4	6.11	0.00	2.10	0.916	19.509	0.916	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.916
1.5	6.55	0.00	2.25	0.951	31.055	0.951	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.951
1.6	6.98	0.00	2.40	0.984	47.461	0.984	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.984
1.7	7.42	0.00	2.55	1.017	70.055	1.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.017
1.8	7.85	0.00	2.70	1.049	100.384	1.049	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.049
1.9	8.29	0.00	2.85	1.079	140.219	1.079	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.079
2.0	8.73	0.00	3.00	1.109	191.579	1.109	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.109
2.1	9.16	0.00	3.15	1.138	256.740	1.138	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.138
2.2	9.60	0.00	3.30	1.166	338.253	1.166	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.166
2.3	10.04	0.00	3.45	1.194	438.961	1.194	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.194
2.4	10.47	0.00	3.60	1.221	562.010	1.221	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.221
2.5	10.91	0.00	3.75	1.247	710.867	1.247	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.247
2.6	11.35	0.40	3.90	1.273	889.335	1.273	0.000	0.016	0.016	0.000	0.000	0.000	0.000	1.289
2.7	11.78	0.80	4.05	1.299	1101.570	1.299	0.066	0.056	0.056	0.000	0.000	0.000	0.000	1.355
2.8	12.22	1.20	4.20	1.324	1352.090	1.324	0.101	0.108	0.101	0.000	0.000	0.000	0.000	1.424
2.9	12.65	1.60	4.35	1.348	1645.800	1.348	0.126	0.158	0.126	0.000	0.000	0.000	0.000	1.474
3.0	13.09	2.00	4.50	1.372	1987.998	1.372	0.147	0.195	0.147	0.000	0.000	0.000	0.000	1.519
3.1	13.53	2.40	4.65	1.395	2384.395	1.395	0.166	0.215	0.166	0.000	0.000	0.000	0.000	1.561
3.2	13.96	2.80	4.80	1.419	2841.133	1.419	0.182	0.220	0.182	0.000	0.000	0.000	0.000	1.601
3.3	14.40	3.20	4.95	1.441	3364.791	1.441	0.197	0.224	0.197	0.000	0.000	0.000	0.000	1.639
3.4	14.84	3.60	5.10	1.464	3962.412	1.464	0.212	0.258	0.212	0.000	0.000	0.000	0.000	1.675
3.5	15.27	4.00	5.25	1.486	4641.508	1.486	0.225	0.369	0.225	0.000	0.000	0.000	0.000	1.711
3.6	15.71	4.40	5.40	1.508	5410.082	1.508	0.237	0.624	0.237	0.000	0.000	0.000	0.000	1.745
3.7	16.15	4.80	5.55	1.529	6276.640	1.529	0.249	1.117	0.249	0.000	0.000	0.000	0.000	1.778
3.8	16.58	5.20	5.70	1.550	7250.209	1.550	0.260	1.965	0.260	0.000	0.000	0.000	0.000	1.811
3.9	17.02	5.60	5.85	1.571	8340.347	1.571	0.271	3.318	0.271	0.000	0.000	0.000	0.000	1.843
4.0	17.45	6.00	6.00	1.592	9557.167	1.592	0.282	5.359	0.282	0.000	0.000	0.000	0.000	1.874
4.1	17.89	6.40	6.15	1.612	10911.342	1.612	0.292	8.305	0.292	0.000	0.000	0.000	0.000	1.904
4.2	18.33	6.80	6.30	1.632	12414.129	1.632	0.302	12.416	0.302	0.000	0.000	0.000	0.000	1.934
4.3	18.76	7.20	6.45	1.652	14077.379	1.652	0.311	17.990	0.311	0.000	0.000	0.000	0.000	1.963
4.4	19.20	7.60	6.60	1.672	15913.555	1.672	0.320	25.375	0.320	0.000	0.000	0.000	0.000	1.992
4.5	19.64	8.00	6.75	1.691	17935.745	1.691	0.329	34.963	0.329	0.000	0.000	0.000	0.000	2.020
4.6	20.07	8.40	6.90	1.711	20157.680	1.711	0.338	47.201	0.338	0.000	0.000	0.000	0.000	2.048
4.7	20.51	8.80	7.05	1.729	22593.748	1.729	0.346	62.590	0.346	0.000	0.000	0.000	0.000	2.076
4.8	20.95	9.20	7.20	1.748	25259.006	1.748	0.354	81.687	0.354	0.000	0.000	0.000	0.000	2.103
4.9	21.38	9.60	7.35	1.767	28169.204	1.767	0.362	105.112	0.362	0.000	0.000	0.000	0.000	2.129
5.0	21.82	10.00	7.50	1.785	31340.789	1.785	0.370	133.548	0.370	0.000	0.000	0.000	0.000	2.155
5.1	22.25	10.40	7.65	1.803	34790.929	1.803	0.378	167.745	0.378	0.000	0.000	0.000	0.000	2.181
5.2	22.69	10.80	7.80	1.821	38537.527	1.821	0.386	208.523	0.386	0.000	0.000	0.000	0.000	2.207
5.3	23.13	11.20	7.95	1.839	42599.230	1.839	0.393	256.775	0.393	0.000	0.000	0.000	0.000	2.232
5.4	23.56	11.60	8.10	1.857	46995.453	1.857	0.400	313.470	0.400	0.000	0.000	0.000	0.000	2.257
5.5	24.00	12.00	8.25	1.874	51746.388	1.874	0.407	379.658	0.407	0.000	0.000	0.000	0.000	2.282
5.6	24.44	12.40	8.40	1.892	56873.022	1.892	0.414	456.469	0.414	0.000	0.000	0.000	0.000	2.306
5.7	24.87	12.80	8.55	1.909	62397.151	1.909	0.421	545.119	0.421	0.000	0.000	0.000	0.000	2.330
5.8	25.31	13.20	8.70	1.926	68341.398	1.926	0.428	646.915	0.428	0.000	0.000	0.000	0.000	2.354
5.9	25.75	13.60	8.85	1.943	74729.225	1.943	0.435	763.251	0.435	0.000	0.000	0.000	0.000	2.378
6.0	26.18	14.00	9.00	1.959	81584.950	1.959	0.441	895.620	0.441	0.000	0.000	0.000	0.000	2.401
6.1	26.62	14.40	9.15	1.976	88933.760	1.976	0.448	1045.610	0.448	0.000	0.000	0.000	0.000	2.424
6.2	27.05	14.80	9.30	1.992	96801.731	1.992	0.454	1214.911	0.454	0.000	0.000	0.000	0.000	2.447
6.3	27.49	15.20	9.45	2.009	105215.839	2.009	0.461	1405.316	0.461	0.000	0.000	0.000	0.000	2.469
6.4	27.93	15.60	9.60	2.025	114203.977	2.025	0.467	1618.727	0.467	0.000	0.000	0.000	0.000	2.492
6.5	28.36	16.00	9.75	2.041	123794.970	2.041	0.473	1857.153	0.473	0.000	0.000	0.000	0.000	2.514

6.6	28.80	16.40	9.90	2.057	134018.590	2.057	0.479	2122.719	0.479	0.000	0.000	0.000	0.000	2.536
6.7	29.24	16.80	10.05	2.073	144905.572	2.073	0.485	2417.664	0.485	0.000	0.000	0.000	0.000	2.558
6.8	29.67	17.20	10.20	2.088	156487.630	2.088	0.491	2744.347	0.491	0.000	0.000	0.000	0.000	2.579
6.9	30.11	17.60	10.35	2.104	168797.468	2.104	0.497	3105.250	0.497	0.000	0.000	0.000	0.000	2.601
7.0	30.55	18.00	10.50	2.119	181868.802	2.119	0.503	3502.979	0.503	0.000	0.000	0.000	0.000	2.622
7.1	30.98	18.40	10.65	2.135	195736.371	2.135	0.508	3940.271	0.508	0.000	0.000	0.000	0.000	2.643
7.2	31.42	18.80	10.80	2.150	210435.950	2.150	0.514	4419.990	0.514	0.000	0.000	0.000	0.000	2.664
7.3	31.85	19.20	10.95	2.165	226004.372	2.165	0.520	4945.140	0.520	0.000	0.000	0.000	0.000	2.685
7.4	32.29	19.60	11.10	2.180	242479.538	2.180	0.525	5518.859	0.525	0.000	0.000	0.000	0.000	2.705
7.5	32.73	20.00	11.25	2.195	259900.434	2.195	0.531	6144.428	0.531	0.000	0.000	0.000	0.000	2.725
7.6	33.16	20.40	11.40	2.210	278307.146	2.210	0.536	6825.269	0.536	0.000	0.000	0.000	2.353	5.098
7.7	33.60	20.80	11.55	2.224	297740.877	2.224	0.541	7564.954	0.541	0.000	0.000	0.000	6.655	9.420
7.8	34.04	21.20	11.70	2.239	318243.959	2.239	0.547	8367.202	0.547	0.000	0.000	0.000	12.225	15.011
7.9	34.47	21.60	11.85	2.254	339859.871	2.254	0.552	9235.889	0.552	0.000	0.000	0.000	18.822	21.627
8.0	34.91	22.00	12.00	2.268	362633.251	2.268	0.557	10175.044	0.557	0.000	0.000	0.000	26.304	29.129
8.1	35.35	22.40	12.15	2.282	386609.918	2.282	0.562	11188.856	0.562	0.000	0.000	0.000	34.578	37.423
8.2	35.78	22.80	12.30	2.297	411836.880	2.297	0.567	12281.676	0.567	0.000	0.000	0.000	43.573	46.437
8.3	36.22	23.20	12.45	2.311	438362.351	2.311	0.572	13458.022	0.572	0.000	0.000	0.000	53.236	56.119
8.4	36.65	23.60	12.60	2.325	466235.771	2.325	0.577	14722.577	0.577	0.000	0.000	0.000	63.524	66.426
8.5	37.09	24.00	12.75	2.339	495507.816	2.339	0.582	16080.200	0.582	0.000	0.000	0.000	74.400	77.321
8.6	37.53	24.40	12.90	2.353	526230.414	2.353	0.587	17535.921	0.587	0.000	0.000	0.000	85.835	88.775
8.7	37.96	24.80	13.05	2.366	558456.763	2.366	0.592	19094.950	0.592	0.000	0.000	0.000	97.801	100.760
8.8	38.40	25.20	13.20	2.380	592241.343	2.380	0.597	20762.676	0.597	0.000	0.000	0.000	110.278	113.255
8.9	38.84	25.60	13.35	2.394	627639.936	2.394	0.602	22544.672	0.602	0.000	0.000	0.000	123.244	126.240
9.0	39.27	26.00	13.50	2.407	664709.634	2.407	0.607	24446.699	0.607	0.000	0.000	0.000	136.682	139.696
9.1	39.71	26.40	13.65	2.421	703508.861	2.421	0.611	26474.708	0.611	0.000	0.000	0.000	150.575	153.607
9.2	40.15	26.80	13.80	2.434	744097.387	2.434	0.616	28634.842	0.616	0.000	0.000	0.000	164.910	167.960
9.3	40.58	27.20	13.95	2.448	786536.339	2.448	0.621	30933.440	0.621	0.000	0.000	0.000	179.673	182.741
9.4	41.02	27.60	14.10	2.461	830888.221	2.461	0.625	33377.041	0.625	0.000	0.000	0.000	194.851	197.938
9.5	41.45	28.00	14.25	2.474	877216.927	2.474	0.630	35972.386	0.630	0.000	0.000	0.000	210.435	213.539
9.6	41.89	28.40	14.40	2.487	925587.759	2.487	0.635	38726.422	0.635	0.000	0.000	0.000	226.413	229.535
9.7	42.33	28.80	14.55	2.501	976067.437	2.501	0.639	41646.303	0.639	0.000	0.000	0.000	242.777	245.916
9.8	42.76	29.20	14.70	2.514	#####	2.514	0.644	44739.395	0.644	0.000	0.000	0.000	259.516	262.674
9.9	43.20	29.60	14.85	2.526	#####	2.526	0.648	48013.280	0.648	0.000	0.000	0.000	273.011	276.186
10.0	43.64	30.00	15.00	2.539	#####	2.539	0.653	51475.755	0.653	0.000	0.000	0.000	278.641	281.833
10.1	44.07	30.40	15.15	2.552	#####	2.552	0.657	55134.840	0.657	0.000	0.000	0.000	284.159	287.368
10.2	44.51	30.80	15.30	2.565	#####	2.565	0.661	58998.778	0.661	0.000	0.000	0.000	289.572	292.799
10.3	44.95	31.20	15.45	2.578	#####	2.578	0.666	63076.038	0.666	0.000	0.000	0.000	294.886	298.129
10.4	45.38	31.60	15.60	2.590	#####	2.590	0.670	67375.320	0.670	0.000	0.000	0.000	300.106	303.366
10.5	45.82	32.00	15.75	2.603	#####	2.603	0.674	71905.557	0.674	0.000	0.000	0.000	305.236	308.513
10.6	46.25	32.40	15.90	2.615	#####	2.615	0.679	76675.918	0.679	0.000	0.000	0.000	310.282	313.576
10.7	46.69	32.80	16.05	2.628	#####	2.628	0.683	81695.810	0.683	0.000	0.000	0.000	315.246	318.557
10.8	47.13	33.20	16.20	2.640	#####	2.640	0.687	86974.885	0.687	0.000	0.000	0.000	320.134	323.461
10.9	47.56	33.60	16.35	2.652	#####	2.652	0.691	92523.036	0.691	0.000	0.000	0.000	324.949	328.292
11.0	48.00	34.00	16.50	2.665	#####	2.665	0.695	98350.409	0.695	0.000	0.000	0.000	329.693	333.053

Heights/Elevations on this sheet are relative to top of ponding depth.

Cutoff flow from underdrain is added to Qtot for actual flow input in SWMM discharge rating curve.

Basin #3 Discharge
Discharge vs Elevation Table

Low orifice: 1 "	Top orifice: 8 "
Number: 1	Number: 0
Cg-low: 0.61	Cg-low: 0.61
Invert elev: 0.00 ft	Invert elev: 0.00 ft
Middle orifice: 3 "	Emergency inlet:
number of orif: 0	Rim height: 3.25 ft
Cg-middle: 0.61	Area (SF=2) 1.00 sq ft
Invert elev: 3.50 ft	Circumference 4.00 ft

h (ft)	H/D-low -	H/D-mid -	H/D-top -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qtop-orif (cfs)	Qtop-weir (cfs)	Qtot-top (cfs)	Qemerg (cfs)	Qtot (cfs)
0.0	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.1	1.20	0.00	0.15	0.006	0.007	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006
0.2	2.40	0.00	0.30	0.011	0.014	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
0.3	3.60	0.00	0.45	0.014	0.017	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014
0.4	4.80	0.00	0.60	0.016	0.072	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016
0.5	6.00	0.00	0.75	0.018	0.344	0.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018
0.6	7.20	0.00	0.90	0.020	1.154	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020
0.7	8.40	0.00	1.05	0.022	3.028	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.022
0.8	9.60	0.00	1.20	0.023	6.743	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.023
0.9	10.80	0.00	1.35	0.025	13.377	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.025
1.0	12.00	0.00	1.50	0.026	24.355	0.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.026
1.1	13.20	0.00	1.65	0.027	41.500	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.027
1.2	14.40	0.00	1.80	0.029	67.076	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.029
1.3	15.60	0.00	1.95	0.030	103.841	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030
1.4	16.80	0.00	2.10	0.031	155.093	0.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.031
1.5	18.00	0.00	2.25	0.032	224.716	0.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.032
1.6	19.20	0.00	2.40	0.033	317.231	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.033
1.7	20.40	0.00	2.55	0.034	437.841	0.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.034
1.8	21.60	0.00	2.70	0.035	592.483	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.035
1.9	22.80	0.00	2.85	0.036	787.870	0.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.036
2.0	24.00	0.00	3.00	0.037	1031.545	0.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.037
2.1	25.20	0.00	3.15	0.038	1331.926	0.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.038
2.2	26.40	0.00	3.30	0.039	1698.353	0.039	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.039
2.3	27.60	0.00	3.45	0.040	2141.138	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040
2.4	28.80	0.00	3.60	0.041	2671.612	0.041	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.041
2.5	30.00	0.00	3.75	0.042	3302.171	0.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.042
2.6	31.20	0.00	3.90	0.043	4046.330	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.043
2.7	32.40	0.00	4.05	0.044	4918.762	0.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.044
2.8	33.60	0.00	4.20	0.044	5935.356	0.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.044
2.9	34.80	0.00	4.35	0.045	7113.254	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.045
3.0	36.00	0.00	4.50	0.046	8470.909	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.046
3.1	37.20	0.00	4.65	0.047	#####	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.047
3.2	38.40	0.00	4.80	0.047	#####	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.047
3.3	39.60	0.00	4.95	0.048	#####	0.048	0.000	0.000	0.000	0.000	0.000	0.000	0.139	0.187
3.4	40.80	0.00	5.10	0.049	#####	0.049	0.000	0.000	0.000	0.000	0.000	0.000	0.720	0.769
3.5	42.00	0.00	5.25	0.050	#####	0.050	0.000	0.000	0.000	0.000	0.000	0.000	1.550	1.600
3.6	43.20	0.40	5.40	0.050	#####	0.050	0.000	0.000	0.000	0.000	0.000	0.000	2.568	2.618
3.7	44.40	0.80	5.55	0.051	#####	0.051	0.000	0.000	0.000	0.000	0.000	0.000	3.284	3.335
3.8	45.60	1.20	5.70	0.052	#####	0.052	0.000	0.000	0.000	0.000	0.000	0.000	3.630	3.682
3.9	46.80	1.60	5.85	0.052	#####	0.052	0.000	0.000	0.000	0.000	0.000	0.000	3.947	3.999
4.0	48.00	2.00	6.00	0.053	#####	0.053	0.000	0.000	0.000	0.000	0.000	0.000	4.239	4.293
4.1	49.20	2.40	6.15	0.054	#####	0.054	0.000	0.000	0.000	0.000	0.000	0.000	4.513	4.567
4.2	50.40	2.80	6.30	0.054	#####	0.054	0.000	0.000	0.000	0.000	0.000	0.000	4.771	4.826
4.3	51.60	3.20	6.45	0.055	#####	0.055	0.000	0.000	0.000	0.000	0.000	0.000	5.016	5.071
4.4	52.80	3.60	6.60	0.056	#####	0.056	0.000	0.000	0.000	0.000	0.000	0.000	5.250	5.305
4.5	54.00	4.00	6.75	0.056	#####	0.056	0.000	0.000	0.000	0.000	0.000	0.000	5.473	5.529

Heights/Elevations on this sheet are relative to top of ponding depth.

Cutoff flow from underdrain is added to Q_{tot} for actual flow input in SWMM discharge rating curve.

Basin #4 Discharge

Discharge vs Elevation Table

Low orifice:	1.5 "	Top orifice:	8 "
Number:	1	Number:	0
Cg-low:	0.61	Cg-low:	0.61
Invert elev:	1.00 ft	Invert elev:	0.00 ft
Middle orifice:	3 "	Emergency inlet:	
number of orif:	0	Rim height:	3.20 ft
Cg-middle:	0.61	Area (SF=2)	1.00 sq ft
Invert elev:	3.50 ft	Circumference	4.00 ft

<--- 1 x 1

h (ft)	H/D-low	H/D-mid	H/D-top	Q _{low-orif} (cfs)	Q _{low-weir} (cfs)	Q _{tot-low} (cfs)	Q _{mid-orif} (cfs)	Q _{mid-weir} (cfs)	Q _{tot-med} (cfs)	Q _{top-orif} (cfs)	Q _{top-weir} (cfs)	Q _{tot-top} (cfs)	Q _{emerg} (cfs)	Q _{tot} (cfs)
0.0	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.1	0.00	0.00	0.15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.2	0.00	0.00	0.30	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.3	0.00	0.00	0.45	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.4	0.00	0.00	0.60	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.5	0.00	0.00	0.75	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.6	0.00	0.00	0.90	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.7	0.00	0.00	1.05	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.8	0.00	0.00	1.20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.9	0.00	0.00	1.35	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.0	0.00	0.00	1.50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.1	0.80	0.00	1.65	0.012	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010
1.2	1.60	0.00	1.80	0.022	0.028	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.022
1.3	2.40	0.00	1.95	0.029	0.038	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.029
1.4	3.20	0.00	2.10	0.035	0.040	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.035
1.5	4.00	0.00	2.25	0.040	0.065	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040
1.6	4.80	0.00	2.40	0.044	0.197	0.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.044
1.7	5.60	0.00	2.55	0.048	0.587	0.048	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.048
1.8	6.40	0.00	2.70	0.052	1.468	0.052	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.052
1.9	7.20	0.00	2.85	0.055	3.180	0.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.055
2.0	8.00	0.00	3.00	0.058	6.181	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058
2.1	8.80	0.00	3.15	0.061	11.064	0.061	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.061
2.2	9.60	0.00	3.30	0.064	18.581	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.064
2.3	10.40	0.00	3.45	0.067	29.653	0.067	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.067
2.4	11.20	0.00	3.60	0.069	45.392	0.069	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.069
2.5	12.00	0.00	3.75	0.072	67.115	0.072	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.072
2.6	12.80	0.00	3.90	0.074	96.364	0.074	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.074
2.7	13.60	0.00	4.05	0.077	134.925	0.077	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.077
2.8	14.40	0.00	4.20	0.079	184.839	0.079	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.079
2.9	15.20	0.00	4.35	0.081	248.427	0.081	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.081
3.0	16.00	0.00	4.50	0.084	328.301	0.084	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.084
3.1	16.80	0.00	4.65	0.086	427.387	0.086	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.086
3.2	17.60	0.00	4.80	0.088	548.936	0.088	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.088
3.3	18.40	0.00	4.95	0.090	696.548	0.090	0.000	0.000	0.000	0.000	0.000	0.000	0.392	0.482
3.4	19.20	0.00	5.10	0.092	874.186	0.092	0.000	0.000	0.000	0.000	0.000	0.000	1.109	1.201
3.5	20.00	0.00	5.25	0.094	1086.192	0.094	0.000	0.000	0.000	0.000	0.000	0.000	2.038	2.131
3.6	20.80	0.40	5.40	0.096	1337.307	0.096	0.000	0.000	0.000	0.000	0.000	0.000	3.096	3.192
3.7	21.60	0.80	5.55	0.098	1632.690	0.098	0.000	0.000	0.000	0.000	0.000	0.000	3.461	3.559
3.8	22.40	1.20	5.70	0.099	1977.929	0.099	0.000	0.000	0.000	0.000	0.000	0.000	3.792	3.891
3.9	23.20	1.60	5.85	0.101	2379.065	0.101	0.000	0.000	0.000	0.000	0.000	0.000	4.096	4.197
4.0	24.00	2.00	6.00	0.103	2842.605	0.103	0.000	0.000	0.000	0.000	0.000	0.000	4.378	4.481
4.1	24.80	2.40	6.15	0.105	3375.542	0.105	0.000	0.000	0.000	0.000	0.000	0.000	4.644	4.749
4.2	25.60	2.80	6.30	0.106	3985.373	0.106	0.000	0.000	0.000	0.000	0.000	0.000	4.895	5.002
4.3	26.40	3.20	6.45	0.108	4680.111	0.108	0.000	0.000	0.000	0.000	0.000	0.000	5.134	5.242
4.4	27.20	3.60	6.60	0.110	5468.311	0.110	0.000	0.000	0.000	0.000	0.000	0.000	5.362	5.472
4.5	28.00	4.00	6.75	0.111	6359.080	0.111	0.000	0.000	0.000	0.000	0.000	0.000	5.581	5.693

Heights/Elevations on this sheet are relative to top of ponding depth.

Cutoff flow from underdrain is added to Qtot for actual flow input in SWMM discharge rating curve.

Basin #5 Discharge

Discharge vs Elevation Table

Low orifice:	1 "	Top orifice:	1.5 "
Number:	0	Number:	0
Cg-low:	0.61	Cg-low:	0.61
invert elev:	0.00 ft	invert elev:	3.00 ft
Middle orifice:	3 "	Emergency inlet:	
number of orif:	0	Rim height:	2.75 ft
Cg-middle:	0.61	Area (SF=2)	1.00 sq ft
invert elev:	3.50 ft	Circumference	4.00 ft

<--- 1.0 x 1.0

h (ft)	H/D-low -	H/D-mid -	H/D-top -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qtop-orif (cfs)	Qtop-weir (cfs)	Qtot-top (cfs)	Qemerg (cfs)	Qtot (cfs)
0.0	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.1	1.20	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.2	2.40	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.3	3.60	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.4	4.80	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.5	6.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.6	7.20	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.7	8.40	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.8	9.60	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.9	10.80	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.0	12.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.1	13.20	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.2	14.40	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.3	15.60	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.4	16.80	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.5	18.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.6	19.20	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.7	20.40	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.8	21.60	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.9	22.80	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2.0	24.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2.1	25.20	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2.2	26.40	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2.3	27.60	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2.4	28.80	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2.5	30.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2.6	31.20	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2.7	32.40	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2.8	33.60	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.139	0.139
2.9	34.80	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.720	0.720
3.0	36.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.550	1.550
3.1	37.20	0.00	0.80	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.568	2.568
3.2	38.40	0.00	1.60	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.284	3.284
3.3	39.60	0.00	2.40	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.630	3.630
3.4	40.80	0.00	3.20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.947	3.947
3.5	42.00	0.00	4.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.239	4.239
3.6	43.20	0.40	4.80	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.513	4.513
3.7	44.40	0.80	5.60	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.771	4.771
3.8	45.60	1.20	6.40	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.016	5.016
3.9	46.80	1.60	7.20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.250	5.250
4.0	48.00	2.00	8.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.473	5.473
4.1	49.20	2.40	8.80	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.688	5.688
4.2	50.40	2.80	9.60	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.895	5.895
4.3	51.60	3.20	10.40	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.095	6.095
4.4	52.80	3.60	11.20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.288	6.288
4.5	54.00	4.00	12.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.476	6.476

Heights/Elevations on this sheet are relative to top of ponding depth.

Cutoff flow from underdrain is added to Qtot for actual flow input in SWMM discharge rating curve.

Basin #6 Discharge

Discharge vs Elevation Table

Low orifice: 1.5 "	Top orifice: 8 "
Number: 1	Number: 0
Cg-low: 0.61	Cg-low: 0.61
invert elev: 0.00 ft	invert elev: 0.00 ft
Middle orifice: 3 "	Emergency inlet:
number of orif: 0	Rim height: 3.50 ft
Cg-middle: 0.61	Xsect. Area 4.00 sq ft
invert elev: 2.50 ft	Circumference 8.00 ft

h (ft)	H/D-low	H/D-mid	H/D-top	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qtot-orif (cfs)	Qtot-weir (cfs)	Qtot-top (cfs)	Qemerg (cfs)	Qtot (cfs)
0.0	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.1	0.80	0.00	0.15	0.012	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010
0.2	1.60	0.00	0.30	0.022	0.028	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.022
0.3	2.40	0.00	0.45	0.029	0.038	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.029
0.4	3.20	0.00	0.60	0.035	0.040	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.035
0.5	4.00	0.00	0.75	0.040	0.065	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040
0.6	4.80	0.00	0.90	0.044	0.197	0.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.044
0.7	5.60	0.00	1.05	0.048	0.587	0.048	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.048
0.8	6.40	0.00	1.20	0.052	1.468	0.052	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.052
0.9	7.20	0.00	1.35	0.055	3.180	0.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.055
1.0	8.00	0.00	1.50	0.058	6.181	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058
1.1	8.80	0.00	1.65	0.061	11.064	0.061	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.061
1.2	9.60	0.00	1.80	0.064	18.581	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.064
1.3	10.40	0.00	1.95	0.067	29.653	0.067	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.067
1.4	11.20	0.00	2.10	0.069	45.392	0.069	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.069
1.5	12.00	0.00	2.25	0.072	67.115	0.072	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.072
1.6	12.80	0.00	2.40	0.074	96.364	0.074	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.074
1.7	13.60	0.00	2.55	0.077	134.925	0.077	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.077
1.8	14.40	0.00	2.70	0.079	184.839	0.079	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.079
1.9	15.20	0.00	2.85	0.081	248.427	0.081	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.081
2.0	16.00	0.00	3.00	0.084	328.301	0.084	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.084
2.1	16.80	0.00	3.15	0.086	427.387	0.086	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.086
2.2	17.60	0.00	3.30	0.088	548.936	0.088	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.088
2.3	18.40	0.00	3.45	0.090	696.548	0.090	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090
2.4	19.20	0.00	3.60	0.092	874.186	0.092	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.092
2.5	20.00	0.00	3.75	0.094	1086.192	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.094
2.6	20.80	0.40	3.90	0.096	1337.307	0.096	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.096
2.7	21.60	0.80	4.05	0.098	1632.690	0.098	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.098
2.8	22.40	1.20	4.20	0.099	1977.929	0.099	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.099
2.9	23.20	1.60	4.35	0.101	2379.065	0.101	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.101
3.0	24.00	2.00	4.50	0.103	2842.605	0.103	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.103
3.1	24.80	2.40	4.65	0.105	3375.542	0.105	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.105
3.2	25.60	2.80	4.80	0.106	3985.373	0.106	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.106
3.3	26.40	3.20	4.95	0.108	4680.111	0.108	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.108
3.4	27.20	3.60	5.10	0.110	5468.311	0.110	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.110
3.5	28.00	4.00	5.25	0.111	6359.080	0.111	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.111
3.6	28.80	4.40	5.40	0.113	7362.096	0.113	0.000	0.000	0.000	0.000	0.000	0.000	0.784	0.897
3.7	29.60	4.80	5.55	0.115	8487.629	0.115	0.000	0.000	0.000	0.000	0.000	0.000	2.218	2.333
3.8	30.40	5.20	5.70	0.116	9746.555	0.116	0.000	0.000	0.000	0.000	0.000	0.000	4.075	4.191
3.9	31.20	5.60	5.85	0.118	11150.374	0.118	0.000	0.000	0.000	0.000	0.000	0.000	6.274	6.392
4.0	32.00	6.00	6.00	0.119	12711.227	0.119	0.000	0.000	0.000	0.000	0.000	0.000	8.768	8.887
4.1	32.80	6.40	6.15	0.121	14441.915	0.121	0.000	0.000	0.000	0.000	0.000	0.000	11.526	11.647
4.2	33.60	6.80	6.30	0.122	16355.917	0.122	0.000	0.000	0.000	0.000	0.000	0.000	14.524	14.647
4.3	34.40	7.20	6.45	0.124	18467.401	0.124	0.000	0.000	0.000	0.000	0.000	0.000	17.514	17.637
4.4	35.20	7.60	6.60	0.125	20791.252	0.125	0.000	0.000	0.000	0.000	0.000	0.000	18.576	18.701
4.5	36.00	8.00	6.75	0.127	23343.079	0.127	0.000	0.000	0.000	0.000	0.000	0.000	19.581	19.707
4.6	36.80	8.40	6.90	0.128	26139.241	0.128	0.000	0.000	0.000	0.000	0.000	0.000	20.537	20.665
4.7	37.60	8.80	7.05	0.129	29196.856	0.129	0.000	0.000	0.000	0.000	0.000	0.000	21.450	21.579
4.8	38.40	9.20	7.20	0.131	32533.826	0.131	0.000	0.000	0.000	0.000	0.000	0.000	22.326	22.456
4.9	39.20	9.60	7.35	0.132	36168.851	0.132	0.000	0.000	0.000	0.000	0.000	0.000	23.168	23.301
5.0	40.00	10.00	7.50	0.133	40121.445	0.133	0.000	0.000	0.000	0.000	0.000	0.000	23.982	24.115

Heights/Elevations on this sheet are relative to top of ponding depth.

Cutoff flow from underdrain is added to Qtot for actual flow input in SWMM discharge rating curve.

Basin #7 Discharge

Discharge vs Elevation Table

Low orifice:	1 "	Top orifice:	8 "
Number:	1	Number:	0
Cg-low:	0.61	Cg-low:	0.61
invert elev:	0.00 ft	invert elev:	0.00 ft
Middle orifice:	3 "	Emergency inlet:	
number of orif:	0	Rim height:	3.00 ft
Cg-middle:	0.61	Xsect. Area	4.00 sq ft
invert elev:	2.50 ft	Circumference	8.00 ft

<--- 2' x 2'

h (ft)	H/D-low -	H/D-mid -	H/D-top -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qtop-orif (cfs)	Qtop-weir (cfs)	Qtot-top (cfs)	Qemerg (cfs)	Qtot (cfs)
0.0	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.1	1.20	0.00	0.15	0.006	0.007	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006
0.2	2.40	0.00	0.30	0.011	0.014	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
0.3	3.60	0.00	0.45	0.014	0.017	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014
0.4	4.80	0.00	0.60	0.016	0.072	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016
0.5	6.00	0.00	0.75	0.018	0.344	0.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018
0.6	7.20	0.00	0.90	0.020	1.154	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020
0.7	8.40	0.00	1.05	0.022	3.028	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.022
0.8	9.60	0.00	1.20	0.023	6.743	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.023
0.9	10.80	0.00	1.35	0.025	13.377	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.025
1.0	12.00	0.00	1.50	0.026	24.355	0.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.026
1.1	13.20	0.00	1.65	0.027	41.500	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.027
1.2	14.40	0.00	1.80	0.029	67.076	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.029
1.3	15.60	0.00	1.95	0.030	103.841	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030
1.4	16.80	0.00	2.10	0.031	155.093	0.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.031
1.5	18.00	0.00	2.25	0.032	224.716	0.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.032
1.6	19.20	0.00	2.40	0.033	317.231	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.033
1.7	20.40	0.00	2.55	0.034	437.841	0.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.034
1.8	21.60	0.00	2.70	0.035	592.483	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.035
1.9	22.80	0.00	2.85	0.036	787.870	0.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.036
2.0	24.00	0.00	3.00	0.037	1031.545	0.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.037
2.1	25.20	0.00	3.15	0.038	1331.926	0.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.038
2.2	26.40	0.00	3.30	0.039	1698.353	0.039	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.039
2.3	27.60	0.00	3.45	0.040	2141.138	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040
2.4	28.80	0.00	3.60	0.041	2671.612	0.041	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.041
2.5	30.00	0.00	3.75	0.042	3302.171	0.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.042
2.6	31.20	0.40	3.90	0.043	4046.330	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.043
2.7	32.40	0.80	4.05	0.044	4918.762	0.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.044
2.8	33.60	1.20	4.20	0.044	5935.356	0.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.044
2.9	34.80	1.60	4.35	0.045	7113.254	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.045
3.0	36.00	2.00	4.50	0.046	8470.909	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.046
3.1	37.20	2.40	4.65	0.047	10028.126	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.784	0.831
3.2	38.40	2.80	4.80	0.047	11806.115	0.047	0.000	0.000	0.000	0.000	0.000	0.000	2.218	2.266
3.3	39.60	3.20	4.95	0.048	13827.533	0.048	0.000	0.000	0.000	0.000	0.000	0.000	4.075	4.123
3.4	40.80	3.60	5.10	0.049	16116.538	0.049	0.000	0.000	0.000	0.000	0.000	0.000	6.274	6.323
3.5	42.00	4.00	5.25	0.050	18698.833	0.050	0.000	0.000	0.000	0.000	0.000	0.000	8.768	8.818
3.6	43.20	4.40	5.40	0.050	21601.716	0.050	0.000	0.000	0.000	0.000	0.000	0.000	11.526	11.576
3.7	44.40	4.80	5.55	0.051	24854.127	0.051	0.000	0.000	0.000	0.000	0.000	0.000	14.524	14.575
3.8	45.60	5.20	5.70	0.052	28486.694	0.052	0.000	0.000	0.000	0.000	0.000	0.000	17.514	17.565
3.9	46.80	5.60	5.85	0.052	32531.786	0.052	0.000	0.000	0.000	0.000	0.000	0.000	18.576	18.629
4.0	48.00	6.00	6.00	0.053	37023.556	0.053	0.000	0.000	0.000	0.000	0.000	0.000	19.581	19.634
4.1	49.20	6.40	6.15	0.054	41997.992	0.054	0.000	0.000	0.000	0.000	0.000	0.000	20.537	20.590
4.2	50.40	6.80	6.30	0.054	47492.961	0.054	0.000	0.000	0.000	0.000	0.000	0.000	21.450	21.504
4.3	51.60	7.20	6.45	0.055	53548.264	0.055	0.000	0.000	0.000	0.000	0.000	0.000	22.326	22.381
4.4	52.80	7.60	6.60	0.056	60205.676	0.056	0.000	0.000	0.000	0.000	0.000	0.000	23.168	23.224
4.5	54.00	8.00	6.75	0.056	67509.000	0.056	0.000	0.000	0.000	0.000	0.000	0.000	23.982	24.038

Heights/Elevations on this sheet are relative to top of ponding depth.

Cutoff flow from underdrain is added to Qtot for actual flow input in SWMM discharge rating curve.

Basin #8 Discharge

Discharge vs Elevation Table

Low orifice:	1.35 "	Top orifice:	8 "
Number:	1	Number:	0
Cg-low:	0.61	Cg-low:	0.61
invert elev:	0.00 ft	invert elev:	0.00 ft
Middle orifice:	3 "	Emergency inlet:	
number of orif:	0	Rim height:	4.25 ft
Cg-middle:	0.61	Xsect. Area	6.25 sq ft
invert elev:	2.50 ft	Circumference	10.00 ft

h (ft)	H/D-low -	H/D-mid -	H/D-top -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qtot-top (cfs)	Qemerg (cfs)	Qtot (cfs)
0.0	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.1	0.89	0.00	0.15	0.010	0.009	0.009	0.000	0.000	0.000	0.000	0.000	0.009
0.2	1.78	0.00	0.30	0.018	0.024	0.018	0.000	0.000	0.000	0.000	0.000	0.018
0.3	2.67	0.00	0.45	0.024	0.030	0.024	0.000	0.000	0.000	0.000	0.000	0.024
0.4	3.56	0.00	0.60	0.029	0.034	0.029	0.000	0.000	0.000	0.000	0.000	0.029
0.5	4.44	0.00	0.75	0.032	0.090	0.032	0.000	0.000	0.000	0.000	0.000	0.032
0.6	5.33	0.00	0.90	0.036	0.319	0.036	0.000	0.000	0.000	0.000	0.000	0.036
0.7	6.22	0.00	1.05	0.039	0.933	0.039	0.000	0.000	0.000	0.000	0.000	0.039
0.8	7.11	0.00	1.20	0.042	2.256	0.042	0.000	0.000	0.000	0.000	0.000	0.042
0.9	8.00	0.00	1.35	0.045	4.749	0.045	0.000	0.000	0.000	0.000	0.000	0.045
1.0	8.89	0.00	1.50	0.047	9.032	0.047	0.000	0.000	0.000	0.000	0.000	0.047
1.1	9.78	0.00	1.65	0.050	15.905	0.050	0.000	0.000	0.000	0.000	0.000	0.050
1.2	10.67	0.00	1.80	0.052	26.373	0.052	0.000	0.000	0.000	0.000	0.000	0.052
1.3	11.56	0.00	1.95	0.054	41.665	0.054	0.000	0.000	0.000	0.000	0.000	0.054
1.4	12.44	0.00	2.10	0.056	63.263	0.056	0.000	0.000	0.000	0.000	0.000	0.056
1.5	13.33	0.00	2.25	0.058	92.916	0.058	0.000	0.000	0.000	0.000	0.000	0.058
1.6	14.22	0.00	2.40	0.060	132.671	0.060	0.000	0.000	0.000	0.000	0.000	0.060
1.7	15.11	0.00	2.55	0.062	184.891	0.062	0.000	0.000	0.000	0.000	0.000	0.062
1.8	16.00	0.00	2.70	0.064	252.278	0.064	0.000	0.000	0.000	0.000	0.000	0.064
1.9	16.89	0.00	2.85	0.066	337.896	0.066	0.000	0.000	0.000	0.000	0.000	0.066
2.0	17.78	0.00	3.00	0.068	445.194	0.068	0.000	0.000	0.000	0.000	0.000	0.068
2.1	18.67	0.00	3.15	0.070	578.029	0.070	0.000	0.000	0.000	0.000	0.000	0.070
2.2	19.56	0.00	3.30	0.071	740.689	0.071	0.000	0.000	0.000	0.000	0.000	0.071
2.3	20.44	0.00	3.45	0.073	937.913	0.073	0.000	0.000	0.000	0.000	0.000	0.073
2.4	21.33	0.00	3.60	0.074	1174.915	0.074	0.000	0.000	0.000	0.000	0.000	0.074
2.5	22.22	0.00	3.75	0.076	1457.410	0.076	0.000	0.000	0.000	0.000	0.000	0.076
2.6	23.11	0.40	3.90	0.078	1791.630	0.078	0.000	0.000	0.000	0.000	0.000	0.078
2.7	24.00	0.80	4.05	0.079	2184.353	0.079	0.000	0.000	0.000	0.000	0.000	0.079
2.8	24.89	1.20	4.20	0.081	2642.921	0.081	0.000	0.000	0.000	0.000	0.000	0.081
2.9	25.78	1.60	4.35	0.082	3175.266	0.082	0.000	0.000	0.000	0.000	0.000	0.082
3.0	26.67	2.00	4.50	0.083	3789.931	0.083	0.000	0.000	0.000	0.000	0.000	0.083
3.1	27.56	2.40	4.65	0.085	4496.092	0.085	0.000	0.000	0.000	0.000	0.000	0.085
3.2	28.44	2.80	4.80	0.086	5303.581	0.086	0.000	0.000	0.000	0.000	0.000	0.086
3.3	29.33	3.20	4.95	0.088	6222.912	0.088	0.000	0.000	0.000	0.000	0.000	0.088
3.4	30.22	3.60	5.10	0.089	7265.298	0.089	0.000	0.000	0.000	0.000	0.000	0.089
3.5	31.11	4.00	5.25	0.090	8442.676	0.090	0.000	0.000	0.000	0.000	0.000	0.090
3.6	32.00	4.40	5.40	0.092	9767.732	0.092	0.000	0.000	0.000	0.000	0.000	0.092
3.7	32.89	4.80	5.55	0.093	11253.921	0.093	0.000	0.000	0.000	0.000	0.000	0.093
3.8	33.78	5.20	5.70	0.094	12915.489	0.094	0.000	0.000	0.000	0.000	0.000	0.094
3.9	34.67	5.60	5.85	0.095	14767.498	0.095	0.000	0.000	0.000	0.000	0.000	0.095
4.0	35.56	6.00	6.00	0.097	16825.848	0.097	0.000	0.000	0.000	0.000	0.000	0.097
4.1	36.44	6.40	6.15	0.098	19107.298	0.098	0.000	0.000	0.000	0.000	0.000	0.098
4.2	37.33	6.80	6.30	0.099	21629.490	0.099	0.000	0.000	0.000	0.000	0.000	0.099
4.3	38.22	7.20	6.45	0.100	24410.972	0.100	0.000	0.000	0.000	0.000	0.347	0.447
4.4	39.11	7.60	6.60	0.101	27471.221	0.101	0.000	0.000	0.000	0.000	1.801	1.902
4.5	40.00	8.00	6.75	0.103	30830.661	0.103	0.000	0.000	0.000	0.000	3.875	3.978
4.6	40.89	8.40	6.90	0.104	34510.694	0.104	0.000	0.000	0.000	0.000	6.419	6.523
4.7	41.78	8.80	7.05	0.105	38533.714	0.105	0.000	0.000	0.000	0.000	9.358	9.463
4.8	42.67	9.20	7.20	0.106	42923.137	0.106	0.000	0.000	0.000	0.000	12.645	12.751
4.9	43.56	9.60	7.35	0.107	47703.417	0.107	0.000	0.000	0.000	0.000	16.245	16.353
5.0	44.44	10.00	7.50	0.108	52900.075	0.108	0.000	0.000	0.000	0.000	20.135	20.243
5.1	45.33	10.40	7.65	0.109	58539.715	0.109	0.000	0.000	0.000	0.000	24.293	24.403
5.2	46.22	10.80	7.80	0.110	64650.054	0.110	0.000	0.000	0.000	0.000	28.704	28.815
5.3	47.11	11.20	7.95	0.111	71259.937	0.111	0.000	0.000	0.000	0.000	31.351	31.462
5.4	48.00	11.60	8.10	0.112	78399.366	0.112	0.000	0.000	0.000	0.000	32.810	32.922
5.5	48.89	12.00	8.25	0.114	86099.520	0.114	0.000	0.000	0.000	0.000	34.206	34.320

Heights/Elevations on this sheet are relative to top of ponding depth.

Cutoff flow from underdrain is added to Qtot for actual flow input in SWMM discharge rating curve.

Basin #9 Discharge

Discharge vs Elevation Table

Low orifice:	2 "	Top orifice:	8 "
Number:	1	Number:	0
Cg-low:	0.61	Cg-low:	0.61
invert elev:	0.00 ft	invert elev:	0.00 ft
Middle orifice:	3 "	Emergency inlet:	
number of orif:	0	Rim height:	5.00 ft
Cg-middle:	0.61	Xsect. Area	4.00 sq ft
invert elev:	2.50 ft	Circumference	8.00 ft

<--- 2' x 2'

h (ft)	H/D-low -	H/D-mid -	H/D-top -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qtot-orif (cfs)	Qtot-weir (cfs)	Qtot-top (cfs)	Qemerg (cfs)	Qtot (cfs)
0.0	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.1	0.60	0.00	0.15	0.014	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012
0.2	1.20	0.00	0.30	0.036	0.039	0.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.036
0.3	1.80	0.00	0.45	0.050	0.065	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050
0.4	2.40	0.00	0.60	0.060	0.078	0.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.060
0.5	3.00	0.00	0.75	0.069	0.080	0.069	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.069
0.6	3.60	0.00	0.90	0.077	0.094	0.077	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.077
0.7	4.20	0.00	1.05	0.084	0.172	0.084	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.084
0.8	4.80	0.00	1.20	0.090	0.405	0.090	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090
0.9	5.40	0.00	1.35	0.097	0.932	0.097	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.097
1.0	6.00	0.00	1.50	0.102	1.945	0.102	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.102
1.1	6.60	0.00	1.65	0.108	3.700	0.108	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.108
1.2	7.20	0.00	1.80	0.113	6.528	0.113	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.113
1.3	7.80	0.00	1.95	0.118	10.838	0.118	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.118
1.4	8.40	0.00	2.10	0.123	17.129	0.123	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.123
1.5	9.00	0.00	2.25	0.127	25.996	0.127	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.127
1.6	9.60	0.00	2.40	0.132	38.144	0.132	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.132
1.7	10.20	0.00	2.55	0.136	54.389	0.136	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.136
1.8	10.80	0.00	2.70	0.140	75.670	0.140	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.140
1.9	11.40	0.00	2.85	0.144	103.061	0.144	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.144
2.0	12.00	0.00	3.00	0.148	137.773	0.148	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.148
2.1	12.60	0.00	3.15	0.152	181.166	0.152	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.152
2.2	13.20	0.00	3.30	0.155	234.757	0.155	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.155
2.3	13.80	0.00	3.45	0.159	300.229	0.159	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.159
2.4	14.40	0.00	3.60	0.163	379.439	0.163	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.163
2.5	15.00	0.00	3.75	0.166	474.424	0.166	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.166
2.6	15.60	0.40	3.90	0.169	587.416	0.169	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.169
2.7	16.20	0.80	4.05	0.173	720.842	0.173	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.173
2.8	16.80	1.20	4.20	0.176	877.340	0.176	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.176
2.9	17.40	1.60	4.35	0.179	1059.762	0.179	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.179
3.0	18.00	2.00	4.50	0.182	1271.187	0.182	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.182
3.1	18.60	2.40	4.65	0.185	1514.925	0.185	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.185
3.2	19.20	2.80	4.80	0.189	1794.529	0.189	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.189
3.3	19.80	3.20	4.95	0.192	2113.801	0.192	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.192
3.4	20.40	3.60	5.10	0.194	2476.804	0.194	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.194
3.5	21.00	4.00	5.25	0.197	2887.865	0.197	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.197
3.6	21.60	4.40	5.40	0.200	3351.588	0.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.200
3.7	22.20	4.80	5.55	0.203	3872.861	0.203	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.203
3.8	22.80	5.20	5.70	0.206	4456.865	0.206	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.206
3.9	23.40	5.60	5.85	0.209	5109.082	0.209	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.209
4.0	24.00	6.00	6.00	0.211	5835.302	0.211	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.211
4.1	24.60	6.40	6.15	0.214	6641.633	0.214	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.214
4.2	25.20	6.80	6.30	0.217	7534.513	0.217	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.217
4.3	25.80	7.20	6.45	0.219	8520.709	0.219	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.219
4.4	26.40	7.60	6.60	0.222	9607.337	0.222	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.222
4.5	27.00	8.00	6.75	0.224	10801.861	0.224	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.224
4.6	27.60	8.40	6.90	0.227	12112.107	0.227	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.227
4.7	28.20	8.80	7.05	0.229	13546.268	0.229	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.229
4.8	28.80	9.20	7.20	0.232	15112.917	0.232	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.232
4.9	29.40	9.60	7.35	0.234	16821.011	0.234	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.234
5.0	30.00	10.00	7.50	0.237	18679.901	0.237	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.237
5.1	30.60	10.40	7.65	0.239	20699.342	0.239	0.000	0.000	0.000	0.000	0.000	0.000	0.784	1.023
5.2	31.20	10.80	7.80	0.242	22889.497	0.242	0.000	0.000	0.000	0.000	0.000	0.000	2.218	2.460
5.3	31.80	11.20	7.95	0.244	25260.953	0.244	0.000	0.000	0.000	0.000	0.000	0.000	4.075	4.319
5.4	32.40	11.60	8.10	0.246	27824.722	0.246	0.000	0.000	0.000	0.000	0.000	0.000	6.274	6.520
5.5	33.00	12.00	8.25	0.249	30592.253	0.249	0.000	0.000	0.000	0.000	0.000	0.000	8.768	9.017
5.6	33.60	12.40	8.40	0.251	33575.441	0.251	0.000	0.000	0.000	0.000	0.000	0.000	11.526	11.777
5.7	34.20	12.80	8.55	0.253	36786.633	0.253	0.000	0.000	0.000	0.000	0.000	0.000	14.524	14.778
5.8	34.80	13.20	8.70	0.255	40238.640	0.255	0.000	0.000	0.000	0.000	0.000	0.000	17.514	17.769
5.9	35.40	13.60	8.85	0.258	43944.741	0.258	0.000	0.000	0.000	0.000	0.000	0.000	18.576	18.834
6.0	36.00	14.00	9.00	0.260	47918.696	0.260	0.000	0.000	0.000	0.000	0.000	0.000	19.581	19.841
6.1	36.60	14.40	9.15	0.262	52174.751	0.262	0.000	0.000	0.000	0.000	0.000	0.000	20.537	20.799
6.2	37.20	14.80	9.30	0.264	56727.648	0.264	0.000	0.000	0.000	0.000	0.000	0.000	21.450	21.714
6.3	37.80	15.20	9.45	0.266	61592.635	0.266	0.000	0.000	0.000	0.000	0.000	0.000	22.326	22.592
6.4	38.40	15.60	9.60	0.268	66785.470	0.268	0.000	0.000	0.000	0.000	0.000	0.000	23.168	23.437
6.5	39.00	16.00	9.75	0.271	72322.434	0.271	0.000	0.000	0.000	0.000	0.000	0.000	23.982	24.252

6.6	39.60	16.40	9.90	0.273	78220.338	0.273	0.000	0.000	0.000	0.000	0.000	0.000	24.768	25.041
6.7	40.20	16.80	10.05	0.275	84496.530	0.275	0.000	0.000	0.000	0.000	0.000	0.000	25.530	25.805
6.8	40.80	17.20	10.20	0.277	91168.906	0.277	0.000	0.000	0.000	0.000	0.000	0.000	26.271	26.547
6.9	41.40	17.60	10.35	0.279	98255.916	0.279	0.000	0.000	0.000	0.000	0.000	0.000	26.990	27.269
7.0	42.00	18.00	10.50	0.281	105776.574	0.281	0.000	0.000	0.000	0.000	0.000	0.000	27.692	27.972
7.1	42.60	18.40	10.65	0.283	113750.467	0.283	0.000	0.000	0.000	0.000	0.000	0.000	28.375	28.658
7.2	43.20	18.80	10.80	0.285	122197.761	0.285	0.000	0.000	0.000	0.000	0.000	0.000	29.043	29.328
7.3	43.80	19.20	10.95	0.287	131139.212	0.287	0.000	0.000	0.000	0.000	0.000	0.000	29.696	29.983
7.4	44.40	19.60	11.10	0.289	140596.172	0.289	0.000	0.000	0.000	0.000	0.000	0.000	30.335	30.623
7.5	45.00	20.00	11.25	0.291	150590.603	0.291	0.000	0.000	0.000	0.000	0.000	0.000	30.960	31.251
7.6	45.60	20.40	11.40	0.293	161145.077	0.293	0.000	0.000	0.000	0.000	0.000	0.000	31.573	31.866
7.7	46.20	20.80	11.55	0.295	172282.791	0.295	0.000	0.000	0.000	0.000	0.000	0.000	32.175	32.469
7.8	46.80	21.20	11.70	0.297	184027.573	0.297	0.000	0.000	0.000	0.000	0.000	0.000	32.765	33.062
7.9	47.40	21.60	11.85	0.299	196403.891	0.299	0.000	0.000	0.000	0.000	0.000	0.000	33.345	33.644
8.0	48.00	22.00	12.00	0.300	209436.861	0.300	0.000	0.000	0.000	0.000	0.000	0.000	33.915	34.216
8.1	48.60	22.40	12.15	0.302	223152.258	0.302	0.000	0.000	0.000	0.000	0.000	0.000	34.476	34.778
8.2	49.20	22.80	12.30	0.304	237576.518	0.304	0.000	0.000	0.000	0.000	0.000	0.000	35.027	35.332
8.3	49.80	23.20	12.45	0.306	252736.754	0.306	0.000	0.000	0.000	0.000	0.000	0.000	35.570	35.877
8.4	50.40	23.60	12.60	0.308	268660.761	0.308	0.000	0.000	0.000	0.000	0.000	0.000	36.105	36.413
8.5	51.00	24.00	12.75	0.310	285377.024	0.310	0.000	0.000	0.000	0.000	0.000	0.000	36.633	36.942
8.6	51.60	24.40	12.90	0.312	302914.727	0.312	0.000	0.000	0.000	0.000	0.000	0.000	37.152	37.464
8.7	52.20	24.80	13.05	0.313	321303.762	0.313	0.000	0.000	0.000	0.000	0.000	0.000	37.665	37.978
8.8	52.80	25.20	13.20	0.315	340574.737	0.315	0.000	0.000	0.000	0.000	0.000	0.000	38.170	38.486
8.9	53.40	25.60	13.35	0.317	360758.985	0.317	0.000	0.000	0.000	0.000	0.000	0.000	38.669	38.986
9.0	54.00	26.00	13.50	0.319	381888.573	0.319	0.000	0.000	0.000	0.000	0.000	0.000	39.162	39.481

Heights/Elevations on this sheet are relative to top of ponding depth.

Cutoff flow from underdrain is added to Qtot for actual flow input in SWMM discharge rating curve.

Basin #10 Discharge

Discharge vs Elevation Table

Low orifice: 2 "	Top orifice: 8 "
Number: 1	Number: 0
Cg-low: 0.61	Cg-low: 0.61
invert elev: 0.00 ft	invert elev: 0.00 ft
Middle orifice: 3 "	Emergency inlet:
number of orif: 0	Rim height: 3.00 ft
Cg-middle: 0.61	Xsect. Area 9.00 sq ft
invert elev: 2.50 ft	Circumference 12.00 ft

<--- 3' x 3'

h (ft)	H/D-low -	H/D-mid -	H/D-top -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qtop-orif (cfs)	Qtop-weir (cfs)	Qtot-top (cfs)	Qemerg (cfs)	Qtot (cfs)
0.0	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.1	0.60	0.00	0.15	0.014	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012
0.2	1.20	0.00	0.30	0.036	0.039	0.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.036
0.3	1.80	0.00	0.45	0.050	0.065	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050
0.4	2.40	0.00	0.60	0.060	0.078	0.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.060
0.5	3.00	0.00	0.75	0.069	0.080	0.069	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.069
0.6	3.60	0.00	0.90	0.077	0.094	0.077	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.077
0.7	4.20	0.00	1.05	0.084	0.172	0.084	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.084
0.8	4.80	0.00	1.20	0.090	0.405	0.090	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090
0.9	5.40	0.00	1.35	0.097	0.932	0.097	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.097
1.0	6.00	0.00	1.50	0.102	1.945	0.102	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.102
1.1	6.60	0.00	1.65	0.108	3.700	0.108	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.108
1.2	7.20	0.00	1.80	0.113	6.528	0.113	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.113
1.3	7.80	0.00	1.95	0.118	10.838	0.118	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.118
1.4	8.40	0.00	2.10	0.123	17.129	0.123	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.123
1.5	9.00	0.00	2.25	0.127	25.996	0.127	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.127
1.6	9.60	0.00	2.40	0.132	38.144	0.132	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.132
1.7	10.20	0.00	2.55	0.136	54.389	0.136	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.136
1.8	10.80	0.00	2.70	0.140	75.670	0.140	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.140
1.9	11.40	0.00	2.85	0.144	103.061	0.144	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.144
2.0	12.00	0.00	3.00	0.148	137.773	0.148	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.148
2.1	12.60	0.00	3.15	0.152	181.166	0.152	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.152
2.2	13.20	0.00	3.30	0.155	234.757	0.155	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.155
2.3	13.80	0.00	3.45	0.159	300.229	0.159	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.159
2.4	14.40	0.00	3.60	0.163	379.439	0.163	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.163
2.5	15.00	0.00	3.75	0.166	474.424	0.166	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.166
2.6	15.60	0.40	3.90	0.169	587.416	0.169	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.169
2.7	16.20	0.80	4.05	0.173	720.842	0.173	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.173
2.8	16.80	1.20	4.20	0.176	877.340	0.176	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.176
2.9	17.40	1.60	4.35	0.179	1059.762	0.179	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.179
3.0	18.00	2.00	4.50	0.182	1271.187	0.182	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.182
3.1	18.60	2.40	4.65	0.185	1514.925	0.185	0.000	0.000	0.000	0.000	0.000	0.000	1.176	1.362
3.2	19.20	2.80	4.80	0.189	1794.529	0.189	0.000	0.000	0.000	0.000	0.000	0.000	3.327	3.516
3.3	19.80	3.20	4.95	0.192	2113.801	0.192	0.000	0.000	0.000	0.000	0.000	0.000	6.113	6.304
3.4	20.40	3.60	5.10	0.194	2476.804	0.194	0.000	0.000	0.000	0.000	0.000	0.000	9.411	9.605
3.5	21.00	4.00	5.25	0.197	2887.865	0.197	0.000	0.000	0.000	0.000	0.000	0.000	13.152	13.350
3.6	21.60	4.40	5.40	0.200	3351.588	0.200	0.000	0.000	0.000	0.000	0.000	0.000	17.289	17.489
3.7	22.20	4.80	5.55	0.203	3872.861	0.203	0.000	0.000	0.000	0.000	0.000	0.000	21.787	21.990
3.8	22.80	5.20	5.70	0.206	4456.865	0.206	0.000	0.000	0.000	0.000	0.000	0.000	26.618	26.824
3.9	23.40	5.60	5.85	0.209	5109.082	0.209	0.000	0.000	0.000	0.000	0.000	0.000	31.762	31.971
4.0	24.00	6.00	6.00	0.211	5835.302	0.211	0.000	0.000	0.000	0.000	0.000	0.000	37.200	37.411
4.1	24.60	6.40	6.15	0.214	6641.633	0.214	0.000	0.000	0.000	0.000	0.000	0.000	42.917	43.131
4.2	25.20	6.80	6.30	0.217	7534.513	0.217	0.000	0.000	0.000	0.000	0.000	0.000	48.262	48.479
4.3	25.80	7.20	6.45	0.219	8520.709	0.219	0.000	0.000	0.000	0.000	0.000	0.000	50.233	50.452
4.4	26.40	7.60	6.60	0.222	9607.337	0.222	0.000	0.000	0.000	0.000	0.000	0.000	52.129	52.351
4.5	27.00	8.00	6.75	0.224	10801.861	0.224	0.000	0.000	0.000	0.000	0.000	0.000	53.959	54.183

Heights/Elevations on this sheet are relative to top of ponding depth.

Cutoff flow from underdrain is added to Qtot for actual flow input in SWMM discharge rating curve.

Basin #11 Discharge

Discharge vs Elevation Table

Low orifice:	1.5 "	Top orifice:	8 "
Number:	1	Number:	0
Cg-low:	0.61	Cg-low:	0.61
invert elev:	0.00 ft	invert elev:	0.00 ft
Middle orifice:	3 "	Emergency inlet:	
number of orif:	0	Rim height:	4.50 ft
Cg-middle:	0.61	Xsect. Area	1.00 sq ft
invert elev:	2.50 ft	Circumference	4.00 ft

<--- 1' x 1'

h (ft)	H/D-low -	H/D-mid -	H/D-top -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qtot-orif (cfs)	Qtot-weir (cfs)	Qtot-top (cfs)	Qemerg (cfs)	Qtot (cfs)
0.0	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.1	0.80	0.00	0.15	0.012	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010
0.2	1.60	0.00	0.30	0.022	0.028	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.022
0.3	2.40	0.00	0.45	0.029	0.038	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.029
0.4	3.20	0.00	0.60	0.035	0.040	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.035
0.5	4.00	0.00	0.75	0.040	0.065	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040
0.6	4.80	0.00	0.90	0.044	0.197	0.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.044
0.7	5.60	0.00	1.05	0.048	0.587	0.048	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.048
0.8	6.40	0.00	1.20	0.052	1.468	0.052	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.052
0.9	7.20	0.00	1.35	0.055	3.180	0.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.055
1.0	8.00	0.00	1.50	0.058	6.181	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058
1.1	8.80	0.00	1.65	0.061	11.064	0.061	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.061
1.2	9.60	0.00	1.80	0.064	18.581	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.064
1.3	10.40	0.00	1.95	0.067	29.653	0.067	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.067
1.4	11.20	0.00	2.10	0.069	45.392	0.069	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.069
1.5	12.00	0.00	2.25	0.072	67.115	0.072	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.072
1.6	12.80	0.00	2.40	0.074	96.364	0.074	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.074
1.7	13.60	0.00	2.55	0.077	134.925	0.077	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.077
1.8	14.40	0.00	2.70	0.079	184.839	0.079	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.079
1.9	15.20	0.00	2.85	0.081	248.427	0.081	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.081
2.0	16.00	0.00	3.00	0.084	328.301	0.084	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.084
2.1	16.80	0.00	3.15	0.086	427.387	0.086	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.086
2.2	17.60	0.00	3.30	0.088	548.936	0.088	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.088
2.3	18.40	0.00	3.45	0.090	696.548	0.090	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090
2.4	19.20	0.00	3.60	0.092	874.186	0.092	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.092
2.5	20.00	0.00	3.75	0.094	1086.192	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.094
2.6	20.80	0.40	3.90	0.096	1337.307	0.096	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.096
2.7	21.60	0.80	4.05	0.098	1632.690	0.098	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.098
2.8	22.40	1.20	4.20	0.099	1977.929	0.099	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.099
2.9	23.20	1.60	4.35	0.101	2379.065	0.101	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.101
3.0	24.00	2.00	4.50	0.103	2842.605	0.103	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.103
3.1	24.80	2.40	4.65	0.105	3375.542	0.105	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.105
3.2	25.60	2.80	4.80	0.106	3985.373	0.106	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.106
3.3	26.40	3.20	4.95	0.108	4680.111	0.108	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.108
3.4	27.20	3.60	5.10	0.110	5468.311	0.110	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.110
3.5	28.00	4.00	5.25	0.111	6359.080	0.111	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.111
3.6	28.80	4.40	5.40	0.113	7362.096	0.113	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.113
3.7	29.60	4.80	5.55	0.115	8487.629	0.115	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.115
3.8	30.40	5.20	5.70	0.116	9746.555	0.116	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.116
3.9	31.20	5.60	5.85	0.118	11150.374	0.118	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.118
4.0	32.00	6.00	6.00	0.119	12711.227	0.119	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.119
4.1	32.80	6.40	6.15	0.121	14441.915	0.121	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.121
4.2	33.60	6.80	6.30	0.122	16355.917	0.122	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.122
4.3	34.40	7.20	6.45	0.124	18467.401	0.124	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.124
4.4	35.20	7.60	6.60	0.125	20791.252	0.125	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.125
4.5	36.00	8.00	6.75	0.127	23343.079	0.127	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.127
4.6	36.80	8.40	6.90	0.128	26139.241	0.128	0.000	0.000	0.000	0.000	0.000	0.000	0.392	0.520
4.7	37.60	8.80	7.05	0.129	29196.856	0.129	0.000	0.000	0.000	0.000	0.000	0.000	1.109	1.238
4.8	38.40	9.20	7.20	0.131	32533.826	0.131	0.000	0.000	0.000	0.000	0.000	0.000	2.038	2.168
4.9	39.20	9.60	7.35	0.132	36168.851	0.132	0.000	0.000	0.000	0.000	0.000	0.000	3.096	3.228
5.0	40.00	10.00	7.50	0.133	40121.445	0.133	0.000	0.000	0.000	0.000	0.000	0.000	3.461	3.595
5.1	40.80	10.40	7.65	0.135	44411.956	0.135	0.000	0.000	0.000	0.000	0.000	0.000	3.792	3.927
5.2	41.60	10.80	7.80	0.136	49061.583	0.136	0.000	0.000	0.000	0.000	0.000	0.000	4.096	4.232
5.3	42.40	11.20	7.95	0.137	54092.390	0.137	0.000	0.000	0.000	0.000	0.000	0.000	4.378	4.516
5.4	43.20	11.60	8.10	0.139	59527.330	0.139	0.000	0.000	0.000	0.000	0.000	0.000	4.644	4.783
5.5	44.00	12.00	8.25	0.140	65390.256	0.140	0.000	0.000	0.000	0.000	0.000	0.000	4.895	5.035
5.6	44.80	12.40	8.40	0.141	71705.942	0.141	0.000	0.000	0.000	0.000	0.000	0.000	5.134	5.276
5.7	45.60	12.80	8.55	0.143	78500.098	0.143	0.000	0.000	0.000	0.000	0.000	0.000	5.362	5.505
5.8	46.40	13.20	8.70	0.144	85799.391	0.144	0.000	0.000	0.000	0.000	0.000	0.000	5.581	5.725
5.9	47.20	13.60	8.85	0.145	93631.457	0.145	0.000	0.000	0.000	0.000	0.000	0.000	5.792	5.937
6.0	48.00	14.00	9.00	0.146	102024.924	0.146	0.000	0.000	0.000	0.000	0.000	0.000	5.995	6.142

Heights/Elevations on this sheet are relative to top of ponding depth.

Cutoff flow from underdrain is added to Qtot for actual flow input in SWMM discharge rating curve.

Basin #12 Discharge
Discharge vs Elevation Table

Low orifice:	2.75 "	Top orifice:	8 "
Number:	1	Number:	0
Cg-low:	0.61	Cg-low:	0.61
invert elev:	0.00 ft	invert elev:	0.00 ft
Middle orifice:	3 "	Emergency inlet:	
number of orif:	1	Rim height:	5.50 ft
Cg-middle:	0.61	Xsect. Area	30.25 sq ft
invert elev:	2.00 ft	Circumference	22.00 ft

<--- 6' x 6'

h (ft)	H/D-low -	H/D-mid -	H/D-top -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qtot-orif (cfs)	Qtot-weir (cfs)	Qtot-top (cfs)	Qemerg (cfs)	Qtot (cfs)
0.0	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.1	0.44	0.00	0.15	0.000	0.015	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015
0.2	0.87	0.00	0.30	0.059	0.052	0.052	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.052
0.3	1.31	0.00	0.45	0.087	0.098	0.087	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.087
0.4	1.75	0.00	0.60	0.108	0.139	0.108	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.108
0.5	2.18	0.00	0.75	0.125	0.166	0.125	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.125
0.6	2.62	0.00	0.90	0.141	0.176	0.141	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.141
0.7	3.05	0.00	1.05	0.154	0.178	0.154	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.154
0.8	3.49	0.00	1.20	0.167	0.196	0.167	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.167
0.9	3.93	0.00	1.35	0.179	0.274	0.179	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.179
1.0	4.36	0.00	1.50	0.190	0.477	0.190	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.190
1.1	4.80	0.00	1.65	0.200	0.898	0.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.200
1.2	5.24	0.00	1.80	0.210	1.661	0.210	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.210
1.3	5.67	0.00	1.95	0.220	2.922	0.220	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.220
1.4	6.11	0.00	2.10	0.229	4.877	0.229	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.229
1.5	6.55	0.00	2.25	0.238	7.764	0.238	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.238
1.6	6.98	0.00	2.40	0.246	11.865	0.246	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.246
1.7	7.42	0.00	2.55	0.254	17.514	0.254	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.254
1.8	7.85	0.00	2.70	0.262	25.096	0.262	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.262
1.9	8.29	0.00	2.85	0.270	35.055	0.270	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.270
2.0	8.73	0.00	3.00	0.277	47.895	0.277	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.277
2.1	9.16	0.40	3.15	0.285	64.185	0.285	0.000	0.016	0.016	0.000	0.000	0.000	0.000	0.300
2.2	9.60	0.80	3.30	0.292	84.563	0.292	0.066	0.056	0.056	0.000	0.000	0.000	0.000	0.347
2.3	10.04	1.20	3.45	0.298	109.740	0.298	0.101	0.108	0.101	0.000	0.000	0.000	0.000	0.399
2.4	10.47	1.60	3.60	0.305	140.502	0.305	0.126	0.158	0.126	0.000	0.000	0.000	0.000	0.431
2.5	10.91	2.00	3.75	0.312	177.717	0.312	0.147	0.195	0.147	0.000	0.000	0.000	0.000	0.459
2.6	11.35	2.40	3.90	0.318	222.334	0.318	0.166	0.215	0.166	0.000	0.000	0.000	0.000	0.484
2.7	11.78	2.80	4.05	0.325	275.392	0.325	0.182	0.220	0.182	0.000	0.000	0.000	0.000	0.507
2.8	12.22	3.20	4.20	0.331	338.023	0.331	0.197	0.224	0.197	0.000	0.000	0.000	0.000	0.528
2.9	12.65	3.60	4.35	0.337	411.450	0.337	0.212	0.258	0.212	0.000	0.000	0.000	0.000	0.549
3.0	13.09	4.00	4.50	0.343	496.999	0.343	0.225	0.369	0.225	0.000	0.000	0.000	0.000	0.568
3.1	13.53	4.40	4.65	0.349	596.099	0.349	0.237	0.624	0.237	0.000	0.000	0.000	0.000	0.586
3.2	13.96	4.80	4.80	0.355	710.283	0.355	0.249	1.117	0.249	0.000	0.000	0.000	0.000	0.604
3.3	14.40	5.20	4.95	0.360	841.198	0.360	0.260	1.965	0.260	0.000	0.000	0.000	0.000	0.621
3.4	14.84	5.60	5.10	0.366	990.603	0.366	0.271	3.318	0.271	0.000	0.000	0.000	0.000	0.637
3.5	15.27	6.00	5.25	0.372	1160.377	0.372	0.282	5.359	0.282	0.000	0.000	0.000	0.000	0.653
3.6	15.71	6.40	5.40	0.377	1352.520	0.377	0.292	8.305	0.292	0.000	0.000	0.000	0.000	0.669
3.7	16.15	6.80	5.55	0.382	1569.160	0.382	0.302	12.416	0.302	0.000	0.000	0.000	0.000	0.684
3.8	16.58	7.20	5.70	0.388	1812.552	0.388	0.311	17.990	0.311	0.000	0.000	0.000	0.000	0.699
3.9	17.02	7.60	5.85	0.393	2085.087	0.393	0.320	25.375	0.320	0.000	0.000	0.000	0.000	0.713
4.0	17.45	8.00	6.00	0.398	2389.292	0.398	0.329	34.963	0.329	0.000	0.000	0.000	0.000	0.727
4.1	17.89	8.40	6.15	0.403	2727.836	0.403	0.338	47.201	0.338	0.000	0.000	0.000	0.000	0.741
4.2	18.33	8.80	6.30	0.408	3103.532	0.408	0.346	62.590	0.346	0.000	0.000	0.000	0.000	0.754
4.3	18.76	9.20	6.45	0.413	3519.345	0.413	0.354	81.687	0.354	0.000	0.000	0.000	0.000	0.767
4.4	19.20	9.60	6.60	0.418	3978.389	0.418	0.362	105.112	0.362	0.000	0.000	0.000	0.000	0.780
4.5	19.64	10.00	6.75	0.423	4483.936	0.423	0.370	133.548	0.370	0.000	0.000	0.000	0.000	0.793
4.6	20.07	10.40	6.90	0.428	5039.420	0.428	0.378	167.745	0.378	0.000	0.000	0.000	0.000	0.806
4.7	20.51	10.80	7.05	0.432	5648.437	0.432	0.386	208.523	0.386	0.000	0.000	0.000	0.000	0.818
4.8	20.95	11.20	7.20	0.437	6314.752	0.437	0.393	256.775	0.393	0.000	0.000	0.000	0.000	0.830
4.9	21.38	11.60	7.35	0.442	7042.301	0.442	0.400	313.470	0.400	0.000	0.000	0.000	0.000	0.842
5.0	21.82	12.00	7.50	0.446	7835.197	0.446	0.407	379.658	0.407	0.000	0.000	0.000	0.000	0.854
5.1	22.25	12.40	7.65	0.451	8697.732	0.451	0.414	456.469	0.414	0.000	0.000	0.000	0.000	0.865
5.2	22.69	12.80	7.80	0.455	9634.382	0.455	0.421	545.119	0.421	0.000	0.000	0.000	0.000	0.877
5.3	23.13	13.20	7.95	0.460	10649.808	0.460	0.428	646.915	0.428	0.000	0.000	0.000	0.000	0.888
5.4	23.56	13.60	8.10	0.464	11748.863	0.464	0.435	763.251	0.435	0.000	0.000	0.000	0.000	0.899
5.5	24.00	14.00	8.25	0.469	12936.597	0.469	0.441	895.620	0.441	0.000	0.000	0.000	0.000	0.910
5.6	24.44	14.40	8.40	0.473	14218.255	0.473	0.448	1045.610	0.448	0.000	0.000	0.000	2.157	3.078
5.7	24.87	14.80	8.55	0.477	15599.288	0.477	0.454	1214.911	0.454	0.000	0.000	0.000	6.100	7.032
5.8	25.31	15.20	8.70	0.481	17085.350	0.481	0.461	1405.316	0.461	0.000	0.000	0.000	11.206	12.148
5.9	25.75	15.60	8.85	0.486	18682.306	0.486	0.467	1618.727	0.467	0.000	0.000	0.000	17.253	18.206
6.0	26.18	16.00	9.00	0.490	20396.237	0.490	0.473	1857.153	0.473	0.000	0.000	0.000	24.112	25.075
6.1	26.62	16.40	9.15	0.494	22233.440	0.494	0.479	2122.719	0.479	0.000	0.000	0.000	31.696	32.670
6.2	27.05	16.80	9.30	0.498	24200.433	0.498	0.485	2417.664	0.485	0.000	0.000	0.000	39.942	40.925
6.3	27.49	17.20	9.45	0.502	26303.960	0.502	0.491	2744.347	0.491	0.000	0.000	0.000	48.800	49.793
6.4	27.93	17.60	9.60	0.506	28550.994	0.506	0.497	3105.250	0.497	0.000	0.000	0.000	58.230	59.233
6.5	28.36	18.00	9.75	0.510	30948.742	0.510	0.503	3502.979	0.503	0.000	0.000	0.000	68.200	69.213

6.6	28.80	18.40	9.90	0.514	33504.647	0.514	0.508	3940.271	0.508	0.000	0.000	0.000	78.682	79.704
6.7	29.24	18.80	10.05	0.518	36226.393	0.518	0.514	4419.990	0.514	0.000	0.000	0.000	89.651	90.683
6.8	29.67	19.20	10.20	0.522	39121.907	0.522	0.520	4945.140	0.520	0.000	0.000	0.000	101.088	102.130
6.9	30.11	19.60	10.35	0.526	42199.367	0.526	0.525	5518.859	0.525	0.000	0.000	0.000	112.973	114.025
7.0	30.55	20.00	10.50	0.530	45467.201	0.530	0.531	6144.428	0.531	0.000	0.000	0.000	125.291	126.352

Heights/Elevations on this sheet are relative to top of ponding depth.

Cutoff flow from underdrain is added to Qtot for actual flow input in SWMM discharge rating curve.

Basin #13 Discharge

Discharge vs Elevation Table

Low orifice: 2 "	Top orifice: 14 "
Number: 1	Number: 0
Cg-low: 0.61	Cg-low: 0.61
invert elev: 0.00 ft	invert elev: 6.50 ft
Middle orifice: 3 "	Emergency inlet:
number of orif: 0	Rim height: 4.50 ft
Cg-middle: 0.61	Area: 9.00 sq ft
invert elev: 2.50 ft	Circumference: 12.00 ft

h (ft)	H/D-low	H/D-mid	H/D-top	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qtot-orif (cfs)	Qtot-weir (cfs)	Qtot-top (cfs)	Qemerg (cfs)	Qtot (cfs)
0.0	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.1	0.60	0.00	0.00	0.014	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012
0.2	1.20	0.00	0.00	0.036	0.039	0.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.036
0.3	1.80	0.00	0.00	0.050	0.065	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050
0.4	2.40	0.00	0.00	0.060	0.078	0.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.060
0.5	3.00	0.00	0.00	0.069	0.080	0.069	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.069
0.6	3.60	0.00	0.00	0.077	0.094	0.077	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.077
0.7	4.20	0.00	0.00	0.084	0.172	0.084	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.084
0.8	4.80	0.00	0.00	0.090	0.405	0.090	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090
0.9	5.40	0.00	0.00	0.097	0.932	0.097	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.097
1.0	6.00	0.00	0.00	0.102	1.945	0.102	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.102
1.1	6.60	0.00	0.00	0.108	3.700	0.108	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.108
1.2	7.20	0.00	0.00	0.113	6.528	0.113	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.113
1.3	7.80	0.00	0.00	0.118	10.838	0.118	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.118
1.4	8.40	0.00	0.00	0.123	17.129	0.123	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.123
1.5	9.00	0.00	0.00	0.127	25.996	0.127	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.127
1.6	9.60	0.00	0.00	0.132	38.144	0.132	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.132
1.7	10.20	0.00	0.00	0.136	54.389	0.136	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.136
1.8	10.80	0.00	0.00	0.140	75.670	0.140	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.140
1.9	11.40	0.00	0.00	0.144	103.061	0.144	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.144
2.0	12.00	0.00	0.00	0.148	137.773	0.148	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.148
2.1	12.60	0.00	0.00	0.152	181.166	0.152	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.152
2.2	13.20	0.00	0.00	0.155	234.757	0.155	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.155
2.3	13.80	0.00	0.00	0.159	300.229	0.159	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.159
2.4	14.40	0.00	0.00	0.163	379.439	0.163	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.163
2.5	15.00	0.00	0.00	0.166	474.424	0.166	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.166
2.6	15.60	0.40	0.00	0.169	587.416	0.169	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.169
2.7	16.20	0.80	0.00	0.173	720.842	0.173	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.173
2.8	16.80	1.20	0.00	0.176	877.340	0.176	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.176
2.9	17.40	1.60	0.00	0.179	1059.762	0.179	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.179
3.0	18.00	2.00	0.00	0.182	1271.187	0.182	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.182
3.1	18.60	2.40	0.00	0.185	1514.925	0.185	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.185
3.2	19.20	2.80	0.00	0.189	1794.529	0.189	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.189
3.3	19.80	3.20	0.00	0.192	2113.801	0.192	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.192
3.4	20.40	3.60	0.00	0.194	2476.804	0.194	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.194
3.5	21.00	4.00	0.00	0.197	2887.865	0.197	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.197
3.6	21.60	4.40	0.00	0.200	3351.588	0.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.200
3.7	22.20	4.80	0.00	0.203	3872.861	0.203	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.203
3.8	22.80	5.20	0.00	0.206	4456.865	0.206	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.206
3.9	23.40	5.60	0.00	0.209	5109.082	0.209	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.209
4.0	24.00	6.00	0.00	0.211	5835.302	0.211	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.211
4.1	24.60	6.40	0.00	0.214	6641.633	0.214	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.214
4.2	25.20	6.80	0.00	0.217	7534.513	0.217	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.217
4.3	25.80	7.20	0.00	0.219	8520.709	0.219	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.219
4.4	26.40	7.60	0.00	0.222	9607.337	0.222	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.222
4.5	27.00	8.00	0.00	0.224	10801.861	0.224	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.224
4.6	27.60	8.40	0.00	0.227	12112.107	0.227	0.000	0.000	0.000	0.000	0.000	0.000	1.176	1.403
4.7	28.20	8.80	0.00	0.229	13546.268	0.229	0.000	0.000	0.000	0.000	0.000	0.000	3.327	3.557
4.8	28.80	9.20	0.00	0.232	15112.917	0.232	0.000	0.000	0.000	0.000	0.000	0.000	6.113	6.345
4.9	29.40	9.60	0.00	0.234	16821.011	0.234	0.000	0.000	0.000	0.000	0.000	0.000	9.411	9.645
5.0	30.00	10.00	0.00	0.237	18679.901	0.237	0.000	0.000	0.000	0.000	0.000	0.000	13.152	13.389
5.1	30.60	10.40	0.00	0.239	20699.342	0.239	0.000	0.000	0.000	0.000	0.000	0.000	17.289	17.528
5.2	31.20	10.80	0.00	0.242	22889.497	0.242	0.000	0.000	0.000	0.000	0.000	0.000	21.787	22.028
5.3	31.80	11.20	0.00	0.244	25260.953	0.244	0.000	0.000	0.000	0.000	0.000	0.000	26.618	26.862
5.4	32.40	11.60	0.00	0.246	27824.722	0.246	0.000	0.000	0.000	0.000	0.000	0.000	31.762	32.008
5.5	33.00	12.00	0.00	0.249	30592.253	0.249	0.000	0.000	0.000	0.000	0.000	0.000	37.200	37.449
5.6	33.60	12.40	0.00	0.251	33575.441	0.251	0.000	0.000	0.000	0.000	0.000	0.000	42.917	43.168
5.7	34.20	12.80	0.00	0.253	36786.633	0.253	0.000	0.000	0.000	0.000	0.000	0.000	48.262	48.515
5.8	34.80	13.20	0.00	0.255	40238.640	0.255	0.000	0.000	0.000	0.000	0.000	0.000	50.233	50.488
5.9	35.40	13.60	0.00	0.258	43944.741	0.258	0.000	0.000	0.000	0.000	0.000	0.000	52.129	52.387
6.0	36.00	14.00	0.00	0.260	47918.696	0.260	0.000	0.000	0.000	0.000	0.000	0.000	53.959	54.218

Heights/Elevations on this sheet are relative to top of ponding depth.

Cutoff flow from underdrain is added to Qtot for actual flow input in SWMM discharge rating curve.

Basin #14 Discharge

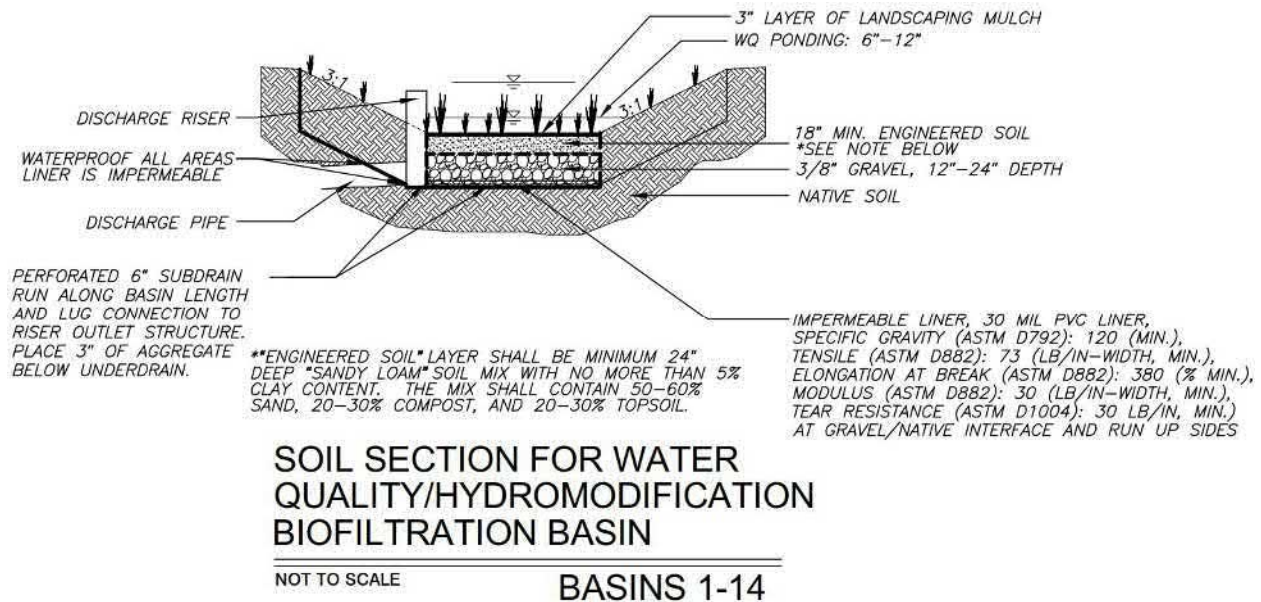
Discharge vs Elevation Table

Low orifice:	1 "	Top orifice:	8 "
Number:	1	Number:	0
Cg-low:	0.61	Cg-low:	0.61
invert elev:	0.00 ft	invert elev:	0.00 ft
Middle orifice:	3 "	Emergency inlet:	
number of orif:	0	Rim height:	3.00 ft
Cg-middle:	0.61	Xsect. Area	1.00 sq ft
invert elev:	2.00 ft	Circumference	4.00 ft

<--- 1' x 1'

h (ft)	H/D-low -	H/D-mid -	H/D-top -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qtop-orif (cfs)	Qtop-weir (cfs)	Qtot-top (cfs)	Qemerg (cfs)	Qtot (cfs)
0.0	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.1	1.20	0.00	0.15	0.006	0.007	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006
0.2	2.40	0.00	0.30	0.011	0.014	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
0.3	3.60	0.00	0.45	0.014	0.017	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014
0.4	4.80	0.00	0.60	0.016	0.072	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016
0.5	6.00	0.00	0.75	0.018	0.344	0.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018
0.6	7.20	0.00	0.90	0.020	1.154	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020
0.7	8.40	0.00	1.05	0.022	3.028	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.022
0.8	9.60	0.00	1.20	0.023	6.743	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.023
0.9	10.80	0.00	1.35	0.025	13.377	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.025
1.0	12.00	0.00	1.50	0.026	24.355	0.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.026
1.1	13.20	0.00	1.65	0.027	41.500	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.027
1.2	14.40	0.00	1.80	0.029	67.076	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.029
1.3	15.60	0.00	1.95	0.030	103.841	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030
1.4	16.80	0.00	2.10	0.031	155.093	0.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.031
1.5	18.00	0.00	2.25	0.032	224.716	0.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.032
1.6	19.20	0.00	2.40	0.033	317.231	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.033
1.7	20.40	0.00	2.55	0.034	437.841	0.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.034
1.8	21.60	0.00	2.70	0.035	592.483	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.035
1.9	22.80	0.00	2.85	0.036	787.870	0.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.036
2.0	24.00	0.00	3.00	0.037	1031.545	0.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.037
2.1	25.20	0.40	3.15	0.038	1331.926	0.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.038
2.2	26.40	0.80	3.30	0.039	1698.353	0.039	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.039
2.3	27.60	1.20	3.45	0.040	2141.138	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040
2.4	28.80	1.60	3.60	0.041	2671.612	0.041	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.041
2.5	30.00	2.00	3.75	0.042	3302.171	0.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.042
2.6	31.20	2.40	3.90	0.043	4046.330	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.043
2.7	32.40	2.80	4.05	0.044	4918.762	0.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.044
2.8	33.60	3.20	4.20	0.044	5935.356	0.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.044
2.9	34.80	3.60	4.35	0.045	7113.254	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.045
3.0	36.00	4.00	4.50	0.046	8470.909	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.046
3.1	37.20	4.40	4.65	0.047	10028.126	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.392	0.439
3.2	38.40	4.80	4.80	0.047	11806.115	0.047	0.000	0.000	0.000	0.000	0.000	0.000	1.109	1.157
3.3	39.60	5.20	4.95	0.048	13827.533	0.048	0.000	0.000	0.000	0.000	0.000	0.000	2.038	2.086
3.4	40.80	5.60	5.10	0.049	16116.538	0.049	0.000	0.000	0.000	0.000	0.000	0.000	3.096	3.145
3.5	42.00	6.00	5.25	0.050	18698.833	0.050	0.000	0.000	0.000	0.000	0.000	0.000	3.461	3.511
3.6	43.20	6.40	5.40	0.050	21601.716	0.050	0.000	0.000	0.000	0.000	0.000	0.000	3.792	3.842
3.7	44.40	6.80	5.55	0.051	24854.127	0.051	0.000	0.000	0.000	0.000	0.000	0.000	4.096	4.147
3.8	45.60	7.20	5.70	0.052	28486.694	0.052	0.000	0.000	0.000	0.000	0.000	0.000	4.378	4.430
3.9	46.80	7.60	5.85	0.052	32531.786	0.052	0.000	0.000	0.000	0.000	0.000	0.000	4.644	4.696
4.0	48.00	8.00	6.00	0.053	37023.556	0.053	0.000	0.000	0.000	0.000	0.000	0.000	4.895	4.948

SECTION 3 – Biofiltration Basin Typical Detail



SECTION 4 – SWMM Input Data (Existing and Proposed Models

Village 14 POC 1 DMA Calculations					
Pre-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
1	Natural	0%	590.31	590.31	0.00
1	Residential	40%	0.00	0.00	0.00
1	Roadway/road slope	65%	0.00	0.00	0.00
1	Total	0%	590.31	590.31	0.00
Village 14 POC 1 DMA Calculations					
Post-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
1-Direct	Natural	0%	479.58	479.58	0.00
1-Direct	Residential-Roadway	40%	0.00	0.00	0.00
1-Direct	Roadway/road slope	80%	0.00	0.00	0.00
1-Direct	1-Direct-Total	0%	479.58	479.58	0.00
1-Basin	Slope - Developed	0%	1.35	1.35	0.00
1-Basin	Basin	0%	2.99	2.99	0.00
1-Basin	Roof/ Street/Sdwk/landscape	44.7%	188.89	104.48	84.41
1-Basin	1-Basin-Total	43.7%	193.23	108.82	84.41
1-Total	1-Total-Total	12.5%	672.81	588.40	84.41

Village 14 POC1 Watershed Parameters		
POC1ExArea		
L=	10774	ft
A=	590.31	ac
% Impervious	0%	
W=	2387	ft
US Elev=	1910	ft
DS Elev=	620	ft
S=	12%	
POC1PRDevArea		
L=	8122	ft
A=	190.24	ac
% Impervious	44.4%	
W=	1020	ft
US Elev=	998	ft
DS Elev=	690	ft
S=	3.8%	
POC1PRBasin		
L=	450	ft
A=	2.99	ac
W=	289	
US Elev=	654.00	ft
DS Elev=	653.50	ft
S=	0.1%	
POC1PrBypass		
L=	6495	ft
A=	215.51	ac
% Impervious	0%	
W=	1445	ft
US Elev=	1540	ft
DS Elev=	655	ft
S=	13.6%	

Village 14 POC 1- BASIN 13 DMA Calculations

Post-Developed Condition

POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
1-Basin 13	Slope - Developed	0%	1.85	1.85	0.00
1-Basin 13	Basin	0%	1.05	1.05	0.00
1-Basin 13	Roof/ Street/Sdwk/landscape	62.65%	21.61	8.07	13.54
1-Basin 13	1-Basin-Total	55.2%	24.51	10.97	13.54

<u>Village 14 POC1 BASIN 13 Watershed Parameters</u>		
POC1, Basin 13PRDevArea		
L=	3388	ft
A=	23.46	ac
% Impervious	57.7%	
W=	302	ft
US Elev=	999	ft
DS Elev=	768	ft
S=	6.8%	
POC1, Basin 13PRBasin		
L=	344	ft
A=	1.05	ac
W=	133	
US Elev=	734.00	ft
DS Elev=	733.60	ft
S=	0.1%	

Village 14 POC 2 DMA Calculations					
Pre-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
2	Natural	0%	431.84	431.84	0.00
2	Residential	40%	0.00	0.00	0.00
2	Roadway/road slope	65%	0.00	0.00	0.00
2	Total	0%	431.84	431.84	0.00
Village 14 POC 2 DMA Calculations					
Post-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
2-Direct	Natural	0%	328.68	328.68	0.00
2-Direct	Residential-Roadway	40%	0.00	0.00	0.00
2-Direct	Roadway/road slope	80%	0.00	0.00	0.00
2-Direct	Direct-Total	N/A	328.68	328.68	0.00
2-Basin	Slope - Developed	0%	0.97	0.97	0.00
2-Basin	Basin	0%	2.09	2.09	0.00
2-Basin	Roof/ Street/Sdwk/landscape	51.7%	158.17	76.33	81.84
2-Basin	Basin-Total	N/A	161.23	79.39	81.84
2-Total	Total-Total	N/A	489.91	408.07	81.84

Village 14 POC2 Watershed Parameters		
POC2ExArea		
L=	8855	ft
A=	431.84	ac
% Impervious	0%	
W=	2124	ft
US Elev=	1870	ft
DS Elev=	570	ft
S=	14.7%	
POC2PRDevArea		
L=	4731	ft
A=	159.14	ac
% Impervious	51.4%	
W=	1465	ft
US Elev=	709	ft
DS Elev=	596	ft
S=	2.4%	
POC2PRBasin		
L=	535	ft
A=	2.09	ac
W=	170	
US Elev=	580.00	ft
DS Elev=	579.20	ft
S=	0.1%	
POC2PrBypass		
L=	9468	ft
A=	328.68	ac
% Impervious	0%	
W=	1512	ft
US Elev=	1870	ft
DS Elev=	570	ft
S=	13.7%	

Village 14 POC 3 DMA Calculations					
Pre-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
3	Natural	0%	10.62	10.62	0.00
3	Residential	40%	0.00	0.00	0.00
3	Roadway/road slope	100%	0.00	0.00	0.00
3	Total	0%	10.62	10.62	0.00
Village 14 POC 3 DMA Calculations					
Post-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
3-Direct	Natural	0%	6.45	6.45	0.00
3-Direct	Residential-Roadway	40.0%	0.00	0.00	0.00
3-Direct	Roadway/road slope	60.0%	0.00	0.00	0.00
3-Direct	3-Direct-Total	N/A	6.45	6.45	0.00
3-Basin	Pervious areas	0%	0.42	0.42	0.00
3-Basin	Basin	0%	0.21	0.21	0.00
3-Basin	Roof/ Street/Sdwk/landscape	85.00%	4.00	0.60	3.40
3-Basin	3-Basin-Total	73%	4.63	1.23	3.40
3-Total	3-Total-Total	N/A	11.08	7.68	3.40

Village 14 POC3 Watershed Parameters		
POC3ExArea		
L=	1795	ft
A=	10.62	ac
% Impervious	0%	
W=	258	ft
US Elev=	605	ft
DS Elev=	565	ft
S=	2.23%	
POC3PRDevArea		
L=	1805	ft
A=	4.42	ac
% Impervious	76.9%	
W=	107	ft
US Elev=	595	ft
DS Elev=	577	ft
S=	0.99%	
POC3PRBasin		
L=	50	ft
A=	0.21	ac
W=	183	
US Elev=	570.00	ft
DS Elev=	569.95	ft
S=	0.1%	
POC3PRBypass		
L=	1835	ft
A=	6.45	ac
% Impervious	0.00%	
W=	153	ft
US Elev=	595	ft
DS Elev=	565	ft
S=	1.63%	

Village 14 POC 4 DMA Calculations					
Pre-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
4	Natural	0%	18.32	18.32	0.00
4	Residential	40%	0.00	0.00	0.00
4	Roadway/road slope	100%	0.00	0.00	0.00
4	Total	0%	18.32	18.32	0.00
Village 14 POC 4 DMA Calculations					
Post-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
4-Direct	Natural	0%	15.97	15.97	0.00
4-Direct	Residential-Roadway	40.0%	0.00	0.00	0.00
4-Direct	Roadway/road slope	60.0%	0.00	0.00	0.00
4-Direct	4-Direct-Total	N/A	15.97	15.97	0.00
4-Basin	Pervious areas	0%	0.10	0.10	0.00
4-Basin	Basin	0%	0.08	0.08	0.00
4-Basin	Roof/ Street/Sdwk/landscape	85.0%	3.29	0.49	2.80
4-Basin	4-Basin-Total	81%	3.47	0.67	2.80
4-Total	4-Total-Total	N/A	19.44	16.64	2.80

Village 14 POC4 Watershed Parameters		
POC4ExArea		
L=	1515	ft
A=	18.32	ac
% Impervious	0%	
W=	527	ft
US Elev=	715	ft
DS Elev=	545	ft
S=	11.22%	
POC4PrDevArea		
L=	1546	ft
A=	3.39	ac
% Impervious	82.5%	
W=	96	ft
US Elev=	585	ft
DS Elev=	570	ft
S=	1.00%	
POC4PRBasin		
L=	60	ft
A=	0.08	ac
W=	58	
US Elev=	562.50	ft
DS Elev=	562.45	ft
S=	0.1%	
POC4PRBypass		
L=	1515	ft
A=	15.97	ac
% Impervious	0.00%	
W=	459	ft
US Elev=	715	ft
DS Elev=	545	ft
S=	11.22%	

Village 14 POC 5 DMA Calculations					
Pre-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
5	Natural	0%	179.14	179.14	0.00
5	Residential-Rolling Hills	10%	915.59	824.03	91.56
5	Roadway/road slope	85%	0.00	0.00	0.00
5	Total	8%	1094.73	1003.17	91.56
Village 14 POC 5 DMA Calculations					
Post-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
5-Direct	Natural	0%	175.16	175.16	0.00
5-Direct	Residential-rolling Hills	10.0%	915.59	824.03	91.56
5-Direct	Roadway/road slope	60.0%	0.00	0.00	0.00
5-Direct	1-Direct-Total	8%	1090.75	999.19	91.56
5-Basin	Pervious areas	0%	1.69	1.69	0.00
5-Basin	Basin	0%	0.12	0.12	0.00
5-Basin	Roof/ Street/Sdwk/landscape	80.00%	4.83	0.97	3.86
5-Basin	1-Basin-Total	58%	6.64	2.78	3.86
5-Total	1-Total-Total	N/A	1097.39	1001.97	95.42

Village 14 POC5 Watershed Parameters		
POC5EXArea		
L=	15353	ft
A=	1094.73	ac
% Impervious	8%	
W=	3106	ft
US Elev=	2560	ft
DS Elev=	544	ft
S=	13.13%	
POC5DevArea		
L=	1938	ft
A=	6.52	ac
% Impervious	59.3%	
W=	147	ft
US Elev=	625	ft
DS Elev=	563	ft
S=	3.20%	
POC5PRBasin		
L=	73	ft
A=	0.12	ac
W=	72	
US Elev=	555.00	ft
DS Elev=	554.95	ft
S=	0.1%	
POC5PRBypass		
L=	15353	ft
A=	1090.75	ac
% Impervious	8%	
W=	3095	ft
US Elev=	2560	ft
DS Elev=	544	ft
S=	13.13%	

Village 14 POC 6 DMA Calculations					
Pre-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
6	Natural	0%	31.56	31.56	0.00
6	Residential	15%	0.00	0.00	0.00
6	Roadway/road slope	65%	0.00	0.00	0.00
6	Total	0%	31.56	31.56	0.00
Village 14 POC 6 DMA Calculations					
Post-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
6-Direct	Natural	0%	21.53	21.53	0.00
6-Direct	Residential-Roadway	15%	0.00	0.00	0.00
6-Direct	Roadway/road slope	80%	0.00	0.00	0.00
6-Direct	6-Direct-Total	N/A	21.53	21.53	0.00
6-Basin	Slope - Developed	0%	1.65	1.65	0.00
6-Basin	Basin	0%	0.10	0.10	0.00
6-Basin	Road	100%	0.06	0.00	0.06
6-Basin	Estate	25.0%	9.55	7.16	2.39
6-Basin	6-Basin-Total	21.54%	11.36	8.91	2.45
6-Total	6-Total-Total	7.4%	32.89	30.44	2.45

Village 14 POC6 Watershed Parameters		
POC6ExArea		
L=	1603	ft
A=	31.56	ac
% Impervious	0%	
W=	858	ft
US Elev=	1164	ft
DS Elev=	1028	ft
S=	8.5%	
POC6PRDevArea		
L=	2905	ft
A=	11.26	ac
% Impervious	21.7%	
W=	169	ft
US Elev=	1270	ft
DS Elev=	1050	ft
S=	7.6%	
POC6PRBasin		
L=	150	ft
A=	0.10	ac
W=	29	
US Elev=	1040.00	ft
DS Elev=	1039.80	ft
S=	0.1%	
POC6PrBypass		
L=	1603	ft
A=	21.53	ac
% Impervious	0%	
W=	585	ft
US Elev=	1164	ft
DS Elev=	1028	ft
S=	8.5%	

Village 14 POC 7 DMA Calculations					
Pre-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
7	Natural	0%	33.72	33.72	0.00
7	Residential	15%	0.00	0.00	0.00
7	Roadway/road slope	65%	0.00	0.00	0.00
7	Total	0%	33.72	33.72	0.00
Village 14 POC 7 DMA Calculations					
Post-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
7-Direct	Natural	0%	30.05	30.05	0.00
7-Direct	Residential-Roadway	15%	0.00	0.00	0.00
7-Direct	Roadway/road slope	100%	0.00	0.00	0.00
7-Direct	7-Direct-Total	N/A	30.05	30.05	0.00
7-Basin	Slope - Developed	0%	0.37	0.37	0.00
7-Basin	Basin	0%	0.09	0.09	0.00
7-Basin	Road	100%	0.77	0.00	0.77
7-Basin	Residential	25.0%	5.50	4.13	1.38
7-Basin	7-Basin-Total	31.87%	6.73	4.59	2.15
7-Total	7-Total-Total	5.8%	36.78	34.64	2.15

Village 14 POC7 Watershed Parameters		
POC7ExArea		
L=	1394	ft
A=	33.72	ac
% Impervious	0%	
W=	1054	ft
US Elev=	1340	ft
DS Elev=	1040	ft
S=	21.5%	
POC7PRDevArea		
L=	1620	ft
A=	6.64	ac
% Impervious	32.3%	
W=	179	ft
US Elev=	1318	ft
DS Elev=	1290	ft
S=	1.7%	
POC7PRBasin		
L=	65	ft
A=	0.09	ac
W=	60	
US Elev=	1290.00	ft
DS Elev=	1289.95	ft
S=	0.1%	
POC7PrBypass		
L=	1533	ft
A=	30.05	ac
% Impervious	0%	
W=	854	ft
US Elev=	1290	ft
DS Elev=	1040	ft
S=	16.3%	

Village 14 POC 8 DMA Calculations					
Pre-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
1	Natural	0%	19.21	19.21	0.00
1	Residential	15%	0.00	0.00	0.00
1	Roadway/road slope	65%	0.00	0.00	0.00
1	Total	0%	19.21	19.21	0.00
Village 14 POC 8 DMA Calculations					
Post-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
1-Direct	Natural	0%	16.47	16.47	0.00
1-Direct	Residential-Roadway	15%	0.00	0.00	0.00
1-Direct	Roadway/road slope	80%	0.00	0.00	0.00
1-Direct	1-Direct-Total	N/A	16.47	16.47	0.00
1-Basin	Slope - Developed	0%	3.46	3.46	0.00
1-Basin	Basin	0%	0.10	0.10	0.00
1-Basin	Road	80%	1.54	0.31	1.23
1-Basin	Residential	25.0%	5.39	4.04	1.35
1-Basin	1-Basin-Total	24.59%	10.49	7.91	2.58
1-Total	1-Total-Total	9.6%	26.96	24.38	2.58

Village 14 POC8 Watershed Parameters		
POC8ExArea		
L=	1317	ft
A=	19.21	ac
% Impervious	0%	
W=	635	ft
US Elev=	1378	ft
DS Elev=	1158	ft
S=	16.7%	
POC8PRDevArea		
L=	2118	ft
A=	10.39	ac
% Impervious	24.8%	
W=	214	ft
US Elev=	1318	ft
DS Elev=	1214	ft
S=	4.9%	
POC8PRBasin		
L=	150	ft
A=	0.10	ac
W=	29	
US Elev=	1210.00	ft
DS Elev=	1209.90	ft
S=	0.1%	
POC8PrBypass		
L=	1477	ft
A=	16.47	ac
% Impervious	0%	
W=	486	ft
US Elev=	1370	ft
DS Elev=	1158	ft
S=	14.4%	

Village 14 POC 9 DMA Calculations					
Pre-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
9	Natural	0%	654.71	654.71	0.00
9	Offsite Residential	15%	102.77	87.35	15.42
9	Roadway/road slope	65%	0.00	0.00	0.00
9	Total	2%	757.48	742.06	15.42
Village 14 POC 9 DMA Calculations					
Post-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
9-Direct	Natural	0%	603.84	603.84	0.00
9-Direct	Residential-Roadway	15%	102.77	87.35	15.42
9-Direct	Roadway/road slope	80%	0.00	0.00	0.00
9-Direct	9-Direct-Total	2%	706.61	691.19	15.42
9-Basin	Slope - Developed	0%	16.34	16.34	0.00
9-Basin	Basin	0%	1.37	1.37	0.00
9-Basin	Road	80%	6.53	1.31	5.22
9-Basin	Residential	25.0%	33.58	25.19	8.40
9-Basin	9-Basin-Total	23.55%	57.82	44.20	13.62
9-Total	9-Total-Total	3.8%	764.43	735.40	29.03

Village 14 POC9 Watershed Parameters		
POC9ExArea		
L=	9823	ft
A=	757.48	ac
% Impervious	2%	
W=	3359	ft
US Elev=	1150	ft
DS Elev=	875	ft
S=	2.8%	
POC9PRDevArea		
L=	3995	ft
A=	56.45	ac
% Impervious	24.1%	
W=	616	ft
US Elev=	1020	ft
DS Elev=	875	ft
S=	3.6%	
POC9PRBasin		
L=	342	ft
A=	1.37	ac
W=	174	
US Elev=	885.00	ft
DS Elev=	884.80	ft
S=	0.1%	
POC9PrBypass		
L=	9573	ft
A=	706.61	ac
% Impervious	2.18%	
W=	3215	ft
US Elev=	1150	ft
DS Elev=	875	ft
S=	2.9%	

Village 14 POC 10 DMA Calculations					
Pre-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
10	Natural	0%	31.69	31.69	0.00
10	Residential	40%	0.00	0.00	0.00
10	Roadway/road slope	65%	0.00	0.00	0.00
10	Total	0%	31.69	31.69	0.00
Village 14 POC 10 DMA Calculations					
Post-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
10-Direct	Natural	0%	26.69	26.69	0.00
1-Direct	Residential-Roadway	40%	0.00	0.00	0.00
10-Direct	Roadway/road slope	80%	0.00	0.00	0.00
10-Direct	10-Direct-Total	N/A	26.69	26.69	0.00
10-Basin	Slope - Developed	0%	0.02	0.02	0.00
10-Basin	Basin	0%	0.13	0.13	0.00
10-Basin	Roof/Sdwk/landscape	39.2%	9.73	5.92	3.81
10-Basin	10-Basin-Total	38.60%	9.88	6.07	3.81
10-Total	10-Total-Total	10.4%	36.57	32.76	3.81

Village 14 POC10 Watershed Parameters		
POC10ExArea		
L=	2192	ft
A=	31.69	ac
% Impervious	0%	
W=	630	ft
US Elev=	1206	ft
DS Elev=	966	ft
S=	10.9%	
POC10PRDevArea		
L=	4182	ft
A=	9.75	ac
% Impervious	39.1%	
W=	102	ft
US Elev=	1366	ft
DS Elev=	1065	ft
S=	7.2%	
POC10PRBasin		
L=	50	ft
A=	0.13	ac
W=	113	
US Elev=	1045.00	ft
DS Elev=	1044.95	ft
S=	0.1%	
POC10PrBypass		
L=	2166	ft
A=	26.69	ac
% Impervious	0%	
W=	537	ft
US Elev=	1206	ft
DS Elev=	966	ft
S=	11.1%	

Village 14 POC 11 DMA Calculations					
Pre-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
11	Natural	0%	637.92	637.92	0.00
11	Residential	40%	0.00	0.00	0.00
11	Roadway/road slope	65%	0.00	0.00	0.00
11	Total	0%	637.92	637.92	0.00
Village 14 POC 11 DMA Calculations					
Post-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
11-Direct	Natural	0%	598.34	598.34	0.00
11-Direct	Residential-Roadway	40%	0.00	0.00	0.00
11-Direct	Roadway/road slope	80%	0.00	0.00	0.00
11-Direct	11-Direct-Total	0%	598.34	598.34	0.00
11-Basin	Slope - Developed	0%	0.12	0.12	0.00
11-Basin	Basin	0%	0.09	0.09	0.00
11-Basin	Roof/ Street/Sdwk/landscape	31.0%	8.27	5.70	2.57
11-Basin	11-Basin-Total	30.3%	8.48	5.91	2.57
11-Total	11-Total-Total		606.82	604.25	2.57

Village 14 POC11 Watershed Parameters		
POC11ExArea		
L=	9790	ft
A=	637.92	ac
% Impervious	0%	
W=	2838	ft
US Elev=	1684	ft
DS Elev=	902	ft
S=	8.0%	
POC11PRDevArea		
L=	1243	ft
A=	8.39	ac
% Impervious	30.6%	
W=	294	ft
US Elev=	985	ft
DS Elev=	930	ft
S=	4.4%	
POC11PRBasin		
L=	117	ft
A=	0.09	ac
W=	34	
US Elev=	925.00	ft
DS Elev=	924.90	ft
S=	0.1%	
POC11PrBypass		
L=	9909	ft
A=	598.34	ac
% Impervious	0%	
W=	2630	ft
US Elev=	1684	ft
DS Elev=	902	ft
S=	7.9%	

Village 14 POC 12 DMA Calculations					
Pre-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
12	Natural	0%	801.97	801.97	0.00
12	Residential	40%	0.00	0.00	0.00
12	Roadway/road slope	65%	0.00	0.00	0.00
12	Total	0%	801.97	801.97	0.00
Village 14 POC 12 DMA Calculations					
Post-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
12-Direct	Natural	0%	745.41	745.41	0.00
12-Direct	Residential-Roadway	40%	0.00	0.00	0.00
12-Direct	Roadway/road slope	70%	3.10	0.93	2.17
12-Direct	12-Direct-Total	0%	748.51	746.34	2.17
12-Basin	Slope - Developed	0%	11.63	11.63	0.00
12-Basin	Basin	0%	0.49	0.49	0.00
12-Basin	Roof/ Street/Sdwk/landscape	37.16%	31.53	19.81	11.72
12-Basin	12-Basin-Total	26.84%	43.65	31.93	11.72
12-Total	12-Total-Total	N/A	792.16	778.27	13.89

Village 14 POC12 Watershed Parameters		
POC12ExArea		
L=	10865	ft
A=	801.97	ac
% Impervious	0%	
W=	3215	ft
US Elev=	1684	ft
DS Elev=	878	ft
S=	7.4%	
POC12PRDevArea		
L=	4992	ft
A=	43.16	ac
% Impervious	27.1%	
W=	377	ft
US Elev=	1060	ft
DS Elev=	914	ft
S=	2.9%	
POC12PRBasin		
L=	535	ft
A=	0.49	ac
W=	40	
US Elev=	580.00	ft
DS Elev=	579.20	ft
S=	0.1%	
POC12PrBypass		
L=	11031	ft
A=	748.51	ac
% Impervious	0.3%	
W=	2956	ft
US Elev=	1684	ft
DS Elev=	878	ft
S=	7.2%	

Village 14 POC 13 DMA Calculations					
Pre-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
13	Natural	0%	26.77	26.77	0.00
13	Residential	40%	0.00	0.00	0.00
13	Roadway/road slope	65%	0.00	0.00	0.00
13	Total	0%	26.77	26.77	0.00
Village 14 POC 13 DMA Calculations					
Post-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
13-Direct	Natural	0%	26.07	26.07	0.00
13-Direct	Residential-Roadway	40%	0.00	0.00	0.00
13-Direct	Roadway/road slope	80%	0.00	0.00	0.00
13-Direct	12-Direct-Total	0%	26.07	26.07	0.00
13-Basin	Slope - Developed	0%	0.05	0.05	0.00
13-Basin	Basin	0%	0.04	0.04	0.00
13-Basin	Roof/ Street/Sdwk/landscape	100.00%	0.96	0.00	0.96
13-Basin	12-Basin-Total	91.43%	1.05	0.09	0.96
13-Total	12-Total-Total	N/A	27.12	26.16	0.96

Village 14 POC13 Watershed Parameters		
POC14ExArea		
L=	1263	ft
A=	26.77	ac
% Impervious	0%	
W=	923	ft
US Elev=	1160	ft
DS Elev=	1030	ft
S=	10.3%	
POC13PRDevArea		
L=	781	ft
A=	1.01	ac
% Impervious	95.0%	
W=	56	ft
US Elev=	1076	ft
DS Elev=	1050	ft
S=	3.3%	
POC13PRBasin		
L=	40	ft
A=	0.04	ac
W=	44	
US Elev=	1046.05	ft
DS Elev=	1046.00	ft
S=	0.1%	
POC13PrBypass		
L=	1263	ft
A=	26.07	ac
% Impervious	0%	
W=	899	ft
US Elev=	1160	ft
DS Elev=	1030	ft
S=	10.3%	

Village 14 POC 14 DMA Calculations					
Pre-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
14	Natural	0%	23.40	23.40	0.00
14	Residential	40%	0.00	0.00	0.00
14	Roadway/road slope	65%	0.00	0.00	0.00
14	Total	0%	23.40	23.40	0.00
Village 14 POC 14 DMA Calculations					
Post-Developed Condition					
POC	Neighborhood	% Imperviousness	Total Area	Pervious Area	Impervious Area
14-Direct	Natural	0%	0.00	0.00	0.00
14-Direct	Residential-Roadway	15%	12.05	10.24	1.81
14-Direct	Roadway/road slope	80%	0.18	0.04	0.14
14-Direct	12-Direct-Total	16%	12.23	10.28	1.95
14-Total	12-Total-Total	N/A	12.23	10.28	1.95

<u>Village 14 POC14 Watershed Parameters</u>		
POC14ExArea		
L=	1263	ft
A=	23.40	ac
% Impervious	0%	
W=	807	ft
US Elev=	985	ft
DS Elev=	888	ft
S=	7.7%	
POC14Pr		
L=	1895	ft
A=	12.23	ac
% Impervious	16%	
W=	281	ft
US Elev=	985	ft
DS Elev=	888	ft
S=	5.1%	

SECTION 5 - SWMM Screens and Explanation of Significant Variables

Attached, are screenshots of 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 from the USGS sources.

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

0.10 (typical)

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

0.05 (typical)

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

0.1 (typical)

%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)

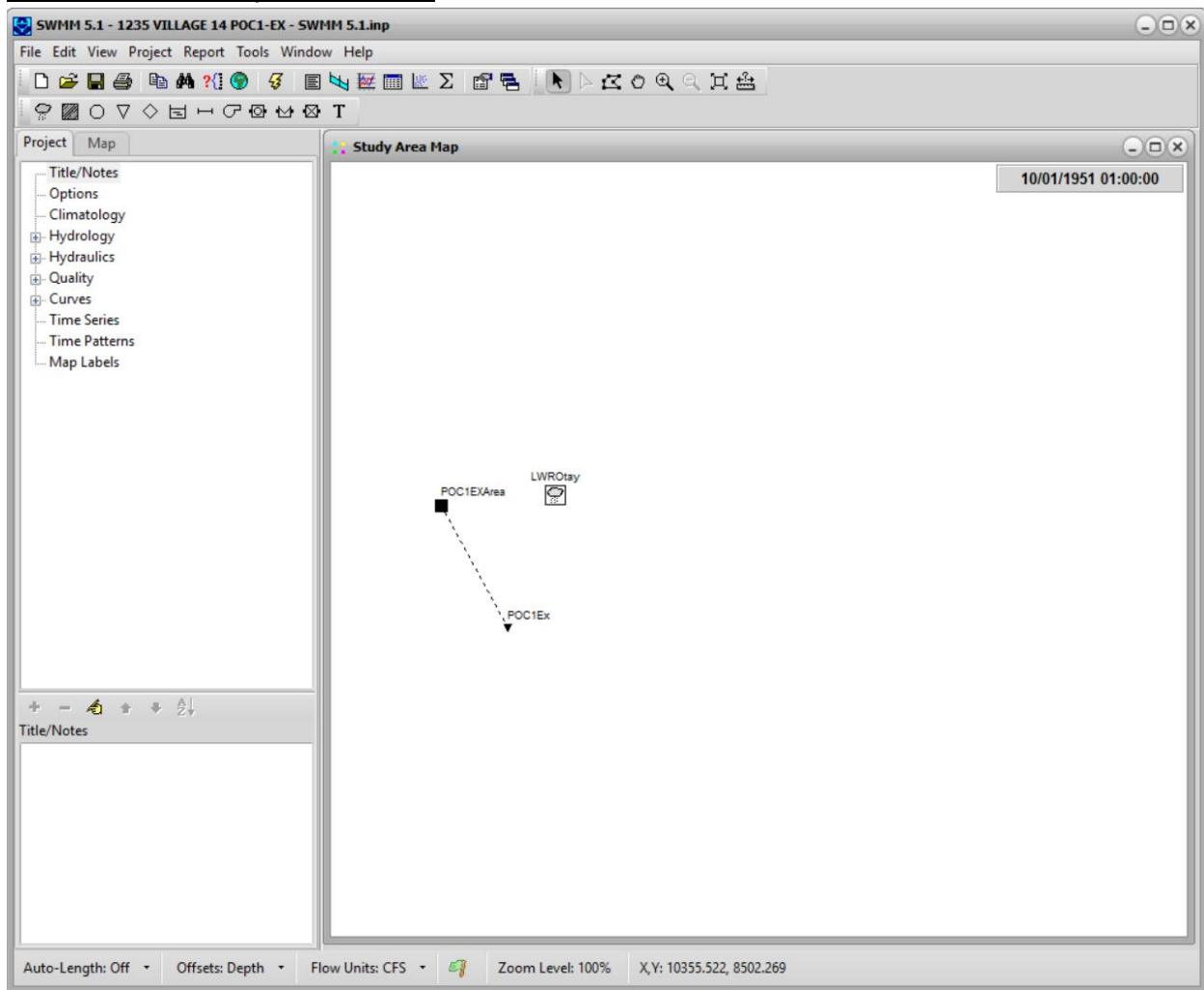
-75% of these values if subcatchment is graded/compacted

Initial Deficit – Initial moisture deficit (fraction)

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

NOTE : These values are based on Maidment's Handbook of Hydrology, Orange County calibrations for SWMM and recommended values from the EPA SWMM program.

POC 1 – Pre-Developed Condition



Rain Gage LWROtay	
Name	LWROtay
X-Coordinate	2384.000
Y-Coordinate	5666.000
Description	
Tag	
Rain Format	INTENSITY
Time Interval	1:00
Snow Catch Factor	1.0
Data Source	TIMESERIES
TIME SERIES:	
- Series Name	LWROtay
DATA FILE:	
- File Name	*
- Station ID	*
- Rain Units	IN
User-assigned name of rain gage	

Outfall POC1Ex	
Property	Value
Name	POC1Ex
X-Coordinate	1740.113
Y-Coordinate	3977.401
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*
User-assigned name of outfall	

Subcatchment POC1EXArea

Name	POC1EXArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Existing Area
Tag	
Rain Gage	LWROtay
Outlet	POC1Ex
Area	590.31
Width	2387
% Slope	12
% Imperv	0
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method
GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33

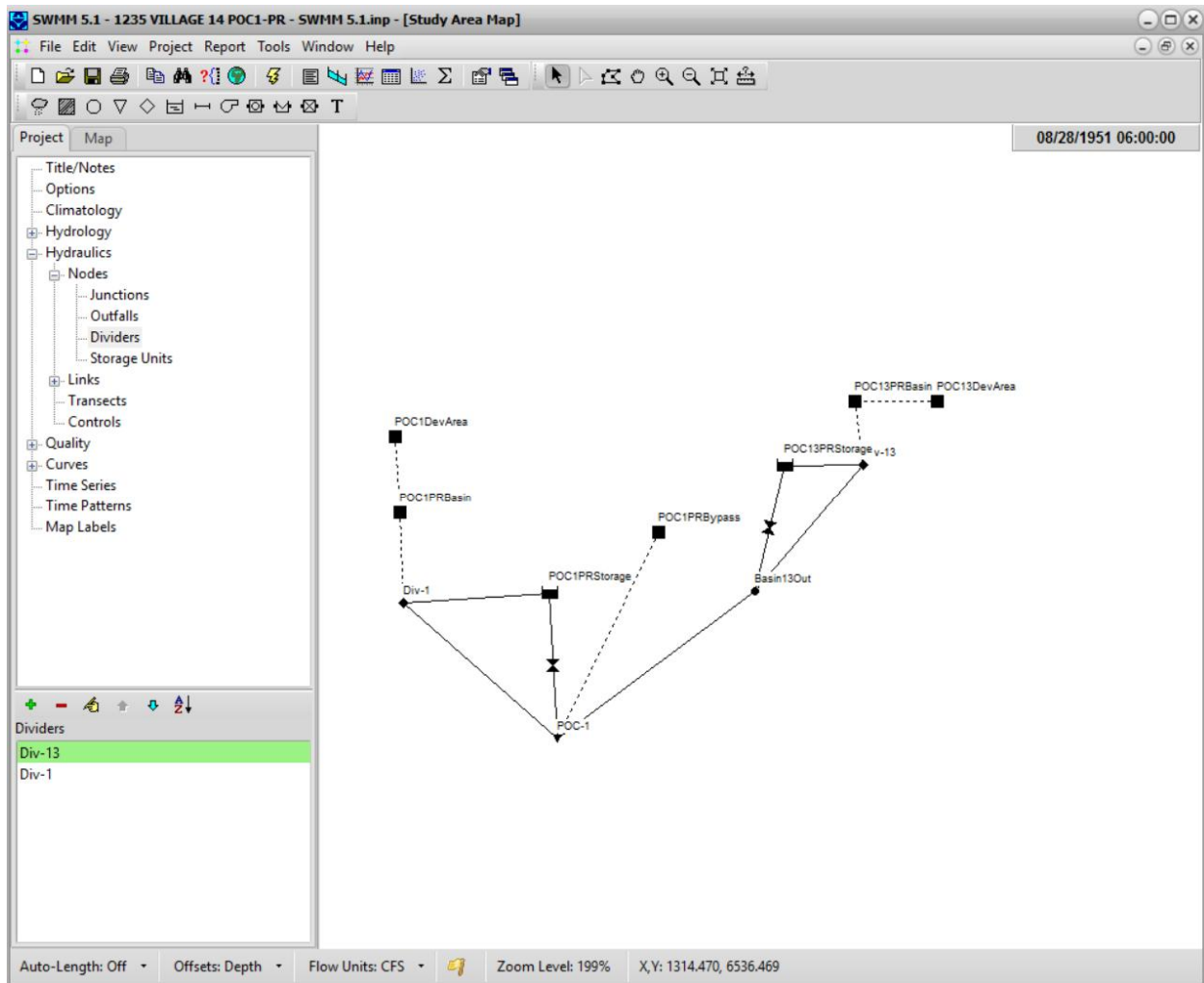
Soil capillary suction head (inches or mm)

OK

Cancel

Help

POC 1 – Developed Condition



Rain Gage LWROtay

Name	LWROtay
X-Coordinate	3190.709
Y-Coordinate	7591.687
Description	
Tag	
Rain Format	INTENSITY
Time Interval	1:00
Snow Catch Factor	1.0
Data Source	TIMESERIES
TIME SERIES:	
- Series Name	LWROtay
DATA FILE:	
- File Name	*
- Station ID	*
- Rain Units	IN

Subcatchment POC1DevArea

Name	POC1DevArea
X-Coordinate	378.973
Y-Coordinate	4718.826
Description	
Tag	
Rain Gage	LWROtay
Outlet	POC1PRBasin
Area	190.24
Width	1020
% Slope	3.8
% Imperv	44.4
N-Imperv	0.012
N-Perv	0.1
Dstore-Imperv	0.05
Dstore-Perv	0.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Subcatchment POC1PRBasin

Name	POC1PRBasin
X-Coordinate	403.423
Y-Coordinate	4254.279
Description	
Tag	
Rain Gage	LWROtay
Outlet	Div-1
Area	2.99
Width	289
% Slope	.1
% Imperv	0
N-Imperv	0.012
N-Perv	0.1
Dstore-Imperv	0.05
Dstore-Perv	0.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	1
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method

GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	0.025
Initial Deficit	.33

Soil capillary suction head (inches or mm)

OK

Cancel

Help

Infiltration Editor

Infiltration Method

GREEN_AMPT

Property	Value
Suction Head	1.5
Conductivity	.3
Initial Deficit	.3

Soil capillary suction head (inches or mm)

OK

Cancel

Help

Subcatchment POC13DevArea	
Name	POC13DevArea
X-Coordinate	3655.257
Y-Coordinate	4926.650
Description	Developed Area Tributary
Tag	
Rain Gage	LWROtay
Outlet	POC13PRBasin
Area	23.46
Width	133
% Slope	6.8
% Imperv	57.7
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Subcatchment POC13PRBasin	
Name	POC13PRBasin
X-Coordinate	3154.034
Y-Coordinate	4926.650
Description	
Tag	
Rain Gage	LWROtay
Outlet	Div-6
Area	1.05
Width	133
% Slope	0.1
% Imperv	0
N-Imperv	0.012
N-Perv	0.1
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	1
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor	
Infiltration Method	GREEN_AMPT
Property	Value
Suction Head	9
Conductivity	0.025
Initial Deficit	0.33
Soil capillary suction head (inches or mm)	
OK Cancel Help	

Infiltration Editor	
Infiltration Method	GREEN_AMPT
Property	Value
Suction Head	1.5
Conductivity	0.3
Initial Deficit	0.3
Soil capillary suction head (inches or mm)	
OK Cancel Help	

Subcatchment POC1PRBypass	
Name	POC1PRBypass
X-Coordinate	1968.215
Y-Coordinate	4132.029
Description	Additional area not tribu
Tag	
Rain Gage	LWROtay
Outlet	POC-1
Area	479.58
Width	2138
% Slope	12.8
% Imperv	0
N-Imperv	0.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor	
Infiltration Method	GREEN_AMPT
Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33
Soil capillary suction head (inches or mm)	
OK Cancel Help	

Storage Unit POC1PRStorage	
Name	POC1PRStorage
X-Coordinate	1308.068
Y-Coordinate	3765.281
Description	Basin #1
Tag	
Inflows	NO
Treatment	NO
Invert El.	653.5
Max. Depth	11.5
Initial Depth	0
Ponded Area	0
Evap. Factor	1
Seepage Loss	NO
Storage Curve	TABULAR
Functional Curve	
Coefficient	1000
Exponent	0
Constant	0
Tabular Curve	
Curve Name	Basin#1
Optional category or classification	

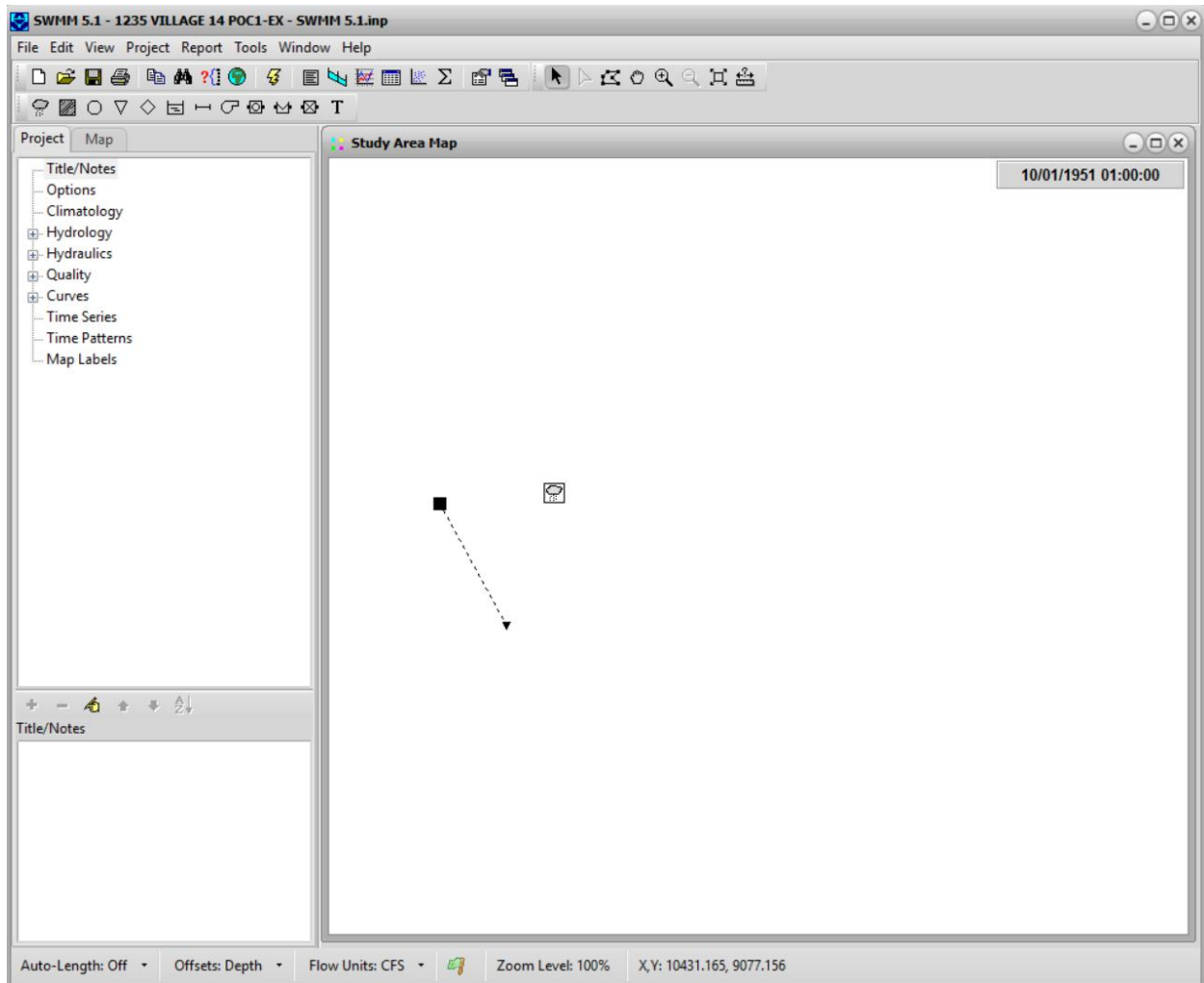
Storage Unit POC13PRStorage	
Name	POC13PRStorage
X-Coordinate	2726.161
Y-Coordinate	4535.452
Description	Basin #13
Tag	
Inflows	NO
Treatment	NO
Invert El.	734.5
Max. Depth	6.5
Initial Depth	0
Ponded Area	165897
Evap. Factor	1
Seepage Loss	NO
Storage Curve	TABULAR
Functional Curve	
Coefficient	1000
Exponent	0
Constant	0
Tabular Curve	
Curve Name	Basin#13
X coordinate of storage unit on study area map	

Divider Div-1	
Property	Value
Name	Div-1
X-Coordinate	427.873
Y-Coordinate	3704.156
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Max. Depth	0
Initial Depth	0
Surcharge Depth	0
Ponded Area	0
Diverted Link	Bypass-1
Type	CUTOFF
Cutoff Divider	
Cutoff Flow	0.65722
Tabular Divider	
Curve Name	*
Weir Divider	
Min. Flow	0
Max. Depth	0
Coefficient	0
User-assigned name of divider	

Divider Div-13	
Name	Div-13
X-Coordinate	3202.934
Y-Coordinate	4547.677
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Max. Depth	0
Initial Depth	0
Surcharge Depth	0
Ponded Area	0
Diverted Link	Bypass-6
Type	CUTOFF
Cutoff Divider	
Cutoff Flow	0.14007
Tabular Divider	
Curve Name	*
Weir Divider	
Min. Flow	0
Max. Depth	0
Coefficient	0
User-assigned name of divider	

Outfall POC-1	
Name	POC-1
X-Coordinate	1356.968
Y-Coordinate	2885.086
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*
User-assigned name of outfall	

POC 2 – Pre-Developed Condition



Subcatchment POC2EXArea

Name	POC2EXArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Existing Area
Tag	
Rain Gage	LWROtay
Outlet	POC2Ex
Area	431.84
Width	2124
% Slope	14.7
% Imperv	0
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

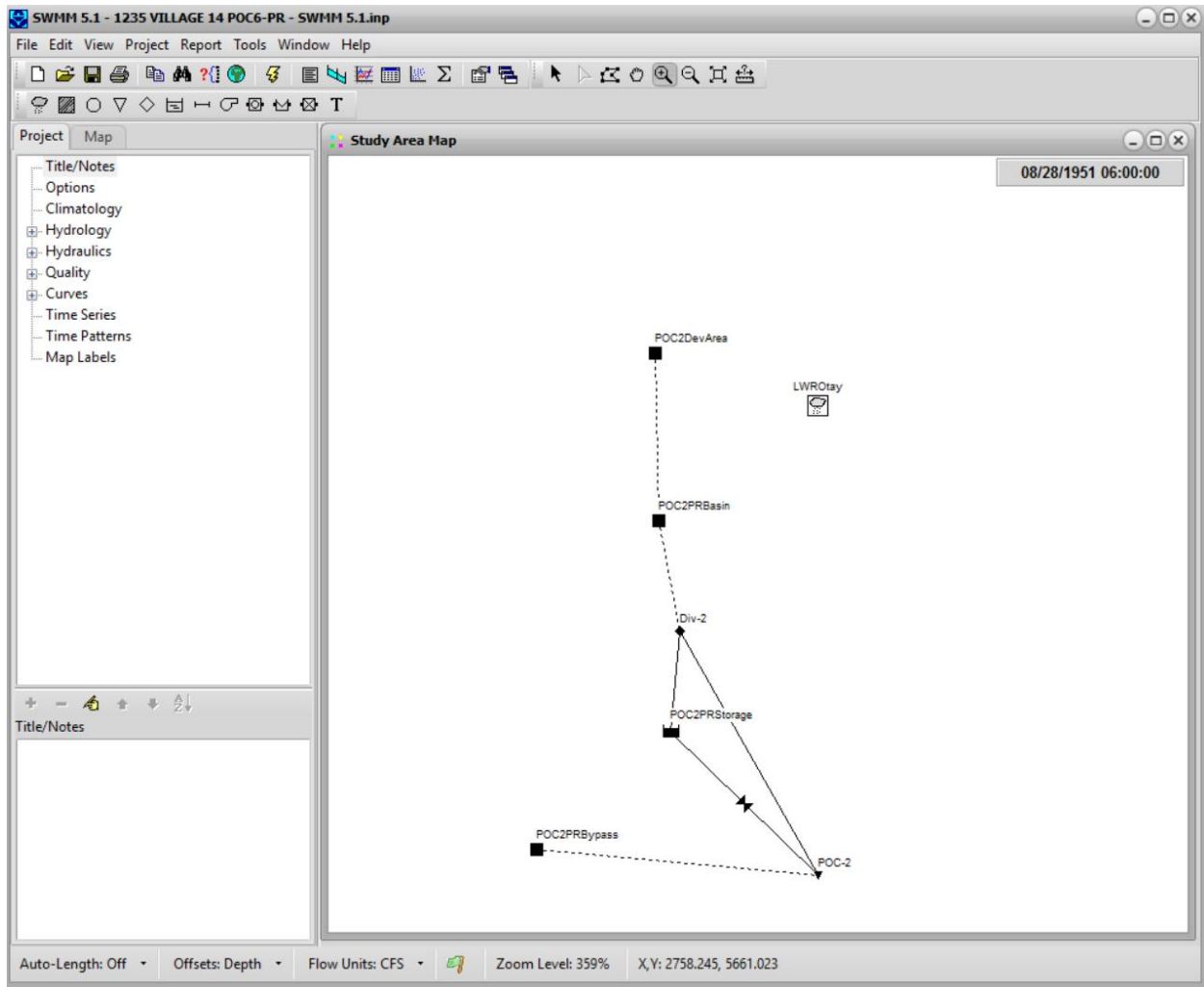
OK Cancel Help

Outfall POC2Ex

Name	POC2Ex
X-Coordinate	1740.113
Y-Coordinate	3977.401
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*

User-assigned name of outfall

POC 2 – Developed Condition



Rain Gage LWROtay

Name	LWROtay
X-Coordinate	1483.740
Y-Coordinate	5365.854
Description	
Tag	
Rain Format	INTENSITY
Time Interval	1:00
Snow Catch Factor	1.0
Data Source	TIMESERIES
TIME SERIES:	
- Series Name	LWROtay
DATA FILE:	
- File Name	*
- Station ID	*
- Rain Units	IN
User-assigned name of rain gage	

Subcatchment POC2DevArea

Property	Value
Name	POC2DevArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Developed Area Tributary to Basin
Tag	
Rain Gage	LWROtay
Outlet	POC2PRBasin
Area	159.14
Width	1465
% Slope	2.4
% Imperv	51.4
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method
GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	0.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK

Cancel

Help

Subcatchment POC2DevArea	
Property	Value
Name	POC2DevArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Developed Area Tributary to Basin
Tag	
Rain Gage	LWROtay
Outlet	POC2PRBasin
Area	159.14
Width	1465
% Slope	2.4
% Imperv	51.4
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	0.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK Cancel Help

Subcatchment POC2PRBasin	
Property	Value
Name	POC2PRBasin
X-Coordinate	904.472
Y-Coordinate	4959.350
Description	
Tag	
Rain Gage	LWROtay
Outlet	Div-2
Area	2.09
Width	170
% Slope	0.1
% Imperv	0
N-Imperv	0.012
N-Perv	0.1
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	1
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	1.5
Conductivity	0.3
Initial Deficit	0.3

Soil capillary suction head (inches or mm)

OK Cancel Help

Subcatchment POC2PRBypass

Name	POC2PRBypass
X-Coordinate	467.751
Y-Coordinate	3777.964
Description	Additional area not tribu
Tag	
Rain Gage	LWROtay
Outlet	POC-2
Area	328.68
Width	1512
% Slope	13.7
% Imperv	0
N-Imperv	0.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK Cancel Help

Divider Div-2

Property	Value
Name	Div-2
X-Coordinate	981.151
Y-Coordinate	4560.296
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Max. Depth	0
Initial Depth	0
Surcharge Depth	0
Ponded Area	0
Diverted Link	Bypass-1
Type	CUTOFF
Cutoff Divider	
Cutoff Flow	0.56817
Tabular Divider	
Curve Name	*
Weir Divider	
Min. Flow	0
Max. Depth	0
Coefficient	0

Storage Unit POC2PRStorage

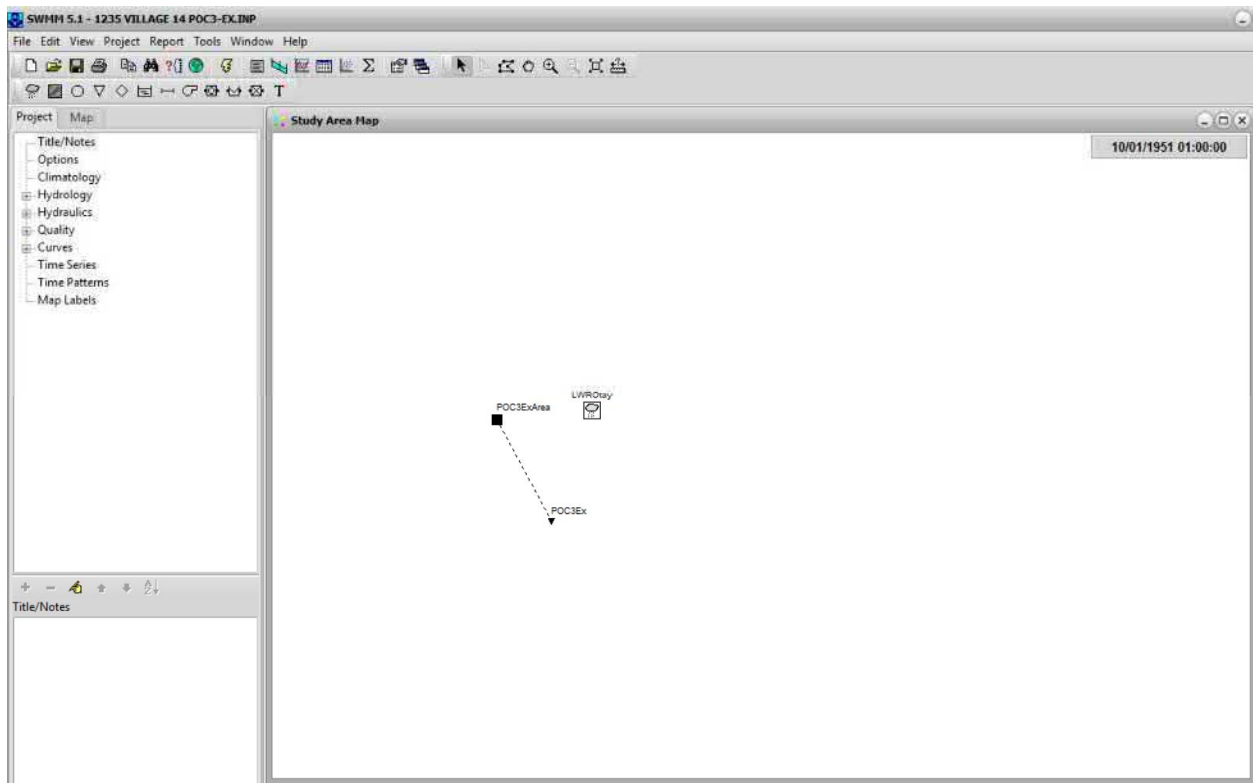
Name	POC2PRStorage
X-Coordinate	947.368
Y-Coordinate	4198.830
Description	Basin #2
Tag	
Inflows	NO
Treatment	NO
Invert El.	580
Max. Depth	10
Initial Depth	0
Ponded Area	165897
Evap. Factor	1
Seepage Loss	NO
Storage Curve	TABULAR
Functional Curve	
Coefficient	1000
Exponent	0
Constant	0
Tabular Curve	
Curve Name	Basin#2

Outfall POC-2

Name	POC-2
X-Coordinate	1477.152
Y-Coordinate	3687.566
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*

User-assigned name of outfall

POC 3 – Pre-Developed Condition



Subcatchment POC3ExArea

Name	POC3ExArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Existing Area
Tag	
Rain Gage	LWROtay
Outlet	POC3Ex
Area	10.62
Width	258
% Slope	2.23
% Imperv	7
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0

Infiltration Editor

Infiltration Method
GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK

Cancel

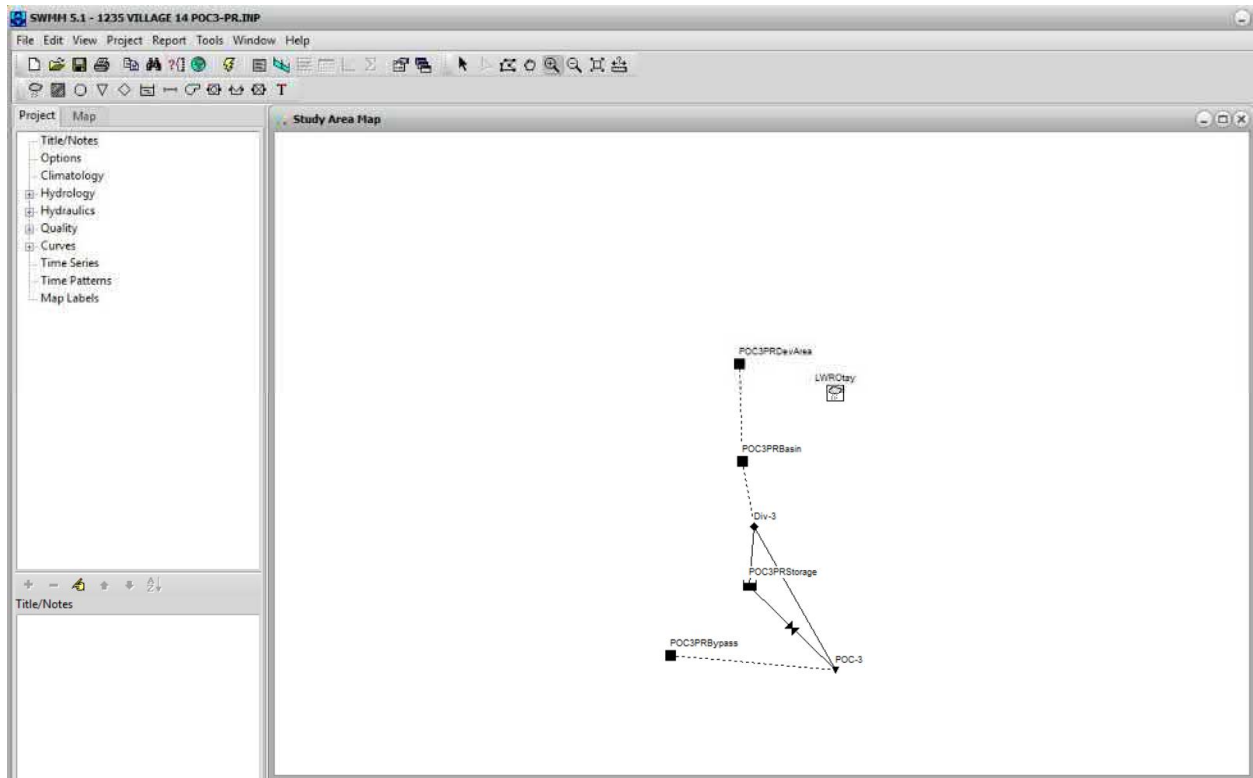
Help

Outfall POC3Ex

×

Name	POC3Ex
X-Coordinate	1740.113
Y-Coordinate	3977.401
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*
User-assigned name of outfall	

POC 3 – Developed Condition



Subcatchment POC3PRDevArea

Name	POC3PRDevArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Area Tributary to Bas
Tag	
Rain Gage	LWROtay
Outlet	POC3PRBasin
Area	4.42
Width	107
% Slope	0.99
% Imperv	76.9
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0

Infiltration Editor

Infiltration Method
GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	0.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK

Cancel

Help

Subcatchment POC3PRBasin

Name	POC3PRBasin
X-Coordinate	904.472
Y-Coordinate	4959.350
Description	
Tag	
Rain Gage	LWROtay
Outlet	Div-3
Area	.21
Width	44
% Slope	0.1
% Imperv	0
N-Imperv	0.012
N-Perv	0.1
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	1
Land Uses	0

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	1.5
Conductivity	0.3
Initial Deficit	0.30

Soil capillary suction head (inches or mm)

OK

Cancel

Help

Subcatchment POC3PRBypass

Name	POC3PRBypass
X-Coordinate	467.751
Y-Coordinate	3777.964
Description	Additional area not tr
Tag	
Rain Gage	LWROtay
Outlet	POC-3
Area	6.45
Width	153
% Slope	1.63
% Imperv	0
N-Imperv	0.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK

Cancel

Help

Divider Div-3	
Name	Div-3
X-Coordinate	981.151
Y-Coordinate	4560.296
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Max. Depth	0
Initial Depth	0
Surcharge Depth	0
Ponded Area	0
Diverted Link	Bypass-1
Type	CUTOFF
Cutoff Divider	
Cutoff Flow	0.03474
Tabular Divider	
Curve Name	*
Weir Divider	
Min. Flow	0
Max. Depth	0
Coefficient	0

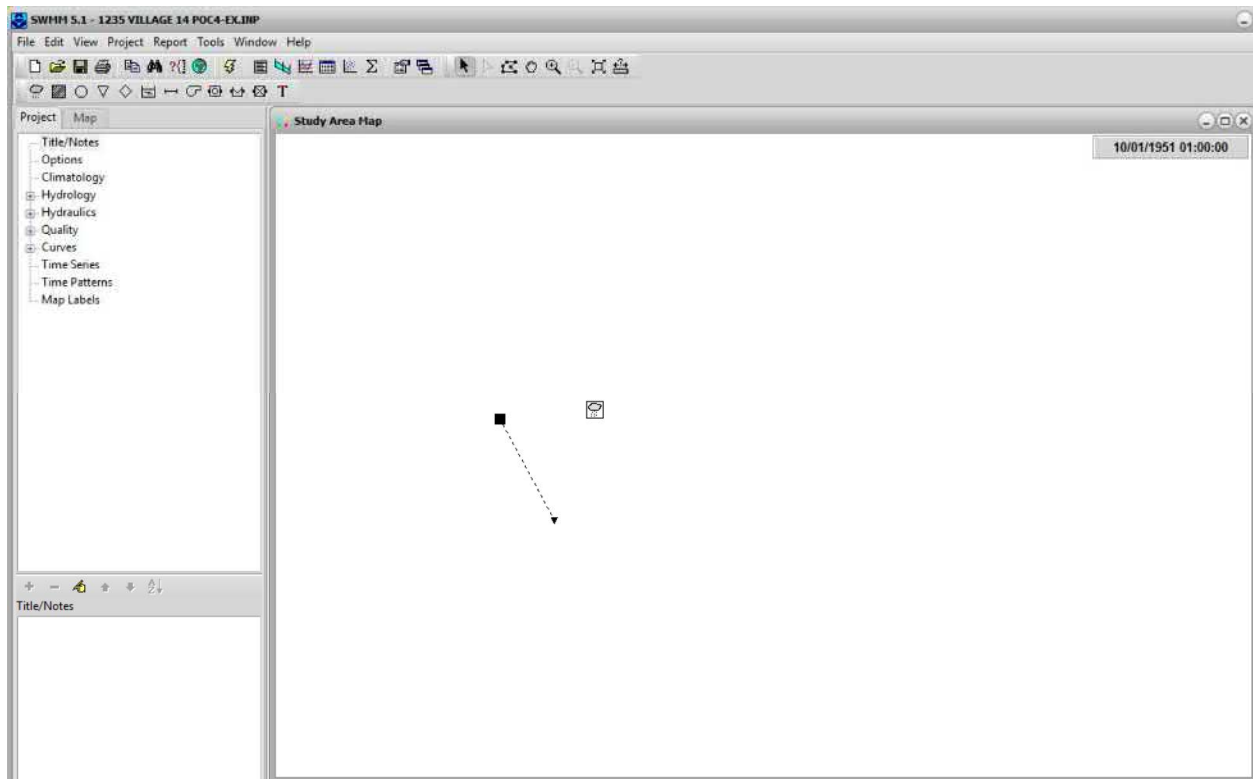
Storage Unit POC3PRStorage	
Name	POC3PRStorage
X-Coordinate	947.368
Y-Coordinate	4198.830
Description	Basin #3
Tag	
Inflows	NO
Treatment	NO
Invert El.	570
Max. Depth	5
Initial Depth	0
Ponded Area	2004
Evap. Factor	1
Seepage Loss	NO
Storage Curve	TABULAR
Functional Curve	
Coefficient	1000
Exponent	0
Constant	0
Tabular Curve	
Curve Name	Basin#3

Outfall POC-3

✕

Name	POC-3
X-Coordinate	1477.152
Y-Coordinate	3687.566
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*
User-assigned name of outfall	

POC 4 – Pre-Developed Condition



Subcatchment POC4EXArea

Name	POC4EXArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Existing Area
Tag	
Rain Gage	LWROtay
Outlet	POC4Ex
Area	18.32
Width	527
% Slope	11.22
% Imperv	4
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT
Groundwater	NO
Snow Pack	

Infiltration parameters (click to edit)

Infiltration Editor

Infiltration Method

GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK

Cancel

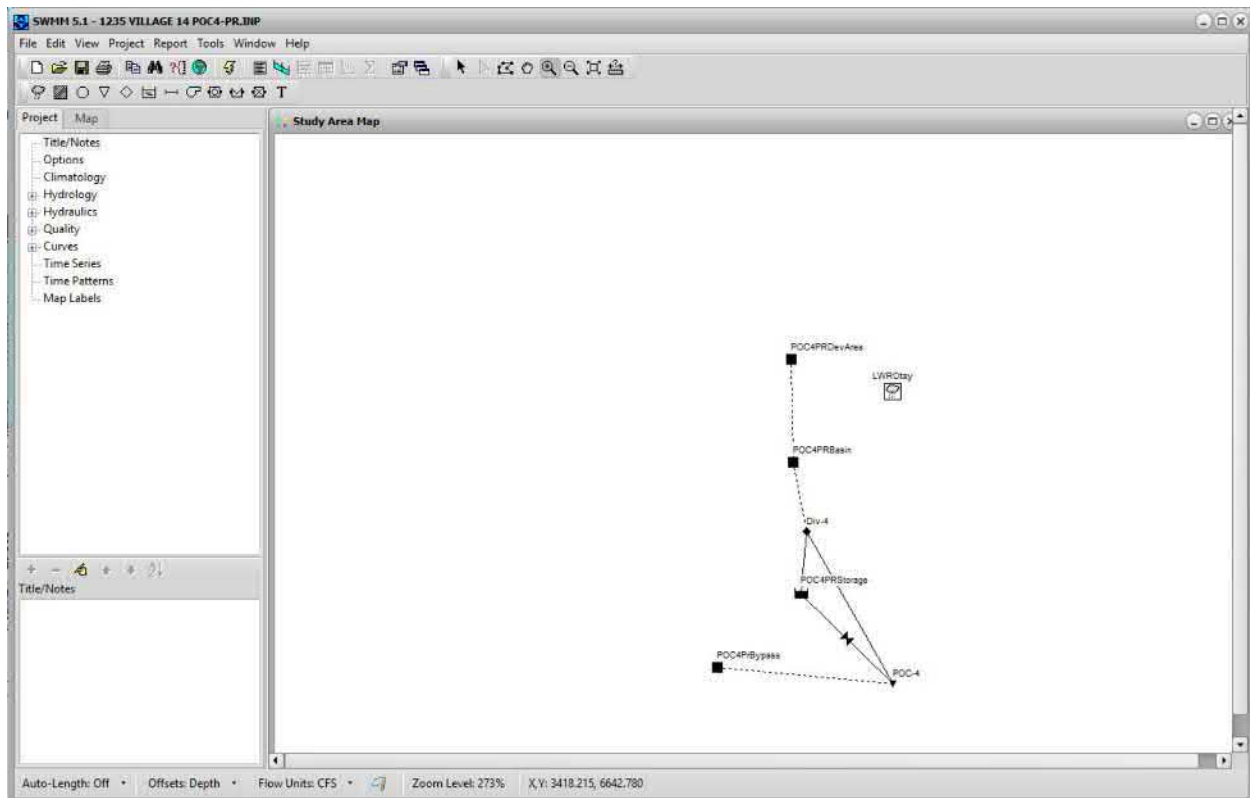
Help

Outfall POC4Ex

✕

Name	POC4Ex
X-Coordinate	1740.113
Y-Coordinate	3977.401
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*
User-assigned name of outfall	

POC 4 – Developed Condition



Subcatchment POC4PRDevArea

Name	POC4PRDevArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Area Tributary to Bas
Tag	
Rain Gage	LWROtay
Outlet	POC4PRBasin
Area	3.39
Width	96
% Slope	1.0
% Imperv	82.5
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	

Infiltration parameters (click to edit)

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	0.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK Cancel Help

Subcatchment POC4PRBasin

Name	POC4PRBasin
X-Coordinate	904.472
Y-Coordinate	4959.350
Description	
Tag	
Rain Gage	LWROtay
Outlet	Div-4
Area	.08
Width	58
% Slope	0.1
% Imperv	0
N-Imperv	0.012
N-Perv	0.1
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	1.5
Conductivity	0.3
Initial Deficit	0.3

Soil capillary suction head (inches or mm)

OK Cancel Help

Subcatchment POC4PrBypass

Name	POC4PrBypass
X-Coordinate	467.751
Y-Coordinate	3777.964
Description	Additional area not tr
Tag	
Rain Gage	LWROtay
Outlet	POC-4
Area	15.97
Width	459
% Slope	11.22
% Imperv	0
N-Imperv	0.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK Cancel Help

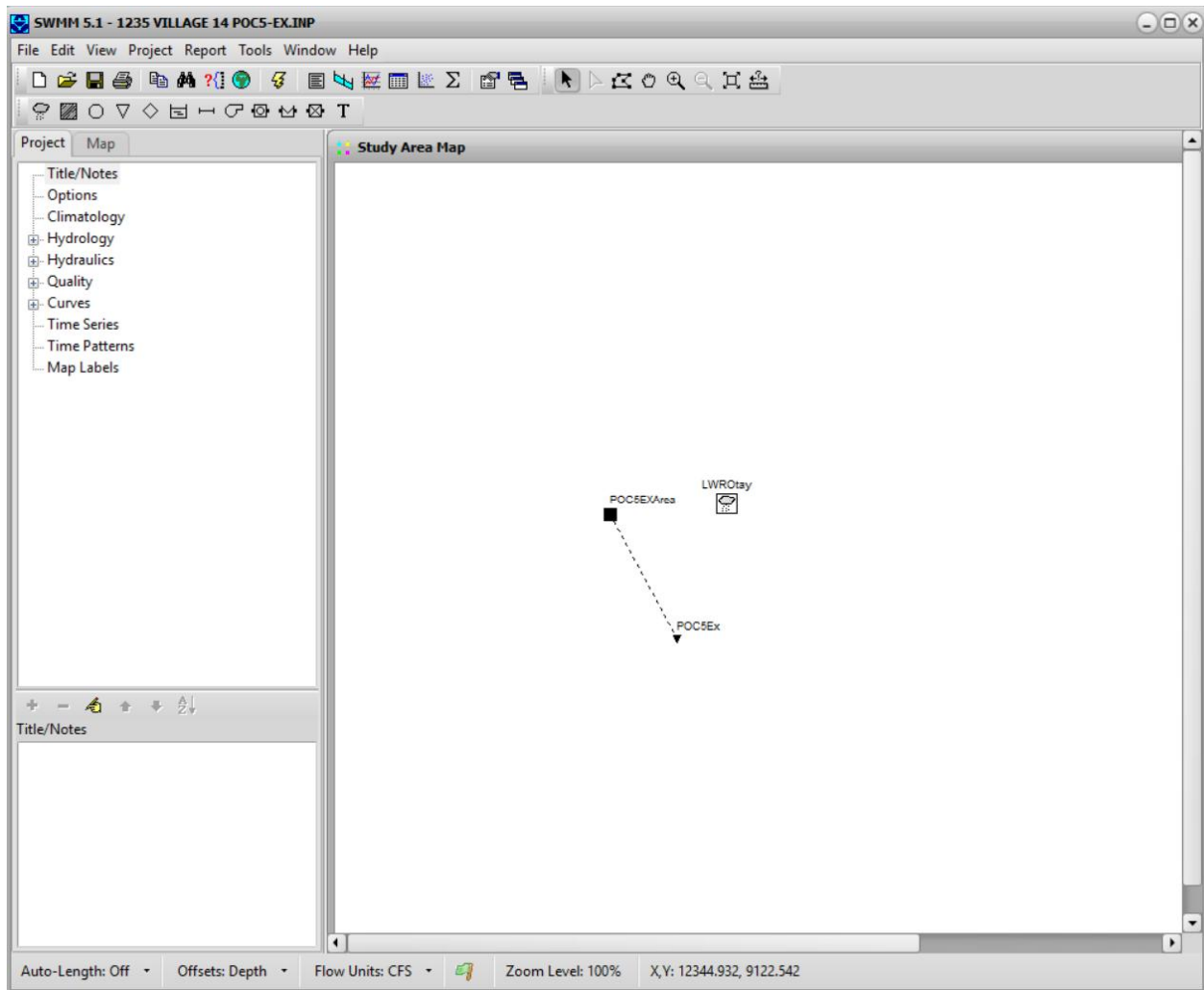
Divider Div-4

Name	Div-4
X-Coordinate	981.151
Y-Coordinate	4560.296
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Max. Depth	0
Initial Depth	0
Surcharge Depth	0
Ponded Area	0
Diverted Link	Bypass-1
Type	CUTOFF
Cutoff Divider	
Cutoff Flow	0.03983
Tabular Divider	
Curve Name	*
Weir Divider	
Min. Flow	0
Max. Depth	0
Coefficient	0

Storage Unit POC4PRStorage	
Name	POC4PRStorage
X-Coordinate	947.368
Y-Coordinate	4198.830
Description	Basin #4
Tag	
Inflows	NO
Treatment	NO
Invert El.	562.5
Max. Depth	5
Initial Depth	0
Ponded Area	1655
Evap. Factor	1
Seepage Loss	NO
Storage Curve	TABULAR
Functional Curve	
Coefficient	1000
Exponent	0
Constant	0
Tabular Curve	
Curve Name	Basin#4

Outfall POC-4	
Name	POC-4
X-Coordinate	1477.152
Y-Coordinate	3687.566
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*
User-assigned name of outfall	

POC 5 – Pre-Developed Condition



Subcatchment POC5EXArea

Name	POC5EXArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Existing Area
Tag	
Rain Gage	LWROtay
Outlet	POC5Ex
Area	1094.73
Width	3106
% Slope	13.13
% Imperv	8
N-Imperv	.012
N-Perv	0.1
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

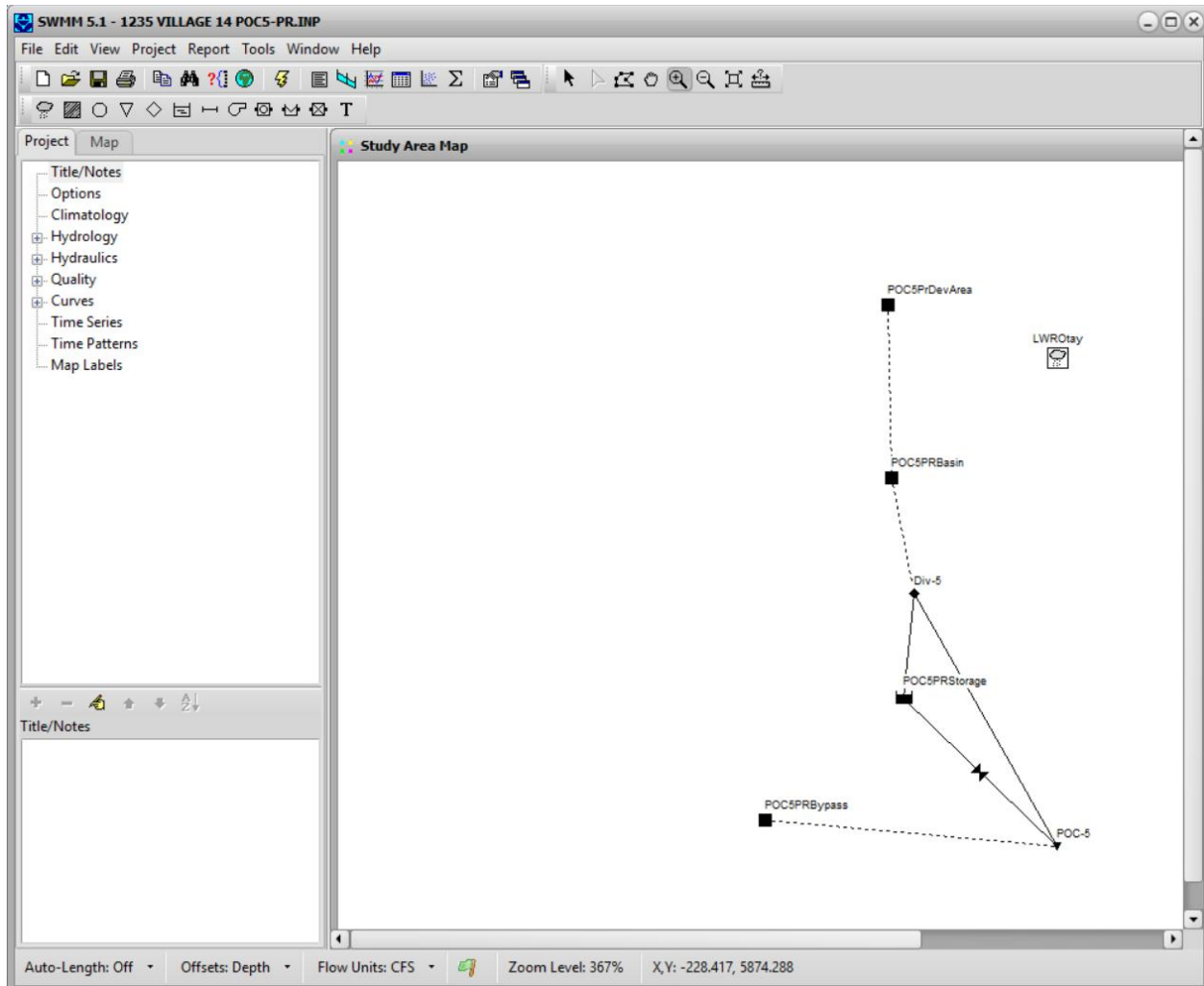
OK Cancel Help

Outfall POC5Ex

Name	POC5Ex
X-Coordinate	1740.113
Y-Coordinate	3977.401
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*

User-assigned name of outfall

POC 5 – Developed Condition



Subcatchment POC5PrDevArea

Name	POC5PrDevArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Area Tributary to Basin #1
Tag	
Rain Gage	LWROtay
Outlet	POC5PRBasin
Area	6.52
Width	147
% Slope	3.20
% Imperv	59.3
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0

Infiltration Editor

Infiltration Method
GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	0.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK

Cancel

Help

Subcatchment POC5PRBasin

Name	POC5PRBasin
X-Coordinate	904.472
Y-Coordinate	4959.350
Description	
Tag	
Rain Gage	LWROtay
Outlet	Div-5
Area	.12
Width	72
% Slope	0.1
% Imperv	0
N-Imperv	0.012
N-Perv	0.1
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	1
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Subcatchment POC5PRBypass

Name	POC5PRBypass
X-Coordinate	467.751
Y-Coordinate	3777.964
Description	Additional area not tribu
Tag	
Rain Gage	LWROtay
Outlet	POC-5
Area	1090.75
Width	3106
% Slope	13.13
% Imperv	8
N-Imperv	0.012
N-Perv	0.1
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	1.5
Conductivity	0.3
Initial Deficit	0.3

Soil capillary suction head (inches or mm)

OK Cancel Help

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK Cancel Help

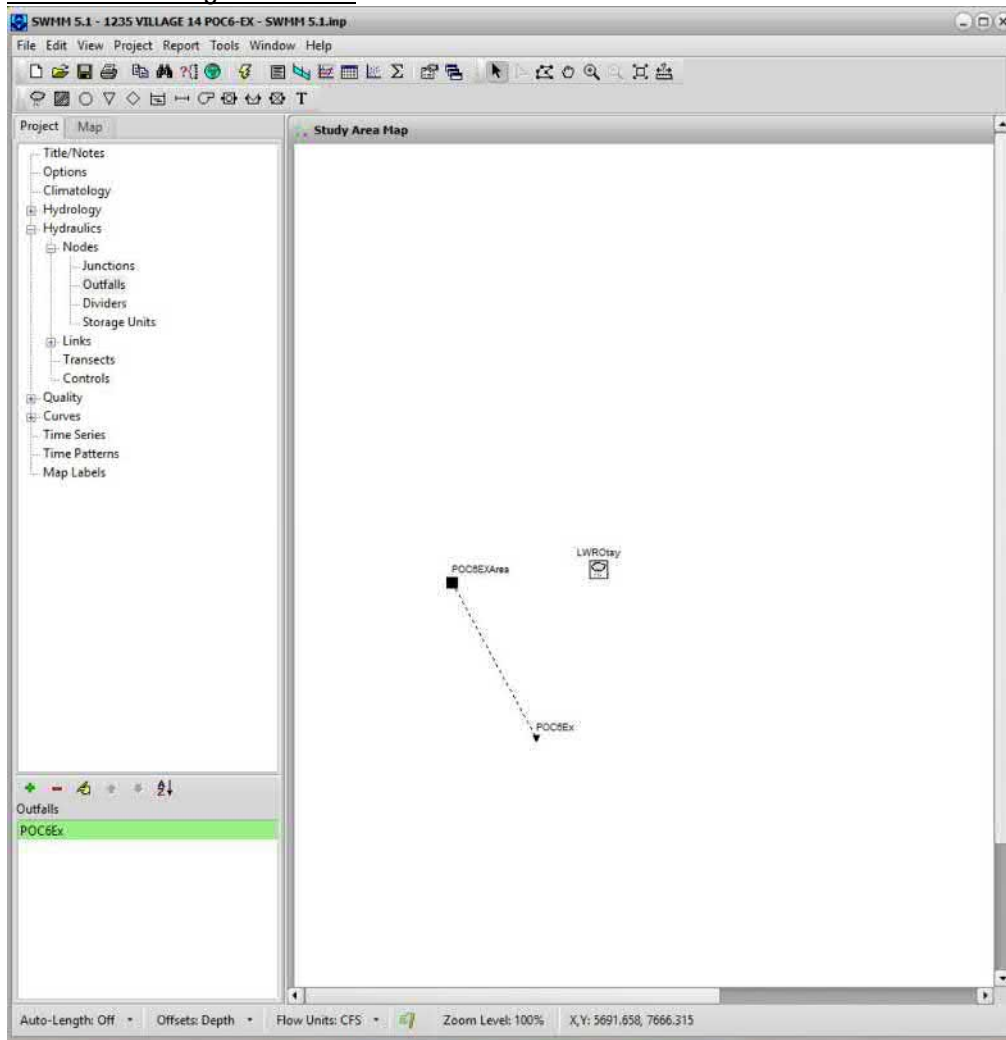
Divider Div-5

Name	Div-5
X-Coordinate	981.151
Y-Coordinate	4560.296
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Max. Depth	0
Initial Depth	0
Surcharge Depth	0
Ponded Area	0
Diverted Link	Bypass-1
Type	CUTOFF
Cutoff Divider	
Cutoff Flow	0.48539
Tabular Divider	
Curve Name	*
Weir Divider	
Min. Flow	0
Max. Depth	0
Coefficient	0

Storage Unit POC5PRStorage	
Name	POC5PRStorage
X-Coordinate	947.368
Y-Coordinate	4198.830
Description	Basin #5
Tag	
Inflows	NO
Treatment	NO
Invert El.	555
Max. Depth	6
Initial Depth	0
Ponded Area	2660
Evap. Factor	1
Seepage Loss	NO
Storage Curve	TABULAR
Functional Curve	
Coefficient	1000
Exponent	0
Constant	0
Tabular Curve	
Curve Name	Basin#5

Outfall POC-5	
Name	POC-5
X-Coordinate	1477.152
Y-Coordinate	3687.566
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*
User-assigned name of outfall	

POC 6 – Existing Condition

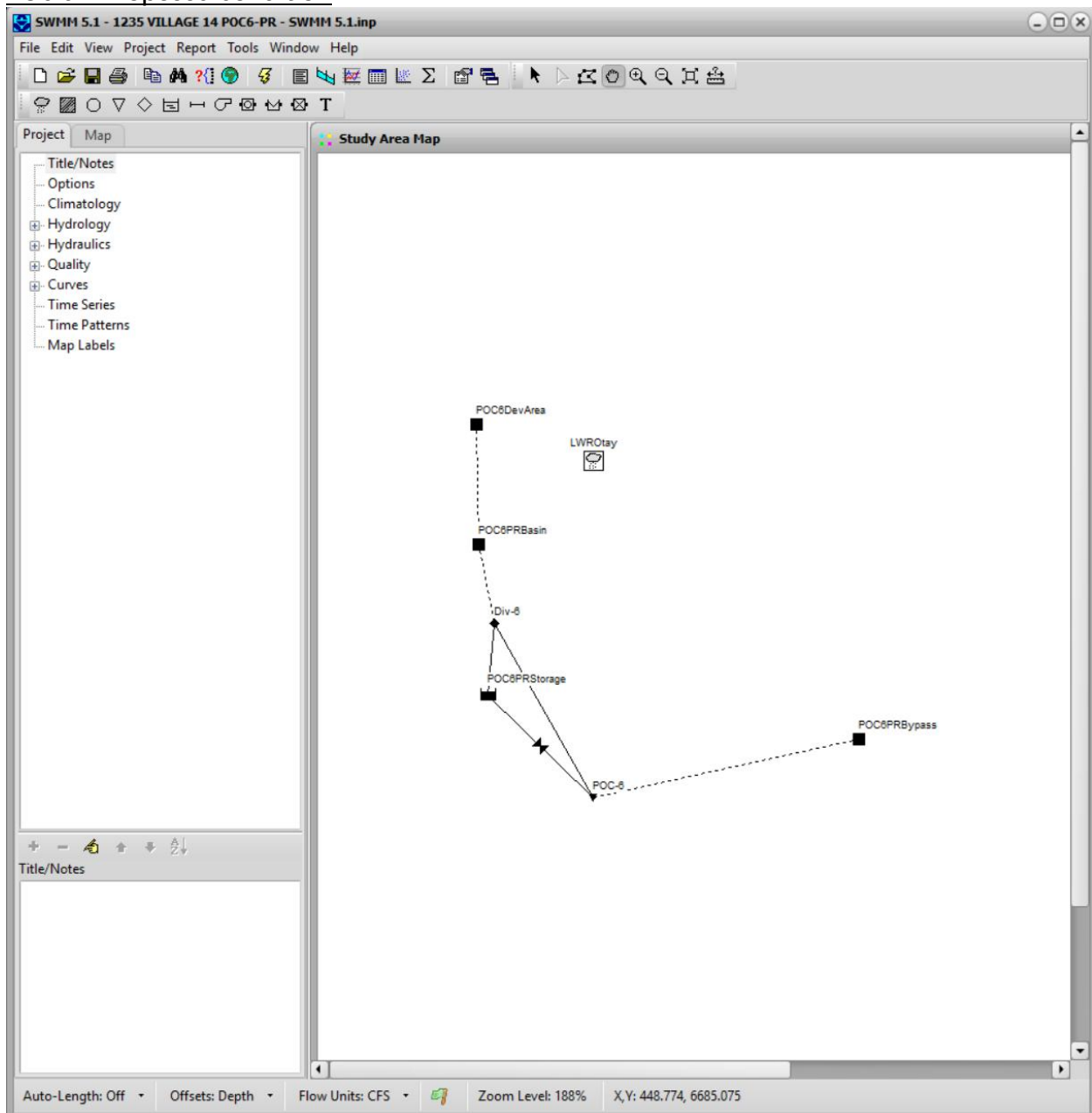


Subcatchment POC6EXArea	
Name	POC6EXArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Existing Area
Tag	
Rain Gage	LWROtay
Outlet	POC6Ex
Area	31.56
Width	858
% Slope	8.5
% Imperv	0
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor	
Infiltration Method	GREEN_AMPT
Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33
Soil capillary suction head (inches or mm)	
OK Cancel Help	

Outfall POC6Ex	
Name	POC6Ex
X-Coordinate	1740.113
Y-Coordinate	3977.401
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*
User-assigned name of outfall	

POC 6 – Proposed Condition



Subcatchment POC6DevArea

Name	POC6DevArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Developed Area Tributary to Basin
Tag	
Rain Gage	LWROtay
Outlet	POC6PRBasin
Area	11.26
Width	169
% Slope	7.6
% Imperv	21.7
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Subcatchment POC6PRBasin

Name	POC6PRBasin
X-Coordinate	904.472
Y-Coordinate	4959.350
Description	
Tag	
Rain Gage	LWROtay
Outlet	Div-6
Area	0.1
Width	29
% Slope	0.1
% Imperv	0
N-Imperv	0.012
N-Perv	0.1
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	1
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	0.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK Cancel Help

Infiltration Editor

Infiltration Method GREEN_AMPT

Property	Value
Suction Head	1.5
Conductivity	0.3
Initial Deficit	0.3

Soil capillary suction head (inches or mm)

OK Cancel Help

Subcatchment POC6PRBypass

Name	POC6PRBypass
X-Coordinate	2803.590
Y-Coordinate	3980.993
Description	Additional area not tributary to b
Tag	
Rain Gage	LWROtay
Outlet	POC-6
Area	21.53
Width	585
% Slope	8.5
% Imperv	0
N-Imperv	0.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK Cancel Help

Divider Div-6

Property	Value
Name	Div-6
X-Coordinate	981.151
Y-Coordinate	4560.296
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Max. Depth	0
Initial Depth	0
Surcharge Depth	0
Ponded Area	0
Diverted Link	Bypass-6
Type	CUTOFF
Cutoff Divider	
Cutoff Flow	0.04799
Tabular Divider	
Curve Name	*
Weir Divider	
Min. Flow	0
Max. Depth	0
Coefficient	0

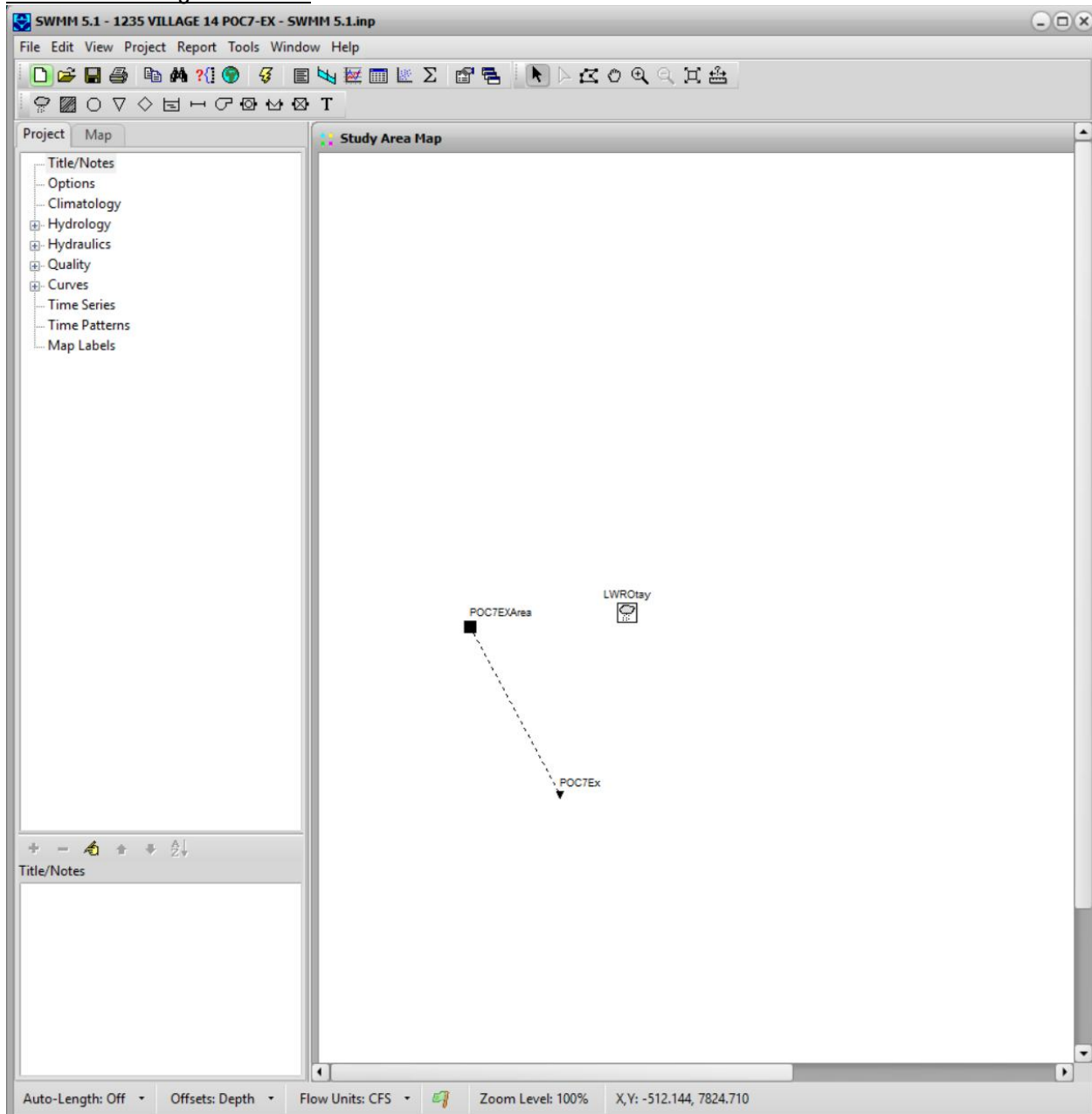
Storage Unit POC6PRStorage	
Name	POC6PRStorage
X-Coordinate	947.368
Y-Coordinate	4198.830
Description	Basin #6
Tag	
Inflows	NO
Treatment	NO
Invert El.	1040
Max. Depth	4.5
Initial Depth	0
Ponded Area	165897
Evap. Factor	1
Seepage Loss	NO
Storage Curve	TABULAR
Functional Curve	
Coefficient	1000
Exponent	0
Constant	0
Tabular Curve	
Curve Name	Basin#6

Outlet 1	
Name	1
Inlet Node	POC6PRStorage
Outlet Node	POC-6
Description	
Tag	
Inlet Offset	0
Flap Gate	NO
Rating Curve	TABULAR/DEPTH
Functional Curve	
Coefficient	10.0
Exponent	0.5
Tabular Curve	
Curve Name	Basin#6Outlet
User-assigned name of outlet	

Outfall POC-6

Name	POC-6
X-Coordinate	1477.152
Y-Coordinate	3687.566
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*
User-assigned name of outfall	

POC 7 – Existing Condition



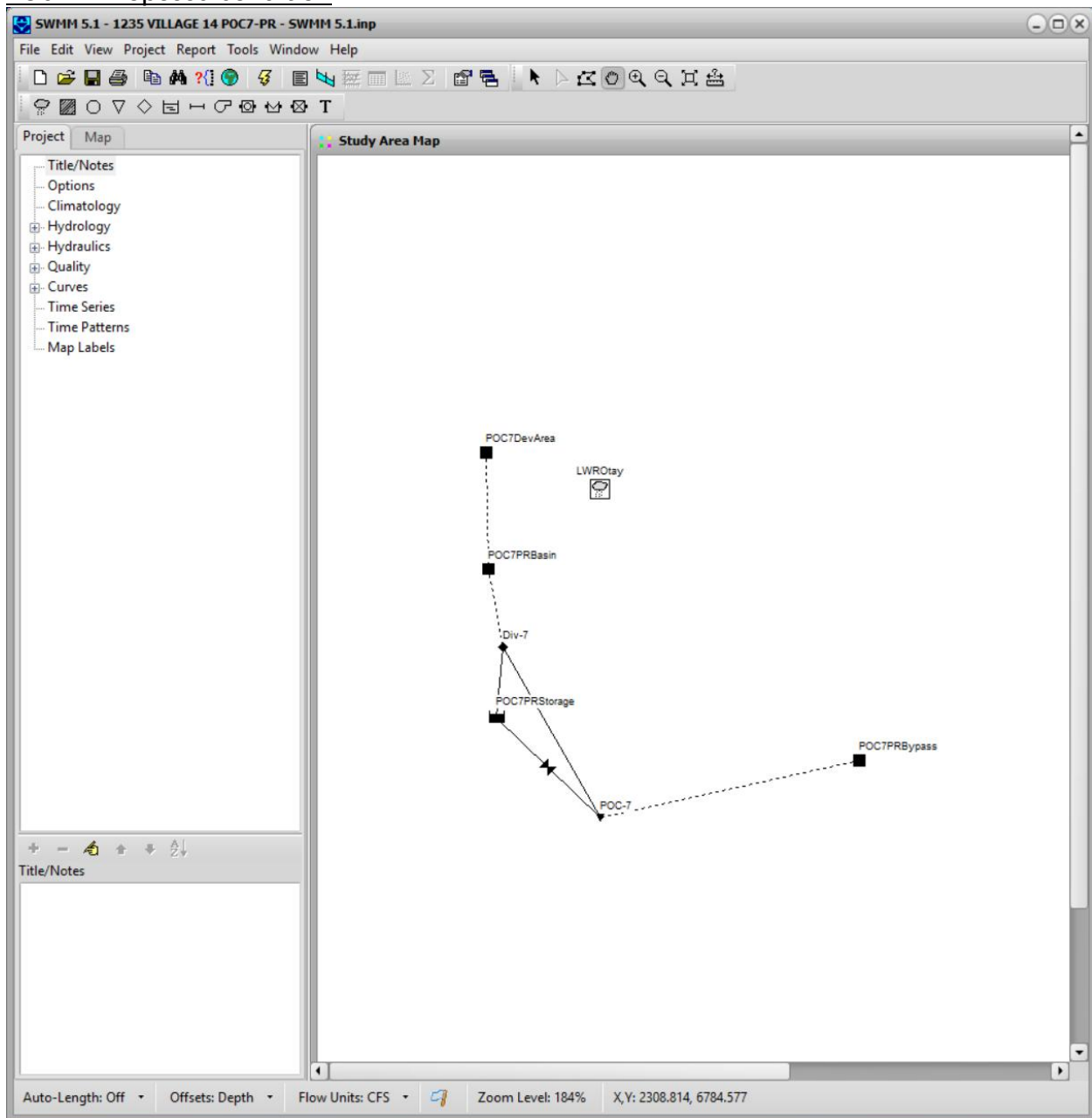
Property	Value
Name	POC7EXArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Existing Area
Tag	
Rain Gage	LWROtay
Outlet	POC7Ex
Area	33.72
Width	1054
% Slope	21.5
% Imperv	0
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33
Soil capillary suction head (inches or mm)	

OK Cancel Help

Outfall POC7Ex	
Name	POC7Ex
X-Coordinate	1740.113
Y-Coordinate	3977.401
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*
User-assigned name of outfall	

POC 7 – Proposed Condition



Subcatchment POC7DevArea

Name	POC7DevArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Developed Area Tributary to B...
Tag	
Rain Gage	LWROtay
Outlet	POC7PRBasin
Area	6.64
Width	179
% Slope	1.7
% Imperv	32.3
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Subcatchment POC7PRBasin

Name	POC7PRBasin
X-Coordinate	904.472
Y-Coordinate	4959.350
Description	
Tag	
Rain Gage	LWROtay
Outlet	Div-7
Area	0.09
Width	60
% Slope	0.1
% Imperv	0
N-Imperv	0.012
N-Perv	0.1
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	1
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	0.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK Cancel Help

Infiltration Editor

Infiltration Method GREEN_AMPT

Property	Value
Suction Head	1.5
Conductivity	0.3
Initial Deficit	0.3

Soil capillary suction head (inches or mm)

OK Cancel Help

Subcatchment POC7PRBypass

Name	POC7PRBypass
X-Coordinate	2803.590
Y-Coordinate	3980.993
Description	Additional area not tributary to
Tag	
Rain Gage	LWROtay
Outlet	POC-7
Area	30.05
Width	854
% Slope	16.3
% Imperv	0
N-Imperv	0.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method
GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK

Cancel

Help

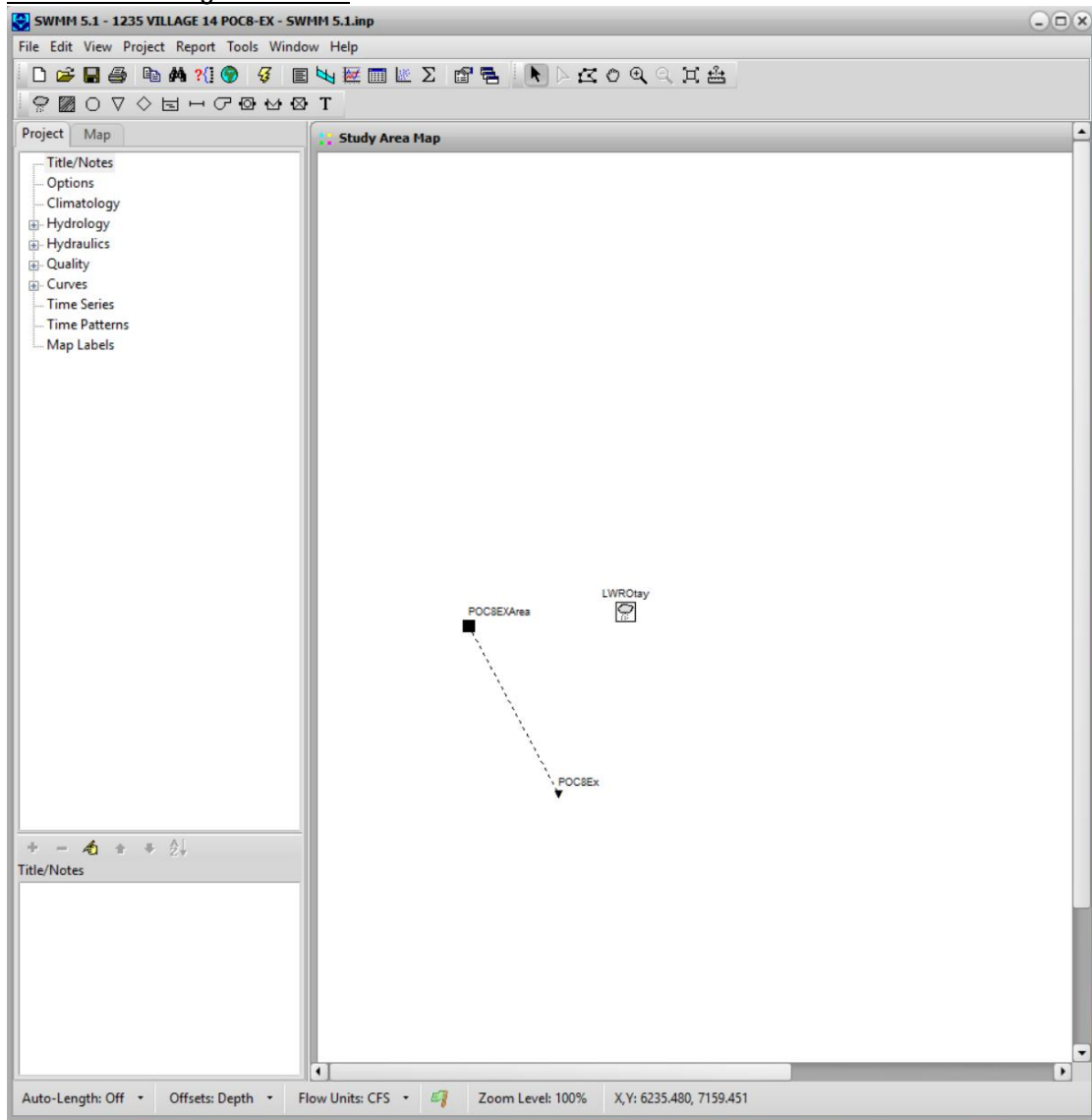
Divider Div-7

Name	Div-7
X-Coordinate	981.151
Y-Coordinate	4560.296
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Max. Depth	0
Initial Depth	0
Surcharge Depth	0
Ponded Area	0
Diverted Link	Bypass-7
Type	CUTOFF
Cutoff Divider	
Cutoff Flow	0.02708
Tabular Divider	
Curve Name	*
Weir Divider	
Min. Flow	0
Max. Depth	0
Coefficient	0

Storage Unit POC7PRStorage	
Name	POC7PRStorage
X-Coordinate	947.368
Y-Coordinate	4198.830
Description	Basin #7
Tag	
Inflows	NO
Treatment	NO
Invert El.	1290
Max. Depth	5
Initial Depth	0
Ponded Area	165897
Evap. Factor	1
Seepage Loss	NO
Storage Curve	TABULAR
Functional Curve	
Coefficient	1000
Exponent	0
Constant	0
Tabular Curve	
Curve Name	Basin#7

Outfall POC-7	
Name	POC-7
X-Coordinate	1477.152
Y-Coordinate	3687.566
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*
User-assigned name of outfall	

POC 8 – Existing Condition

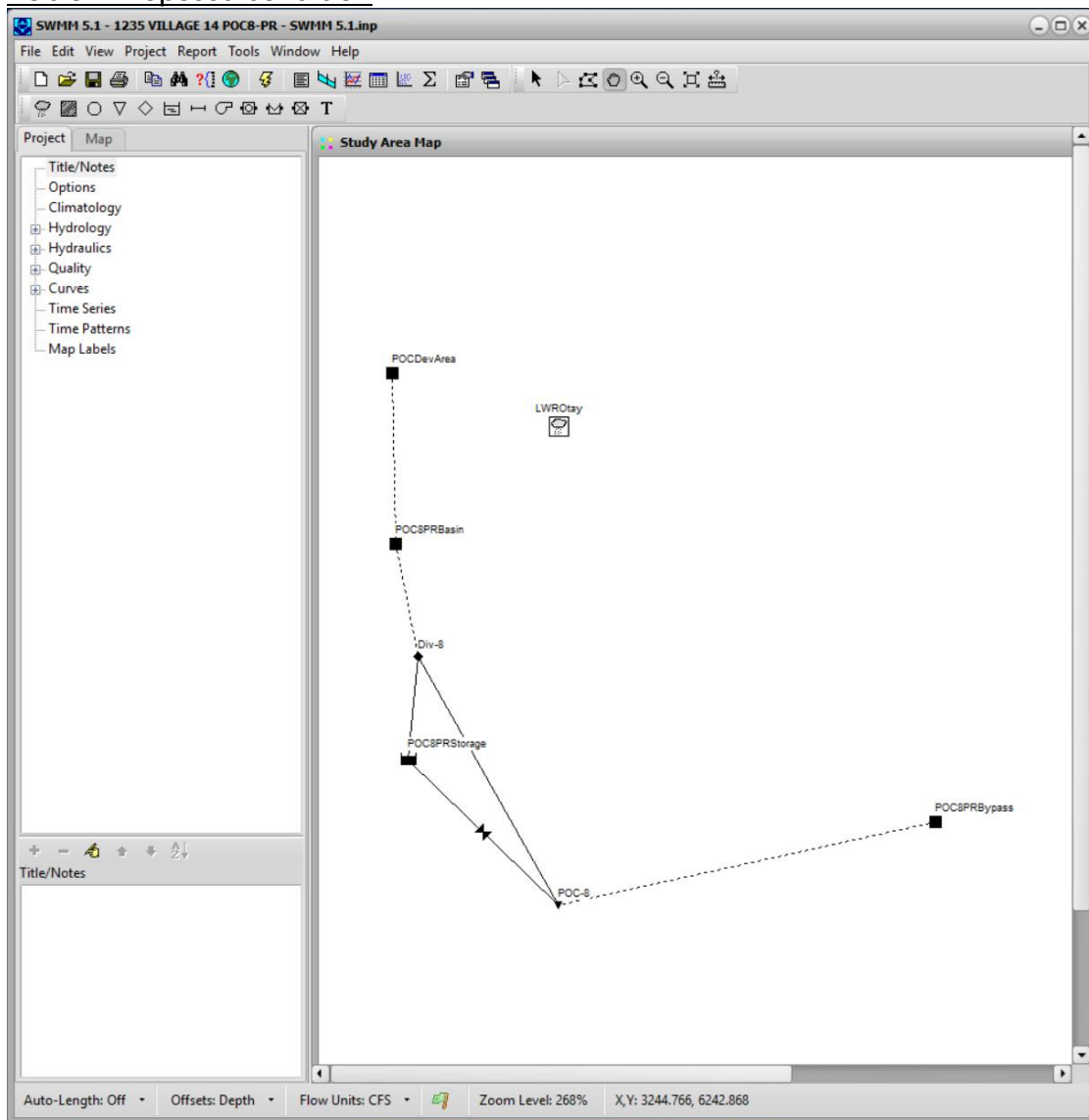


Subcatchment POC8EXArea	
Name	POC8EXArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Existing Area
Tag	
Rain Gage	LWROtay
Outlet	POC8Ex
Area	19.21
Width	635
% Slope	16.7
% Imperv	0
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor	
Infiltration Method	GREEN_AMPT
Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33
Soil capillary suction head (inches or mm)	
OK Cancel Help	

Outfall POC8Ex	
Name	POC8Ex
X-Coordinate	1740.113
Y-Coordinate	3977.401
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*
User-assigned name of outfall	

POC 8 – Proposed Condition



Subcatchment POCDevArea	
Name	POCDevArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Developed Area Tributary to E
Tag	
Rain Gage	LWROtay
Outlet	POC8PRBasin
Area	10.39
Width	214
% Slope	4.9
% Imperv	24.8
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Subcatchment POC8PRBasin	
Name	POC8PRBasin
X-Coordinate	904.472
Y-Coordinate	4959.350
Description	
Tag	
Rain Gage	LWROtay
Outlet	Div-8
Area	.1
Width	29
% Slope	0.1
% Imperv	0
N-Imperv	0.012
N-Perv	0.1
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	1
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor	
Infiltration Method	GREEN_AMPT
Property	Value
Suction Head	9
Conductivity	0.025
Initial Deficit	0.33
Soil capillary suction head (inches or mm)	
OK Cancel Help	

Infiltration Editor	
Infiltration Method	GREEN_AMPT
Property	Value
Suction Head	1.5
Conductivity	0.3
Initial Deficit	0.3
Soil capillary suction head (inches or mm)	
OK Cancel Help	

Subcatchment POC8PRBypass

Name	POC8PRBypass
X-Coordinate	2803.590
Y-Coordinate	3980.993
Description	Additional area not tributary to
Tag	
Rain Gage	LWROtay
Outlet	POC-8
Area	16.47
Width	486
% Slope	14.4
% Imperv	0
N-Imperv	0.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK Cancel Help

Divider Div-8

Name	Div-8
X-Coordinate	981.151
Y-Coordinate	4560.296
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Max. Depth	0
Initial Depth	0
Surcharge Depth	0
Ponded Area	0
Diverted Link	Bypass-6
Type	CUTOFF
Cutoff Divider	
Cutoff Flow	0.03892
Tabular Divider	
Curve Name	*
Weir Divider	
Min. Flow	0
Max. Depth	0
Coefficient	0

Storage Unit POC8PRStorage	
Name	POC8PRStorage
X-Coordinate	947.368
Y-Coordinate	4198.830
Description	Basin #6
Tag	
Inflows	NO
Treatment	NO
Invert El.	1210
Max. Depth	6
Initial Depth	0
Ponded Area	165897
Evap. Factor	1
Seepage Loss	NO
Storage Curve	TABULAR
Functional Curve	
Coefficient	1000
Exponent	0
Constant	0
Tabular Curve	
Curve Name	Basin#8

Outlet 8	
Name	8
Inlet Node	POC8PRStorage
Outlet Node	POC-8
Description	
Tag	
Inlet Offset	0
Flap Gate	NO
Rating Curve	TABULAR/DEPTH
Functional Curve	
Coefficient	10.0
Exponent	0.5
Tabular Curve	
Curve Name	Basin#8Outlet
User-assigned name of outlet	

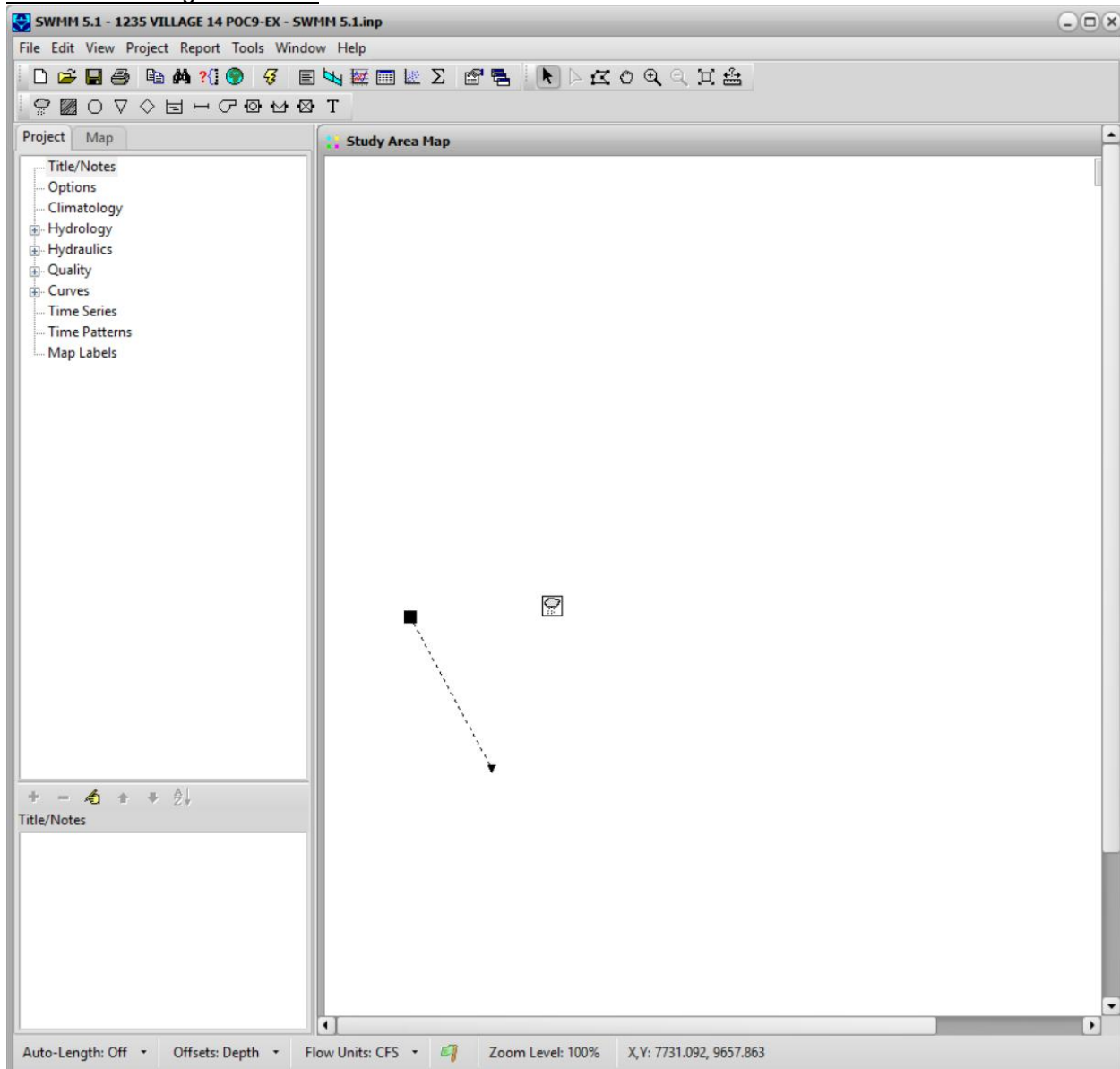
Outfall POC-8

×

Name	POC-8
X-Coordinate	1477.152
Y-Coordinate	3687.566
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*

User-assigned name of outfall

POC 9 – Existing Condition



Subcatchment POC9EXArea

Name	POC9EXArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Existing Area
Tag	
Rain Gage	LWROtay
Outlet	POC9Ex
Area	757.48
Width	3359
% Slope	2.8
% Imperv	2
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method
GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33

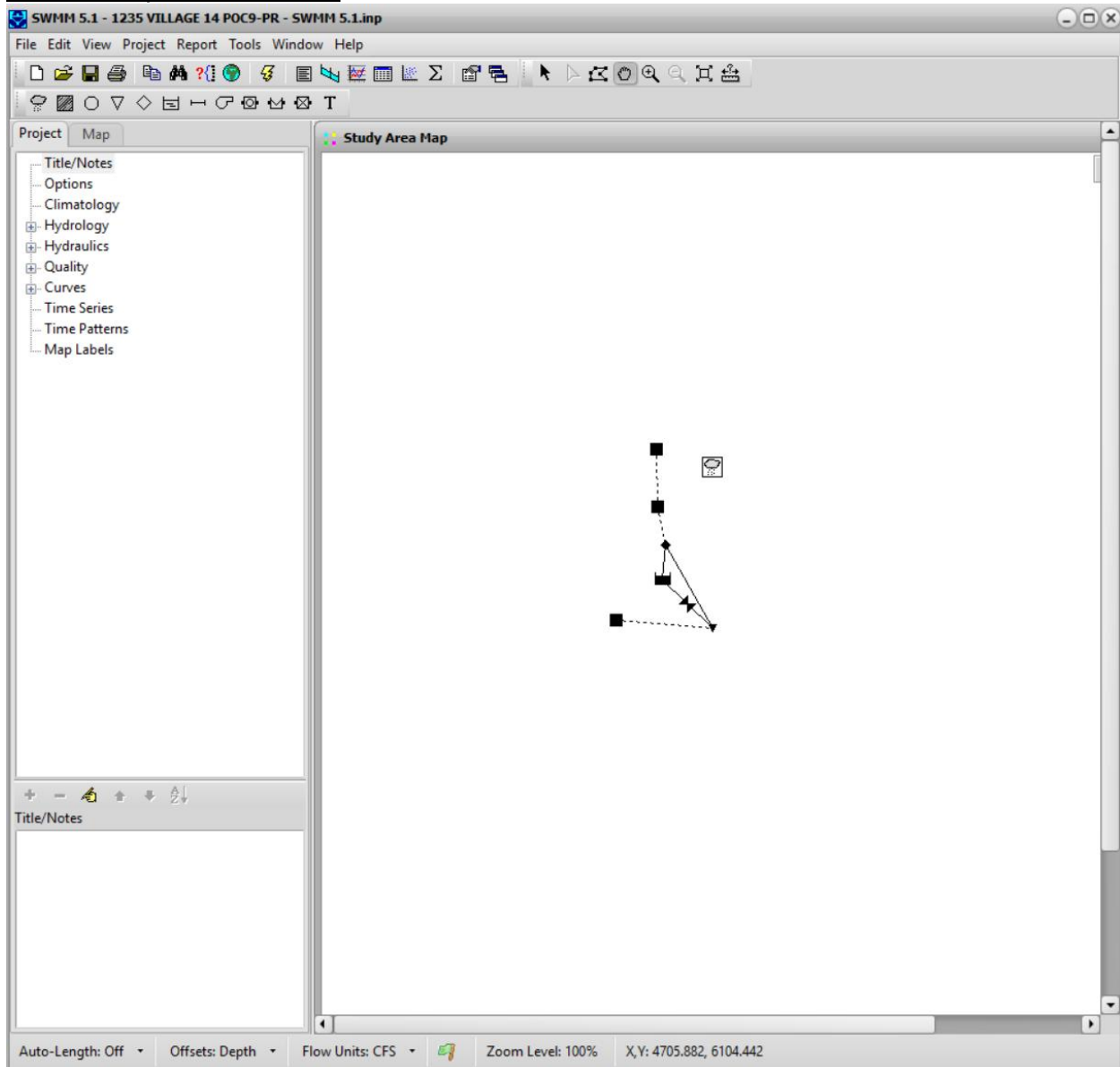
Soil capillary suction head (inches or mm)

OK

Cancel

Help

POC 9 – Proposed Condition



Subcatchment POC9DevArea	
Name	POC9DevArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Developed Area Tributary to Basin
Tag	
Rain Gage	LWROtay
Outlet	POC9PRBasin
Area	56.45
Width	616
% Slope	3.6
% Imperv	24.1
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor	
Infiltration Method	GREEN_AMPT
Property	Value
Suction Head	9
Conductivity	0.025
Initial Deficit	0.33
Soil capillary suction head (inches or mm)	
OK Cancel Help	

Subcatchment POC9PRBasin	
Name	POC9PRBasin
X-Coordinate	904.472
Y-Coordinate	4959.350
Description	
Tag	
Rain Gage	LWROtay
Outlet	Div-9
Area	1.37
Width	174
% Slope	0.1
% Imperv	0
N-Imperv	0.012
N-Perv	0.1
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	1
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor	
Infiltration Method	GREEN_AMPT
Property	Value
Suction Head	1.5
Conductivity	0.3
Initial Deficit	0.3
Soil capillary suction head (inches or mm)	
OK Cancel Help	

Subcatchment POC9PRBypass	
Name	POC9PRBypass
X-Coordinate	467.751
Y-Coordinate	3777.964
Description	Additional area not tributary to ba
Tag	
Rain Gage	LWROtay
Outlet	POC-9
Area	706.61
Width	3215
% Slope	2.9
% Imperv	2.18
N-Imperv	0.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor	
Infiltration Method	GREEN_AMPT
Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33
Soil capillary suction head (inches or mm)	
OK Cancel Help	

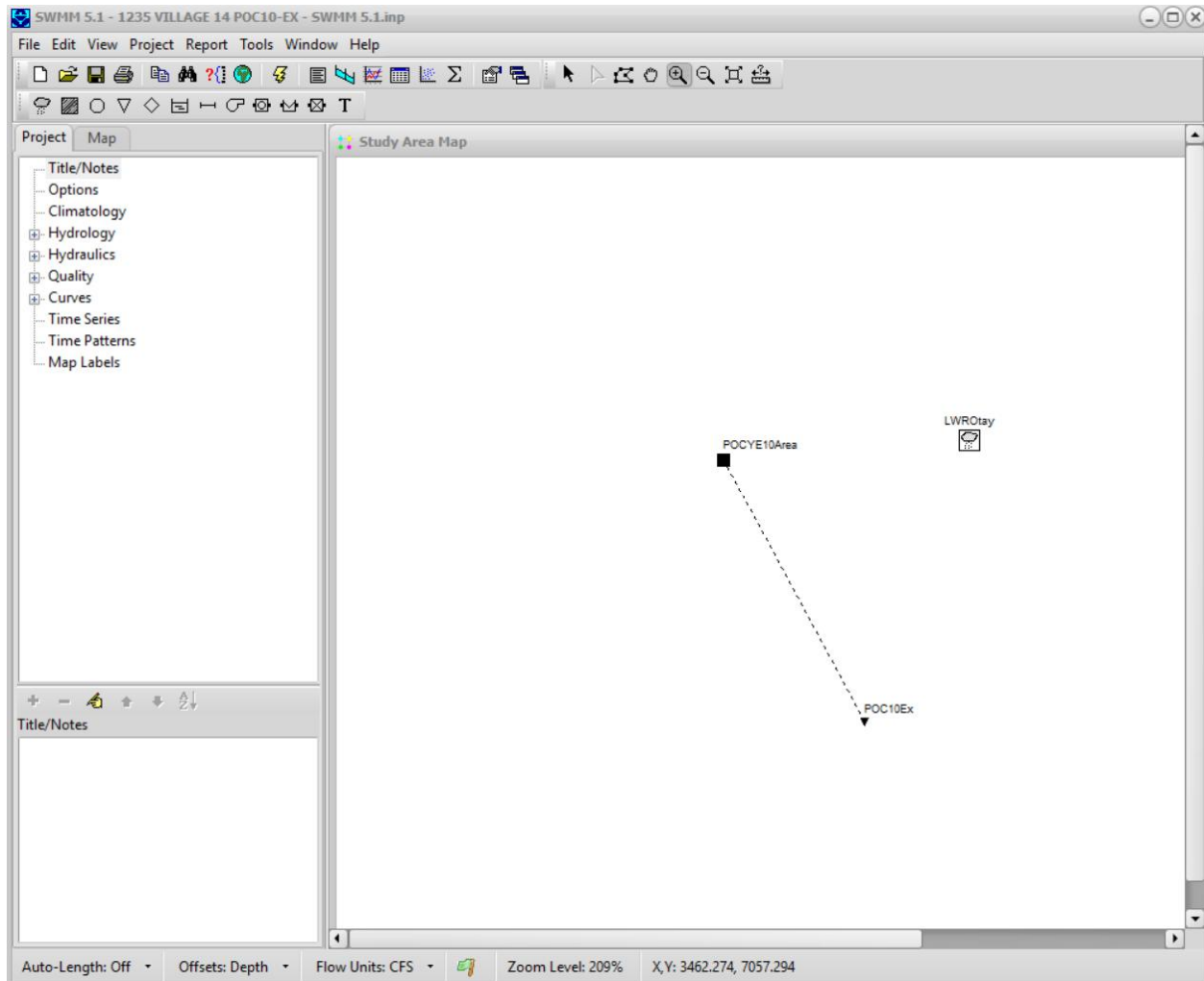
Divider Div-9	
Name	Div-9
X-Coordinate	981.151
Y-Coordinate	4560.296
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Max. Depth	0
Initial Depth	0
Surcharge Depth	0
Ponded Area	0
Diverted Link	Bypass-9
Type	CUTOFF
Cutoff Divider	
Cutoff Flow	0.18941
Tabular Divider	
Curve Name	*
Weir Divider	
Min. Flow	0
Max. Depth	0
Coefficient	0

Storage Unit POC9PRStorage	
Name	POC9PRStorage
X-Coordinate	947.368
Y-Coordinate	4198.830
Description	Basin #9
Tag	
Inflows	NO
Treatment	NO
Invert El.	890
Max. Depth	9
Initial Depth	0
Ponded Area	165897
Evap. Factor	1
Seepage Loss	NO
Storage Curve	TABULAR
Functional Curve	
Coefficient	1000
Exponent	0
Constant	0
Tabular Curve	
Curve Name	Basin#9

Outlet 9	
Property	Value
Name	9
Inlet Node	POC9PRStorage
Outlet Node	POC-9
Description	
Tag	
Inlet Offset	0
Flap Gate	NO
Rating Curve	TABULAR/DEPTH
Functional Curve	
Coefficient	10.0
Exponent	0.5
Tabular Curve	
Curve Name	Basin#9Outlet
User-assigned name of outlet	

Outfall POC-9	
Name	POC-9
X-Coordinate	1477.152
Y-Coordinate	3687.566
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*
User-assigned name of outfall	

POC 10 – Existing Condition



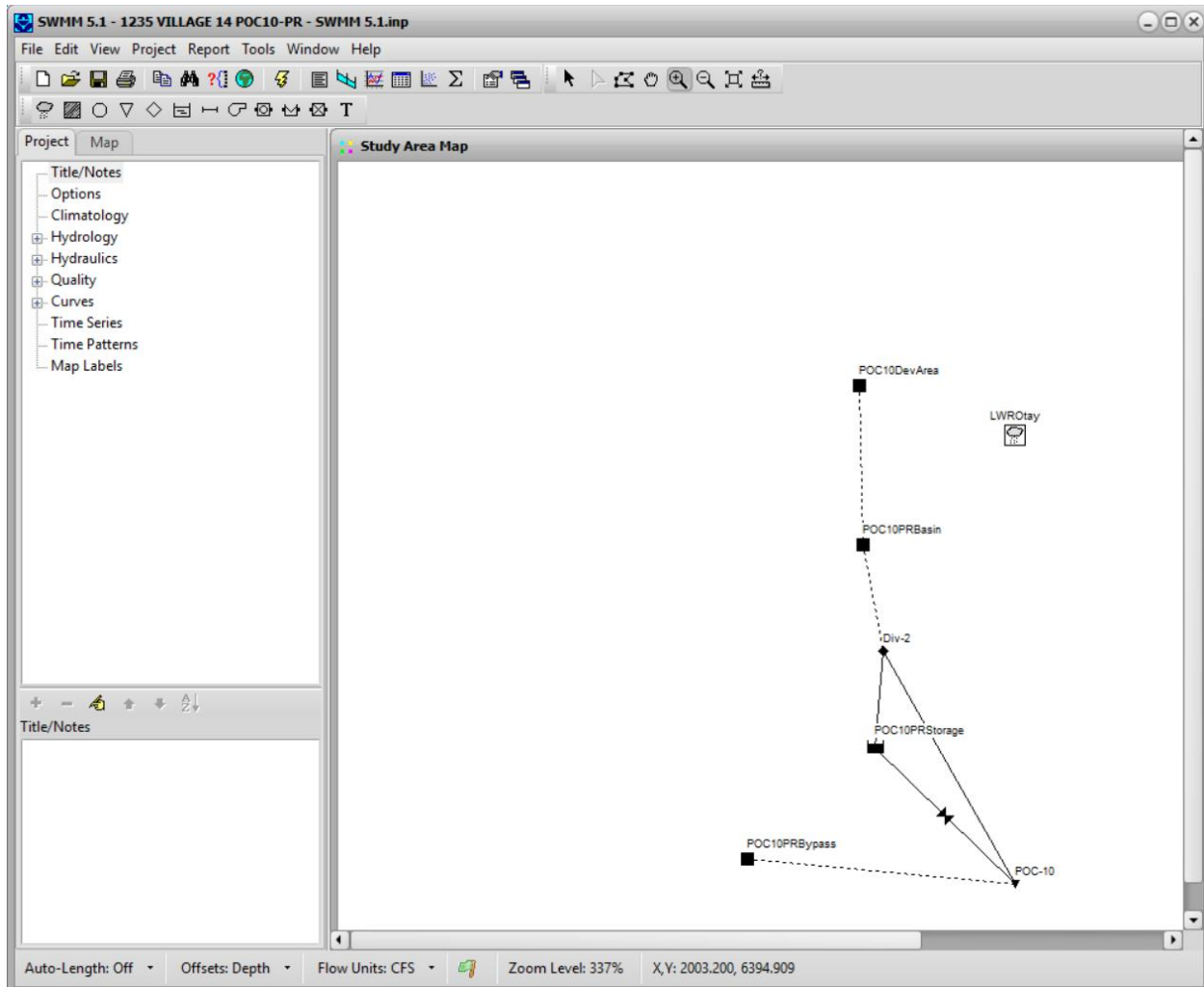
Property	Value
Name	POCYE10Area
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Existing Area
Tag	
Rain Gage	LWROtay
Outlet	POC10Ex
Area	31.69
Width	630
% Slope	10.9
% Imperv	0
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33
Soil capillary suction head (inches or mm)	

OK Cancel Help

Property	Value
Name	POC10Ex
X-Coordinate	1740.113
Y-Coordinate	3977.401
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*
User-assigned name of outfall	

POC 10 – Proposed Condition



Property	Value
Name	POC10DevArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Developed Area Tributary to Bas
Tag	
Rain Gage	LWROtay
Outlet	POC10PRBasin
Area	9.75
Width	102
% Slope	7.2
% Imperv	39.1
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	0.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK Cancel Help

Property	Value
Name	POC10PRBasin
X-Coordinate	904.472
Y-Coordinate	4959.350
Description	
Tag	
Rain Gage	LWROtay
Outlet	Div-2
Area	0.13
Width	113
% Slope	0.1
% Imperv	0
N-Imperv	0.012
N-Perv	0.1
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	1
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	1.5
Conductivity	0.3
Initial Deficit	0.3

Soil capillary suction head (inches or mm)

OK Cancel Help

Subcatchment POC10PRBypass

Name	POC10PRBypass
X-Coordinate	467.751
Y-Coordinate	3777.964
Description	Additional area not tributary to
Tag	
Rain Gage	LWROtay
Outlet	POC-10
Area	26.69
Width	537
% Slope	11.1
% Imperv	0
N-Imperv	0.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method
GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK

Cancel

Help

Divider Div-2	
Name	Div-2
X-Coordinate	981.151
Y-Coordinate	4560.296
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Max. Depth	0
Initial Depth	0
Surcharge Depth	0
Ponded Area	0
Diverted Link	Bypass-1
Type	CUTOFF
Cutoff Divider	
Cutoff Flow	0.04799
Tabular Divider	
Curve Name	*
Weir Divider	
Min. Flow	0
Max. Depth	0
Coefficient	0

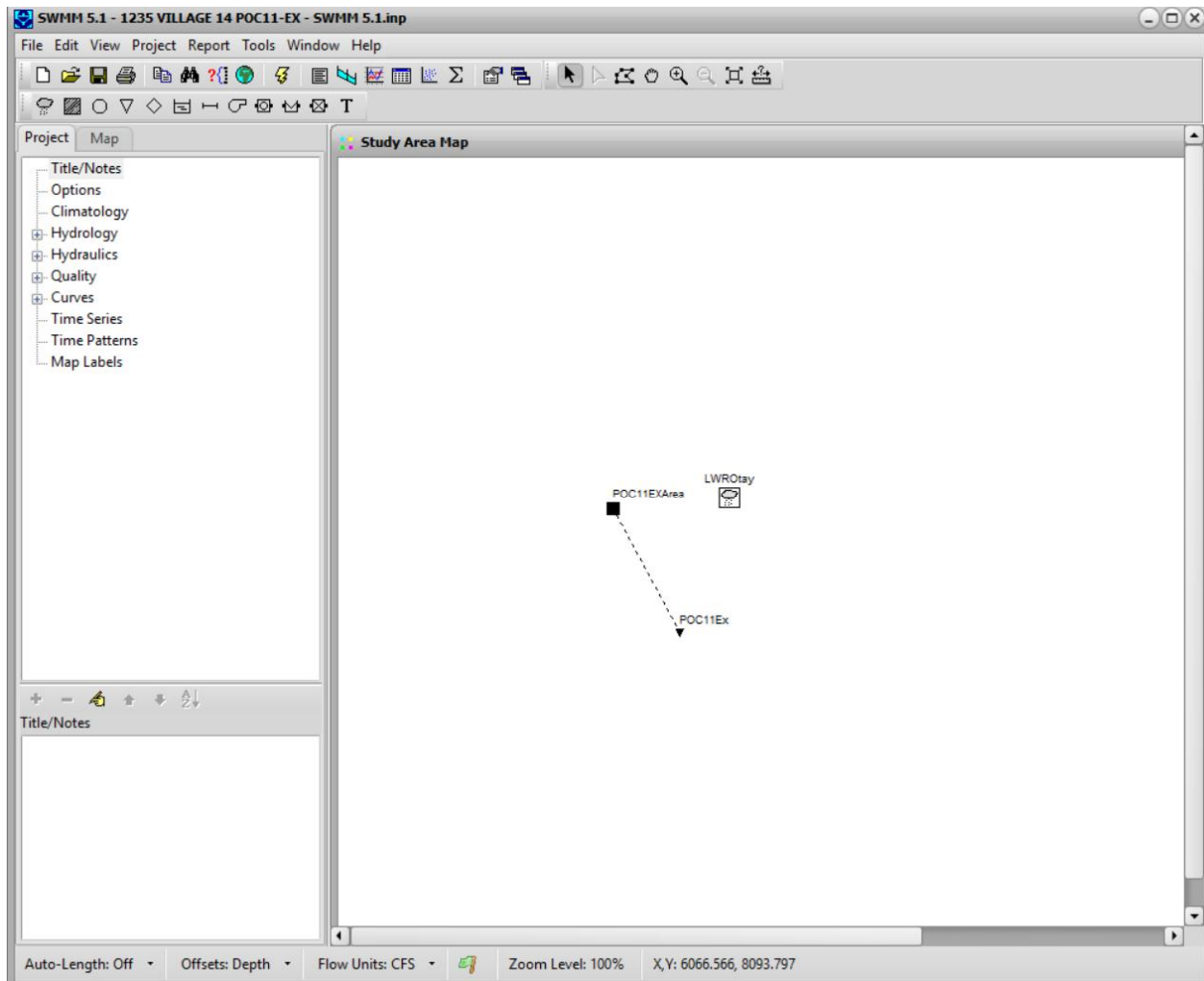
Storage Unit POC10PRStorage	
Name	POC10PRStorage
X-Coordinate	947.368
Y-Coordinate	4198.830
Description	Basin #10
Tag	
Inflows	NO
Treatment	NO
Invert El.	1045
Max. Depth	5
Initial Depth	0
Ponded Area	165897
Evap. Factor	1
Seepage Loss	NO
Storage Curve	TABULAR
Functional Curve	
Coefficient	1000
Exponent	0
Constant	0
Tabular Curve	
Curve Name	Basin#10

Outfall POC-10

✕

Name	POC-10
X-Coordinate	1477.152
Y-Coordinate	3687.566
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*
User-assigned name of outfall	

POC 11 – Existing Condition

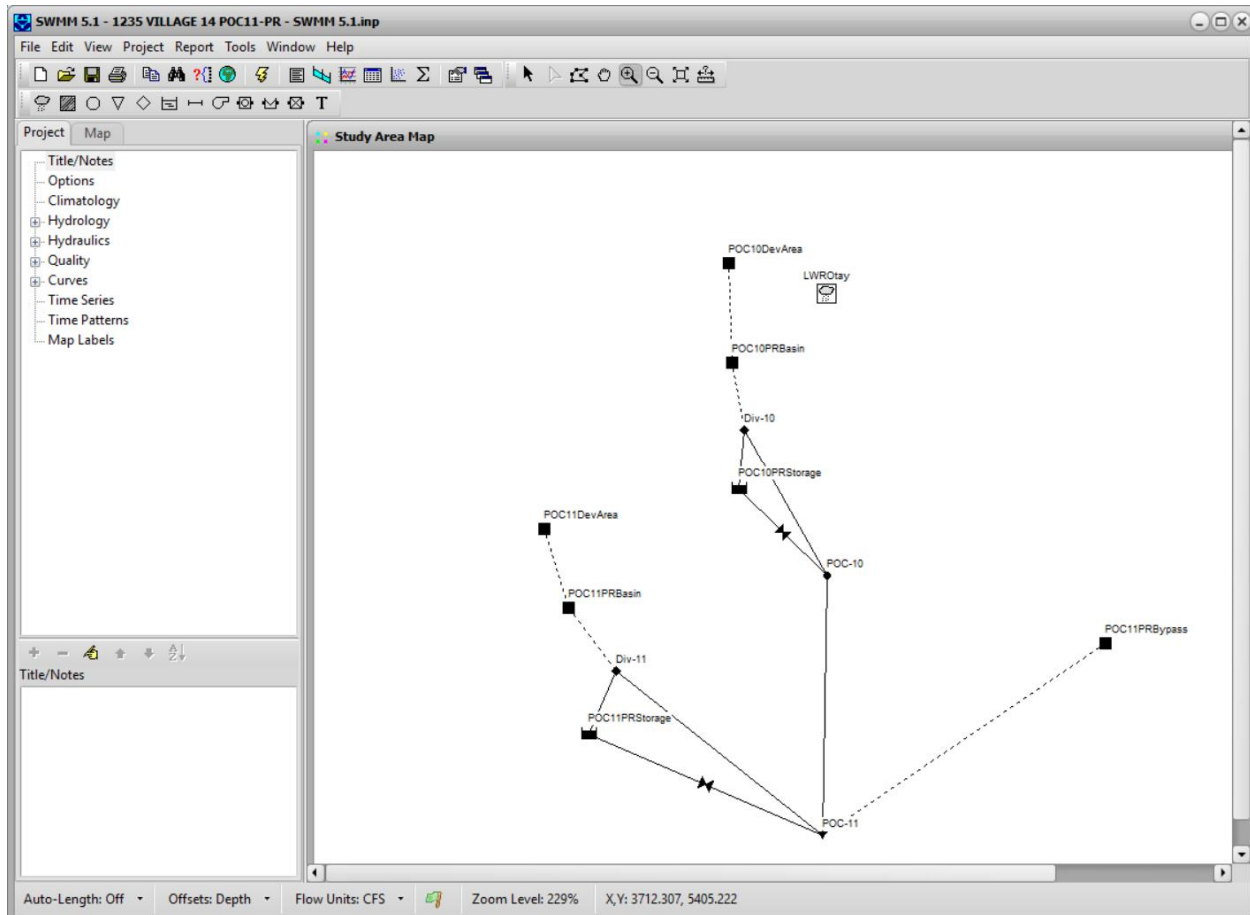


Property	Value
Name	POC11EXArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Existing Area
Tag	
Rain Gage	LWROtay
Outlet	POC11Ex
Area	637.92
Width	2838
% Slope	8.0
% Imperv	0
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0
User-assigned name of subcatchment	

Outfall POC11Ex	
Name	POC11Ex
X-Coordinate	1740.113
Y-Coordinate	3977.401
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*
User-assigned name of outfall	

POC 11 – Proposed Condition

Basin 10 information and input is same as POC 10 above.



Subcatchment POC11DevArea	
Name	POC11DevArea
X-Coordinate	-215.648
Y-Coordinate	3963.199
Description	
Tag	
Rain Gage	LWROtay
Outlet	POC11PRBasin
Area	8.39
Width	294
% Slope	4.4
% Imperv	34
N-Imperv	0.012
N-Perv	0.1
Dstore-Imperv	0.10
Dstore-Perv	0.05
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Subcatchment POC11PRBasin	
Name	POC11PRBasin
X-Coordinate	-72.028
Y-Coordinate	3491.304
Description	
Tag	
Rain Gage	LWROtay
Outlet	Div-11
Area	0.09
Width	34
% Slope	0.1
% Imperv	0
N-Imperv	0.012
N-Perv	0.1
Dstore-Imperv	0.05
Dstore-Perv	0.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	1
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor	
Infiltration Method	GREEN_AMPT
Property	Value
Suction Head	9.0
Conductivity	0.025
Initial Deficit	.33
Soil capillary suction head (inches or mm)	
OK Cancel Help	

Infiltration Editor	
Infiltration Method	GREEN_AMPT
Property	Value
Suction Head	3.0
Conductivity	0.5
Initial Deficit	4
Soil capillary suction head (inches or mm)	
OK Cancel Help	

Subcatchment POC11PRBypass

Property	Value
Name	POC11PRBypass
X-Coordinate	3141.499
Y-Coordinate	3284.055
Description	Additional area not to
Tag	
Rain Gage	LWROtay
Outlet	POC-11
Area	598.34
Width	2630
% Slope	7.9
% Imperv	0
N-Imperv	0.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK Cancel Help

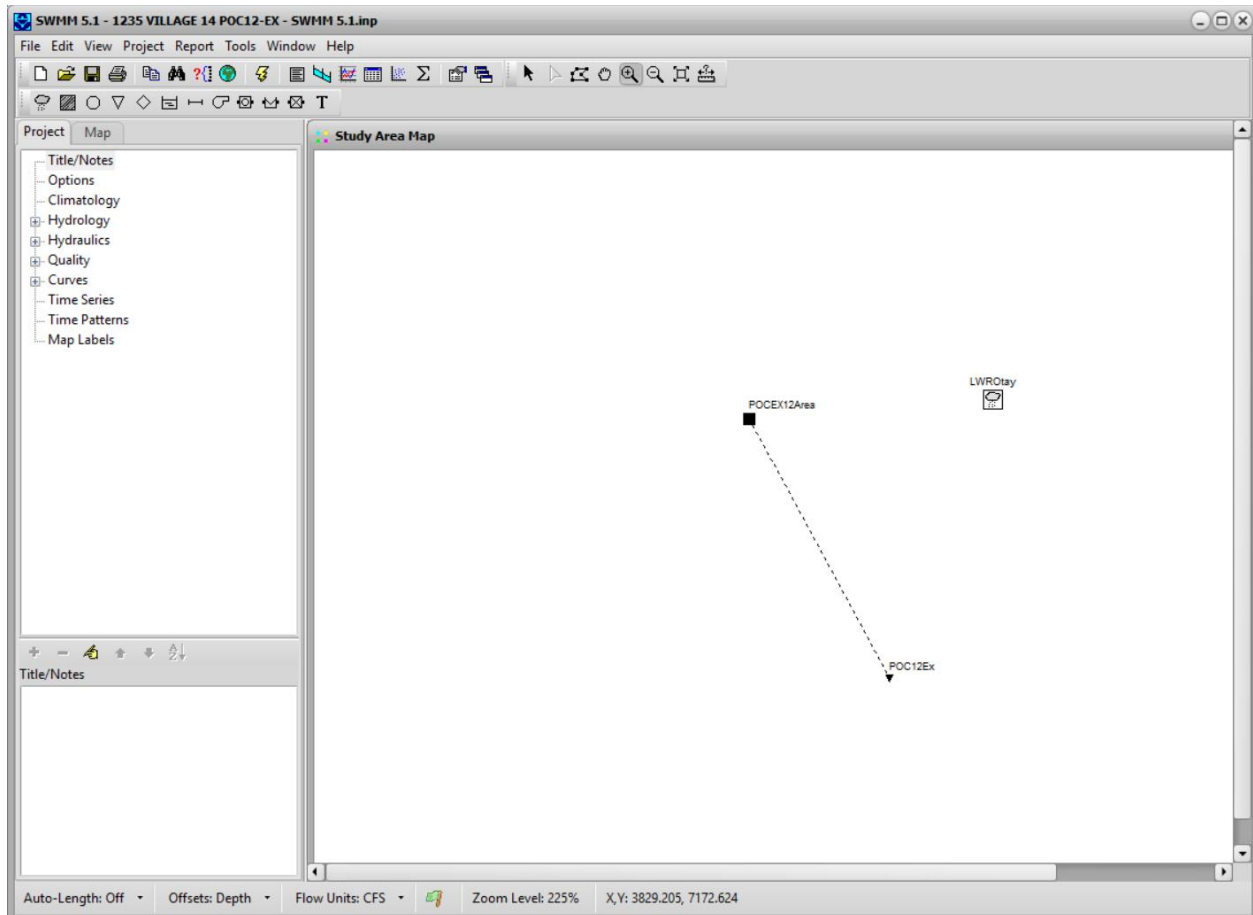
Divider Div-11

Property	Value
Name	Div-11
X-Coordinate	216.473
Y-Coordinate	3115.100
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Max. Depth	0
Initial Depth	0
Surcharge Depth	0
Ponded Area	0
Diverted Link	Bypass-11
Type	CUTOFF
Cutoff Divider	
Cutoff Flow	0.18941
Tabular Divider	
Curve Name	*
Weir Divider	
Min. Flow	0
Max. Depth	0
Coefficient	0

Storage Unit POC11PRStorage	
Name	POC11PRStorage
X-Coordinate	45.946
Y-Coordinate	2742.426
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	925
Max. Depth	5
Initial Depth	0
Ponded Area	0
Evap. Factor	1
Seepage Loss	NO
Storage Curve	TABULAR
Functional Curve	
Coefficient	1000
Exponent	0
Constant	0
Tabular Curve	
Curve Name	Basin#11

Outfall POC-11	
Name	POC-11
X-Coordinate	1451.374
Y-Coordinate	2137.169
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*
User-assigned name of outfall	

POC 12 – Existing Condition



Subcatchment POCEX12Area

Name	POCEX12Area
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Existing Area
Tag	
Rain Gage	LWROtay
Outlet	POC12Ex
Area	801.97
Width	3215
% Slope	7.4
% Imperv	0
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK Cancel Help

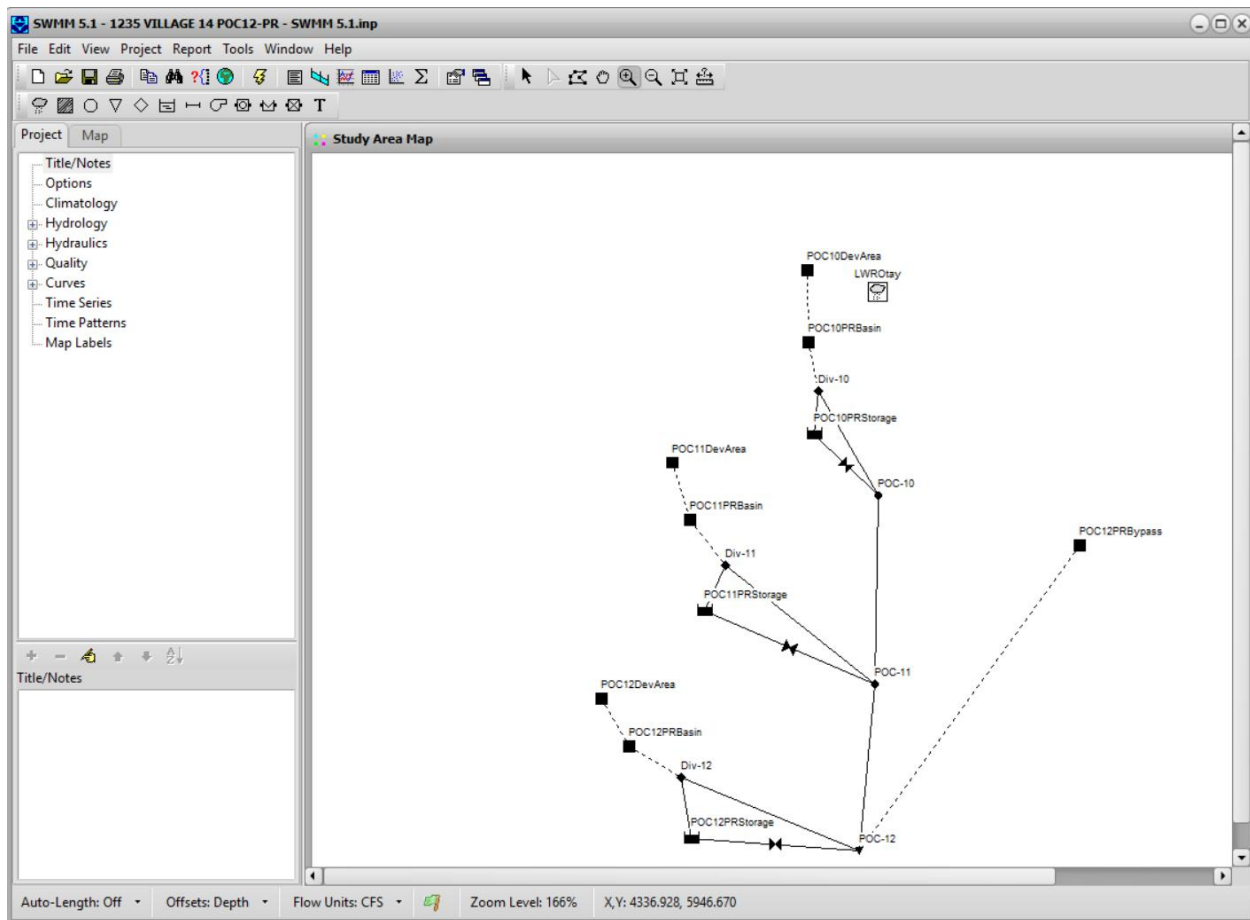
Outfall POC12Ex

Name	POC12Ex
X-Coordinate	1740.113
Y-Coordinate	3977.401
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*

User-assigned name of outfall

POC 12 – Proposed Condition

Basin information and input data for Basin 10 and 11 are same as above POC10 and POC11.



Subcatchment POC12DevArea

Name	POC12DevArea
X-Coordinate	-807.814
Y-Coordinate	2016.895
Description	
Tag	
Rain Gage	LWROtay
Outlet	POC12PRBasin
Area	43.16
Width	377
% Slope	2.9
% Imperv	27.1
N-Imperv	0.012
N-Perv	.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Subcatchment POC12PRBasin

Name	POC12PRBasin
X-Coordinate	-575.502
Y-Coordinate	1626.188
Description	
Tag	
Rain Gage	LWROtay
Outlet	Div-12
Area	0.49
Width	40
% Slope	.1
% Imperv	0
N-Imperv	0.012
N-Perv	0.1
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	1
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	.33

Soil capillary suction head (inches or mm)

OK Cancel Help

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	1.5
Conductivity	.3
Initial Deficit	.3

Soil capillary suction head (inches or mm)

OK Cancel Help

Subcatchment POC12PRBypass	
Name	POC12PRBypass
X-Coordinate	3187.879
Y-Coordinate	3296.970
Description	Additional area not to
Tag	
Rain Gage	LWROtay
Outlet	POC-12
Area	748.51
Width	2956
% Slope	7.2
% Imperv	0.30
N-Imperv	0.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

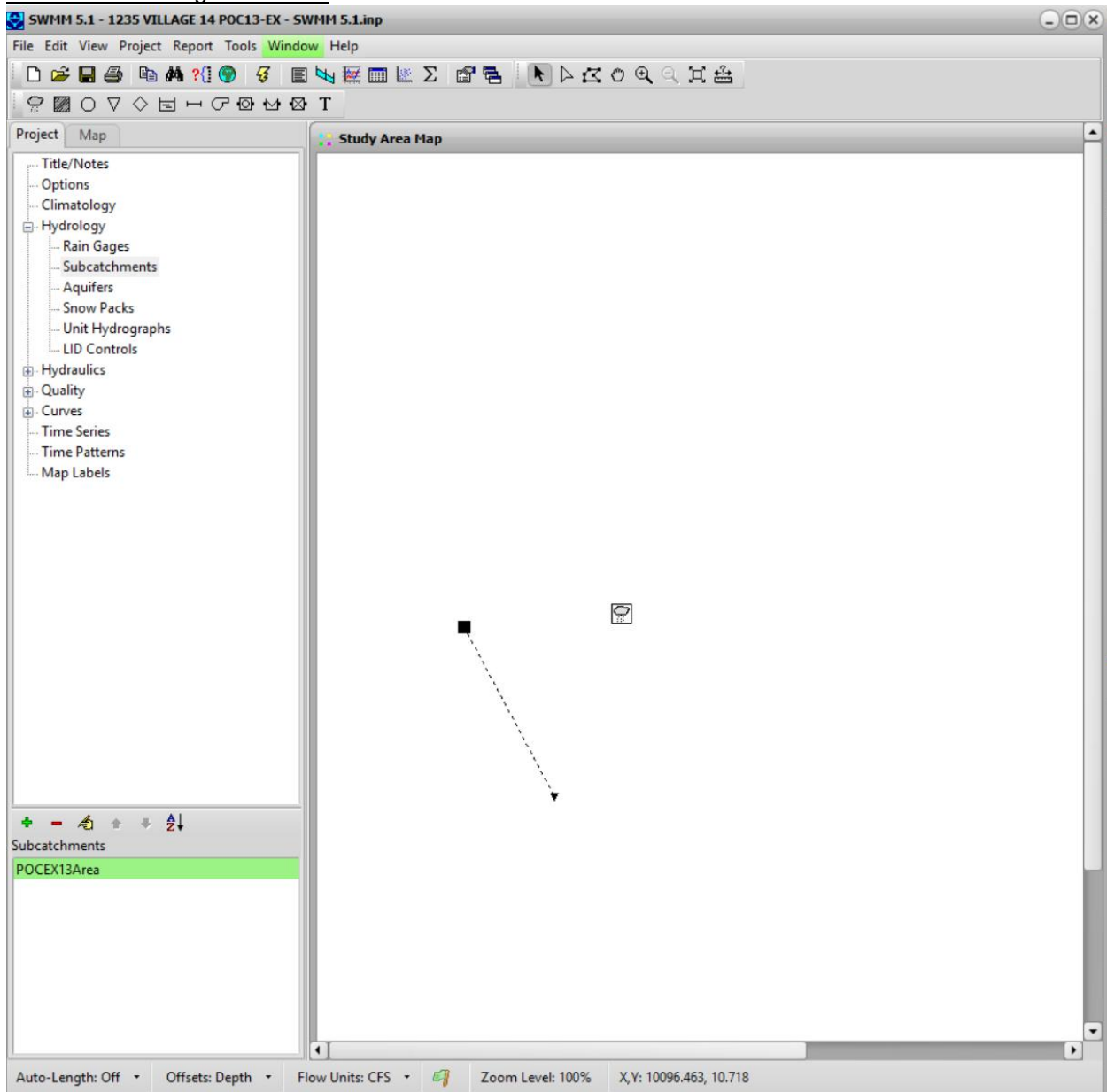
Infiltration Editor	
Infiltration Method	GREEN_AMPT
Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33
Soil capillary suction head (inches or mm)	
OK Cancel Help	

Divider Div-12	
Name	Div-12
X-Coordinate	-142.555
Y-Coordinate	1372.756
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Max. Depth	0
Initial Depth	0
Surcharge Depth	0
Ponded Area	0
Diverted Link	Bypass-12
Type	CUTOFF
Cutoff Divider	
Cutoff Flow	0.18941
Tabular Divider	
Curve Name	*
Weir Divider	
Min. Flow	0
Max. Depth	0
Coefficient	0

Storage Unit POC12PRStorage	
Name	POC12PRStorage
X-Coordinate	-68.638
Y-Coordinate	865.892
Description	Basin #Z
Tag	
Inflows	NO
Treatment	NO
Invert El.	906
Max. Depth	7
Initial Depth	0
Ponded Area	0
Evap. Factor	1
Seepage Loss	NO
Storage Curve	TABULAR
Functional Curve	
Coefficient	1000
Exponent	0
Constant	0
Tabular Curve	
Curve Name	Basin#12

Outfall POC-12	
Name	POC-12
X-Coordinate	1325.238
Y-Coordinate	770.855
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*
User-assigned name of outfall	

POC 13 – Existing Condition



Subcatchment POCEX13Area

Name	POCEX13Area
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Existing Area
Tag	
Rain Gage	LWROtay
Outlet	POC13Ex
Area	26.77
Width	923
% Slope	10.3
% Imperv	0
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

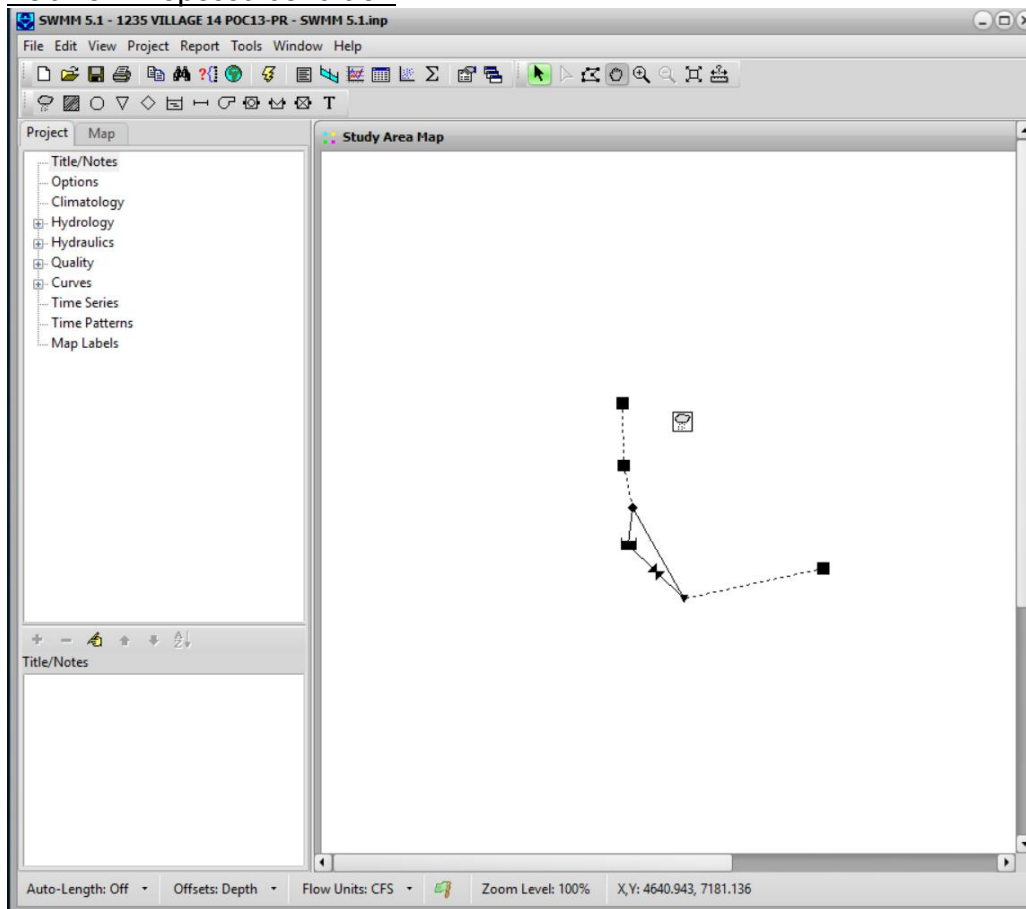
OK Cancel Help

Outfall POC13Ex

Name	POC13Ex
X-Coordinate	1740.113
Y-Coordinate	3977.401
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*

User-assigned name of outfall

POC 13 – Proposed Condition



Subcatchment POC13DevArea	
Property	Value
Name	POC13DevArea
X-Coordinate	890.923
Y-Coordinate	5558.444
Description	Developed Area Trib
Tag	
Rain Gage	LWROtay
Outlet	POC13PRBasin
Area	0.98
Width	55
% Slope	3.3
% Imperv	94.9
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Subcatchment POC13PRBasin	
Property	Value
Name	POC13PRBasin
X-Coordinate	904.472
Y-Coordinate	4959.350
Description	
Tag	
Rain Gage	LWROtay
Outlet	Div-13
Area	.04
Width	44
% Slope	0.1
% Imperv	0
N-Imperv	0.012
N-Perv	0.1
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	1
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	0.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK Cancel Help

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	1.5
Conductivity	0.3
Initial Deficit	0.3

Soil capillary suction head (inches or mm)

OK Cancel Help

Subcatchment POC13PRBypass

Name	POC13PRBypass
X-Coordinate	2803.590
Y-Coordinate	3980.993
Description	Additional area not tributary
Tag	
Rain Gage	LWROtay
Outlet	POC-13
Area	26.07
Width	899
% Slope	10.3
% Imperv	0
N-Imperv	0.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT ...
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK Cancel Help

Divider Div-13

Name	Div-13
X-Coordinate	981.151
Y-Coordinate	4560.296
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Max. Depth	0
Initial Depth	0
Surcharge Depth	0
Ponded Area	0
Diverted Link	Bypass-14
Type	CUTOFF
Cutoff Divider	
Cutoff Flow	0.02708
Tabular Divider	
Curve Name	*
Weir Divider	
Min. Flow	0
Max. Depth	0
Coefficient	0

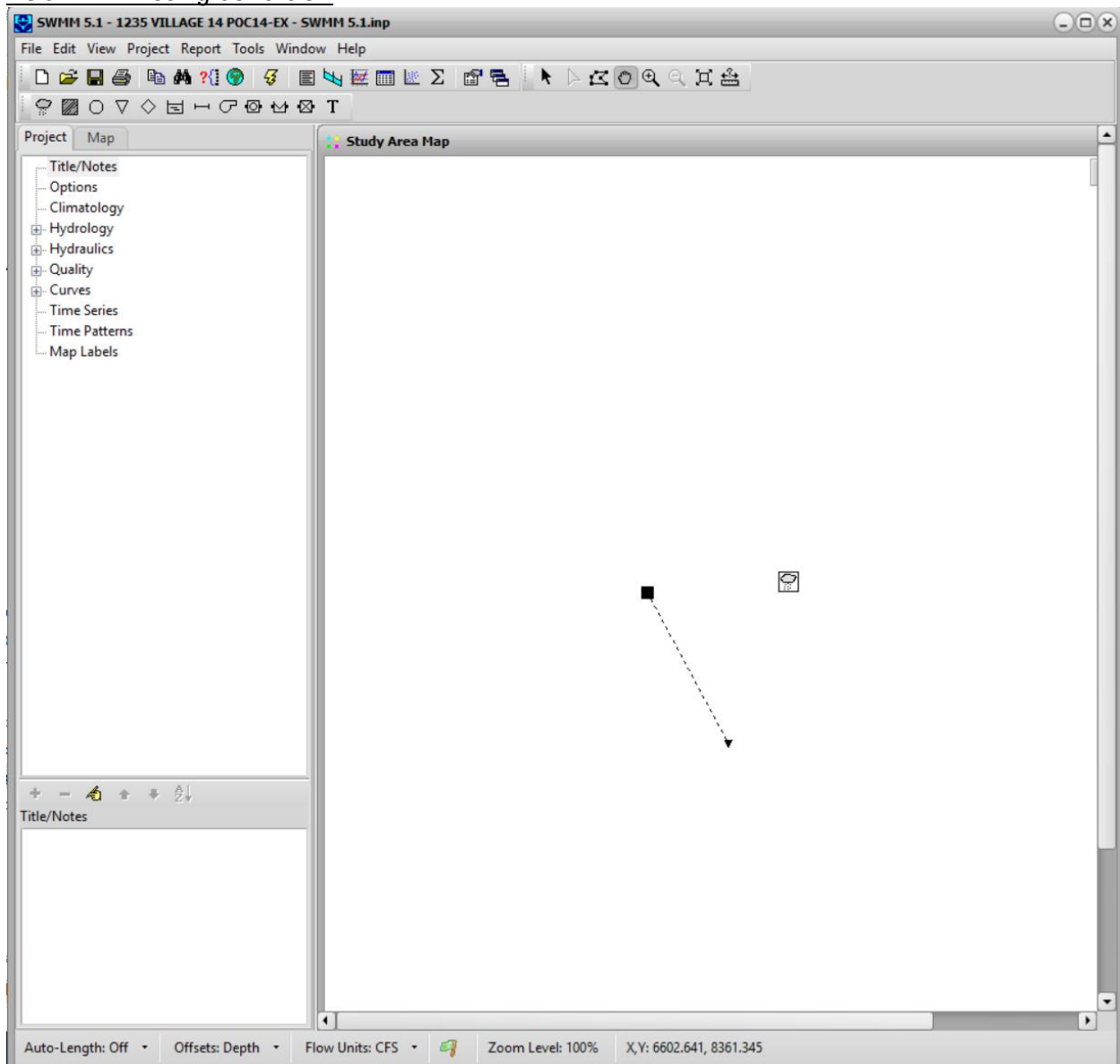
Storage Unit POC14PRStorage	
Name	POC14PRStorage
X-Coordinate	947.368
Y-Coordinate	4198.830
Description	Basin #14
Tag	
Inflows	NO
Treatment	NO
Invert El.	1046
Max. Depth	3.5
Initial Depth	0
Ponded Area	165897
Evap. Factor	1
Seepage Loss	NO
Storage Curve	TABULAR
Functional Curve	
Coefficient	1000
Exponent	0
Constant	0
Tabular Curve	
Curve Name	Basin#14

Outlet 1	
Name	1
Inlet Node	POC14PRStorage
Outlet Node	POC-13
Description	
Tag	
Inlet Offset	0
Flap Gate	NO
Rating Curve	TABULAR/DEPTH
Functional Curve	
Coefficient	10.0
Exponent	0.5
Tabular Curve	
Curve Name	Basin#14Outlet
User-assigned name of outlet	

Outfall POC-13
✕

Name	POC-13
X-Coordinate	1477.152
Y-Coordinate	3687.566
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*
User-assigned name of outfall	

POC 14 – Existing Condition



Subcatchment POCEX14Area

Property	Value
Name	POCEX14Area
X-Coordinate	893.037
Y-Coordinate	5600.404
Description	Existing Area
Tag	
Rain Gage	LWROtay
Outlet	POC14Ex
Area	23.4
Width	807
% Slope	7.7
% Imperv	0
N-Imperv	.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method
GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33

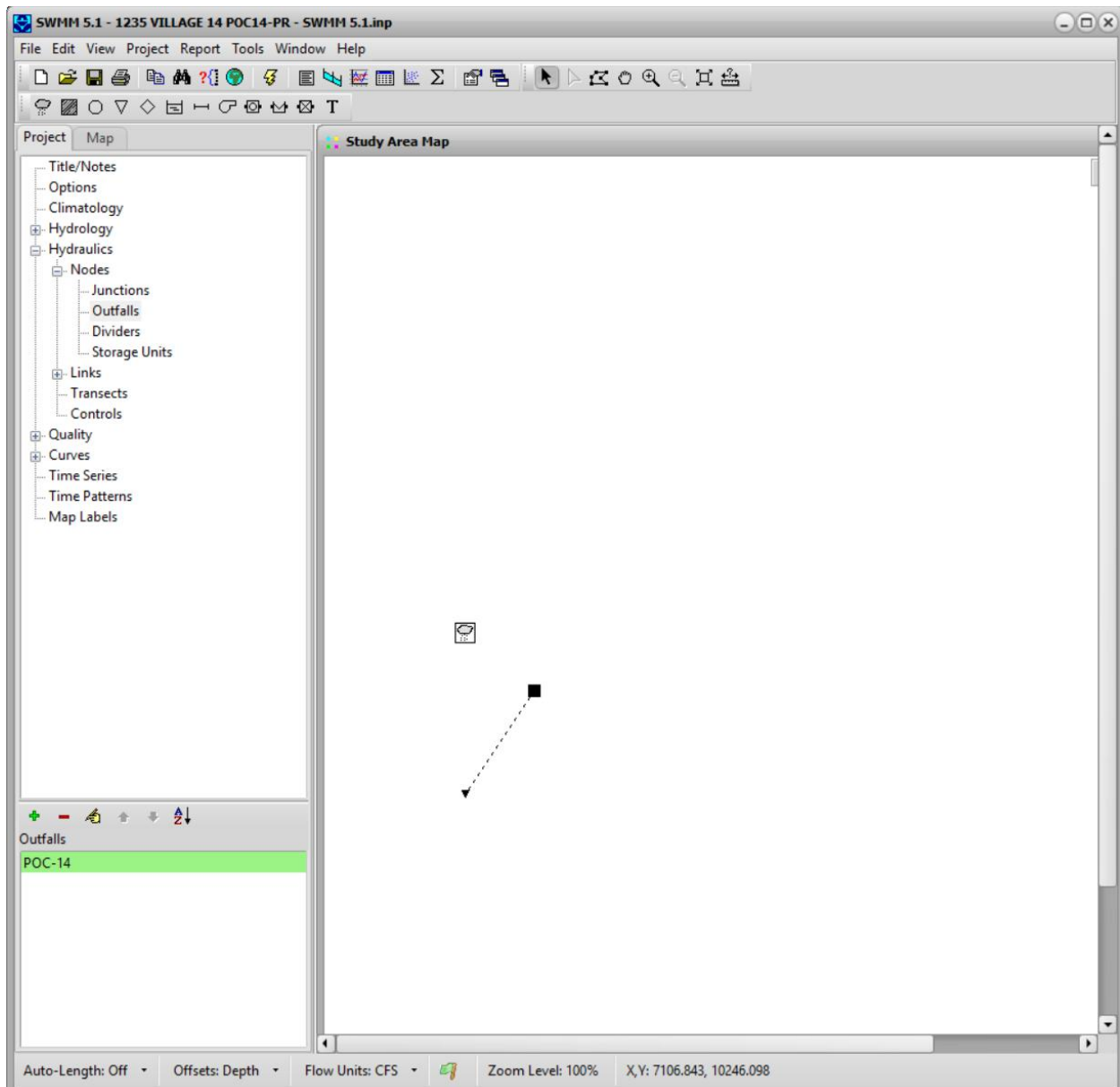
Soil capillary suction head (inches or mm)

OK

Cancel

Help

POC 14 – Proposed Condition



Subcatchment POC14PR

Name	POC14PR
X-Coordinate	2196.879
Y-Coordinate	4771.909
Description	
Tag	
Rain Gage	LWROtay
Outlet	POC-14
Area	12.23
Width	281
% Slope	5.1
% Imperv	16
N-Imperv	0.012
N-Perv	0.10
Dstore-Imperv	0.05
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Infiltration Editor

Infiltration Method
GREEN_AMPT

Property	Value
Suction Head	9
Conductivity	.025
Initial Deficit	0.33

Soil capillary suction head (inches or mm)

OK

Cancel

Help

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 ft./s^2 , and H and H_D are defined above and are also used in inches in Equation (2).

BIOFILTRATION BASIN #1

LID Usage Editor

LID Control Name

LID-1

Detailed Report File (Optional)

☒ LID Occupies Full Subcatchment

Area of Each Unit (sq ft or sq m)

129891

Number of Units

1

% of Subcatchment Occupied

99.7

Surface Width per Unit (ft or m)

0

% Initially Saturated

1

% of Impervious Area Treated

100

Send Drain Flow To:

(Leave blank to use outlet of current subcatchment)

☐ Return all Outflow to Pervious Area

OK

Cancel

Help

LID Control Editor

Control Name

LID-1

LID Type

Bio-Retention Cell

*Optional

OK

Cancel

Help

Surface

Soil

Storage

Drain

Berm Height (in. or mm)

6

Vegetation Volume Fraction

0.0

Surface Roughness (Mannings n)

0

Surface Slope (percent)

0

LID Control Editor

Control Name

LID-1

LID Type

Bio-Retention Cell

*Optional

OK

Cancel

Help

Surface

Soil

Storage

Drain

Thickness (in. or mm)

21

Porosity (volume fraction)

.4

Field Capacity (volume fraction)

0.2

Wilting Point (volume fraction)

0.1

Conductivity (in/hr or mm/hr)

5

Conductivity Slope

5

Suction Head (in. or mm)

1.5

LID Control Editor

Control Name

LID-1

LID Type

Bio-Retention Cell

*Optional

OK

Cancel

Help

Surface

Soil

Storage

Drain

Thickness (in. or mm)

24

Void Ratio (Voids / Solids)

0.67

Seepage Rate (in/hr or mm/hr)

0.5

Clogging Factor

0

LID Control Editor

OK

Cancel

Help

*Optional

LID Type

Bio-Retention Cell

Control Name

LID-1

Surface

Soil

Storage

Drain

Thickness (in. or mm)

24

Void Ratio (Voids / Solids)

0.67

Seepage Rate (in/hr or mm/hr)

0.5

Clogging Factor

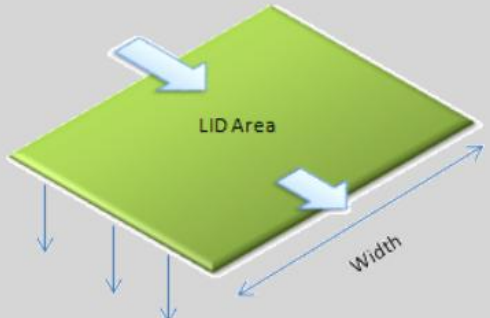
0

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BIOFILTRATION BASIN #2

LID Usage Editor

LID Control Name: **LID-2**



Detailed Report File (Optional)

☐ LID Occupies Full Subcatchment

Area of Each Unit (sq ft or sq m): 90985

Number of Units: 1

% of Subcatchment Occupied: 99.9

Surface Width per Unit (ft or m): 0

% Initially Saturated: 1

% of Impervious Area Treated: 100

Send Drain Flow To:
(Leave blank to use outlet of current subcatchment)

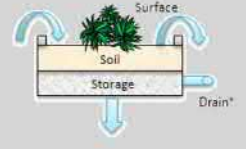
☐ Return all Outflow to Pervious Area

OK Cancel Help

LID Control Editor

Control Name: **LID-2**

LID Type: Bio-Retention Cell



*Optional

OK Cancel Help

Surface Soil Storage Drain

Berm Height (in. or mm): 6

Vegetation Volume Fraction: 0

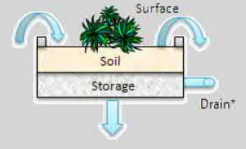
Surface Roughness (Mannings n): 0

Surface Slope (percent): 0

LID Control Editor

Control Name: **LID-2**

LID Type: Bio-Retention Cell



*Optional

OK Cancel Help

Surface Soil Storage Drain

Thickness (in. or mm): 21

Porosity (volume fraction): 0.4

Field Capacity (volume fraction): 0.2

Wilting Point (volume fraction): 0.1

Conductivity (in/hr or mm/hr): 5

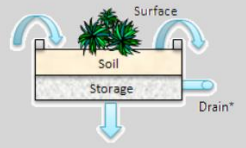
Conductivity Slope: 5

Suction Head (in. or mm): 1.5

LID Control Editor

Control Name: **LID-2**

LID Type: Bio-Retention Cell



*Optional

OK Cancel Help

Surface Soil Storage Drain

Thickness (in. or mm): 12

Void Ratio (Voids / Solids): .67

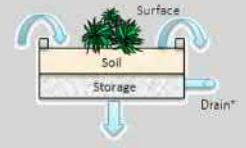
Seepage Rate (in/hr or mm/hr): 0

Clogging Factor: 0

LID Control Editor

Control Name: **LID-2**

LID Type: Bio-Retention Cell



*Optional

OK Cancel Help

Surface Soil Storage Drain

Flow Coefficient*: 0.0448

Flow Exponent: 0.5

Offset Height (in. or mm): 0

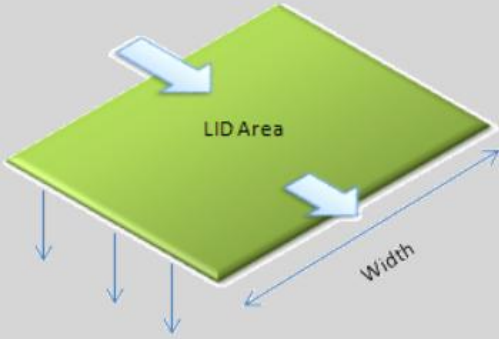
[Drain Advisor](#)

*Units are for flow in either in/hr or mm/hr; use 0 if there is no drain.

BIOFILTRATION BASIN #3

LID Usage Editor

LID Control Name: **LID-3**



LID Occupies Full Subcatchment ☒

Area of Each Unit (sq ft or sq m): 4231

Number of Units: 1

% of Subcatchment Occupied: 46.3

Surface Width per Unit (ft or m): 0

% Initially Saturated: 1

% of Impervious Area Treated: 100

Send Drain Flow To:
(Leave blank to use outlet of current subcatchment)

☐ Return all Outflow to Pervious Area

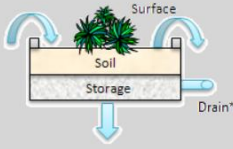
Detailed Report File (Optional):

OK Cancel Help

LID Control Editor

Control Name: **LID-3**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface Soil Storage Drain

Berm Height (in. or mm): 6

Vegetation Volume Fraction: 0.1

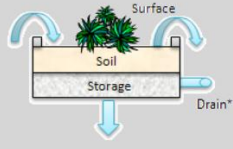
Surface Roughness (Mannings n): 0.1

Surface Slope (percent): 0

LID Control Editor

Control Name: **LID-3**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface Soil Storage Drain

Thickness (in. or mm): 21

Porosity (volume fraction): 0.4

Field Capacity (volume fraction): 0.25

Wilting Point (volume fraction): 0.05

Conductivity (in/hr or mm/hr): 5

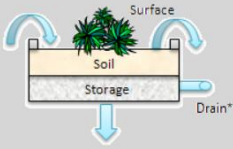
Conductivity Slope: 5

Suction Head (in. or mm): 1.5

LID Control Editor

Control Name: **LID-3**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface Soil Storage Drain

Thickness (in. or mm): 12

Void Ratio (Voids / Solids): .67

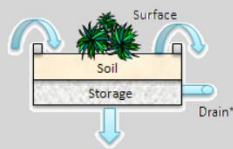
Seepage Rate (in/hr or mm/hr): 0

Clogging Factor: 0

LID Control Editor

Control Name: **LID-3**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface Soil Storage Drain

Flow Coefficient*: 0.0569

Flow Exponent: 0.5

Offset Height (in. or mm): 0

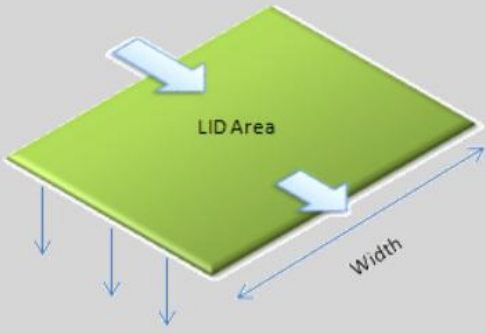
[Drain Advisor](#)

*Units are for flow in either in/hr or mm/hr; use 0 if there is no drain.

BIOFILTRATION BASIN #4

LID Usage Editor

LID Control Name: **BR-4**



Area of Each Unit (sq ft or sq m): 3380

Number of Units: 1

% of Subcatchment Occupied: 97.0

Surface Width per Unit (ft or m): 0

% Initially Saturated: 1

% of Impervious Area Treated: 100

Send Drain Flow To:
(Leave blank to use outlet of current subcatchment)

☐ **LID Occupies Full Subcatchment**

☐ **Return all Outflow to Pervious Area**

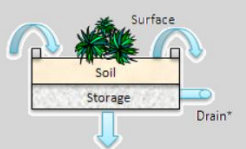
Detailed Report File (Optional)

OK Cancel Help

LID Control Editor

Control Name: **BR-4**

LID Type: **Bio-Retention Cell**



Surface | Soil | Storage | Drain

Berm Height (in. or mm): 6

Vegetation Volume Fraction: 0.1

Surface Roughness (Mannings n): 0.1

Surface Slope (percent): 0

*Optional

OK Cancel Help

LID Control Editor

Control Name: **BR-4**

LID Type: **Bio-Retention Cell**



Surface | Soil | Storage | Drain

Thickness (in. or mm): 21

Porosity (volume fraction): 0.4

Field Capacity (volume fraction): 0.2

Wilting Point (volume fraction): 0.1

Conductivity (in/hr or mm/hr): 5

Conductivity Slope: 5

Suction Head (in. or mm): 1.5

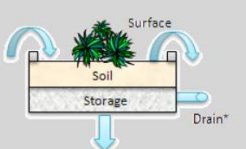
*Optional

OK Cancel Help

LID Control Editor

Control Name: **BR-4**

LID Type: **Bio-Retention Cell**



Surface | Soil | Storage | Drain

Thickness (in. or mm): 24

Void Ratio (Voids / Solids): 0.67

Seepage Rate (in/hr or mm/hr): 0

Clogging Factor: 0

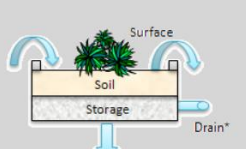
*Optional

OK Cancel Help

LID Control Editor

Control Name: **BR-4**

LID Type: **Bio-Retention Cell**



Surface | Soil | Storage | Drain

Flow Coefficient*: 0.0712

Flow Exponent: 0.5

Offset Height (in. or mm): 0

[Drain Advisor](#)

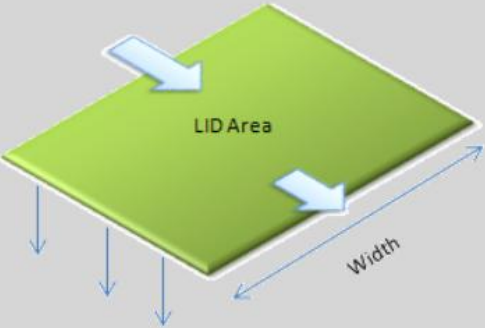
*Units are for flow in either in/hr or mm/hr; use 0 if there is no drain.

OK Cancel Help

BIOFILTRATION BASIN #5

LID Usage Editor

LID Control Name: **BR-5**



Detailed Report File (Optional):

☐ LID Occupies Full Subcatchment

Area of Each Unit (sq ft or sq m):

Number of Units:

% of Subcatchment Occupied:

Surface Width per Unit (ft or m):

% Initially Saturated:

% of Impervious Area Treated:

Send Drain Flow To:
(Leave blank to use outlet of current subcatchment)

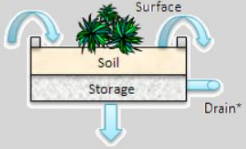
☐ Return all Outflow to Pervious Area

OK Cancel Help

LID Control Editor

Control Name: **BR-5**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface Soil Storage Drain

Berm Height (in. or mm):

Vegetation Volume Fraction:

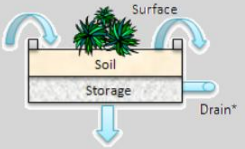
Surface Roughness (Mannings n):

Surface Slope (percent):

LID Control Editor

Control Name: **BR-5**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface Soil Storage Drain

Thickness (in. or mm):

Porosity (volume fraction):

Field Capacity (volume fraction):

Wilting Point (volume fraction):

Conductivity (in/hr or mm/hr):

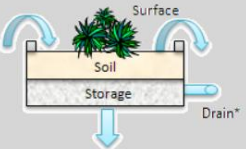
Conductivity Slope:

Suction Head (in. or mm):

LID Control Editor

Control Name: **BR-5**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface Soil Storage Drain

Thickness (in. or mm):

Void Ratio (Voids / Solids):

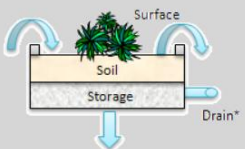
Seepage Rate (in/hr or mm/hr):

Clogging Factor:

LID Control Editor

Control Name: **BR-5**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface Soil Storage Drain

Flow Coefficient*:

Flow Exponent:

Offset Height (in. or mm):

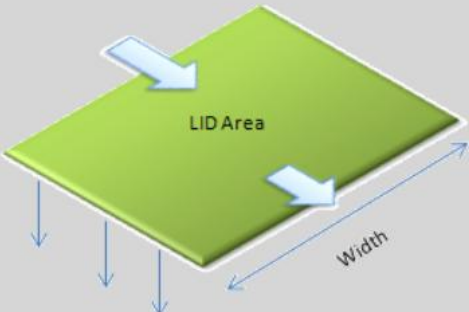
[Drain Advisor](#)

*Units are for flow in either in/hr or mm/hr; use 0 if there is no drain.

BIOFILTRATION BASIN #6

LID Usage Editor

LID Control Name: **LID-6**



Area of Each Unit (sq ft or sq m): 4350

Number of Units: 1

% of Subcatchment Occupied: 99.9

Surface Width per Unit (ft or m): 0

% Initially Saturated: 1

% of Impervious Area Treated: 100

Send Drain Flow To:
(Leave blank to use outlet of current subcatchment)

☐ LID Occupies Full Subcatchment

☐ Return all Outflow to Pervious Area

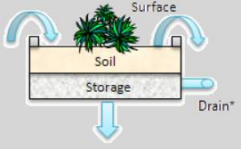
Detailed Report File (Optional)

OK Cancel Help

LID Control Editor

Control Name: **LID-6**

LID Type: **Bio-Retention Cell**



Surface | **Soil** | **Storage** | **Drain**

Berm Height (in. or mm): 6

Vegetation Volume Fraction: 0

Surface Roughness (Mannings n): 0

Surface Slope (percent): 0

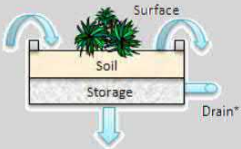
*Optional

OK Cancel Help

LID Control Editor

Control Name: **LID-6**

LID Type: **Bio-Retention Cell**



Surface | **Soil** | **Storage** | **Drain**

Thickness (in. or mm): 21

Porosity (volume fraction): 0.4

Field Capacity (volume fraction): 0.2

Wilting Point (volume fraction): 0.1

Conductivity (in/hr or mm/hr): 5

Conductivity Slope: 5

Suction Head (in. or mm): 1.5

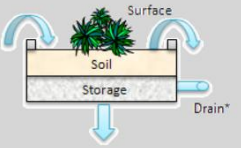
*Optional

OK Cancel Help

LID Control Editor

Control Name: **LID-6**

LID Type: **Bio-Retention Cell**



Surface | **Soil** | **Storage** | **Drain**

Thickness (in. or mm): 12

Void Ratio (Voids / Solids): .67

Seepage Rate (in/hr or mm/hr): 0

Clogging Factor: 0

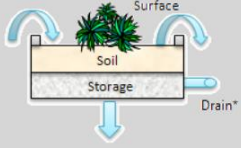
*Optional

OK Cancel Help

LID Control Editor

Control Name: **LID-6**

LID Type: **Bio-Retention Cell**



Surface | **Soil** | **Storage** | **Drain**

Flow Coefficient*: 0.0765

Flow Exponent: 0.5

Offset Height (in. or mm): 0

[Drain Advisor](#)

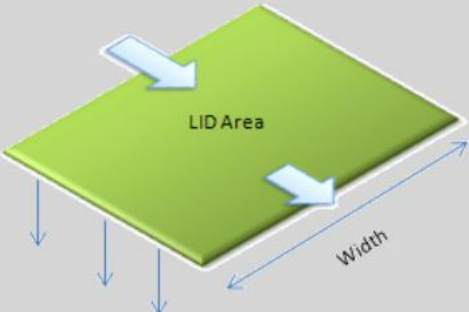
*Units are for flow in either in/hr or mm/hr; use 0 if there is no drain.

OK Cancel Help

BIOFILTRATION BASIN #7

LID Usage Editor

LID Control Name: **LID-7**



Detailed Report File (Optional)

☐ LID Occupies Full Subcatchment

Area of Each Unit (sq ft or sq m): 3250

Number of Units: 1

% of Subcatchment Occupied: 82.9

Surface Width per Unit (ft or m): 0

% Initially Saturated: 1

% of Impervious Area Treated: 100

Send Drain Flow To:
(Leave blank to use outlet of current subcatchment)

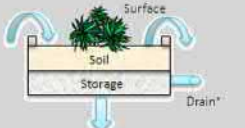
☐ Return all Outflow to Pervious Area

OK Cancel Help

LID Control Editor

Control Name: **LID-7**

LID Type: Bio-Retention Cell



*Optional

OK Cancel Help

Surface Soil Storage Drain

Berm Height (in. or mm): 6

Vegetation Volume Fraction: 0

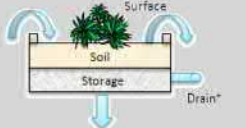
Surface Roughness (Mannings n): 0

Surface Slope (percent): 0

LID Control Editor

Control Name: **LID-7**

LID Type: Bio-Retention Cell



*Optional

OK Cancel Help

Surface Soil Storage Drain

Thickness (in. or mm): 21

Porosity (volume fraction): 0.4

Field Capacity (volume fraction): 0.2

Wilting Point (volume fraction): 0.1

Conductivity (in/hr or mm/hr): 5

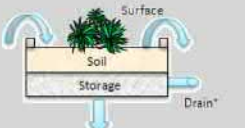
Conductivity Slope: 5

Suction Head (in. or mm): 1.5

LID Control Editor

Control Name: **LID-7**

LID Type: Bio-Retention Cell



*Optional

OK Cancel Help

Surface Soil Storage Drain

Thickness (in. or mm): 12

Void Ratio (Voids / Solids): .67

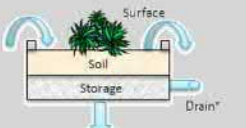
Seepage Rate (in/hr or mm/hr): 0

Clogging Factor: 0

LID Control Editor

Control Name: **LID-7**

LID Type: Bio-Retention Cell



*Optional

OK Cancel Help

Surface Soil Storage Drain

Flow Coefficient*: 0.0576

Flow Exponent: 0.5

Offset Height (in. or mm): 0

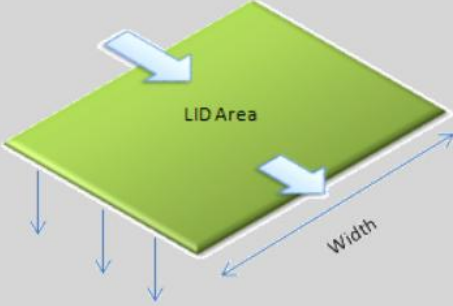
[Drain Advisor](#)

*Units are for flow in either in/hr or mm/hr; use 0 if there is no drain.

BIOFILTRATION BASIN #8

LID Usage Editor

LID Control Name: **LID-8**



Area of Each Unit (sq ft or sq m): 4151

Number of Units: 1

% of Subcatchment Occupied: 95.3

Surface Width per Unit (ft or m): 0

% Initially Saturated: 1

% of Impervious Area Treated: 100

Send Drain Flow To:
(Leave blank to use outlet of current subcatchment)

☐ LID Occupies Full Subcatchment

☐ Return all Outflow to Pervious Area

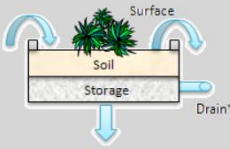
Detailed Report File (Optional):

OK Cancel Help

LID Control Editor

Control Name: **LID-8**

LID Type: **Bio-Retention Cell**



Surface

Berm Height (in. or mm): 6

Vegetation Volume Fraction: 0

Surface Roughness (Mannings n): 0

Surface Slope (percent): 0

Soil

Storage

Drain

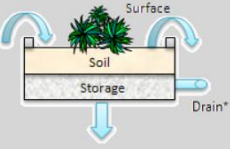
*Optional

OK Cancel Help

LID Control Editor

Control Name: **LID-8**

LID Type: **Bio-Retention Cell**



Surface

Thickness (in. or mm): 21

Porosity (volume fraction): 0.4

Field Capacity (volume fraction): 0.2

Wilting Point (volume fraction): 0.1

Conductivity (in/hr or mm/hr): 5

Conductivity Slope: 5

Suction Head (in. or mm): 1.5

Soil

Storage

Drain

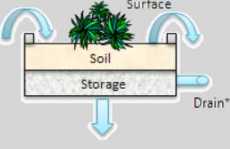
*Optional

OK Cancel Help

LID Control Editor

Control Name: **LID-8**

LID Type: **Bio-Retention Cell**



Surface

Thickness (in. or mm): 12

Void Ratio (Voids / Solids): .67

Seepage Rate (in/hr or mm/hr): 0

Clogging Factor: 0

Soil

Storage

Drain

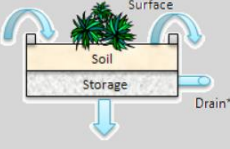
*Optional

OK Cancel Help

LID Control Editor

Control Name: **LID-8**

LID Type: **Bio-Retention Cell**



Surface

Flow Coefficient*: 0.0650

Flow Exponent: 0.5

Offset Height (in. or mm): 0

[Drain Advisor](#)

Soil

Storage

Drain

*Optional

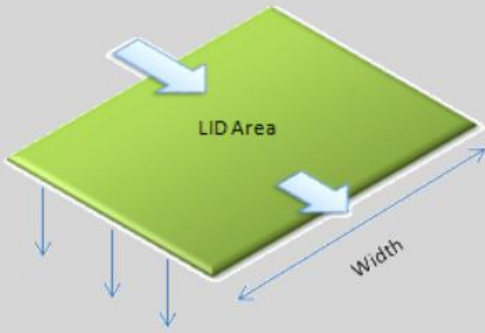
*Units are for flow in either in/hr or mm/hr; use 0 if there is no drain.

OK Cancel Help

BIOFILTRATION BASIN #9

LID Usage Editor

LID Control Name: **LID-9**



Detailed Report File (Optional):

☐ LID Occupies Full Subcatchment

Area of Each Unit (sq ft or sq m): **31041**

Number of Units: **1**

% of Subcatchment Occupied: **52.0**

Surface Width per Unit (ft or m): **0**

% Initially Saturated: **1**

% of Impervious Area Treated: **100**

Send Drain Flow To:
(Leave blank to use outlet of current subcatchment)

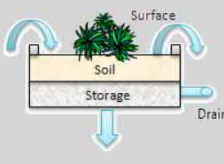
☐ Return all Outflow to Pervious Area

OK Cancel Help

LID Control Editor

Control Name: **LID-9**

LID Type: **Bio-Retention Cell**



*Optional

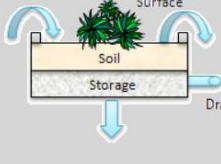
OK Cancel Help

Surface	Soil	Storage	Drain
Thickness (in. or mm)	21		
Porosity (volume fraction)	0.4		
Field Capacity (volume fraction)	0.2		
Wilting Point (volume fraction)	0.1		
Conductivity (in/hr or mm/hr)	5		
Conductivity Slope	5		
Suction Head (in. or mm)	1.5		

LID Control Editor

Control Name: **LID-9**

LID Type: **Bio-Retention Cell**



*Optional

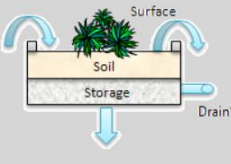
OK Cancel Help

Surface	Soil	Storage	Drain
Thickness (in. or mm)	12		
Void Ratio (Voids / Solids)	.67		
Seepage Rate (in/hr or mm/hr)	0		
Clogging Factor	0		

LID Control Editor

Control Name: **LID-9**

LID Type: **Bio-Retention Cell**



*Optional

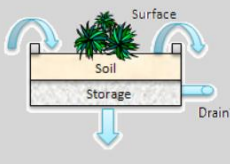
OK Cancel Help

Surface	Soil	Storage	Drain
Berm Height (in. or mm)	6		
Vegetation Volume Fraction	0		
Surface Roughness (Mannings n)	0		
Surface Slope (percent)	0		

LID Control Editor

Control Name: **LID-9**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface	Soil	Storage	Drain
Flow Coefficient*	0.0429		
Flow Exponent	0.5		
Offset Height (in. or mm)	0		

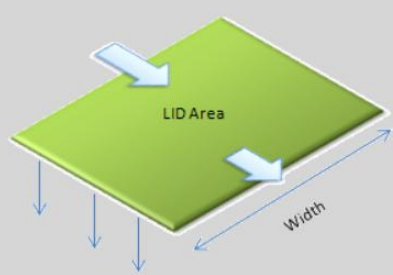
[Drain Advisor](#)

*Units are for flow in either in/hr or mm/hr; use 0 if there is no drain.

BIOFILTRATION BASIN #10

LID Usage Editor

LID Control Name: **LID-2**



Detailed Report File (Optional):  

☐ LID Occupies Full Subcatchment

Area of Each Unit (sq ft or sq m): 5295

Number of Units: 1

% of Subcatchment Occupied: 93.5

Surface Width per Unit (ft or m): 0

% Initially Saturated: 1

% of Impervious Area Treated: 100

Send Drain Flow To:
(Leave blank to use outlet of current subcatchment)

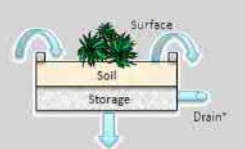
☐ Return all Outflow to Pervious Area

OK Cancel Help

LID Control Editor

Control Name: **LID-10**

LID Type: Bio-Retention Cell



*Optional

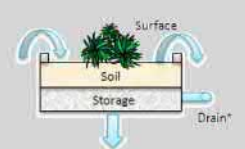
OK Cancel Help

Surface	Soil	Storage	Drain
Berm Height (in. or mm)	6		
Vegetation Volume Fraction	0		
Surface Roughness (Mannings n)	0		
Surface Slope (percent)	0		

LID Control Editor

Control Name: **LID-2**

LID Type: Bio-Retention Cell



*Optional

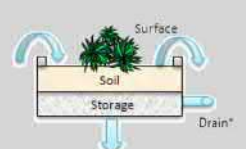
OK Cancel Help

Surface	Soil	Storage	Drain
Thickness (in. or mm)	21		
Porosity (volume fraction)	0.4		
Field Capacity (volume fraction)	0.2		
Wilting Point (volume fraction)	0.1		
Conductivity (in/hr or mm/hr)	5		
Conductivity Slope	5		
Suction Head (in. or mm)	1.5		

LID Control Editor

Control Name: **LID-2**

LID Type: Bio-Retention Cell



*Optional

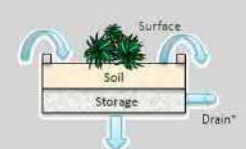
OK Cancel Help

Surface	Soil	Storage	Drain
Thickness (in. or mm)	12		
Void Ratio (Voids / Solids)	.67		
Seepage Rate (in/hr or mm/hr)	0		
Clogging Factor	0		

LID Control Editor

Control Name: **LID-2**

LID Type: Bio-Retention Cell



*Optional

OK Cancel Help

Surface	Soil	Storage	Drain
Flow Coefficient*	0.0629		
Flow Exponent	0.5		
Offset Height (in. or mm)	0		

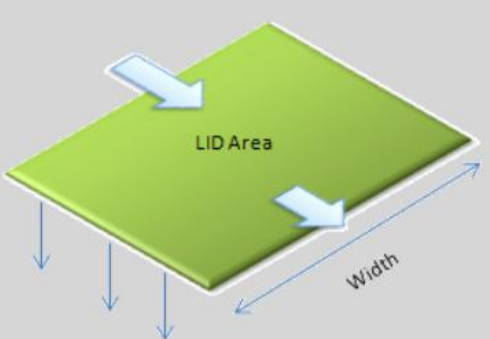
[Drain Advisor](#)

*Units are for flow in either in/hr or mm/hr; use 0 if there is no drain.

BIOFILTRATION BASIN #11

LID Usage Editor

LID Control Name: **LID-11**



Area of Each Unit (sq ft or sq m): 3800

Number of Units: 1

% of Subcatchment Occupied: 96.9

Surface Width per Unit (ft or m): 0

% Initially Saturated: 1

% of Impervious Area Treated: 100

Send Drain Flow To:
(Leave blank to use outlet of current subcatchment)

☐ LID Occupies Full Subcatchment

☐ Return all Outflow to Pervious Area

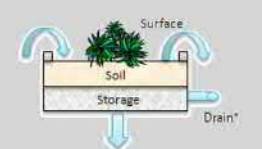
Detailed Report File (Optional)

OK Cancel Help

LID Control Editor

Control Name: **LID-11**

LID Type: **Bio-Retention Cell**



Surface | **Soil** | **Storage** | **Drain**

Berm Height (in. or mm): 6

Vegetation Volume Fraction: 0.0

Surface Roughness (Mannings n): 0

Surface Slope (percent): 0

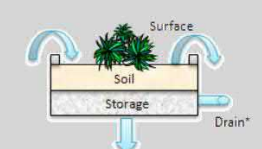
*Optional

OK Cancel Help

LID Control Editor

Control Name: **LID-10**

LID Type: **Bio-Retention Cell**



Surface | **Soil** | **Storage** | **Drain**

Thickness (in. or mm): 21

Porosity (volume fraction): 0.4

Field Capacity (volume fraction): 0.2

Wilting Point (volume fraction): 0.1

Conductivity (in/hr or mm/hr): 5

Conductivity Slope: 5

Suction Head (in. or mm): 1.5

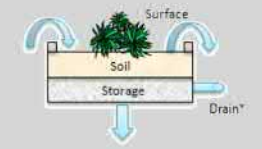
*Optional

OK Cancel Help

LID Control Editor

Control Name: **LID-11**

LID Type: **Bio-Retention Cell**



Surface | **Soil** | **Storage** | **Drain**

Thickness (in. or mm): 12

Void Ratio (Voids / Solids): .67

Seepage Rate (in/hr or mm/hr): 0

Clogging Factor: 0

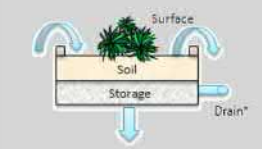
*Optional

OK Cancel Help

LID Control Editor

Control Name: **LID-10**

LID Type: **Bio-Retention Cell**



Surface | **Soil** | **Storage** | **Drain**

Flow Coefficient*: 0.0629

Flow Exponent: 0.5

Offset Height (in. or mm): 0

[Drain Advisor](#)

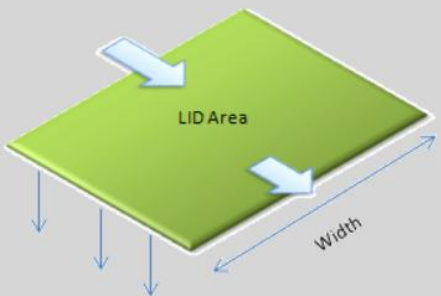
*Units are for flow in either in/hr or mm/hr; use 0 if there is no drain.

OK Cancel Help

BIOFILTRATION BASIN #12

LID Usage Editor

LID Control Name: **LID-12**



LID Area

Width

Detailed Report File (Optional):

☐ LID Occupies Full Subcatchment

Area of Each Unit (sq ft or sq m):

Number of Units:

% of Subcatchment Occupied:

Surface Width per Unit (ft or m):

% Initially Saturated:

% of Impervious Area Treated:

Send Drain Flow To:
(Leave blank to use outlet of current subcatchment)

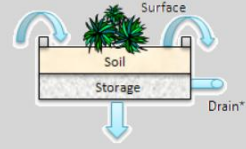
☐ Return all Outflow to Pervious Area

OK Cancel Help

LID Control Editor

Control Name: **LID-12**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface Soil Storage Drain

Berm Height (in. or mm):

Vegetation Volume Fraction:

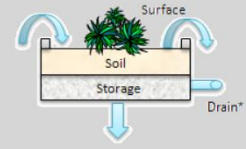
Surface Roughness (Mannings n):

Surface Slope (percent):

LID Control Editor

Control Name: **LID-12**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface Soil Storage Drain

Thickness (in. or mm):

Porosity (volume fraction):

Field Capacity (volume fraction):

Wilting Point (volume fraction):

Conductivity (in/hr or mm/hr):

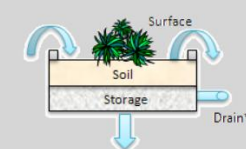
Conductivity Slope:

Suction Head (in. or mm):

LID Control Editor

Control Name: **LID-12**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface Soil Storage Drain

Thickness (in. or mm):

Void Ratio (Voids / Solids):

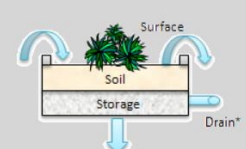
Seepage Rate (in/hr or mm/hr):

Clogging Factor:

LID Control Editor

Control Name: **LID-12**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface Soil Storage Drain

Flow Coefficient*:

Flow Exponent:

Offset Height (in. or mm):

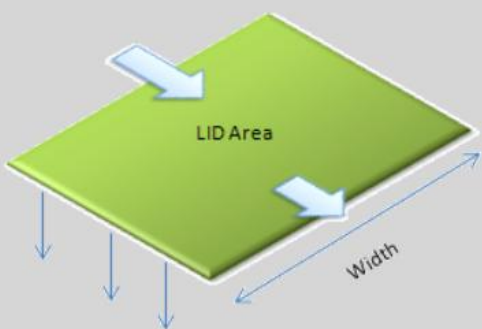
[Drain Advisor](#)

*Units are for flow in either in/hr or mm/hr; use 0 if there is no drain.

BIOFILTRATION BASIN #13

LID Usage Editor

LID Control Name: **LID-13**



Detailed Report File (Optional)

☐ LID Occupies Full Subcatchment

Area of Each Unit (sq ft or sq m): **39454**

Number of Units: **1**

% of Subcatchment Occupied: **86.3**

Surface Width per Unit (ft or m): **0**

% Initially Saturated: **1**

% of Impervious Area Treated: **100**

Send Drain Flow To:
(Leave blank to use outlet of current subcatchment)

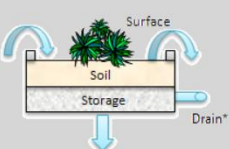
☐ Return all Outflow to Pervious Area

OK Cancel Help

LID Control Editor

Control Name: **LID-13**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface Soil Storage Drain

Berm Height (in. or mm): **6**

Vegetation Volume Fraction: **0**

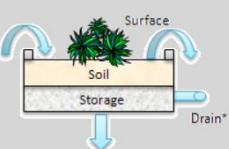
Surface Roughness (Mannings n): **0**

Surface Slope (percent): **0**

LID Control Editor

Control Name: **LID-13**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface Soil Storage Drain

Thickness (in. or mm): **21**

Porosity (volume fraction): **0.4**

Field Capacity (volume fraction): **0.2**

Wilting Point (volume fraction): **0.1**

Conductivity (in/hr or mm/hr): **5**

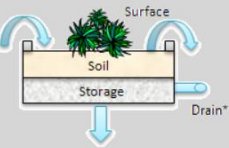
Conductivity Slope: **5**

Suction Head (in. or mm): **1.5**

LID Control Editor

Control Name: **LID-13**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface Soil Storage Drain

Thickness (in. or mm): **24**

Void Ratio (Voids / Solids): **.67**

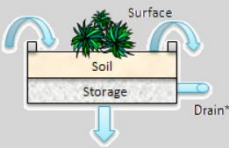
Seepage Rate (in/hr or mm/hr): **0**

Clogging Factor: **0**

LID Control Editor

Control Name: **LID-13**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface Soil Storage Drain

Flow Coefficient*: **0.0216**

Flow Exponent: **0.5**

Offset Height (in. or mm): **0**

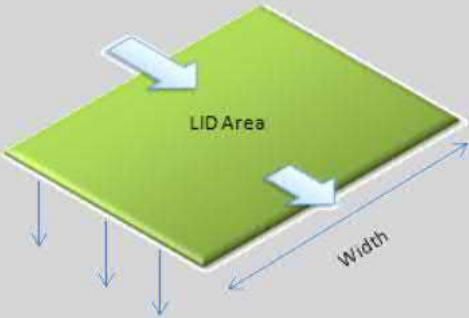
[Drain Advisor](#)

*Units are for flow in either in/hr or mm/hr; use 0 if there is no drain.

BIOFILTRATION BASIN #14

LID Usage Editor

LID Control Name: **LID-14**



Detailed Report File (Optional)

☐ LID Occupies Full Subcatchment

Area of Each Unit (sq ft or sq m): **1110**

Number of Units: **1**

% of Subcatchment Occupied: **84.9**

Surface Width per Unit (ft or m): **0**

% Initially Saturated: **1**

% of Impervious Area Treated: **100**

Send Drain Flow To:
(Leave blank to use outlet of current subcatchment)

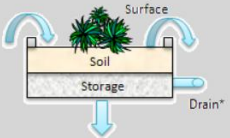
☐ Return all Outflow to Pervious Area

OK Cancel Help

LID Control Editor

Control Name: **LID-14**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface Soil Storage Drain

Berm Height (in. or mm): **6**

Vegetation Volume Fraction: **0**

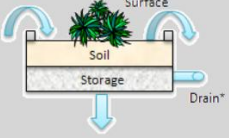
Surface Roughness (Mannings n): **0**

Surface Slope (percent): **0**

LID Control Editor

Control Name: **LID-14**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface Soil Storage Drain

Thickness (in. or mm): **18**

Porosity (volume fraction): **0.4**

Field Capacity (volume fraction): **0.2**

Wilting Point (volume fraction): **0.1**

Conductivity (in/hr or mm/hr): **5**

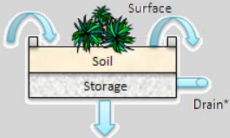
Conductivity Slope: **5**

Suction Head (in. or mm): **1.5**

LID Control Editor

Control Name: **LID-14**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface Soil Storage Drain

Thickness (in. or mm): **12**

Void Ratio (Voids / Solids): **.67**

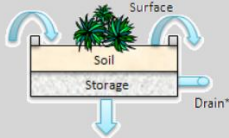
Seepage Rate (in/hr or mm/hr): **0**

Clogging Factor: **0**

LID Control Editor

Control Name: **LID-14**

LID Type: **Bio-Retention Cell**



*Optional

OK Cancel Help

Surface Soil Storage Drain

Flow Coefficient*: **0.1687**

Flow Exponent: **0.5**

Offset Height (in. or mm): **0**

[Drain Advisor](#)

*Units are for flow in either in/hr or mm/hr; use 0 if there is no drain.

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.

LID Outlet #1			
ABMP=	129891	sq-ft	(Area above engineered fill/bio-retention section)
			(It can also be area of infiltration at the bottom)
Cg=	0.61		(coefficient of discharge of the bottom orifice)
Dorif=	3.5	in	(diameter in inches of the bottom orifice)
Aorifice=	0.06681	sq-ft	(area of orifice in sq-ft)
C _{SWMM} =	0.0314		C coefficient to be inserted into SWMM
H-gravel=	4.25	ft	Depth of the gravel layer where water is ponding
	51	in	(In this case: superior bottom - mulch - ammended soil - invert of French drain)
	47.5	in	
H-design=	3.958	ft	H-gravel minus radius of the discharge
Q _{orif-classic} =	0.65072	cfs	
Q _{orif-SWMM} =	0.65072	cfs	
Q _{diversion} =	0.65722	cfs	1% additional to the Qorifice.

LID Outlet #2			
ABMP=	90985	sq-ft	(Area above engineered fill/bio-retention section)
			(It can also be area of infiltration at the bottom)
Cg=	0.61		(coefficient of discharge of the bottom orifice)
Dorif=	3.5	in	(diameter in inches of the bottom orifice)
Aorifice=	0.06681	sq-ft	(area of orifice in sq-ft)
C _{SWMM} =	0.0448		C coefficient to be inserted into SWMM
H-gravel=	3.25	ft	Depth of the gravel layer where water is ponding
	39	in	(In this case: superior bottom - mulch - ammended soil - invert of French drain)
	35.5	in	
H-design=	2.958	ft	H-gravel minus radius of the discharge
Q _{orif-classic} =	0.56255	cfs	
Q _{orif-SWMM} =	0.56255	cfs	
Q _{diversion} =	0.56817	cfs	1% additional to the Qorifice.

LID Outlet #3			
ABMP=	4231	sq-ft	(Area above engineered fill/bio-retention section)
			(It can also be area of infiltration at the bottom)
Cg=	0.61		(coefficient of discharge of the bottom orifice)
Dorif=	0.85	in	(diameter in inches of the bottom orifice)
Aorifice=	0.00394	sq-ft	(area of orifice in sq-ft)
C _{SWMM} =	0.0569		C coefficient to be inserted into SWMM
H-gravel=	3.25	ft	Depth of the gravel layer where water is ponding
	39	in	(In this case: superior bottom - mulch - ammended soil - invert of French drain)
	38.15	in	
H-design=	3.179	ft	H-gravel minus radius of the discharge
Q _{orif-classic} =	0.03439	cfs	
Q _{orif-SWMM} =	0.03439	cfs	
Q _{diversion} =	0.03474	cfs	1% additional to the Qorifice.

LID Outlet #4			
ABMP=	3380	sq-ft	(Area above engineered fill/bio-retention section)
			(It can also be area of infiltration at the bottom)
Cg=	0.61		(coefficient of discharge of the bottom orifice)
Dorif=	0.85	in	(diameter in inches of the bottom orifice)
Aorifice=	0.00394	sq-ft	(area of orifice in sq-ft)
C _{SWMM} =	0.0712		C coefficient to be inserted into SWMM
H-gravel=	4.25	ft	Depth of the gravel layer where water is ponding
	51	in	(In this case: superior bottom - mulch - ammended soil - invert of French drain)
	50.15	in	
H-design=	4.179	ft	H-gravel minus radius of the discharge
Q _{orif-classic} =	0.03944	cfs	
Q _{orif-SWMM} =	0.03944	cfs	
Q _{diversion} =	0.03983	cfs	1% additional to the Qorifice.

LID Outlet #5			
ABMP=	5200	sq-ft	(Area above engineered fill/bio-retention section)
			(It can also be area of infiltration at the bottom)
Cg=	0.61		(coefficient of discharge of the bottom orifice)
Dorif=	3	in	(diameter in inches of the bottom orifice)
Aorifice=	0.04909	sq-ft	(area of orifice in sq-ft)
C _{SWMM} =	0.5763		C coefficient to be inserted into SWMM
H-gravel=	4.25	ft	Depth of the gravel layer where water is ponding
	51	in	(In this case: superior bottom - mulch - ammended soil - invert of French drain)
	48	in	
H-design=	4.000	ft	H-gravel minus radius of the discharge
Q _{orif-classic} =	0.48059	cfs	
Q _{orif-SWMM} =	0.48059	cfs	
Q _{diversion} =	0.48539	cfs	1% additional to the Qorifice.

LID Outlet #6			
ABMP=	4350	sq-ft	(Area above engineered fill/bio-retention section)
			(It can also be area of infiltration at the bottom)
Cg=	0.61		(coefficient of discharge of the bottom orifice)
Dorif=	1	in	(diameter in inches of the bottom orifice)
Aorifice=	0.00545	sq-ft	(area of orifice in sq-ft)
C _{SWMM} =	0.0765		C coefficient to be inserted into SWMM
H-gravel=	3.25	ft	Depth of the gravel layer where water is ponding
	39	in	(In this case: superior bottom - mulch - ammended soil - invert of French drain)
	38	in	
H-design=	3.167	ft	H-gravel minus radius of the discharge
Q _{orif-classic} =	0.04751	cfs	
Q _{orif-SWMM} =	0.04751	cfs	
Q _{diversion} =	0.04799	cfs	1% additional to the Qorifice.

LID Outlet #7			
ABMP=	3250	sq-ft	(Area above engineered fill/bio-retention section)
			(It can also be area of infiltration at the bottom)
Cg=	0.61		(coefficient of discharge of the bottom orifice)
Dorif=	0.75	in	(diameter in inches of the bottom orifice)
Aorifice=	0.00307	sq-ft	(area of orifice in sq-ft)
C _{SWMM} =	0.0576		C coefficient to be inserted into SWMM
H-gravel=	3.25	ft	Depth of the gravel layer where water is ponding
	39	in	(In this case: superior bottom - mulch - ammended soil - invert of French drain)
	38.25	in	
H-design=	3.188	ft	H-gravel minus radius of the discharge
Q _{orif-classic} =	0.02681	cfs	
Q _{orif-SWMM} =	0.02681	cfs	
Q _{diversion} =	0.02708	cfs	1% additional to the Qorifice.

LID Outlet #8			
ABMP=	4151	sq-ft	(Area above engineered fill/bio-retention section)
			(It can also be area of infiltration at the bottom)
Cg=	0.61		(coefficient of discharge of the bottom orifice)
Dorif=	0.9	in	(diameter in inches of the bottom orifice)
Aorifice=	0.00442	sq-ft	(area of orifice in sq-ft)
C _{SWMM} =	0.0650		C coefficient to be inserted into SWMM
H-gravel=	3.25	ft	Depth of the gravel layer where water is ponding
	39	in	(In this case: superior bottom - mulch - ammended soil - invert of French drain)
	38.1	in	
H-design=	3.175	ft	H-gravel minus radius of the discharge
Q _{orif-classic} =	0.03854	cfs	
Q _{orif-SWMM} =	0.03854	cfs	
Q _{diversion} =	0.03892	cfs	1% additional to the Qorifice.

LID Outlet #9			
ABMP=	31041	sq-ft	(Area above engineered fill/bio-retention section)
			(It can also be area of infiltration at the bottom)
Cg=	0.61		(coefficient of discharge of the bottom orifice)
Dorif=	2	in	(diameter in inches of the bottom orifice)
Aorifice=	0.02182	sq-ft	(area of orifice in sq-ft)
C _{SWMM} =	0.0429		C coefficient to be inserted into SWMM
H-gravel=	3.25	ft	Depth of the gravel layer where water is ponding
	39	in	(In this case: superior bottom - mulch - ammended soil - invert of French drain)
	37	in	
H-design=	3.083	ft	H-gravel minus radius of the discharge
Q _{orif-classic} =	0.18753	cfs	
Q _{orif-SWMM} =	0.18753	cfs	
Q _{diversion} =	0.18941	cfs	1% additional to the Qorifice.

LID Outlet #10			
ABMP=	5295	sq-ft	(Area above engineered fill/bio-retention section)
			(It can also be area of infiltration at the bottom)
Cg=	0.61		(coefficient of discharge of the bottom orifice)
Dorif=	1	in	(diameter in inches of the bottom orifice)
Aorifice=	0.00545	sq-ft	(area of orifice in sq-ft)
C _{SWMM} =	0.0629		C coefficient to be inserted into SWMM
H-gravel=	3.25	ft	Depth of the gravel layer where water is ponding
	39	in	(In this case: superior bottom - mulch - ammended soil - invert of French drain)
	38	in	
H-design=	3.167	ft	H-gravel minus radius of the discharge
Q _{orif-classic} =	0.04751	cfs	
Q _{orif-SWMM} =	0.04751	cfs	
Q _{diversion} =	0.04799	cfs	1% additional to the Qorifice.

LID Outlet #11			
ABMP=	3800	sq-ft	(Area above engineered fill/bio-retention section)
			(It can also be area of infiltration at the bottom)
Cg=	0.61		(coefficient of discharge of the bottom orifice)
Dorif=	2	in	(diameter in inches of the bottom orifice)
Aorifice=	0.02182	sq-ft	(area of orifice in sq-ft)
C _{SWMM} =	0.3505		C coefficient to be inserted into SWMM
H-gravel=	3.25	ft	Depth of the gravel layer where water is ponding
	39	in	(In this case: superior bottom - mulch - ammended soil - invert of French drain)
	37	in	
H-design=	3.083	ft	H-gravel minus radius of the discharge
Q _{orif-classic} =	0.18753	cfs	
Q _{orif-SWMM} =	0.18753	cfs	
Q _{diversion} =	0.18941	cfs	1% additional to the Qorifice.

LID Outlet #12			
ABMP=	21150	sq-ft	(Area above engineered fill/bio-retention section)
			(It can also be area of infiltration at the bottom)
Cg=	0.61		(coefficient of discharge of the bottom orifice)
Dorif=	2	in	(diameter in inches of the bottom orifice)
Aorifice=	0.02182	sq-ft	(area of orifice in sq-ft)
C _{SWMM} =	0.0630		C coefficient to be inserted into SWMM
H-gravel=	3.25	ft	Depth of the gravel layer where water is ponding
	39	in	(In this case: superior bottom - mulch - ammended soil - invert of French drain)
	37	in	
H-design=	3.083	ft	H-gravel minus radius of the discharge
Q _{orif-classic} =	0.18753	cfs	
Q _{orif-SWMM} =	0.18753	cfs	
Q _{diversion} =	0.18941	cfs	1% additional to the Qorifice.

LID Outlet #13			
ABMP=	39454	sq-ft	(Area above engineered fill/bio-retention section)
			(It can also be area of infiltration at the bottom)
Cg=	0.61		(coefficient of discharge of the bottom orifice)
Dorif=	1.6	in	(diameter in inches of the bottom orifice)
Aorifice=	0.01396	sq-ft	(area of orifice in sq-ft)
C _{SWMM} =	0.0216		C coefficient to be inserted into SWMM
H-gravel=	4.25	ft	Depth of the gravel layer where water is ponding
	51	in	(In this case: superior bottom - mulch - ammended soil - invert of French drain)
	49.4	in	
H-design=	4.117	ft	H-gravel minus radius of the discharge
Q _{orif-classic} =	0.13868	cfs	
Q _{orif-SWMM} =	0.13868	cfs	
Q _{diversion} =	0.14007	cfs	1% additional to the Qorifice.

LID Outlet #14			
ABMP=	1110	sq-ft	(Area above engineered fill/bio-retention section)
			(It can also be area of infiltration at the bottom)
Cg=	0.61		(coefficient of discharge of the bottom orifice)
Dorif=	0.75	in	(diameter in inches of the bottom orifice)
Aorifice=	0.00307	sq-ft	(area of orifice in sq-ft)
C _{SWMM} =	0.1687		C coefficient to be inserted into SWMM
H-gravel=	3.25	ft	Depth of the gravel layer where water is ponding
	39	in	(In this case: superior bottom - mulch - ammended soil - invert of French drain)
	38.25	in	
H-design=	3.188	ft	H-gravel minus radius of the discharge
Q _{orif-classic} =	0.02681	cfs	
Q _{orif-SWMM} =	0.02681	cfs	
Q _{diversion} =	0.02708	cfs	1% additional to the Qorifice.

DEWATERING CALCULATIONS
DEFERENCE LETTER

M E M O R A N D U M

Date: January 29, 2018

To: Greg Mattson, AICP, Project Manager
Planning and Development Services, County of San Diego

From: Alisa Vialpando, P.E.

Subject: Otay Ranch- Village 14 and Planning Areas 16/19:
Water Quality Basin- dewatering calculations

This memo has been prepared to address the County of San Diego plan review comment 6-49 regarding the *SWQMP for Otay Ranch Village 14 and Planning Areas 16/19* which had a submittal date of August 30, 2017. The comment is provided below for quick reference:

The drawdown calculations were not included as part of this submittal. Either include a drawdown calculation on the next submittal OR provide a certified letter from the EOW stating that in their professional opinion deferring this requirement to final engineering will not cause significant design changes on this project.

This letter is provided in response to the comment and is also applicable to the *SWQMP for Otay Ranch Village 14 and Planning Areas 16/19- Land Exchange Alternative* since both projects will utilize similar treatment control BMPs. In particular, both projects propose regional biofiltration basins for most of the developed areas. These basins will concurrently serve as flow control basins to address hydromodification. Due to the nature of these basins being low-flow basins which receive a maximum of the Q10 flowrate, deference of providing dewatering calculations at this phase of the project is acceptable. Although no significant design changes are anticipated, options such as re-allocation of drainage areas, optimization of outlet structures, or preparation of a vector control plans are all alternatives which could be explored to meet or address dewatering concerns and requirements.

Should you have any questions regarding the information contained within this memo, please contact me at (858) 558-4500.



Sincerely,
Alisa S. Vialpando, R.C.E. 47945
Vice President/Principal

SECTION 6 – Hydromodification Watershed Maps