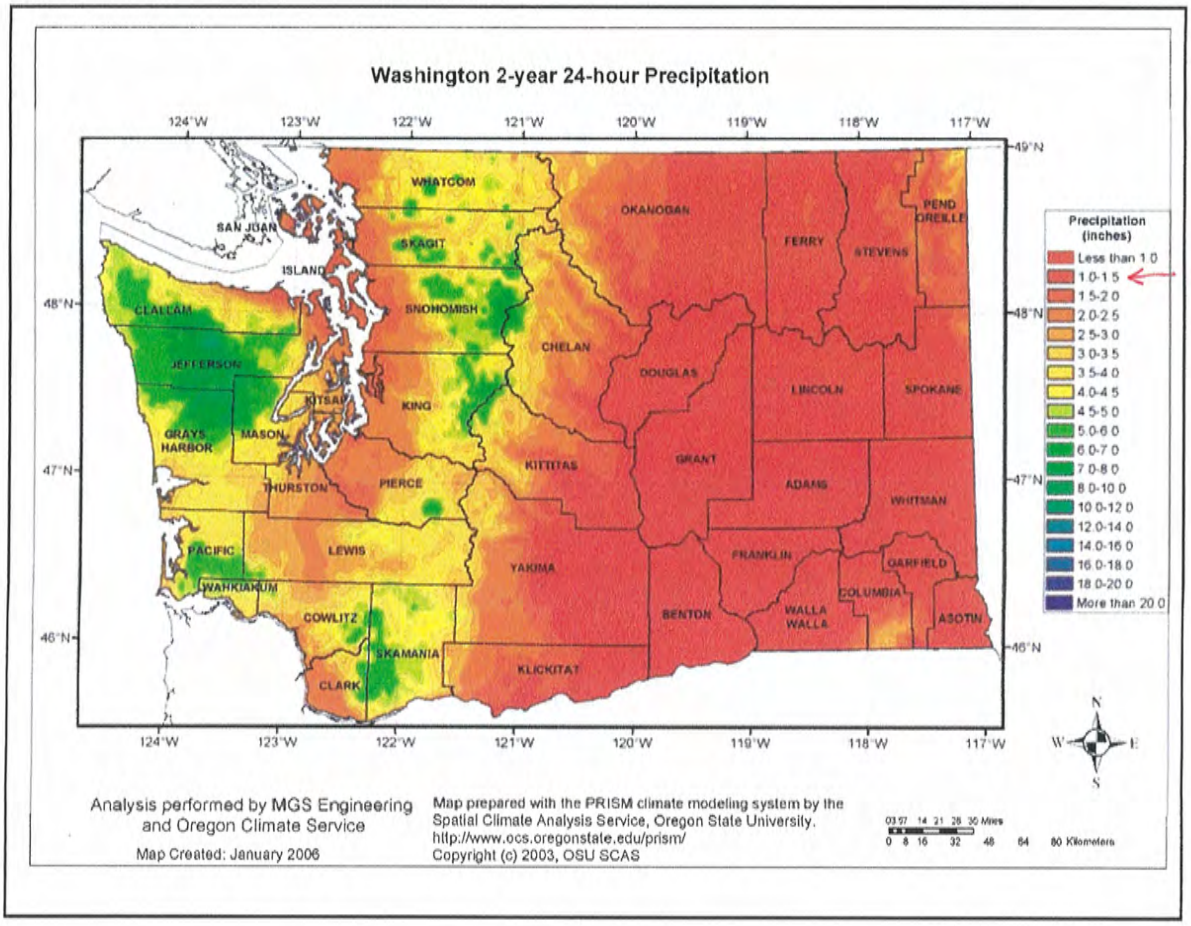
Appendix A-3

Calculations and Program Output

Section A-3.1:	Conveyance Calculations
	Isopluvial Maps
Section A-3.2:	WWHM4 Output Reports
Section A-3.3:	Inlet Spreadsheet (withheld this submittal)


Washington 2-year 24-hour Precipitation
124°W
123°W
122°W
121°W
120°W
119°W
118°W
117°W
49°N
48°N
47°N
46°N
WHATCOM
SAN JUAN
ISLAND
SKAGIT
SNOHOMISH
CLALLAM
JEFFERSON
KITSAP
KING
GRAYS HARBOR
MASON
THURSTON
PIERCE
PACIFIC
LEWIS
WAHKIAKUM
COWLITZ
SKAMANIA
CLARK
OKANOGAN
CHELAN
DOUGLAS
KITTITAS
YAKIMA
BENTON
FERRY
STEVENS
PEND OREILLE
LINCOLN
SPOKANE
GRANT
ADAMS
WHITMAN
FRANKLIN
GARFIELD
COLUMBIA
WALLA WALLA
ASOTIN
KLICKITAT
Precipitation (inches)
Less than 1.0
1.0-1.5
1.5-2.0
2.0-2.5
2.5-3.0
3.0-3.5
3.5-4.0
4.0-4.5
4.5-5.0
5.0-6.0
6.0-7.0
7.0-8.0
8.0-10.0
10.0-12.0
12.0-14.0
14.0-16.0
16.0-18.0
18.0-20.0
More than 20.0
1.5"
N
W
E
S
0 3.5 7 14 21 28 35 Miles
0 8 16 32 48 64 80 Kilometers
Analysis performed by MGS Engineering and Oregon Climate Service
Map Created: January 2006
Map prepared with the PRISM climate modeling system by the Spatial Climate Analysis Service, Oregon State University.
http://www.ocs.oregonstate.edu/prism/
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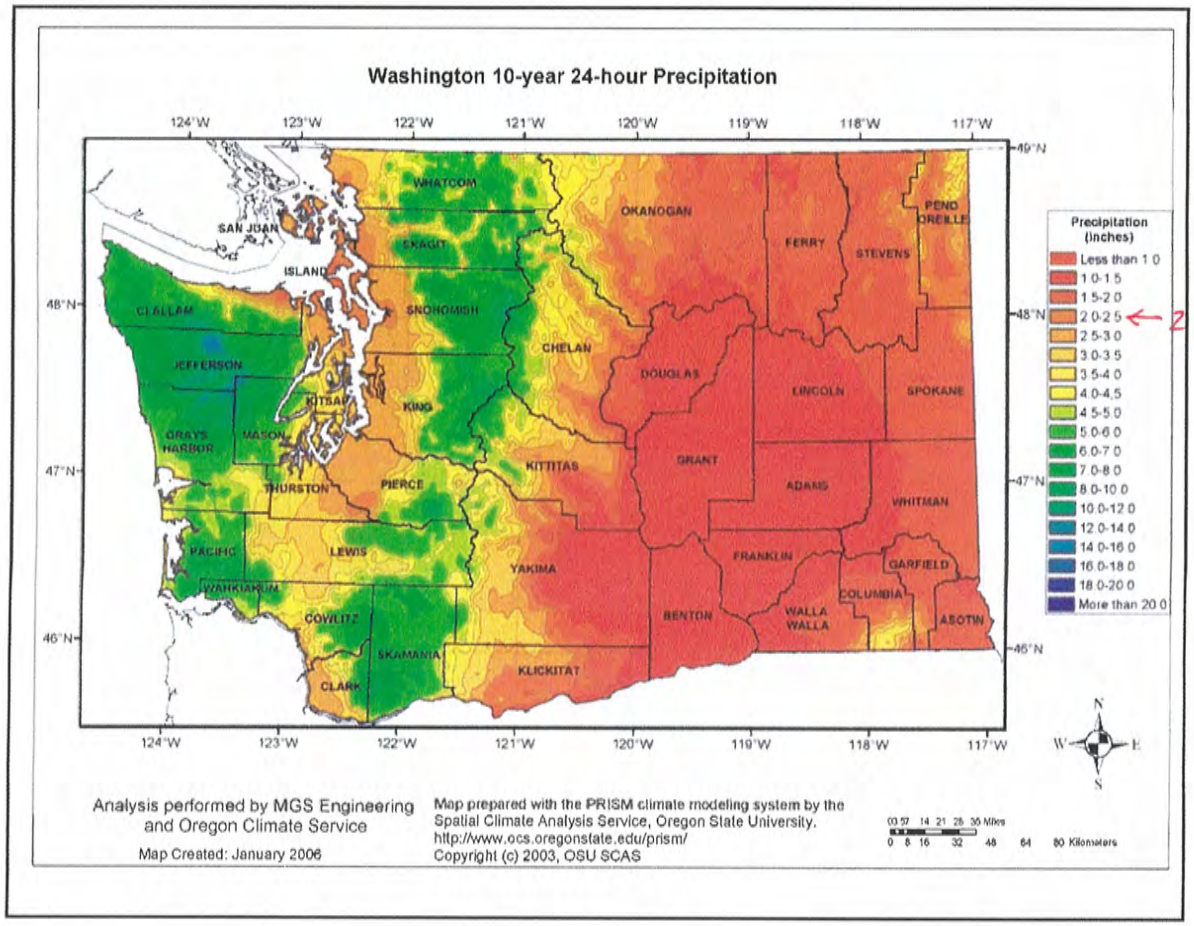
Washington 10-year 24-hour Precipitation
124°W
123°W
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120°W
119°W
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WALLA WALLA
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8.0-10.0
10.0-12.0
12.0-14.0
14.0-16.0
16.0-18.0
18.0-20.0
More than 20.0
← 2.2"
N
W
E
S
Analysis performed by MGS Engineering and Oregon Climate Service
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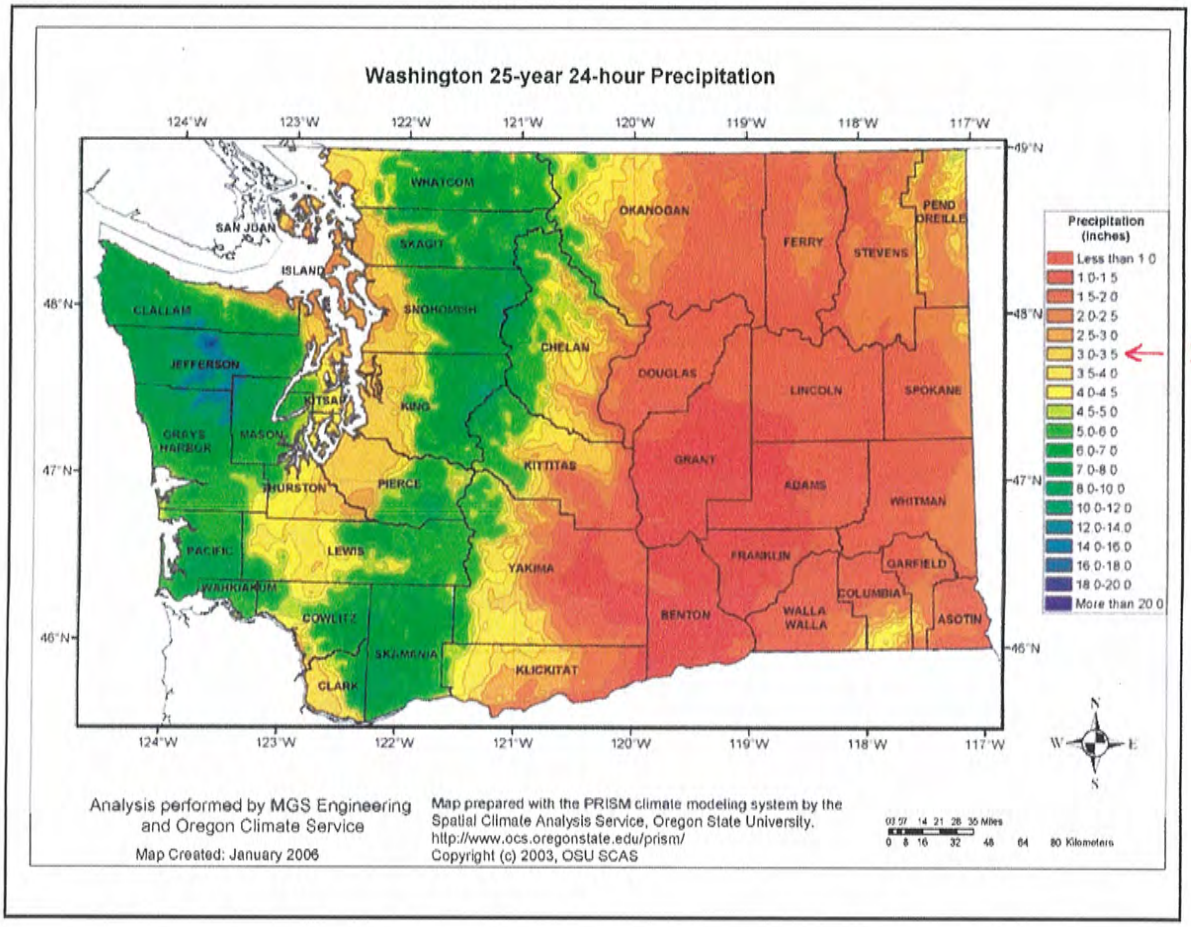
Copyright (c) 2003, OSU SCAS
0 3.5 7 14 21 28 35 Miles
0 8 16 32 48 64 80 Kilometers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Precipitation (inches)
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14.0-16.0
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18.0-20.0
More than 20.0
3.0"
N
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Analysis performed by MGS Engineering and Oregon Climate Service
Map Created: January 2006
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Copyright (c) 2003, OSU SCAS
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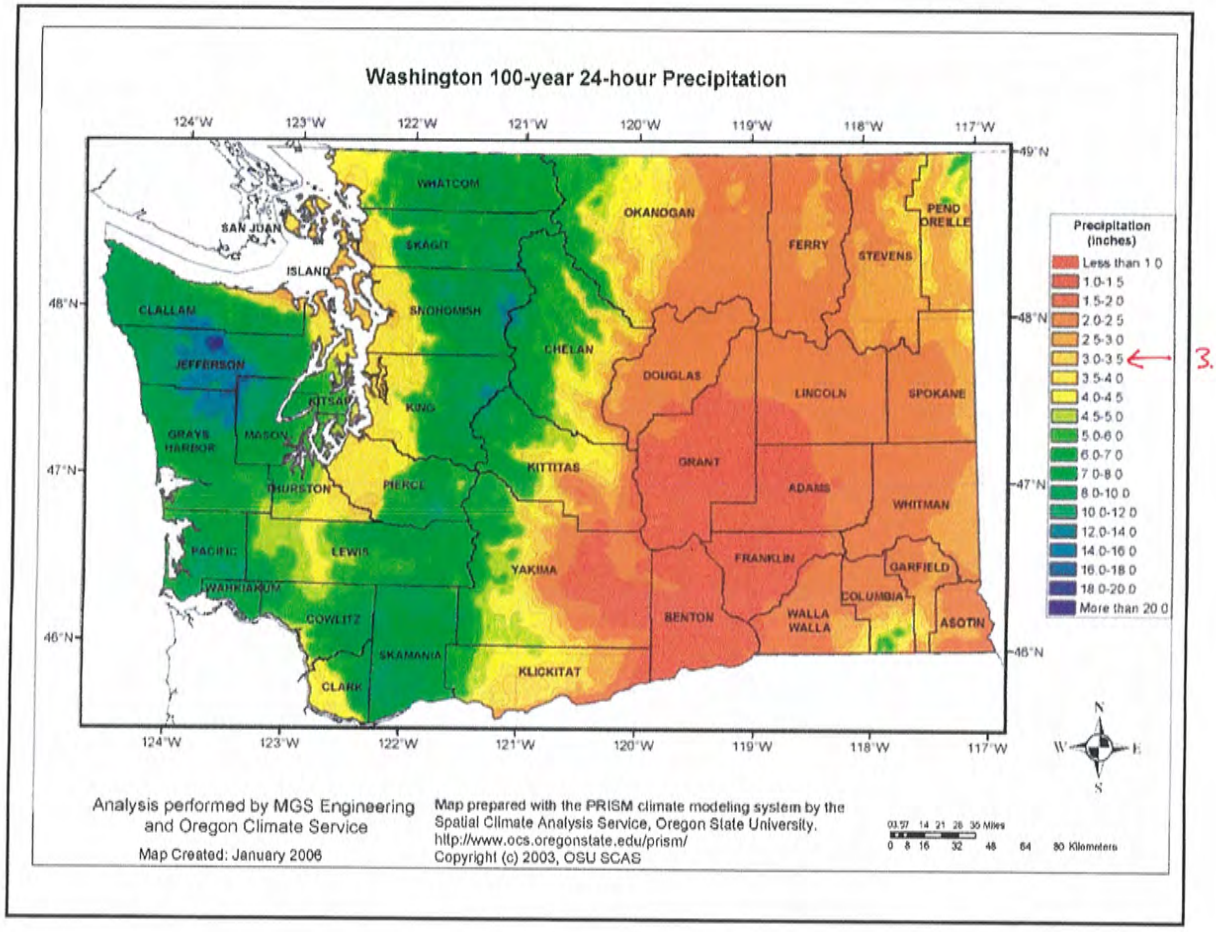
0 8 16 32 48 64 80 Kilometers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Analysis performed by MGS Engineering and Oregon Climate Service
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http://www.ocs.oregonstate.edu/prism/
Copyright (c) 2003, OSU SCAS

WWHM4
PROJECT REPORT

Project Name: Mall Basin
Site Name : Poplar Way
Site Address:
City : Lynnwood
Report Date : 9/25/2013
Gage : Everett
Data Start : 1948/10/01
Data End : 1997/09/30
Precip Scale: 1.00
Version : 2011/12/23

PREDEVELOPED LAND USE

Name : Poplar Way Equiv Area
Bypass: No

GroundWater: No

Pervious Land Use	Acres
C, Forest, Mod	1.15

Impervious Land Use	Acres

Element Flows To:

Surface	Interflow	Groundwater

Name : Mall Basin
Bypass: No

GroundWater: No

Pervious Land Use	Acres
C, Lawn, Mod	7.28

Impervious Land Use	Acres
ROADS MOD	76.58

Element Flows To:

Surface	Interflow	Groundwater
SSD Table 1	SSD Table 1	

Name : SSD Table 1
Depth: 8 ft.

Element Flows To:
Outlet 1 **Outlet 2**

SSD Table Hydraulic Table

Stage (ft)	Area (ac)	Volume (ac-ft)	Manual	NotUsed	NotUsed	NotUsed	NotUsed
0.000	1.306	0.000	0.000	0.000	0.000	0.000	0.000
0.100	1.311	0.131	0.536	0.000	0.000	0.000	0.000
0.200	1.317	0.262	0.757	0.000	0.000	0.000	0.000
0.300	1.322	0.394	0.928	0.000	0.000	0.000	0.000
0.400	1.328	0.527	1.071	0.000	0.000	0.000	0.000
0.500	1.333	0.660	1.198	0.000	0.000	0.000	0.000
0.600	1.339	0.793	1.312	0.000	0.000	0.000	0.000
0.700	1.344	0.928	1.417	0.000	0.000	0.000	0.000
0.800	1.350	1.062	1.515	0.000	0.000	0.000	0.000
0.900	1.356	1.198	1.607	0.000	0.000	0.000	0.000
1.000	1.361	1.333	1.694	0.000	0.000	0.000	0.000
1.100	1.367	1.470	1.776	0.000	0.000	0.000	0.000
1.200	1.372	1.607	1.855	0.000	0.000	0.000	0.000
1.300	1.378	1.744	1.931	0.000	0.000	0.000	0.000
1.400	1.384	1.882	2.004	0.000	0.000	0.000	0.000
1.500	1.389	2.021	2.074	0.000	0.000	0.000	0.000
1.600	1.395	2.160	2.142	0.000	0.000	0.000	0.000
1.700	1.401	2.300	2.208	0.000	0.000	0.000	0.000
1.800	1.406	2.440	2.272	0.000	0.000	0.000	0.000
1.900	1.412	2.581	2.335	0.000	0.000	0.000	0.000
2.000	1.418	2.723	2.395	0.000	0.000	0.000	0.000
2.100	1.423	2.865	2.454	0.000	0.000	0.000	0.000
2.200	1.429	3.007	2.512	0.000	0.000	0.000	0.000
2.300	1.435	3.151	2.569	0.000	0.000	0.000	0.000
2.400	1.441	3.294	2.624	0.000	0.000	0.000	0.000
2.500	1.446	3.439	2.678	0.000	0.000	0.000	0.000
2.600	1.452	3.584	2.731	0.000	0.000	0.000	0.000
2.700	1.458	3.729	2.783	0.000	0.000	0.000	0.000
2.800	1.464	3.875	2.834	0.000	0.000	0.000	0.000
2.900	1.469	4.022	2.884	0.000	0.000	0.000	0.000
3.000	1.475	4.169	2.933	0.000	0.000	0.000	0.000
3.100	1.481	4.317	2.982	0.000	0.000	0.000	0.000
3.200	1.487	4.465	3.030	0.000	0.000	0.000	0.000
3.300	1.493	4.614	3.077	0.000	0.000	0.000	0.000
3.400	1.499	4.764	3.123	0.000	0.000	0.000	0.000
3.500	1.504	4.914	3.169	0.000	0.000	0.000	0.000
3.600	1.510	5.065	3.213	0.000	0.000	0.000	0.000
3.700	1.516	5.216	3.530	0.000	0.000	0.000	0.000
3.800	1.522	5.368	4.716	0.000	0.000	0.000	0.000
3.900	1.528	5.521	6.388	0.000	0.000	0.000	0.000
4.000	1.534	5.674	8.429	0.000	0.000	0.000	0.000
4.100	1.540	5.827	10.78	0.000	0.000	0.000	0.000
4.200	1.546	5.982	13.40	0.000	0.000	0.000	0.000
4.300	1.552	6.136	16.27	0.000	0.000	0.000	0.000

4.400	1.558	6.292	19.37	0.000	0.000	0.000	0.000
4.500	1.564	6.448	22.67	0.000	0.000	0.000	0.000
4.600	1.570	6.605	26.18	0.000	0.000	0.000	0.000
4.700	1.576	6.762	27.89	0.000	0.000	0.000	0.000
4.800	1.582	6.920	29.06	0.000	0.000	0.000	0.000
4.900	1.588	7.078	30.18	0.000	0.000	0.000	0.000
5.000	1.594	7.238	31.25	0.000	0.000	0.000	0.000
5.100	1.600	7.397	32.29	0.000	0.000	0.000	0.000
5.200	1.606	7.558	33.29	0.000	0.000	0.000	0.000
5.300	1.612	7.718	34.26	0.000	0.000	0.000	0.000
5.400	1.618	7.880	35.21	0.000	0.000	0.000	0.000
5.500	1.624	8.042	36.12	0.000	0.000	0.000	0.000
5.600	1.630	8.205	37.02	0.000	0.000	0.000	0.000
5.700	1.637	8.368	37.89	0.000	0.000	0.000	0.000
5.800	1.643	8.532	38.74	0.000	0.000	0.000	0.000
5.900	1.649	8.697	39.57	0.000	0.000	0.000	0.000
6.000	1.655	8.862	40.38	0.000	0.000	0.000	0.000
6.100	1.661	9.028	41.18	0.000	0.000	0.000	0.000
6.200	1.667	9.194	41.96	0.000	0.000	0.000	0.000
6.300	1.674	9.361	42.73	0.000	0.000	0.000	0.000
6.400	1.680	9.529	43.48	0.000	0.000	0.000	0.000
6.500	1.686	9.697	44.22	0.000	0.000	0.000	0.000
6.600	1.692	9.866	44.95	0.000	0.000	0.000	0.000
6.700	1.698	10.04	45.67	0.000	0.000	0.000	0.000
6.800	1.705	10.21	46.37	0.000	0.000	0.000	0.000
6.900	1.711	10.38	47.06	0.000	0.000	0.000	0.000
7.000	1.717	10.55	47.75	0.000	0.000	0.000	0.000
7.100	1.724	10.72	48.42	0.000	0.000	0.000	0.000
7.200	1.730	10.89	49.08	0.000	0.000	0.000	0.000
7.300	1.736	11.07	49.74	0.000	0.000	0.000	0.000
7.400	1.742	11.24	50.38	0.000	0.000	0.000	0.000
7.500	1.749	11.41	51.02	0.000	0.000	0.000	0.000
7.600	1.755	11.59	51.65	0.000	0.000	0.000	0.000
7.700	1.761	11.77	52.27	0.000	0.000	0.000	0.000
7.800	1.768	11.94	52.88	0.000	0.000	0.000	0.000
7.900	1.774	12.12	53.49	0.000	0.000	0.000	0.000

MITIGATED LAND USE

Name : Poplar Way Equiv Area
Bypass: Yes

GroundWater: No

Pervious Land Use	**Acres**

Impervious Land Use	**Acres**
ROADS MOD	**1.15**

Element Flows To:

Surface	**Interflow**	**Groundwater**

Name : Mall Basin
Bypass: No

GroundWater: No

Pervious Land Use	Acres
C, Lawn, Mod	7.28

Impervious Land Use	Acres
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Surface	Interflow	Groundwater
SSD Table 1	SSD Table 1	

Name : SSD Table 1
Depth: 8 ft.

Element Flows To:

Outlet 1	Outlet 2

SSD Table Hydraulic Table

Stage (ft)	Area (ac)	Volume (ac-ft)	Manual	NotUsed	NotUsed	NotUsed	NotUsed
0.000	1.306	0.000	0.000	0.000	0.000	0.000	0.000
0.100	1.311	0.131	0.390	0.000	0.000	0.000	0.000
0.200	1.317	0.262	1.110	0.000	0.000	0.000	0.000
0.300	1.322	0.394	1.630	0.000	0.000	0.000	0.000
0.400	1.328	0.527	1.880	0.000	0.000	0.000	0.000
0.500	1.333	0.660	2.100	0.000	0.000	0.000	0.000
0.600	1.339	0.793	2.300	0.000	0.000	0.000	0.000
0.700	1.344	0.928	2.480	0.000	0.000	0.000	0.000
0.800	1.350	1.062	2.660	0.000	0.000	0.000	0.000
0.900	1.356	1.198	2.820	0.000	0.000	0.000	0.000
1.000	1.361	1.333	2.970	0.000	0.000	0.000	0.000
1.100	1.367	1.470	2.970	0.000	0.000	0.000	0.000
1.200	1.372	1.607	2.970	0.000	0.000	0.000	0.000
1.300	1.378	1.744	2.970	0.000	0.000	0.000	0.000
1.400	1.384	1.882	2.970	0.000	0.000	0.000	0.000
1.500	1.389	2.021	2.970	0.000	0.000	0.000	0.000
1.600	1.395	2.160	2.970	0.000	0.000	0.000	0.000
1.700	1.401	2.300	2.970	0.000	0.000	0.000	0.000
1.800	1.406	2.440	2.970	0.000	0.000	0.000	0.000
1.900	1.412	2.581	2.970	0.000	0.000	0.000	0.000
2.000	1.418	2.723	2.970	0.000	0.000	0.000	0.000
2.100	1.423	2.865	2.970	0.000	0.000	0.000	0.000

2.200	1.429	3.007	2.970	0.000	0.000	0.000	0.000
2.300	1.435	3.151	2.970	0.000	0.000	0.000	0.000
2.400	1.441	3.294	2.970	0.000	0.000	0.000	0.000
2.500	1.446	3.439	2.970	0.000	0.000	0.000	0.000
2.600	1.452	3.584	2.970	0.000	0.000	0.000	0.000
2.700	1.458	3.729	2.970	0.000	0.000	0.000	0.000
2.800	1.464	3.875	2.970	0.000	0.000	0.000	0.000
2.900	1.469	4.022	2.970	0.000	0.000	0.000	0.000
3.000	1.475	4.169	2.970	0.000	0.000	0.000	0.000
3.100	1.481	4.317	2.970	0.000	0.000	0.000	0.000
3.200	1.487	4.465	2.970	0.000	0.000	0.000	0.000
3.300	1.493	4.614	2.970	0.000	0.000	0.000	0.000
3.400	1.499	4.764	2.970	0.000	0.000	0.000	0.000
3.500	1.504	4.914	2.970	0.000	0.000	0.000	0.000
3.600	1.510	5.065	2.970	0.000	0.000	0.000	0.000
3.700	1.516	5.216	2.970	0.000	0.000	0.000	0.000
3.800	1.522	5.368	3.260	0.000	0.000	0.000	0.000
3.900	1.528	5.521	3.790	0.000	0.000	0.000	0.000
4.000	1.534	5.674	4.470	0.000	0.000	0.000	0.000
4.100	1.540	5.827	5.270	0.000	0.000	0.000	0.000
4.200	1.546	5.982	6.190	0.000	0.000	0.000	0.000
4.300	1.552	6.136	7.200	0.000	0.000	0.000	0.000
4.400	1.558	6.292	8.300	0.000	0.000	0.000	0.000
4.500	1.564	6.448	9.480	0.000	0.000	0.000	0.000
4.600	1.570	6.605	10.74	0.000	0.000	0.000	0.000
4.700	1.576	6.762	12.07	0.000	0.000	0.000	0.000
4.800	1.582	6.920	13.46	0.000	0.000	0.000	0.000
4.900	1.588	7.078	14.93	0.000	0.000	0.000	0.000
5.000	1.594	7.238	16.45	0.000	0.000	0.000	0.000
5.100	1.600	7.397	18.04	0.000	0.000	0.000	0.000
5.200	1.606	7.558	19.68	0.000	0.000	0.000	0.000
5.300	1.612	7.718	21.38	0.000	0.000	0.000	0.000
5.400	1.618	7.880	23.13	0.000	0.000	0.000	0.000
5.500	1.624	8.042	24.94	0.000	0.000	0.000	0.000
5.600	1.630	8.205	26.63	0.000	0.000	0.000	0.000
5.700	1.637	8.368	28.08	0.000	0.000	0.000	0.000
5.800	1.643	8.532	29.40	0.000	0.000	0.000	0.000
5.900	1.649	8.697	30.63	0.000	0.000	0.000	0.000
6.000	1.655	8.862	31.80	0.000	0.000	0.000	0.000
6.100	1.661	9.028	32.91	0.000	0.000	0.000	0.000
6.200	1.667	9.194	33.97	0.000	0.000	0.000	0.000
6.300	1.674	9.361	35.00	0.000	0.000	0.000	0.000
6.400	1.680	9.529	35.98	0.000	0.000	0.000	0.000
6.500	1.686	9.697	36.94	0.000	0.000	0.000	0.000
6.600	1.692	9.866	37.87	0.000	0.000	0.000	0.000
6.700	1.698	10.04	38.77	0.000	0.000	0.000	0.000
6.800	1.705	10.21	39.65	0.000	0.000	0.000	0.000
6.900	1.711	10.38	40.50	0.000	0.000	0.000	0.000
7.000	1.717	10.55	41.34	0.000	0.000	0.000	0.000
7.100	1.724	10.72	42.16	0.000	0.000	0.000	0.000
7.200	1.730	10.89	42.96	0.000	0.000	0.000	0.000
7.300	1.736	11.07	43.74	0.000	0.000	0.000	0.000
7.400	1.742	11.24	44.51	0.000	0.000	0.000	0.000
7.500	1.749	11.41	45.26	0.000	0.000	0.000	0.000
7.600	1.755	11.59	46.00	0.000	0.000	0.000	0.000
7.700	1.761	11.77	46.73	0.000	0.000	0.000	0.000
7.800	1.768	11.94	47.44	0.000	0.000	0.000	0.000

7.900	1.774	12.12	48.14	0.000	0.000	0.000	0.000

ANALYSIS RESULTS

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	9.040772
5 year	14.846699
10 year	18.918519
25 year	24.1939
50 year	28.170104
100 year	32.158724

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	6.092594
5 year	10.018231
10 year	13.207923
25 year	17.962258
50 year	22.063958
100 year	26.67496

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1949	8.244	3.904
1950	9.596	7.627
1951	9.401	5.440
1952	3.083	3.221
1953	2.983	3.245
1954	5.944	4.098
1955	15.589	12.520
1956	9.266	7.273
1957	19.181	11.734
1958	15.936	10.527
1959	11.029	4.962
1960	13.278	9.550
1961	21.077	15.198
1962	13.064	8.492
1963	10.035	8.035
1964	9.511	4.637
1965	4.962	3.151
1966	3.137	3.157
1967	12.215	8.340
1968	16.119	13.900
1969	10.796	6.142
1970	3.166	3.188
1971	8.280	5.541
1972	17.076	9.329
1973	3.174	3.219
1974	6.162	3.447
1975	4.944	3.418
1976	13.445	6.864
1977	9.508	5.106

1978	2.888	3.196
1979	25.260	16.185
1980	5.984	3.690
1981	5.591	3.505
1982	15.253	13.122
1983	12.781	6.387
1984	9.281	6.204
1985	13.587	12.341
1986	18.638	17.082
1987	14.793	9.537
1988	7.521	6.575
1989	2.779	3.157
1990	5.985	3.508
1991	10.419	7.670
1992	3.201	3.252
1993	7.446	3.427
1994	7.263	5.942
1995	7.846	4.855
1996	16.703	14.053
1997	25.493	23.582

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	25.4927	23.5816
2	25.2598	17.0822
3	21.0771	16.1851
4	19.1806	15.1984
5	18.6379	14.0529
6	17.0757	13.9004
7	16.7026	13.1216
8	16.1191	12.5200
9	15.9359	12.3406
10	15.5890	11.7335
11	15.2530	10.5272
12	14.7926	9.5499
13	13.5872	9.5370
14	13.4450	9.3288
15	13.2782	8.4920
16	13.0638	8.3401
17	12.7809	8.0349
18	12.2150	7.6701
19	11.0290	7.6270
20	10.7955	7.2728
21	10.4185	6.8643
22	10.0353	6.5753
23	9.5957	6.3872
24	9.5108	6.2040
25	9.5077	6.1421
26	9.4009	5.9416
27	9.2814	5.5412
28	9.2663	5.4401
29	8.2797	5.1057
30	8.2440	4.9616
31	7.8458	4.8554
32	7.5209	4.6368
33	7.4458	4.0982

34	7.2629	3.9036
35	6.1619	3.6900
36	5.9847	3.5079
37	5.9841	3.5050
38	5.9436	3.4472
39	5.5908	3.4275
40	4.9616	3.4182
41	4.9436	3.2524
42	3.2015	3.2448
43	3.1736	3.2210
44	3.1661	3.2190
45	3.1372	3.1959
46	3.0826	3.1884
47	2.9831	3.1571
48	2.8881	3.1570
49	2.7793	3.1513

POC #1
The Facility PASSED

The Facility PASSED.

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
4.5204	438	293	66	Pass
4.7593	390	259	66	Pass
4.9982	360	241	66	Pass
5.2370	335	224	66	Pass
5.4759	306	204	66	Pass
5.7148	279	187	67	Pass
5.9537	257	174	67	Pass
6.1926	238	160	67	Pass
6.4315	222	150	67	Pass
6.6704	211	143	67	Pass
6.9092	191	135	70	Pass
7.1481	179	125	69	Pass
7.3870	167	121	72	Pass
7.6259	154	109	70	Pass
7.8648	146	96	65	Pass
8.1037	137	87	63	Pass
8.3426	128	80	62	Pass
8.5814	121	75	61	Pass
8.8203	109	70	64	Pass
9.0592	103	64	62	Pass
9.2981	97	61	62	Pass
9.5370	89	59	66	Pass
9.7759	82	56	68	Pass
10.0148	79	55	69	Pass
10.2537	74	51	68	Pass
10.4925	73	50	68	Pass
10.7314	72	47	65	Pass
10.9703	71	45	63	Pass
11.2092	68	43	63	Pass
11.4481	66	42	63	Pass
11.6870	66	40	60	Pass
11.9259	64	38	59	Pass
12.1647	60	36	60	Pass

12.4036	57	35	61	Pass
12.6425	54	30	55	Pass
12.8814	48	29	60	Pass
13.1203	44	26	59	Pass
13.3592	43	23	53	Pass
13.5981	40	22	55	Pass
13.8369	39	19	48	Pass
14.0758	37	17	45	Pass
14.3147	36	16	44	Pass
14.5536	34	15	44	Pass
14.7925	33	14	42	Pass
15.0314	31	14	45	Pass
15.2703	30	12	40	Pass
15.5091	29	11	37	Pass
15.7480	23	11	47	Pass
15.9869	19	8	42	Pass
16.2258	15	5	33	Pass
16.4647	15	4	26	Pass
16.7036	15	4	26	Pass
16.9425	13	4	30	Pass
17.1813	9	3	33	Pass
17.4202	9	3	33	Pass
17.6591	9	3	33	Pass
17.8980	8	3	37	Pass
18.1369	8	3	37	Pass
18.3758	8	3	37	Pass
18.6147	7	3	42	Pass
18.8535	6	3	50	Pass
19.0924	5	2	40	Pass
19.3313	4	2	50	Pass
19.5702	4	2	50	Pass
19.8091	4	2	50	Pass
20.0480	4	2	50	Pass
20.2869	4	2	50	Pass
20.5258	3	1	33	Pass
20.7646	3	1	33	Pass
21.0035	3	1	33	Pass
21.2424	2	1	50	Pass
21.4813	2	1	50	Pass
21.7202	2	1	50	Pass
21.9591	2	1	50	Pass
22.1980	2	1	50	Pass
22.4368	2	1	50	Pass
22.6757	2	1	50	Pass
22.9146	2	1	50	Pass
23.1535	2	1	50	Pass
23.3924	2	1	50	Pass
23.6313	2	0	0	Pass
23.8702	2	0	0	Pass
24.1090	2	0	0	Pass
24.3479	2	0	0	Pass
24.5868	2	0	0	Pass
24.8257	2	0	0	Pass
25.0646	2	0	0	Pass
25.3035	1	0	0	Pass
25.5424	0	0	0	Pass
25.7812	0	0	0	Pass

26.0201	0	0	0	Pass
26.2590	0	0	0	Pass
26.4979	0	0	0	Pass
26.7368	0	0	0	Pass
26.9757	0	0	0	Pass
27.2146	0	0	0	Pass
27.4534	0	0	0	Pass
27.6923	0	0	0	Pass
27.9312	0	0	0	Pass
28.1701	0	0	0	Pass

Water Quality BMP Flow and Volume for POC #1
On-line facility volume: 0 **acre-feet**
On-line facility target flow: 0 **cfs.**
Adjusted for 15 min: 0 **cfs.**
Off-line facility target flow: 0 **cfs.**
Adjusted for 15 min: 0 **cfs.**

Perlnd and Implnd Changes
No changes have been made.

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WWHM4
PROJECT REPORT

Project Name: Full Basin
Site Name : Poplar Way
Site Address:
City : Lynnwood
Report Date : 9/25/2013
Gage : Everett
Data Start : 1948/10/01
Data End : 1997/09/30
Precip Scale: 1.00
Version : 2011/12/23

PREDEVELOPED LAND USE

Name : Poplar Way Equiv Area
Bypass: No

GroundWater: No

Pervious Land Use	Acres
C, Forest, Mod	1.15

Impervious Land Use	Acres

Element Flows To:

Surface	Interflow	Groundwater

Name : Overall Basin
Bypass: No

GroundWater: No

Pervious Land Use	Acres
C, Lawn, Mod	22

Impervious Land Use	Acres
ROADS MOD	153

Element Flows To:

Surface	Interflow	Groundwater
SSD Table 1	SSD Table 1	

Name : SSD Table 1
Depth: 8 ft.

Element Flows To:
Outlet 1 **Outlet 2**

SSD Table Hydraulic Table

Stage (ft)	Area (ac)	Volume (ac-ft)	Manual	NotUsed	NotUsed	NotUsed	NotUsed
0.000	1.306	0.000	0.000	0.000	0.000	0.000	0.000
0.100	1.311	0.131	0.536	0.000	0.000	0.000	0.000
0.200	1.317	0.262	0.757	0.000	0.000	0.000	0.000
0.300	1.322	0.394	0.928	0.000	0.000	0.000	0.000
0.400	1.328	0.527	1.071	0.000	0.000	0.000	0.000
0.500	1.333	0.660	1.198	0.000	0.000	0.000	0.000
0.600	1.339	0.793	1.312	0.000	0.000	0.000	0.000
0.700	1.344	0.928	1.417	0.000	0.000	0.000	0.000
0.800	1.350	1.062	1.515	0.000	0.000	0.000	0.000
0.900	1.356	1.198	1.607	0.000	0.000	0.000	0.000
1.000	1.361	1.333	1.694	0.000	0.000	0.000	0.000
1.100	1.367	1.470	1.776	0.000	0.000	0.000	0.000
1.200	1.372	1.607	1.855	0.000	0.000	0.000	0.000
1.300	1.378	1.744	1.931	0.000	0.000	0.000	0.000
1.400	1.384	1.882	2.004	0.000	0.000	0.000	0.000
1.500	1.389	2.021	2.074	0.000	0.000	0.000	0.000
1.600	1.395	2.160	2.142	0.000	0.000	0.000	0.000
1.700	1.401	2.300	2.208	0.000	0.000	0.000	0.000
1.800	1.406	2.440	2.272	0.000	0.000	0.000	0.000
1.900	1.412	2.581	2.335	0.000	0.000	0.000	0.000
2.000	1.418	2.723	2.395	0.000	0.000	0.000	0.000
2.100	1.423	2.865	2.454	0.000	0.000	0.000	0.000
2.200	1.429	3.007	2.512	0.000	0.000	0.000	0.000
2.300	1.435	3.151	2.569	0.000	0.000	0.000	0.000
2.400	1.441	3.294	2.624	0.000	0.000	0.000	0.000
2.500	1.446	3.439	2.678	0.000	0.000	0.000	0.000
2.600	1.452	3.584	2.731	0.000	0.000	0.000	0.000
2.700	1.458	3.729	2.783	0.000	0.000	0.000	0.000
2.800	1.464	3.875	2.834	0.000	0.000	0.000	0.000
2.900	1.469	4.022	2.884	0.000	0.000	0.000	0.000
3.000	1.475	4.169	2.933	0.000	0.000	0.000	0.000
3.100	1.481	4.317	2.982	0.000	0.000	0.000	0.000
3.200	1.487	4.465	3.030	0.000	0.000	0.000	0.000
3.300	1.493	4.614	3.077	0.000	0.000	0.000	0.000
3.400	1.499	4.764	3.123	0.000	0.000	0.000	0.000
3.500	1.504	4.914	3.169	0.000	0.000	0.000	0.000
3.600	1.510	5.065	3.213	0.000	0.000	0.000	0.000
3.700	1.516	5.216	3.530	0.000	0.000	0.000	0.000
3.800	1.522	5.368	4.716	0.000	0.000	0.000	0.000
3.900	1.528	5.521	6.388	0.000	0.000	0.000	0.000
4.000	1.534	5.674	8.429	0.000	0.000	0.000	0.000
4.100	1.540	5.827	10.78	0.000	0.000	0.000	0.000
4.200	1.546	5.982	13.40	0.000	0.000	0.000	0.000
4.300	1.552	6.136	16.27	0.000	0.000	0.000	0.000

4.400	1.558	6.292	19.37	0.000	0.000	0.000	0.000
4.500	1.564	6.448	22.67	0.000	0.000	0.000	0.000
4.600	1.570	6.605	26.18	0.000	0.000	0.000	0.000
4.700	1.576	6.762	27.89	0.000	0.000	0.000	0.000
4.800	1.582	6.920	29.06	0.000	0.000	0.000	0.000
4.900	1.588	7.078	30.18	0.000	0.000	0.000	0.000
5.000	1.594	7.238	31.25	0.000	0.000	0.000	0.000
5.100	1.600	7.397	32.29	0.000	0.000	0.000	0.000
5.200	1.606	7.558	33.29	0.000	0.000	0.000	0.000
5.300	1.612	7.718	34.26	0.000	0.000	0.000	0.000
5.400	1.618	7.880	35.21	0.000	0.000	0.000	0.000
5.500	1.624	8.042	36.12	0.000	0.000	0.000	0.000
5.600	1.630	8.205	37.02	0.000	0.000	0.000	0.000
5.700	1.637	8.368	37.89	0.000	0.000	0.000	0.000
5.800	1.643	8.532	38.74	0.000	0.000	0.000	0.000
5.900	1.649	8.697	39.57	0.000	0.000	0.000	0.000
6.000	1.655	8.862	40.38	0.000	0.000	0.000	0.000
6.100	1.661	9.028	41.18	0.000	0.000	0.000	0.000
6.200	1.667	9.194	41.96	0.000	0.000	0.000	0.000
6.300	1.674	9.361	42.73	0.000	0.000	0.000	0.000
6.400	1.680	9.529	43.48	0.000	0.000	0.000	0.000
6.500	1.686	9.697	44.22	0.000	0.000	0.000	0.000
6.600	1.692	9.866	44.95	0.000	0.000	0.000	0.000
6.700	1.698	10.04	45.67	0.000	0.000	0.000	0.000
6.800	1.705	10.21	46.37	0.000	0.000	0.000	0.000
6.900	1.711	10.38	47.06	0.000	0.000	0.000	0.000
7.000	1.717	10.55	47.75	0.000	0.000	0.000	0.000
7.100	1.724	10.72	48.42	0.000	0.000	0.000	0.000
7.200	1.730	10.89	49.08	0.000	0.000	0.000	0.000
7.300	1.736	11.07	49.74	0.000	0.000	0.000	0.000
7.400	1.742	11.24	50.38	0.000	0.000	0.000	0.000
7.500	1.749	11.41	51.02	0.000	0.000	0.000	0.000
7.600	1.755	11.59	51.65	0.000	0.000	0.000	0.000
7.700	1.761	11.77	52.27	0.000	0.000	0.000	0.000
7.800	1.768	11.94	52.88	0.000	0.000	0.000	0.000
7.900	1.774	12.12	53.49	0.000	0.000	0.000	0.000

MITIGATED LAND USE

Name : Poplar Way Equiv Area
Bypass: Yes

GroundWater: No

Pervious Land Use	**Acres**

Impervious Land Use	**Acres**
ROADS MOD	**1.15**

Element Flows To:

Surface	**Interflow**	**Groundwater**

Name : Overall Basin
Bypass: No

GroundWater: No

Pervious Land Use	Acres
C, Lawn, Mod	22

Impervious Land Use	Acres
ROADS MOD	153

Element Flows To:

Surface	Interflow	Groundwater
SSD Table 1	SSD Table 1	

Name : SSD Table 1
Depth: 8 ft.

Element Flows To:

Outlet 1	Outlet 2

SSD Table Hydraulic Table

Stage (ft)	Area (ac)	Volume (ac-ft)	Manual	NotUsed	NotUsed	NotUsed	NotUsed
0.000	1.306	0.000	0.000	0.000	0.000	0.000	0.000
0.100	1.311	0.131	0.390	0.000	0.000	0.000	0.000
0.200	1.317	0.262	1.110	0.000	0.000	0.000	0.000
0.300	1.322	0.394	1.630	0.000	0.000	0.000	0.000
0.400	1.328	0.527	1.880	0.000	0.000	0.000	0.000
0.500	1.333	0.660	2.100	0.000	0.000	0.000	0.000
0.600	1.339	0.793	2.300	0.000	0.000	0.000	0.000
0.700	1.344	0.928	2.480	0.000	0.000	0.000	0.000
0.800	1.350	1.062	2.660	0.000	0.000	0.000	0.000
0.900	1.356	1.198	2.820	0.000	0.000	0.000	0.000
1.000	1.361	1.333	2.970	0.000	0.000	0.000	0.000
1.100	1.367	1.470	2.970	0.000	0.000	0.000	0.000
1.200	1.372	1.607	2.970	0.000	0.000	0.000	0.000
1.300	1.378	1.744	2.970	0.000	0.000	0.000	0.000
1.400	1.384	1.882	2.970	0.000	0.000	0.000	0.000
1.500	1.389	2.021	2.970	0.000	0.000	0.000	0.000
1.600	1.395	2.160	2.970	0.000	0.000	0.000	0.000
1.700	1.401	2.300	2.970	0.000	0.000	0.000	0.000
1.800	1.406	2.440	2.970	0.000	0.000	0.000	0.000
1.900	1.412	2.581	2.970	0.000	0.000	0.000	0.000
2.000	1.418	2.723	2.970	0.000	0.000	0.000	0.000
2.100	1.423	2.865	2.970	0.000	0.000	0.000	0.000

2.200	1.429	3.007	2.970	0.000	0.000	0.000	0.000
2.300	1.435	3.151	2.970	0.000	0.000	0.000	0.000
2.400	1.441	3.294	2.970	0.000	0.000	0.000	0.000
2.500	1.446	3.439	2.970	0.000	0.000	0.000	0.000
2.600	1.452	3.584	2.970	0.000	0.000	0.000	0.000
2.700	1.458	3.729	2.970	0.000	0.000	0.000	0.000
2.800	1.464	3.875	2.970	0.000	0.000	0.000	0.000
2.900	1.469	4.022	2.970	0.000	0.000	0.000	0.000
3.000	1.475	4.169	2.970	0.000	0.000	0.000	0.000
3.100	1.481	4.317	2.970	0.000	0.000	0.000	0.000
3.200	1.487	4.465	2.970	0.000	0.000	0.000	0.000
3.300	1.493	4.614	2.970	0.000	0.000	0.000	0.000
3.400	1.499	4.764	2.970	0.000	0.000	0.000	0.000
3.500	1.504	4.914	2.970	0.000	0.000	0.000	0.000
3.600	1.510	5.065	2.970	0.000	0.000	0.000	0.000
3.700	1.516	5.216	2.970	0.000	0.000	0.000	0.000
3.800	1.522	5.368	3.260	0.000	0.000	0.000	0.000
3.900	1.528	5.521	3.790	0.000	0.000	0.000	0.000
4.000	1.534	5.674	4.470	0.000	0.000	0.000	0.000
4.100	1.540	5.827	5.270	0.000	0.000	0.000	0.000
4.200	1.546	5.982	6.190	0.000	0.000	0.000	0.000
4.300	1.552	6.136	7.200	0.000	0.000	0.000	0.000
4.400	1.558	6.292	8.300	0.000	0.000	0.000	0.000
4.500	1.564	6.448	9.480	0.000	0.000	0.000	0.000
4.600	1.570	6.605	10.74	0.000	0.000	0.000	0.000
4.700	1.576	6.762	12.07	0.000	0.000	0.000	0.000
4.800	1.582	6.920	13.46	0.000	0.000	0.000	0.000
4.900	1.588	7.078	14.93	0.000	0.000	0.000	0.000
5.000	1.594	7.238	16.45	0.000	0.000	0.000	0.000
5.100	1.600	7.397	18.04	0.000	0.000	0.000	0.000
5.200	1.606	7.558	19.68	0.000	0.000	0.000	0.000
5.300	1.612	7.718	21.38	0.000	0.000	0.000	0.000
5.400	1.618	7.880	23.13	0.000	0.000	0.000	0.000
5.500	1.624	8.042	24.94	0.000	0.000	0.000	0.000
5.600	1.630	8.205	26.63	0.000	0.000	0.000	0.000
5.700	1.637	8.368	28.08	0.000	0.000	0.000	0.000
5.800	1.643	8.532	29.40	0.000	0.000	0.000	0.000
5.900	1.649	8.697	30.63	0.000	0.000	0.000	0.000
6.000	1.655	8.862	31.80	0.000	0.000	0.000	0.000
6.100	1.661	9.028	32.91	0.000	0.000	0.000	0.000
6.200	1.667	9.194	33.97	0.000	0.000	0.000	0.000
6.300	1.674	9.361	35.00	0.000	0.000	0.000	0.000
6.400	1.680	9.529	35.98	0.000	0.000	0.000	0.000
6.500	1.686	9.697	36.94	0.000	0.000	0.000	0.000
6.600	1.692	9.866	37.87	0.000	0.000	0.000	0.000
6.700	1.698	10.04	38.77	0.000	0.000	0.000	0.000
6.800	1.705	10.21	39.65	0.000	0.000	0.000	0.000
6.900	1.711	10.38	40.50	0.000	0.000	0.000	0.000
7.000	1.717	10.55	41.34	0.000	0.000	0.000	0.000
7.100	1.724	10.72	42.16	0.000	0.000	0.000	0.000
7.200	1.730	10.89	42.96	0.000	0.000	0.000	0.000
7.300	1.736	11.07	43.74	0.000	0.000	0.000	0.000
7.400	1.742	11.24	44.51	0.000	0.000	0.000	0.000
7.500	1.749	11.41	45.26	0.000	0.000	0.000	0.000
7.600	1.755	11.59	46.00	0.000	0.000	0.000	0.000
7.700	1.761	11.77	46.73	0.000	0.000	0.000	0.000
7.800	1.768	11.94	47.44	0.000	0.000	0.000	0.000

7.900	1.774	12.12	48.14	0.000	0.000	0.000	0.000

ANALYSIS RESULTS

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	29.58951
5 year	36.302818
10 year	40.397923
25 year	45.27514
50 year	48.734535
100 year	52.071477

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	25.605841
5 year	32.768949
10 year	37.175177
25 year	42.440213
50 year	46.179088
100 year	49.785096

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1949	23.208	22.409
1950	32.607	24.823
1951	30.261	27.377
1952	24.586	20.002
1953	21.799	15.634
1954	31.903	27.977
1955	35.204	31.827
1956	22.721	20.415
1957	36.226	33.609
1958	44.622	41.372
1959	29.359	26.976
1960	29.376	27.326
1961	46.071	43.545
1962	33.721	30.146
1963	37.463	30.998
1964	29.783	28.869
1965	18.532	16.379
1966	20.001	17.124
1967	42.152	35.933
1968	34.532	31.046
1969	28.132	25.690
1970	24.265	17.685
1971	29.864	21.527
1972	45.793	38.227
1973	24.305	18.443
1974	38.125	32.507
1975	27.260	21.937
1976	35.269	33.003
1977	28.799	25.710

1978	22.614	15.808
1979	47.048	45.885
1980	25.034	21.444
1981	24.018	18.984
1982	30.411	27.619
1983	32.994	28.702
1984	25.161	23.545
1985	33.562	27.263
1986	35.467	35.470
1987	36.941	33.432
1988	25.802	22.620
1989	16.557	12.062
1990	21.756	18.992
1991	28.665	25.089
1992	27.744	22.913
1993	27.888	21.469
1994	22.691	18.269
1995	28.210	21.675
1996	31.531	30.719
1997	42.166	42.460

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	**Predeveloped**	**Mitigated**
1	47.0475	45.8850
2	46.0709	43.5453
3	45.7933	42.4604
4	44.6218	41.3716
5	42.1661	38.2266
6	42.1520	35.9332
7	38.1254	35.4702
8	37.4627	33.6087
9	36.9405	33.4320
10	36.2263	33.0031
11	35.4665	32.5065
12	35.2691	31.8274
13	35.2035	31.0459
14	34.5321	30.9975
15	33.7208	30.7194
16	33.5617	30.1461
17	32.9941	28.8692
18	32.6073	28.7021
19	31.9030	27.9771
20	31.5309	27.6193
21	30.4107	27.3769
22	30.2609	27.3255
23	29.8641	27.2627
24	29.7827	26.9764
25	29.3761	25.7099
26	29.3591	25.6896
27	28.7994	25.0887
28	28.6645	24.8226
29	28.2097	23.5453
30	28.1315	22.9125
31	27.8877	22.6197
32	27.7443	22.4087
33	27.2599	21.9369

34	25.8020	21.6747
35	25.1614	21.5268
36	25.0342	21.4690
37	24.5857	21.4439
38	24.3048	20.4149
39	24.2651	20.0023
40	24.0182	18.9919
41	23.2084	18.9838
42	22.7213	18.4434
43	22.6905	18.2685
44	22.6138	17.6848
45	21.7987	17.1235
46	21.7557	16.3787
47	20.0006	15.8081
48	18.5315	15.6339
49	16.5567	12.0616

POC #1
The Facility PASSED

The Facility PASSED.

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
14.7948	885	655	74	Pass
15.1376	846	616	72	Pass
15.4804	801	584	72	Pass
15.8232	762	548	71	Pass
16.1661	714	508	71	Pass
16.5089	676	467	69	Pass
16.8517	644	427	66	Pass
17.1945	610	395	64	Pass
17.5374	570	371	65	Pass
17.8802	541	343	63	Pass
18.2230	508	320	62	Pass
18.5658	482	305	63	Pass
18.9087	460	290	63	Pass
19.2515	430	272	63	Pass
19.5943	411	253	61	Pass
19.9371	383	230	60	Pass
20.2800	361	215	59	Pass
20.6228	346	205	59	Pass
20.9656	331	197	59	Pass
21.3085	318	189	59	Pass
21.6513	300	175	58	Pass
21.9941	284	165	58	Pass
22.3369	269	152	56	Pass
22.6798	256	145	56	Pass
23.0226	237	134	56	Pass
23.3654	229	128	55	Pass
23.7082	218	121	55	Pass
24.0511	206	116	56	Pass
24.3939	190	109	57	Pass
24.7367	177	105	59	Pass
25.0795	170	93	54	Pass
25.4224	160	89	55	Pass
25.7652	152	82	53	Pass

26.1080	145	80	55	Pass
26.4508	139	74	53	Pass
26.7937	135	69	51	Pass
27.1365	124	64	51	Pass
27.4793	118	60	50	Pass
27.8221	111	57	51	Pass
28.1650	103	55	53	Pass
28.5078	97	54	55	Pass
28.8506	87	50	57	Pass
29.1934	82	47	57	Pass
29.5363	75	45	60	Pass
29.8791	70	41	58	Pass
30.2219	62	39	62	Pass
30.5648	58	37	63	Pass
30.9076	54	35	64	Pass
31.2504	49	30	61	Pass
31.5932	42	29	69	Pass
31.9361	40	28	70	Pass
32.2789	37	24	64	Pass
32.6217	32	23	71	Pass
32.9645	30	21	70	Pass
33.3074	29	20	68	Pass
33.6502	28	17	60	Pass
33.9930	25	16	64	Pass
34.3358	25	16	64	Pass
34.6787	24	16	66	Pass
35.0215	24	16	66	Pass
35.3643	21	14	66	Pass
35.7071	20	13	65	Pass
36.0500	20	12	60	Pass
36.3928	18	11	61	Pass
36.7356	18	10	55	Pass
37.0784	17	10	58	Pass
37.4213	17	10	58	Pass
37.7641	16	10	62	Pass
38.1069	15	9	60	Pass
38.4498	14	8	57	Pass
38.7926	14	8	57	Pass
39.1354	14	7	50	Pass
39.4782	14	7	50	Pass
39.8211	14	7	50	Pass
40.1639	12	7	58	Pass
40.5067	11	6	54	Pass
40.8495	11	6	54	Pass
41.1924	11	5	45	Pass
41.5352	10	3	30	Pass
41.8780	10	3	30	Pass
42.2208	7	3	42	Pass
42.5637	7	2	28	Pass
42.9065	7	2	28	Pass
43.2493	6	2	33	Pass
43.5921	5	1	20	Pass
43.9350	4	1	25	Pass
44.2778	4	1	25	Pass
44.6206	4	1	25	Pass
44.9634	3	1	33	Pass
45.3063	3	1	33	Pass

45.6491	3	1	33	Pass
45.9919	2	0	0	Pass
46.3348	1	0	0	Pass
46.6776	1	0	0	Pass
47.0204	1	0	0	Pass
47.3632	0	0	0	Pass
47.7061	0	0	0	Pass
48.0489	0	0	0	Pass
48.3917	0	0	0	Pass
48.7345	0	0	0	Pass

Water Quality BMP Flow and Volume for POC #1
On-line facility volume: 0 **acre-feet**
On-line facility target flow: 0 **cfs.**
Adjusted for 15 min: 0 **cfs.**
Off-line facility target flow: 0 **cfs.**
Adjusted for 15 min: 0 **cfs.**

Perlnd and Implnd Changes
No changes have been made.

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This tab calculates discharge at the calculation stages of the pond. The flow from the Thirsty Duck Rating Curve Generation spreadsheet is entered into column M, and other flows are generated using the data entered below.

Orifice 1 **ROUND (TURNDOWN)**

Active?	No		
Control El	4.5	ft el.	
Invert	4.5	ft el.	
Diameter	1.000	in	0.08333333 ft
Area	0.78539816	sq. in.	0.00545415 sq. ft.
Coefficient	0.6		

Orifice 2 **ROUND (TURNDOWN)**

Active?	No		
Control El	5	ft el.	
Invert	5	ft el.	
Diameter	0.750	in	0.0625 ft
Area	0.44178647	sq. in.	0.00306796 sq. ft.
Coefficient	0.6		

Orifice 3 **ROUND (TURNDOWN)**

Active?	No		
Control El	5.5	ft el.	
Invert	5.5	ft el.	
Diameter	0.5	in	0.04166667 ft
Area	0.19634954	sq. in.	0.00136354 sq. ft.
Coefficient	0.6		

Notch

Active?	No		
Invert	6.5	ft el.	
Width	1	in	0.08333333 ft
Coefficient	3.2		

Rim

Invert	1000	ft el.	
Diameter	18	in	1.5 ft
Perimeter	56.5486678	in	4.71238898 ft
Coefficient	3.13		
Area	1.76714587	sq. ft.	
Coefficient (O)	0.6		
Transition	0.5768742	ft	

Discharges exported from HydroCAD model.

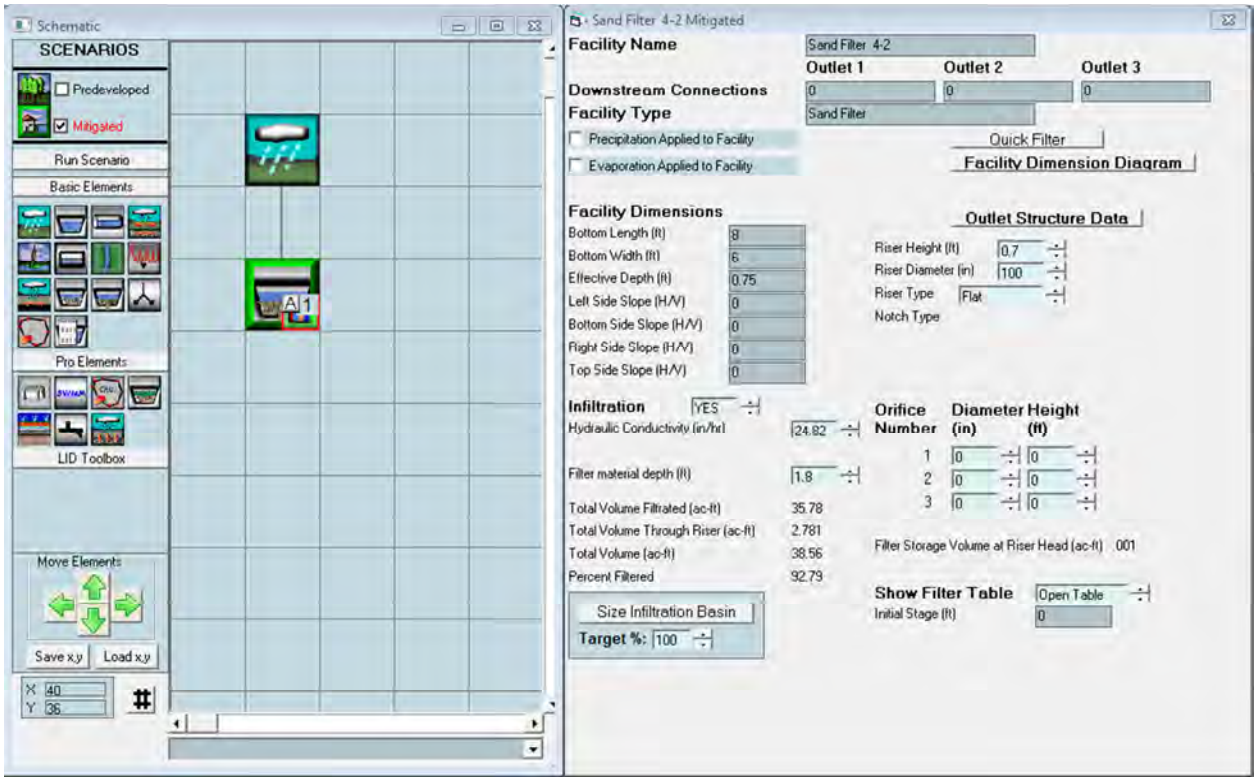
Stage (ft El.)	Orifice 1 Flow (cfs)	Orifice 2 Flow (cfs)	Orifice 3 Flow (cfs)	Notch Flow (cfs)	Rim Flow (cfs)	TD Flow (cfs)	Total Flow (cfs)
373.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.0000	0.00000
373.100000	0.00000	0.00000	0.00000	0.00000	0.00000	0.3900	0.39000
373.200000	0.00000	0.00000	0.00000	0.00000	0.00000	1.1100	1.11000
373.300000	0.00000	0.00000	0.00000	0.00000	0.00000	1.6300	1.63000
373.400000	0.00000	0.00000	0.00000	0.00000	0.00000	1.8800	1.88000
373.500000	0.00000	0.00000	0.00000	0.00000	0.00000	2.1000	2.10000
373.600000	0.00000	0.00000	0.00000	0.00000	0.00000	2.3000	2.30000
373.700000	0.00000	0.00000	0.00000	0.00000	0.00000	2.4800	2.48000
373.800000	0.00000	0.00000	0.00000	0.00000	0.00000	2.6600	2.66000
373.900000	0.00000	0.00000	0.00000	0.00000	0.00000	2.8200	2.82000
374.000000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
374.100000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
374.200000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
374.300000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
374.400000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
374.500000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
374.600000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
374.700000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
374.800000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
374.900000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
375.000000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
375.100000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
375.200000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
375.300000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
375.400000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
375.500000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
375.600000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
375.700000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
375.800000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
375.900000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
376.000000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
376.100000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
376.200000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
376.300000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
376.400000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
376.500000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
376.600000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
376.700000	0.00000	0.00000	0.00000	0.00000	0.00000	2.9700	2.97000
376.800000	0.00000	0.00000	0.00000	0.00000	0.00000	3.2600	3.26000
376.900000	0.00000	0.00000	0.00000	0.00000	0.00000	3.7900	3.79000
377.000000	0.00000	0.00000	0.00000	0.00000	0.00000	4.4700	4.47000
377.100000	0.00000	0.00000	0.00000	0.00000	0.00000	5.2700	5.27000
377.200000	0.00000	0.00000	0.00000	0.00000	0.00000	6.1900	6.19000
377.300000	0.00000	0.00000	0.00000	0.00000	0.00000	7.2000	7.20000
377.400000	0.00000	0.00000	0.00000	0.00000	0.00000	8.3000	8.30000
377.500000	0.00000	0.00000	0.00000	0.00000	0.00000	9.4800	9.48000
377.600000	0.00000	0.00000	0.00000	0.00000	0.00000	10.7400	10.74000
377.700000	0.00000	0.00000	0.00000	0.00000	0.00000	12.0700	12.07000
377.800000	0.00000	0.00000	0.00000	0.00000	0.00000	13.4600	13.46000
377.900000	0.00000	0.00000	0.00000	0.00000	0.00000	14.9300	14.93000
378.000000	0.00000	0.00000	0.00000	0.00000	0.00000	16.4500	16.45000
378.100000	0.00000	0.00000	0.00000	0.00000	0.00000	18.0400	18.04000
378.200000	0.00000	0.00000	0.00000	0.00000	0.00000	19.6800	19.68000
378.300000	0.00000	0.00000	0.00000	0.00000	0.00000	21.3800	21.38000
378.400000	0.00000	0.00000	0.00000	0.00000	0.00000	23.1300	23.13000
378.500000	0.00000	0.00000	0.00000	0.00000	0.00000	24.9400	24.94000
378.600000	0.00000	0.00000	0.00000	0.00000	0.00000	26.6300	26.63000
378.700000	0.00000	0.00000	0.00000	0.00000	0.00000	28.0800	28.08000
378.800000	0.00000	0.00000	0.00000	0.00000	0.00000	29.4000	29.40000
378.900000	0.00000	0.00000	0.00000	0.00000	0.00000	30.6300	30.63000
379.000000	0.00000	0.00000	0.00000	0.00000	0.00000	31.8000	31.80000
379.100000	0.00000	0.00000	0.00000	0.00000	0.00000	32.9100	32.91000
379.200000	0.00000	0.00000	0.00000	0.00000	0.00000	33.9700	33.97000
379.300000	0.00000	0.00000	0.00000	0.00000	0.00000	35.0000	35.00000
379.400000	0.00000	0.00000	0.00000	0.00000	0.00000	35.9800	35.98000
379.500000	0.00000	0.00000	0.00000	0.00000	0.00000	36.9400	36.94000
379.600000	0.00000	0.00000	0.00000	0.00000	0.00000	37.8700	37.87000
379.700000	0.00000	0.00000	0.00000	0.00000	0.00000	38.7700	38.77000
379.800000	0.00000	0.00000	0.00000	0.00000	0.00000	39.6500	39.65000
379.900000	0.00000	0.00000	0.00000	0.00000	0.00000	40.5000	40.50000
380.000000	0.00000	0.00000	0.00000	0.00000	0.00000	41.3400	41.34000
380.100000	0.00000	0.00000	0.00000	0.00000	0.00000	42.1600	42.16000
380.200000	0.00000	0.00000	0.00000	0.00000	0.00000	42.9600	42.96000
380.300000	0.00000	0.00000	0.00000	0.00000	0.00000	43.7400	43.74000
380.400000	0.00000	0.00000	0.00000	0.00000	0.00000	44.5100	44.51000
380.500000	0.00000	0.00000	0.00000	0.00000	0.00000	45.2600	45.26000
380.600000	0.00000	0.00000	0.00000	0.00000	0.00000	46.0000	46.00000
380.700000	0.00000	0.00000	0.00000	0.00000	0.00000	46.7300	46.73000
380.800000	0.00000	0.00000	0.00000	0.00000	0.00000	47.4400	47.44000
380.900000	0.00000	0.00000	0.00000	0.00000	0.00000	48.1400	48.14000
381.000000	0.00000	0.00000	0.00000	0.00000	0.00000	48.8300	48.83000
381.100000	0.00000	0.00000	0.00000	0.00000	0.00000		0.00000
381.200000	0.00000	0.00000	0.00000	0.00000	0.00000		0.00000
381.300000	0.00000	0.00000	0.00000	0.00000	0.00000		0.00000
381.400000	0.00000	0.00000	0.00000	0.00000	0.00000		0.00000
381.500000	0.00000	0.00000	0.00000	0.00000	0.00000		0.00000
381.600000	0.00000	0.00000	0.00000	0.00000	0.00000		0.00000
381.700000	0.00000	0.00000	0.00000	0.00000	0.00000		0.00000
381.800000	0.00000	0.00000	0.00000	0.00000	0.00000		0.00000
381.900000	0.00000	0.00000	0.00000	0.00000	0.00000		0.00000
382.000000	0.00000	0.00000	0.00000	0.00000	0.00000		0.00000
382.100000	0.00000	0.00000	0.00000	0.00000	0.00000		0.00000
382.200000	0.00000	0.00000	0.00000	0.00000	0.00000		0.00000
382.300000	0.00000	0.00000	0.00000	0.00000	0.00000		0.00000
382.400000	0.00000	0.00000	0.00000	0.00000	0.00000		0.00000
382.500000	0.00000	0.00000	0.00000	0.00000	0.00000		0.00000
382.600000	0.00000	0.00000	0.00000	0.00000	0.00000		0.00000
382.700000	0.00000	0.00000	0.00000	0.00000	0.00000		0.00000
382.800000	0.00000	0.00000	0.00000	0.00000	0.00000		0.00000
382.900000	0.00000	0.00000	0.00000	0.00000	0.00000		0.00000
383.000000	0.00000	0.00000	0.00000	0.00000	0.00000		0.00000

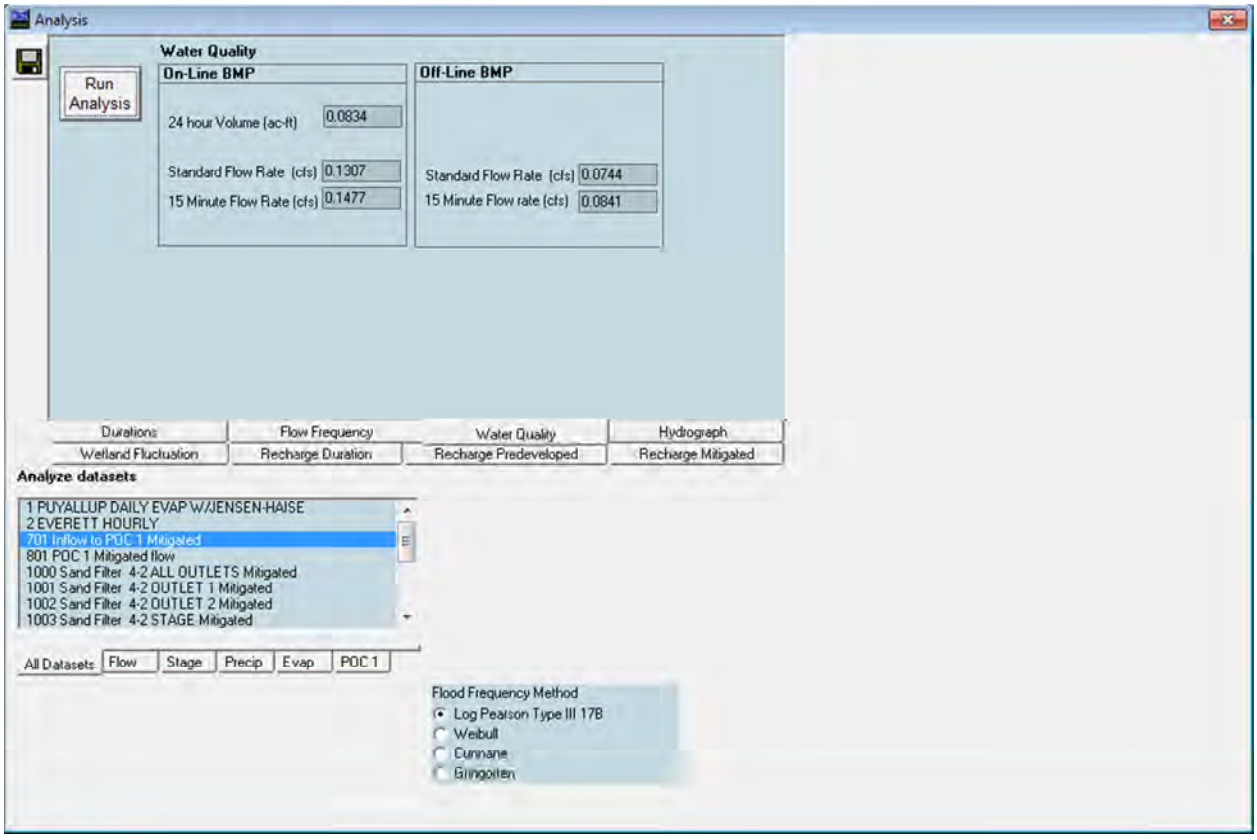
FILTERRA SIZING

FILTERRA BASIN AREAS

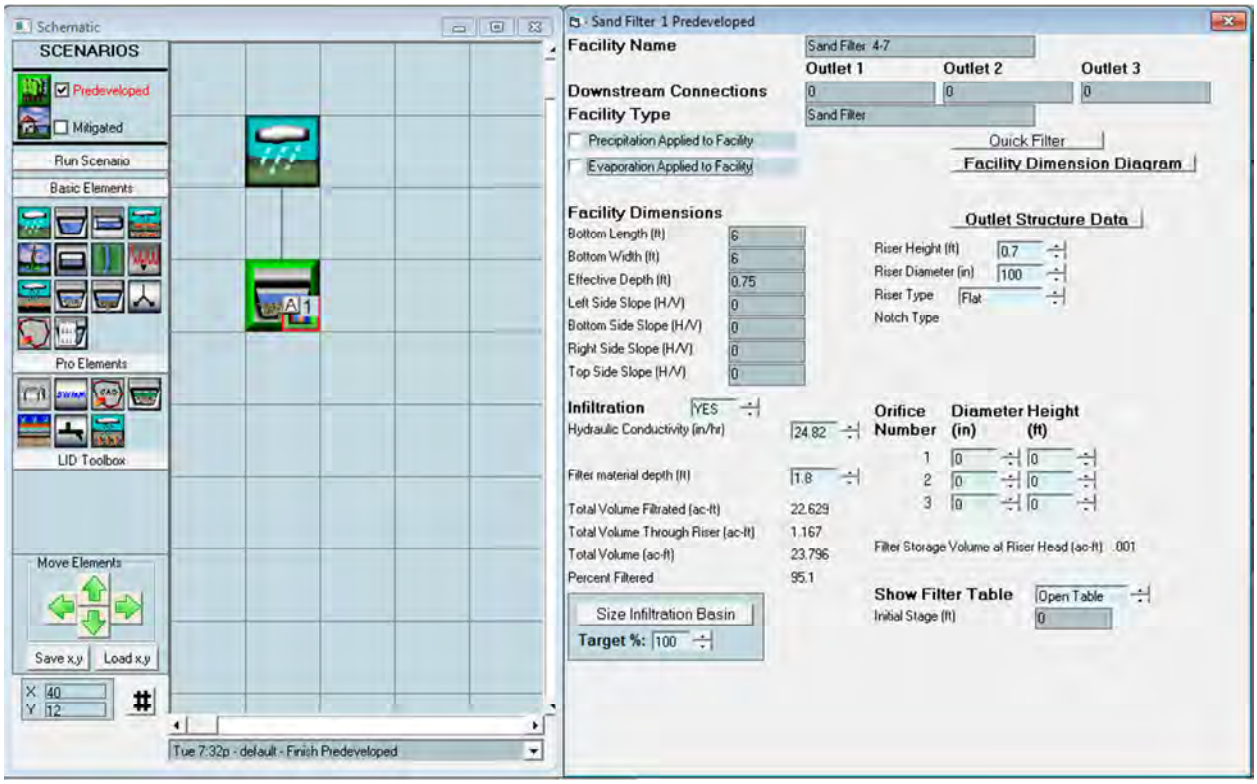
Basin Number	Area (all impervious)	Type of Treatment
DR4-2	13454 SF/0.309 AC	Enhanced and Oil Control
DR4-7	8370 SF/0.192 AC	Enhanced and Oil Control
DR4-12	14241 SF/0.327 AC	Enhanced and Oil Control
DR9-2	13648 SF/0.313 AC	Enhanced and Oil Control
DR9-6	10874 SF/0.250 AC	Enhanced and Oil Control
DR6-1	9759 SF/0.224 AC	Oil Control
DR2-3	3613 SF/0.083 AC	Oil Control
DR2-6	23867 SF/0.548 AC	Oil Control
DR7-1	7054 SF/0.162 AC	Oil Control

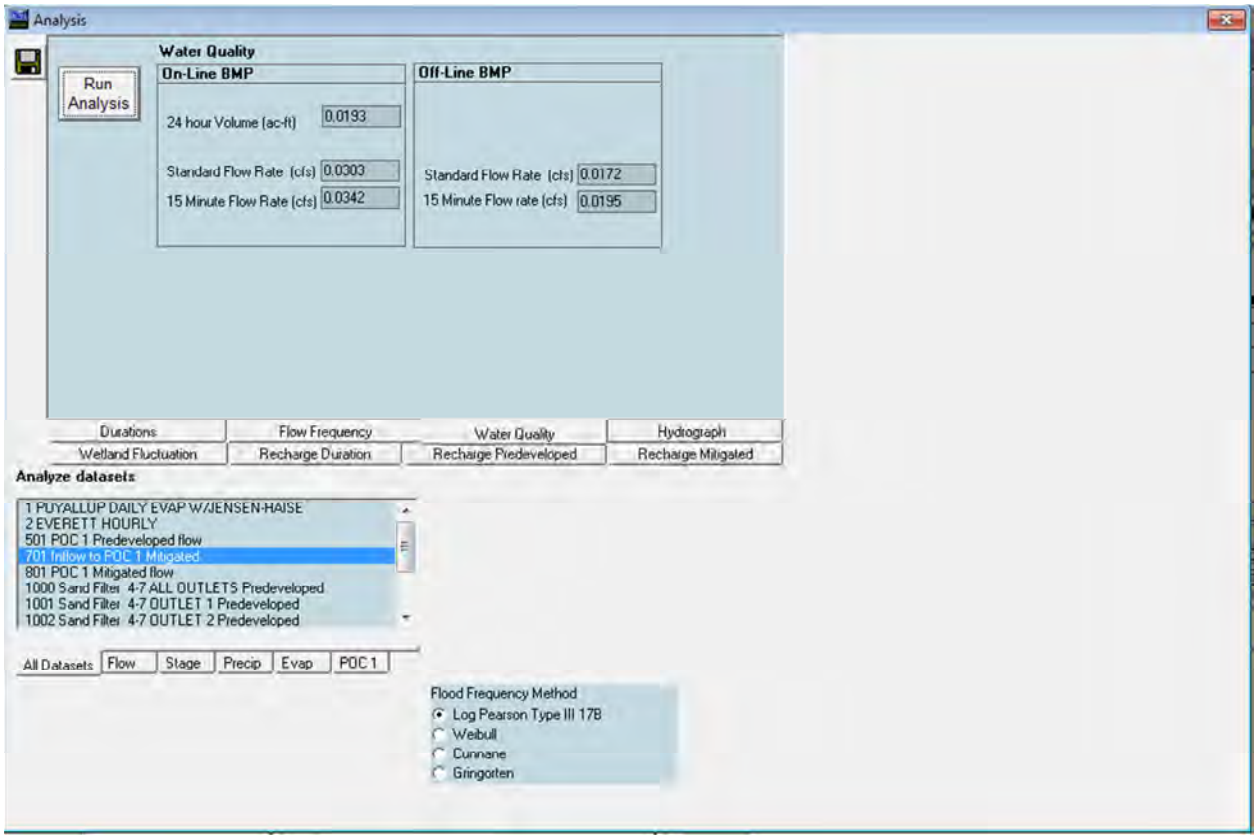
Filterra DR4-2



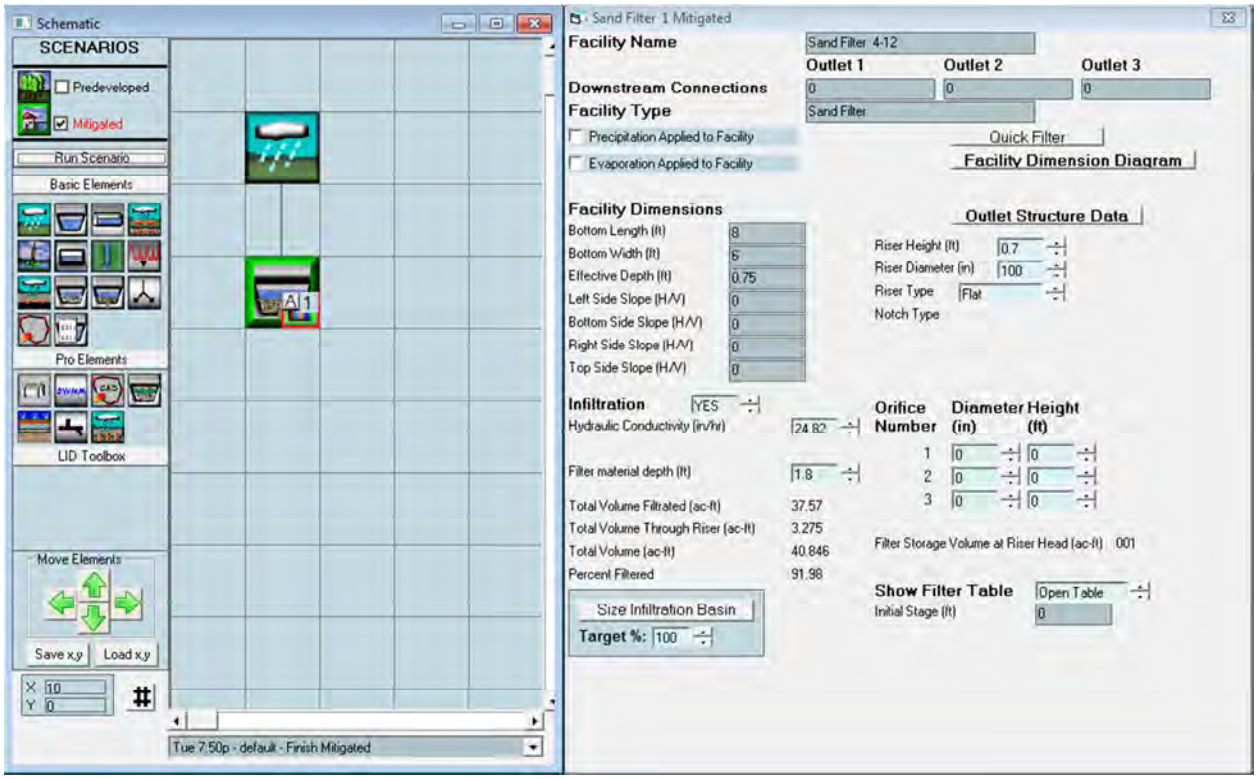


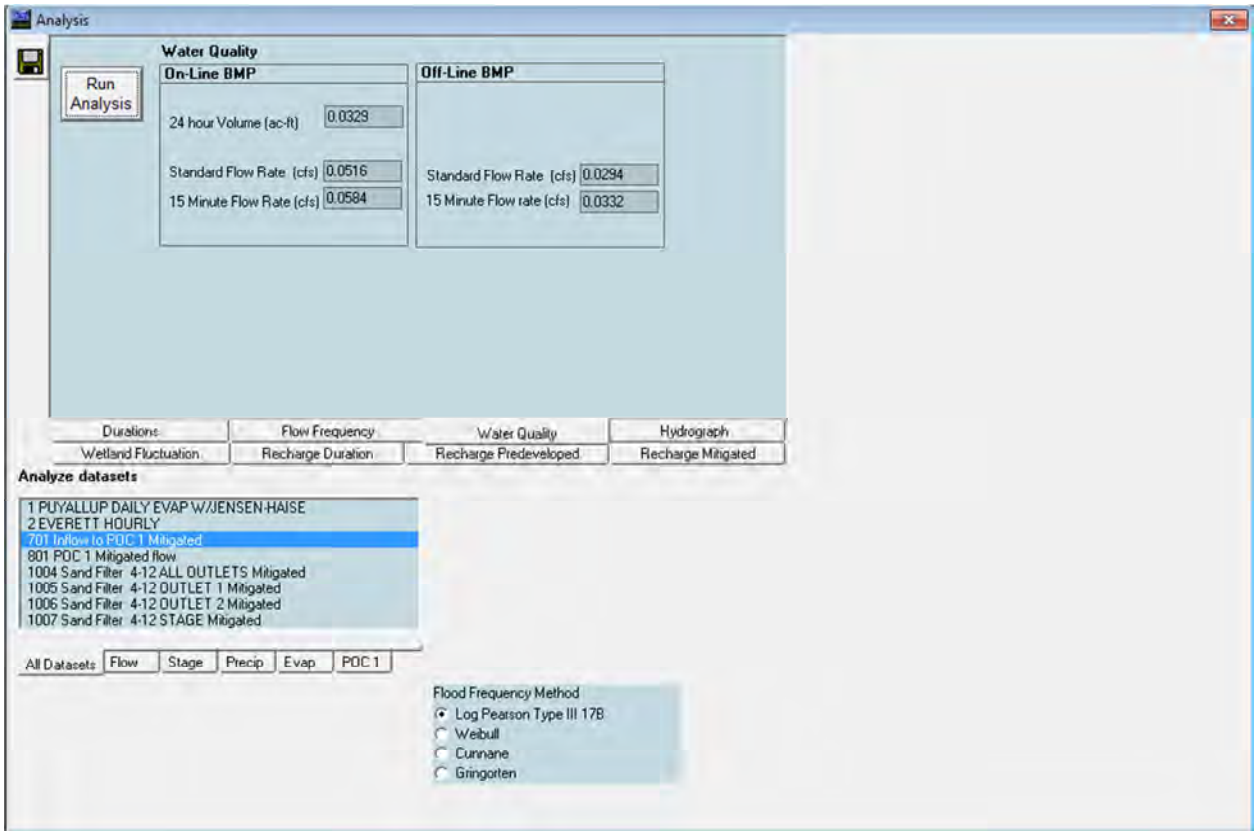
Filterra DR4-7



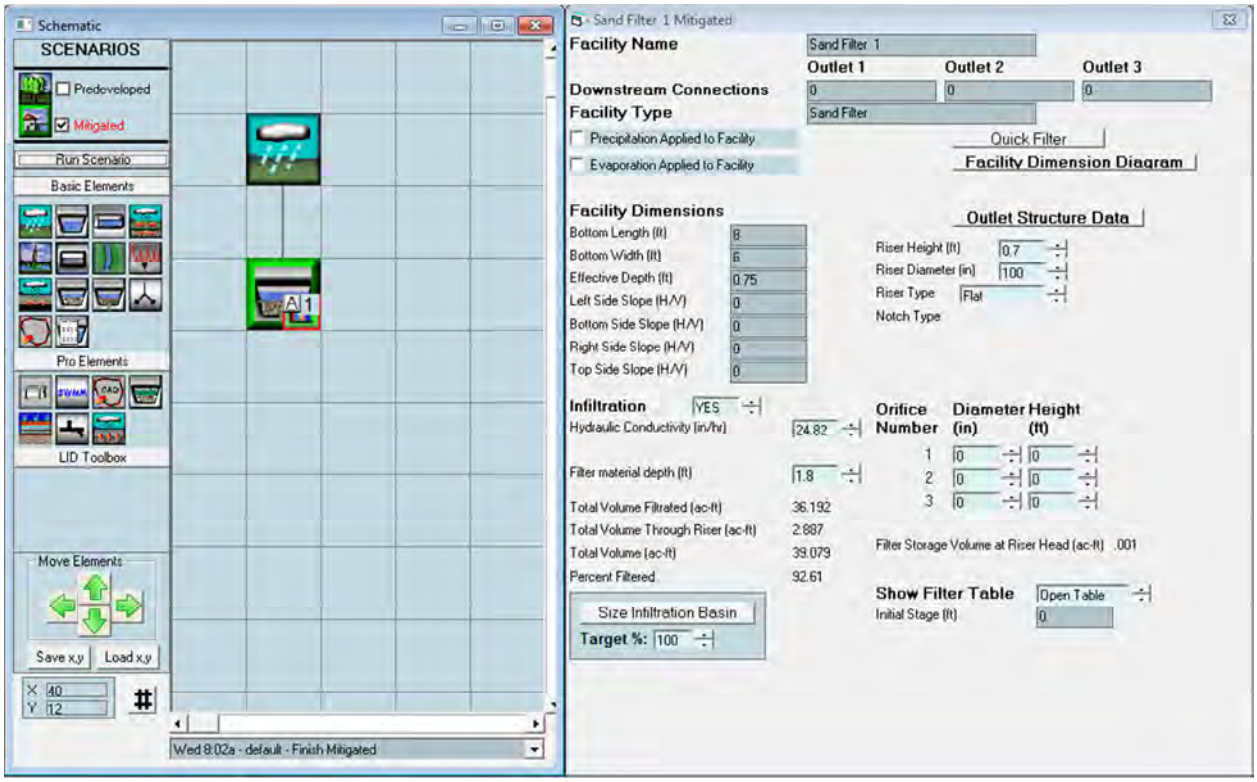


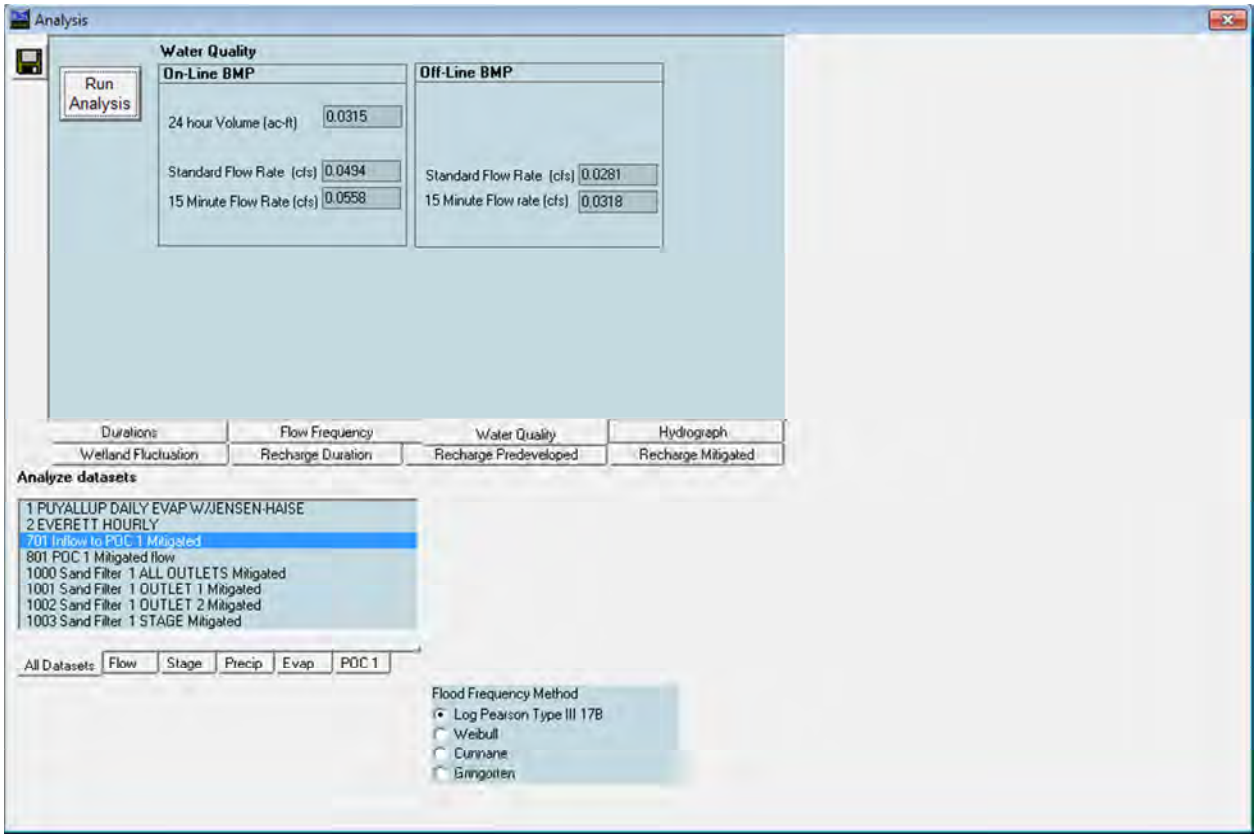
Filterra DR4-12



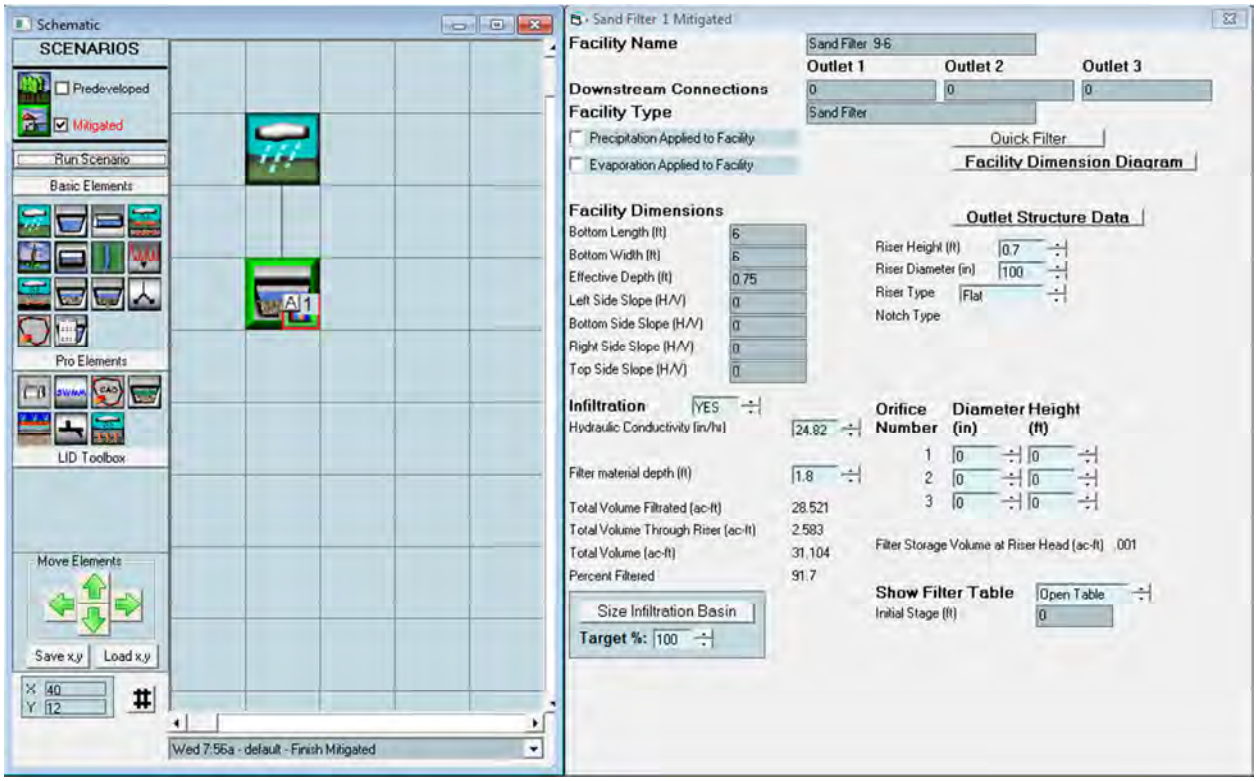


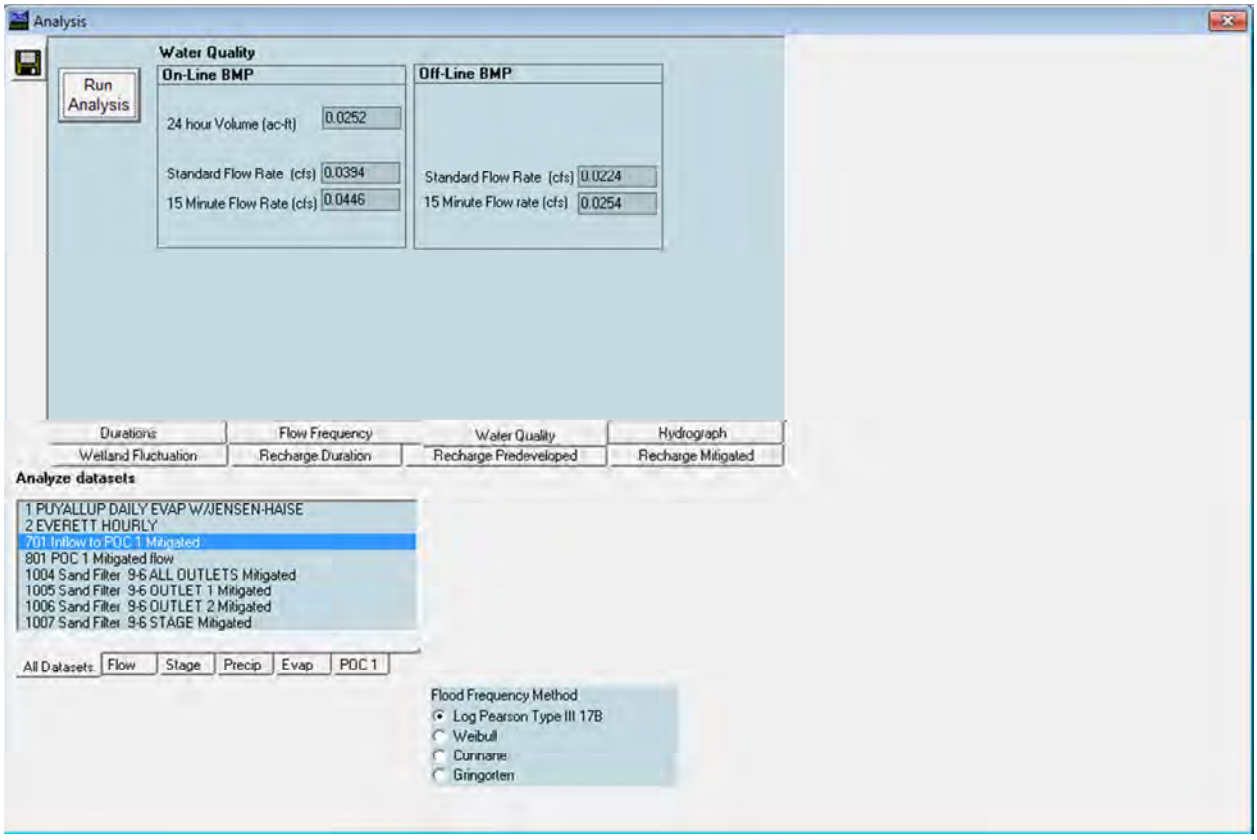
Filterra DR9-2



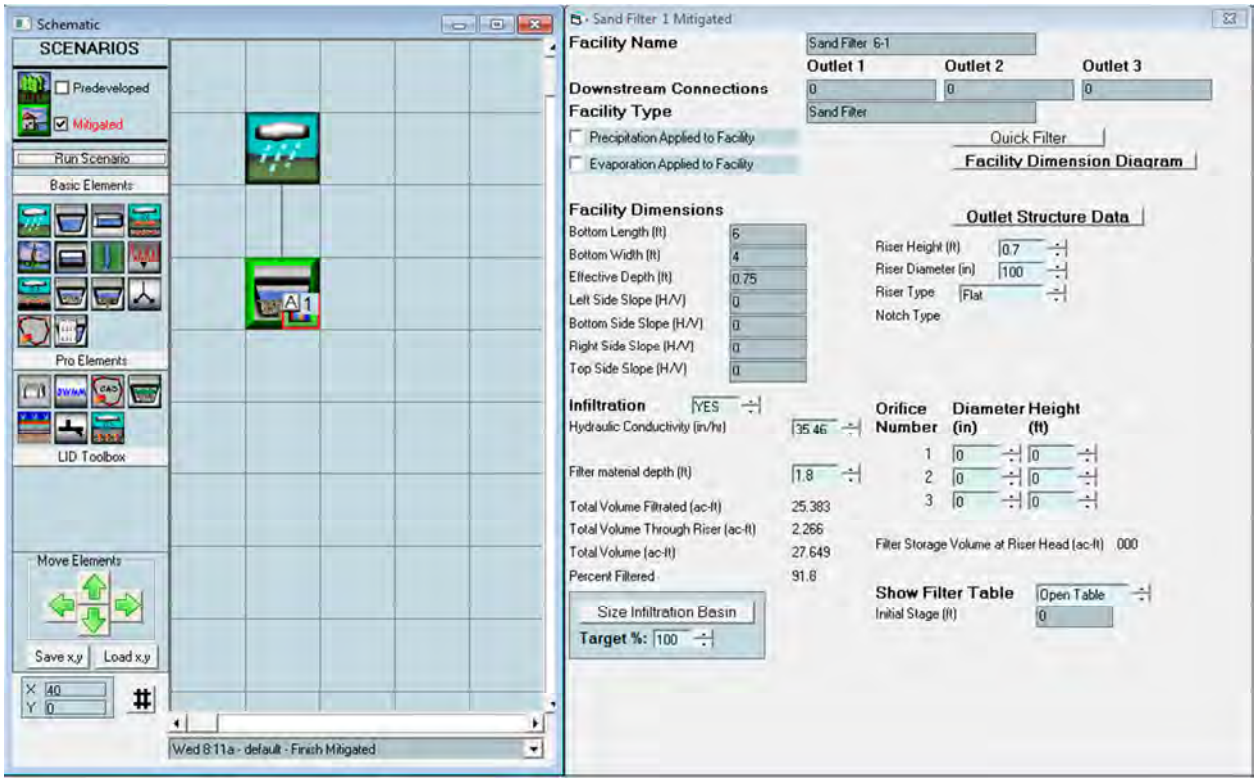


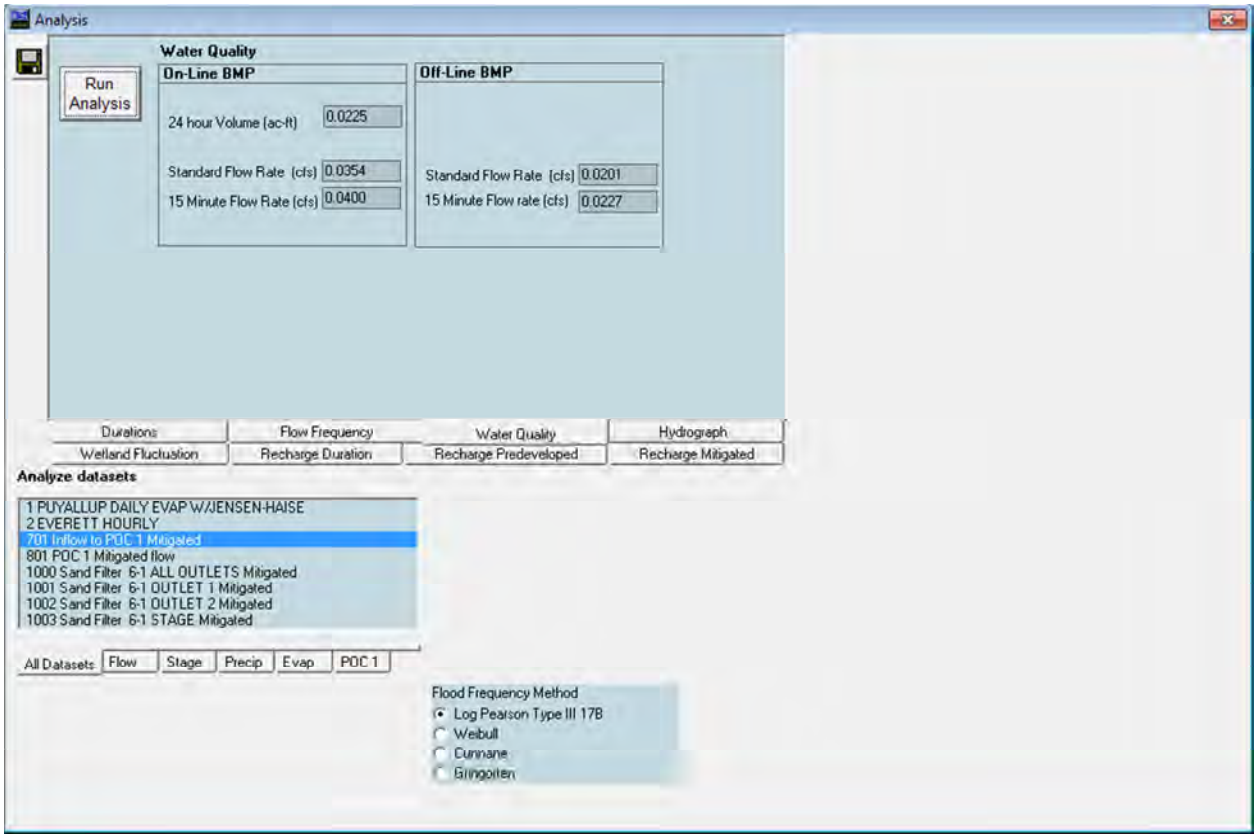
Filterra DR9-6



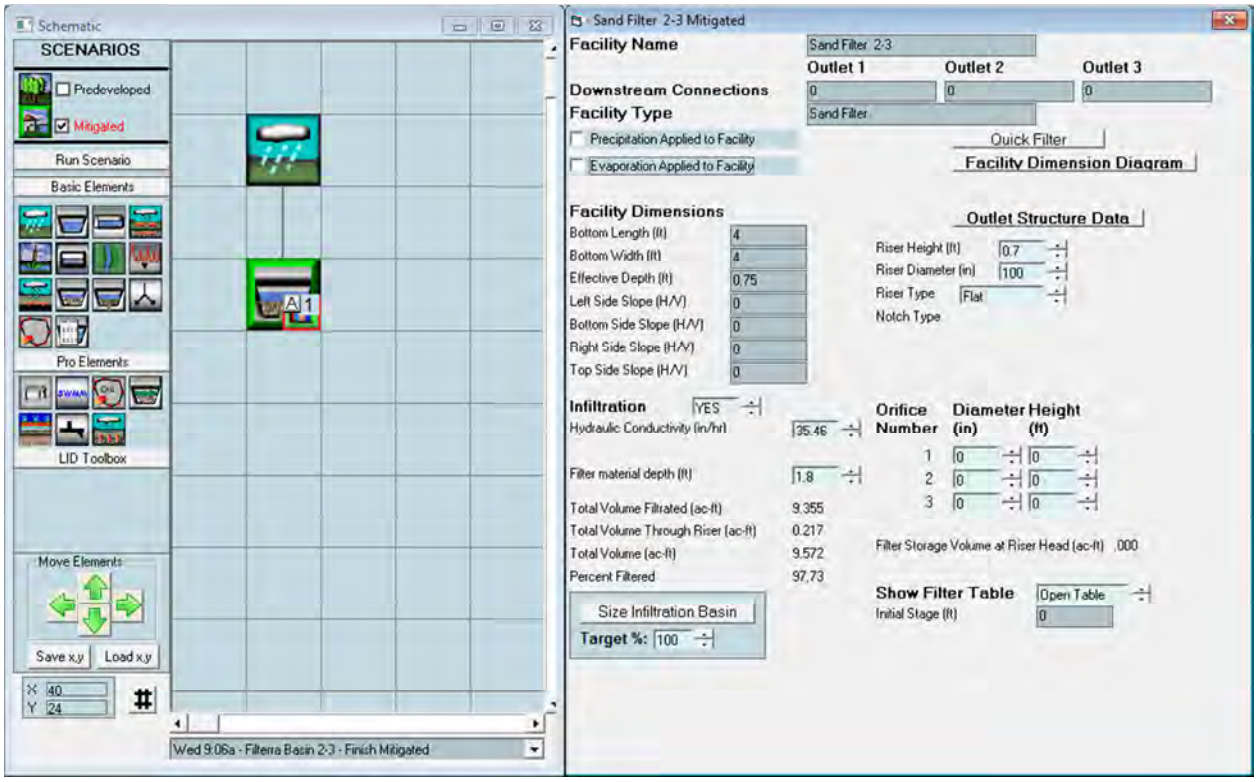


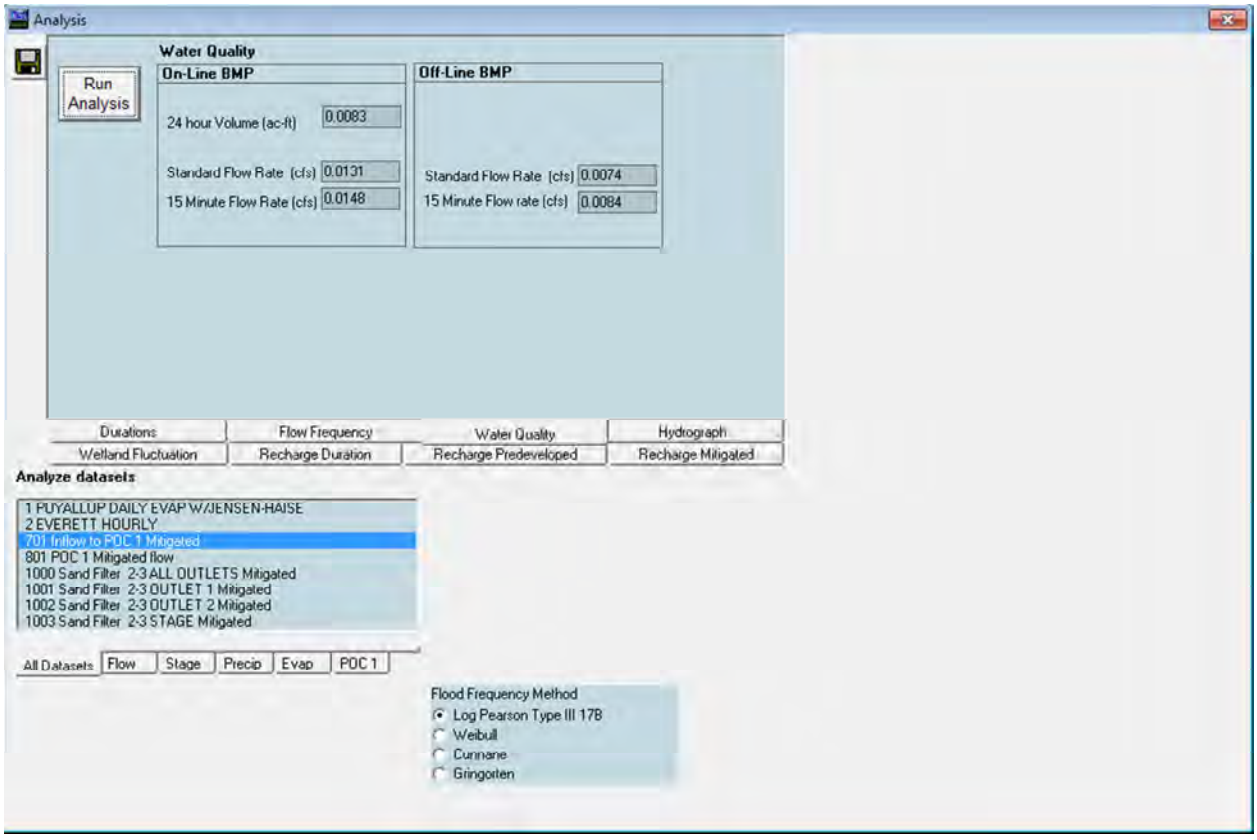
Filterra DR6-1



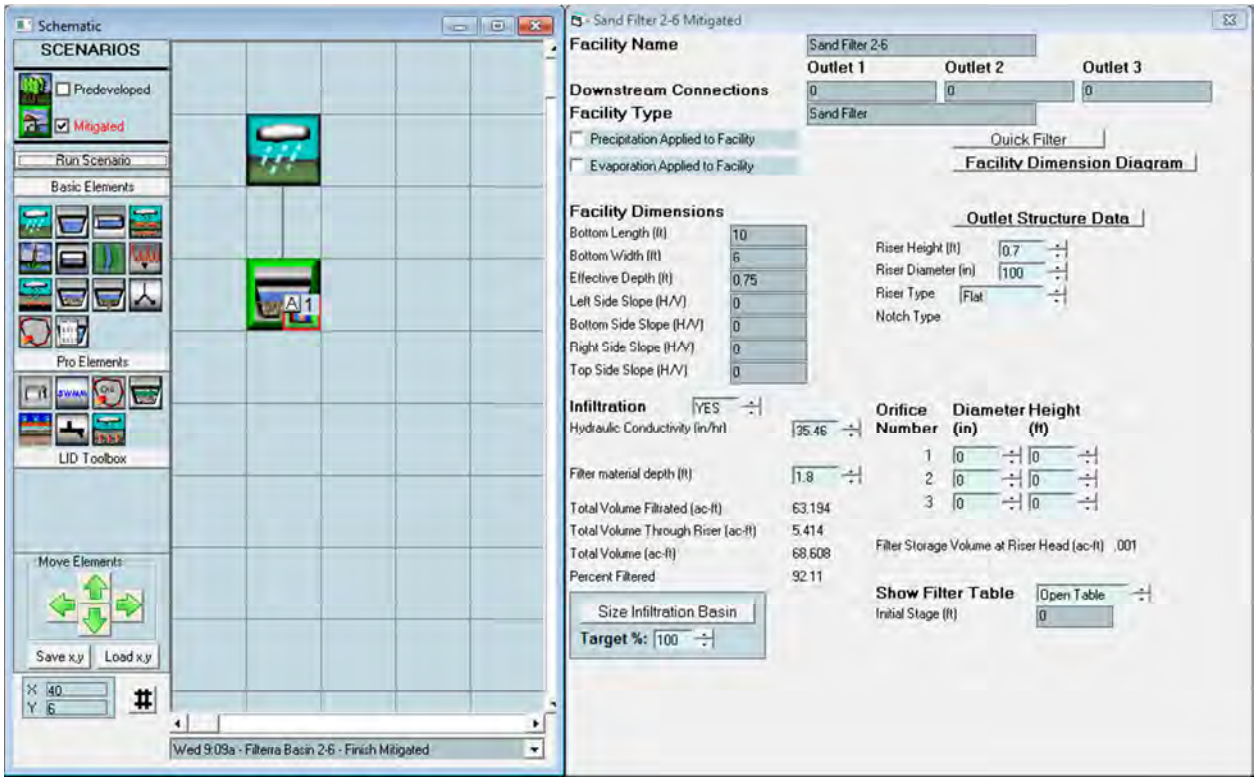


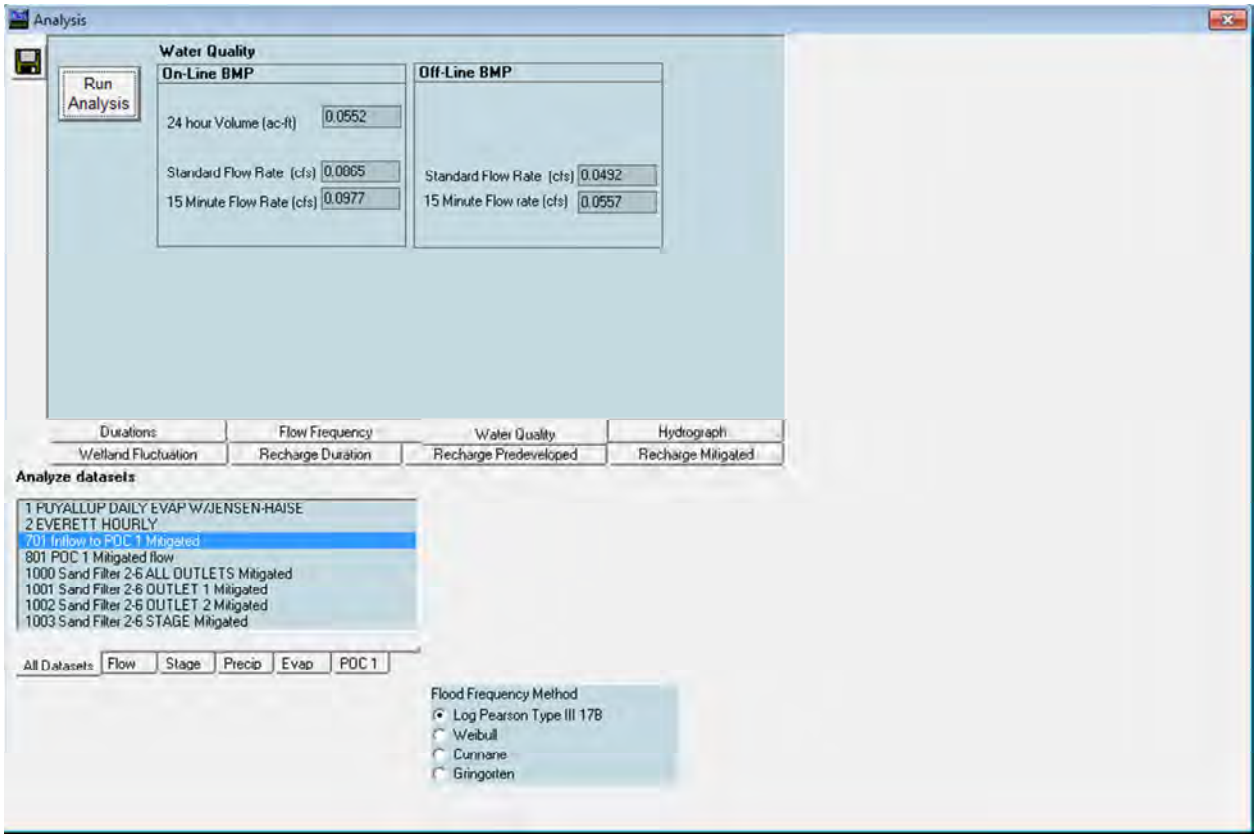
Filterra DR2-3



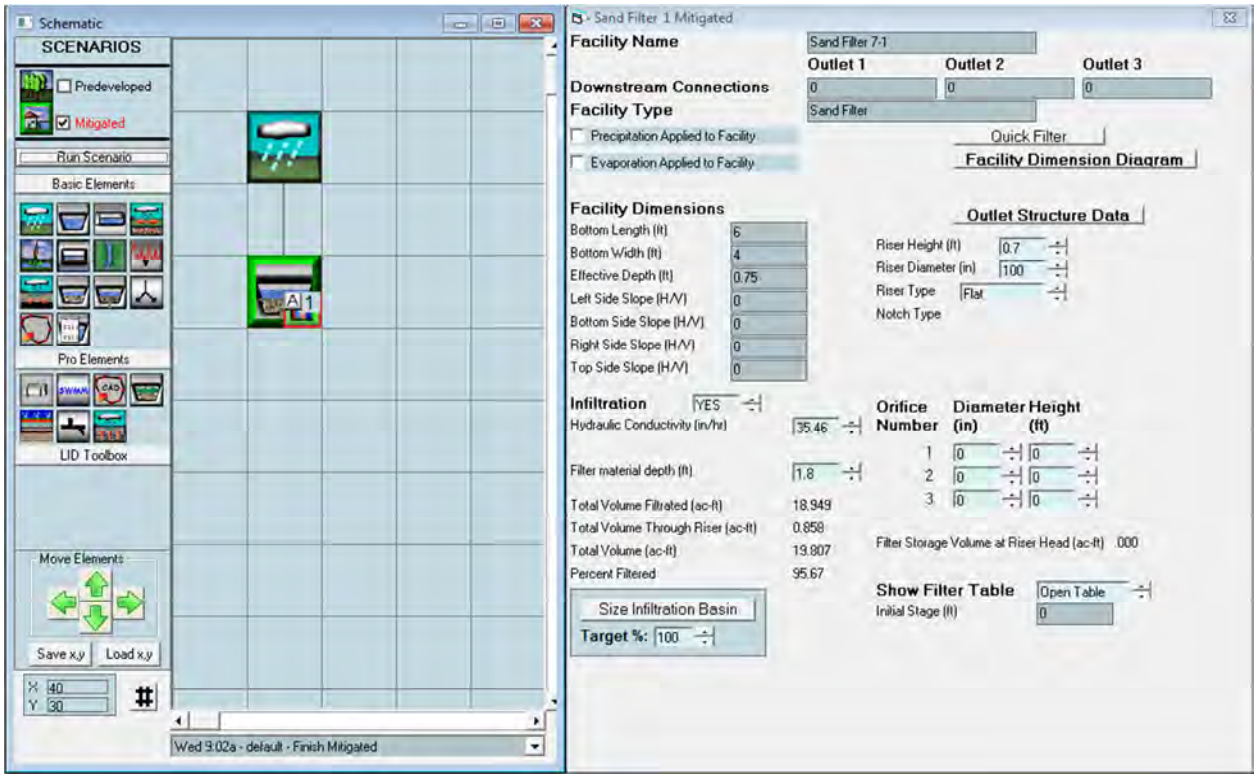


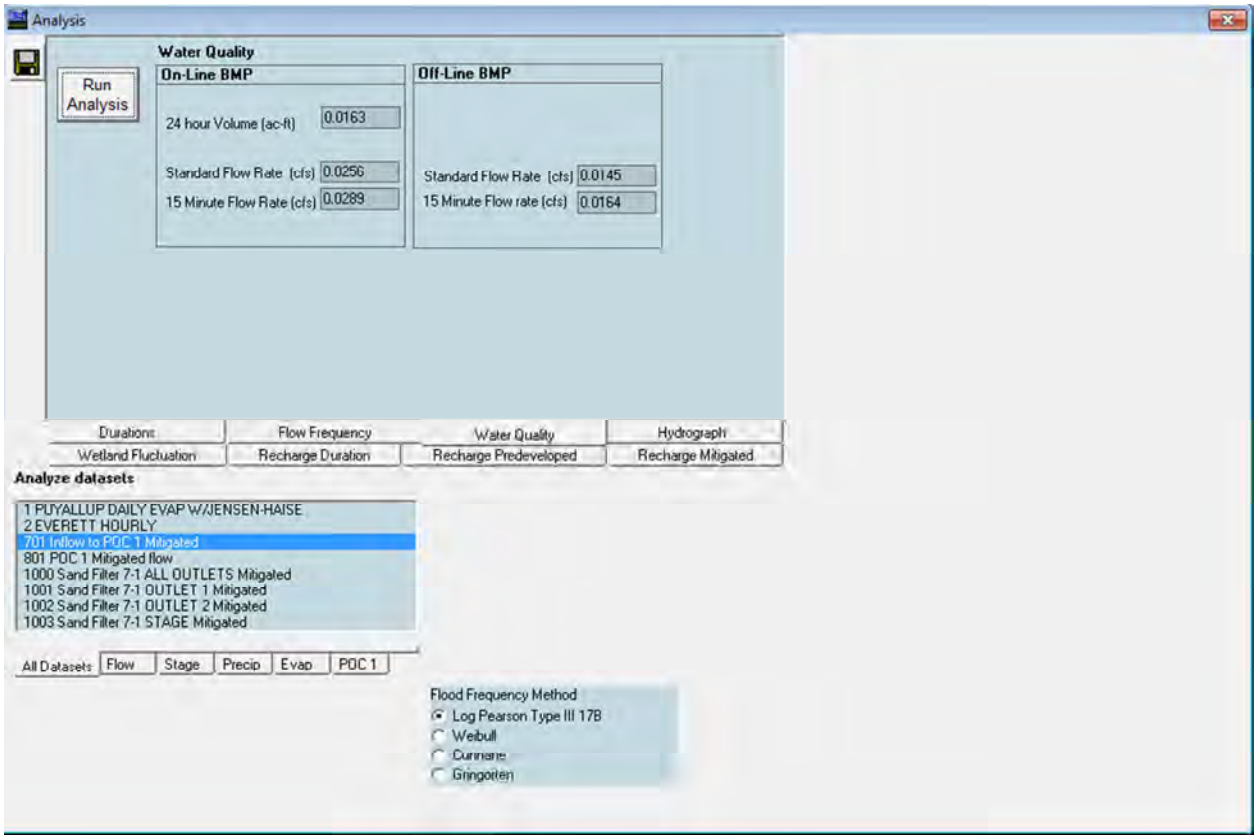
Filterra DR2-6





Filterra DR7-1





Appendix A-4

Alternative Schematic Layouts

FILTERRA W/INTERNAL BYPASS

33RD AVE

118+00

117+00

116+00

115+00

114+00

FILTERRA

FILTERRA

FILTERRA

TDA LIMIT (TYP)

TDA1

ALDERWOOD MALL BLVD

313+00

312+00

311+00

CITY OF LYNNWOOD R-O-W LINE

310+00

309+00

308+00

307+00

306+00

2413+00

2412+00

2411+00

2410+00

2409+00

2408+00

2407+00

INTERURBAN TRAIL

CONTROL STRUCTURE

PUD PROPERTY

WSDOT R-O-W LINE

I-5 SOUTH BOUND OFF RAMP

I-5 SOUTH BOUND OFF RAMP

I-5 SOUTH BOUND

MATCHLINE SEE FIGURE A.2

SCALE
25' 0 25' 50'
FEET

DETENTION VAULT
32' WIDE x 176' LONG x 7' DEEP (INTERNAL DIMENSIONS)
HIGHEST FINISHED GRADE ELEV. ABOVE VAULT=418.00
LOWEST FINISHED GRADE ELEV. ABOVE VAULT=406.00
OUTSIDE TOP OF VAULT=405.00
HWL=403.50
BTM OF LIVE=399.00
INSIDE BTM OF VAULT=397.00

LEGEND

- PROPOSED DITCH
- PROPOSED STORM
- PROPOSED STORM STRUCTURE
- PROPOSED FILTERRA
- EXISTING STORM STRUCTURE
- EXISTING STORM
- EQUIVALENT CAPTURE AREA TRIBUTARY TO FLOW CONTROL FACILITY

NOTE:
THE DRAINAGE FEATURES SHOWN ON THIS MAP ARE A COMBINATION OF GIS RECORDS FROM THE CITY OF LYNNWOOD, LIMITED FIELD RECONNAISSANCE WITHIN THE RIGHT-OR-WAY, AND TOPOGRAPHIC SURVEY INFORMATION. AS SUCH, THE DRAINAGE INFORMATION SHOWN HERE ON IS APPROXIMATE AND BASED UPON BEST AVAILABLE INFORMATION.

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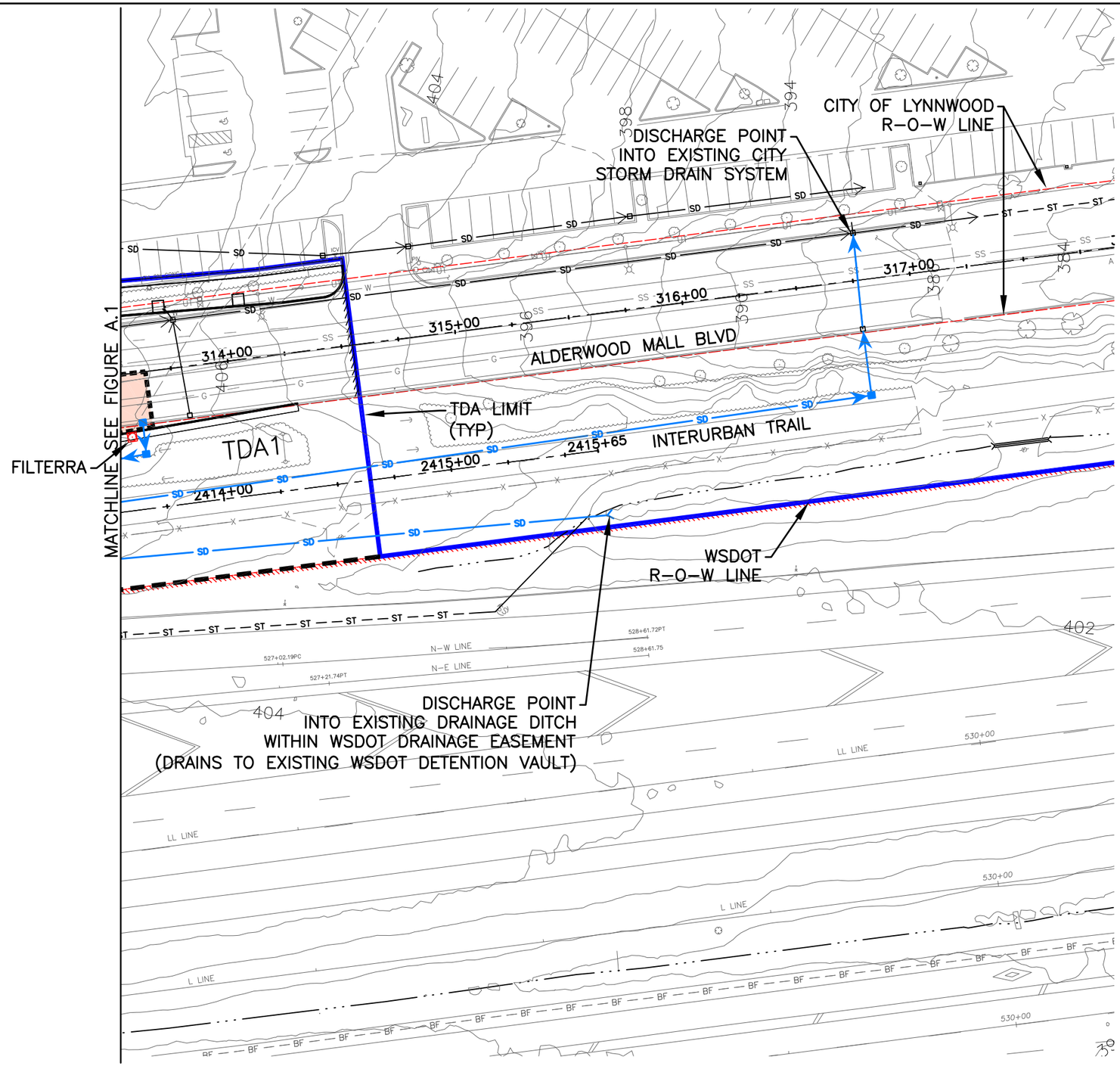
CITY OF LYNNWOOD
POPLAR WAY EXTENSION ALTERNATIVE #1

FIGURE A.1

Sep 23, 2013 - 2:19pm MickeyC C:\Users\mickeyc\appdata\local\temp\AcPublish_8900\20100156-Alt 1.dwg Layout Name: A.1



SCALE
25' 0 25' 50'
FEET

LEGEND

- PROPOSED DITCH
- PROPOSED STORM
- PROPOSED STORM STRUCTURE
- PROPOSED FILTERRA
- EXISTING STORM STRUCTURE
- EXISTING STORM
- EQUIVALENT CAPTURE AREA TRIBUTARY TO FLOW CONTROL FACILITY

NOTE:
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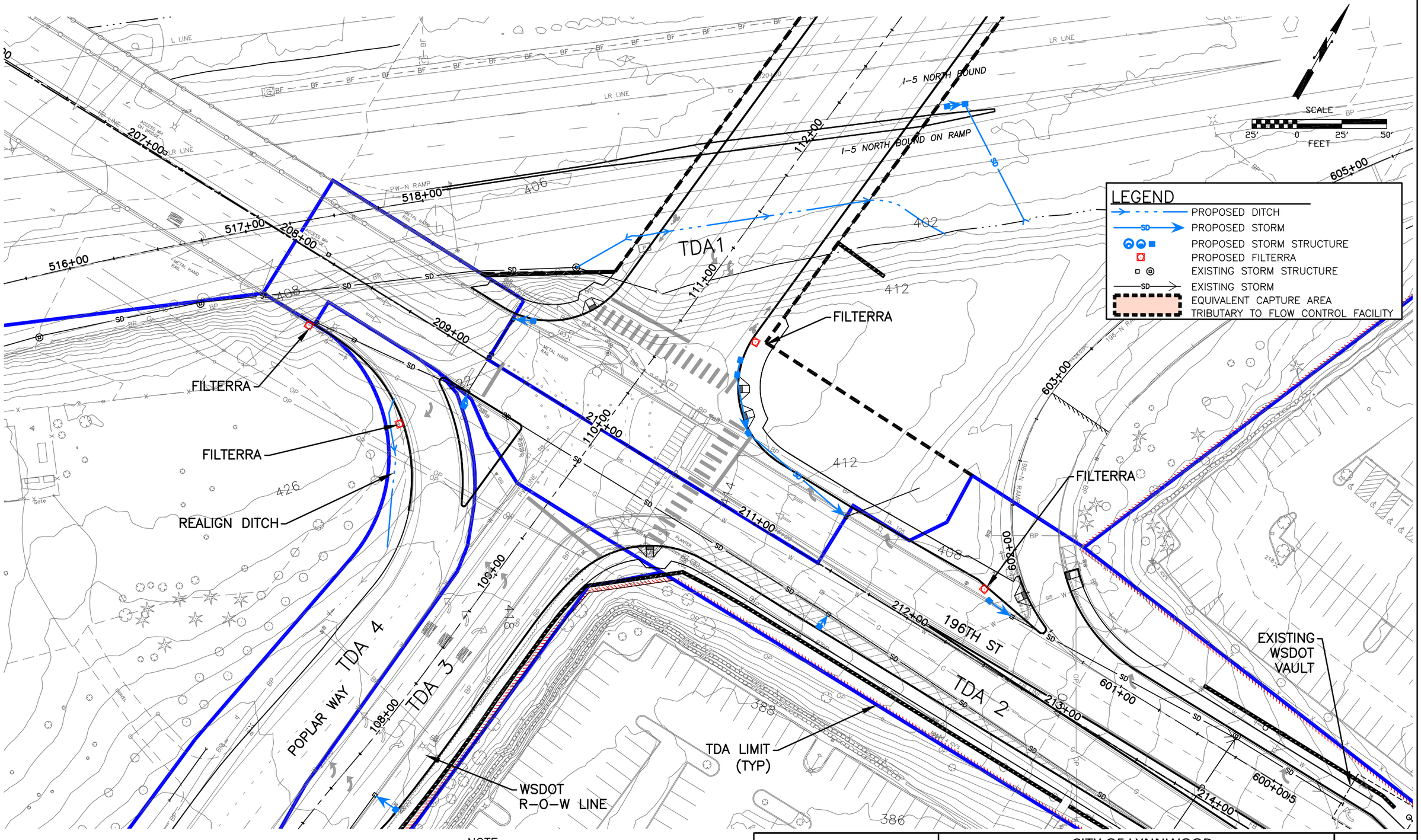
CITY OF LYNNWOOD
POPLAR WAY EXTENSION ALTERNATIVE #1

FIGURE A.2

Sep 23, 2013 - 2:19pm MickeyC C:\Users\mickeyc\appdata\local\temp\AcPublish_8900\20100156-Alt 1.dwg Layout Name: A.2



NOTE:
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CITY OF LYNNWOOD
POPLAR WAY EXTENSION ALTERNATIVE #1

FIGURE A.3

Sep 23, 2013 - 2:20pm MickeyC C:\Users\mickeyc\appdata\local\temp\AcPublish_8900\20100156-Alt 1.dwg Layout Name: A.3

FILTERRA
W/INTERNAL BYPASS

33RD AVE

FILTERRA

FILTERRA

FILTERRA

TDA LIMIT
(TYP)

TDA1

ALDERWOOD MALL BLVD

CITY OF LYNNWOOD
R-O-W LINE

INTERURBAN TRAIL

PUD PROPERTY

WSDOT
R-O-W LINE

I-5 SOUTH BOUND OFF RAMP

I-5 SOUTH BOUND

306+00
307+00
308+00
309+00
310+00
311+00
312+00
313+00
2407+00
2408+00
2409+00
2410+00
2411+00
2412+00
2413+00
117+00
118+00
116+00
115+00
4+00

SCALE
25' 0 25' 50'
FEET

MATCHLINE SEE FIGURE B.2

LEGEND

- PROPOSED DITCH
- PROPOSED STORM
- PROPOSED STORM STRUCTURE
- PROPOSED FILTERRA
- EXISTING STORM STRUCTURE
- EXISTING STORM
- EQUIVALENT CAPTURE AREA
- TRIBUTARY TO FLOW CONTROL FACILITY

NOTE:
THE DRAINAGE FEATURES SHOWN ON THIS MAP ARE A COMBINATION OF GIS RECORDS FROM THE CITY OF LYNNWOOD, LIMITED FIELD RECONNAISSANCE WITHIN THE RIGHT-OR-WAY, AND TOPOGRAPHIC SURVEY INFORMATION. AS SUCH, THE DRAINAGE INFORMATION SHOWN HERE ON IS APPROXIMATE AND BASED UPON BEST AVAILABLE INFORMATION.

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CITY OF LYNNWOOD
POPLAR WAY EXTENSION
ALTERNATIVE #2

FIGURE
B.1

Sep 23, 2013 - 2:28pm MickeyC C:\Users\mickeyc\appdata\local\temp\AcPublish_3376\20100156-Alt 2.dwg Layout Name: B.1

SCALE
25' 0 25' 50'
FEET

CITY OF LYNNWOOD
R-O-W LINE

ALDERWOOD MALL BLVD

314+00
315+00
316+00
317+00
318+00
319+00
320+00
321+00

AMB LINE

TDA1

TDA LIMIT
(TYP)

2414+00
2415+00
2415+65

INTERURBAN TRAIL

WSDOT
R-O-W LINE

N-W LINE
N-E LINE
527+02.19PC
527+21.74PT
528+61.72PT
528+61.75

LL LINE
530+00

DISCHARGE POINT
INTO EXISTING DRAINAGE DITCH
WITH WSDOT DRAINAGE EASEMENT
(DRAINS TO EXISTING WSDOT DETENTION VAULT)

MATCHLINE SEE FIGURE B.1

MATCHLINE SEE FIGURE B.3

LEGEND

- PROPOSED DITCH
- PROPOSED STORM
- PROPOSED STORM STRUCTURE
- PROPOSED FILTERRA
- EXISTING STORM STRUCTURE
- EXISTING STORM
- EQUIVALENT CAPTURE AREA TRIBUTARY TO FLOW CONTROL FACILITY

NOTE:
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CITY OF LYNNWOOD
POPLAR WAY EXTENSION
ALTERNATIVE #2

FIGURE
B.2

Sep 23, 2013 - 2:28pm MickeyC C:\Users\mickeyc\appdata\local\temp\AcPublish_3376\20100156-Alt 2.dwg Layout Name: B.2

SCALE
25' 0 25' 50'
FEET

CITY OF LYNNWOOD
R-O-W LINE

DISCHARGE POINT
INTO EXISTING CITY
STORM DRAIN SYSTEM

CONTROL STRUCTURE

ALDERWOOD MALL BLVD

INTERURBAN TRAIL

20' WIDE x 282' LONG x 7' DEEP
(INTERNAL DIMENSIONS) DETENTION VAULT
GRADE ELEV.=390.00
OUTSIDE TOP OF VAULT=389.00
HWL=387.50
BTM OF LIVE STORAGE=383.00
INSIDE BTM OF VAULT=381.00

WSDOT
R-O-W LINE

DENSE BRUSH

MATCHLINE SEE FIGURE B.2

LEGEND

- PROPOSED DITCH
- PROPOSED STORM
- PROPOSED STORM STRUCTURE
- PROPOSED FILTERRA
- EXISTING STORM STRUCTURE
- EXISTING STORM
- EQUIVALENT CAPTURE AREA TRIBUTARY TO FLOW CONTROL FACILITY

NOTE:
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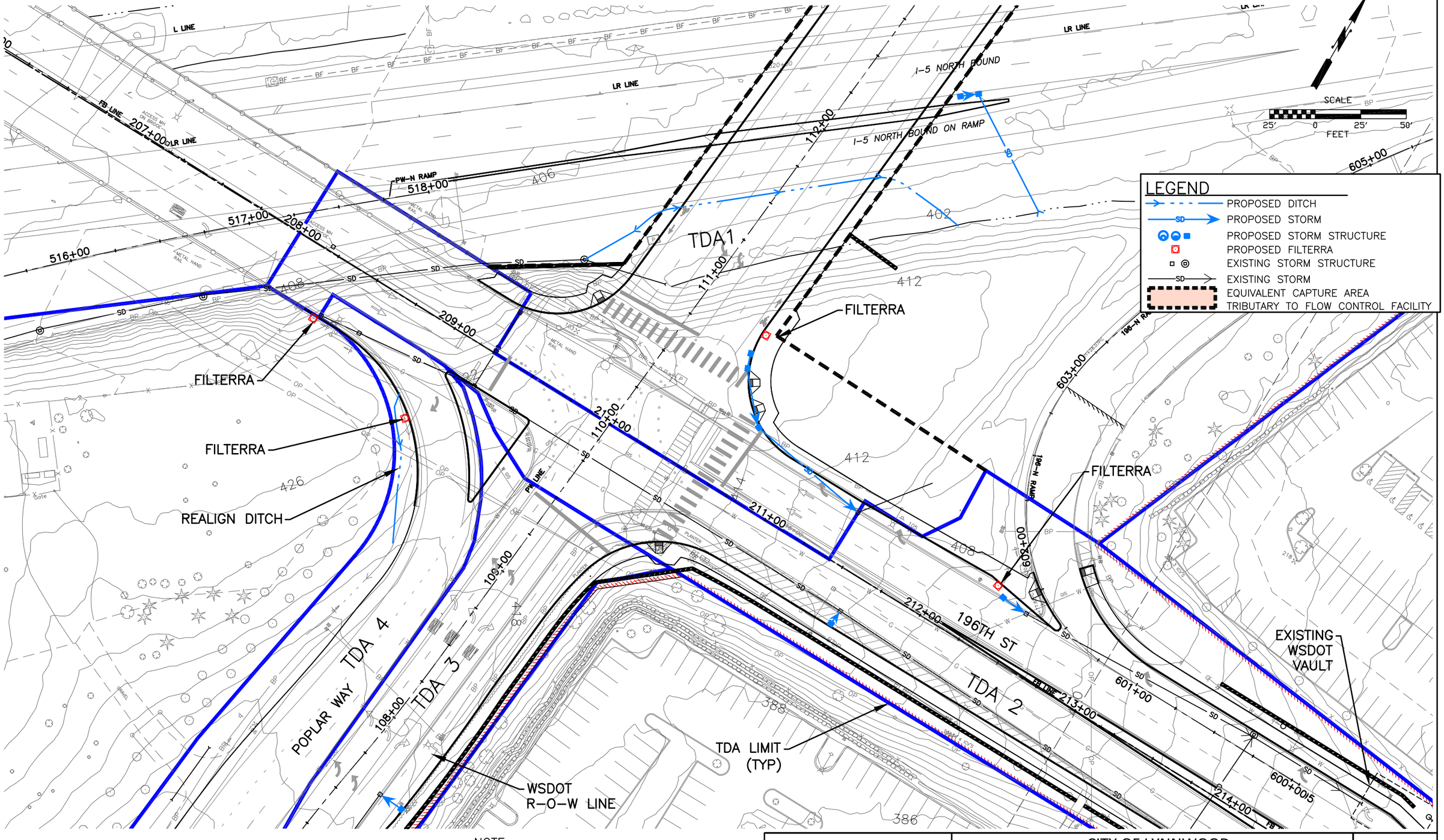
CITY OF LYNNWOOD
POPLAR WAY EXTENSION ALTERNATIVE #2

FIGURE B.3

Sep 23, 2013 - 2:29pm MickeyC C:\Users\mickeyc\appdata\local\temp\AcPublish_33760\20100156-Alt 2.dwg Layout Name: B.3



NOTE:
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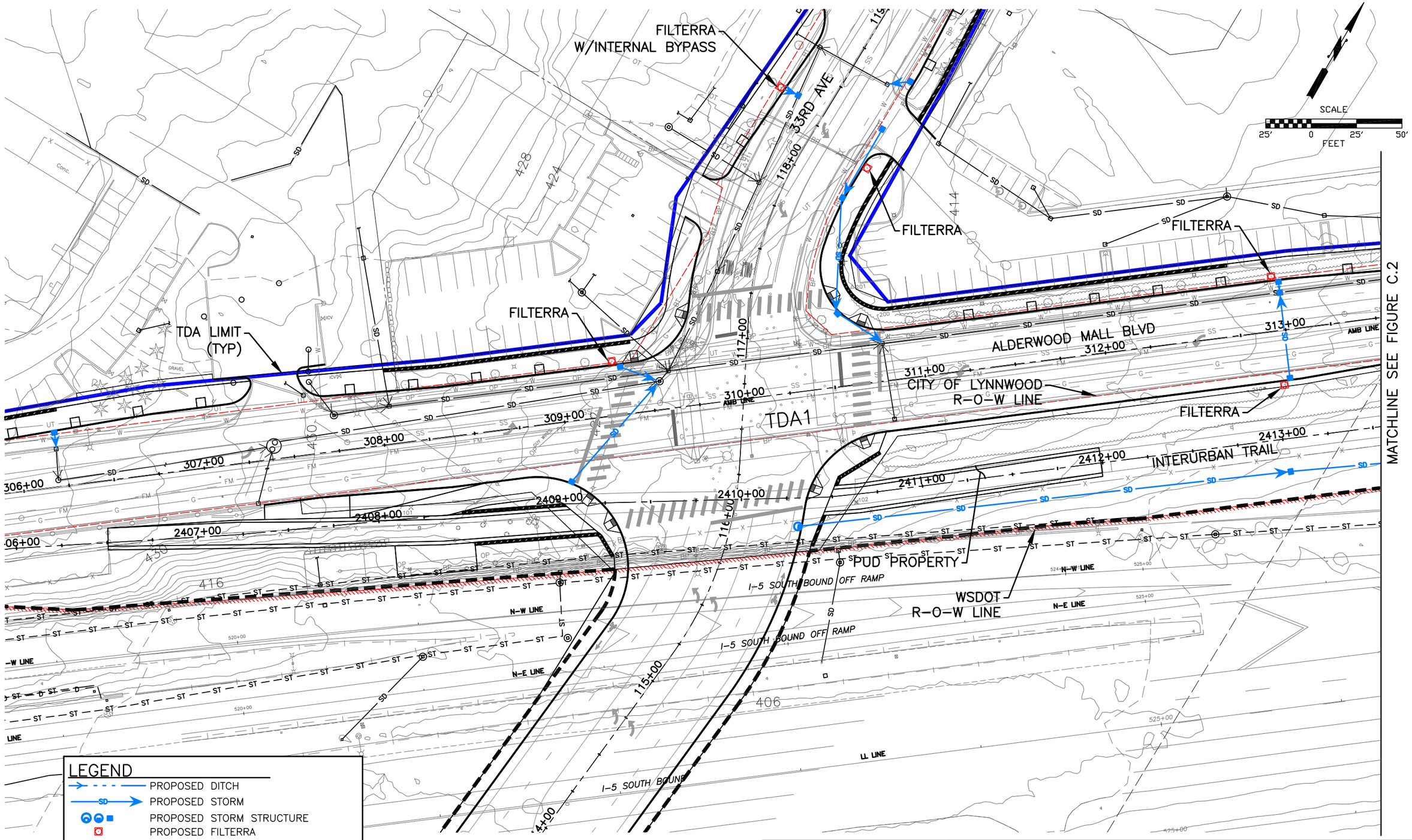
CITY OF LYNNWOOD
POPLAR WAY EXTENSION ALTERNATIVE #2

FIGURE B.4

Sep 23, 2013 - 2:29pm MickeyC C:\Users\mickeyc\appdata\local\temp\AcPublish_33760\20100156-Alt 2.dwg Layout Name: B.4



LEGEND

- PROPOSED DITCH
- PROPOSED STORM
- PROPOSED STORM STRUCTURE
- PROPOSED FILTERRA
- EXISTING STORM STRUCTURE
- EXISTING STORM

NOTE:

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CITY OF LYNNWOOD

POPLAR WAY EXTENSION ALTERNATIVE #3

FIGURE C.1

Sep 23, 2013 - 2:39pm MickeyC C:\Users\mickeyc\appdata\local\temp\AcPublish_3376\20100156-Alt 3.dwg Layout Name: C.1

SCALE
25' 0 25' 50'
FEET

CITY OF LYNNWOOD
R-O-W LINE

ALDERWOOD MALL BLVD

INTERURBAN TRAIL

TDA LIMIT
(TYP)

TDA1

WSDOT
R-O-W LINE

N-W LINE

N-E LL LINE

DISCHARGE POINT
INTO EXISTING DRAINAGE DITCH
WITH WSDOT DRAINAGE EASEMENT
(DRAINS TO EXISTING WSDOT DETENTION VAULT)

MATCHLINE SEE FIGURE C.1

LEGEND
- PROPOSED DITCH
- PROPOSED STORM
- PROPOSED STORM STRUCTURE
- PROPOSED FILTERRA
- EXISTING STORM STRUCTURE
- EXISTING STORM

NOTE:
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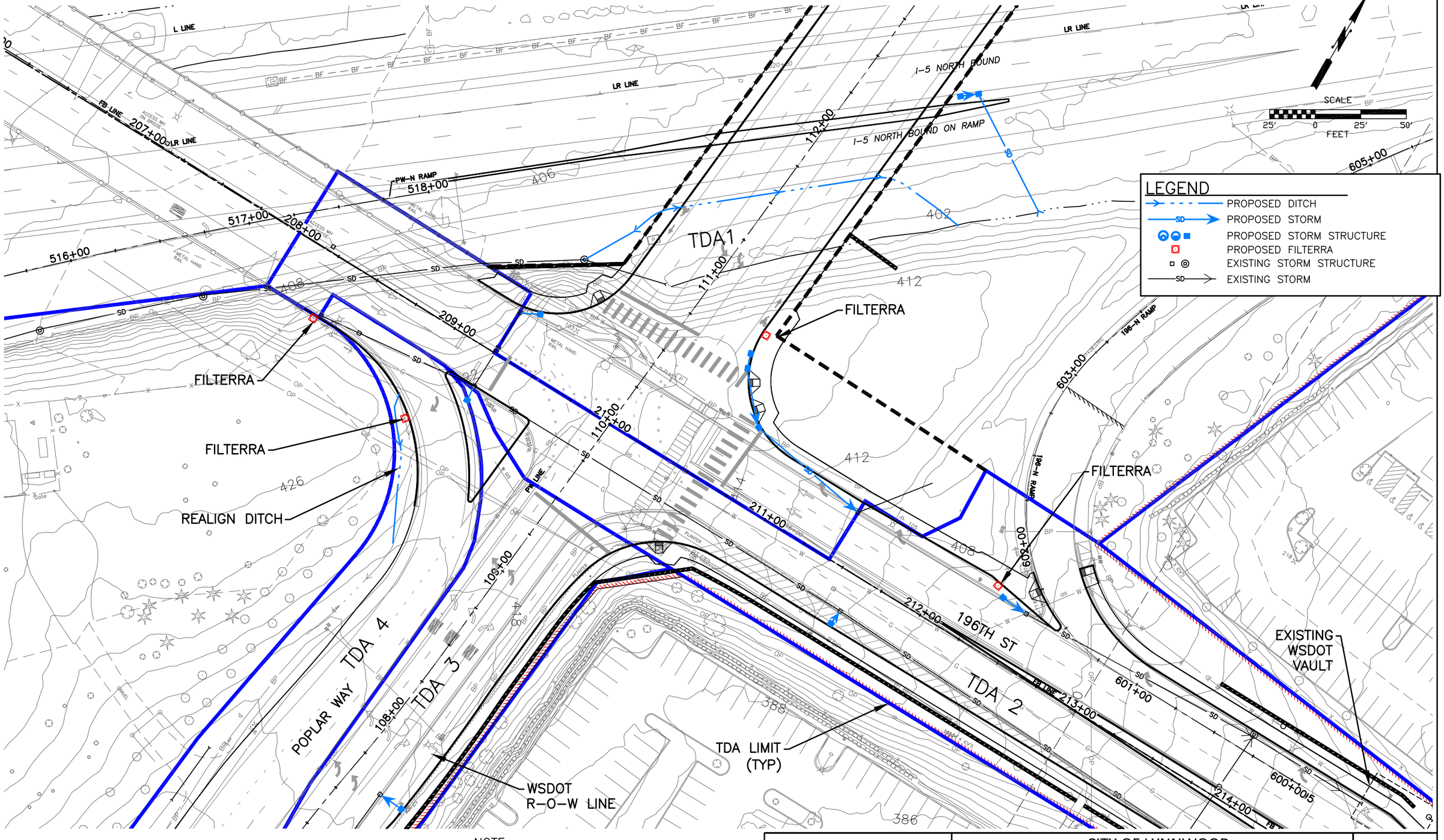
CITY OF LYNNWOOD
POPLAR WAY EXTENSION
ALTERNATIVE #3

FIGURE
C.2

Sep 23, 2013 - 2:39pm MickeyC C:\Users\mickeyc\appdata\local\temp\AcPublish_3376\20100156-Alt 3.dwg Layout Name: C.2



NOTE:
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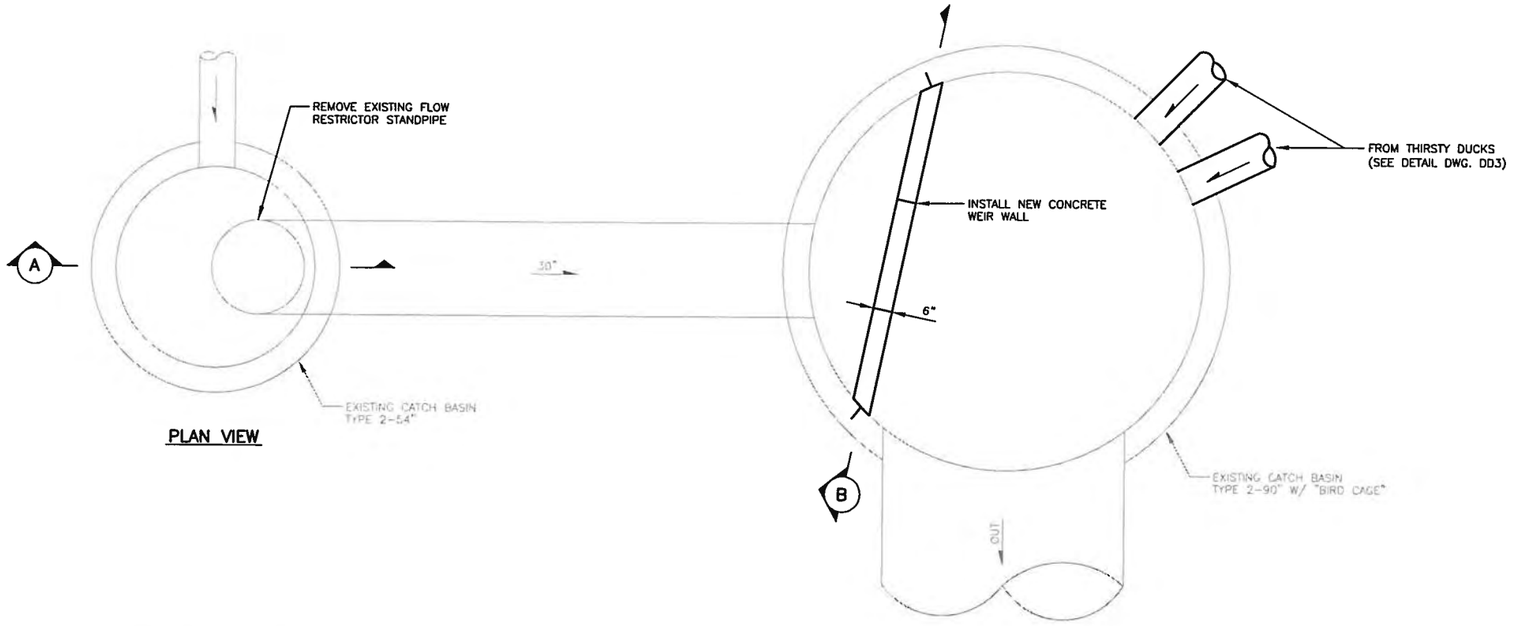
CITY OF LYNNWOOD
POPLAR WAY EXTENSION
ALTERNATIVE #3

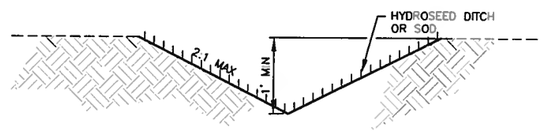
FIGURE
C.3

Sep 23, 2013 - 2:40pm MickeyC C:\Users\mickeyc\appdata\local\temp\AcPublish_33760\20100156-Alt 3.dwg Layout Name: C.3

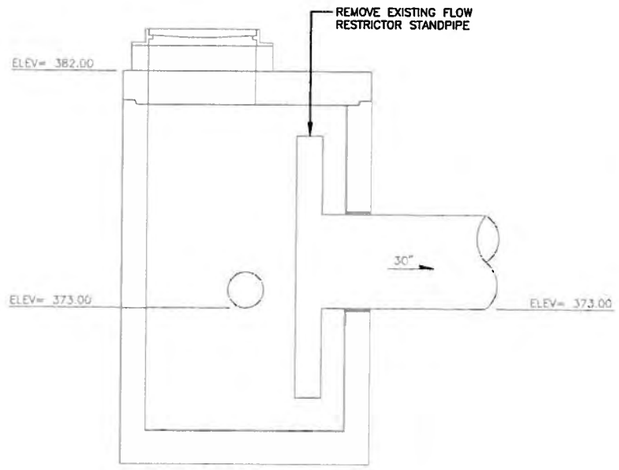


PLAN VIEW

PLAN VIEW

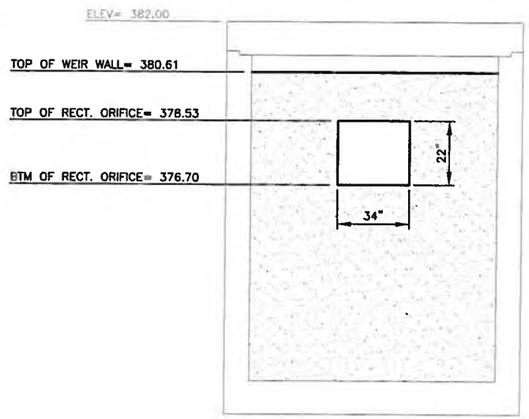


DRAINAGE DITCH TYPE A
NTS



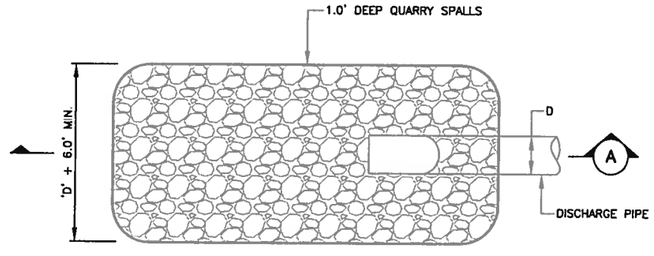
SECTION A–A

EXISTING FLOW CONTROL STRUCTURE
NTS

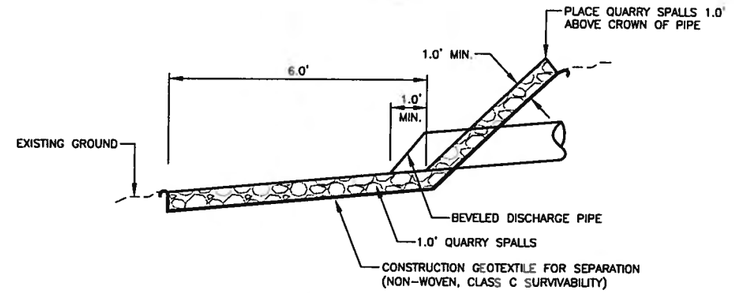


SECTION B–B

EXISTING EMERGENCY OVERFLOW STRUCTURE
NTS



PLAN VIEW



SECTION A–A

NOTE:
CULVERT ENDS SHALL BE BEVELED TO MATCH THE EMBANKMENT OR DITCH SLOPE AND SHALL NOT BE BEVELED FLATTER THAN 4H:1V

OUTLET PROTECTION
NTS

CALL 2 BUSINESS DAYS BEFORE YOU DIG
1 800 424-5555
UTILITIES UNDERGROUND LOCATION CENTER

30% REVIEW
CHECK PRINT
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No.	Date	Revision	By	Appr.

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425-252-7700 | 1-800-615-9900
2707 Colby Avenue, Suite 900
Everett, Washington 98201

LYNNWOOD WASHINGTON

CARL J. EINFELD STATE OF WASHINGTON 24043 REGISTERED PROFESSIONAL ENGINEER

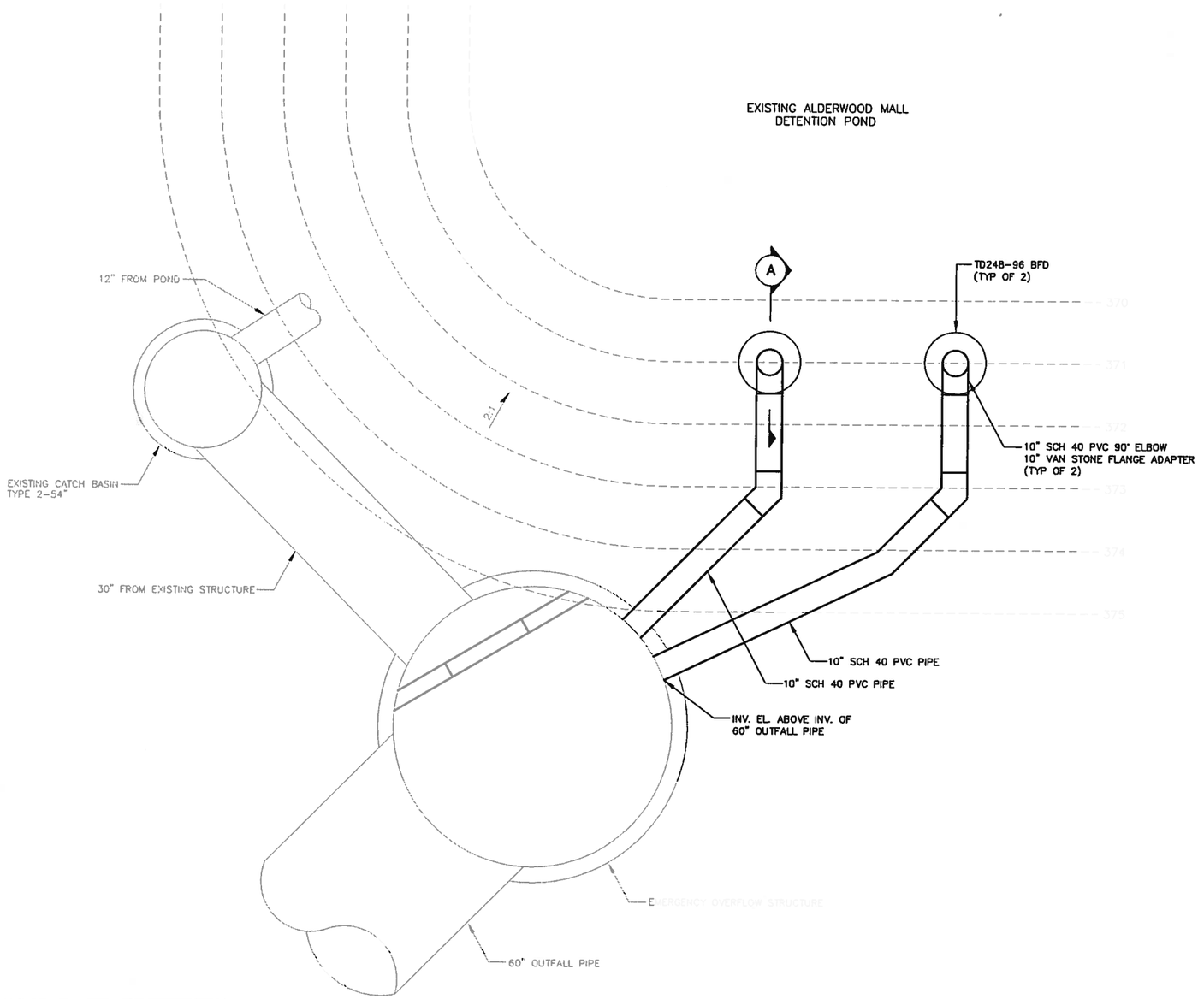
THIS PRINT REDUCED HALF SCALE

Drawn By MJS	Date 09/2013	SCALE
Designed By BJC	09/2013	Horiz 1"=20'
Checked By CJE	09/2013	Vert NONE
Approved By PCD	09/2013	Project Number 20100156

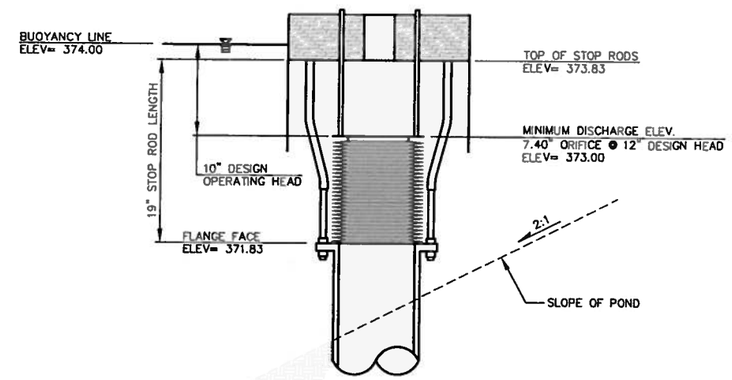
CITY OF LYNNWOOD
POPLAR WAY EXTENSION BRIDGE–PHASE 2
DRAINAGE DETAILS

Drawing No. DD2
Sheet No. X of X Total

Sep 24, 2013 - 2:43pm tsakulich X:\Lynnwood, City of\Projects\20100156 - Poplar Way Extension Bridge\CADD\Plan Sheets\20100156_DR.dwg Layout Name: DD2



THIRSTY DUCK AND WEIR WALL SCHEMATIC
NTS



SECTION A-A

THIRSTY DUCK
NTS

CALL 2 BUSINESS DAYS BEFORE YOU DIG
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UTILITIES UNDERGROUND LOCATION CENTER

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Drawn By MJS	Date 09/2013	SCALE
Designed By BJC	09/2013	Horiz NONE
Checked By CJE	09/2013	Vert NONE
Approved By PGD	09/2013	Project Number 20100156

CITY OF LYNNWOOD
POPLAR WAY EXTENSION BRIDGE-PHASE 2
DRAINAGE DETAILS

Drawing No. DD3
Sheet No. X of X Total

Sep 24, 2013 - 7:43pm tsalufish X:\Lynnwood, City of\Projects\20100156 - Poplar Way Extension Bridge\CADD\Plan Sheets\20100156 DR.dwg Layout Name: DD3