Appendix A

SWM Basins and Flow Control Evaluations

Bainbridge Island STO
SWM Basins and Flow Control Evaluations

	Segment	From	To	Length	BMP	Notes	Tank Length	Tank $/LF	Tank Cost	Threshold Discharge Area
1	Coppertop	Madison Ave N	1st Water Course	1265	Detention (tank?)	loam soils (infiltration likely not feasible) road is super to east (does not drain toward trail collect trail in exist roadside ditch	885.5	$ 820	$ 726,110	TDA 1
2	Coppertop	1st Water Course	Sportsman Club Rd	2155	Detention (pond in depression?)	Convey trail and road by exist ditch to closed depression at SW corner of SCR road begins super to east but most is crowned mild cut section then tall cut section Possible detention or inf area lots of WSDOT ROW	1508.5	$ 820	$ 1,236,970	TDA 2
3	Meigs Park	Sportsman Club Rd	Munter Creek Bridge	550	Peak Flow Exception	WSDOT ditch outfalls to Creek ~<6,000 sf of new impervious = peak rate increase is low	0	$ -	$ -	TDA 3
4	Meigs Park	Munter Creek Bridge	NE Koura Rd	3500	sheet flow dispersion to west with geotech permission	trail veers into City property away from road critical areas to west and forested use dispersion over steep slopes with geotech approval	0	$ -	$ -	TDA 4
5	B-I South	NE Koura Rd	NE Morgan Rd	1390	detention tank with swap of WSDOT undetained roadway	crowned road collected in extruded curb with 4 catch basins that outfall to the west guardrail along entire west side, drops off to the west CB outfalls are to mapped water courses all one TDA	973	$ 820	$ 797,860	TDA 4
6	B-I South	NE Morgan Rd	Lovegreen Rd	1380	detention difficult to outfall due to water course and level grades	cut section crowned road, slopes to south existing ditch to south ditch is mapped water course parallel to roadway at south end (see GIS)	966	$ 820	$ 792,120	TDA 4
7	B-I North	Lovegreen Rd	Day Rd	3900	detention tanks	southern half super to west extruded curb to CB outfall approaching LG Rd intersection looks like existing ditch for remainder 5 outfalls, 3 separate TDAs peak flow exception for TDA 6 and 7 detention tank TDA 5 New RBT by PMX at Day Rd (reduce cost basis length by 100')	1810	$ 820	$ 1,484,200	TDA 5 TDA 6 TDA 7
8	Hidden Cove	Day Rd	crest in road	1950	dispersion and closed depression	100' PSE ROW to the west for portion possible use as dispersion closed depression to west in vicinity of road crest	0	$ -	$ -	TDA 8
9	Hidden Cove	crest in road	City Parcel	2000	pond or tank at City parcel	Cut section with ditch to the north	1400	$ 820	$ 1,148,000	TDA 9
10	Hidden Cove	City Parcel	NE Hidden Cove Rd	1800	dispersion and pond modification on City parcel	City maintenance facility access road	0	$ -	$ -	TDA 9
11	Bloedel	NE Hidden Cove Rd	NE Seabold Rd	4050	2 detention systems ditch collection	drains to the south road is super to east in curve water course and wetland aabout 700' north of HCR northern half might have soils for low level infiltration new RBT being designed for Seabold (reduce length by 100')	2835	$ 820	$ 2,324,700	TDA 10
12	Local Connector	NE Seabold Rd	Agatewood Rd NE	880	might meet flow control exception with more detailed analysis but assume detention	NRCS soils maps indicate possible low level infiltration new RBT being designed for Seabold (reduce length by 100') close to FC exception but assume detention is needed	880	$ 820	$ 721,600	TDA 11
	Local Connector	Agatewood Rd NE	NE Adas Will Ln	745	might meet flow control exception with more detailed analysis but assume detention	NRCS soils maps indicate possible low level infiltration new RBT being designed for Adas Will (reduce length by 100') close to FC exception but assume detention is needed	745	$ 820	$ 610,900	TDA 12
13	Local Connector	NE Adas Will Ln	Water course low point	700	might meet flow control exception with more detailed analysis but assume detention	NRCS soils maps indicate possible low level infiltration Roadway super to east cut section till approach the water course install ditch new RBT being designed forAdas Will (reduce length by 100') close to FC exception but assume detention is needed	700	$ 820	$ 574,000	TDA 13
14	Local Connector	Water course low point	Unnamed Road	590	detention (same TDA as next)	NRCS soils maps indicate possible low level infiltration Roadway super to east cut section till north end outfalls to west install ditch if the next segment can outfall to under the bridge then FC exception might apply	413	$ 820	$ 338,660	TDA 14

Total Conceptual SWM Facility Cost = **$ 10,755,120**

Assumptions:

1. Mixed trail/WSDOT surface water facilities for purposes for cost estimate. In many cases, WSDOT facilities do not drain to the trail, or WSDOT might be able to bypass. There is likely not enough space to separate all facilities along the entire alignment.
2. The City would have to maintain the detention pipes. WSDOT, by policy, does not install detention tanks/pipe. Day Road example: Kitsap Transit has accepted the maintenance of their vault on behalf of WSDOT.

WWHM Peak Rate Exception Calcs

Length of 16' Wide Impervious Trail	Area sf	Area ac	Qex cover 1 forested	Qex cover 2 landscape	Qdev cover impervious	delta Q	delta Q
625	10000	0.230	0.0424		0.185	0.143	
750	12000	0.275		0.079	0.221		0.142

Detention Tank Calculations (from WWHM)

Trail Length	Area sf	Area ac	4' Diam Tank Length	Tank Length per ft of Trail
1000	16000	0.367	682	0.682
2000	32000	0.735	1218	0.609

use 0.7

Detention Tank Costs (assume 1000 lf)

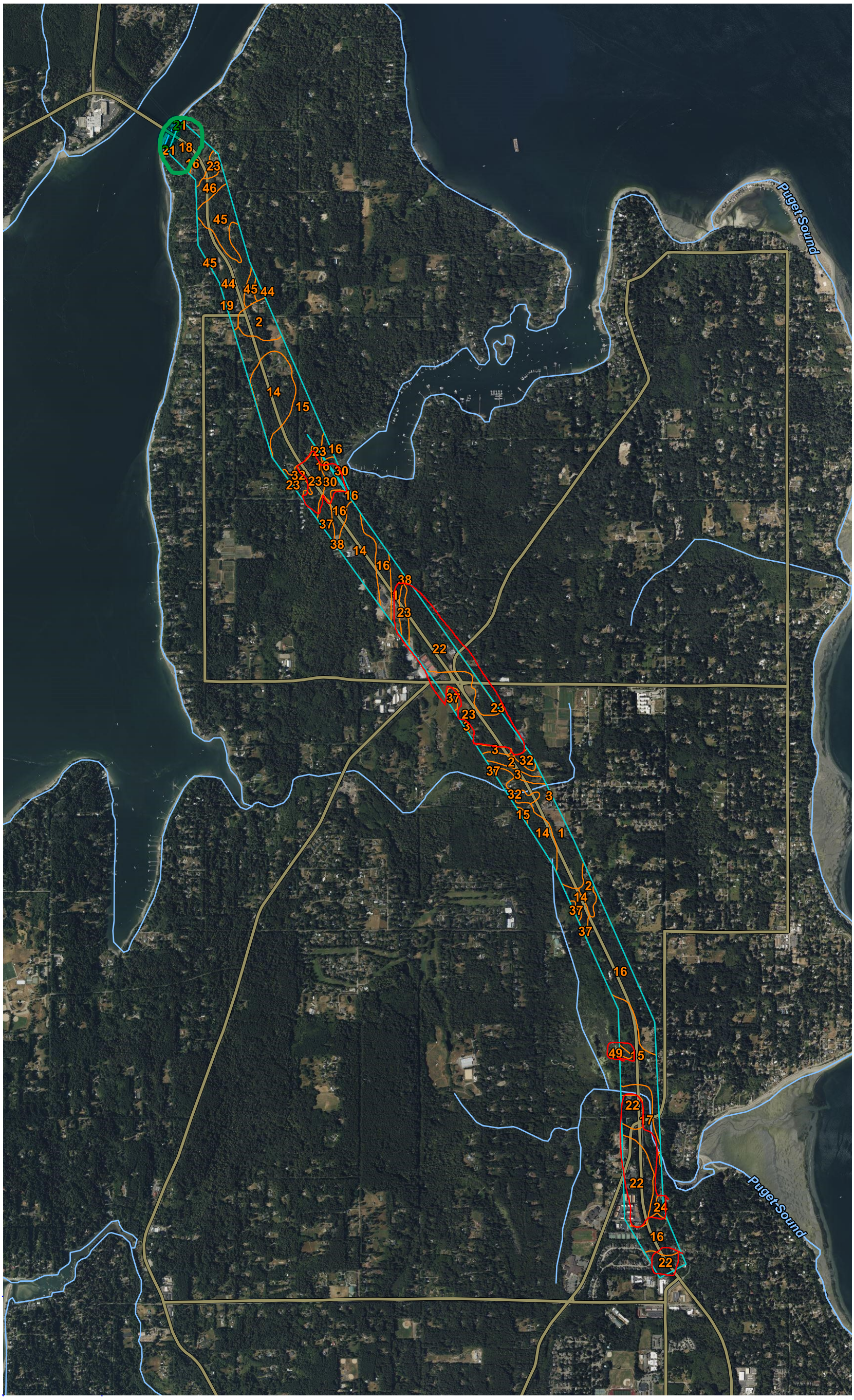
Item	Unit	Quantity	Unit Cost	Item Cost
Structure Excavation Cl B	cy	2370	$ 100	$ 237,000
Shoring or Extra Excavation Cl B	sf	6000	$ 10	$ 60,000
Corrugated Polyethylene Storm Sewer Pipe 48-Inch Diam	lf	1000	$ 350	$ 350,000
Gravel Backfill for Pipe Zone Bedding	ton	2450	$ 50	$ 122,500
Catch Basin Type 2 CB 60-Inch Diam	ea	10	$ 3,000	$ 30,000
Outlet control structure	ea	1	$ 10,000	$ 10,000
			Total =	$ 809,500
			Cost per LF =	$ 809.50
			use=	**$ 820.00**

Appendix B

NRCS Soil Map

Soil Map—Kitsap County Area, Washington
(Bainbridge STO - NRCS Soil Map)

122° 34' 43" W
122° 30' 17" W
47° 43' 9" N
47° 38' 15" N



Map Scale: 1:25,300 if printed on B portrait (11" x 17") sheet.

N

Meters: 0 350 700 1400 2100

Feet: 0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kitsap County Area, Washington
Survey Area Data: Version 19, Aug 29, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 31, 2022—Aug 8, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Alderwood gravelly sandy loam, 0 to 8 percent slopes	32.3	6.4%
2	Alderwood gravelly sandy loam, 8 to 15 percent slopes	22.9	4.5%
3	Alderwood gravelly sandy loam, 15 to 30 percent slopes	7.0	1.4%
14	Harstine gravelly ashy sandy loam, 0 to 6 percent slopes	64.9	12.8%
15	Harstine gravelly ashy sandy loam, 6 to 15 percent slopes	67.8	13.4%
16	Harstine gravelly ashy sandy loam, 15 to 30 percent slopes	76.4	15.1%
17	Harstine gravelly ashy sandy loam, 30 to 45 percent slopes	18.9	3.7%
18	Indianola loamy sand, 0 to 5 percent slopes	10.2	2.0%
19	Indianola loamy sand, 5 to 15 percent slopes	0.1	0.0%
21	Indianola-Kitsap complex, 45 to 70 percent slopes	0.4	0.1%
22	Kapowsin gravelly ashy loam, 0 to 6 percent slopes	72.2	14.3%
23	Kapowsin gravelly ashy loam, 6 to 15 percent slopes	47.3	9.3%
24	Kapowsin variant gravelly clay loam, 0 to 5 percent slopes	1.5	0.3%
30	Kitsap silt loam, 15 to 30 percent slopes	6.7	1.3%
32	McKenna gravelly loam	11.9	2.3%
37	Norma fine sandy loam	8.3	1.6%
38	Pits	0.7	0.1%
44	Ragnar fine sandy loam, 0 to 6 percent slopes	29.4	5.8%
45	Ragnar fine sandy loam, 6 to 15 percent slopes	19.9	3.9%
46	Ragnar fine sandy loam, 15 to 30 percent slopes	6.2	1.2%
49	Semiahmoo muck	0.9	0.2%
Totals for Area of Interest		**506.0**	**100.0%**

Appendix C

WWHM Calculations

WWHM2012

PROJECT REPORT

General Model Information

Project Name:	BI STO
Site Name:	
Site Address:	
City:	
Report Date:	6/26/2024
Gage:	Seatac
Data Start:	1948/10/01
Data End:	2009/09/30
Timestep:	15 Minute
Precip Scale:	1.000
Version Date:	2021/08/18
Version:	4.2.18

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C, Forest, Steep	0.735
Pervious Total	0.735
Impervious Land Use	acre
Impervious Total	0
Basin Total	0.735

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
Pervious Total	0
Impervious Land Use	acre
ROADS FLAT	0.735
Impervious Total	0.735
Basin Total	0.735

Element Flows To:

Surface	Interflow	Groundwater
Tank 1	Tank 1	

Routing Elements
Predeveloped Routing

Mitigated Routing

Tank 1

Dimensions
Depth: 4 ft.
Tank Type: Circular
Diameter: 4 ft.
Length: 1218.77756559579 ft.
Discharge Structure
Riser Height: 3 ft.
Riser Diameter: 18 in.
Notch Type: Rectangular
Notch Width: 0.010 ft.
Notch Height: 1.428 ft.
Orifice 1 Diameter: 0.686 in. Elevation:0 ft.
Element Flows To:
Outlet 1 Outlet 2

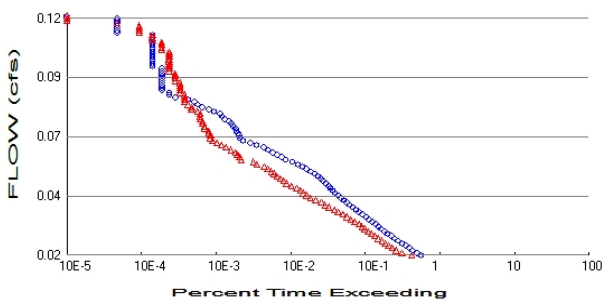
Tank Hydraulic Table

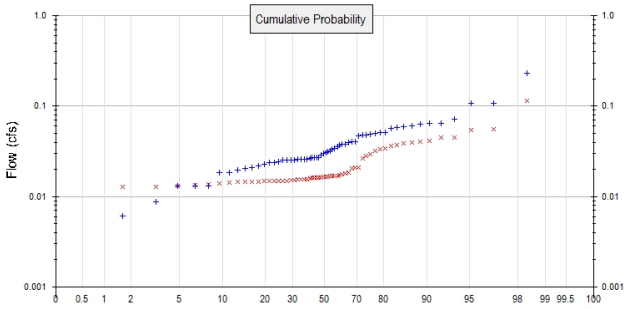
Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.000	0.000	0.000	0.000
0.0444	0.023	0.000	0.002	0.000
0.0889	0.033	0.002	0.003	0.000
0.1333	0.040	0.003	0.004	0.000
0.1778	0.046	0.005	0.005	0.000
0.2222	0.051	0.007	0.006	0.000
0.2667	0.055	0.010	0.006	0.000
0.3111	0.059	0.012	0.007	0.000
0.3556	0.063	0.015	0.007	0.000
0.4000	0.067	0.018	0.008	0.000
0.4444	0.070	0.021	0.008	0.000
0.4889	0.073	0.024	0.008	0.000
0.5333	0.076	0.027	0.009	0.000
0.5778	0.078	0.031	0.009	0.000
0.6222	0.081	0.034	0.010	0.000
0.6667	0.083	0.038	0.010	0.000
0.7111	0.085	0.042	0.010	0.000
0.7556	0.087	0.046	0.011	0.000
0.8000	0.089	0.050	0.011	0.000
0.8444	0.091	0.054	0.011	0.000
0.8889	0.093	0.058	0.012	0.000
0.9333	0.094	0.062	0.012	0.000
0.9778	0.096	0.066	0.012	0.000
1.0222	0.097	0.070	0.012	0.000
1.0667	0.099	0.075	0.013	0.000
1.1111	0.100	0.079	0.013	0.000
1.1556	0.101	0.084	0.013	0.000
1.2000	0.102	0.088	0.014	0.000
1.2444	0.103	0.093	0.014	0.000
1.2889	0.104	0.097	0.014	0.000
1.3333	0.105	0.102	0.014	0.000
1.3778	0.106	0.107	0.015	0.000
1.4222	0.107	0.112	0.015	0.000
1.4667	0.107	0.116	0.015	0.000
1.5111	0.108	0.121	0.015	0.000

1.5556	0.109	0.126	0.015	0.000
1.6000	0.109	0.131	0.016	0.000
1.6444	0.110	0.136	0.017	0.000
1.6889	0.110	0.141	0.017	0.000
1.7333	0.110	0.146	0.018	0.000
1.7778	0.111	0.151	0.020	0.000
1.8222	0.111	0.155	0.021	0.000
1.8667	0.111	0.160	0.022	0.000
1.9111	0.111	0.165	0.023	0.000
1.9556	0.111	0.170	0.025	0.000
2.0000	0.111	0.175	0.026	0.000
2.0444	0.111	0.180	0.028	0.000
2.0889	0.111	0.185	0.029	0.000
2.1333	0.111	0.190	0.031	0.000
2.1778	0.111	0.195	0.032	0.000
2.2222	0.111	0.200	0.034	0.000
2.2667	0.110	0.205	0.035	0.000
2.3111	0.110	0.210	0.037	0.000
2.3556	0.110	0.215	0.039	0.000
2.4000	0.109	0.220	0.040	0.000
2.4444	0.109	0.225	0.042	0.000
2.4889	0.108	0.230	0.044	0.000
2.5333	0.107	0.234	0.045	0.000
2.5778	0.107	0.239	0.047	0.000
2.6222	0.106	0.244	0.049	0.000
2.6667	0.105	0.249	0.051	0.000
2.7111	0.104	0.253	0.053	0.000
2.7556	0.103	0.258	0.055	0.000
2.8000	0.102	0.262	0.057	0.000
2.8444	0.101	0.267	0.059	0.000
2.8889	0.100	0.271	0.062	0.000
2.9333	0.099	0.276	0.064	0.000
2.9778	0.097	0.280	0.080	0.000
3.0222	0.096	0.285	0.135	0.000
3.0667	0.094	0.289	0.356	0.000
3.1111	0.093	0.293	0.670	0.000
3.1556	0.091	0.297	1.052	0.000
3.2000	0.089	0.301	1.487	0.000
3.2444	0.087	0.305	1.960	0.000
3.2889	0.085	0.309	2.457	0.000
3.3333	0.083	0.313	2.965	0.000
3.3778	0.081	0.316	3.469	0.000
3.4222	0.078	0.320	3.955	0.000
3.4667	0.076	0.323	4.409	0.000
3.5111	0.073	0.327	4.821	0.000
3.5556	0.070	0.330	5.181	0.000
3.6000	0.067	0.333	5.485	0.000
3.6444	0.063	0.336	5.733	0.000
3.6889	0.059	0.339	5.933	0.000
3.7333	0.055	0.341	6.098	0.000
3.7778	0.051	0.343	6.334	0.000
3.8222	0.046	0.346	6.511	0.000
3.8667	0.040	0.348	6.682	0.000
3.9111	0.033	0.349	6.849	0.000
3.9556	0.023	0.350	7.012	0.000
4.0000	0.000	0.351	7.172	0.000
4.0444	0.000	0.000	7.328	0.000

Analysis Results

POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 0.735
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 0
Total Impervious Area: 0.735

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	0.032169
5 year	0.054843
10 year	0.072049
25 year	0.095949
50 year	0.115172
100 year	0.13551

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	0.019284
5 year	0.029584
10 year	0.038235
25 year	0.051581
50 year	0.063503
100 year	0.077329

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	**Predeveloped**	**Mitigated**
1949	0.037	0.014
1950	0.041	0.017
1951	0.064	0.045
1952	0.024	0.013
1953	0.018	0.015
1954	0.026	0.016
1955	0.047	0.017
1956	0.036	0.021
1957	0.034	0.016
1958	0.032	0.016

1959	0.026	0.015
1960	0.047	0.041
1961	0.025	0.017
1962	0.019	0.013
1963	0.024	0.016
1964	0.030	0.015
1965	0.023	0.021
1966	0.021	0.015
1967	0.048	0.017
1968	0.027	0.015
1969	0.029	0.014
1970	0.025	0.015
1971	0.026	0.018
1972	0.051	0.029
1973	0.026	0.018
1974	0.025	0.016
1975	0.040	0.016
1976	0.027	0.016
1977	0.005	0.015
1978	0.026	0.016
1979	0.013	0.013
1980	0.060	0.036
1981	0.020	0.015
1982	0.049	0.034
1983	0.034	0.017
1984	0.024	0.014
1985	0.013	0.015
1986	0.058	0.028
1987	0.051	0.037
1988	0.022	0.014
1989	0.013	0.015
1990	0.109	0.039
1991	0.063	0.040
1992	0.027	0.016
1993	0.026	0.014
1994	0.009	0.013
1995	0.032	0.018
1996	0.072	0.045
1997	0.064	0.041
1998	0.020	0.015
1999	0.057	0.034
2000	0.027	0.020
2001	0.006	0.013
2002	0.031	0.032
2003	0.040	0.015
2004	0.059	0.056
2005	0.038	0.017
2006	0.038	0.017
2007	0.233	0.114
2008	0.109	0.054
2009	0.050	0.026

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.2331	0.1137
2	0.1087	0.0560
3	0.1085	0.0539

4	0.0722	0.0452
5	0.0643	0.0448
6	0.0642	0.0413
7	0.0631	0.0407
8	0.0604	0.0397
9	0.0594	0.0386
10	0.0578	0.0373
11	0.0569	0.0365
12	0.0514	0.0340
13	0.0506	0.0337
14	0.0501	0.0320
15	0.0493	0.0291
16	0.0484	0.0280
17	0.0475	0.0264
18	0.0471	0.0211
19	0.0405	0.0209
20	0.0404	0.0204
21	0.0397	0.0183
22	0.0381	0.0179
23	0.0380	0.0176
24	0.0369	0.0172
25	0.0357	0.0169
26	0.0340	0.0169
27	0.0336	0.0168
28	0.0318	0.0168
29	0.0316	0.0167
30	0.0310	0.0166
31	0.0299	0.0164
32	0.0287	0.0163
33	0.0273	0.0163
34	0.0272	0.0162
35	0.0272	0.0161
36	0.0271	0.0160
37	0.0261	0.0158
38	0.0261	0.0156
39	0.0259	0.0156
40	0.0258	0.0154
41	0.0256	0.0153
42	0.0256	0.0152
43	0.0255	0.0151
44	0.0255	0.0150
45	0.0255	0.0149
46	0.0240	0.0148
47	0.0239	0.0148
48	0.0236	0.0148
49	0.0227	0.0148
50	0.0218	0.0146
51	0.0207	0.0145
52	0.0204	0.0145
53	0.0197	0.0145
54	0.0186	0.0142
55	0.0182	0.0141
56	0.0132	0.0137
57	0.0132	0.0135
58	0.0131	0.0131
59	0.0087	0.0129
60	0.0061	0.0128
61	0.0048	0.0127

Duration Flows

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0161	11946	8964	75	Pass
0.0171	10521	6646	63	Pass
0.0181	9281	5574	60	Pass
0.0191	8277	4887	59	Pass
0.0201	7386	4355	58	Pass
0.0211	6575	3916	59	Pass
0.0221	5871	3580	60	Pass
0.0231	5234	3174	60	Pass
0.0241	4716	2855	60	Pass
0.0251	4239	2575	60	Pass
0.0261	3829	2327	60	Pass
0.0271	3516	2092	59	Pass
0.0281	3187	1927	60	Pass
0.0291	2909	1762	60	Pass
0.0301	2652	1534	57	Pass
0.0311	2406	1372	57	Pass
0.0321	2192	1212	55	Pass
0.0331	1961	1073	54	Pass
0.0341	1764	927	52	Pass
0.0351	1598	823	51	Pass
0.0361	1450	696	48	Pass
0.0371	1323	617	46	Pass
0.0381	1202	547	45	Pass
0.0391	1095	463	42	Pass
0.0401	1001	392	39	Pass
0.0411	918	349	38	Pass
0.0421	843	316	37	Pass
0.0431	777	290	37	Pass
0.0441	726	258	35	Pass
0.0451	681	218	32	Pass
0.0461	631	188	29	Pass
0.0471	580	172	29	Pass
0.0481	543	155	28	Pass
0.0491	495	140	28	Pass
0.0501	448	127	28	Pass
0.0511	392	118	30	Pass
0.0521	344	105	30	Pass
0.0531	304	94	30	Pass
0.0541	266	75	28	Pass
0.0551	225	68	30	Pass
0.0561	183	46	25	Pass
0.0571	162	44	27	Pass
0.0581	140	41	29	Pass
0.0591	122	39	31	Pass
0.0601	106	34	32	Pass
0.0611	93	29	31	Pass
0.0621	74	25	33	Pass
0.0631	61	22	36	Pass
0.0641	49	19	38	Pass
0.0651	44	18	40	Pass
0.0661	43	18	41	Pass
0.0671	42	17	40	Pass
0.0681	40	17	42	Pass
0.0691	39	15	38	Pass

0.0701	36	15	41	Pass
0.0711	34	14	41	Pass
0.0721	32	14	43	Pass
0.0731	28	13	46	Pass
0.0741	26	13	50	Pass
0.0751	24	13	54	Pass
0.0761	20	12	60	Pass
0.0771	17	10	58	Pass
0.0781	14	10	71	Pass
0.0791	12	9	75	Pass
0.0801	11	8	72	Pass
0.0811	9	8	88	Pass
0.0821	6	8	133	Fail
0.0831	5	8	160	Fail
0.0841	5	7	140	Fail
0.0851	4	7	175	Fail
0.0861	4	7	175	Fail
0.0871	4	7	175	Fail
0.0881	4	7	175	Fail
0.0891	4	6	150	Fail
0.0901	4	6	150	Fail
0.0912	4	6	150	Fail
0.0922	4	6	150	Fail
0.0932	4	5	125	Fail
0.0942	4	5	125	Fail
0.0952	3	5	166	Fail
0.0962	3	5	166	Fail
0.0972	3	5	166	Fail
0.0982	3	5	166	Fail
0.0992	3	5	166	Fail
0.1002	3	5	166	Fail
0.1012	3	5	166	Fail
0.1022	3	4	133	Fail
0.1032	3	4	133	Fail
0.1042	3	4	133	Fail
0.1052	3	4	133	Fail
0.1062	3	3	100	Pass
0.1072	3	3	100	Pass
0.1082	3	3	100	Pass
0.1092	1	2	200	Fail
0.1102	1	2	200	Fail
0.1112	1	2	200	Fail
0.1122	1	2	200	Fail
0.1132	1	1	100	Pass
0.1142	1	0	0	Pass
0.1152	1	0	0	Pass

The development has an increase in flow durations from 1/2 Predeveloped 2 year flow to the 2 year flow or more than a 10% increase from the 2 year to the 50 year flow.

Water Quality

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.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Tank 1 POC	☐	105.12			☐	0.00			
Total Volume Infiltrated		105.12	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Failed

Model Default Modifications

Total of 0 changes have been made.

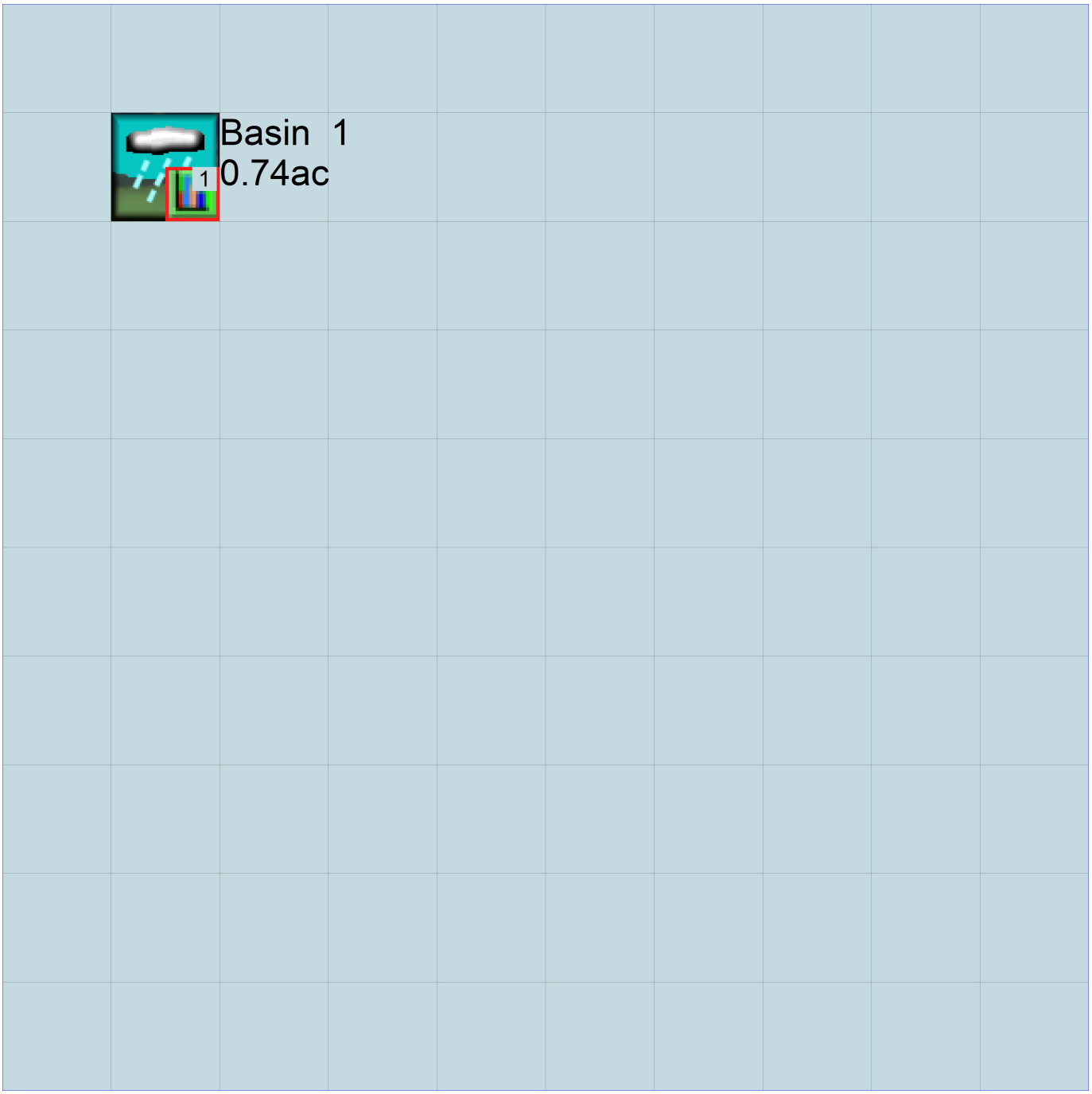
PERLND Changes

No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

Appendix
Predeveloped Schematic



Mitigated Schematic

Predeveloped UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2009 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                   UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   BI STO.wdm
MESSU       25   PreBI STO.MES
            27   PreBI STO.L61
            28   PreBI STO.L62
            30   POCBI STO1.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:15
      PERLND      12
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  1                   MAX                     1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                       in  out           ***
   12     C, Forest, Steep        1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   12         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   12         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO
```

```
  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   12         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   12              0       4.5      0.08       400      0.15       0.5     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   12             0         0         2         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   12           0.2       0.3      0.35         6       0.3       0.7
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   12             0         0         0         0       2.5         1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
  END IWAT-STATE1
```

```
END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  12                       0.735     COPY   501     12
PERLND  12                       0.735     COPY   501     13

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   48.4        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                 ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG           ***
                                            in  out                          ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections *****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ****************** PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                      ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *     *  *  *  *  *       *  *  *  *  *        ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                         ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit       for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
```

```
WDM      1 EVAP     ENGL    0.76           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.76           IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY   501 OUTPUT MEAN   1 1     48.4      WDM    501 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13


END MASS-LINK

END RUN
```

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2009 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   BI STO.wdm
MESSU       25   MitBI STO.MES
            27   MitBI STO.L61
            28   MitBI STO.L62
            30   POCBI STO1.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:15
      IMPLND       1
      RCHRES       1
      COPY         1
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Tank  1                    MAX                     1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                         User  t-series Engl Metr ***
                                          in  out           ***
  END GEN-INFO
  *** Section PWATER***

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

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

  PWAT-PARM1
```

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

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS       IFWS       LZS       AGWS      GWVS
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
    1      ROADS/FLAT             1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    0
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1            400      0.01       0.1       0.1
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
  END IWAT-STATE1
```

```
END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
IMPLND   1                       0.735     RCHRES   1      5

******Routing******
IMPLND   1                       0.735     COPY     1     15
RCHRES   1                           1     COPY   501     16
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   48.4        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<----------------><---> User T-series  Engl Metr LKFG             ***
                                      in  out                               ***
    1     Tank  1                1    1    1    1   28    0    1
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
    1         1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
    1         4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                    ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *        ***
    1        0  1  0  0    4  0  0  0  0       0  0  0  0  0       2  2  2  2  2
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
    1             1      0.23       0.0       0.0       0.5       0.0
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                       ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
    1            0         4.0  0.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
```

FTABLES
FTABLE 1
91 4

Depth (ft)	Area (acres)	Volume (acre-ft)	Outflow1 (cfs)	Velocity (ft/sec)	Travel Time*** (Minutes)***
0.000000	0.000000	0.000000	0.000000		
0.044444	0.023463	0.000697	0.002692		
0.088889	0.032994	0.001964	0.003807		
0.133333	0.040179	0.003596	0.004663		
0.177778	0.046128	0.005518	0.005385		
0.222222	0.051272	0.007684	0.006020		
0.266667	0.055834	0.010066	0.006595		
0.311111	0.059948	0.012641	0.007123		
0.355556	0.063699	0.015390	0.007615		
0.400000	0.067150	0.018299	0.008077		
0.444444	0.070344	0.021355	0.008514		
0.488889	0.073315	0.024548	0.008929		
0.533333	0.076089	0.027869	0.009326		
0.577778	0.078687	0.031309	0.009707		
0.622222	0.081125	0.034861	0.010073		
0.666667	0.083418	0.038518	0.010427		
0.711111	0.085578	0.042274	0.010769		
0.755556	0.087613	0.046123	0.011100		
0.800000	0.089534	0.050060	0.011422		
0.844444	0.091346	0.054080	0.011735		
0.888889	0.093057	0.058178	0.012040		
0.933333	0.094671	0.062350	0.012337		
0.977778	0.096194	0.066592	0.012628		
1.022222	0.097630	0.070900	0.012912		
1.066667	0.098983	0.075269	0.013189		
1.111111	0.100256	0.079697	0.013461		
1.155556	0.101452	0.084180	0.013728		
1.200000	0.102574	0.088714	0.013989		
1.244444	0.103624	0.093296	0.014246		
1.288889	0.104604	0.097924	0.014498		
1.333333	0.105516	0.102593	0.014746		
1.377778	0.106363	0.107302	0.014990		
1.422222	0.107145	0.112047	0.015230		
1.466667	0.107864	0.116825	0.015466		
1.511111	0.108522	0.121634	0.015698		
1.555556	0.109119	0.126471	0.015928		
1.600000	0.109656	0.131332	0.016312		
1.644444	0.110134	0.136217	0.017022		
1.688889	0.110555	0.141121	0.017903		
1.733333	0.110918	0.146043	0.018910		
1.777778	0.111224	0.150980	0.020017		
1.822222	0.111474	0.155929	0.021209		
1.866667	0.111668	0.160888	0.022471		
1.911111	0.111807	0.165854	0.023796		
1.955556	0.111889	0.170825	0.025174		
2.000000	0.111917	0.175799	0.026599		
2.044444	0.111889	0.180773	0.028065		
2.088889	0.111807	0.185744	0.029566		
2.133333	0.111668	0.190710	0.031099		
2.177778	0.111474	0.195669	0.032658		
2.222222	0.111224	0.200618	0.034240		
2.266667	0.110918	0.205555	0.035842		
2.311111	0.110555	0.210477	0.037460		
2.355556	0.110134	0.215381	0.039092		
2.400000	0.109656	0.220266	0.040733		
2.444444	0.109119	0.225127	0.042382		
2.488889	0.108522	0.229964	0.044037		
2.533333	0.107864	0.234773	0.045694		
2.577778	0.107145	0.239551	0.047393		
2.622222	0.106363	0.244296	0.049370		
2.666667	0.105516	0.249005	0.051384		
2.711111	0.104604	0.253674	0.053434		
2.755556	0.103624	0.258302	0.055520		
2.800000	0.102574	0.262884	0.057641		
2.844444	0.101452	0.267418	0.059796		

```
  2.888889  0.100256  0.271901  0.061985
  2.933333  0.098983  0.276329  0.064207
  2.977778  0.097630  0.280698  0.080687
  3.022222  0.096194  0.285006  0.134984
  3.066667  0.094671  0.289248  0.356105
  3.111111  0.093057  0.293420  0.670376
  3.155556  0.091346  0.297518  1.052731
  3.200000  0.089534  0.301538  1.487354
  3.244444  0.087613  0.305475  1.960358
  3.288889  0.085578  0.309324  2.457929
  3.333333  0.083418  0.313080  2.965881
  3.377778  0.081125  0.316737  3.469800
  3.422222  0.078687  0.320289  3.955526
  3.466667  0.076089  0.323729  4.409850
  3.511111  0.073315  0.327050  4.821367
  3.555556  0.070344  0.330243  5.181480
  3.600000  0.067150  0.333299  5.485496
  3.644444  0.063699  0.336208  5.733845
  3.688889  0.059948  0.338957  5.933368
  3.733333  0.055834  0.341532  6.098710
  3.777778  0.051272  0.343914  6.334720
  3.822222  0.046128  0.346081  6.510953
  3.866667  0.040179  0.348002  6.682486
  3.911111  0.032994  0.349634  6.849677
  3.955556  0.023463  0.350901  7.012841
  4.000000  0.001000  0.351598  7.172254
  END FTABLE  1
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.76           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.76           IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
RCHRES   1 HYDR   RO     1 1        1      WDM   1000 FLOW     ENGL      REPL
RCHRES   1 HYDR   STAGE  1 1        1      WDM   1001 STAG     ENGL      REPL
COPY     1 OUTPUT MEAN   1 1     48.4      WDM    701 FLOW     ENGL      REPL
COPY   501 OUTPUT MEAN   1 1     48.4      WDM    801 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK        5
IMPLND     IWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    5

  MASS-LINK       15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   15

  MASS-LINK       16
RCHRES     ROFLOW                          COPY           INPUT  MEAN
  END MASS-LINK   16


END MASS-LINK

END RUN
```

Predeveloped HSPF Message File

Mitigated HSPF Message File

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