Memorandum

9 April 2024

To	Stephen Tovmassian, City of San Bruno		
Copy to	GHD Project File		
From	Greg Garrison	**Tel**	530-387-5702
Subject	850 Glenview Drive Stormwater System Review	**Project no.**	11222976

This memorandum presents a hydrologic and hydraulic evaluation of the 850 Glenview Drive site that will be developed into residential condominiums. The material reviewed included the Vesting Tentative Map Package prepared by Hunt Hale Jones Architects in 2023 for City Ventures (the developer). The purpose of the analysis is to evaluate post-development impacts to the existing storm drain system and to verify that the analysis meets San Mateo County (SMC) guidelines and identify any improvements to the system needed to serve the project.

1. Background

The project site is located at the northeast corner of San Bruno West Avenue and Glenview Drive and a block east of the State Route 35 (see Figure 1). The approximately 3.28-acre site is currently developed with a church building and a parking lot that occupies roughly 30% of the site and a grass area on the remaining portion of the site.

The topography slopes to the northeast across the site. The point of discharge for stormwater runoff from the site appears to be the San Bruno Creek.

The proposed development will demolish the existing site facilities, remove the existing chain link fences, and construct 58 residential condominiums separated in 9 buildings. The site improvements also include drive aisles, sidewalks, and landscaped areas.

GHD has been engaged to incorporate the proposed development conditions into the existing City of San Bruno hydraulic model to evaluate post-development impacts on the City's existing storm drain system. This memorandum summarizes the results and methods of that effort.

Figure 1 ***Site location***

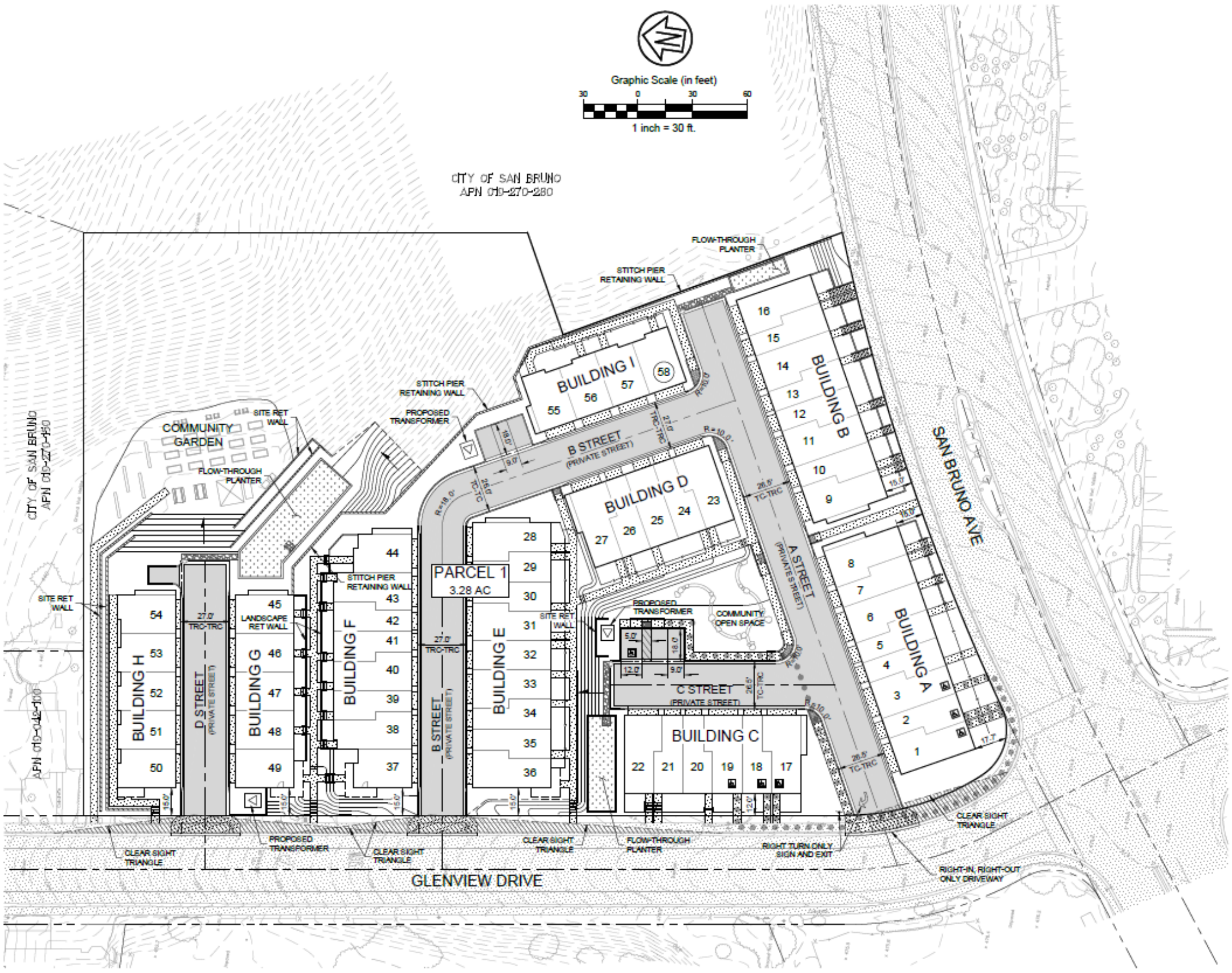


Figure 2 *Screenshot of Sheet C4.0 Site Plan*

2. SewerGEMS Analysis

2.1 Model Background

As part of the 2014 City of San Bruno Storm Drain Master Plan, GHD prepared a hydraulic model to analyse the City's storm water collection system. The purpose of the Master Plan was to identify capacity deficiency within the storm drain system, develop improvement alternatives, and to recommend a Capital Improvement Program. The hydraulic analysis was developed utilizing Bentley's SewerGEMS software using City geographic information system (GIS) storm drain system data, limited field survey data, existing studies, record and design drawings, and City maintenance records.

The software used was capable of modeling both closed conduit and open channel components, and couple both hydrology and hydraulic analysis in a single package. In addition, dynamic time series was implemented to study the effects of storm water attenuation and the benefits of storm water detention. The capacity analysis was based on a 25-year design storm. The capacity evaluation showed that the storm drain system had multiple capacity deficiencies under the design storm.

The SewerGEMS hydrology model was calibrated using the largest 24-hour storm event from the flow and rainfall monitoring data. The CN values for each sub-watershed was refined during the calibration process.

For further information on the hydraulic model, please refer to the City of San Bruno's 2014 Storm Drain Master Plan, which can be found on the City of San Bruno's website[1].

[1] https://sanbruno-prod.civica.granicusops.com/civica/filebank/blobdload.asp?BlobID=24092

2.2 Modelled Scenarios

GHD utilized the storm water master plan hydraulic model to evaluate the pre-project and post-project scenarios for the 10-year and 100-year storm events at the project site:

1) Scenario 1 – Pre-project Condition 10-yr storm
2) Scenario 2 – Pre-project Condition 100-yr storm
3) Scenario 3 – Post-project Condition 100-yr storm
4) Scenario 4 – Post-project Condition 10-yr storm

2.3 Model Results

The proposed project has an area of 3.24 acres of which 2.82 will be developed and is withing a larger sub-basin (WS-A31) in the SewerGEMS model that has an area of 14.92 acres. The Curve Number (CN) for the sub-basin for the pre-project condition is 84.73, which is an area-weighted value based on land use. To account for the post-project condition, a CN for the developed part of the project site of 90 was used to represent a high-density residential Type C land use. A new area-weighted CN was calculated for the entire 14.92-acre sub-basin, resulting in 85.73, slightly higher than the pre-project condition. The difference in land use (curve number) area for pre and post development conditions are shown in Table 1.

Table 1 Summary of pre-project and post-project CN

Condition	Area CN 84.73 (acres)	Area with CN 90 (acres)
Pre-Project	14.92	0.00
Post-Project	12.10	2.82

A screenshot of the project area in the model can be seen in Figure 3. The site that is to be developed is outlined in blue with the site drainage outflowing the San Bruno Creek (CH-8), which starts at CH-6. The SewerGEMS model was used to analyse flow and depth of water along the pipe upstream (54”, concrete) and the San Bruno channel downstream, to understand the development’s impacts on the storm drain system.

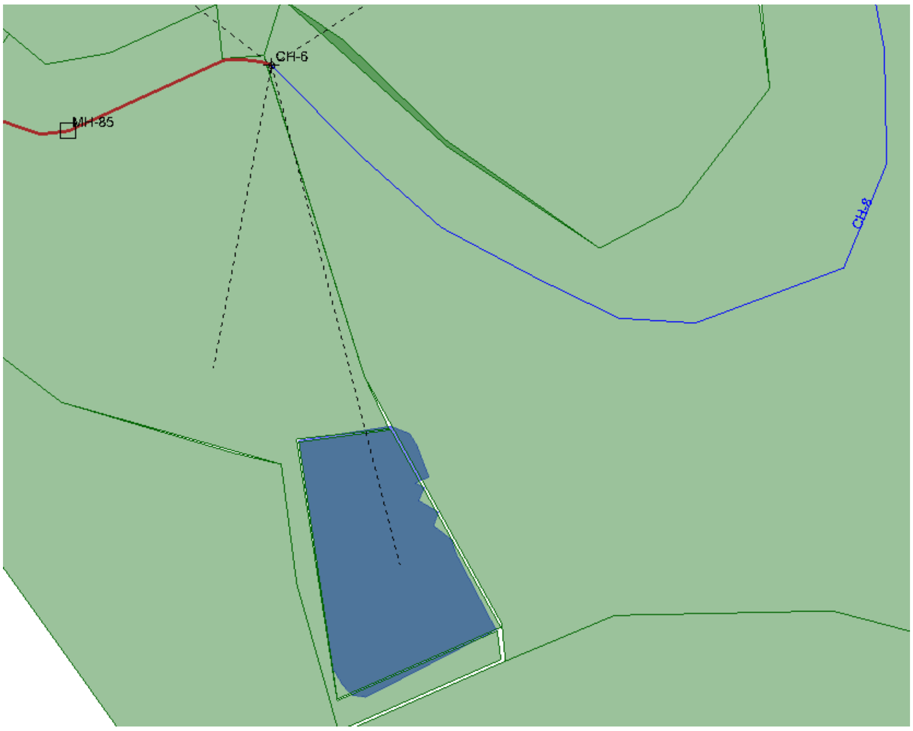


Figure 3 Screenshot of site location in SewerGEMS model

A summary of the model results identifying peak flow and total runoff at node CH-6 is shown in Table 2.

Table 2 Pre-project and post-project scenarios comparison of peak flow downstream of project site

Condition	Peak 100-yr flow (cfs)	Peak 10-yr flow (cfs)
Pre-project	395.4	361.0
Post-project	395.6	361.2

The profile upstream and downstream of the project site's discharge point for the pre-project scenario is shown on Figure 4 (100-yr storm) and Figure 5 (10-yr storm).

Figure 4 Pre-project conditions – 100 yr storm

The profile upstream and downstream of the project site's discharge point for the post-project scenario is shown on Figure 6 (100-yr storm) and Figure 7 (10-yr storm).

Figure 5 Pre-project conditions – 10 yr storm

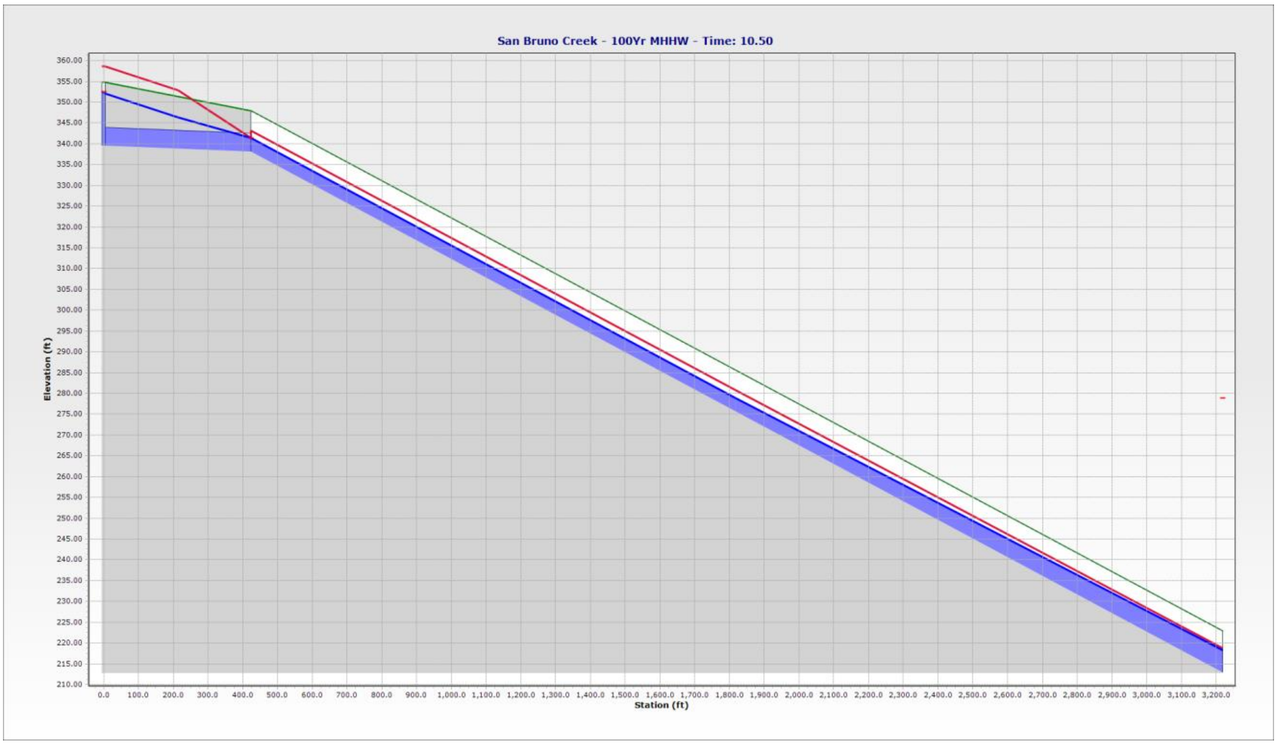


Figure 6 Post-project conditions – 100 yr storm

Figure 7 *Post-project conditions – 10 yr storm*

Results presented on the profiles above and Table 2 show that there is minimal to no impact on the storm drain system capacity.

2.4 Bioretention Facilities

A Bay Area Hydrology Model (BAHM) has been developed for the project by others and the results of the model are attached (Attachment 1). Three flow-through planters are proposed and were modelled to analyze the effects of these bioretention areas on peak flows at the project site. Results are provided up to the 25-year storm, and they show that peak flows are reduced.

Conservatively, the SewerGEMS model presented on this memorandum does not model these bioretention facilities, but results show that peak flows are minimally impacted up to the 100-year storm.

Attachments

Attachment 1

BAHM Model Results

BAHM2023

PROJECT REPORT

General Model Information

BAHM2023 Project Name:	San Bruno
Site Name:	Glenview Highlands
Site Address:	
City:	
Report Date:	1/18/2024
Gage:	San Francisco
Data Start:	1959/10/01
Data End:	2022/09/30
Timestep:	Hourly
Precip Scale:	1.286
Version Date:	2023/10/30

POC Thresholds

Low Flow Threshold for POC1:	10 Percent of the 2 Year
High Flow Threshold for POC1:	10 Year
Low Flow Threshold for POC2:	10 Percent of the 2 Year
High Flow Threshold for POC2:	10 Year
Low Flow Threshold for POC3:	10 Percent of the 2 Year
High Flow Threshold for POC3:	10 Year

Landuse Basin Data

Pre-Project Land Use

DMA 1

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C D,Grass,Mod(5-10%)	0.27
Pervious Total	0.27
Impervious Land Use	acre
Impervious Total	0
Basin Total	0.27

DMA 2

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C D,Grass,Mod(5-10%)	0.45
Pervious Total	0.45
Impervious Land Use	acre
Impervious Total	0
Basin Total	0.45

DMA 3

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C D,Grass,Ste(10-20)	1.24
Pervious Total	1.24
Impervious Land Use	acre
Parking,Flat(0-5%)	0.44
Impervious Total	0.44
Basin Total	1.68

Mitigated Land Use

DMA 1

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C D,Grass,Flat(0-5%)	0.14
Pervious Total	0.14
Impervious Land Use	acre
Roads,Flat(0-5%)	0.13
Impervious Total	0.13
Basin Total	0.27

DMA 2

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C D,Grass,Flat(0-5%)	0.1
Pervious Total	0.1
Impervious Land Use	acre
Roads,Flat(0-5%)	0.35
Impervious Total	0.35
Basin Total	0.45

DMA 3

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C D,Grass,Flat(0-5%)	0.43
Pervious Total	0.43
Impervious Land Use	acre
Roads,Flat(0-5%)	1.25
Impervious Total	1.25
Basin Total	1.68

Routing Elements

Pre-Project Routing

Mitigated Routing

BIO 1

Bottom Length:	25.00 ft.
Bottom Width:	10.00 ft.
Material thickness of first layer:	1.5
Material type for first layer:	BAHM 5
Material thickness of second layer:	1
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	0.5
Orifice Diameter (in.):	0.4
Offset (in.):	0
Flow Through Underdrain (ac-ft.):	15.178
Total Outflow (ac-ft.):	23.615
Percent Through Underdrain:	64.27

Discharge Structure
Riser Height: 1 ft.
Riser Diameter: 18 in.
Element Flows To:
Outlet 1 Outlet 2

Bioretention Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0057	0.0000	0.0000	0.0000
0.0407	0.0057	0.0001	0.0000	0.0000
0.0813	0.0057	0.0002	0.0000	0.0000
0.1220	0.0057	0.0003	0.0000	0.0000
0.1626	0.0057	0.0004	0.0000	0.0000
0.2033	0.0057	0.0004	0.0000	0.0000
0.2440	0.0057	0.0005	0.0000	0.0000
0.2846	0.0057	0.0006	0.0000	0.0000
0.3253	0.0057	0.0007	0.0000	0.0000
0.3659	0.0057	0.0008	0.0000	0.0000
0.4066	0.0057	0.0009	0.0008	0.0000
0.4473	0.0057	0.0010	0.0011	0.0000
0.4879	0.0057	0.0011	0.0012	0.0000
0.5286	0.0057	0.0012	0.0014	0.0000
0.5692	0.0057	0.0012	0.0015	0.0000
0.6099	0.0057	0.0013	0.0016	0.0000
0.6505	0.0057	0.0014	0.0018	0.0000
0.6912	0.0057	0.0015	0.0019	0.0000
0.7319	0.0057	0.0016	0.0020	0.0000
0.7725	0.0057	0.0017	0.0021	0.0000
0.8132	0.0057	0.0018	0.0022	0.0000
0.8538	0.0057	0.0019	0.0023	0.0000
0.8945	0.0057	0.0020	0.0023	0.0000
0.9352	0.0057	0.0020	0.0024	0.0000
0.9758	0.0057	0.0021	0.0025	0.0000
1.0165	0.0057	0.0022	0.0026	0.0000
1.0571	0.0057	0.0023	0.0026	0.0000
1.0978	0.0057	0.0024	0.0027	0.0000
1.1385	0.0057	0.0025	0.0028	0.0000

1.1791	0.0057	0.0026	0.0029	0.0000
1.2198	0.0057	0.0027	0.0029	0.0000
1.2604	0.0057	0.0027	0.0030	0.0000
1.3011	0.0057	0.0028	0.0031	0.0000
1.3418	0.0057	0.0029	0.0031	0.0000
1.3824	0.0057	0.0030	0.0032	0.0000
1.4231	0.0057	0.0031	0.0032	0.0000
1.4637	0.0057	0.0032	0.0033	0.0000
1.5044	0.0057	0.0033	0.0034	0.0000
1.5451	0.0057	0.0034	0.0034	0.0000
1.5857	0.0057	0.0035	0.0035	0.0000
1.6264	0.0057	0.0036	0.0035	0.0000
1.6670	0.0057	0.0037	0.0036	0.0000
1.7077	0.0057	0.0038	0.0036	0.0000
1.7484	0.0057	0.0039	0.0037	0.0000
1.7890	0.0057	0.0040	0.0037	0.0000
1.8297	0.0057	0.0041	0.0038	0.0000
1.8703	0.0057	0.0042	0.0038	0.0000
1.9110	0.0057	0.0043	0.0039	0.0000
1.9516	0.0057	0.0044	0.0039	0.0000
1.9923	0.0057	0.0045	0.0040	0.0000
2.0330	0.0057	0.0045	0.0040	0.0000
2.0736	0.0057	0.0046	0.0041	0.0000
2.1143	0.0057	0.0047	0.0041	0.0000
2.1549	0.0057	0.0048	0.0042	0.0000
2.1956	0.0057	0.0049	0.0042	0.0000
2.2363	0.0057	0.0050	0.0043	0.0000
2.2769	0.0057	0.0051	0.0044	0.0000
2.3176	0.0057	0.0052	0.0044	0.0000
2.3582	0.0057	0.0053	0.0045	0.0000
2.3989	0.0057	0.0054	0.0045	0.0000
2.4396	0.0057	0.0055	0.0045	0.0000
2.4802	0.0057	0.0056	0.0046	0.0000
2.5000	0.0057	0.0057	0.0046	0.0000

Bioretention Surface Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
2.5000	0.0057	0.0057	0.0000	0.0289	0.0000
2.5407	0.0057	0.0059	0.0000	0.0289	0.0000
2.5813	0.0057	0.0061	0.0000	0.0305	0.0000
2.6220	0.0057	0.0064	0.0000	0.0313	0.0000
2.6626	0.0057	0.0066	0.0000	0.0321	0.0000
2.7033	0.0057	0.0068	0.0000	0.0329	0.0000
2.7440	0.0057	0.0071	0.0000	0.0336	0.0000
2.7846	0.0057	0.0073	0.0000	0.0344	0.0000
2.8253	0.0057	0.0075	0.0000	0.0352	0.0000
2.8659	0.0057	0.0078	0.0000	0.0360	0.0000
2.9066	0.0057	0.0080	0.0000	0.0368	0.0000
2.9473	0.0057	0.0082	0.0000	0.0376	0.0000
2.9879	0.0057	0.0085	0.0000	0.0383	0.0000
3.0286	0.0057	0.0087	0.0000	0.0391	0.0000
3.0692	0.0057	0.0089	0.0000	0.0399	0.0000
3.1099	0.0057	0.0092	0.0000	0.0407	0.0000
3.1505	0.0057	0.0094	0.0000	0.0415	0.0000
3.1912	0.0057	0.0096	0.0000	0.0423	0.0000
3.2319	0.0057	0.0099	0.0000	0.0431	0.0000
3.2725	0.0057	0.0101	0.0000	0.0438	0.0000
3.3132	0.0057	0.0103	0.0000	0.0446	0.0000

3.3538	0.0057	0.0106	0.0000	0.0454	0.0000
3.3945	0.0057	0.0108	0.0000	0.0462	0.0000
3.4352	0.0057	0.0110	0.0000	0.0470	0.0000
3.4758	0.0057	0.0113	0.0000	0.0478	0.0000
3.5165	0.0057	0.0115	0.0337	0.0485	0.0000
3.5571	0.0057	0.0117	0.2173	0.0493	0.0000
3.5978	0.0057	0.0120	0.4858	0.0501	0.0000
3.6385	0.0057	0.0122	0.8160	0.0509	0.0000
3.6791	0.0057	0.0124	1.1947	0.0517	0.0000
3.7000	0.0057	0.0125	1.6110	0.0521	0.0000

BIO 2

Bottom Length:	52.00 ft.
Bottom Width:	15.00 ft.
Material thickness of first layer:	1.5
Material type for first layer:	BAHM 5
Material thickness of second layer:	2
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	0.5
Orifice Diameter (in.):	0.45
Offset (in.):	0
Flow Through Underdrain (ac-ft.):	37.747
Total Outflow (ac-ft.):	49.282
Percent Through Underdrain:	76.59

Discharge Structure

Riser Height: 1.3 ft.

Riser Diameter: 18 in.

Element Flows To:

Outlet 1 Outlet 2

Bioretention Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0179	0.0000	0.0000	0.0000
0.0549	0.0179	0.0004	0.0000	0.0000
0.1099	0.0179	0.0007	0.0000	0.0000
0.1648	0.0179	0.0011	0.0000	0.0000
0.2198	0.0179	0.0015	0.0000	0.0000
0.2747	0.0179	0.0019	0.0000	0.0000
0.3297	0.0179	0.0022	0.0000	0.0000
0.3846	0.0179	0.0026	0.0014	0.0000
0.4396	0.0179	0.0030	0.0017	0.0000
0.4945	0.0179	0.0034	0.0019	0.0000
0.5495	0.0179	0.0037	0.0021	0.0000
0.6044	0.0179	0.0041	0.0023	0.0000
0.6593	0.0179	0.0045	0.0025	0.0000
0.7143	0.0179	0.0049	0.0027	0.0000
0.7692	0.0179	0.0052	0.0028	0.0000
0.8242	0.0179	0.0056	0.0030	0.0000
0.8791	0.0179	0.0060	0.0031	0.0000
0.9341	0.0179	0.0064	0.0032	0.0000
0.9890	0.0179	0.0067	0.0034	0.0000
1.0440	0.0179	0.0071	0.0035	0.0000
1.0989	0.0179	0.0075	0.0036	0.0000
1.1538	0.0179	0.0079	0.0037	0.0000
1.2088	0.0179	0.0082	0.0038	0.0000
1.2637	0.0179	0.0086	0.0039	0.0000
1.3187	0.0179	0.0090	0.0040	0.0000
1.3736	0.0179	0.0093	0.0041	0.0000
1.4286	0.0179	0.0097	0.0042	0.0000
1.4835	0.0179	0.0101	0.0043	0.0000
1.5385	0.0179	0.0105	0.0044	0.0000
1.5934	0.0179	0.0109	0.0045	0.0000
1.6484	0.0179	0.0113	0.0046	0.0000

1.7033	0.0179	0.0117	0.0047	0.0000
1.7582	0.0179	0.0121	0.0048	0.0000
1.8132	0.0179	0.0125	0.0049	0.0000
1.8681	0.0179	0.0130	0.0050	0.0000
1.9231	0.0179	0.0134	0.0051	0.0000
1.9780	0.0179	0.0138	0.0051	0.0000
2.0330	0.0179	0.0142	0.0052	0.0000
2.0879	0.0179	0.0146	0.0053	0.0000
2.1429	0.0179	0.0150	0.0054	0.0000
2.1978	0.0179	0.0154	0.0054	0.0000
2.2527	0.0179	0.0158	0.0055	0.0000
2.3077	0.0179	0.0162	0.0056	0.0000
2.3626	0.0179	0.0166	0.0057	0.0000
2.4176	0.0179	0.0170	0.0057	0.0000
2.4725	0.0179	0.0174	0.0058	0.0000
2.5275	0.0179	0.0179	0.0059	0.0000
2.5824	0.0179	0.0183	0.0060	0.0000
2.6374	0.0179	0.0187	0.0060	0.0000
2.6923	0.0179	0.0191	0.0061	0.0000
2.7473	0.0179	0.0195	0.0062	0.0000
2.8022	0.0179	0.0199	0.0063	0.0000
2.8571	0.0179	0.0203	0.0064	0.0000
2.9121	0.0179	0.0207	0.0065	0.0000
2.9670	0.0179	0.0211	0.0067	0.0000
3.0220	0.0179	0.0215	0.0068	0.0000
3.0769	0.0179	0.0219	0.0069	0.0000
3.1319	0.0179	0.0223	0.0070	0.0000
3.1868	0.0179	0.0228	0.0071	0.0000
3.2418	0.0179	0.0232	0.0073	0.0000
3.2967	0.0179	0.0236	0.0074	0.0000
3.3516	0.0179	0.0240	0.0075	0.0000
3.4066	0.0179	0.0244	0.0076	0.0000
3.4615	0.0179	0.0248	0.0077	0.0000
3.5000	0.0179	0.0251	0.0078	0.0000

Bioretention Surface Hydraulic Table

Stage(feet)	**Area(ac.)**	**Volume(ac-ft.)**	**Discharge(cfs)**	**To Amended(cfs)**	**Infilt(cfs)**
3.5000	0.0179	0.0251	0.0000	0.0903	0.0000
3.5549	0.0179	0.0261	0.0000	0.0903	0.0000
3.6099	0.0179	0.0270	0.0000	0.0969	0.0000
3.6648	0.0179	0.0280	0.0000	0.1002	0.0000
3.7198	0.0179	0.0290	0.0000	0.1035	0.0000
3.7747	0.0179	0.0300	0.0000	0.1068	0.0000
3.8297	0.0179	0.0310	0.0000	0.1101	0.0000
3.8846	0.0179	0.0320	0.0000	0.1134	0.0000
3.9396	0.0179	0.0330	0.0000	0.1167	0.0000
3.9945	0.0179	0.0339	0.0000	0.1200	0.0000
4.0495	0.0179	0.0349	0.0000	0.1233	0.0000
4.1044	0.0179	0.0359	0.0000	0.1267	0.0000
4.1593	0.0179	0.0369	0.0000	0.1300	0.0000
4.2143	0.0179	0.0379	0.0000	0.1333	0.0000
4.2692	0.0179	0.0389	0.0000	0.1366	0.0000
4.3242	0.0179	0.0398	0.0000	0.1399	0.0000
4.3791	0.0179	0.0408	0.0000	0.1432	0.0000
4.4341	0.0179	0.0418	0.0000	0.1465	0.0000
4.4890	0.0179	0.0428	0.0000	0.1498	0.0000
4.5440	0.0179	0.0438	0.0000	0.1531	0.0000
4.5989	0.0179	0.0448	0.0000	0.1564	0.0000

4.6538	0.0179	0.0457	0.0000	0.1597	0.0000
4.7088	0.0179	0.0467	0.0000	0.1630	0.0000
4.7637	0.0179	0.0477	0.0000	0.1663	0.0000
4.8187	0.0179	0.0487	0.0407	0.1696	0.0000
4.8736	0.0179	0.0497	0.3176	0.1729	0.0000
4.9286	0.0179	0.0507	0.7308	0.1763	0.0000
4.9835	0.0179	0.0516	1.2381	0.1796	0.0000
5.0000	0.0179	0.0519	1.8119	0.1806	0.0000

BIO 3

Bottom Length: 60.00 ft.
Bottom Width: 25.83 ft.
Material thickness of first layer: 1.5
Material type for first layer: BAHM 5
Material thickness of second layer: 1
Material type for second layer: GRAVEL
Material thickness of third layer: 0
Material type for third layer: GRAVEL
Underdrain used
Underdrain Diameter (feet): 0.5
Orifice Diameter (in.): 1
Offset (in.): 0
Flow Through Underdrain (ac-ft.): 108.398
Total Outflow (ac-ft.): 177.805
Percent Through Underdrain: 60.96
Discharge Structure
Riser Height: 1 ft.
Riser Diameter: 18 in.
Element Flows To:
Outlet 1 Outlet 2

Bioretention Hydraulic Table

Stage(feet)	**Area(ac.)**	**Volume(ac-ft.)**	**Discharge(cfs)**	**Infilt(cfs)**
0.0000	0.0356	0.0000	0.0000	0.0000
0.0407	0.0356	0.0005	0.0000	0.0000
0.0813	0.0356	0.0011	0.0000	0.0000
0.1220	0.0356	0.0016	0.0000	0.0000
0.1626	0.0356	0.0022	0.0000	0.0000
0.2033	0.0356	0.0027	0.0000	0.0000
0.2440	0.0356	0.0033	0.0000	0.0000
0.2846	0.0356	0.0038	0.0000	0.0000
0.3253	0.0356	0.0044	0.0000	0.0000
0.3659	0.0356	0.0049	0.0000	0.0000
0.4066	0.0356	0.0055	0.0053	0.0000
0.4473	0.0356	0.0060	0.0066	0.0000
0.4879	0.0356	0.0066	0.0077	0.0000
0.5286	0.0356	0.0071	0.0087	0.0000
0.5692	0.0356	0.0077	0.0095	0.0000
0.6099	0.0356	0.0082	0.0103	0.0000
0.6505	0.0356	0.0088	0.0110	0.0000
0.6912	0.0356	0.0093	0.0117	0.0000
0.7319	0.0356	0.0099	0.0123	0.0000
0.7725	0.0356	0.0104	0.0129	0.0000
0.8132	0.0356	0.0110	0.0135	0.0000
0.8538	0.0356	0.0115	0.0141	0.0000
0.8945	0.0356	0.0121	0.0146	0.0000
0.9352	0.0356	0.0126	0.0151	0.0000
0.9758	0.0356	0.0132	0.0156	0.0000
1.0165	0.0356	0.0137	0.0161	0.0000
1.0571	0.0356	0.0143	0.0166	0.0000
1.0978	0.0356	0.0148	0.0170	0.0000
1.1385	0.0356	0.0154	0.0174	0.0000
1.1791	0.0356	0.0159	0.0179	0.0000
1.2198	0.0356	0.0165	0.0183	0.0000

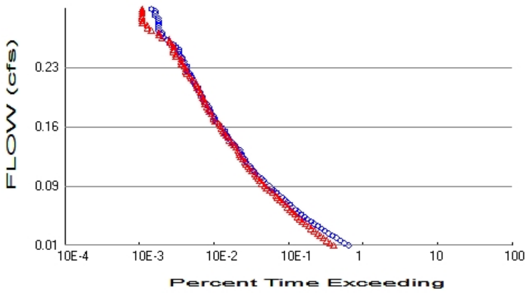
1.2604	0.0356	0.0170	0.0187	0.0000
1.3011	0.0356	0.0176	0.0191	0.0000
1.3418	0.0356	0.0181	0.0195	0.0000
1.3824	0.0356	0.0187	0.0199	0.0000
1.4231	0.0356	0.0192	0.0203	0.0000
1.4637	0.0356	0.0198	0.0206	0.0000
1.5044	0.0356	0.0204	0.0210	0.0000
1.5451	0.0356	0.0210	0.0214	0.0000
1.5857	0.0356	0.0216	0.0217	0.0000
1.6264	0.0356	0.0222	0.0221	0.0000
1.6670	0.0356	0.0228	0.0224	0.0000
1.7077	0.0356	0.0234	0.0227	0.0000
1.7484	0.0356	0.0240	0.0231	0.0000
1.7890	0.0356	0.0246	0.0234	0.0000
1.8297	0.0356	0.0252	0.0237	0.0000
1.8703	0.0356	0.0258	0.0240	0.0000
1.9110	0.0356	0.0264	0.0244	0.0000
1.9516	0.0356	0.0270	0.0247	0.0000
1.9923	0.0356	0.0276	0.0250	0.0000
2.0330	0.0356	0.0282	0.0253	0.0000
2.0736	0.0356	0.0288	0.0256	0.0000
2.1143	0.0356	0.0294	0.0259	0.0000
2.1549	0.0356	0.0300	0.0262	0.0000
2.1956	0.0356	0.0306	0.0265	0.0000
2.2363	0.0356	0.0312	0.0268	0.0000
2.2769	0.0356	0.0318	0.0274	0.0000
2.3176	0.0356	0.0324	0.0276	0.0000
2.3582	0.0356	0.0330	0.0279	0.0000
2.3989	0.0356	0.0336	0.0282	0.0000
2.4396	0.0356	0.0342	0.0284	0.0000
2.4802	0.0356	0.0348	0.0287	0.0000
2.5000	0.0356	0.0351	0.0288	0.0000

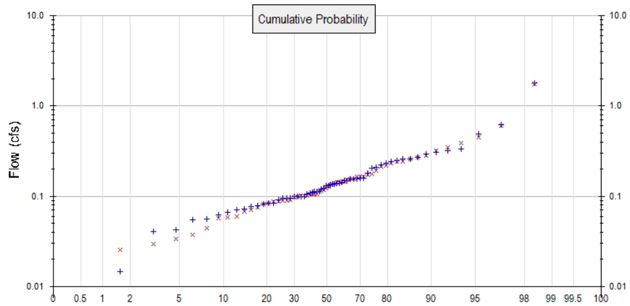
Bioretention Surface Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
2.5000	0.0356	0.0351	0.0000	0.1794	0.0000
2.5407	0.0356	0.0365	0.0000	0.1794	0.0000
2.5813	0.0356	0.0380	0.0000	0.1891	0.0000
2.6220	0.0356	0.0394	0.0000	0.1940	0.0000
2.6626	0.0356	0.0409	0.0000	0.1988	0.0000
2.7033	0.0356	0.0423	0.0000	0.2037	0.0000
2.7440	0.0356	0.0438	0.0000	0.2085	0.0000
2.7846	0.0356	0.0452	0.0000	0.2134	0.0000
2.8253	0.0356	0.0467	0.0000	0.2183	0.0000
2.8659	0.0356	0.0481	0.0000	0.2231	0.0000
2.9066	0.0356	0.0496	0.0000	0.2280	0.0000
2.9473	0.0356	0.0510	0.0000	0.2329	0.0000
2.9879	0.0356	0.0524	0.0000	0.2377	0.0000
3.0286	0.0356	0.0539	0.0000	0.2426	0.0000
3.0692	0.0356	0.0553	0.0000	0.2474	0.0000
3.1099	0.0356	0.0568	0.0000	0.2523	0.0000
3.1505	0.0356	0.0582	0.0000	0.2572	0.0000
3.1912	0.0356	0.0597	0.0000	0.2620	0.0000
3.2319	0.0356	0.0611	0.0000	0.2669	0.0000
3.2725	0.0356	0.0626	0.0000	0.2718	0.0000
3.3132	0.0356	0.0640	0.0000	0.2766	0.0000
3.3538	0.0356	0.0655	0.0000	0.2815	0.0000
3.3945	0.0356	0.0669	0.0000	0.2863	0.0000

3.4352	0.0356	0.0684	0.0000	0.2912	0.0000
3.4758	0.0356	0.0698	0.0000	0.2961	0.0000
3.5165	0.0356	0.0713	0.0337	0.3009	0.0000
3.5571	0.0356	0.0727	0.2173	0.3058	0.0000
3.5978	0.0356	0.0741	0.4858	0.3107	0.0000
3.6385	0.0356	0.0756	0.8160	0.3155	0.0000
3.6791	0.0356	0.0770	1.1947	0.3204	0.0000
3.7000	0.0356	0.0778	1.6110	0.3229	0.0000

Analysis Results
POC 1





+ Pre-Project   x Mitigated

Pre-Project Landuse Totals for POC #1
Total Pervious Area: 0.27
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 0.14
Total Impervious Area: 0.13

Flow Frequency Method: Weibull

Flow Frequency Return Periods for Pre-Project. POC #1

Return Period	**Flow(cfs)**
2 year	0.131689
5 year	0.236018
10 year	0.302149
25 year	0.529716

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	0.122696
5 year	0.222022
10 year	0.304444
25 year	0.501702

Annual Peaks

Annual Peaks for Pre-Project and Mitigated. POC #1

Year	**Pre-Project**	**Mitigated**
1960	0.071	0.058
1961	0.137	0.087
1962	0.122	0.128
1963	0.082	0.106
1964	0.242	0.243
1965	0.076	0.070
1966	0.149	0.156
1967	0.148	0.156
1968	0.133	0.137
1969	0.119	0.123
1970	0.040	0.030
1971	0.043	0.025
1972	0.015	0.005
1973	0.092	0.096

1974	0.108	0.106
1975	0.138	0.144
1976	0.001	0.037
1977	0.062	0.082
1978	0.132	0.106
1979	0.112	0.102
1980	0.180	0.176
1981	0.055	0.056
1982	0.235	0.241
1983	0.141	0.151
1984	0.100	0.102
1985	0.083	0.087
1986	0.155	0.164
1987	0.094	0.099
1988	0.094	0.091
1989	0.083	0.044
1990	0.111	0.114
1991	0.056	0.034
1992	0.113	0.083
1993	0.137	0.141
1994	0.071	0.076
1995	0.098	0.090
1996	0.096	0.102
1997	0.113	0.118
1998	0.154	0.145
1999	0.067	0.067
2000	0.132	0.136
2001	0.257	0.171
2002	0.154	0.164
2003	0.310	0.322
2004	1.795	1.757
2005	0.140	0.135
2006	0.221	0.233
2007	0.269	0.194
2008	0.293	0.386
2009	0.106	0.113
2010	0.333	0.350
2011	0.207	0.214
2012	0.209	0.219
2013	0.160	0.166
2014	0.078	0.059
2015	0.486	0.447
2016	0.259	0.270
2017	0.613	0.607
2018	0.099	0.105
2019	0.319	0.282
2020	0.099	0.089
2021	0.159	0.143
2022	0.245	0.256

Ranked Annual Peaks

Ranked Annual Peaks for Pre-Project and Mitigated. POC #1

Rank	Pre-Project	Mitigated
1	1.7953	1.7574
2	0.6126	0.6067
3	0.4863	0.4467
4	0.3331	0.3855
5	0.3188	0.3502

6	0.3096	0.3217
7	0.2926	0.2823
8	0.2690	0.2697
9	0.2587	0.2558
10	0.2571	0.2432
11	0.2454	0.2413
12	0.2421	0.2332
13	0.2346	0.2194
14	0.2213	0.2143
15	0.2093	0.1936
16	0.2065	0.1755
17	0.1803	0.1714
18	0.1600	0.1658
19	0.1591	0.1640
20	0.1549	0.1637
21	0.1545	0.1564
22	0.1541	0.1562
23	0.1490	0.1513
24	0.1477	0.1451
25	0.1412	0.1443
26	0.1402	0.1427
27	0.1382	0.1413
28	0.1373	0.1373
29	0.1370	0.1361
30	0.1333	0.1346
31	0.1320	0.1275
32	0.1317	0.1227
33	0.1216	0.1177
34	0.1191	0.1142
35	0.1129	0.1134
36	0.1128	0.1059
37	0.1117	0.1059
38	0.1113	0.1058
39	0.1075	0.1050
40	0.1061	0.1023
41	0.1000	0.1017
42	0.0993	0.1015
43	0.0992	0.0990
44	0.0983	0.0962
45	0.0960	0.0914
46	0.0943	0.0899
47	0.0941	0.0891
48	0.0918	0.0867
49	0.0833	0.0866
50	0.0829	0.0829
51	0.0824	0.0819
52	0.0784	0.0758
53	0.0761	0.0705
54	0.0714	0.0670
55	0.0708	0.0590
56	0.0668	0.0578
57	0.0625	0.0565
58	0.0559	0.0440
59	0.0548	0.0372
60	0.0427	0.0337
61	0.0404	0.0296
62	0.0145	0.0253
63	0.0012	0.0046

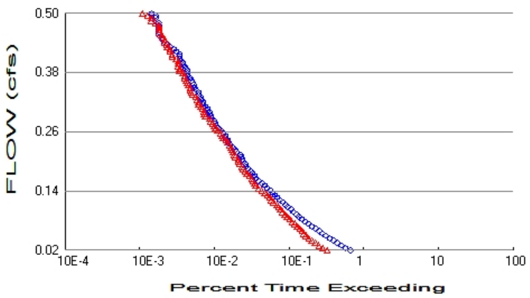
Duration Flows
The Facility PASSED

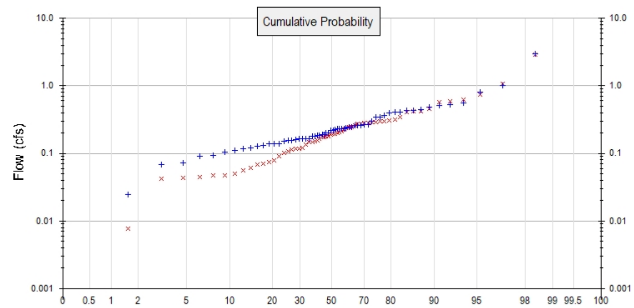
Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0132	3549	2236	63	Pass
0.0161	3087	1986	64	Pass
0.0190	2726	1787	65	Pass
0.0219	2409	1614	66	Pass
0.0248	2149	1476	68	Pass
0.0278	1913	1353	70	Pass
0.0307	1695	1216	71	Pass
0.0336	1541	1119	72	Pass
0.0365	1369	1028	75	Pass
0.0394	1222	922	75	Pass
0.0424	1110	848	76	Pass
0.0453	996	786	78	Pass
0.0482	904	716	79	Pass
0.0511	814	674	82	Pass
0.0540	744	618	83	Pass
0.0570	687	576	83	Pass
0.0599	626	535	85	Pass
0.0628	579	499	86	Pass
0.0657	530	459	86	Pass
0.0686	497	423	85	Pass
0.0715	457	397	86	Pass
0.0745	420	373	88	Pass
0.0774	381	337	88	Pass
0.0803	351	312	88	Pass
0.0832	331	280	84	Pass
0.0861	307	263	85	Pass
0.0891	278	244	87	Pass
0.0920	257	228	88	Pass
0.0949	238	216	90	Pass
0.0978	217	202	93	Pass
0.1007	204	195	95	Pass
0.1037	190	178	93	Pass
0.1066	177	164	92	Pass
0.1095	168	157	93	Pass
0.1124	153	150	98	Pass
0.1153	148	145	97	Pass
0.1183	142	134	94	Pass
0.1212	134	127	94	Pass
0.1241	131	121	92	Pass
0.1270	125	119	95	Pass
0.1299	123	115	93	Pass
0.1328	109	109	100	Pass
0.1358	104	102	98	Pass
0.1387	98	95	96	Pass
0.1416	91	90	98	Pass
0.1445	86	85	98	Pass
0.1474	83	80	96	Pass
0.1504	78	75	96	Pass
0.1533	78	72	92	Pass
0.1562	73	70	95	Pass
0.1591	66	67	101	Pass
0.1620	62	64	103	Pass
0.1650	58	57	98	Pass

0.1679	57	55	96	Pass
0.1708	55	54	98	Pass
0.1737	51	51	100	Pass
0.1766	50	48	96	Pass
0.1796	48	46	95	Pass
0.1825	47	45	95	Pass
0.1854	44	42	95	Pass
0.1883	41	41	100	Pass
0.1912	39	41	105	Pass
0.1941	39	39	100	Pass
0.1971	37	37	100	Pass
0.2000	36	36	100	Pass
0.2029	34	35	102	Pass
0.2058	34	33	97	Pass
0.2087	31	33	106	Pass
0.2117	30	32	106	Pass
0.2146	29	29	100	Pass
0.2175	28	27	96	Pass
0.2204	27	26	96	Pass
0.2233	26	24	92	Pass
0.2263	24	23	95	Pass
0.2292	24	23	95	Pass
0.2321	24	22	91	Pass
0.2350	22	20	90	Pass
0.2379	22	20	90	Pass
0.2409	21	20	95	Pass
0.2438	20	17	85	Pass
0.2467	19	17	89	Pass
0.2496	19	16	84	Pass
0.2525	19	16	84	Pass
0.2554	17	16	94	Pass
0.2584	16	15	93	Pass
0.2613	14	14	100	Pass
0.2642	13	14	107	Pass
0.2671	12	11	91	Pass
0.2700	11	10	90	Pass
0.2730	11	10	90	Pass
0.2759	10	8	80	Pass
0.2788	10	7	70	Pass
0.2817	10	7	70	Pass
0.2846	10	6	60	Pass
0.2876	10	6	60	Pass
0.2905	10	6	60	Pass
0.2934	9	6	66	Pass
0.2963	9	6	66	Pass
0.2992	9	6	66	Pass
0.3021	8	6	75	Pass

Water Quality

POC 2





+ Pre-Project x Mitigated

Pre-Project Landuse Totals for POC #2
Total Pervious Area: 0.45
Total Impervious Area: 0

Mitigated Landuse Totals for POC #2
Total Pervious Area: 0.1
Total Impervious Area: 0.35

Flow Frequency Method: Weibull

Flow Frequency Return Periods for Pre-Project. POC #2

Return Period	**Flow(cfs)**
2 year	0.219481
5 year	0.393362
10 year	0.503582
25 year	0.882859

Flow Frequency Return Periods for Mitigated. POC #2

Return Period	**Flow(cfs)**
2 year	0.189796
5 year	0.305982
10 year	0.515859
25 year	0.852861

Annual Peaks

Annual Peaks for Pre-Project and Mitigated. POC #2

Year	**Pre-Project**	**Mitigated**
1960	0.119	0.062
1961	0.229	0.069
1962	0.203	0.228
1963	0.137	0.275
1964	0.404	0.279
1965	0.127	0.122
1966	0.248	0.135
1967	0.246	0.279
1968	0.222	0.238
1969	0.199	0.215
1970	0.067	0.057
1971	0.071	0.049
1972	0.024	0.007
1973	0.153	0.117
1974	0.179	0.047

1975	0.230	0.146
1976	0.002	0.008
1977	0.104	0.042
1978	0.220	0.176
1979	0.186	0.173
1980	0.301	0.314
1981	0.091	0.113
1982	0.391	0.414
1983	0.235	0.273
1984	0.167	0.148
1985	0.139	0.154
1986	0.258	0.296
1987	0.157	0.180
1988	0.157	0.092
1989	0.138	0.071
1990	0.185	0.074
1991	0.093	0.043
1992	0.188	0.151
1993	0.228	0.245
1994	0.118	0.078
1995	0.164	0.164
1996	0.160	0.178
1997	0.188	0.202
1998	0.257	0.244
1999	0.111	0.117
2000	0.219	0.195
2001	0.429	0.107
2002	0.257	0.295
2003	0.516	0.566
2004	2.992	2.848
2005	0.234	0.196
2006	0.369	0.414
2007	0.448	0.262
2008	0.488	0.732
2009	0.177	0.207
2010	0.555	0.625
2011	0.344	0.341
2012	0.349	0.289
2013	0.267	0.289
2014	0.131	0.047
2015	0.811	0.590
2016	0.431	0.304
2017	1.021	1.083
2018	0.165	0.190
2019	0.531	0.406
2020	0.165	0.045
2021	0.265	0.101
2022	0.409	0.452

Ranked Annual Peaks

Ranked Annual Peaks for Pre-Project and Mitigated. POC #2

Rank	Pre-Project	Mitigated
1	2.9922	2.8481
2	1.0210	1.0832
3	0.8105	0.7322
4	0.5551	0.6249
5	0.5313	0.5900
6	0.5160	0.5655

7	0.4876	0.4520
8	0.4483	0.4142
9	0.4312	0.4140
10	0.4285	0.4064
11	0.4090	0.3408
12	0.4035	0.3139
13	0.3910	0.3042
14	0.3689	0.2962
15	0.3488	0.2954
16	0.3442	0.2895
17	0.3006	0.2895
18	0.2667	0.2791
19	0.2651	0.2786
20	0.2581	0.2754
21	0.2575	0.2731
22	0.2569	0.2622
23	0.2483	0.2449
24	0.2461	0.2442
25	0.2354	0.2376
26	0.2337	0.2280
27	0.2303	0.2154
28	0.2288	0.2066
29	0.2283	0.2017
30	0.2221	0.1962
31	0.2200	0.1951
32	0.2195	0.1898
33	0.2026	0.1804
34	0.1985	0.1777
35	0.1881	0.1759
36	0.1880	0.1729
37	0.1862	0.1645
38	0.1854	0.1543
39	0.1792	0.1515
40	0.1768	0.1477
41	0.1667	0.1461
42	0.1655	0.1346
43	0.1653	0.1218
44	0.1639	0.1175
45	0.1600	0.1172
46	0.1571	0.1132
47	0.1568	0.1070
48	0.1530	0.1008
49	0.1388	0.0916
50	0.1381	0.0778
51	0.1374	0.0744
52	0.1307	0.0708
53	0.1268	0.0686
54	0.1191	0.0617
55	0.1180	0.0566
56	0.1114	0.0494
57	0.1041	0.0468
58	0.0931	0.0468
59	0.0913	0.0447
60	0.0712	0.0432
61	0.0673	0.0416
62	0.0242	0.0077
63	0.0019	0.0074

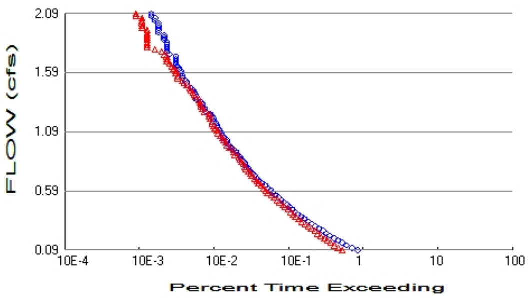
Duration Flows
The Facility PASSED

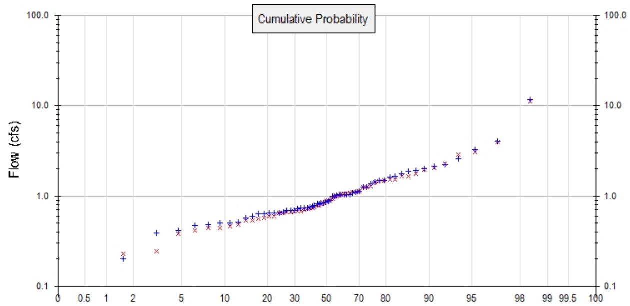
Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0219	3673	1797	48	Pass
0.0268	3155	1565	49	Pass
0.0317	2769	1393	50	Pass
0.0365	2445	1234	50	Pass
0.0414	2165	1113	51	Pass
0.0463	1926	1015	52	Pass
0.0511	1700	939	55	Pass
0.0560	1541	875	56	Pass
0.0609	1404	822	58	Pass
0.0657	1245	775	62	Pass
0.0706	1119	714	63	Pass
0.0755	1006	661	65	Pass
0.0803	910	607	66	Pass
0.0852	817	565	69	Pass
0.0901	744	524	70	Pass
0.0949	698	486	69	Pass
0.0998	636	454	71	Pass
0.1047	587	423	72	Pass
0.1095	534	398	74	Pass
0.1144	499	380	76	Pass
0.1192	459	343	74	Pass
0.1241	421	321	76	Pass
0.1290	384	305	79	Pass
0.1338	355	282	79	Pass
0.1387	334	262	78	Pass
0.1436	311	237	76	Pass
0.1484	280	214	76	Pass
0.1533	262	198	75	Pass
0.1582	239	189	79	Pass
0.1630	217	181	83	Pass
0.1679	204	174	85	Pass
0.1728	192	163	84	Pass
0.1776	178	150	84	Pass
0.1825	168	142	84	Pass
0.1874	156	136	87	Pass
0.1922	148	129	87	Pass
0.1971	142	120	84	Pass
0.2020	134	116	86	Pass
0.2068	131	115	87	Pass
0.2117	127	106	83	Pass
0.2165	123	103	83	Pass
0.2214	109	99	90	Pass
0.2263	104	96	92	Pass
0.2311	98	92	93	Pass
0.2360	91	88	96	Pass
0.2409	86	84	97	Pass
0.2457	84	79	94	Pass
0.2506	78	73	93	Pass
0.2555	78	70	89	Pass
0.2603	73	68	93	Pass
0.2652	67	61	91	Pass
0.2701	62	57	91	Pass
0.2749	58	55	94	Pass

0.2798	57	52	91	Pass
0.2847	55	49	89	Pass
0.2895	51	48	94	Pass
0.2944	50	42	84	Pass
0.2993	48	40	83	Pass
0.3041	47	40	85	Pass
0.3090	45	38	84	Pass
0.3138	42	36	85	Pass
0.3187	39	34	87	Pass
0.3236	39	34	87	Pass
0.3284	37	33	89	Pass
0.3333	36	31	86	Pass
0.3382	34	28	82	Pass
0.3430	34	27	79	Pass
0.3479	31	26	83	Pass
0.3528	30	26	86	Pass
0.3576	29	25	86	Pass
0.3625	28	24	85	Pass
0.3674	27	23	85	Pass
0.3722	26	22	84	Pass
0.3771	24	22	91	Pass
0.3820	24	21	87	Pass
0.3868	24	19	79	Pass
0.3917	23	19	82	Pass
0.3966	22	18	81	Pass
0.4014	21	18	85	Pass
0.4063	20	18	90	Pass
0.4111	19	17	89	Pass
0.4160	19	15	78	Pass
0.4209	19	15	78	Pass
0.4257	17	14	82	Pass
0.4306	16	14	87	Pass
0.4355	14	13	92	Pass
0.4403	13	13	100	Pass
0.4452	12	12	100	Pass
0.4501	11	12	109	Pass
0.4549	11	11	100	Pass
0.4598	10	11	110	Pass
0.4647	10	10	100	Pass
0.4695	10	10	100	Pass
0.4744	10	10	100	Pass
0.4793	10	10	100	Pass
0.4841	10	9	90	Pass
0.4890	9	8	88	Pass
0.4939	9	8	88	Pass
0.4987	9	7	77	Pass
0.5036	8	6	75	Pass

Water Quality

POC 3





+ Pre-Project x Mitigated

Pre-Project Landuse Totals for POC #3
Total Pervious Area: 1.24
Total Impervious Area: 0.44

Mitigated Landuse Totals for POC #3
Total Pervious Area: 0.43
Total Impervious Area: 1.25

Flow Frequency Method: Weibull

Flow Frequency Return Periods for Pre-Project. POC #3

Return Period	Flow(cfs)
2 year	0.855117
5 year	1.504467
10 year	2.094149
25 year	3.531563

Flow Frequency Return Periods for Mitigated. POC #3

Return Period	Flow(cfs)
2 year	0.878831
5 year	1.499656
10 year	2.017133
25 year	3.3761

Annual Peaks

Annual Peaks for Pre-Project and Mitigated. POC #3

Year	Pre-Project	Mitigated
1960	0.504	0.379
1961	1.020	0.843
1962	0.814	0.821
1963	0.649	0.984
1964	1.667	1.664
1965	0.645	0.704
1966	1.026	1.040
1967	0.989	1.007
1968	0.855	0.879
1969	0.776	0.781
1970	0.387	0.230
1971	0.479	0.243
1972	0.201	0.038
1973	0.649	0.651
1974	0.739	0.721

1975	1.036	0.939
1976	0.174	0.447
1977	0.695	0.677
1978	1.043	0.682
1979	0.832	0.735
1980	1.243	1.129
1981	0.415	0.418
1982	1.478	1.516
1983	0.987	0.989
1984	0.751	0.662
1985	0.572	0.555
1986	1.083	1.073
1987	0.634	0.650
1988	0.736	0.594
1989	0.598	0.462
1990	0.777	0.792
1991	0.508	0.538
1992	0.840	0.577
1993	0.871	0.895
1994	0.505	0.532
1995	0.691	0.599
1996	0.659	0.665
1997	0.737	0.751
1998	1.132	1.107
1999	0.475	0.447
2000	0.899	0.896
2001	1.863	1.259
2002	1.042	1.063
2003	2.020	2.064
2004	11.752	11.152
2005	1.104	1.108
2006	1.476	1.498
2007	1.914	1.423
2008	2.574	2.902
2009	0.726	0.740
2010	2.233	2.265
2011	1.360	1.467
2012	1.425	1.505
2013	1.025	1.056
2014	0.639	0.483
2015	3.264	3.071
2016	1.765	1.777
2017	4.043	3.959
2018	0.685	0.684
2019	2.152	1.957
2020	0.817	1.243
2021	1.261	1.269
2022	1.619	1.643

Ranked Annual Peaks

Ranked Annual Peaks for Pre-Project and Mitigated. POC #3

Rank	Pre-Project	Mitigated
1	11.7524	11.1523
2	4.0431	3.9593
3	3.2636	3.0706
4	2.5742	2.9025
5	2.2327	2.2651
6	2.1517	2.0642

7	2.0202	1.9567
8	1.9137	1.7773
9	1.8628	1.6645
10	1.7646	1.6426
11	1.6670	1.5162
12	1.6191	1.5050
13	1.4780	1.4984
14	1.4762	1.4666
15	1.4255	1.4232
16	1.3600	1.2694
17	1.2614	1.2592
18	1.2425	1.2432
19	1.1315	1.1293
20	1.1038	1.1081
21	1.0831	1.1073
22	1.0427	1.0727
23	1.0420	1.0633
24	1.0357	1.0564
25	1.0261	1.0397
26	1.0246	1.0067
27	1.0202	0.9890
28	0.9888	0.9836
29	0.9875	0.9390
30	0.8992	0.8961
31	0.8712	0.8952
32	0.8551	0.8788
33	0.8396	0.8425
34	0.8320	0.8210
35	0.8168	0.7917
36	0.8139	0.7807
37	0.7772	0.7508
38	0.7759	0.7400
39	0.7505	0.7352
40	0.7392	0.7207
41	0.7367	0.7035
42	0.7364	0.6837
43	0.7258	0.6816
44	0.6945	0.6773
45	0.6907	0.6650
46	0.6850	0.6621
47	0.6585	0.6514
48	0.6489	0.6504
49	0.6486	0.5987
50	0.6451	0.5939
51	0.6393	0.5767
52	0.6336	0.5552
53	0.5978	0.5381
54	0.5719	0.5323
55	0.5076	0.4832
56	0.5053	0.4622
57	0.5045	0.4468
58	0.4793	0.4468
59	0.4751	0.4178
60	0.4146	0.3785
61	0.3870	0.2427
62	0.2011	0.2305
63	0.1743	0.0382

Duration Flows
The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0855	4671	2907	62	Pass
0.1058	3908	2558	65	Pass
0.1261	3325	2273	68	Pass
0.1464	2906	2027	69	Pass
0.1667	2564	1825	71	Pass
0.1870	2262	1661	73	Pass
0.2072	1987	1492	75	Pass
0.2275	1771	1348	76	Pass
0.2478	1584	1247	78	Pass
0.2681	1418	1116	78	Pass
0.2884	1258	1012	80	Pass
0.3087	1123	920	81	Pass
0.3290	1017	827	81	Pass
0.3493	907	752	82	Pass
0.3696	817	690	84	Pass
0.3899	740	632	85	Pass
0.4101	673	591	87	Pass
0.4304	620	548	88	Pass
0.4507	564	495	87	Pass
0.4710	525	463	88	Pass
0.4913	481	426	88	Pass
0.5116	442	390	88	Pass
0.5319	399	351	87	Pass
0.5522	367	327	89	Pass
0.5725	340	291	85	Pass
0.5927	320	275	85	Pass
0.6130	292	255	87	Pass
0.6333	272	238	87	Pass
0.6536	243	219	90	Pass
0.6739	221	207	93	Pass
0.6942	209	194	92	Pass
0.7145	194	178	91	Pass
0.7348	183	173	94	Pass
0.7551	169	161	95	Pass
0.7753	161	150	93	Pass
0.7956	152	143	94	Pass
0.8159	145	137	94	Pass
0.8362	138	130	94	Pass
0.8565	128	123	96	Pass
0.8768	123	119	96	Pass
0.8971	117	105	89	Pass
0.9174	110	103	93	Pass
0.9377	100	100	100	Pass
0.9580	93	89	95	Pass
0.9782	88	83	94	Pass
0.9985	83	80	96	Pass
1.0188	82	75	91	Pass
1.0391	75	72	96	Pass
1.0594	71	68	95	Pass
1.0797	70	62	88	Pass
1.1000	66	61	92	Pass
1.1203	63	57	90	Pass
1.1406	61	55	90	Pass

1.1608	59	53	89	Pass
1.1811	55	52	94	Pass
1.2014	54	49	90	Pass
1.2217	52	48	92	Pass
1.2420	50	48	96	Pass
1.2623	43	42	97	Pass
1.2826	42	39	92	Pass
1.3029	39	37	94	Pass
1.3232	39	37	94	Pass
1.3434	37	36	97	Pass
1.3637	32	35	109	Pass
1.3840	32	31	96	Pass
1.4043	31	30	96	Pass
1.4246	30	29	96	Pass
1.4449	29	27	93	Pass
1.4652	27	26	96	Pass
1.4855	24	24	100	Pass
1.5058	24	22	91	Pass
1.5260	23	21	91	Pass
1.5463	21	18	85	Pass
1.5666	21	18	85	Pass
1.5869	20	17	85	Pass
1.6072	20	17	85	Pass
1.6275	19	16	84	Pass
1.6478	18	15	83	Pass
1.6681	17	14	82	Pass
1.6884	17	13	76	Pass
1.7087	17	13	76	Pass
1.7289	17	13	76	Pass
1.7492	14	12	85	Pass
1.7695	13	11	84	Pass
1.7898	13	9	69	Pass
1.8101	13	7	53	Pass
1.8304	13	7	53	Pass
1.8507	13	7	53	Pass
1.8710	12	7	58	Pass
1.8913	12	7	58	Pass
1.9115	12	7	58	Pass
1.9318	10	7	70	Pass
1.9521	10	7	70	Pass
1.9724	10	6	60	Pass
1.9927	10	6	60	Pass
2.0130	10	6	60	Pass
2.0333	9	6	66	Pass
2.0536	9	6	66	Pass
2.0739	8	5	62	Pass
2.0941	8	5	62	Pass

Water Quality

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

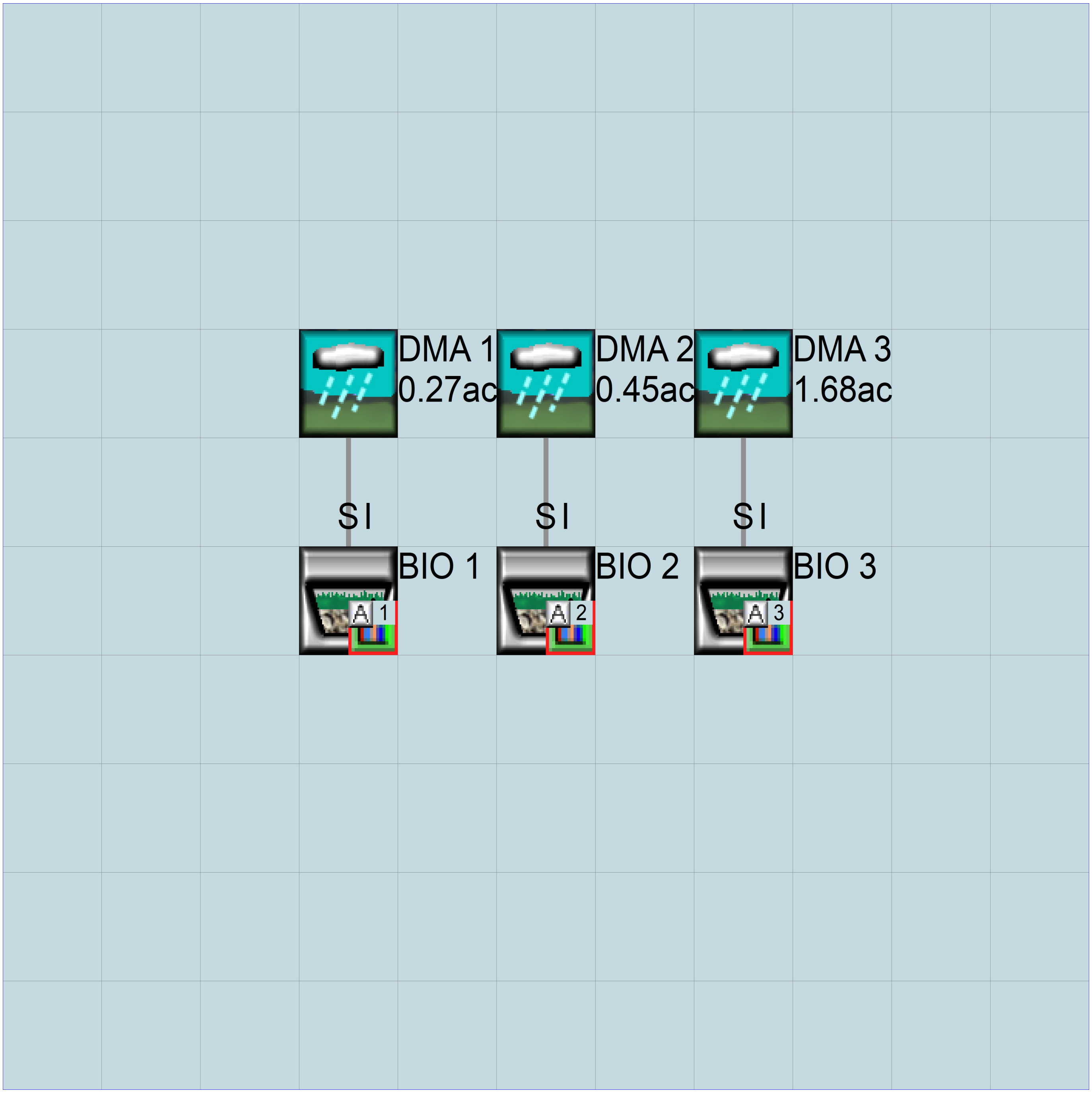
No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

Appendix
Pre-Project Schematic

Mitigated Schematic



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