

Stormwater Management Plan

BETHEL BAPTIST POND



Prepared For The
VILLAGE OF ALLOUEZ
VILLAGE OF ALLOUEZ | BROWN COUNTY, WISCONSIN

DECEMBER 18, 2012
AWS

McMAHON
ENGINEERS ARCHITECTS

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McM. No. A0012-900458.26

TABLE OF CONTENTS

- I. INTRODUCTION
- II. STUDY AREA
- III. HYDROLOGIC & HYDRAULIC ANALYSIS
- IV. WATER QUALITY ANALYSIS
- V. INFILTRATION
- VI. PROTECTIVE AREAS
- VII. FUELING & VEHICLE MAINTENANCE
- VIII. SUMMARY

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I. INTRODUCTION

The Village of Allouez plans to construct the Bethel Baptist Pond, which is a regional wet detention pond. The Bethel Baptist Pond is located east of the Bethel Baptist Church, located southeast of the Libal Street and Kalb Avenue intersection, and west of the East River in the Village of Allouez, Brown County, Wisconsin (NW ¼ of the NW 1/4, SEC. 7, T23N, R21E). Pursuant to NR 216, the Village was required by the EPA and State of Wisconsin to obtain a WPDES Municipal Storm Water Discharge Permit. The purpose of the permit is to control urban non-point source pollution by regulating discharges from municipal separate storm sewer systems (MS4). The primary purpose of the Bethel Baptist Pond is to improve water quality and assist the Village in complying with the Lower Fox River Total Maximum Daily Load (TMDL) for total suspended solids and total phosphorous. The Bethel Baptist Pond is classified as an urban retrofit project and is exempt from NR 151.121, as it is considered re-development and a post-construction site with less than 10% connected imperviousness. The Bethel Baptist Pond is to be owned, operated, constructed and maintained by the Village of Allouez. Specific goals for the Bethel Baptist Pond and the Storm Water Management Plan include the following:

- A. Reduce or maintain peak post-construction runoff rates down to the existing peak runoff rates for the 1, 2, 10, and 100-year, 24-hour design rainfall events based on average antecedent moisture conditions.

- B. Reduce average annual Total Suspended Solids (TSS) by 80% for new development.
- C. Reduce average annual Total Suspended Solids (TSS) and Total Phosphorus (TP) loads in runoff to the East River, and eventually the Fox River, both 303 (d) listed water bodies. The Total Maximum Daily Load (TMDL) developed for the Lower Fox River Basin identifies a 40% TSS load reduction and 30% TP load reduction for NR 216 Municipal Stormwater Dischargers located within the East River Watershed.
- D. Provide non-erosive discharge velocities at stormwater outfalls and receiving streams. Reduce stream erosion potential.

II. STUDY AREA

The study area is depicted in Figure 1. The study area contains 96 acres or 0.15 square miles of property located within the Village of Allouez, Brown County, Wisconsin. The Bethel Baptist Pond study area is generally located east of S. Webster Avenue, north of E. Beaupree Street, south of Hastings Street and west of the East River. The study area is urbanized and consists primarily of residential land uses. The study area is primarily drained via a 36-inch storm sewer southeast of the Kalb Avenue and Irwin Avenue intersection and a 27" storm sewer along Libal Street. The storm sewers discharge south into an unnamed tributary to the East River (Outfall 1). Outfalls 2-4 are a swale southeast of the Bethel Baptist Church site, a storm sewer at the end of E. Kalb Avenue, and a culvert pipe under a driveway at the north side of the east end of E. Kalb Avenue. The proposed Bethel Baptist Pond will collect stormwater from a portion of outfall 1 and all of outfalls 2, 3 and 4 and will discharge into a new 36" storm sewer which discharges southeast of the pond site directly into the East River.

III. HYDROLOGIC ANALYSIS

A. Methodology

A hydrologic computer model was used to develop the rainfall / runoff relationship within the study area. The XP-SWMM (V13.0) computer model was used for this study. The SWMM computer model was used to generate surface runoff hydrographs for each sub-basin within the study area. The hydrographs include information such as peak flow rates, time of peak flow rates, and runoff volumes. The SWMM model was also used to combine, split, and route hydrographs within the study area.

The U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS or formerly SCS), Technical Release 55 methodology was also used to develop the rainfall / runoff relationship within the study area. The TR-55 methodology requires that various hydrologic parameters be input into the computer model. These hydrologic parameters generally include rainfall, sub-basin area, percent imperviousness, runoff curve number, and time of concentration.

B. Rainfall

Rainfall information was obtained from the U.S. Department of Commerce Technical Paper No. 40, *Rainfall Frequency Atlas of the United States*. The 24-hour rainfall depths are summarized below in Table #1. The SCS 24-hour, type II rainfall distribution was used in this study.

Table #1
24-Hour Rainfall Depth

Rainfall Event	Depth (inches)
1-Year	2.2
2-Year	2.5
10-Year	3.7
100-Year	5.1

C. Drainage Area

The contributing watershed to the Bethel Baptist Pond is 96 acres in size and is based upon a recent topographic survey, Brown County 2-foot contour maps, existing development site plans, and Village of Allouez drainage system maps. The pre-development watershed and the Bethel Baptist Pond (post-development) watershed are depicted in Figures 2 and 3 respectively.

D. Soil Types

Soil information was obtained from the U.S. Department of Agriculture *Soil Survey of Brown County, Wisconsin*. A copy of the NRCS / SCS Soil Map is provided in Figure 4. The predominant soil types within the study area are summarized below in Table #2. The Department of Agriculture has classified soil types into four hydrologic soil groups (HSG). The four hydrologic soil groups (i.e. A, B, C and D) are classified according to the minimum infiltration rate of the soil column. Group A soils have the highest permeability rate or lowest runoff potential, whereas Group D soils have the lowest permeability rate or highest runoff potential.

Table #2
Soil Information

Soil Name	Map Symbol	Soil Texture	Feet to Water Table	Inches to Bedrock	Permeability (in/hr)	HSG
Kewaunee	KkC3	Eroded	6	>60	0.32	C
Oshkosh	OnB	Silt Loam	6	>60	0.60	C
Oshkosh	OsA	Silty Clay Loam	4.3	>60	0.60	C

E. Land Uses

The study area has experienced urbanization in years prior and will be completely developed with construction of the Bethel Baptist Pond. Since the project is not required to satisfy NR 151.121, and has no peak flow requirements, existing (2004) land uses were used for the hydrologic analysis. However, for purposes of the water quality analysis, future land uses were used. The land uses within the watershed include cemetery, strip commercial, open space, hospital, low density residential, medium density residential, multi-family residential, miscellaneous institutional, office park, and park. A map of the existing and future land uses are depicted in Figures 5 and 6, respectively. Land uses are summarized in Table #3.

Table #3
Land Uses

Land Use	Existing Land Use		Future Land Use	
	Area (acres)	Percent (%)	Area (acres)	Percent (%)
Cemetery	3.2	3.3%	3.2	3.3%
Strip Commercial	6.0	6.2%	6.0	6.2%
Open Space	1.8	1.9%	1.8	1.9%
Hospital	0.6	0.6%	0.6	0.6%
Low Density Residential	26.4	27.4%	26.4	27.4%
Medium Density Residential	37.4	38.9%	37.4	38.9%
Multi-Family Residential	2.1	2.2%	2.5	2.6%
Miscellaneous Institutional	5.6	5.8%	5.6	5.8%
Office Park	4.5	4.7%	4.5	4.7%
Park	8.7	9.0%	8.3	8.6%
Total:	96.3	100.0%	96.3	100.0%

F. Runoff Curve Number

A composite runoff curve number was computed for each sub-basin and land use condition. Runoff curve number computations are based on land uses, vegetation, percent imperviousness, and hydrologic soil groups within each sub-basin. For this study, the following assumptions were used to compute each composite runoff curve number: average antecedent moisture condition, average runoff condition, good hydrologic condition for pervious areas, and directly connected impervious areas. Pre-development areas were assumed to have a runoff curve number of 71 (HSG C). Impervious areas were assumed to have a runoff curve number of 98 and pervious grass areas were assumed to have a runoff curve number of 74 (HSG C). See Tables #4 and #5 for values.

G. Time of Concentration

Existing and future time of concentrations were computed for each sub-basin. Times of concentration calculations include sheet flow, shallow concentrated flow, and open channel flow. Time of concentration values can be found in Tables #4 and #5.

H. Hydrologic Parameters

The existing land use condition refers to watershed conditions on October 1, 2004. The future land use condition refers to ultimate development of the watershed. The hydrologic parameters for each drainage area and land use condition are summarized in Tables #4 and #5.

Table #4
Hydrologic Parameters
Existing Land Use Condition

Drainage Area ID	Drainage Area (acres)	Impervious (%)	Curve Number	Tc (minutes)
E190a	1.77	38.8%	83.3	20
E190b	2.79	20.9%	79.0	43
E202	2.54	46.6%	85.2	17
E203c	8.86	51.6%	86.4	24
E204	3.36	38.8%	83.3	27
E205a	12.95	53.4%	86.8	33
E205b	14.04	45.3%	84.9	13
E205c	5.55	35.9%	82.6	26
E205d	2.60	36.4%	82.7	27
E205e	1.81	37.6%	83.0	30
E206a	11.30	25.7%	80.2	39
E206b	3.14	14.1%	77.4	56
E206c	13.43	21.8%	79.2	55
E206d	1.15	30.5%	81.3	15
E206e	0.34	56.5%	87.6	7
E206f	1.00	37.5%	83.0	14
E230	5.96	13.9%	77.3	48
ER10a	3.70	33.6%	82.1	35
Totals	96.30	35.8%	82.6	-

Table #5
Hydrologic Parameters
Future Land Use Condition

Drainage Area ID	Drainage Area (acres)	Impervious (%)	Curve Number	Tc (minutes)
E190a	1.77	38.8%	83.3	20
E190b	2.79	20.9%	79.0	43
E202	2.54	46.6%	85.2	17
E203c	8.86	51.6%	86.4	27
E204	3.36	38.8%	83.3	28
E205a	12.95	54.5%	87.1	33
E205b	14.04	45.3%	84.9	13
E205c	5.55	35.9%	82.6	26
E205d	2.60	36.4%	82.7	27
E205e	1.81	37.6%	83.0	30
E206a	11.30	25.7%	80.2	39
E206b	3.14	14.1%	77.4	56
E206c	13.43	21.8%	79.2	55
E206d	1.15	30.5%	81.3	15
E206e	0.34	56.5%	87.6	7
E206f	1.00	37.5%	83.0	14
E230	5.96	13.9%	77.3	48
ER10a	3.70	58.7%	88.1	9
Totals	96.30	36.9%	82.9	-

I. Hydrologic Results

The “pre-pond construction” condition refers to hydraulic conditions before construction of the Bethel Baptist Pond. The “existing land use condition” refers to the hydrologic parameters on October 1, 2004. Hydrologic and hydraulic results for the “pre-pond construction / existing land use” condition are provided in Appendix B and summarized in Tables #6 and #8.

Table #6
Peak Water Surface Elevations
Pre-Pond Construction & Existing Land Use Condition

No.	Outfall (Node)	Location	Ground Elevation	Peak Water Surface Elevation			
				1-yr	2-yr	10-yr	100-yr
1	203M01	S Irwin Av. / Graass St.	593.49	593.42	593.65	593.78	593.86
2	E204i03	E Kalb Av. / S. Irwin Av (SE Corner)	592.47	587.82	588.06	589.06	590.39
3	E190a_b	East end of E Kalb Av.	586.58	583.41	583.46	583.62	583.81
4	E202	Libal St, 280' North of E Kalb Av.	587.91	585.44	585.54	585.91	586.33
5	E203c	Halsey St. / Graass St.	595.34	595.39	595.50	595.61	595.69
6	E204	Middle of S Irwin Av. (Low Point)	591.35	590.91	591.57	591.99	592.05
7	E205a-c	E Kalb Av. / Patton St.	598.69	595.53	595.71	596.50	599.09
8	E205d	E Kalb Av. / Halsey St.	595.57	591.70	591.89	592.78	596.42
9	E205e	E Kalb Av. / S Irwin Av. (SW Corner)	592.79	587.95	588.19	589.46	591.90
10	E206f	E Kalb Av., between Irwin Av & Libal St.	593.97	590.53	590.61	591.12	594.05
11	E230	North Driveway at the east end of Kalb Av.	586.00	583.54	583.64	583.98	584.34

The “post-pond construction” condition refers to hydraulic conditions after construction of the Bethel Baptist Pond. The “future land use condition” refers to the hydrologic parameters after ultimate development. Hydrologic and hydraulic results for the “post-pond construction / future land use” condition are provided in Appendix C and summarized in Tables #7 and #8.

Table #7
Peak Water Surface Elevations
Post-Pond Construction & Future Land Use Condition

No.	SWMM (Node)	Location	Ground Elevation	Peak Water Surface Elevation			
				1-yr	2-yr	10-yr	100-yr
1	203M01	S Irwin Av. / Graass St.	593.49	593.26	593.65	593.78	593.86
2	E204i03	E Kalb Av. / S. Irwin Av (SE Corner)	592.47	587.50	587.91	588.89	589.78
3	E190b	East end of E Kalb Av.	586.58	583.52	583.82	584.69	585.42
4	E202	Libal St, 280' North of E Kalb Av.	587.91	585.51	585.78	586.48	587.02
5	E203c	Halsey St. / Graass St.	595.34	595.35	595.50	595.61	595.69
6	E204	Middle of S Irwin Av. (Low Point)	591.35	590.66	591.54	591.99	592.05
7	E205a-c	E Kalb Av. / Patton St.	598.69	595.53	595.72	596.50	599.09
8	E205d	E Kalb Av. / Halsey St.	595.57	591.70	591.89	592.73	596.39
9	E205e	E Kalb Av. / S Irwin Av. (SW Corner)	592.79	587.83	588.12	589.23	591.24
10	E206f	E Kalb Av., between Irwin Av & Libal St.	593.97	590.31	590.34	590.47	590.61
11	E230	North Driveway at the east end of Kalb Av.	586.00	583.51	583.82	584.74	585.64
12	BMP-ER10a	Bethel Pond	-	583.52	583.82	584.56	584.99

A comparison of Tables #6 and #7 indicate that the peak water surface elevations for the “post-pond construction /existing land use” condition are either less than the ground surface elevation or less than the peak water surface elevations for the “pre-pond construction / future land use” condition with a few exceptions. The “post-pond construction /existing land use” condition nodes E190a_b, E202 and E230 are above “pre-pond construction / future land use” condition elevations, however, the 100-year storm elevations are below the inlet flow line elevations (no flooding occurs in the 100-year storm). The node location descriptions are as follows: The east end of E Kalb Avenue, on Libal Street, 280' North of E Kalb Avenue, and under the North Driveway at the east end of Kalb Avenue.

The Bethel Baptist Pond is designed to improve stormwater quality and reduce peak flow rates. As shown in Table #8, the peak flow rates at the outfall for the “post-pond construction / existing land use” condition is equal to or less than the

“pre-pond construction / existing land use” condition. The outfall location is depicted in Figure 2 and 3.

Table #8
Peak Flow Rate Comparison

Outfall No. / SWMM (Link)	Peak Flow Rate (cfs)							
	Pre-Pond Construction Existing Land Use				Post-Pond Construction Future Land Use			
	1-yr	2-yr	10-yr	100-yr	1-yr	2-yr	10-yr	100-yr
1 / rav-E202	38.7	49.2	91.1	145.0	2.6	3.7	22.4	72.2
2/ Pbmp-SS & Ov	2.0	2.6	5.5	9.0	13.5	24.4	60.3	80.2
3 / E190-Ov	1.9	2.6	5.6	9.3	0.0	0.0	0.0	0.0
4 / E230-Ov	1.6	2.3	5.6	9.9	0.0	0.0	0.0	0.0
Total	44.2	56.7	107.8	173.2	16.1	28.1	82.7	152.4

The Bethel Baptist Pond has a 96 acre watershed and a permanent pool surface area of 0.97 acres. Performance of the Bethel Baptist wet detention pond is summarized below in Table #9. Construction plans for the Bethel Baptist Pond are provided in Appendix A.

Table #9
Bethel Baptist Pond Summary

Design Storm	SWMM (Node/Link)	Peak Outflow (cfs)	Storage Volume (ac-ft)	Normal Water Elevation (feet)	Peak Water Elevation (feet)
1-year	BMP-ER10a / Pbmp-ss & ov	13.5	2.76	581.00	583.52
2-year	BMP-ER10a / Pbmp-ss & ov	24.4	3.13	581.00	583.82
10-year	BMP-ER10a / Pbmp-ss & ov	60.3	4.09	581.00	584.56
100-year	BMP-ER10a / Pbmp-ss & ov	80.2	4.67	581.00	584.99

IV. WATER QUALITY ANALYSIS

A. Methodology

The water quality analysis for the study area was prepared using the Source Loading and Management Model (SLAMM) (V10.0.0). SLAMM is an urban water quality

model that predicts runoff volumes and non-point source pollution within a watershed. SLAMM calculates mass balances for both particulate and filterable pollutants. SLAMM also calculates the amount of pollutant removal provided by Best Management Practices (BMP), including wet detention ponds.

No historical water quality information was available for the study area. As such, water quality within the study area was predicted using historical data collected during the National Urban Runoff Project (NURP).

B. Rainfall

SLAMM computes pollutant loads from one or more rainfall events. For this study, the series of small rainfall events that occurred between March 29, 1969 and November 25, 1969 in Green Bay, Wisconsin were used to compute pollutant loads. The 1969 historic rainfall series was determined to represent an average year of rainfall within northeast Wisconsin by the WDNR.

C. Drainage Area

The post-development watershed was used to prepare the SLAMM water quality model. The post-development watershed and sub-basins are shown in Figure 3. Drainage areas for the post-development watershed and each sub-basin are tabulated in Table #5.

D. Land Use

The future land uses, depicted in Figure 6, and tabulated in Table #3 were used to prepare the SLAMM water quality model.

E. Water Quality Results

The NR 151 storm water regulations require 80 percent total suspended solids (TSS) removal for new development and 40 percent removal for re-development as compared to no water quality controls. However, due to the Bethel Baptist Pond being an urban retrofit project, TSS is required to be reduced to the maximum extent possible (MEP).

The total suspended solids (TSS) reduction provided for the post-development condition is summarized below in Table #10. The removal rate provided by the Bethel Baptist Pond is 80.8 percent or 17,439 pounds of TSS.

Table #10
Total Suspended Solids (TSS)
Reduction Provided

	Drainage Area (acres)	TSS Inflow (lbs.)	TSS Removed (lbs.)	TSS Outflow (lbs.)	Removal Rate (%)
Bethel Baptist Pond	96.0	21,568	17,439	4,129	80.8

In addition to TSS removal, the Bethel Baptist Pond will also provide total phosphorous (TP) reduction for the post-development condition. The determined percent removal will assist the Village in meeting their Lower Fox River Total Phosphorous TMDL for the East River. The removal rate provided by the Bethel Baptist Pond is 58.3 percent or 42.9 pounds of total phosphorous. The total phosphorous reduction provided is summarized in Table #11.

Table #11
Total Phosphorus (TP)
Reduction Provided

	Drainage Area (acres)	TP Inflow (lbs.)	TP Removed (lbs.)	TP Outflow (lbs.)	Removal Rate (%)
Bethel Baptist Pond	96.0	73.6	42.9	30.7	58.3

No street sweeping, catch basin cleaning or other Best Management Practices (BMP) are included in the SLAMM water quality model. The only Best Management Practices within the study area is the Bethel Baptist Pond. For reference, the results of the SLAMM water quality analysis are provided in Appendix D.

V. INFILTRATION

The NR 151 stormwater regulations require that 25 percent and 10 percent of the 2-year, 24-hour post development runoff volume be infiltrated for residential land uses and non-residential land uses, respectively. The Bethel Baptist Pond site is exempt from the post construction infiltration performance standards in NR 151 because the "development" of the site has less than 10% connected impervious (i.e. non-impervious development is occurring). This exemption is allowed by NR 151.121 (2)(a). Therefore, the Bethel Baptist Pond project does not satisfy NR 151 infiltration requirements for properties located within the pond's watershed. As such, each property owner will need to satisfy infiltration requirements for their site at the time of development.

VI. PROTECTIVE AREAS

The Bethel Baptist Pond is exempt from the post construction protective areas performance standards in NR 151 because the "development" of the site is a stormwater BMP used to treat stormwater prior to discharge into waters of the state. This exemption is allowed by NR 151.125 (4)(e). Therefore, the Bethel Baptist Pond project does not satisfy NR 151 protective area requirements for property located within the pond's watershed. As such, each property owner will need to satisfy the protective area requirements for their site at the time of development.

VII. FUELING & VEHICLE MAINTENANCE

The Bethel Baptist Pond does not satisfy NR 151 petroleum sheen requirements for fueling and vehicle maintenance areas located within the pond's 96 acre watershed. As such, each property owner will need to satisfy petroleum sheen requirements for their site at the time of development. The Bethel Baptist Pond project does not involve any fueling or vehicle maintenance areas.

VIII. SUMMARY

In summary, the Bethel Baptist Pond satisfies the storm water management goals for the 96 acre study area. The intent of this Storm Water Management Plan is not to provide erosion and sediment control for construction sites within the watershed.

The Village of Allouez will own the Bethel Baptist Pond property, construct the pond, and will be responsible for its future operation and maintenance.



Study Area

Other Mapped Features

Municipal Boundary

Right-of-Way or Parcel Lines

Rivers and Streams

Surface Water

Pond Location

Source: Brown County, 2010-2012.

Disclaimer: The property lines, right-of-way lines, and other property information on this drawing were developed or obtained as part of the County Geographic Information System or through the County property tax mapping function. McMahon does not guarantee this information to be correct, current, or complete. The property and right-of-way information are only intended for use as a general reference and are not intended or suitable for site-specific uses. Any use to the contrary of the above stated uses is the responsibility of the user and such use is at the user's own risk.

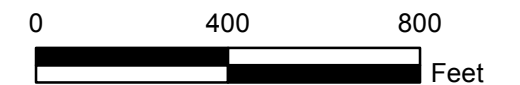


FIGURE 1
STUDY AREA
BETHEL BAPTIST POND
STORMWATER MANAGEMENT PLAN
VILLAGE OF ALLOUEZ
BROWN COUNTY, WISCONSIN

w:\PROJECTS\AA0012\000458\26 - Optimist Park Pond (BETHEL)\GIS\Figure1_B.mxd December 28, 2012 kpk

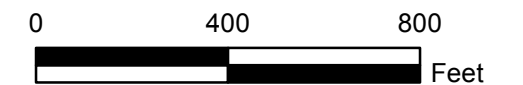




- Pre-Development Watershed
- Other Mapped Features**
- Municipal Boundary
 - Right-of-Way or Parcel Lines
 - Rivers and Streams
 - Surface Water
 - Pre-Development Drainage Area and ID
 - Outfall and ID

Source: Brown County, 2010-2012.

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FIGURE 2
PRE-DEVELOPMENT WATERSHED
BETHEL BAPTIST POND
STORMWATER MANAGEMENT PLAN
VILLAGE OF ALLOUEZ
BROWN COUNTY, WISCONSIN

w:\PROJECTS\AA0012\000458\26 - Optimist Park Pond (BETHEL)\GIS\Figure2_B.mxd December 27, 2012 kpk



- Post-Development Watershed
- Other Mapped Features**
 - Municipal Boundary
 - Right-of-Way or Parcel Lines
 - Rivers and Streams
 - Surface Water
 - Post-Development Drainage Area and ID
 - Outfall and ID

Source: Brown County, 2010-2012.

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0 400 800
Feet

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FIGURE 3
POST-DEVELOPMENT WATERSHED
BETHEL BAPTIST POND
STORMWATER MANAGEMENT PLAN
VILLAGE OF ALLOUEZ
BROWN COUNTY, WISCONSIN



Hydrologic Soil Group (HSG)

- HSG A (NA)
- HSG B
- HSG C
- HSG D (NA)

Other Mapped Features

- Bethel Baptist Pond Watershed Boundary
- Municipal Boundary
- Right-of-Way or Parcel Lines
- Rivers and Streams
- Surface Water
- Soil Type

Source: Brown County, 2010-2012.

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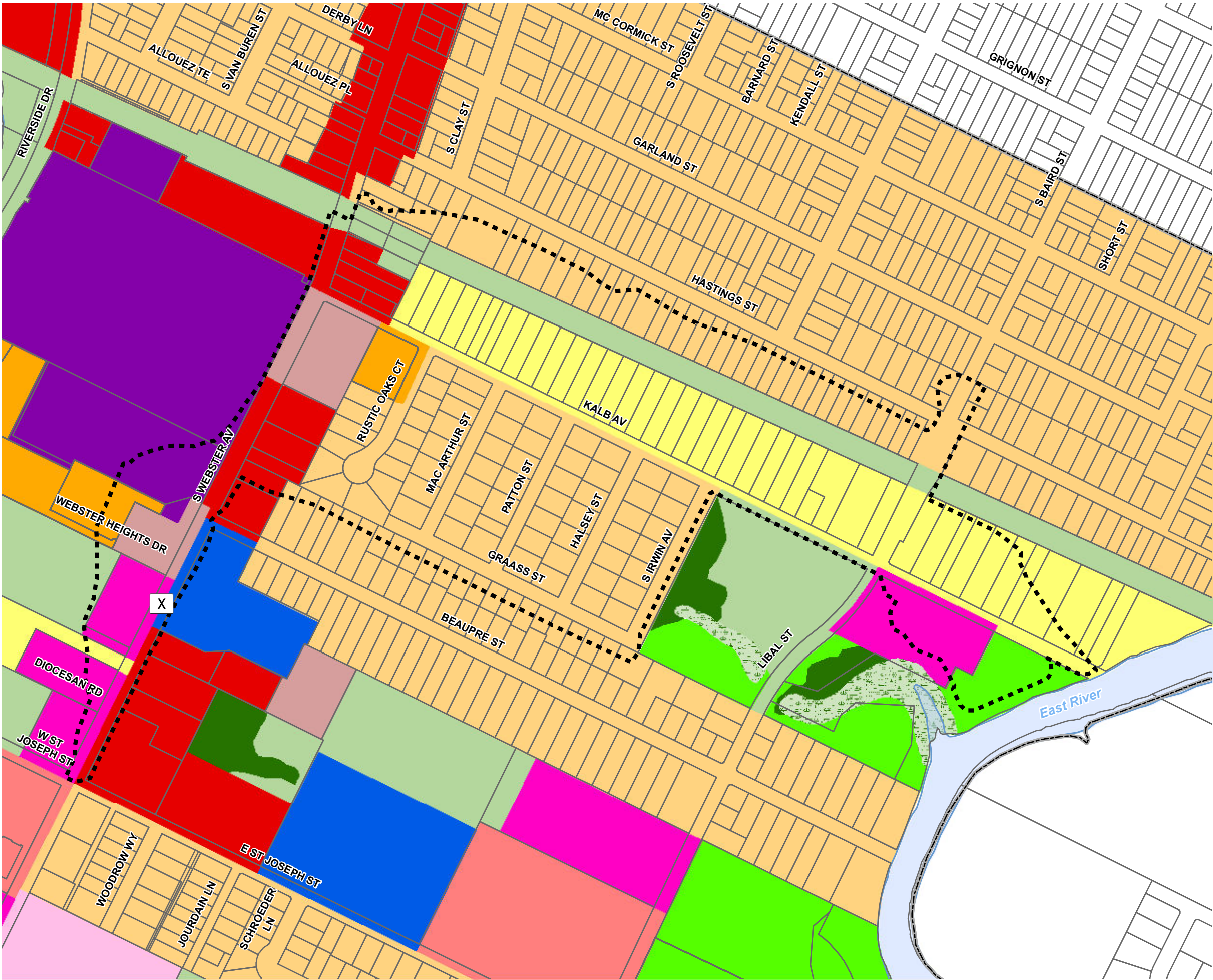
0 400 800 Feet

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**FIGURE 4
SOILS**
BETHEL BAPTIST POND
STORMWATER MANAGEMENT PLAN
VILLAGE OF ALLOUEZ
BROWN COUNTY, WISCONSIN

w:\PROJECTS\A0012\000458\26 - Optimist Park Pond (BETHEL)\GIS\Figure4_B.mxd December 27, 2012 kpk

w:\PROJECTS\A0012\000458\26 - Optimist Park Pond (BETHEL)\GIS\Figure5_B.mxd December 28, 2012 kpk



- SLAMM Standard Land Uses**
- Residential**
- LDR - Low Density Single Family Residential (0.5 acre to 1.5 acre lots)
 - MDR - Medium Density Single Family Residential (0.25 acre to 0.5 acre lots)
 - HDR - High Density Single Family Residential (0.125 acre lots or smaller)
 - MFR - Multi-Family Residential (3 or more families, 1-3 story height)
 - HRR - High Rise Residential (1.5 acre to 5 acre lots, > 3 story)
 - SUBR - Suburban Residential (1.5 acre to 5 acre lots)
 - MOBR - Mobile Home or Trailer Park Residential
- Institutional**
- SCHOOL - Public or Private School
 - UNIV - University, College, Technical School, etc.
 - HOSP - Medical Facilities including Nursing Homes, Hospitals, etc.
 - MISC - Miscellaneous Facilities (Churches, Institutional Property)
- Commercial**
- CDNTN - Downtown Commercial and Institutional Areas
 - CSTRIP - Strip Commercial Areas (Courthouses, Police Stations, etc.)
 - SHCNTR - Shopping Centers (parking lot is 2.5 times building area)
 - OFFPRK - Office Parks (non-retail, multi-story, insurance, government)
- Industrial**
- LIGHTI - Light Industrial Areas (storage and distribution of goods for retail or sale)
 - MEDI - Medium Industrial Areas (lumber, junk, or auto salvage yard, ag., co-op, oil tank farm, coal and salt storage, slaughter house)
 - AIRPRT - Airport Facilities
- Open Space**
- CEM - Cemeteries, including grounds, roads, and buildings
 - PARK - Outdoor Recreational Areas (golf course, arboreturns, botanical gardens, municipal playgrounds, and natural areas)
 - AGRIC - Agriculture, including limited roads and buildings
 - GRASS - Undeveloped Land that is Vegetated with Grass
 - WOODS - Undeveloped Land that is Vegetated with Woods
 - WETLND - DNR Wetland Inventory Map
 - WATER - Waters of the State and Other Open Waters
- Freeways**
- FREE - Limited Access Highways and Interchanges, including vegetated ROW
- Other Mapped Features**
- Streams
 - Right-of-Way or Parcel Line
 - Municipal Boundary
 - Bethel Baptist Pond Watershed Boundary

Source: Brown County, 2010-2012; WDNR Wetland Inventory, 2009.

Disclaimer: The property lines, right-of-way lines, and other property information on this drawing were developed or obtained as part of the County Geographic Information System or through the County property tax mapping function. McMahon does not guarantee this information to be correct, current, or complete. The property and right-of-way information are only intended for use as a general reference and are not intended or suitable for site-specific uses. Any use to the contrary of the above stated uses is the responsibility of the user and such use is at the user's own risk.

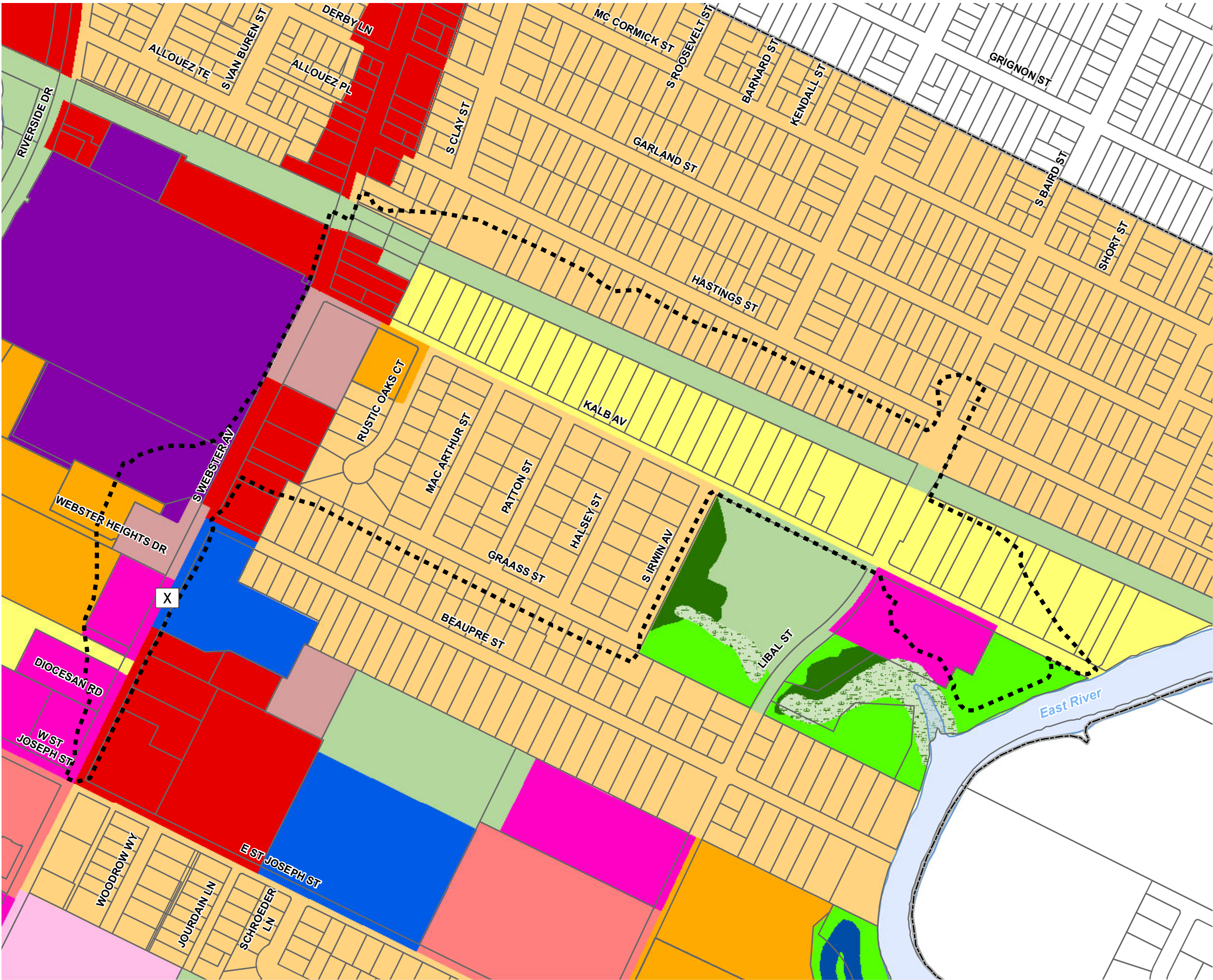


0 400 800 Feet

McMAHON
ENGINEERS ARCHITECTS

FIGURE 5
EXISTING LAND USE
BETHEL BAPTIST POND
STORMWATER MANAGEMENT PLAN
VILLAGE OF ALLOUEZ
BROWN COUNTY, WISCONSIN

w:\PROJECTS\A0012\000458\26 - Optimist Park Pond (BETHEL)\GIS\Figure6_B.mxd December 28, 2012 kpk



- SLAMM Standard Land Uses**
- Residential**
- LDR - Low Density Single Family Residential (0.5 acre to 1.5 acre lots)
 - MDR - Medium Density Single Family Residential (0.25 acre to 0.5 acre lots)
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 - MISC - Miscellaneous Facilities (Churches, Institutional Property)
- Commercial**
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 - CSTRIP - Strip Commercial Areas (Courthouses, Police Stations, etc.)
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 - OFFPRK - Office Parks (non-retail, multi-story, insurance, government)
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 - MEDI - Medium Industrial Areas (lumber, junk, or auto salvage yard, ag., co-op, oil tank farm, coal and salt storage, slaughter house)
 - AIRPRT - Airport Facilities
- Open Space**
- CEM - Cemeteries, including grounds, roads, and buildings
 - PARK - Outdoor Recreational Areas (golf course, arboretums, botanical gardens, municipal playgrounds, and natural areas)
 - AGRIC - Agriculture, including limited roads and buildings
 - GRASS - Undeveloped Land that is Vegetated with Grass
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 - WATER - Waters of the State and Other Open Waters
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- FREE - Limited Access Highways and Interchanges, including vegetated ROW
- Other Mapped Features**
- Streams
 - Right-of-Way or Parcel Line
 - Municipal Boundary
 - Bethel Baptist Pond Watershed Boundary

Source: Brown County, 2010-2012; WDNR Wetland Inventory, 2009.

Disclaimer: The property lines, right-of-way lines, and other property information on this drawing were developed or obtained as part of the County Geographic Information System or through the County property tax mapping function. McMahon does not guarantee this information to be correct, current, or complete. The property and right-of-way information are only intended for use as a general reference and are not intended or suitable for site-specific uses. Any use to the contrary of the above stated uses is the responsibility of the user and such use is at the user's own risk.



0 400 800 Feet



FIGURE 6
FUTURE LAND USE
BETHEL BAPTIST POND
STORMWATER MANAGEMENT PLAN
VILLAGE OF ALLOUEZ
BROWN COUNTY, WISCONSIN

APPENDIX A

CONSTRUCTION PLANS

BETHEL BAPTIST POND
VILLAGE OF ALLOUEZ
BROWN COUNTY, WISCONSIN



LEGEND

- MANHOLE
- ⊞ INLET
- ⊞ ROUND INLET
- ⊞ HYDRANT
- ⊞ TEE
- ⊞ CROSS
- VALVE
- ▶ REDUCER
- ⊞ TELEPHONE PEDESTAL
- ⊞ POWER POLE WITH GUY
- ⊞ LIGHT POLE
- ⊞ ROCK
- ⊞ FENCE LINE
- UNDERGROUND GAS LINE
- UNDERGROUND TELEPHONE
- UNDERGROUND ELECTRIC

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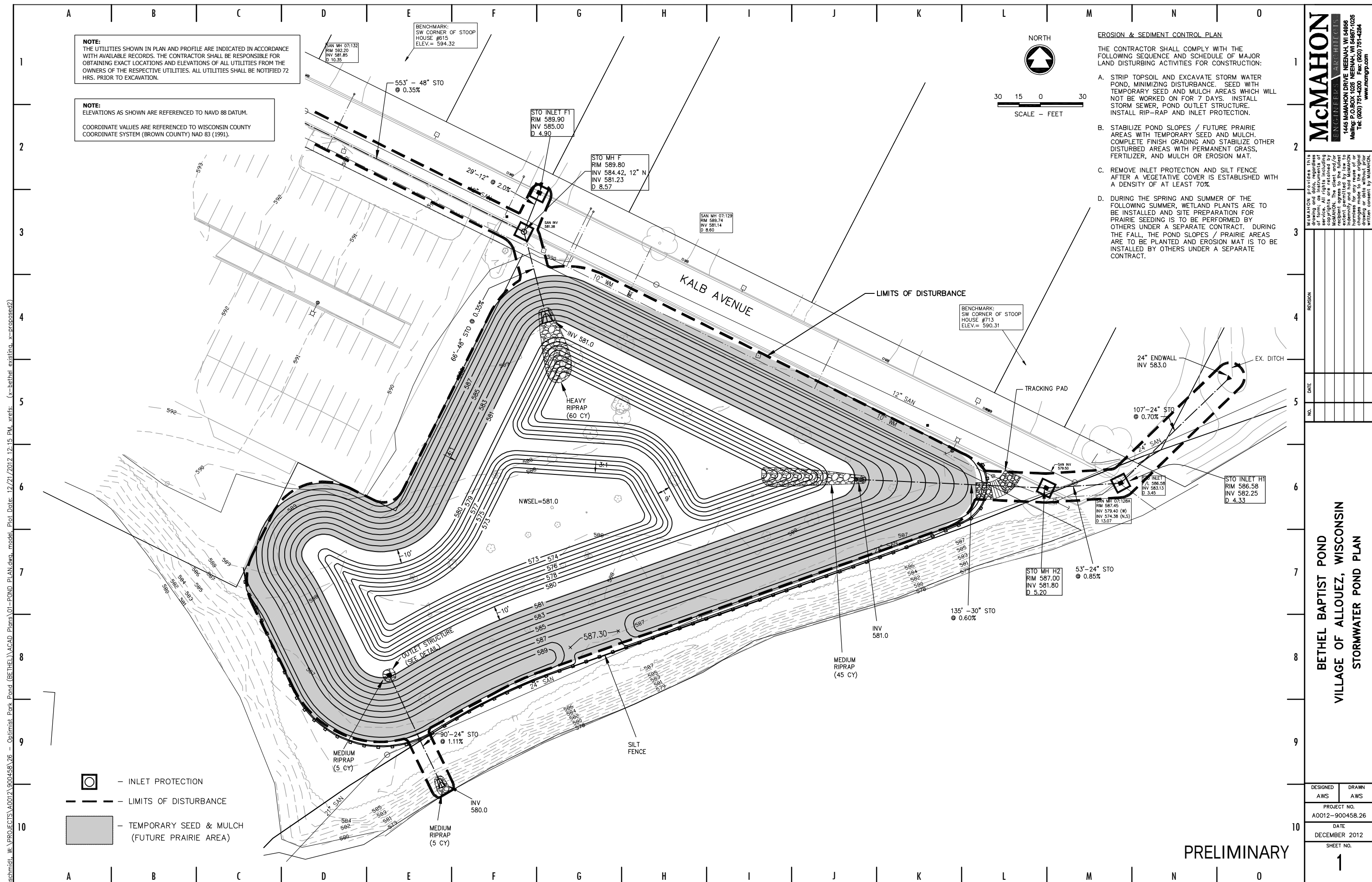
1445 McMAHON DRIVE NEENAH, WI 54956
Mailing: P.O. BOX 1025 NEENAH, WI 54957-1025
Tel: (920) 751-4200 Fax: (920) 751-4284
www.mcmgrp.com

SHEET INDEX

- 1 STORMWATER POND PLAN
- 2 STORM SEWER PLAN
- 3 POND OUTLET STRUCTURE DETAILS
- 4 MISCELLANEOUS DETAILS
- 5 EROSION & SEDIMENT CONTROL DETAILS
- 6 EROSION & SEDIMENT CONTROL DETAILS

PRELIMINARY

DATE
DECEMBER 2012
PROJECT NO.
A0012-900458.26
FILE NO.
CAD



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1 HSS 3x3x1/4
2 1/4"x3" PLATE @ 3"o.c. MAXIMUM
3 1/2" DIA BAR @ 10"o.c. MAXIMUM
4 HSS2x2x1/4
5 1/4"x2" HORIZONTAL PLATE WELDED TO SIDE OF HSS3x3x1/4
6 1/4"x2" PLATE @ 2"o.c. MAXIMUM
7 3/8" DIA. SST BOLT
8 3/8" DIA. SST ADHESIVE ANCHOR @ 24"o.c. MAXIMUM
9 3/8"x5 1/2"x CONT. PLATE

Diagram illustrating the reinforcement details for a wall section. The diagram shows a cross-section of a wall with reinforcement bars (rebar) and stirrups. The labels indicate the following components:

- 4: Reinforcement bar (rebar) extending horizontally through the wall.
- 2: Reinforcement bar (rebar) extending vertically through the wall.
- 8: Reinforcement bar (rebar) extending horizontally through the wall, likely a bottom bar.
- 9: Reinforcement bar (rebar) extending vertically through the wall, likely a bottom bar.
- OUTSIDE FACE OF CONCRETE: The outer surface of the concrete wall.

FACE OF CONCRETE WALL

8

9

4 1/2"

OUTSIDE FACE OF CONCRETE

2

4

1. STRUCTURAL STEEL SHALL MEET THE FOLLOWING SPECIFICATIONS:
BARS & PLATES – ASTM A36 THREADED BOLTS – ASTM A301
ANCHOR BOLTS – ASTM A36 THREADED BOLTS – ASTM A36
WELDS – E70 XX
ALL STEEL SHALL BE GALVANIZED
2. ALL DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO THE AISC "LOAD AND RESISTANCE FACTOR DESIGN SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS" AND "CODE OF STANDARD PRACTICE FOR BUILDINGS AND BRIDGES", CURRENT EDITION.
3. ALL WELDING SHALL BE PERFORMED BY A CERTIFIED WELDER IN ACCORDANCE WITH A.W.S. CODE FOR WELDING IN BUILDING CONSTRUCTION. SURFACES FOR FIELD WELDED MATERIAL SHALL BE PROPERLY PREPARED PRIOR TO BEING WELDED TO ASSURE A GOOD QUALITY WELD. REMOVE PAINT, GREASE, DIRT, ETC.
4. ALL STEEL MEMBERS SHALL BE WELDED WITH A 3/16" CONTINUOUS FILLET WELD (UNLESS OTHERWISE NOTED)
5. ALL WELDS SHALL BE TOUCHED UP WITH GALVANIZING COMPOUND.

SURFACE	TNEMEC COATING SYSTEM	COVERAGE SQ. FT./GAL	THICKNESS /COAT DMT	COLOR
STEEL (OUTDOORS)	SHOP PRIMER 69-1255 BEIGE	277	4.0	BEIGE
	1 COAT 69 H.B. EPOXY	221	5.0	BLACK
	1 COAT 74 ENDURA-SHELD IV	310	3.0	BLACK

TYP. $\frac{3}{16}$ 2

ANCHOR — SEE ELEVATION

L3x3x1/4 ON ALL FOUR (4) SIDES

$\frac{3}{16}$

s

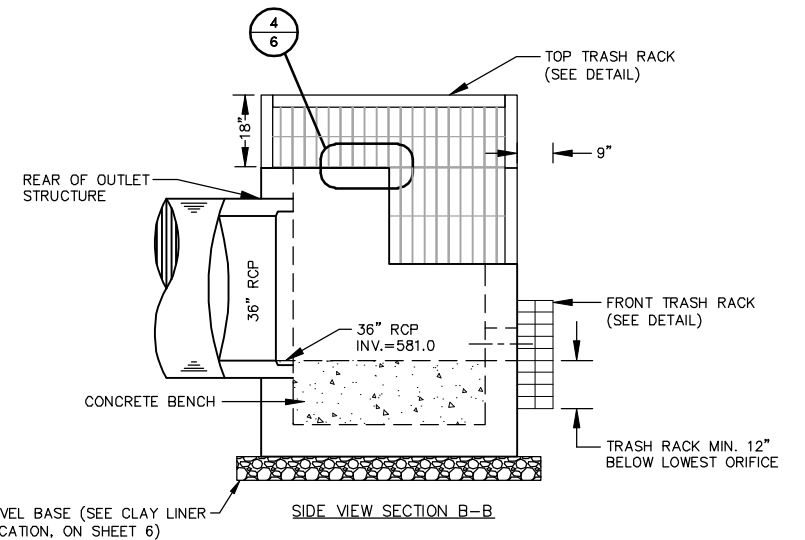
#2 @ 3" / 5" O.C. MESH REBAR SHALL BE GALVANIZED OR

CUT PROJECTING CORNERS FROM FRAME w/ 45° CUTS

Diagram illustrating the dimensions and components of a rectangular frame structure:

- FRAME LENGTH**: Dimension across the top of the frame.
- FRAME HEIGHT**: Dimension across the left side of the frame.
- FRONT OF CONCRETE OUTLET BOX**: Label pointing to the top edge of the frame.
- A**: Label pointing to the right side of the frame.

1. WHEN FRAME HEIGHT IS 24 INCHES OR LESS, PROVIDE (1) ANCHOR PER VERTICAL LEG, OTHERWISE PROVIDE TWO OR MORE ANCHORS @ 24" O.C. MAX.
2. WHEN FRAME LENGTH IS 12" OR LESS, PROVIDE (1) ANCHOR PER HORIZONTAL LEG, OTHERWISE PROVIDE TWO OR MORE ANCHORS @ 24" O.C. MAX.
3. PROVIDE 1" EPOXY ANCHOR EMBEDDED 4" MIN. INTO CONCRETE WHERE REQUIRED BY THIS DRAWING OR NOTES.
4. SEE OUTLET STRUCTURE DETAIL FOR TRASH RACK FRAME SIZE.



ATTACH (2'-3"x 3'-0") FRONT TRASH RACK TO CONCRETE STRUCTURE PER DETAIL. GRATING SHALL BE 3" O.C VERTICAL AND 3" O.C. HORIZONTAL.

CONCRETE BENCH
- BOTTOM ELEVATION = 579.5

INSTALL SWELLABLE WATERSTOP
BETWEEN PIPE AND OUTLET BOX
USE SIKASWELL OR EQUIVALENT

USE SIKASWELL OR EQUIVALENT

36" PIPE SHALL BE FLUSH WITH INSIDE WALL OF CONCRETE BOX

36" RCP

MANHOLE STEPS 16" O.C. M.A. INDUSTRIES PSI-PF

PRE-CAST STRUCTURE

4'

6'

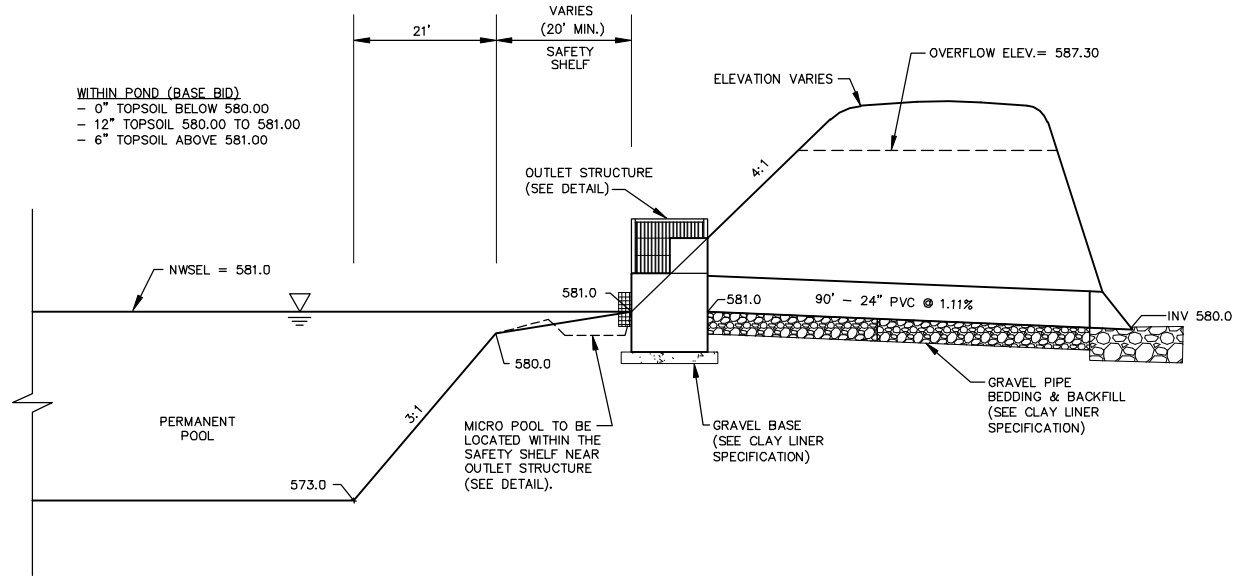
8" WALL THICKNESS

A

A

PRELIMINARY

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POND CROSS-SECTION

NOTE: ALL ELEVATIONS ARE TO FINISHED GRADE

CLAY LINER SPECIFICATIONS (TYP.)

LINER THICKNESS = 4 FEET
IN PLACE HYDRAULIC CONDUCTIVITY = 1×10^{-7} CM/SEC OR LESS
MINIMUM OF 50% BY WEIGHT WHICH PASSES THE 200 SIEVE
AVERAGE LIQUID LIMIT OF 25 OR GREATER, NONE LESS THAN 20
AVERAGE PLASTICITY INDEX OF 12 OR GREATER, NONE LESS THAN 10

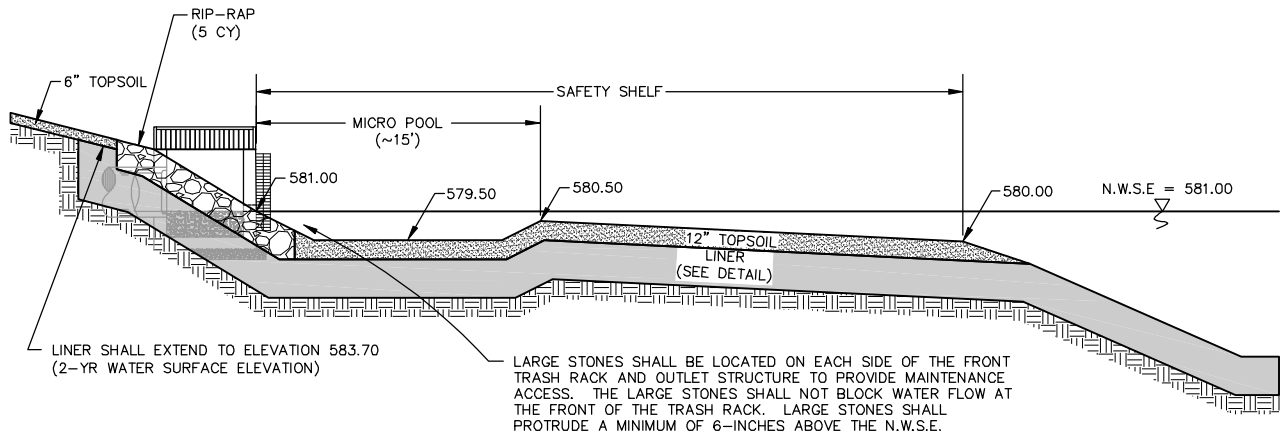
ALL CLAY LAYERS IN THE LINER TO BE CONSTRUCTED IN LIFT HEIGHTS NO GREATER THAN 6 INCHES AFTER COMPACTION USING FOOTED COMPACTION EQUIPMENT HAVING FEET AT LEAST AS LONG AS THE LOOSE LIFT HEIGHT. CLAY IS TO BE DISKED OR OTHERWISE MECHANICALLY PROCESSED BEFORE COMPACTION TO BREAK UP CLODS AND ALLOW FOR MOISTURE ADJUSTMENT. CLOD SIZE TO BE NO GREATER THAN 4 INCHES.

A SUFFICIENT NUMBER OF PASSES OF THE COMPACTION EQUIPMENT IS TO BE MADE OVER EACH LIFT OF CLAY TO ENSURE COMPLETE REMOLDING OF THE CLAY.

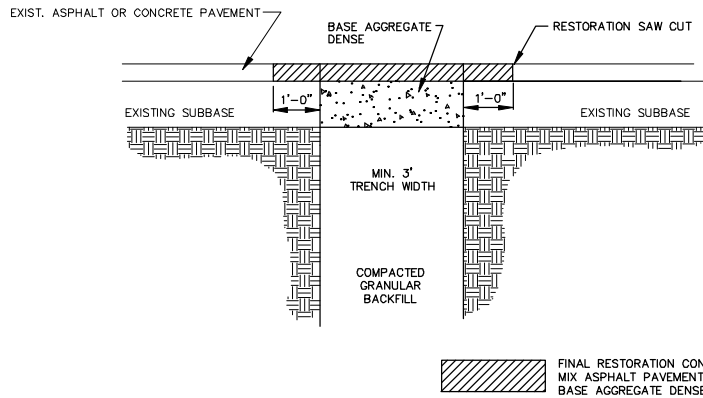
ALL CLAY TO BE COMPACTED TO 90% MODIFIED OR 95% STANDARD PROCTOR DENSITY AT A MOISTURE CONTENT OF AT LEAST 2% WET OF OPTIMUM IF USING THE MODIFIED PROCTOR METHOD AND WET OF OPTIMUM IF USING THE STANDARD PROCTOR METHOD, BASED ON THE CHARACTERISTICS OF THE APPROPRIATE PROCTOR CURVE FOR THE CLAY BEING PLACED. THE CLAY LINER IS TO BE KEYED TOGETHER TO FORM A CONTINUOUS CLAY SEAL, SEE DETAIL.

CLAY LINER SHALL BE PLACED OVER NATIVE SOILS THAT DO NOT SATISFY THE CLAY LINER SPECIFICATIONS. A GEOTECHNICAL ENGINEER SHALL DETERMINE WHICH SOILS DO NOT SATISFY THE CLAY LINER SPECIFICATIONS. THE GEOTECHNICAL ENGINEER SHALL INSPECT SOILS WITHIN THE PERMANENT POOL AND UP TO THE POND'S 2-YEAR, 24-HOUR WATER SURFACE ELEVATION OF 584.00. UPON COMPLETION OF THE LINER, A GEOTECHNICAL ENGINEER REGISTERED IN WISCONSIN SHALL PROVIDE A LETTER OF OPINION INDICATING IF THE CLAY LINER SATISFIES THESE SPECIFICATIONS.

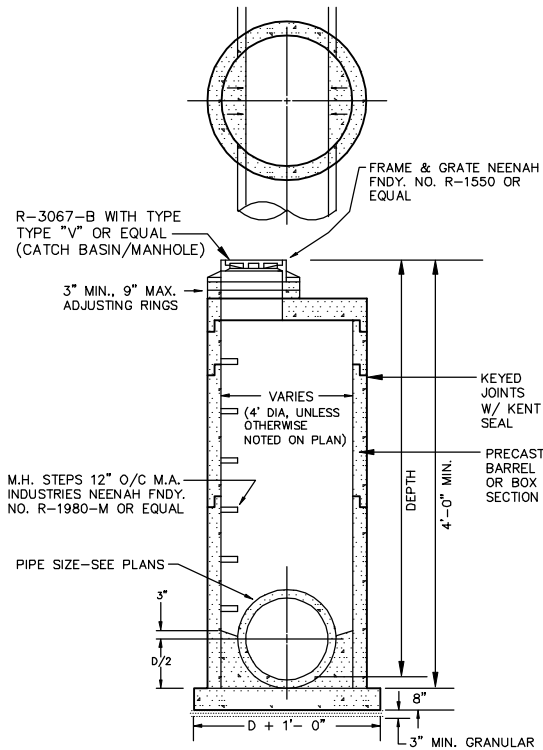
THE CONTRACTOR SHALL INSTALL BENTONITE OR CONCRETE SLURRY (2.0 BAG/C.Y. MIX) BEDDING IN LIEU OF GRAVEL BEDDING & BACKFILL IN AREAS WHERE A CULVERT, STORM SEWER OR OTHER STRUCTURE PASSES THROUGH THE LINER. THE LINER & BENTONITE OR SLURRY SHALL MINIMIZE SEEPAGE ALONG THE OUTSIDE WALL OF THE CULVERT, STORM SEWER OR STRUCTURE. IF BENTONITE IS USED, THE BENTONITE SHALL BE POSITIONED BETWEEN PIPE JOINTS. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATE BEDDING SUPPORT FOR THE CULVERT, STORM SEWER OR STRUCTURE.



OUTLET MICRO POOL DETAIL



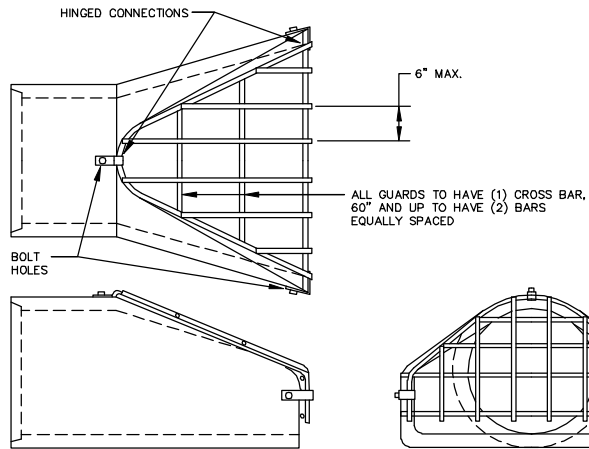
PAVEMENT RESTORATION



STORM SEWER M.H. DETAIL

NOTE: "FERNCO TYPE" CONNECTIONS WILL ONLY BE ALLOWED UPON PRIOR VILLAGE APPROVAL (ON A CASE BY CASE BASIS)

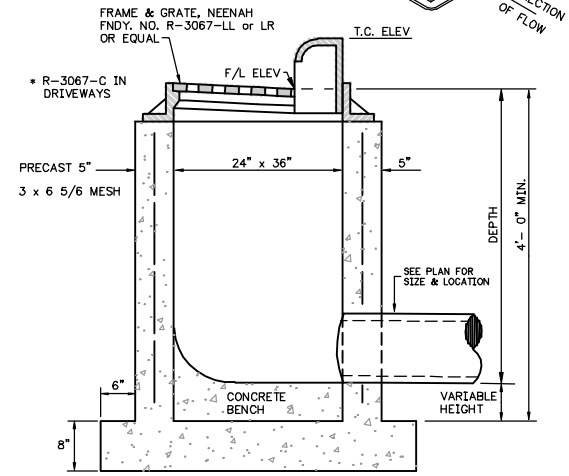
GALVANIZED PIPE JOINT TIES - 2 PER JOINT LOCATED ON EACH SIDE OF THE PIPE AT 60" FROM THE TOP C/L OF THE PIPE. TIE THREE JOINTS UNLESS OTHERWISE NOTED ON THE PLAN



TIE BOLT REQUIREMENTS		
PIPE SIZE	BAR DIA.	BOLTS
12" TO 27"	5/8"	32"
30" TO 66"	3/4"	32"
72" & LARGER	1"	32"

CONCRETE APRON DETAIL

NOTE: GRATE IS NOT REVERSIBLE LEFT FLOW GRATE IS SHOWN LL = FLOW LEFT LR = FLOW RIGHT



INLET DETAIL

NOTE: "FERNCO TYPE" CONNECTIONS WILL ONLY BE ALLOWED UPON PRIOR VILLAGE APPROVAL (ON A CASE BY CASE BASIS)

BAR SIZES							
STANDARD DESIGN				HEAVY DESIGN			
PIPE SIZE	HOLE DIA. REQ'D.	BOLT DIA.	BAR SIZE	PIPE SIZE	HOLE DIA. REQ'D.	BOLT DIA.	BAR SIZE
12"-24"	3/4"	5/8"	5/8"	12"-18"	3/4"	5/8"	3/4"
27"-48"	7/8"	3/4"	3/4"	21"-48"	7/8"	3/4"	1"
54"-90"	1 1/8"	1"	1"	54"-90"	1 1/8"	1"	1 1/4"
22"-29"	3/4"	5/8"	5/8"	22"	3/4"	5/8"	3/4"
36"-59"	7/8"	3/4"	3/4"	29"-59"	7/8"	3/4"	1"
65"-88"	1 1/8"	1"	1"	65"-88"	1 1/8"	1"	1 1/4"

BOLT LG. = PIPE WALL THK. + 2 1/2"

TRASH GUARD FOR FLARED ENDS

McMAHON ENGINEERS ARCHITECTS
of form, as instruments of service, we create the built environment. Our designs are the result of a collaborative process between our clients and our team. We are committed to the highest quality of design and construction. Our team is made up of professionals who are dedicated to the success of our clients. We are committed to the highest quality of design and construction. Our team is made up of professionals who are dedicated to the success of our clients.

REVISION		DATE		NO.	

BETHEL BAPTIST POND VILLAGE OF ALLOUEZ, WISCONSIN MISCELLANEOUS DETAILS

DESIGNED	DRAWN
AWS	AWS
PROJECT NO. A0012-900458.26	
DATE DECEMBER 2012	
SHEET NO.	

EROSION & SEDIMENT CONTROL PLAN

CONTACT INFORMATION:

LANDOWNER: VILLAGE OF ALLOUEZ
1900 LIBAL STREET
GREEN BAY, WI 54301
CRAIG BERNDT, DIRECTOR OF PUBLIC WORKS
PHONE: (920) 448-2800 EXT. 108

DESIGNER: McMAHON
1445 McMAHON DRIVE
P.O. BOX 1025
NEENAH, WI 54957-1025
ANDY SCHMIDT, PROJECT ENGINEER
PHONE: (920) 751-4200
EMAIL: aschmidt@mcgrp.com

BEST MANAGEMENT PRACTICES:

THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING, INSTALLING, MAINTAINING AND REMOVING BEST MANAGEMENT PRACTICES IN ACCORDANCE WITH WISCONSIN DEPARTMENT OF NATURAL RESOURCES (DNR) TECHNICAL STANDARDS. THESE STANDARDS MAY BE FOUND ON THE DNR WEBSITE AT <http://www.dnr.state.wi.us/org/water/wm/nps/stormwater/techstds.htm>. THE MINIMUM BEST MANAGEMENT PRACTICES SPECIFIED FOR THIS PROJECT ARE AS FOLLOWS:

[X] LAND APPLICATION OF POLYACRYLAMIDE (1050)	[X] DE-WATERING (1061)
[] WATER APPLICATION OF POLYMERS (1051)	[] DITCH CHECK (1062)
[X] NON-CHANNEL EROSION MAT (1052)	[] SEDIMENT TRAP (1063)
[] CHANNEL EROSION MAT (1053)	[X] SEDIMENT BASIN (1064)
[] VEGETATIVE BUFFER (1054)	[X] RIP-RAP (1065)
[] SEDIMENT BALE BARRIER (1055)	[] CONSTRUCTION DIVERSION (1066)
[X] SILT FENCE (1056)	[] GRADING PRACTICES (1067)
[X] TRACKING PAD & TIRE WASHING (1057)	[X] DUST CONTROL (1068)
[X] MULCHING (1058)	[] TURBIDITY BARRIER (1069)
[X] SEEDING (1059)	[] SILT CURTAIN (1070)
[X] STORM DRAIN INLET PROTECTION (1060)	

THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING CONSTRUCTION ACTIVITIES AND IMPLEMENTING BEST MANAGEMENT PRACTICES TO DO THE FOLLOWING TO THE MAXIMUM EXTENT PRACTICABLE:

- C. PRESERVE EXISTING VEGETATION WHERE POSSIBLE. TEMPORARILY STABILIZE EXPOSED SOILS THAT NOT BE ACTIVE FOR 30 DAYS OR MORE. POLYACRYLAMIDE, MULCHING, SEEDING AND GRAVELING MAY BE USED TO TEMPORARILY STABILIZE EXPOSED SOILS.
- B. DIVERT CLEAR WATER AWAY FROM EXPOSED SOILS USING CONSTRUCTION DIVERSIONS.
- C. MANAGE SHEET FLOW THAT IS NOT CONTROLLED WITH A SEDIMENT TRAPPING DEVICE. SILT FENCE IS USED TO MANAGE SHEET FLOW. GRADING PRACTICES MAY BE USED TO SUPPLEMENT THE SILT FENCE.
- D. MANAGE CONCENTRATED FLOW WITH SEDIMENT TRAPPING DEVICES SUCH AS STORM DRAIN INLET PROTECTION, DITCH CHECKS, SEDIMENT TRAPS AND SEDIMENT BASINS. POLYMERS MAY BE USED TO ENHANCE SEDIMENT TRAPPING.
- E. MINIMIZE THE AMOUNT OF SOIL EXPOSED AT ANY ONE TIME.
- F. PROTECT INLETS FROM RECEIVING SEDIMENT WITH STORM DRAIN INLET PROTECTION.
- G. PREVENT TRACKING OF SEDIMENT ONTO ROADS AND PAVED SURFACES USING TRACKING PADS AND/OR TIRE WASHING. MINIMIZE TRACKING AT ALL SITE EXITS AND ENTRANCES.
- H. CLEANUP OFFSITE SEDIMENT DEPOSITS AT THE END OF EACH WORK DAY & BEFORE A RAIN.
- I. MANAGE THE USE, STORAGE AND DISPOSAL OF CHEMICALS, CEMENT, AND OTHER COMPOUNDS AND MATERIALS TO PREVENT THEIR DISCHARGE INTO THE DRAINAGE SYSTEM.
- J. STABILIZE DRAINAGE WAYS AND EROSION DISCHARGE LOCATIONS WITH CHANNEL EROSION MAT, MULCHING, SEEDING, DITCH CHECKS & RIP-RAP AS SOON AS POSSIBLE.
- K. PERMANENTLY STABILIZE EXPOSED SOILS WITH NON-CHANNEL EROSION MAT, MULCHING AND SEEDING AS SOON AS POSSIBLE.
- L. CONTROL AND MINIMIZE DUST FROM VEHICULAR TRAFFIC AND WIND EROSION. PRESERVING VEGETATION, MULCHING, SEEDING, WATERING, GRADING PRACTICES, POLYACRYLAMIDE, SOIL STABILIZERS, CHLORIDES, & BARRIERS MAY BE USED FOR DUST CONTROL.
- M. PREVENT THE DISCHARGE OF SEDIMENT AS PART OF DE-WATERING. GEOTEXTILE BAGS, SEDIMENT TANKS, SEDIMENT TRAPS, SEDIMENT BASINS, AND FILTRATION SYSTEMS MAY BE USED FOR DE-WATERING. POLYMERS MAY BE USED TO ENHANCE SEDIMENT TRAPPING.

THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING OR REPLACING BEST MANAGEMENT PRACTICES DESTROYED AS A RESULT OF CONSTRUCTION ACTIVITIES BY THE END OF THE WORK DAY. THE CONTRACTOR IS RESPONSIBLE FOR REPLACING BEST MANAGEMENT PRACTICES TEMPORARILY REMOVED FOR CONSTRUCTION ACTIVITY AS SOON AS THOSE ACTIVITIES ARE COMPLETED. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING AND DISPOSING OF TEMPORARY BEST MANAGEMENT PRACTICES AFTER CONSTRUCTION IS COMPLETE AND PERMANENT VEGETATION IS ESTABLISHED.

PROJECT DESCRIPTION:

THE BETHEL BAPTIST POND IS LOCATED SOUTH OF KALB AVENUE ON THE EAST END OF KALB AVENUE, EAST OF LIBAL STREET, IN THE VILLAGE OF ALLOUEZ, BROWN COUNTY, WISCONSIN (NW ¼ OF THE NW ¼ OF SEC. 7, T23N, R21E). THE TOTAL AREA OF THE SITE IS 3.0 ACRES. THE ENTIRE SITE (3.0 ACRES) IS ESTIMATED TO BE DISTURBED DURING CONSTRUCTION.

THE PROJECT CONSISTS OF CONSTRUCTION OF A WET DETENTION POND, STORM SEWR AND RESTORATION ON KALB AVE., LIBAL STREET, AND IRWIN AVENUE. THE BETHEL BAPTIST POND WILL REDUCE FLOODING, IMPROVE STORM WATER QUALITY AND ASSIST WITH NR 151 COMPLIANCE.

RUNOFF FROM THE SITE AND THE 103 ACRE POND WATERSHED IS DRAINED VIA A 27" STORM SEWER ON LIBAL STREET AND A 36" STORM SEWER SOUTHEAST OF KALB AVENUE AND IRWIN AVENUE INTO A DRAINAGE DITCH. THE OUTFALLS DISCHARGE INTO THE EAST RIVER, A 303(d) LISTED WATERBODY WITH A TMDL FOR TOTAL PHOSPHORUS.

SOIL INFORMATION WAS OBTAINED FROM NRCS WEB SOIL SURVEY FOR BROWN COUNTY. SOILS INCLUDE KEWAUNEE SOILS (Kkc3), OSHKOSH SILT LOAM (OnB) AND OSHKOSH SILTY CLAY LOAM (OsA). SOILS HAVE BEDROCK AT >60 INCHES, GROUNDWATER AT 6', 6' AND 4.3' RESPECTIVELY. ALL ARE HYDROLOGIC SOIL GROUP 'C' (HSG C).

TEMPORARY STABILIZATION	APPLICATION RATE	CRITERIA
POLYACRYLAMIDE	*	*TECHNICAL STANDARD 1050.
MULCHING (straw or hay only)		
SEEDED AREA	1½ TO 2-TON/ACRE	USE CRIMPING, NETTING, OR TACKIFIER TO ANCHOR. CONSIDER EROSION MAT.
UNSEEDED	2 TO 3 TON/ACRE	
SEEDING (select one species)		
OATS	131 LBS/ACRE	98% PURITY. SPRING/SUMMER SEEDING
WINTER WHEAT	131 LBS/ACRE	95% PURITY. FALL SEEDING
ANNUAL RYE	80 LBS/ACRE	97% PURITY. FALL SEEDING

GENERAL GRASS:

THE SELECTION OF THE SEED MIXTURES OR MIXTURES FOR USE OF THE PROJECT SHALL BE IN ACCORDANCE WITH THE FOLLOWING PERMANENT SEED MIXTURES:

1. SEED MIXTURE #1 SHALL BE USED ON PROJECTS WHERE AVERAGE LOAM, HEAVY CLAY OR MOIST SOILS PREDOMINATE.
2. SEED MIXTURE #2 SHALL BE USED ON PROJECTS WHERE LIGHT, DRY, SANDY OR GRAVEL SOILS PREDOMINATE.
3. SEED MIXTURE #1 OR #2 SHALL BE USED ON ALL DITCHES, IN-SLOPES, MEDIAN AREAS AND LOW FILLS.
4. SEED MIXTURE #3 SHALL BE USED ONLY ON RURAL AREAS AND SHALL BE USED FOR ALL HIGH CUT AND FILL SLOPES, GENERALLY EXCEEDING 6 TO 8 FEET.
5. SEED MIXTURE #4 SHALL BE USED IN URBAN OR OTHER AREAS WHERE A LAWN TYPE TURF IS DESIRED.
6. SEED MIXTURE #2 OR #3 IS SUITABLE ON VERY STEEP SLOPES WHERE STERILE SOIL AND EROSION CONDITIONS EXIST WHEN USED IN CONJUNCTION WITH EROSION CONTROL MAT IF SPECIFIED BY THE ENGINEER.

INSPECTION & MAINTENANCE:

THE CONTRACTOR IS RESPONSIBLE FOR INSPECTING BEST MANAGEMENT PRACTICES WEEKLY, AND WITHIN 24 HOURS FOLLOWING A RAINFALL OF 0.5 INCHES OR GREATER. WRITTEN DOCUMENTATION OF EACH INSPECTION SHALL BE KEPT AT THE CONSTRUCTION SITE AND SHALL INCLUDE THE FOLLOWING INFORMATION: DATE, TIME, AND LOCATION OF INSPECTION; NAME OF INDIVIDUAL WHO PERFORMED THE INSPECTION; AN ASSESSMENT OF THE CONDITION OF BEST MANAGEMENT PRACTICES; A DESCRIPTION OF ANY BEST MANAGEMENT PRACTICE IMPLEMENTATION AND MAINTENANCE PERFORMED; AND A DESCRIPTION OF THE PRESENT PHASE OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING, REPAIRING, OR REPLACING BEST MANAGEMENT PRACTICES AS NECESSARY WITHIN 24 HOURS OF AN INSPECTION OR NOTIFICATION. THE CONTRACTOR IS RESPONSIBLE FOR INSPECTING, MAINTAINING, REPAIRING, OR REPLACING BEST MANAGEMENT PRACTICES UNTIL ALL LAND DISTURBING CONSTRUCTION ACTIVITY IS COMPLETED AND A UNIFORM PERENNIAL VEGETATIVE COVER IS ESTABLISHED WITH A DENSITY OF AT LEAST 70%.

THE CONTRACTOR IS RESPONSIBLE FOR POSTING THE PERMIT IN A CONSPICUOUS LOCATION ON THE CONSTRUCTION SITE. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING A COPY OF THE APPROVED REPORTS, PLANS, AMENDMENTS, INSPECTION REPORTS, AND PERMITS AT THE CONSTRUCTION SITE AT ALL TIMES UNTIL ALL LAND DISTURBING CONSTRUCTION ACTIVITY IS COMPLETED AND A UNIFORM PERENNIAL VEGETATIVE COVER IS ESTABLISHED WITH A DENSITY OF AT LEAST 70%. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE OWNER/APPLICANT WHEN THE VEGETATIVE DENSITY REACHES AT LEAST 70%. THE OWNER/APPLICANT IS RESPONSIBLE FOR TERMINATING DNR PERMIT COVERAGE.

AMENDMENTS:

THE CONTRACTOR IS RESPONSIBLE FOR AMENDING THE EROSION & SEDIMENT CONTROL PLAN IF: THERE IS A CHANGE IN CONSTRUCTION, OPERATION OR MAINTENANCE AT THE SITE WHICH HAS THE REASONABLE POTENTIAL FOR THE DISCHARGE OF POLLUTANTS; THE ACTIONS REQUIRED BY THE PLAN FAIL TO REDUCE THE IMPACTS OF POLLUTANTS CARRIED BY CONSTRUCTION SITE RUNOFF; OR IF THE DNR NOTIFIES THE OWNER/APPLICANT OF CHANGES NEEDED IN THE PLAN. THE DNR AND OWNER/APPLICANT SHALL BE NOTIFIED 5 WORKING DAYS PRIOR TO MAKING CHANGES TO THE PLAN.

ggschmidt, W:\PROJECTS\A0012\900458\26 - Optimist Park Pond (BETHEL)\ACAD Plans\05-EC DET.dwg, model, Plot Date: 12/21/2012 12:16 PM, xrefs:none

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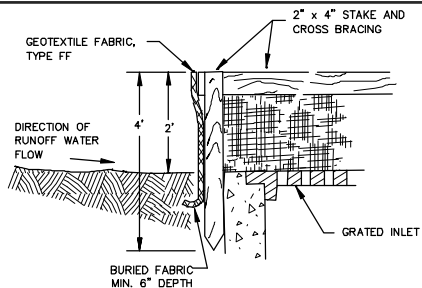
**BETHEL BAPTIST POND
VILLAGE OF ALLOUEZ, WISCONSIN
EROSION & SEDIMENT CONTROL DETAILS**

DESIGNED AWS	DRAWN AWS
PROJECT NO. A0012-900458.26	
DATE DECEMBER 2012	

5

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gschmidt, W:\PROJECTS\A0012\900458\26 - Optmist Park Pond (BETHEL)\ACAD Plans\06-EC DET.dwg, model, Plot Date: 12/21/2012 12:16 PM, xrefs:none



INLET PROTECTION, TYPE A

GENERAL NOTES

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

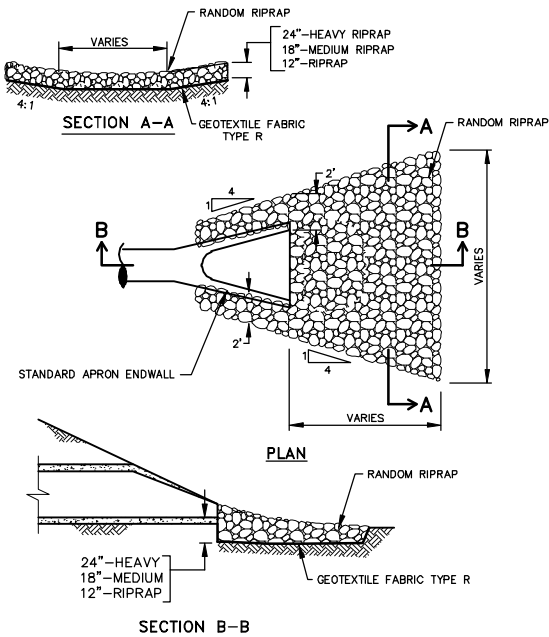
① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

RIP-RAP

- RIP-RAP SHALL BE IN ACCORDANCE WITH SECTION 606, WIS-DOT STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, 1996 EDITION.
- RIP-RAP SHALL BE ANGULAR. ROUND RIP-RAP IS NOT PERMITTED.

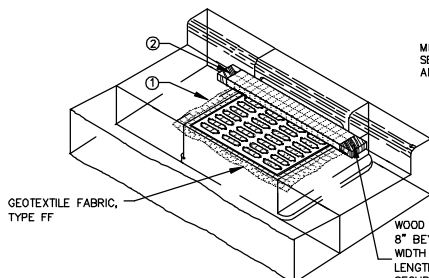


RIPRAP AT STORM SEWER OUTFALL

INLET PROTECTION, TYPE B

(WITHOUT CURB BOX)

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C

(WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

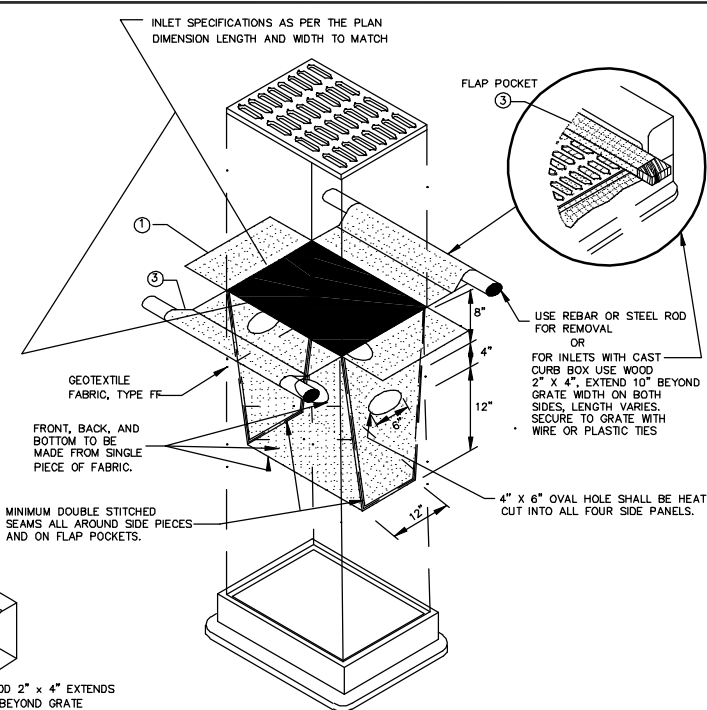
TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE. THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

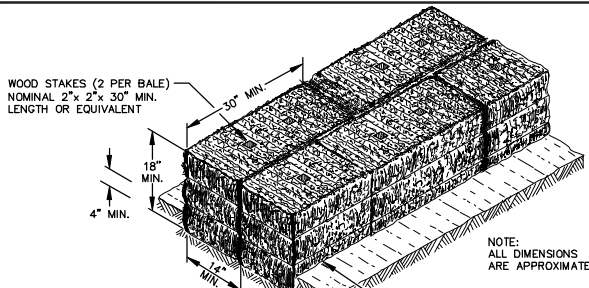
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3", WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



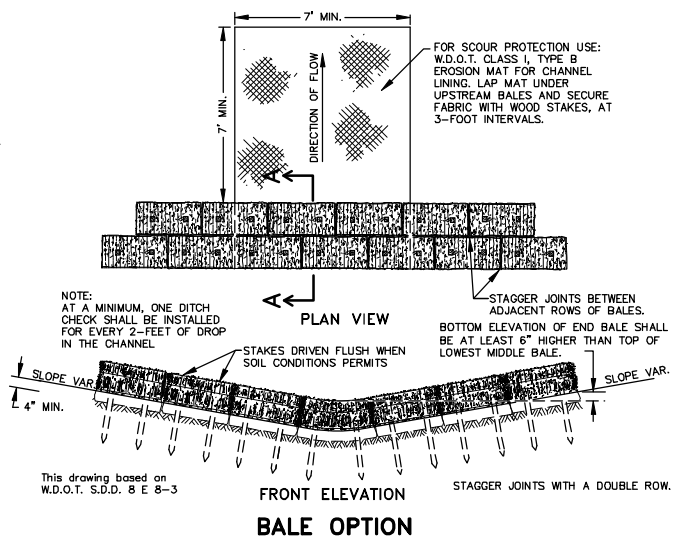
INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

This drawing based on Wisconsin Department of Transportation Standard Detail Drawing 8 E 10-2.

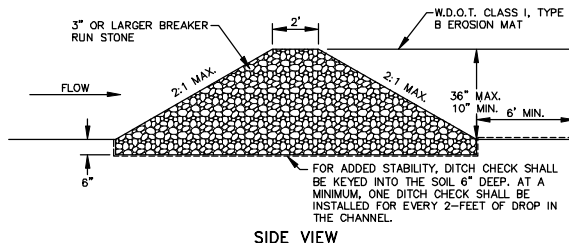


SECTION A-A

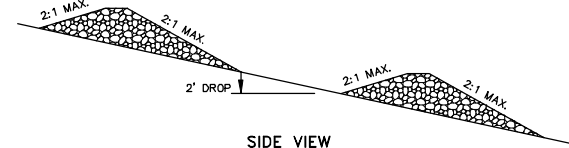


FRONT ELEVATION

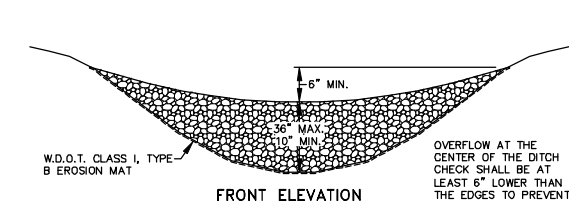
BALE OPTION



SIDE VIEW



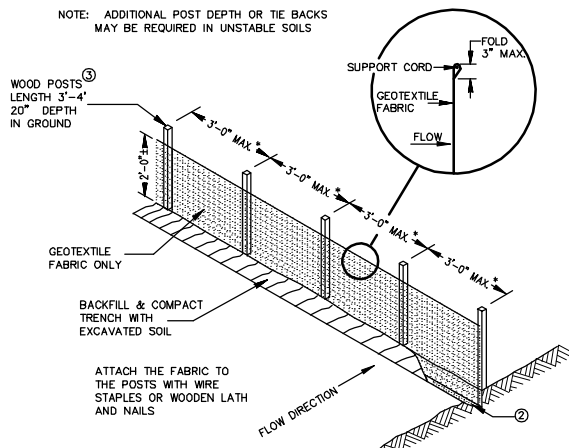
SIDE VIEW



FRONT ELEVATION

STONE OPTION

DITCH CHECK DETAIL



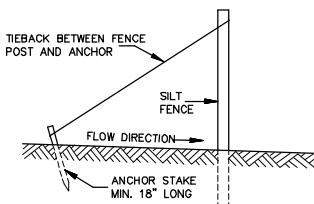
SILT FENCE

* NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

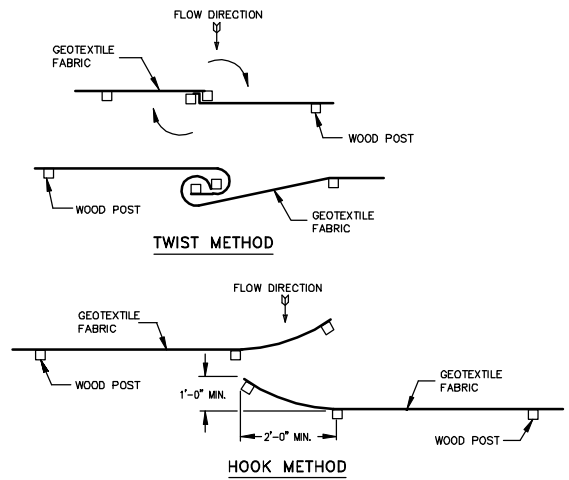
This drawing based on Wisconsin Department of Transportation Standard Detail Drawing 8 E 9-6.

GENERAL NOTES

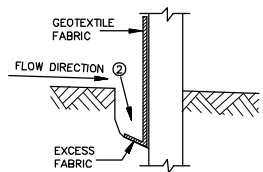
- HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- WOOD POSTS SHALL BE A MINIMUM SIZE OF 1" X 1" OF OAK OR HICKORY.
- SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS: A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



SILT FENCE TIE BACK (WHEN ADDITIONAL SUPPORT REQUIRED)



JOINING TWO LENGTHS OF SILT FENCE®



TRENCH DETAIL

McMAHON
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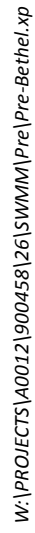
NO.	DATE	REVISION

BETHEL BAPTIST POND
VILLAGE OF ALLOUEZ, WISCONSIN
EROSION & SEDIMENT CONTROL DETAILS

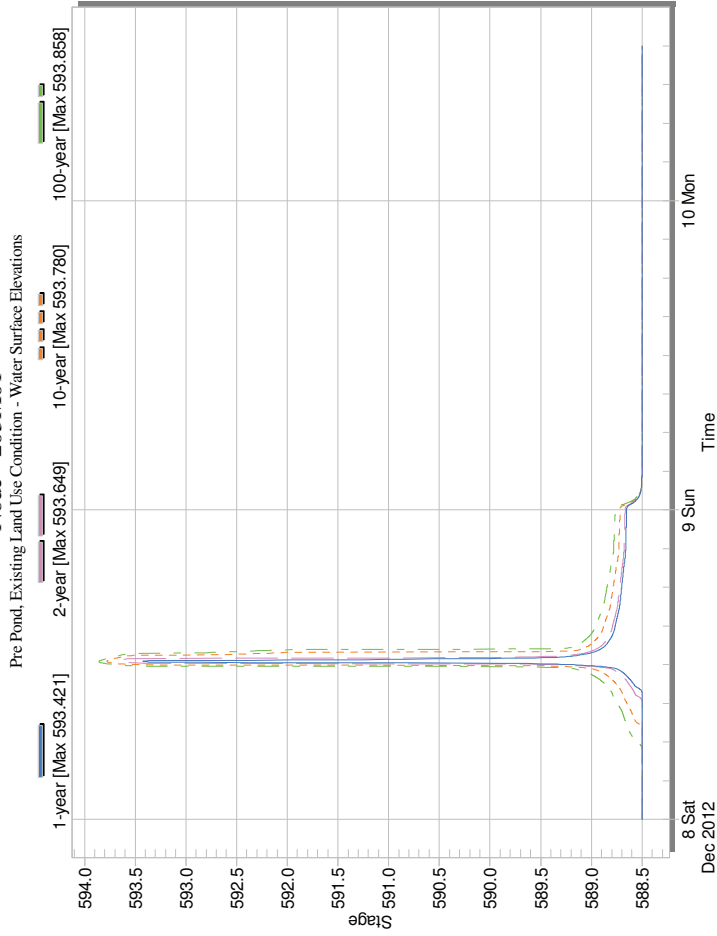
DESIGNED AWS	DRAWN AWS
PROJECT NO. A0012-900458.26	
DATE DECEMBER 2012	
SHEET NO. 6	

APPENDIX B

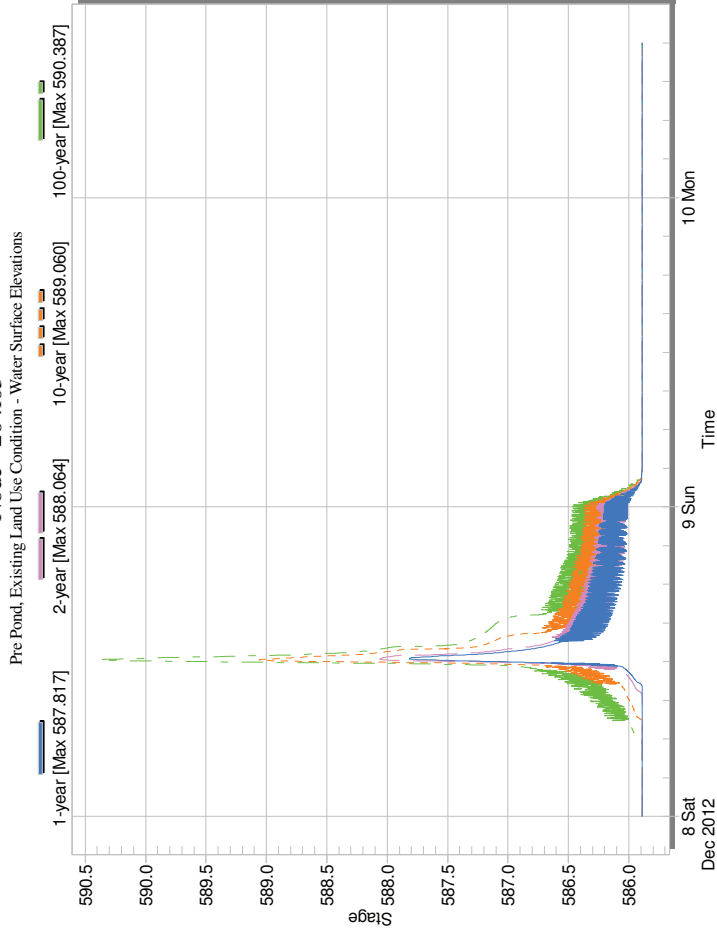
HYDROLOGIC & HYDRAULIC RESULTS **Pre-Pond Construction / Existing Land Use Condition**



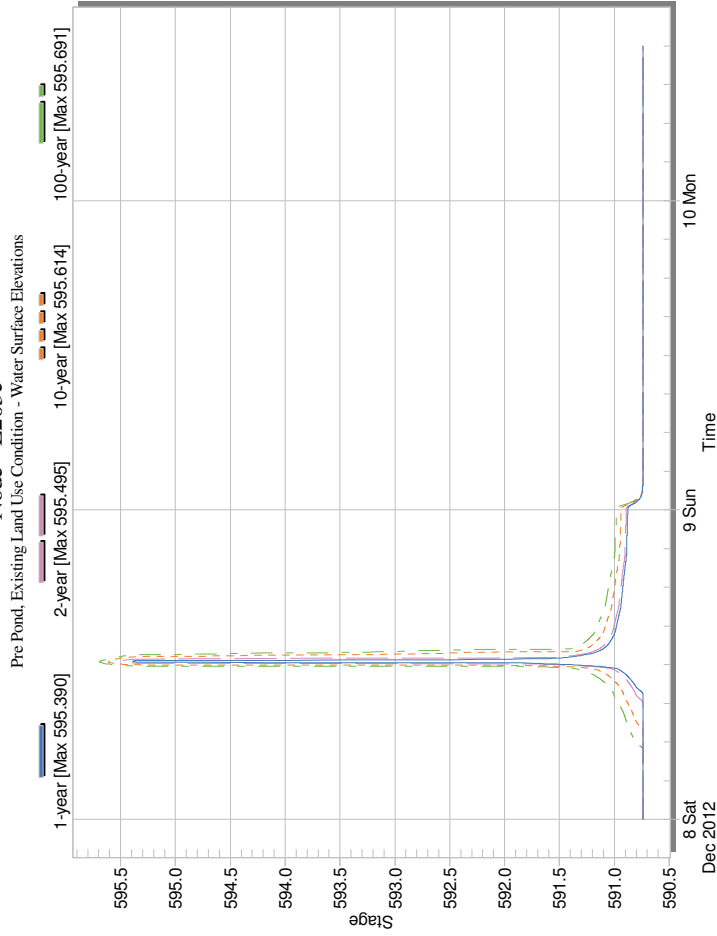
Node - 203M01



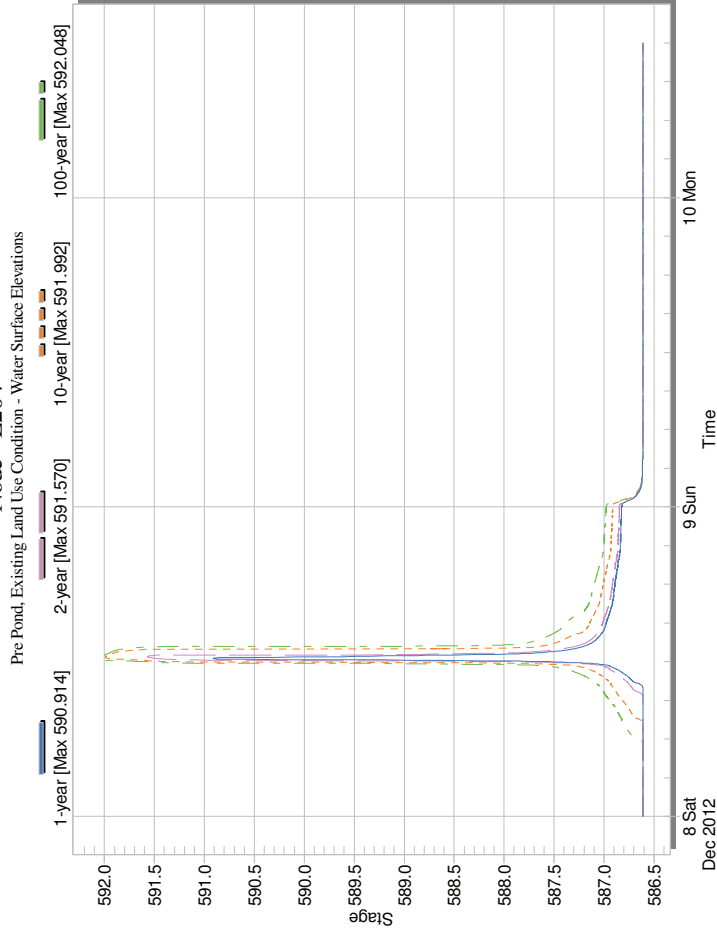
Node - 204i03



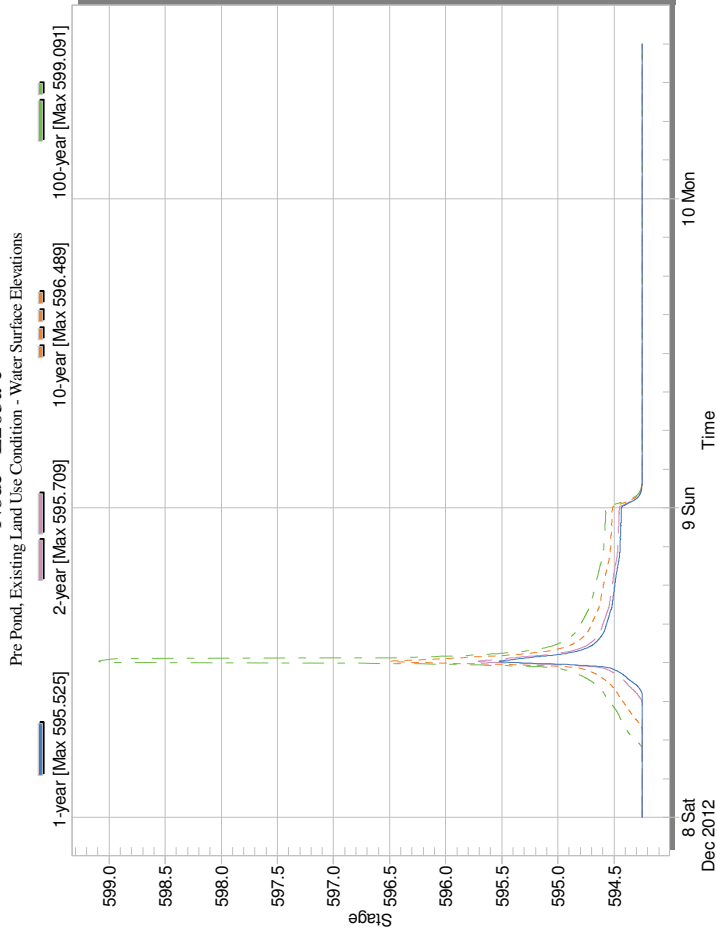
Node - E203c



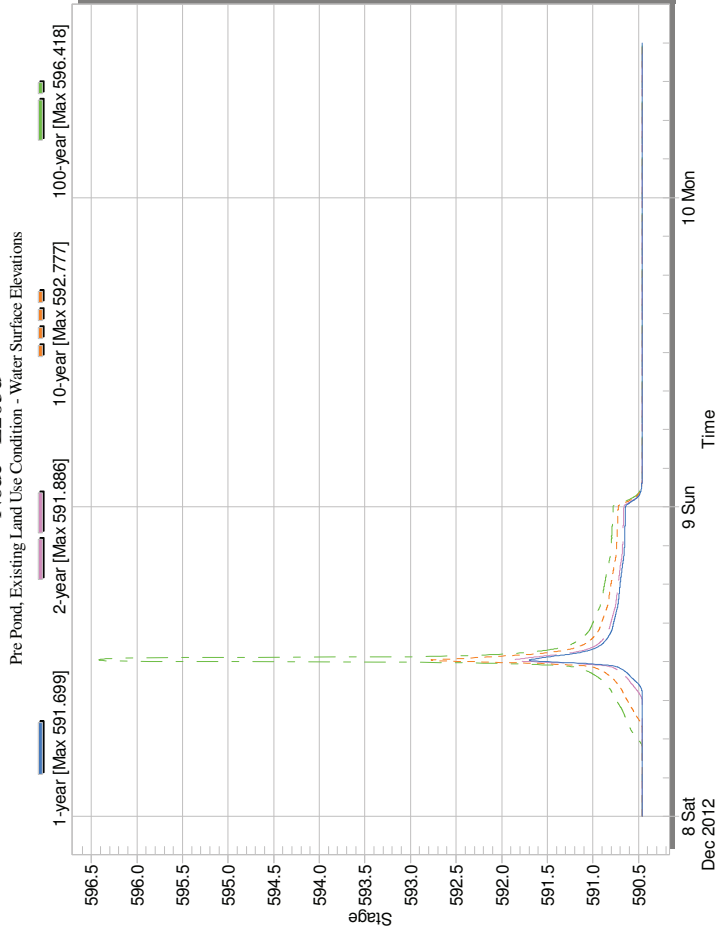
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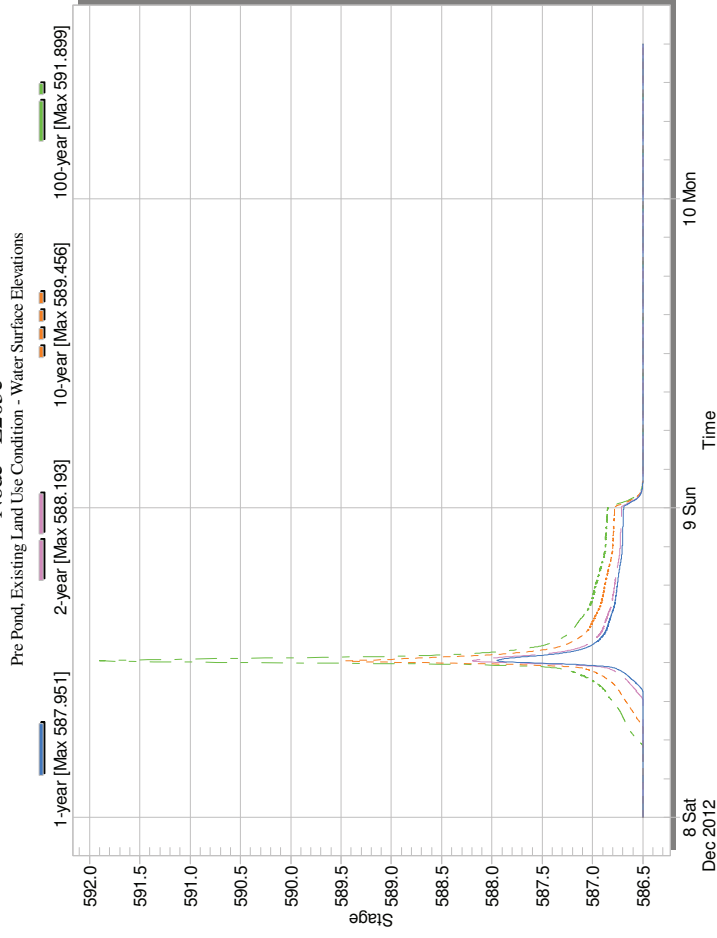
Node - E205a-c



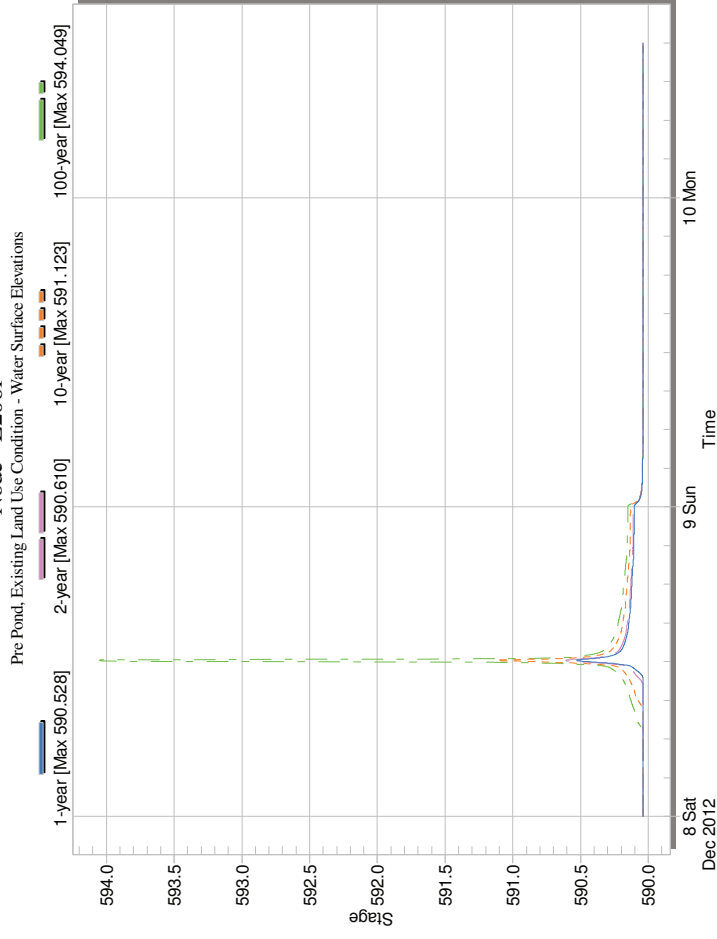
Node - E205d



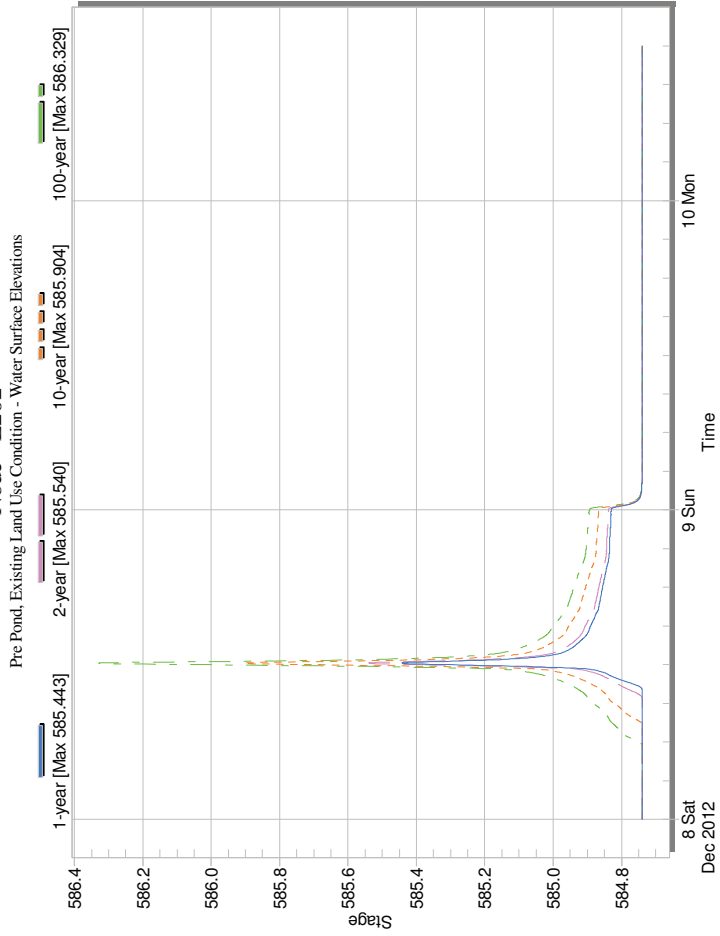
Node - E205e



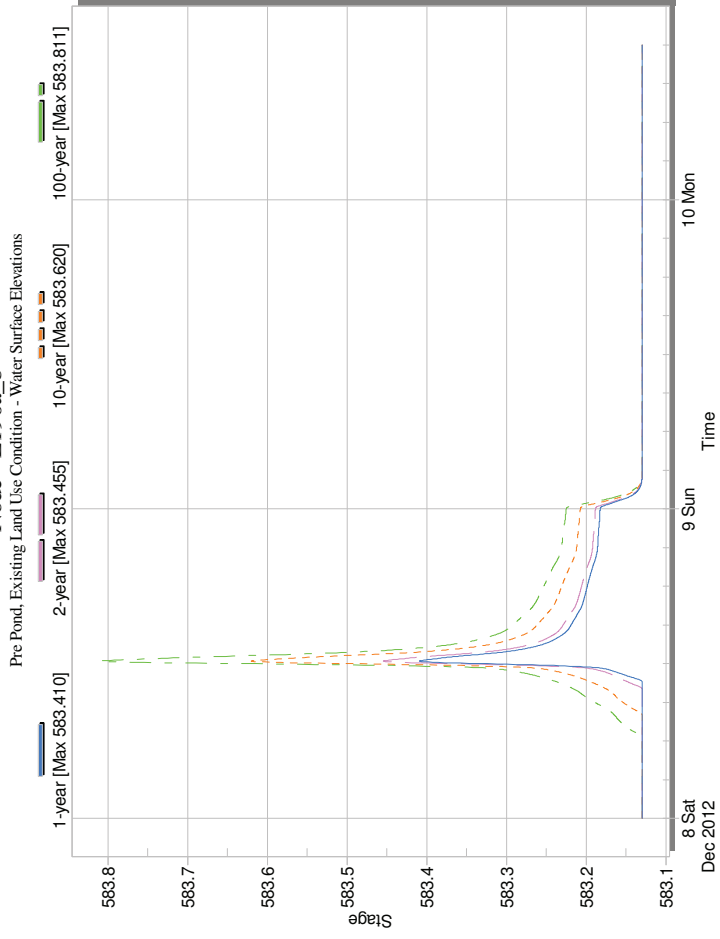
Node - E206f



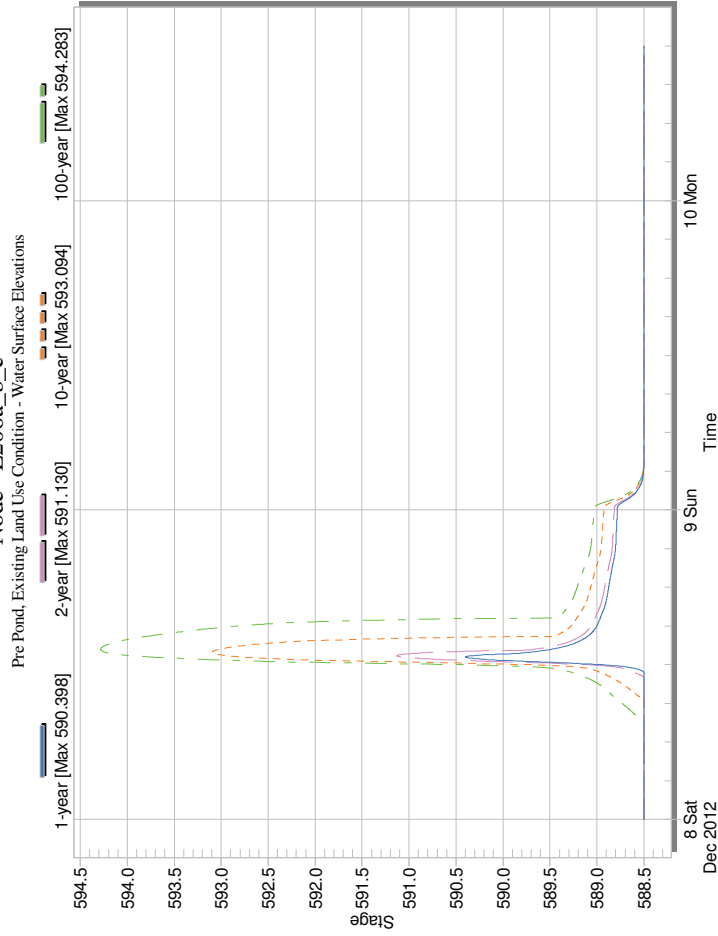
Node - E202



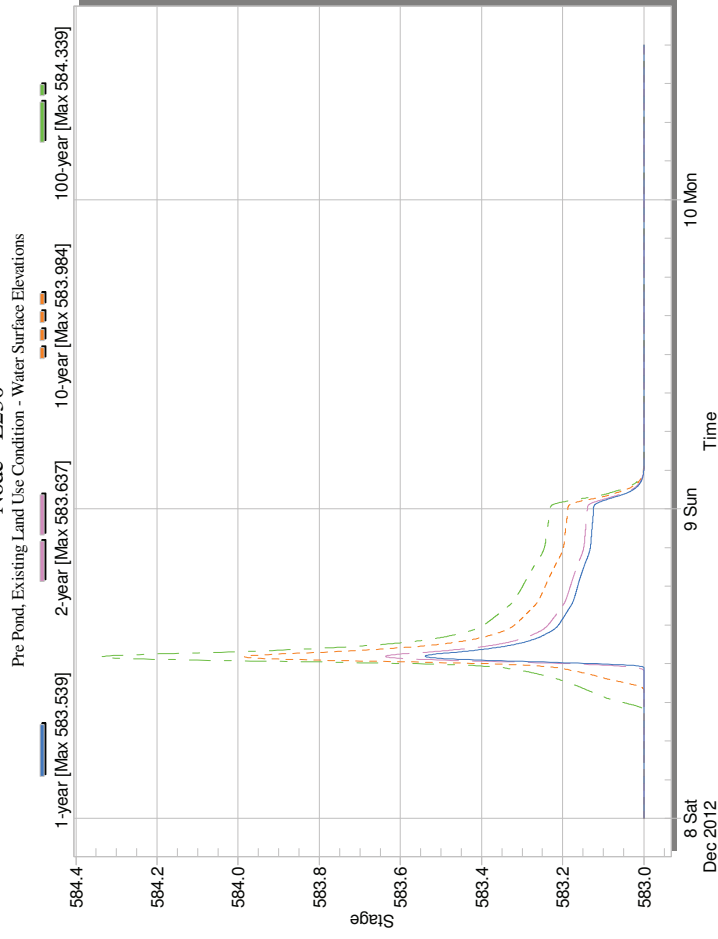
Node - E190a_b



Node - E206a_b_c

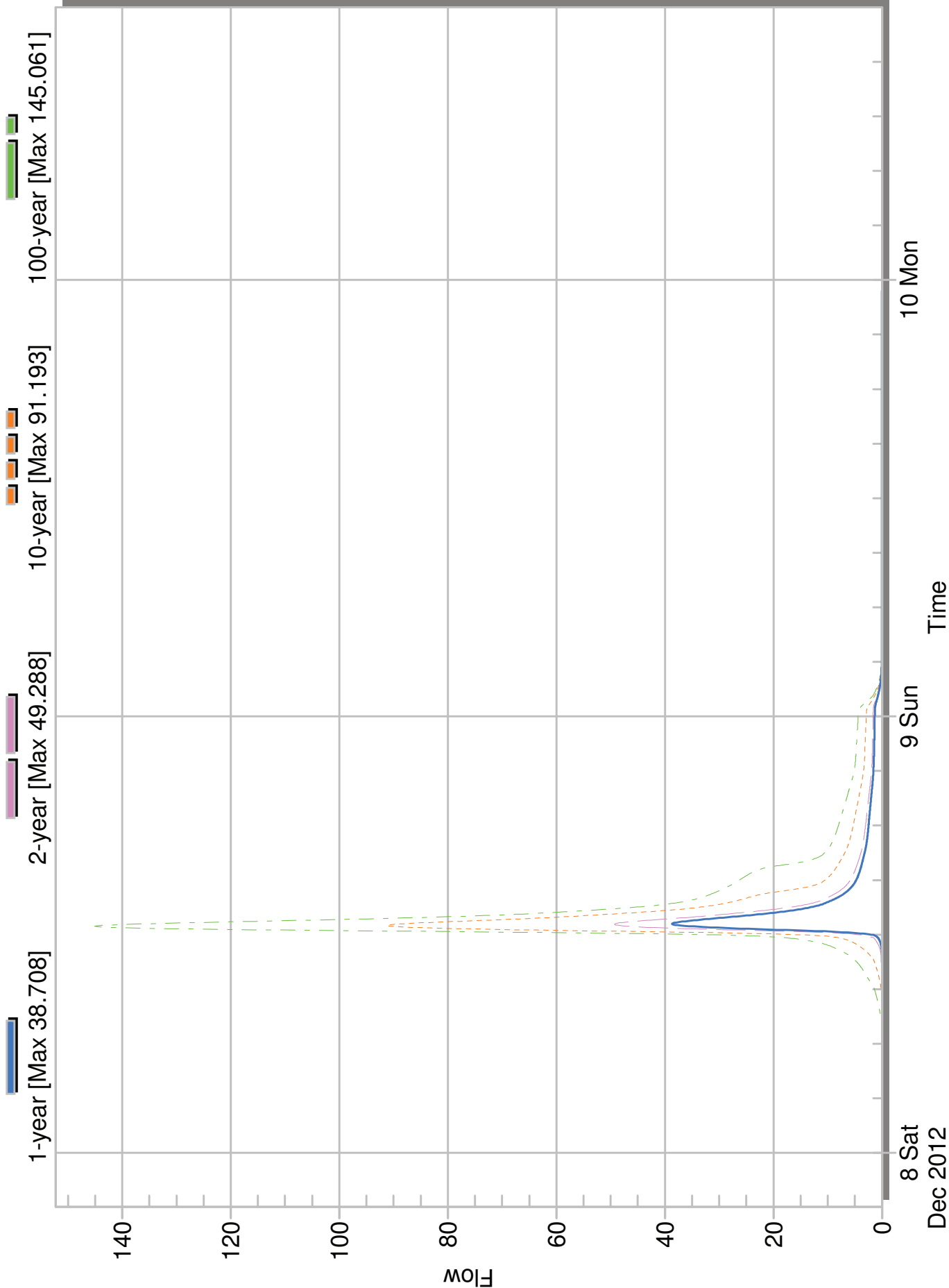


Node - E230



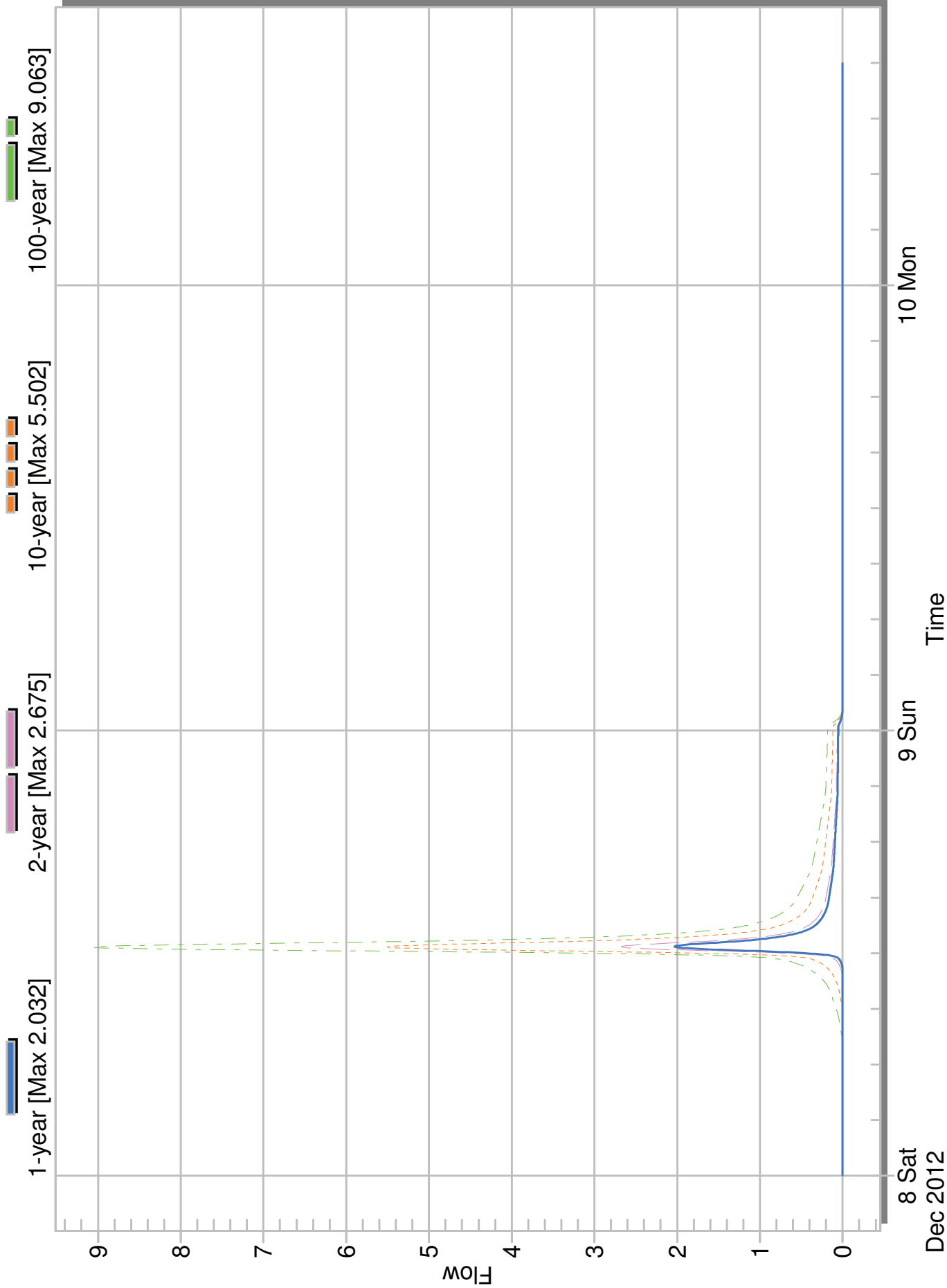
Conduit rav-E202 from S-LIBAL to 202-OUT

Pre Pond, Existing Land Use Condition - Outfall 01, Peak Flow Rates (cfs)



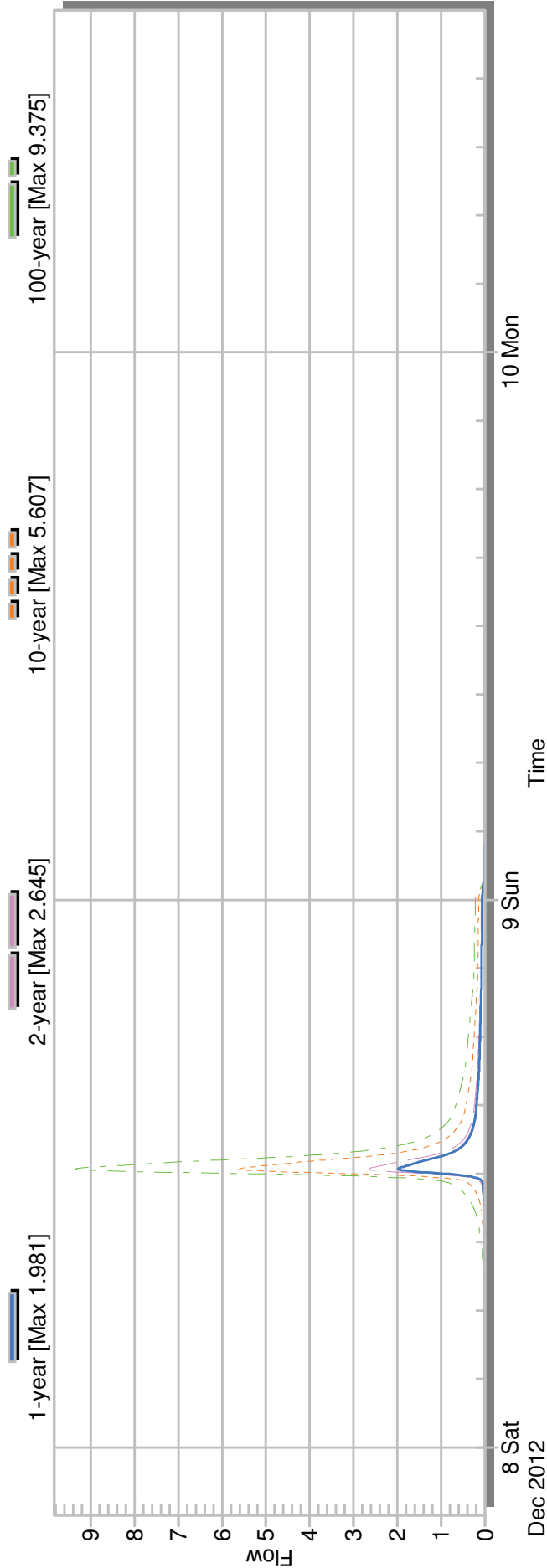
Conduit dit-ER10a from ER10a to 10a-OUT

Pre Pond, Existing Land Use Condition - Outfall 02, Peak Flow Rates (cfs)



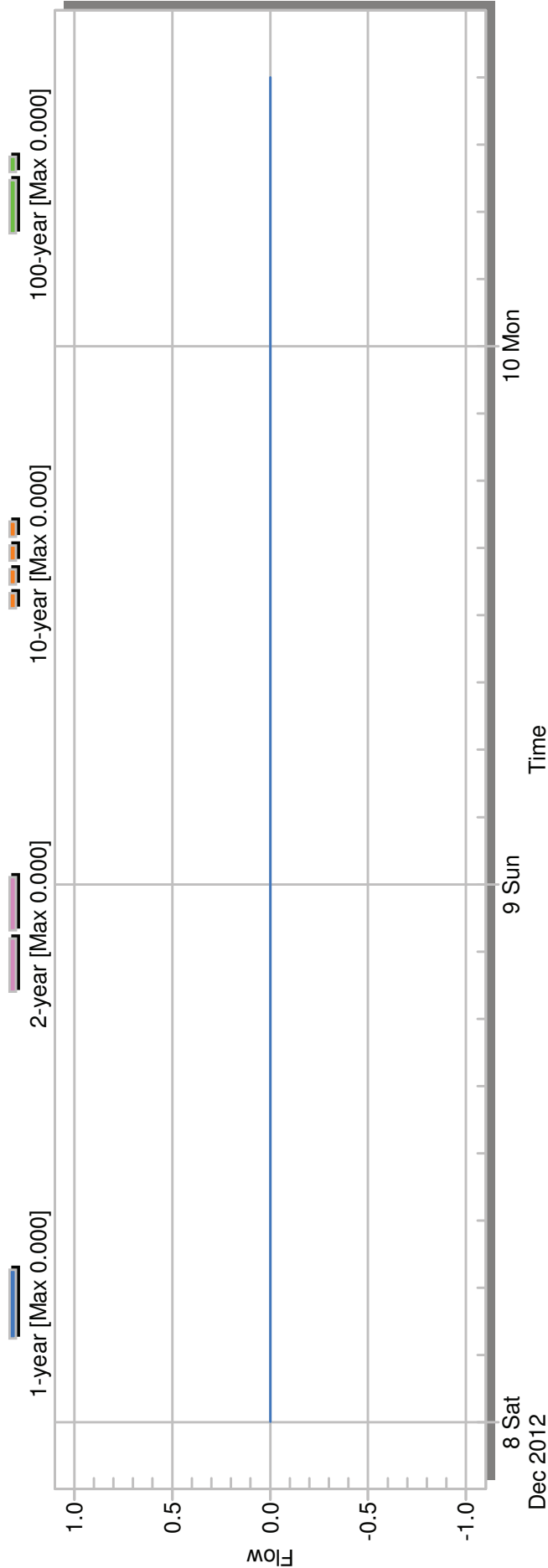
Conduit E190b-SS from E190a_b to 190b_OUT

Pre Pond, Existing Land Use Condition - Outfall 03, Peak Flow Rates (cfs)



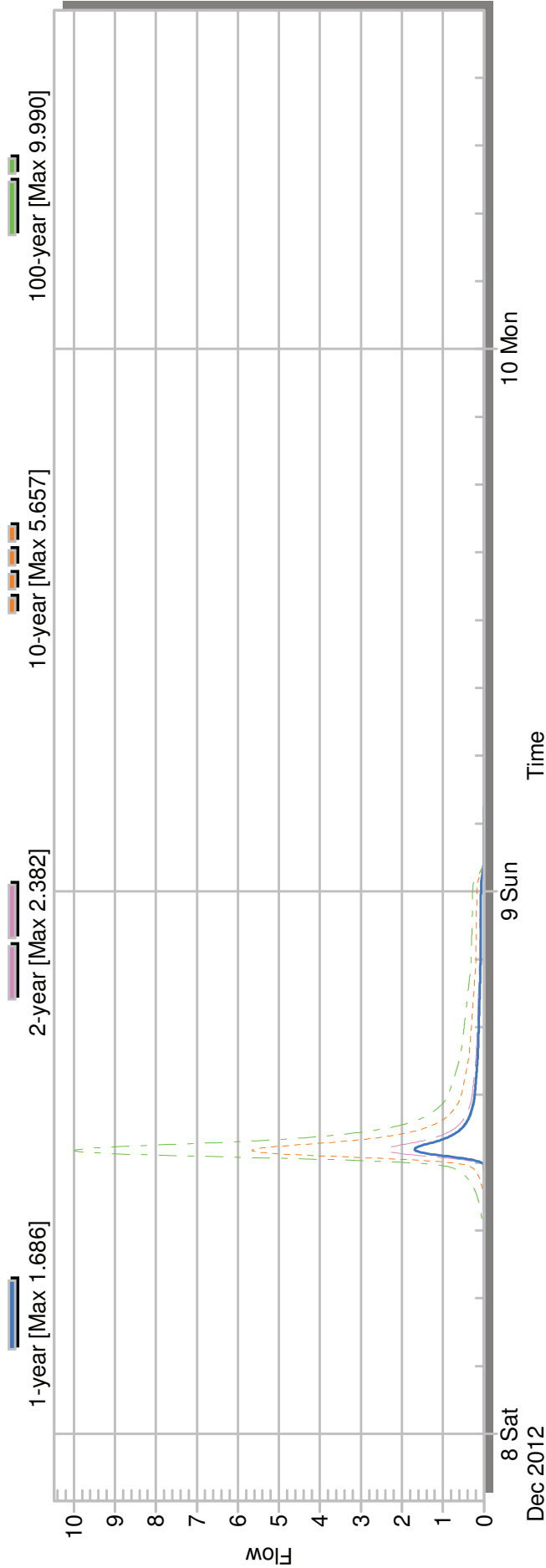
Conduit E19b-Ov from E190a_b to 190b_OUT

Pre Pond, Existing Land Use Condition - Outfall 03, Peak Overflow Rates (cfs)



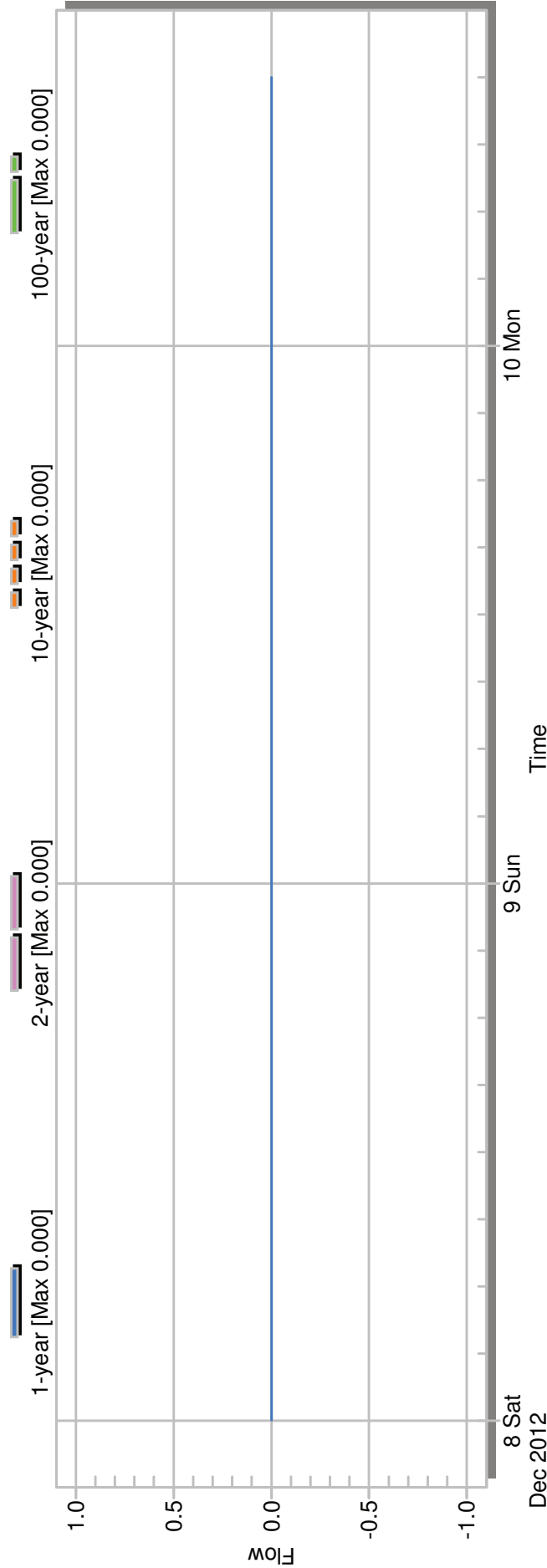
Conduit E230-Cv from E230 to 230-OUT

Pre Pond, Existing Land Use Condition - Outfall 04, Peak Flow Rates (cfs)



Conduit E230-Ov from E230 to 230-OUT

Pre Pond, Existing Land Use Condition - Outfall 04, Peak Overflow Rates (cfs)



Current Directory: C:\XPS\XPSWMM-3
Engine Name: C:\XPS\XPSWMM-3\SWMMEN-1.EXE
Input File : ettings\aschmidt.MCM\Desktop\Bethel\SWMM\Pre\Pre-Bethel_1-year.XP

```
*****
|                               |
|      xpswmm                  |
|      Storm and Wastewater Management Model      |
|      Developed by XP Software Inc.              |
|-----|-----|
| Last Update       : June, 2011                  |
| Interface Version: 13.0                        |
| Engine Version   : 2011.0                      |
| Data File Version: 12.2                      |
| Serial Number    :                             |
|-----|-----|
*****
```

#####

Rainfall input summary from Runoff

#####

Total rainfall for gage # 1 is 2.2000 inches

Total Number of Subcatchments... 20
Total Tributary Area (acres).... 102.98
Impervious Area (acres)..... 0.00
Pervious Area (acres)..... 102.98
Total Width (feet)..... 20.00
Impervious Area (%)..... 0.00

```
*****
| Table E9 - JUNCTION SUMMARY STATISTICS          |
| The Maximum area is only the area of the node, it |
| does not include the area of the surrounding conduits |
|-----|-----|
*****
```

Junction Name	Ground Elevation feet	Uppermost PipeCrown Elevation feet	Maximum Junction Elevation feet	Time of Occurrence Hr. Min.	Feet of Surcharge at Max Elevation	Freeboard of node feet	Maximum Junction Area ft^2	Maximum Gutter Depth feet	Maximum Gutter Width feet	Maximum Gutter Velocity ft/s
E230	600.0000	588.0000	583.5389	12 35	0.0000	16.4611	513.0608	0.0000	0.0000	0.0000
230-OUT	600.0000	595.0000	583.2480	12 35	0.0000	16.7520	12.5660	0.0000	0.0000	0.0000
E190a_b	600.0000	595.0000	583.4097	12 12	0.0000	16.5903	12.5660	0.0000	0.0000	0.0000
190b-OUT	600.0000	595.0000	577.8997	12 12	0.0000	22.1003	12.5660	0.0000	0.0000	0.0000
E202	600.0000	589.9100	585.4428	12 7	0.0000	14.5572	12.5660	0.0000	0.0000	0.0000
202M03	600.0000	586.4000	584.9805	12 10	0.0000	15.0195	12.5660	0.0000	0.0000	0.0000
202M01	600.0000	585.7300	584.1459	12 12	0.0000	15.8541	12.5660	0.0000	0.0000	0.0000
S-LIBAL	600.0000	591.7800	582.6697	12 35	0.0000	17.3303	12.5660	0.0000	0.0000	0.0000
E203c	610.0000	597.3400	595.3908	12 16	0.0000	14.6092	12.5660	0.0000	0.0000	0.0000
203M01	610.0000	595.4900	593.4236	12 16	0.0000	16.5764	12.5660	0.0000	0.0000	0.0000
E204	600.0000	594.7400	590.9144	12 16	0.0000	9.0856	12.5660	0.0000	0.0000	0.0000
204I03	600.0000	593.3600	587.8174	12 14	0.0000	12.1826	12.5660	0.0000	0.0000	0.0000
E206d_e	600.0000	589.5300	587.5201	12 13	0.0000	12.4799	12.5660	0.0000	0.0000	0.0000
E205d	600.0000	598.1000	591.6996	12 7	0.0000	8.3004	12.5660	0.0000	0.0000	0.0000
E205a-c	605.0000	600.6900	595.5275	12 6	0.0000	9.4725	12.5660	0.0000	0.0000	0.0000
E203a	610.0000	601.0000	598.4983	12 15	0.0000	11.5017	12.5660	0.0000	0.0000	0.0000
E203b	610.0000	597.0000	594.1534	12 16	0.0000	15.8466	12.5660	0.0000	0.0000	0.0000
E206f	605.0000	596.0000	590.5285	12 6	0.0000	14.4715	12.5660	0.0000	0.0000	0.0000
E205e	600.0000	594.7900	587.9523	12 10	0.0000	12.0477	12.5660	0.0000	0.0000	0.0000
E206a_b_c	600.0000	597.5000	590.3980	12 36	0.0000	9.6020	1526.5777	0.0000	0.0000	0.0000
206M02	600.0000	589.7000	589.4569	12 36	0.0000	10.5431	12.5660	0.0000	0.0000	0.0000
ER10a	600.0000	595.0000	588.0699	12 21	0.0000	11.9301	12.5660	0.0000	0.0000	0.0000
10a-OUT	600.0000	582.0000	580.0554	12 21	0.0000	19.9446	12.5660	0.0000	0.0000	0.0000
205E00	600.0000	592.0500	587.1241	12 17	0.0000	12.8759	12.5660	0.0000	0.0000	0.0000
N-LIBAL	600.0000	592.1000	585.3020	12 27	0.0000	14.6980	12.5660	0.0000	0.0000	0.0000
202-OUT	600.0000	588.0000	579.5138	12 35	0.0000	20.4862	12.5660	0.0000	0.0000	0.0000
N-E206	600.0000	590.0000	585.6162	12 26	0.0000	14.3838	12.5660	0.0000	0.0000	0.0000
206I03	600.0000	595.6700	587.5200	12 13	0.0000	12.4800	12.5660	0.0000	0.0000	0.0000

```
*****
| Table E15 - SPREADSHEET INFO LIST              |
| Conduit Flow and Junction Depth Information for use in |
| spreadsheets. The maximum values in this table are the |
| true maximum values because they sample every time step. |
| The values in the review results may only be the |
| maximum of a subset of all the time steps in the run. |
| Note: These flows are only the flows in a single barrel. |
|-----|-----|
*****
```

Conduit Name	Maximum Flow (cfs)	Total Flow (ft^3)	Maximum Velocity (ft/s)	Maximum Volume (ft^3)	##	Junction Name	Invert Elevation (ft)	Maximum Elevation (ft)
SS-E202M04	2.6740	8183.5945	2.4714	332.4577	##	E230	583.0000	583.5389
SS-E202M03	2.5579	8204.8998	1.9726	756.6539	##	230-OUT	582.8000	583.2480
SS-E202M01	2.5171	8208.1494	2.6251	48.1557	##	E190a_b	583.1300	583.4097
SS-E204I03	10.0845	39582.7491	5.6955	50.0659	##	190b-OUT	577.6200	577.8997
sw12-E203a	3.5070	13489.6260	1.2884	35.7419	##	E202	584.7400	585.4428
SS-E205I01	27.0586	117088.4483	8.0074	224.4175	##	202M03	584.1500	584.9805
SS-E206c	8.9397	60747.6663	5.1051	194.9928	##	202M01	583.4800	584.1459
SS-E206M02	8.9397	60752.8302	5.6979	45.0114	##	S-LIBAL	581.5500	582.6697
dit-ER10a	2.0351	9708.8806	2.4649	0.3142	##	E203c	590.7400	595.3908
rav1-E206	40.5427	225423.6509	1.2551	17761.2893	##	203M01	588.5000	593.4236
rav-E202	38.7176	252391.3707	0.8107	41458.3817	##	E204	586.6100	590.9144
rav2-E206	-39.4752	-243897.772	-0.6769	21184.5224	##	204I03	585.8900	587.8174
sw1-E203b	4.6742	18395.3945	0.5136	1212.0060	##	E206d_e	585.2300	587.5201
connect02	0.0000	0.0000	0.0000	0.0041	##	E205d	590.4600	591.6996
connect03	0.0000	0.0000	0.0000	0.0041	##	E205a-c	594.2500	595.5275
SS-E206I03	-0.9547	-2871.1329	2.2377	108.2115	##	E203a	598.0000	598.4983
SS-E206M01	-41.4400	-224382.064	-7.5652	209.0078	##	E203b	594.0000	594.1534
Ov-E205I01	0.0000	0.0000	0.0000	0.0000	##	E206f	590.0400	590.5285
Ov-E204I02	0.0000	0.0000	0.0000	2329.8692	##	E205e	586.5000	587.9523
E206I03	0.0000	0.0000	0.0000	0.0000	##	E206a_b_c	588.5000	590.3980
Ov2-202M04	0.0000	0.0000	0.0000	0.0000	##	206M02	588.2000	589.4569
Ov-E206c	0.0000	0.0000	0.0000	0.0000	##	ER10a	588.0000	588.0699
E230-Cv	1.6856	11153.0729	2.5257	16.8137	##	10a-OUT	580.0000	580.0554
E230-Ov	0.0000	0.0000	0.0000	0.0000	##	205E00	585.8500	587.1241
E190b-SS	1.9835	10935.3157	11.0340	0.4084	##	N-LIBAL	584.0500	585.3020
E190b-Ov	0.0000	0.0000	0.0000	0.0000	##	202-OUT	579.0000	579.5138
E203M02-SS	7.7365	30518.3717	4.7717	590.6060	##	N-E206	583.8000	585.6162
E203M02-Ov	0.0880	19.6072	0.7212	0.1641	##	206I03	585.1700	587.5200
E203M01-SS	7.7400	30564.7115	4.3188	736.0628	##			
E203M01-Cv	0.0000	0.0000	0.0000	0.0000	##			
E204I02-SS	10.0837	40149.1282	5.6447	538.2222	##			
E204I02-Ov	0.0000	0.0000	0.0000	0.0000	##			
E205M02-SS	26.2859	112049.3060	9.3402	312.7508	##			
E205M02-Ov	0.0000	0.0000	0.0000	0.0000	##			
E205M03-SS	24.9578	104977.4548	8.7605	295.5480	##			
E205M03-Ov	0.0000	0.0000	0.0000	0.0000	##			
E206I04-SS	0.9633	2796.4512	2.5803	32.7625	##			
E206I04-Ov	0.0000	0.0000	0.0000	0.0000	##			
Libal-Cv	39.4751	243989.6228	11.9661	158.9964	##			
Libal-Ov	0.0000	0.0000	0.0000	0.0000	##			
FREE # 1	1.6856	11153.5159	0.0000	0.0000	##			
FREE # 2	1.9835	10935.3513	0.0000	0.0000	##			
FREE # 3	2.0351	9709.0713	0.0000	0.0000	##			
FREE # 4	38.7177	252398.9015	0.0000	0.0000	##			

Current Directory: C:\XPS\XPSWMM-3
Engine Name: C:\XPS\XPSWMM-3\SWMMEN-1.EXE
Input File : ettings\aschmidt.MCM\Desktop\Bethel\SWMM\Pre\Pre-Bethel_1-year.XP

```
=====
|                               |
|      xpswmm                  |
|      Storm and Wastewater Management Model      |
|      Developed by XP Software Inc.              |
|=====|
| Last Update       : June, 2011                  |
| Interface Version: 13.0                        |
| Engine Version   : 2011.0                      |
| Data File Version: 12.2                        |
| Serial Number    :                             |
|=====|
```

#####

Rainfall input summary from Runoff

#####

Total rainfall for gage # 1 is 2.5000 inches

Total Number of Subcatchments... 20
Total Tributary Area (acres).... 102.98
Impervious Area (acres)..... 0.00
Pervious Area (acres)..... 102.98
Total Width (feet)..... 20.00
Impervious Area (%)..... 0.00

```
=====
|                               |
|      Table E9 - JUNCTION SUMMARY STATISTICS      |
|      The Maximum area is only the area of the node, it |
|      does not include the area of the surrounding conduits |
|=====|
```

Junction Name	Ground Elevation feet	Uppermost PipeCrown Elevation feet	Maximum Junction Elevation feet	Time of Occurrence Hr. Min.	Feet of Surcharge at Max Elevation	Freeboard of node feet	Maximum Junction Area ft^2	Maximum Gutter Depth feet	Maximum Gutter Width feet	Maximum Gutter Velocity ft/s
E230	600.0000	588.0000	583.6370	12 34	0.0000	16.3630	598.5308	0.0000	0.0000	0.0000
230-OUT	600.0000	595.0000	583.3356	12 34	0.0000	16.6644	12.5660	0.0000	0.0000	0.0000
E190a_b	600.0000	595.0000	583.4549	12 12	0.0000	16.5451	12.5660	0.0000	0.0000	0.0000
190b-OUT	600.0000	595.0000	577.9446	12 12	0.0000	22.0554	12.5660	0.0000	0.0000	0.0000
E202	600.0000	589.9100	585.5402	12 7	0.0000	14.4598	12.5660	0.0000	0.0000	0.0000
202M03	600.0000	586.4000	585.0903	12 9	0.0000	14.9097	12.5660	0.0000	0.0000	0.0000
202M01	600.0000	585.7300	584.2255	12 11	0.0000	15.7745	12.5660	0.0000	0.0000	0.0000
S-LIBAL	600.0000	591.7800	582.7654	12 34	0.0000	17.2346	12.5660	0.0000	0.0000	0.0000
E203c	610.0000	597.3400	595.4950	12 16	0.0000	14.5050	12.5660	0.0000	0.0000	0.0000
203M01	610.0000	595.4900	593.6491	12 18	0.0000	16.3509	12.5660	0.0000	0.0000	0.0000
E204	600.0000	594.7400	591.5702	12 23	0.0000	8.4298	12.5660	0.0000	0.0000	0.0000
204103	600.0000	593.3600	588.0640	12 12	0.0000	11.9360	12.5660	0.0000	0.0000	0.0000
E206d_e	600.0000	589.5300	587.7428	12 11	0.0000	12.2572	12.5660	0.0000	0.0000	0.0000
E205d	600.0000	598.1000	591.8866	12 7	0.0000	8.1134	12.5660	0.0000	0.0000	0.0000
E205a-c	605.0000	600.6900	595.7125	12 6	0.0000	9.2875	12.5660	0.0000	0.0000	0.0000
E203a	610.0000	601.0000	598.5530	12 14	0.0000	11.4470	12.5660	0.0000	0.0000	0.0000
E203b	610.0000	597.0000	594.1776	12 16	0.0000	15.8224	12.5660	0.0000	0.0000	0.0000
E206f	605.0000	596.0000	590.6098	12 6	0.0000	14.3902	12.5660	0.0000	0.0000	0.0000
E205e	600.0000	594.7900	588.1926	12 9	0.0000	11.8074	12.5660	0.0000	0.0000	0.0000
E206a_b_c	600.0000	597.5000	591.1298	12 41	0.0000	8.8702	4012.8583	0.0000	0.0000	0.0000
206M02	600.0000	589.7000	589.6536	12 41	0.0000	10.3464	12.5660	0.0000	0.0000	0.0000
ER10a	600.0000	595.0000	588.0776	12 21	0.0000	11.9224	12.5660	0.0000	0.0000	0.0000
10a-OUT	600.0000	582.0000	580.0729	12 21	0.0000	19.9271	12.5660	0.0000	0.0000	0.0000
205E00	600.0000	592.0500	587.2376	12 14	0.0000	12.7624	12.5660	0.0000	0.0000	0.0000
N-LIBAL	600.0000	592.1000	585.4623	12 28	0.0000	14.5377	12.5660	0.0000	0.0000	0.0000
202-OUT	600.0000	588.0000	579.5770	12 34	0.0000	20.4230	12.5660	0.0000	0.0000	0.0000
N-E206	600.0000	590.0000	585.7719	12 26	0.0000	14.2281	12.5660	0.0000	0.0000	0.0000
206103	600.0000	595.6700	587.7428	12 11	0.0000	12.2572	12.5660	0.0000	0.0000	0.0000

```
=====
|                               |
|      Table E15 - SPREADSHEET INFO LIST          |
|      Conduit Flow and Junction Depth Information for use in |
|      spreadsheets. The maximum values in this table are the |
|      true maximum values because they sample every time step. |
|      The values in the review results may only be the |
|      maximum of a subset of all the time steps in the run. |
|      Note: These flows are only the flows in a single barrel. |
|=====|
```

Conduit Name	Maximum Flow (cfs)	Total Flow (ft^3)	Maximum Velocity (ft/s)	Maximum Volume (ft^3)	##	Junction Name	Invert Elevation (ft)	Maximum Elevation (ft)
SS-E202M04	3.3817	10334.6899	2.6206	395.2070	##	E230	583.0000	583.6370
SS-E202M03	3.2551	10353.9725	2.1276	896.8260	##	230-OUT	582.8000	583.3356
SS-E202M01	3.2092	10356.9599	2.8604	56.7428	##	E190a_b	583.1300	583.4549
SS-E204103	10.9203	49762.5694	6.1649	50.1009	##	190b-OUT	577.6200	577.9446
sw12-E203a	4.5514	17237.7069	1.3794	50.6393	##	E202	584.7400	585.5402
SS-E205101	34.6223	147980.0329	8.4353	265.3506	##	202M03	584.1500	585.0903
SS-E206c	11.1459	80198.1118	6.2867	203.0244	##	202M01	583.4800	584.2255
SS-E206M02	11.1458	80204.7836	6.4277	49.5591	##	S-LIBAL	581.5500	582.7654
dit-ER10a	2.6768	12546.3222	2.8187	0.5125	##	E203c	590.7400	595.4950
rav1-E206	50.6634	288081.4218	1.3297	21088.1319	##	203M01	588.5000	593.6491
rav-E202	49.2947	322412.3929	0.8862	48156.4032	##	E204	586.6100	591.5702
rav2-E206	-49.5431	-311757.983	-0.7200	24978.5398	##	204103	585.8900	588.0640
sw1-E203b	6.1001	23604.5284	0.5661	1527.2893	##	E206d_e	585.2300	587.7428
connect02	0.0000	0.0000	0.0000	0.0041	##	E205d	590.4600	591.8866
connect03	0.0000	0.0000	0.0000	0.0041	##	E205a-c	594.2500	595.7125
SS-E206103	-1.2148	-3639.9673	2.2335	120.6344	##	E203a	598.0000	598.5530
SS-E206M01	-51.8432	-286824.209	-8.6901	230.3258	##	E203b	594.0000	594.1776
Ov-E205101	0.0000	0.0000	0.0000	36.0924	##	E206f	590.0400	590.6098
Ov-E204102	0.0000	0.0000	0.0000	2982.0107	##	E205e	586.5000	588.1926
E206103	0.0000	0.0000	0.0000	0.0000	##	E206a_b_c	588.5000	591.1298
Ov2-202M04	0.0000	0.0000	0.0000	0.0000	##	206M02	588.2000	589.6536
Ov-E206c	0.0000	0.0000	0.0000	0.0000	##	ER10a	588.0000	588.0776
E230-Cv	2.3823	15004.0007	2.8263	21.3949	##	10a-OUT	580.0000	580.0729
E230-Ov	0.0000	0.0000	0.0000	0.0000	##	205E00	585.8500	587.2376
E190b-SS	2.6484	14267.1785	11.9681	0.5833	##	N-LIBAL	584.0500	585.4623
E190b-Ov	0.0000	0.0000	0.0000	0.0000	##	202-OUT	579.0000	579.5770
E203M02-SS	7.7183	36619.0102	4.7641	590.7541	##	N-E206	583.8000	585.7719
E203M02-Ov	2.3816	1508.7317	1.9785	29.3207	##	206103	585.1700	587.7428
E203M01-SS	7.5983	36516.7574	4.2387	735.9479	##			
E203M01-Cv	2.3476	1515.3193	1.8224	61.1443	##			
E204102-SS	10.9159	50300.7763	6.0959	539.6848	##			
E204102-Ov	0.0000	0.0000	0.0000	0.0000	##			
E205M02-SS	33.5911	141513.4072	9.9102	442.7598	##			
E205M02-Ov	0.0000	0.0000	0.0000	0.0000	##			
E205M03-SS	31.7848	132423.5241	9.3509	407.2985	##			
E205M03-Ov	0.0000	0.0000	0.0000	0.0000	##			
E206104-SS	1.2455	3588.5121	2.7547	45.1194	##			
E206104-Ov	0.0000	0.0000	0.0000	0.0000	##			
Libal-Cv	49.4517	311875.5289	12.7261	200.2420	##			
Libal-Ov	0.0000	0.0000	0.0000	0.0000	##			
FREE # 1	2.3823	15004.4457	0.0000	0.0000	##			
FREE # 2	2.6484	14267.0875	0.0000	0.0000	##			
FREE # 3	2.6768	12546.4171	0.0000	0.0000	##			
FREE # 4	49.2947	322421.1843	0.0000	0.0000	##			

Current Directory: C:\XPS\XPSWMM-3
Engine Name: C:\XPS\XPSWMM-3\SWMMEN-1.EXE
Input File : ettings\aschmidt.MCM\Desktop\Bethel\SWMM\Pre\Pre-Bethel_1-year.XP

```
=====
|                               |
|      xpswmm                  |
|      Storm and Wastewater Management Model      |
|      Developed by XP Software Inc.              |
|-----|
| Last Update       : June, 2011                  |
| Interface Version: 13.0                        |
| Engine Version   : 2011.0                      |
| Data File Version: 12.2                      |
| Serial Number    :                             |
|-----|
```

#####

Rainfall input summary from Runoff

#####

Total rainfall for gage # 1 is 3.7000 inches

Total Number of Subcatchments... 20
Total Tributary Area (acres).... 102.98
Impervious Area (acres)..... 0.00
Pervious Area (acres)..... 102.98
Total Width (feet)..... 20.00
Impervious Area (%)..... 0.00

```
=====
|                               |
|      Table E9 - JUNCTION SUMMARY STATISTICS      |
| The Maximum area is only the area of the node, it |
| does not include the area of the surrounding conduits |
|-----|
```

Junction Name	Ground Elevation feet	Uppermost PipeCrown Elevation feet	Maximum Junction Elevation feet	Time of Occurrence Hr. Min.	Feet of Surcharge at Max Elevation	Freeboard of node feet	Maximum Junction Area ft^2	Maximum Gutter Depth feet	Maximum Width feet	Maximum Gutter Velocity ft/s
E230	600.0000	588.0000	583.9843	12 32	0.0000	16.0157	901.0993	0.0000	0.0000	0.0000
230-OUT	600.0000	595.0000	583.6391	12 32	0.0000	16.3609	12.5660	0.0000	0.0000	0.0000
E190a_b	600.0000	595.0000	583.6207	12 12	0.0000	16.3793	12.5660	0.0000	0.0000	0.0000
190b-OUT	600.0000	595.0000	578.1104	12 12	0.0000	21.8896	12.5660	0.0000	0.0000	0.0000
E202	600.0000	589.9100	585.9047	12 7	0.0000	14.0953	12.5660	0.0000	0.0000	0.0000
202M03	600.0000	586.4000	585.4830	12 8	0.0000	14.5170	12.5660	0.0000	0.0000	0.0000
202M01	600.0000	585.7300	584.4989	12 10	0.0000	15.5011	12.5660	0.0000	0.0000	0.0000
S-LIBAL	600.0000	591.7800	583.0750	12 30	0.0000	16.9250	12.5660	0.0000	0.0000	0.0000
E203c	610.0000	597.3400	595.6139	12 14	0.0000	14.3861	12.5660	0.0000	0.0000	0.0000
203M01	610.0000	595.4900	593.7802	12 15	0.0000	16.2198	12.5660	0.0000	0.0000	0.0000
E204	600.0000	594.7400	591.9916	12 20	0.0000	8.0084	12.5660	0.0000	0.0000	0.0000
204I03	600.0000	593.3600	589.0600	12 9	0.0000	10.9400	12.5660	0.0000	0.0000	0.0000
E206d_e	600.0000	589.5300	588.8029	12 8	0.0000	11.1971	12.5660	0.0000	0.0000	0.0000
E205d	600.0000	598.1000	592.7785	12 7	0.0000	7.2215	12.5660	0.0000	0.0000	0.0000
E205a-c	605.0000	600.6900	596.4956	12 6	0.0000	8.5044	12.5660	0.0000	0.0000	0.0000
E203a	610.0000	601.0000	598.7263	12 13	0.0000	11.2737	12.5660	0.0000	0.0000	0.0000
E203b	610.0000	597.0000	594.2593	12 14	0.0000	15.7407	12.5660	0.0000	0.0000	0.0000
E206f	605.0000	596.0000	591.1245	12 6	0.0000	13.8755	12.5660	0.0000	0.0000	0.0000
E205e	600.0000	594.7900	589.4569	12 8	0.0000	10.5431	12.5660	0.0000	0.0000	0.0000
E206a_b_c	600.0000	597.5000	593.0937	12 59	0.0000	6.9063	28645.690	0.0000	0.0000	0.0000
206M02	600.0000	589.7000	590.1893	12 59	0.4893	9.8107	12.5660	0.0000	0.0000	0.0000
ER10a	600.0000	595.0000	588.1167	12 20	0.0000	11.8833	12.5660	0.0000	0.0000	0.0000
10a-OUT	600.0000	582.0000	580.1076	12 20	0.0000	19.8924	12.5660	0.0000	0.0000	0.0000
205E00	600.0000	592.0500	587.5766	12 11	0.0000	12.4234	12.5660	0.0000	0.0000	0.0000
N-LIBAL	600.0000	592.1000	586.0269	12 26	0.0000	13.9731	12.5660	0.0000	0.0000	0.0000
202-OUT	600.0000	588.0000	579.7685	12 30	0.0000	20.2315	12.5660	0.0000	0.0000	0.0000
N-E206	600.0000	590.0000	586.2888	12 24	0.0000	13.7112	12.5660	0.0000	0.0000	0.0000
206I03	600.0000	595.6700	588.8029	12 8	0.0000	11.1971	12.5660	0.0000	0.0000	0.0000

```
=====
|                               |
|      Table E15 - SPREADSHEET INFO LIST          |
| Conduit Flow and Junction Depth Information for use in |
| spreadsheets. The maximum values in this table are the |
| true maximum values because they sample every time step. |
| The values in the review results may only be the |
| maximum of a subset of all the time steps in the run. |
| Note: These flows are only the flows in a single barrel. |
|-----|
```

Conduit Name	Maximum Flow (cfs)	Total Flow (ft^3)	Maximum Velocity (ft/s)	Maximum Volume (ft^3)	##	Junction Name	Invert Elevation (ft)	Maximum Elevation (ft)
SS-E202M04	6.3810	19706.0400	3.0396	632.3270	##	E230	583.0000	583.9843
SS-E202M03	6.2190	19718.1490	2.6128	1383.7916	##	230-OUT	582.8000	583.6391
SS-E202M01	6.1672	19720.8918	3.6041	88.1177	##	E190a_b	583.1300	583.6207
SS-E204I03	11.2820	84887.6356	6.3669	50.3254	##	190b-OUT	577.6200	578.1104
swl2-E203a	9.0889	33801.5554	1.6546	126.3806	##	E202	584.7400	585.9047
SS-E205I01	66.4220	282768.7297	9.4433	417.7782	##	202M03	584.1500	585.4830
SS-E206c	15.6391	169578.3207	8.7448	212.4915	##	202M01	583.4800	584.4989
SS-E206M02	15.6391	169586.7352	8.8549	52.5051	##	S-LIBAL	581.5500	583.0750
dit-ER10a	5.5021	25250.2084	3.5270	1.2284	##	E203c	590.7400	595.6139
ravl-E206	87.8001	556112.6452	1.5106	32229.9707	##	203M01	588.5000	593.7802
rav-E202	91.2032	634265.1874	1.1163	70965.1800	##	E204	586.6100	591.9916
rav2-E206	-91.6088	-613720.880	-0.8387	40101.5389	##	204I03	585.8900	589.0600
swl-E203b	12.3310	46746.3648	0.7444	2960.1872	##	E206d_e	585.2300	588.8029
connect02	0.0000	0.0000	0.0000	0.0041	##	E205d	590.4600	592.7785
connect03	0.0000	0.0000	0.0000	0.0041	##	E205a-c	594.2500	596.4956
SS-E206I03	-2.3665	-7121.2364	2.2441	170.5592	##	E203a	598.0000	598.7263
SS-E206M01	-90.2028	-554658.204	-12.8223	356.7861	##	E203b	594.0000	594.2593
Ov-E205I01	0.0000	0.0000	0.0000	972.9748	##	E206f	590.0400	591.1245
Ov-E204I02	11.6496	10587.6810	0.0936	6310.0133	##	E205e	586.5000	589.4569
E206I03	0.0000	0.0000	0.0000	0.0000	##	E206a_b_c	588.5000	593.0937
Ov2-202M04	0.0000	0.0000	0.0000	0.0000	##	206M02	588.2000	590.1893
Ov-E206c	0.0000	0.0000	0.0000	0.0000	##	ER10a	588.0000	588.1167
E230-Cv	5.6583	33085.7707	3.7460	38.8228	##	10a-OUT	580.0000	580.1076
E230-Ov	0.0000	0.0000	0.0000	0.0000	##	205E00	585.8500	587.5766
E190b-SS	5.6145	29378.7401	14.6495	1.5264	##	N-LIBAL	584.0500	586.0269
E190b-Ov	0.0000	0.0000	0.0000	0.0000	##	202-OUT	579.0000	579.7685
E203M02-SS	7.5801	58112.9681	4.7330	591.0778	##	N-E206	583.8000	586.2888
E203M02-Ov	10.9548	13037.7309	2.8689	178.5162	##	206I03	585.1700	588.8029
E203M01-SS	7.3279	56837.0661	4.0867	738.8183	##			
E203M01-Cv	11.5684	14923.1876	2.2173	1298.2711	##			
E204I02-SS	11.2781	85450.7917	6.2904	544.4111	##			
E204I02-Ov	0.0000	0.0000	0.0000	0.0000	##			
E205M02-SS	64.2692	269966.9811	10.9031	1349.0079	##			
E205M02-Ov	0.0000	0.0000	0.0000	0.0000	##			
E205M03-SS	60.7767	251877.7870	10.6941	1130.2782	##			
E205M03-Ov	0.0000	0.0000	0.0000	0.0000	##			
E206I04-SS	2.3860	7105.7436	3.1196	104.3307	##			
E206I04-Ov	0.0000	0.0000	0.0000	0.0000	##			
Libal-Cv	90.6738	613898.9198	15.0977	369.6312	##			
Libal-Ov	0.0000	0.0000	0.0000	0.0000	##			
FREE # 1	5.6583	33086.2778	0.0000	0.0000	##			
FREE # 2	5.6145	29378.7146	0.0000	0.0000	##			
FREE # 3	5.5021	25250.2534	0.0000	0.0000	##			
FREE # 4	91.2032	634274.3179	0.0000	0.0000	##			

#####									
# Entry made to the HYDRAULIC Layer of XP-SWMM #									
# Last Updated in June, 2011 by XP Software									
#####									
# Entry made to the Runoff Layer (BLOCK) of SWMM #									
# Last Updated June, 2011 by XP Software									
#####									
* RUNOFF TABLES IN THE OUTPUT FILE.									
These are the more important tables in the output file.									
You can use your editor to find the table numbers,									
for example search for Table R3 to check continuity,									
and print the results in a table, or print the output									
and printed on US letter or A4 paper using portrait									
mode, courier font, a size of 8 pt. and margins of 0.75									
Table R1 - Physical Hydrology Data									
Table R2 - Infiltration data									
Table R3 - Infiltration Database Names									
Table R4 - Evaporation Database									
Table R5 - Continuity Check for Surface Water									
Table R6 - Continuity Check for Channels/Pipes									
Table R7 - Continuity Check for Subsurface Water									
Table R8 - Infiltration/Inflow Continuity Check									
Table R9 - Summary Statistics for Subcatchments									
Table R10 - Sensitivity analysis for Subcatchments									


```

Minimum Wetted Perimeter : 1.56E+02 ft
x left bank area      : 56.10 ft^2
x right bank area      : 95.00 ft^2
x center channel area : 417.6900 ft^2

```

Trip Num	Conduit Name	Length (ft)	Conduit Class	Area (ft ²)	Manning Coeff.	Max Width (ft)	Depth (ft) from top of pipe	Trapezoid Side Slope
1	S5-E202M94	280.2500	Circular	3.9761	0.0140	2.2500	2.2500	
2	S5-E202M93	663.0500	Circular	3.9761	0.0140	2.2500	2.2500	
3	S5-E202M91	56.6600	Circular	3.9761	0.0140	2.2500	2.2500	
4	S5-E204I03	58.2300	Circular	9.7611	0.0140	1.5000	1.5000	
5	S5-E205I01	29.1300	Circular	9.7611	0.0140	1.5000	1.5000	
6	S5-E205I01	59.2300	Circular	7.0686	0.0140	3.0000	3.0000	10.0000
7	S5-E206G6	115.2100	Circular	1.7671	0.0140	1.5000	1.5000	
8	S5-E206M02	29.6000	Circular	1.7671	0.0140	1.5000	1.5000	
9	rvt-Elr10A	60.3700	Trapezoid	140.0000	0.0300	10.0000	30.0000	30.0000
10	rvt-El206	541.8000	Natural	155.7900	0.0500	155.0000	6.2000	
11	R2-E20B91	963.5000	Natural	155.7900	0.0500	155.0000	6.2000	
12	R2-E20B6	963.5000	Natural	568.7900	0.0500	155.0000	6.2000	
13	srl-E20B6	209.3800	Trapezoid	800.2000	0.0300	10.0000	3.0000	20.0000
14	connect03	407.4200	Trapezoid	1500.0000	0.0110	50.0000	5.0000	20.0000
15	connect03	407.4200	Trapezoid	1500.0000	0.0110	50.0000	5.0000	50.0000
16	S5-E206I03	14.3200	Circular	12.5686	0.0140	4.0000	4.0000	50.0000
17	S5-E206M91	49.3700	Circular	7.0686	0.0140	3.0000	3.0000	50.0000
18	Ov-E204I02-S5	32.0000	Trapezoid	800.2000	0.0300	10.0000	2.0000	20.0000
19	Ov-E204I02	32.0000	Trapezoid	800.2000	0.0300	10.0000	2.0000	20.0000
20	E206I03	42.0000	Trapezoid	800.2000	0.0300	0.1000	2.0000	200.0000
21	Ov2-E202M94	56.0000	Trapezoid	200.2000	0.0110	0.1000	2.0000	200.0000
22	Ov2-E206C	35.0000	Trapezoid	183.0000	0.0300	0.1000	3.0000	20.0000
23	E230-CV	27.8800	Circular	3.1416	0.0240	2.0000	2.0000	200.0000
24	E230-CV	31.0000	Trapezoid	801.0000	0.0110	0.5000	2.0000	200.0000
25	E230-CV	31.0000	Trapezoid	801.0000	0.0110	0.5000	2.0000	200.0000
26	El9-B-09	33.5500	Trapezoid	820.0000	0.0300	10.0000	2.0000	200.0000
27	E203M02-S5	329.2000	Circular	1.7671	0.0140	1.5000	1.5000	200.0000
28	E203M02-CV	285.0000	Trapezoid	200.2000	0.0110	0.1000	2.0000	50.0000
29	E203M01-S5	410.3200	Circular	1.7671	0.0140	1.5000	1.5000	50.0000
30	E203M01-CV	400.0000	Trapezoid	200.2000	0.0110	0.1000	2.0000	50.0000
31	E204I02-S5	295.0000	Circular	200.2000	0.0110	0.1000	2.0000	50.0000
32	E204I02-S5	295.0000	Trapezoid	200.2000	0.0110	0.1000	2.0000	50.0000
33	E205M02-S5	280.9800	Circular	7.0686	0.0140	3.0000	3.0000	50.0000
34	E205M02-CV	300.0000	Trapezoid	200.2000	0.0110	0.1000	2.0000	50.0000
35	E205M03-S5	321.8900	Circular	7.0686	0.0140	3.0000	3.0000	50.0000
36	E205M03-CV	276.0000	Trapezoid	200.2000	0.0110	0.1000	2.0000	50.0000
37	E206I04-S5	325.8000	Circular	0.7854	0.0140	0.0000	1.0000	50.0000
38	Libal-CV	115.4400	Circular	12.5664	0.0140	4.0000	4.0000	50.0000
39	Libal-CV	115.4400	Circular	12.5664	0.0140	4.0000	4.0000	50.0000
40	Libal-CV	16.0000	Trapezoid	60.0000	0.0110	0.5000	2.0000	150.0000
Total length of all conduits ... 9370.7700 feet								

If there are messages about `(sort(g,d)*dt/dx)`, or the `sort(wavefile)*time step/conduit length` in the output file all it means is that the program will lower the internal time step to satisfy this condition (explicit condition).

Using the minimum courant time factor in the HYDRAULICS job control. The message put in words states that the smallest conduit with the fastest velocity will control the time step selection. You have further control by using the modify conduit option in the HYDRAULICS job control.

Conduit	Count	Name	Ratio
SS-E203M01	0.59		
SS-E202M03	0.39		
SS-E202M01	4.51	Warning ! (start wave velocity)*time step/conduit length)	
SS-E204103	7.39	Warning ! (start wave velocity)*time step/conduit length)	
sw12-E203A	0.33		
SS-E205101	4.99	Warning ! (start wave velocity)*time step/conduit length)	
SS-E205101	4.99	Warning ! (start wave velocity)*time step/conduit length)	
SS-E206M02	7.04	Warning ! (start wave velocity)*time step/conduit length)	
dl1-E201A	2.90	Warning ! (start wave velocity)*time step/conduit length)	
rav1-E206	0.60		
rav-E202	0.48		
rav2-E206	0.50		
connect01	0.69	Warning ! (start wave velocity)*time step/conduit length)	
connect02	0.69		
connect03	0.69		
SS-E206103	23.78	Warning ! (start wave velocity)*time step/conduit length)	
SS-E206M01	5.97	Warning ! (start wave velocity)*time step/conduit length)	
Ov-E205101	9.52	Warning ! (start wave velocity)*time step/conduit length)	
Ov-E206103	5.32	Warning ! (start wave velocity)*time step/conduit length)	
Ov-E206103	5.32	Warning ! (start wave velocity)*time step/conduit length)	
Ov-E206103	3.04	Warning ! (start wave velocity)*time step/conduit length)	
Ov-E206C	5.98	Warning ! (start wave velocity)*time step/conduit length)	
E230-CV	8.64	Warning ! (start wave velocity)*time step/conduit length)	
E230-Ov	1.03	Warning ! (start wave velocity)*time step/conduit length)	
E135-Ov	5.03	Warning ! (start wave velocity)*time step/conduit length)	
E135-Ov	5.11	Warning ! (start wave velocity)*time step/conduit length)	
E203M02-SS	0.63		
E203M02-Ov	0.60		
E203M01-SS	0.51		
E203M01-CV	0.43		

E204102-SS	0.71
E204102-Ov	0.58
E205902-SS	1.05
E205902-Ov	0.57

E205M03-SS	0.92
A0-O	0.62
E205M03	0.62
E206104-SS	0.52

Imp Num	Junction Name	Ground Elevation	Crown Elevation	Invert Elevation	Q1st cfs	Initial Depth-ft	Interface Flow (%)
1	E230	600.0000	588.0000	583.0000	0.0000	0.0000	100.0000
2	E230T	600.0000	595.0000	582.8000	0.0000	0.0000	100.0000
3	E230T	600.0000	595.0000	582.8000	0.0000	0.0000	100.0000
4	190b_Ov	600.0000	595.0000	577.6200	0.0000	0.0000	100.0000
5	E202	600.0000	589.9100	584.7400	0.0000	0.0000	100.0000
6	202003	600.0000	586.0400	584.1500	0.0000	0.0000	100.0000
7	202001	600.0000	585.7300	583.4800	0.0000	0.0000	100.0000
8	S-180A	600.0000	591.7800	581.5500	0.0000	0.0000	100.0000
9	S-180B	600.0000	591.7800	581.5500	0.0000	0.0000	100.0000
10	203001	610.0000	595.4900	588.5000	0.0000	0.0000	100.0000
11	E204	600.0000	594.7400	586.6100	0.0000	0.0000	100.0000
12	204103	600.0000	593.3600	585.8900	0.0000	0.0000	100.0000
13	E206Lc	600.0000	589.5300	585.2300	0.0000	0.0000	100.0000
14	E205d	600.0000	598.1000	590.4600	0.0000	0.0000	100.0000
15	E205a-c	605.0000	600.6900	594.2500	0.0000	0.0000	100.0000
16	E205b	605.0000	600.6900	594.2500	0.0000	0.0000	100.0000
17	E203b	610.0000	597.0000	594.0000	0.0000	0.0000	100.0000
18	E206f	605.0000	596.0000	590.0400	0.0000	0.0000	100.0000
19	E205e	600.0000	594.7900	586.5000	0.0000	0.0000	100.0000

		Table E3b - Junction Data									
21	206N02	600.0000	559.7000	588.2000	0.0000	0.0000	100.0000				
22	ERL0A	600.0000	555.0000	588.0000	0.0000	0.0000	100.0000				
23	10a-CUT	600.0000	582.0000	580.0000	0.0000	0.0000	100.0000				
24	205E00	600.0000	592.0500	585.8500	0.0000	0.0000	100.0000				
25	N-LIBAL	600.0000	592.1000	584.0500	0.0000	0.0000	100.0000				
26	205T01	600.0000	588.0000	582.0000	0.0000	0.0000	100.0000				
27	205T02	600.0000	588.0000	583.8000	0.0000	0.0000	100.0000				
28	206I03	600.0000	555.6700	585.1700	0.0000	0.0000	100.0000				

Imp Num	Junction	Name	X Coord.	Y Coord.	Type of Manhole	Type of Inlet	Maximum Capacity	Shape	Pavement Slope
1	E230		0.0000	0.0000	No P	Normal	0	0	0.0000
2	230-OUT		0.0000	0.0000	No P	Normal	0	0	0.0000
3	230-INT		0.0000	0.0000	No P	Normal	0	0	0.0000
4	190b-OUT		0.0000	0.0000	No P	Normal	0	0	0.0000
5	E202		0.0000	0.0000	No P	Normal	0	0	0.0000
6	202003		0.0000	0.0000	No P	Normal	0	0	0.0000
7	202001		0.0000	0.0000	No P	Normal	0	0	0.0000
8	S-11BAL		0.0000	0.0000	No P	Normal	0	0	0.0000
9	202002		0.0000	0.0000	No P	Normal	0	0	0.0000
10	203001		0.0000	0.0000	No P	Normal	0	0	0.0000
11	E204		0.0000	0.0000	No P	Normal	0	0	0.0000
12	204103		0.0000	0.0000	No P	Normal	0	0	0.0000
13	E2064_e		0.0000	0.0000	No P	Normal	0	0	0.0000
14	E205d		0.0000	0.0000	No P	Normal	0	0	0.0000
15	E205b		0.0000	0.0000	No P	Normal	0	0	0.0000
16	E203c		0.0000	0.0000	No P	Normal	0	0	0.0000
17	E203b		0.0000	0.0000	No P	Normal	0	0	0.0000
18	E206f		0.0000	0.0000	No P	Normal	0	0	0.0000
19	E205e		0.0000	0.0000	No P	Normal	0	0	0.0000
20	E206a_e		0.0000	0.0000	No P	Normal	0	0	0.0000
21	E206b_e		0.0000	0.0000	No P	Normal	0	0	0.0000
22	ER10a		0.0000	0.0000	No P	Normal	0	0	0.0000
23	10a-OUT		0.0000	0.0000	No P	Normal	0	0	0.0000
24	205E00		0.0000	0.0000	No P	Normal	0	0	0.0000
25	N-11BAL		0.0000	0.0000	No P	Normal	0	0	0.0000
26	202002		0.0000	0.0000	No P	Normal	0	0	0.0000
27	E2020		0.0000	0.0000	No P	Normal	0	0	0.0000
28	206103		0.0000	0.0000	No P	Normal	0	0	0.0000

STORAGE JUNCTION DATA FOR NODE E230

Input	Conduit	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
Number	Name	Node	Node	Elevation	Elevation	Flow	Flow	Flow	Flow
1	SS-E202M04	E202	202M03	584.1500	No Design	0.0000	No Design	0.0000	No Design
2	SS-E202M01	E202	202M01	584.1500	No Design	0.0000	No Design	0.0000	No Design
3	SS-E202M01	E202	202M01	584.1500	No Design	0.0000	No Design	0.0000	No Design
4	SS-E204103	E204	204103	585.8900	No Design	0.0000	No Design	0.0000	No Design
5	sw12-E203a	E203a	E203b	594.0000	No Design	0.0000	No Design	0.0000	No Design
6	SS-E205101	E205	E205b	585.7800	No Design	0.0000	No Design	0.0000	No Design
7	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
8	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
9	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
10	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
11	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
12	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
13	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
14	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
15	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
16	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
17	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
18	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
19	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
20	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
21	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
22	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
23	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
24	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
25	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
26	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
27	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
28	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
29	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
30	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
31	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
32	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
33	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
34	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
35	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
36	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
37	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
38	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
39	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
40	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design

STORAGE JUNCTION DATA FOR NODE E206a_b_c

Input	Conduit	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
Number	Name	Node	Node	Elevation	Elevation	Flow	Flow	Flow	Flow
1	SS-E202M04	E202	202M03	584.1500	No Design	0.0000	No Design	0.0000	No Design
2	SS-E202M01	E202	202M01	584.1500	No Design	0.0000	No Design	0.0000	No Design
3	SS-E202M01	E202	202M01	584.1500	No Design	0.0000	No Design	0.0000	No Design
4	SS-E204103	E204	204103	585.8900	No Design	0.0000	No Design	0.0000	No Design
5	sw12-E203a	E203a	E203b	594.0000	No Design	0.0000	No Design	0.0000	No Design
6	SS-E205101	E205	E205b	585.7800	No Design	0.0000	No Design	0.0000	No Design
7	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
8	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
9	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
10	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
11	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
12	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
13	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
14	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
15	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
16	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
17	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
18	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
19	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
20	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
21	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
22	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
23	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
24	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
25	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
26	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
27	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
28	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
29	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
30	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
31	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
32	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
33	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
34	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
35	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
36	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
37	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
38	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
39	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
40	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design

STORAGE JUNCTION DATA FOR NODE E206a_b_c

Input	Conduit	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
Number	Name	Node	Node	Elevation	Elevation	Flow	Flow	Flow	Flow
1	SS-E202M04	E202	202M03	584.1500	No Design	0.0000	No Design	0.0000	No Design
2	SS-E202M01	E202	202M01	584.1500	No Design	0.0000	No Design	0.0000	No Design
3	SS-E202M01	E202	202M01	584.1500	No Design	0.0000	No Design	0.0000	No Design
4	SS-E204103	E204	204103	585.8900	No Design	0.0000	No Design	0.0000	No Design
5	sw12-E203a	E203a	E203b	594.0000	No Design	0.0000	No Design	0.0000	No Design
6	SS-E205101	E205	E205b	585.7800	No Design	0.0000	No Design	0.0000	No Design
7	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
8	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
9	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
10	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
11	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
12	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
13	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
14	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
15	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
16	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
17	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
18	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
19	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
20	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
21	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
22	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
23	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
24	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
25	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
26	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
27	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
28	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
29	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
30	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
31	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
32	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
33	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
34	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
35	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
36	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
37	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
38	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
39	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design
40	SS-E206101	E206	E206b	588.5000	No Design	0.0000	No Design	0.0000	No Design

STORAGE JUNCTION DATA FOR NODE E206a_b_c

Input	Conduit	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
Number	Name	Node	Node	Elevation	Elevation	Flow	Flow	Flow	Flow
1	SS-E202M04	E202	202M03	584.1500	No Design	0.0000	No Design	0.0000	No Design
2	SS-E202M01	E202	202M01	584.1500	No Design	0.0000	No Design	0.0000	No Design
3	SS-E202M01	E202	202M01	584.1500	No Design	0.0000	No Design	0.0000	No Design
4	SS-E204103	E204	204103	585.8900	No Design	0.0000	No Design	0.0000	No Design
5	sw12-E203a	E203a	E203b	594.0000	No Design	0.0000			

[illegible]

[illegible]

Pre Pond, Existing Land Use Condition

XP-SWMM Model Results

100-year Storm Event

Cycle	7000	Time	58 Hrs - 20.00 Min	FREE # 1/	0.00	FREE # 2/	0.00	FREE # 3/	0.00	FREE # 4/	0.00
Junction / Depth / Elevation ==> *** Junction is Surcharged.											
E230/	0.00	593.00	230-OUT/	0.00	582.80	0.00	593.13	0.00	593.13	0.00	0.00
190b-OUT/	0.00	577.62	E202/	0.00	584.74	0.00	584.15	0.00	584.15	0.00	0.00
190a-b/	0.00	583.48	S-11/	0.00	581.55	0.00	581.55	0.00	581.55	0.00	0.00
202M01/	0.00	598.50	E204/	0.00	586.61	0.00	598.50	0.00	598.50	0.00	0.00
E206a-b/	0.62	595.85	E205d/	0.00	590.46	0.00	595.85	0.00	595.85	0.00	0.00
E206a_c/	0.00	598.00	E203b/	0.00	598.00	0.00	598.00	0.00	598.00	0.00	0.00
E205a/	0.00	598.50	E206e/	0.00	588.50	0.00	598.50	0.00	598.50	0.00	0.00
ER10a/	0.00	598.00	10a-OUT/	0.00	589.00	0.00	598.00	0.00	598.00	0.00	0.00
N-LIBAL/	0.00	584.05	202-OUT/	0.00	579.00	0.00	584.05	0.00	584.05	0.00	0.00
206103/	0.68	595.85						0.25	595.85	0.00	0.00
FLOW ==> *** Conduit uses the normal flow option.											
SS-E202M04/	0.00	SS-E202M03/	0.00*	SS-E204103/	0.00	SS-E206M02/	0.00	SS-E206M02/	0.00	0.00	0.00
sw12-E203a/	0.00	SS-E205101/	0.00*	SS-E206c/	0.00	rav-E202/	0.00	rav-E202/	0.00	0.00	0.00
dit-ER10a/	0.00	rav1-E206/	0.00*	connect03/	0.00	connect03/	0.00	connect03/	0.00	0.00	0.00
SS-E206M01/	0.00*	connect02/	0.00	Ov-E205a101/	0.00	Ov-E204102/	0.00*	Ov-E204102/	0.00*	0.00	0.00
Ov2-E202M04/	0.00*	Ov-E206c/	0.00	Ov-E203c/	0.00	E203c-Cv/	0.00	E203c-Cv/	0.00	0.00	0.00
E203M01-SS/	0.00*	E203M01-Cv/	0.00*	E204102-SS/	0.00	E204102-SS/	0.00	E204102-SS/	0.00	0.00	0.00
E203M02-SS/	0.00	E203M02-Cv/	0.00*	E205M03-SS/	0.00	E205M03-SS/	0.00*	E205M03-SS/	0.00*	0.00	0.00
E206104-SS/	0.00	E206104-Cv/	0.00	E206104-Cv/	0.00	LIBAL-Cv/	0.00*	LIBAL-Cv/	0.00*	0.00	0.00
FREE # 1/	0.00	FREE # 2/	0.00	FREE # 3/	0.00	FREE # 4/	0.00	FREE # 4/	0.00	0.00	0.00
Table E5 - Junction Time Limitation Summary											
(0.10 or 0.25)* Depth * Area											
Time step = Sum of Flow											
The time this junction was the limiting junction is listed in the third column.											
Time (10) Time (25) Time (sec)											
Junction	E230	169.8214	300.0000	27000.0000	E230						
230-OUT	300.0000	300.0000	0.0000		E190a-b						
E190a-b	228.7194	300.0000	0.0000		190b-OUT						
190b-OUT	300.0000	300.0000	0.0000		E202						
E202	81.2453	203.1132	0.0000		202M01						
202M01	103.8469	259.6174	0.0000		S-LIBAL						
202M01	180.4479	300.0000	0.0000		E203c						
S-LIBAL	147.4501	300.0000	0.0000		203M01						
E203c	1.3820	3.4549	60.0000		E204						
203M01	1.5833	3.9582	960.0000		E204103						
E204	2.9058	7.2646	210.0000		E206d_e						
E204103	9.1319	22.8297	13430.0000		E205d						
E206d_e	15.6898	39.2244	1430.0000		E205a-c						
E205d	2.3138	5.7845	360.0000		E203a						
E205a-c	2.5141	6.2852	180.0000		E203b						
E203a	206.0654	300.0000	0.0000		E206f						
E203b	14.5283	36.3207	0.0000		E209e						
E206f	4.8317	12.0792	330.0000		E206a_b_c						
E209e	5.6579	14.1448	2460.0000		ER10a						
E206a_b_c	16.5169	41.2922	90.0000		10a-OUT						
ER10a	8.2108	20.5270	1320.0000		205E00/						
10a-OUT	300.0000	300.0000	0.0000		N-LIBAL						
205E00/	107.2518	268.1294	0.0000		202-OUT						
N-LIBAL	95.3056	238.2641	0.0000		N-E206						
202-OUT	300.0000	300.0000	0.0000		206103						
N-E206	86.0564	215.1411	0.0000								
206103	3.3201	8.3003	25620.0000		The junction requiring the smallest time step was...204103						
Table E5a - Conduit Explicit Condition Summary											
Courant = Conduit Length / (Velocity + sqrt(g*depth))											
Time step =											
Courant = Conduit Length / (Velocity + sqrt(g*depth))											
Time step =											
The 3rd column is the Explicit time step times the minimum courant time step factor											
Minimum Conduit Time Step in seconds in the 4th column in the list. Maximum possible is 10 * maximum time step											
The 5th column is the maximum change at any time step during the simulation. The 6th column is the wobble value which is an indicator of the flow stability.											
You should use this section to find those conduits that are slowing your model down. Use modify conduits to alter the length of the slow conduits to make your simulation faster, or change the conduit name to "CNAME?????" where ????? are any characters, this will lengthen the conduit based on the model time step, not the value listed in modify conduits.											
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The											

Pre Pond, Existing Land Use Condition

XP-SWMM Model Results

100-year Storm Event

Page 10 of 16

[illegible]

Pre Pond, Existing Land Use Condition

XP-SWMM Model Results

100-year Storm Event

Max Intensity (in/hr).. 6.99210	6.99210	6.99210	6.99210	6.99210	6.99210
Pervious Area					

Total Runoff Depth (in)	3.18742	3.01694	3.65700	3.22554	3.02634
Peak Runoff Rate (cfs) ..	4.03020	4.30856	1.84578	14.99391	5.43498
6.18864					
Total Impervious Area					

Total Runoff Depth (in)	0.00000	0.00000	0.00000	0.00000	0.00000
Peak Runoff Rate (cfs) ..	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000					
Impervious Area with depression storage					

Total Runoff Depth (in)	0.00000	0.00000	0.00000	0.00000	0.00000
Peak Runoff Rate (cfs) ..	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000					
Total Area					

Total Runoff Depth (in)	3.18742	3.01694	3.65700	3.22554	3.02634
Peak Runoff Rate (cfs) ..	4.03020	4.30856	1.84578	14.99391	5.43498
6.18864					
Rational Formula					

Pervious Tc. (mins)	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000					
Perv. Intensity (in/hr)	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000					
Pervious C	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000					
Impervious Tc. (mins) ..	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000					
Imp. Intensity (in/hr) ..	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000					
Impervious C	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000					
Partial Area (Ha)	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000					
Partial Area Tc.	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000					
Partial Area Intensity ..	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000					
Subcatchment					

Area (acres)	E190a_b42	ER10a41			
2.79900		3.71100			
Percent Impervious	0.00000	0.00000			
Total Rainfall (in)	5.10000	5.10000			
Max Intensity (in/hr) ..	6.99210	6.99210			
Pervious Area					

Total Runoff Depth (in)	2.80515	3.09062			
Peak Runoff Rate (cfs) ..	5.41982	9.06409			
Total Impervious Area					

Total Runoff Depth (in)	0.00000	0.00000			
Peak Runoff Rate (cfs) ..	0.00000	0.00000			
Impervious Area with depression storage					

Total Runoff Depth (in)	0.00000	0.00000			
Peak Runoff Rate (cfs) ..	0.00000	0.00000			
Impervious Area without depression storage					

Total Runoff Depth (in)	0.00000	0.00000			
Peak Runoff Rate (cfs) ..	0.00000	0.00000			
Total Area					

Total Runoff Depth (in)	2.80515	3.09062			
Peak Runoff Rate (cfs) ..	5.41982	9.06409			
Rational Formula					

Pervious Tc. (mins)	0.00000	0.00000			
0.00000					
Perv. Intensity (in/hr)	0.00000	0.00000			
0.00000					
Pervious C	0.00000	0.00000			
0.00000					
Impervious Tc. (mins) ..	0.00000	0.00000			
0.00000					
Imp. Intensity (in/hr) ..	0.00000	0.00000			
0.00000					
Impervious C	0.00000	0.00000			
0.00000					
Partial Area (Ha)	0.00000	0.00000			
0.00000					
Partial Area Intensity ..	0.00000	0.00000			
0.00000					
====> Runoff simulation ended normally.					

Table E6. Final Model Condition
This table is used for steady state
flow comparison and is the information
saved to the hot-restart file.
Final Time = 60.008 hours

Junction / Depth / Elevation ==> ** Junction is Surcharged.

190b-OUT/	0.00 /	583.00/	230-OUT/	0.00 /	582.80/	E190a_b/	0.00 /	583.13/
202M01/	0.00 /	577.62/	E202/	0.00 /	584.74/	202M03/	0.00 /	584.15/
S-LIBAL/	0.00 /	583.48/	S-LIBAL/	0.00 /	581.55/	E203c/	0.00 /	590.74/
E203b/	0.00 /	586.50/	E203a/	0.00 /	586.46/	E204i3/	0.00 /	592.31/
E203a/	0.00 /	588.55/	E205d/	0.00 /	594.46/	E206f/	0.00 /	592.31/
E205e/	0.00 /	598.00/	E203b/	0.00 /	594.00/	E206f/	0.00 /	590.04/
E206a_b_c/	0.00 /	586.50/	E206a_b_c/	0.00 /	588.50/	206M02/	0.00 /	588.20/
N-LIBAL/	0.00 /	588.00/	10a-OUT/	0.00 /	580.00/	205E00/	0.00 /	585.85/
206i03/	0.00 /	584.05/	202-OUT/	0.00 /	579.00/	N-E206/	0.25 /	584.05/
0.68 /	585.85/							

Conduit/ Flow ==> *** Conduit uses the normal flow option.

SS-E202M04/	0.00*/	SS-E202M03/	0.00 /	SS-E202M01/	0.00 /
SS-E204i03/	0.00*/	sw12-E203a/	0.00 /	SS-E205i01/	0.00*/
SS-E206c/	0.00 /	SS-E206M02/	0.00 /	dl1-ER10a/	0.00 /
ravi-E206c/	0.00*/	ravi-E202/	0.00 /	ravi-E206/	0.00 /
sw-E203b/	0.00*/	connect02/	0.00 /	connect03/	0.00 /
SS-E204i02/	0.00*/	SS-E206i03/	0.00 /	OV2-202M04/	0.00 /
OV-E204i02/	0.00*/	E206i03/	0.00 /	OV2-202M04/	0.00 /
OV-E206c/	0.00 /	E230-Cv/	0.00 /	E230-Ov/	0.00 /
E190b-Ss/	0.00 /	E19b-Ov/	0.00 /	E203M02-Ss/	0.00*/
E203M02-Ov/	0.00*/	E203M01-Ss/	0.00*/	E203M01-Cv/	0.00*/
E204i02-Ss/	0.00 /	E204i02-Ov/	0.00 /	E203M02-Ss/	0.00 /
E205M03-Ss/	0.00 /	E205M03-Ss/	0.00 /	E203M03-Ov/	0.00 /
E206i02-Ss/	0.00 /	E206i02/	0.00 /	FREE # 1/	0.00 /
Libal-Ov/	0.00 /	FREE # 1/	0.00 /	FREE # 2/	0.00 /
FREE # 3/	0.00 /	FREE # 4/	0.00 /		

Conduit/ Velocity

SS-E202M04/	0.00 /	SS-E202M03/	0.00 /	SS-E202M01/	0.00 /
SS-E204i03/	0.00 /	sw12-E203a/	0.00 /	SS-E205i01/	0.00 /
SS-E206c/	0.00 /	SS-E206M02/	0.00 /	dl1-ER10a/	0.00 /
ravi-E206c/	0.00 /	ravi-E202/	0.00 /	ravi-E206/	0.00 /
sw-E203b/	0.00 /	connect02/	0.00 /	connect03/	0.00 /
SS-E204i02/	0.00 /	SS-E206i03/	0.00 /	OV2-202M04/	0.00 /
OV-E204i02/	0.00 /	E206i03/	0.00 /	OV2-202M04/	0.00 /
OV-E206c/	0.00 /	E19b-Ov/	0.00 /	E230-Ov/	0.00 /
E190b-Ss/	0.00 /	E203M01-Ss/	0.00 /	E203M01-Cv/	0.00 /
E203M02-Ov/	0.00 /	E204i02-Ss/	0.00 /	E203M02-Ss/	0.00 /
E204i02-Ss/	0.00 /	E204i02-Ov/	0.00 /	E203M02-Ss/	0.00 /
E205M03-Ss/	0.00 /	E205M03-Ss/	0.00 /	E203M03-Ov/	0.00 /
E206i02-Ss/	0.00 /	E206i02/	0.00 /	Libal-Cv/	0.00 /
Libal-Ov/	0.00 /	E206i04-Ov/	0.00 /		

Conduit/ Width

SS-E202M04/	0.88 /	SS-E202M03/	0.88 /	SS-E202M01/	0.88 /
SS-E204i03/	0.68 /	sw12-E203a/	1.00 /	SS-E205i01/	1.18 /
SS-E206c/	0.59 /	SS-E206M02/	0.59 /	dl1-ER10a/	10.00 /
ravi-E206c/	0.94 /	ravi-E202/	0.00 /	ravi-E206/	0.93 /
sw-E203b/	1.00 /	connect02/	0.00 /	connect03/	0.00 /
SS-E204i02/	11.00 /	SS-E206i03/	0.00 /	OV2-202M04/	0.00 /
OV-E204i02/	10.10 /	E206i03/	0.00 /	OV2-202M04/	0.00 /
OV-E206c/	0.00 /	E230-Cv/	0.78 /	E230-Ov/	0.00 /
E190b-Ss/	0.39 /	E19b-Ov/	0.00 /	E203M02-Ss/	0.59 /
E203M02-Ov/	0.10 /	E203M01-Ss/	0.00 /	E203M01-Cv/	0.13 /
E204i02-Ss/	0.59 /	E204i02-Ov/	0.00 /	E203M02-Ss/	0.18 /
E205M03-Ss/	0.19 /	E205M03-Ss/	0.18 /	E203M03-Ov/	0.22 /
E206i02-Ss/	0.00 /	E206i02/	0.11 /	Libal-Cv/	1.57 /
Libal-Ov/	0.00 /	E206i04-Ov/			

Junction/

E230/	0.00 /	EGL	0.00 /	E190a_b/	0.00 /
190b-OUT/	1.38 /	E202/	0.00 /	202M03/	0.00 /
202M01/	16.52 /	S-LIBAL/	0.00 /	E203c/	0.00 /
E203b/	21.59 /	E204/	0.00 /	204i03/	0.00 /
E203a/	2.80 /	E205d/	0.00 /	E205e-c/	0.00 /
E205e/	0.00 /	E203b/	0.00 /	E206f/	0.00 /
E206a_b_c/	0.00 /	E206a_b_c/	0.00 /	206M02/	0.00 /
N-LIBAL/	0.00 /	10a-OUT/	0.00 /	205E00/	0.00 /
206i03/	3.47 /	202-OUT/	0.00 /	N-E206/	0.25 /

Junction/ Freeboard

E230/	17.00 /	230-OUT/	17.20 /	E190a_b/	16.87 /
190b-OUT/	22.38 /	E202/	15.26 /	202M03/	15.85 /
202M01/	16.52 /	S-LIBAL/	18.45 /	E203c/	19.26 /
E203b/	21.59 /	E204/	13.39 /	204i03/	14.15 /
E203a/	12.00 /	E205d/	16.00 /	E205e-c/	14.36 /
E205e/	13.50 /	E203b/	11.50 /	E206f/	11.80 /
E206a_b_c/	12.00 /	E206a_b_c/	20.00 /	206M02/	14.15 /
N-LIBAL/	15.95 /	10a-OUT/	21.00 /	205E00/	15.95 /
206i03/	14.15 /	202-OUT/		N-E206/	

Junction/ Max Volume

E230/	787.10 /	230-OUT/	14.20 /	E190a_b/	8.57 /
190b-OUT/	8.57 /	E202/	19.98 /	202M03/	22.14 /
202M01/	16.09 /	S-LIBAL/	23.01 /	E203c/	62.21 /
E203b/	67.33 /	E204/	68.34 /	204i03/	56.51 /
E203a/	62.83 /	E205d/	74.88 /	E205e-c/	60.83 /
E205e/	67.84 /	E203b/	69853.82 /	E206f/	29.52 /
E206a_b_c/	67.84 /	E206a_b_c/	1.83 /	206M02/	25.22 /
N-LIBAL/	32.57 /	10a-OUT/	11.49 /	205E00/	38.22 /
206i03/		202-OUT/		N-E206/	

[illegible]

Pre Pond, Existing Land Use Condition

XP-SWMM Model Results

100-year Storm Event

* this is an open conduit that has been overtopped |
| denotes a potential source of severe errors |
|-----*

Conduit Name	Design Flow Velocity (ft/s)	Design Vertical Depth (ft)	Maximum Computed Flow (cfs)	Time of Occurrence (hr)	Maximum Computed Velocity (ft/s)	Time of Occurrence (hr)	Ratio of Max. to Min. Flow		US	d/D	
							Upstream	Downstream			
SS-E202M04	13.1951	3.3186	27.0000	9.9991	12	6	0.7578	585.3200	585.9115	0.707	0.783
SS-E202M03	9.1417	2.2992	27.0000	9.8020	12	8	1.0420	585.9115	584.7604	0.783	0.569
SS-E202M01	9.3983	2.3537	27.0000	9.7512	12	9	1.0420	584.7604	584.4966	0.569	0.479
SS-E202M02	9.1417	2.2992	27.0000	9.7512	12	3	0.3084	584.4966	584.2326	0.292	0.113
SS-E205M01	68.3428	9.6685	36.0000	14.1111	12	13	0.3084	598.7504	594.3342	0.292	0.113
SS-E206M02	4.9774	2.8166	18.0000	17.8722	13	12	1.5295	591.8989	590.2297	1.800	1.483
SS-E206M01	7.3920	18.8448	24.0000	9.0633	13	12	3.5997	594.2826	590.5491	3.455	1.566
dt-ER10A	26.3878	4.3376	174.4000	125.3664	12	18	0.0358	587.8611	586.8417	0.035	0.034
dt-ER10B	26.3878	4.3376	174.4000	125.3664	12	11	0.0358	587.8611	586.8417	0.035	0.034
dt-ER10C	26.3878	4.3376	174.4000	125.3664	12	6	0.0508	587.8611	586.8417	0.324	0.491
dt-ER10D	26.3878	4.3376	174.4000	125.3664	12	27	0.0265	583.8088	579.9141	0.203	0.102
dt-ER10E	26.3878	4.3376	174.4000	125.3664	12	21	-0.9392	586.8417	586.8417	0.450	0.458
dt-ER10F	26.3878	4.3376	174.4000	125.3664	12	14	0.8706	594.3342	586.8417	0.110	1.000
connect02	1250.692	0.0000	60.0000	0.0000	0	0	0.0000	578.3017	578.3017	0.000	0.000
connect03	1250.692	0.0000	60.0000	0.0000	0	0	0.0000	583.8118	583.8118	0.000	0.000
SS-E206M03	9.8785	9.8785	48.0000	3.7867	12	2	-1.5587	593.9029	590.2298	0.250	0.875
SS-E205M01	1780.689	8.8945	24.0000	-129.810	12	9	-18.8568	590.2297	587.8611	1.460	0.877
OV-E205M01	1780.689	8.8945	24.0000	0.0000	0	0	0.0000	592.0482	592.0482	0.000	0.000
OV-E204M02	16415.24	20.1139	36.4996	30.1772	12	15	0.0118	592.0482	586.8417	0.062	1.000
E206M03	11428.64	14.2822	24.0000	0.0000	0	0	0.0000	587.8611	587.8611	0.000	0.000
OV-E202M04	5137.581	25.6622	24.0000	0.0000	0	0	0.0000	583.8118	583.8118	0.000	0.000
OV-E202M03	5137.581	25.6622	24.0000	0.0000	0	0	0.0000	590.2298	590.2298	0.000	0.000
E230-CV	10.3786	3.3036	24.0000	9.9898	12	32	4.5528	594.3388	593.9304	0.669	0.565
E230-CV	15309.14	11.7125	24.0000	0.0000	0	0	0.0000	593.9304	593.9304	0.000	0.000
E190B-CV	11.6074	14.7929	24.0000	9.3845	12	12	16.4574	583.8118	579.6817	0.682	0.682
E190B-CV	19643.68	23.9557	24.0000	0.0000	0	0	0.0000	578.3017	578.3017	0.000	0.000
E230M02-CV	27.0460	10.5531	18.0000	17.866	11	13	4.8445	595.6008	593.8885	3.011	3.572
E230M02-CV	27.0460	10.5531	18.0000	21.881	11	13	4.8445	595.6008	593.8885	3.011	3.572
E230M01-CV	6.6193	3.7661	18.0000	7.2851	11	54	4.0628	583.8118	582.0482	3.712	3.625
E230M01-CV	1973.959	9.8599	24.0000	21.8219	12	15	2.5618	593.8885	592.0482	0.834	0.344
E204M02-CV	8.4217	9.2245	18.0000	11.1564	12	56	6.2223	592.0482	590.3871	3.623	2.998
E204M02-CV	1850.144	7.2818	24.0000	0.0000	0	0	0.0000	590.3871	590.3871	0.000	0.000
E203M02-CV	73.5495	14.051	36.0000	85.383	12	3	12.0138	596.4186	591.8989	1.986	1.800
E203M02-CV	2841.387	14.1027	24.0000	21.2841	12	6	4.1768	596.4186	593.1079	0.159	0.159
E203M02-CV	2810.804	14.051	36.0000	85.383	12	6	4.2246	596.4186	591.8989	0.159	0.159
E203M02-CV	2810.804	14.051	36.0000	85.383	12	6	4.2246	596.4186	591.8989	0.159	0.159
E206M04-CV	2.1684	2.7609	12.0000	38.9894	12	3	8.8448	594.0494	590.2298	4.009	1.354
E206M04-CV	2019.896	10.0894	24.0000	0.0755	12	7	0.6548	594.0494	592.1755	0.023	0.077
Libal-CV	136.2025	15.6133	48.0000	143.7320	12	24	17.2466	586.8417	583.8088	0.448	0.458
Libal-CV	11488.119	11.1151	24.0000	0.0000	0	0	0.0000	583.8088	583.8088	0.000	0.000
FREE # 1	Underfed	Underfed	Underfed	9.9898	12	32	4.5528	594.3388	593.9304	0.669	0.565
FREE # 2	Underfed	Underfed	Underfed	11.7125	12	15	0.0118	592.0482	586.8417	0.062	1.000
FREE # 3	Underfed	Underfed	Underfed	9.0633	13	12	1.5295	591.8989	590.2297	1.800	1.483
FREE # 4	Underfed	Underfed	Underfed	145.0822	12	27	0.0265	583.8088	579.9141	0.203	0.102

XP-SWMM Model Results

[illegible]

[illegible]

Table E20 Junction Flooding and Volume Listing
The table below lists the total volume in the node including the volume in the flooded storage area. This is the max volume at any time. The volume in the flooded storage area is the total volume above the ground elevation, where the sum of the flooded volume over the entire simulation (Units are either ft^3 or m^3 depending on the units.)

Junction Name	Surcharged Time (min)	Flooded Time (min)	Out of 1D-System (Flooded Volume)	Maximum Volume	Passed to 2D cell or Volume Stored in allowed Flood Pond of 1D-System
E230	0.0000	0.0000	0.0000	787.1029	0.0000
230-OUT	0.0000	0.0000	0.0000	14.2047	0.0000
190b-OUT	0.0000	0.0000	0.0000	8.5652	0.0000
E202	0.0000	0.0000	0.0000	19.9794	0.0000
202M01	0.0000	0.0000	0.0000	22.1352	0.0000
S-11BAL	0.0000	0.0000	0.0000	16.0901	0.0000
E203c	0.0000	0.0000	0.0000	23.0059	0.0000
203-OUT	0.0000	0.0000	0.0000	62.2124	0.0000
E204	0.0000	0.0000	0.0000	68.3367	0.0000
204I03	0.0000	0.0000	0.0000	56.5110	0.0000
E206d_e	18.6923	0.0000	0.0000	62.8260	0.0000
E205d	0.0000	0.0000	0.0000	74.8761	0.0000
E205a-c	0.0000	0.0000	0.0000	60.8313	0.0000
E203a	0.0000	0.0000	0.0000	11.1980	0.0000
E206f	0.0000	0.0000	0.0000	50.3815	0.0000
E205e	0.0000	0.0000	0.0000	67.8431	0.0000
E206a_b_c	0.0000	0.0000	0.0000	69853.8171	0.0000
206M02	207.7410	0.0000	0.0000	29.5189	0.0000
ER10a	0.0000	0.0000	0.0000	1.8902	0.0000
10a-OUT	0.0000	0.0000	0.0000	25.2709	0.0000
205E00	0.0000	0.0000	0.0000	32.5675	0.0000
N-11BAL	0.0000	0.0000	0.0000	11.4860	0.0000
202-OUT	0.0000	0.0000	0.0000	38.2217	0.0000
N-E206	0.0000	0.0000	0.0000	63.5809	0.0000
206I03	0.0000	0.0000	0.0000		

Simulation Specific Information

Number of Input Conduits..... 40
Number of Natural Channels..... 3
Number of Storage Junctions..... 2
Number of Weirs..... 0
Number of Pumps..... 0
Number of Tide Gate Outfalls..... 0

Average % Change in Junction or Conduit is defined as:
Conduit % Change => 100.0 * (Q(n+1) - Q(n)) / Q(n)
Junction % Change => 100.0 * (H(n+1) - H(n)) / H(n)

The Conduit with the largest average change was..SS-E206M01 with 0.011 percent
The Junction with the largest average change was..204I03 with 0.214 percent
The Conduit with the largest sinuosity was.....SS-E204I03 with 157.853

Table E21 Continuity balance at the end of the simulation
Junction Inflow, Outflow or Street Flooding
Error = Inflow + Initial Volume - Outflow - Final Volume

Junction	Inflow Volume, ft^3	Average Inflow, cfs	Outflow Volume, ft^3	Average Outflow, cfs
E230	57459.5955	0.2660		
E190a_b	49109.6351	0.2274		
E202	31455.1283	0.1456		
E204	39172.6486	0.1814		
E206d_e	17180.2858	0.0795		
E205d	29722.7319	0.1376		
E205a-c	401914.2087	1.8607		
E203a	54890.2111	0.2541		
E203b	21159.0361	0.0935		
E205e	20926.1226	0.0969		
E206a_b_c	287635.7374	1.3316		
ER10a	41633.4726	0.1927		
230-OUT	-57460.2282	-0.2660		
190b-OUT	-49110.5382	-0.2274		
E206d_e	17180.2858	0.0795		
10a-OUT	-41633.6141	-0.1927		
202-OUT	-1.0368+06	-4.7954		
Outflow Junction			Outflow Volume, ft^3	Average Outflow, cfs
			57460.2282	0.2660
			49110.5382	0.2274
			0.0000	0.0000
			41633.6141	0.1927

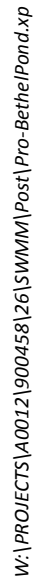
Initial system volume = 0.0000 Cu Ft
Total system inflow volume = 1.17682E+06 Cu Ft
Inflow + Initial volume = 1.17682E+06 Cu Ft
Total system outflow = 1.184006E+06 Cu Ft
Volume left (Final volume) = 884.5737 Cu Ft
Evaporation = 0.0000 Cu Ft
Outflow + Final Volume = 1.184891E+06 Cu Ft
Total Model Continuity Error = -0.6822
Error in Continuity, Percent = -0.6822
Error in Continuity, ft^3 = -8028.779
+ Error means a continuity loss, - a gain
Table E22 Numerical Model judgement section
Overall error was (minimum of Table E18 & E21) with -0.6822 percent
Of the total inflow this loss was 0.0004 percent
Your overall continuity error was Excellent 0.3253 percent
Good Efficiency
Efficiency of the simulation 2.56
Most Number of Non Convergences at one Node 43
Total Number Non Convergences at all Nodes 113
Total Number of Nodes with Non Convergences 3
Table E23 New Basin Design Information
Maximum Hydraulic Grade Line, Flow
Maximum Hydraulic Grade Line, Flow
A) Resize d/s Pipes based on given HGL
B) Resize Basin based on given HGL
C) Resize d/s Pipes and Basin based on HGL and max discharge
D) Resize d/s Pipes based on given max discharge
Basin Name Type Max.HGL Conduit Diam. Barrels Max.Flow (ft^3/s)

Hydraulic model simulation ended normally.
XP-SWMM simulation ended normally.
Your output file was named : C:\Documents and Settings\aschmidt.MCM\Desktop\Bachal\SWMM\Pre\Pre-Bachal_100-year.DAT

SWMM Simulation Date and Time Summary
Starting Date... 12/28/2012 13:34:29
Ending Date... 12/28/2012 13:34:29
Elapsed Time... 0.79350 minutes or 47.61000 seconds

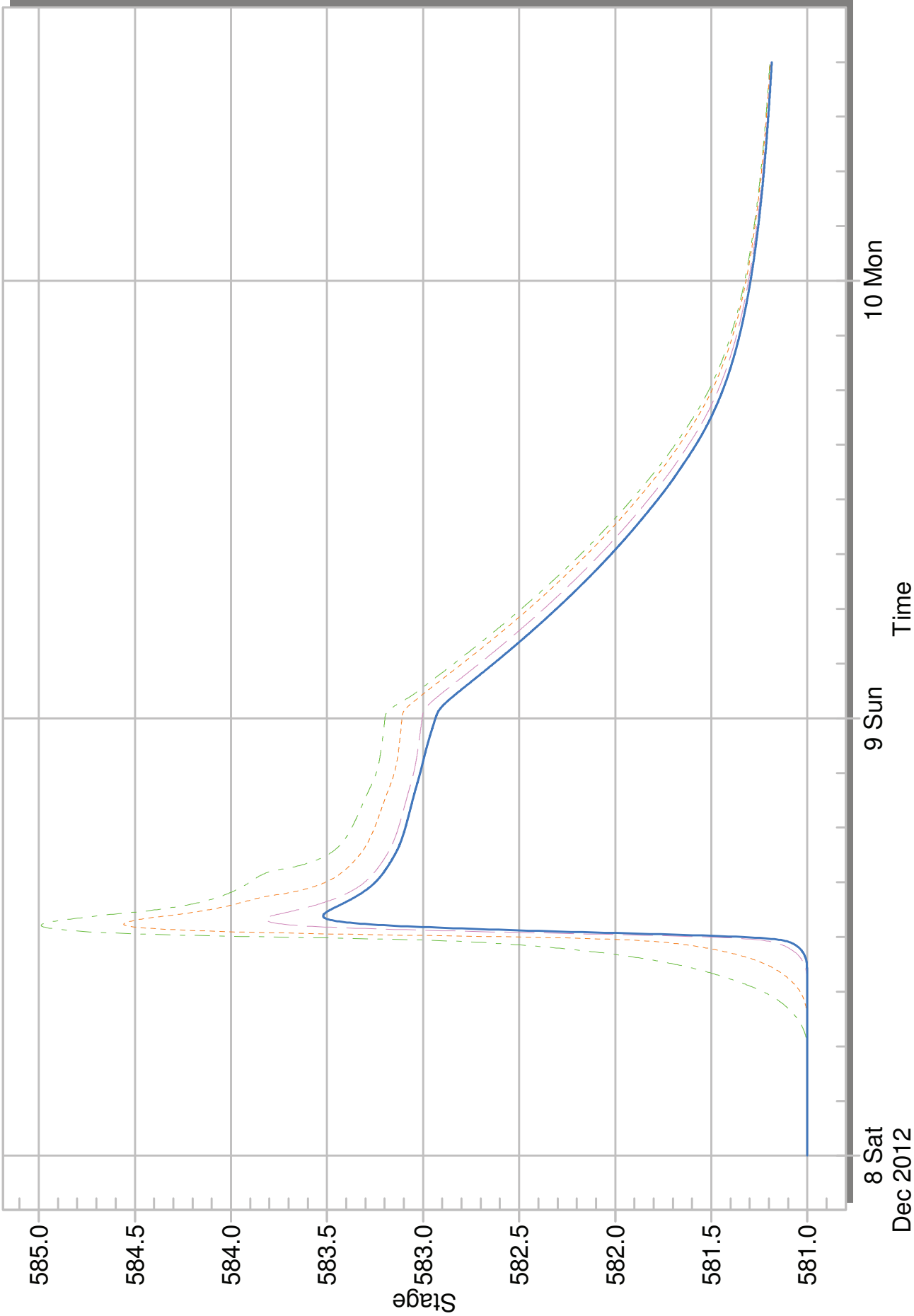
APPENDIX C

HYDROLOGIC & HYDRAULIC RESULTS **Post-Pond Construction / Future Land Use Condition**

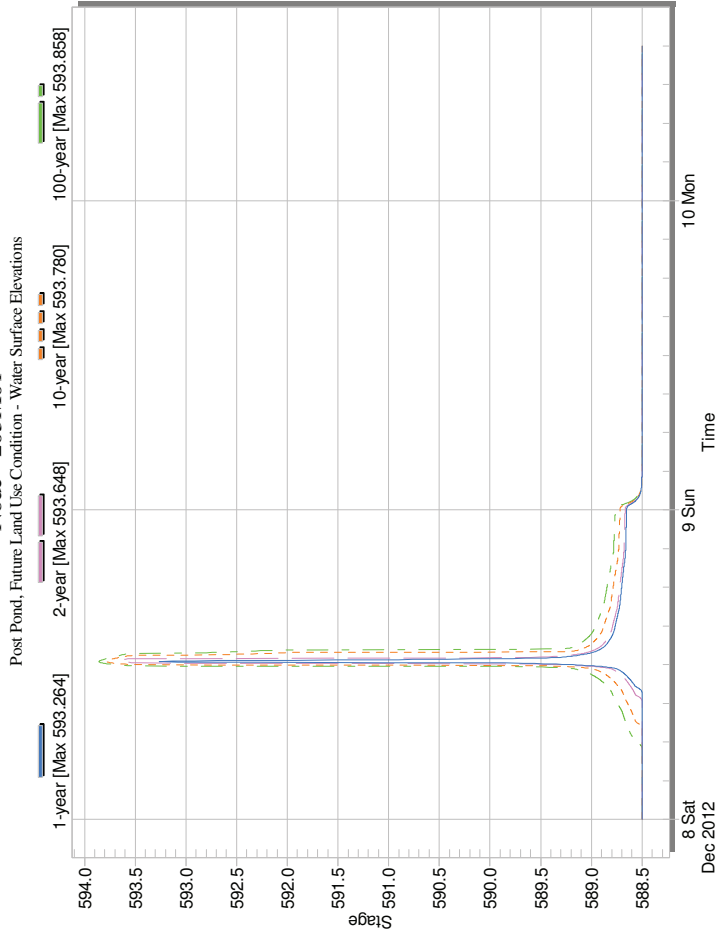


Node - BMP-ER10a

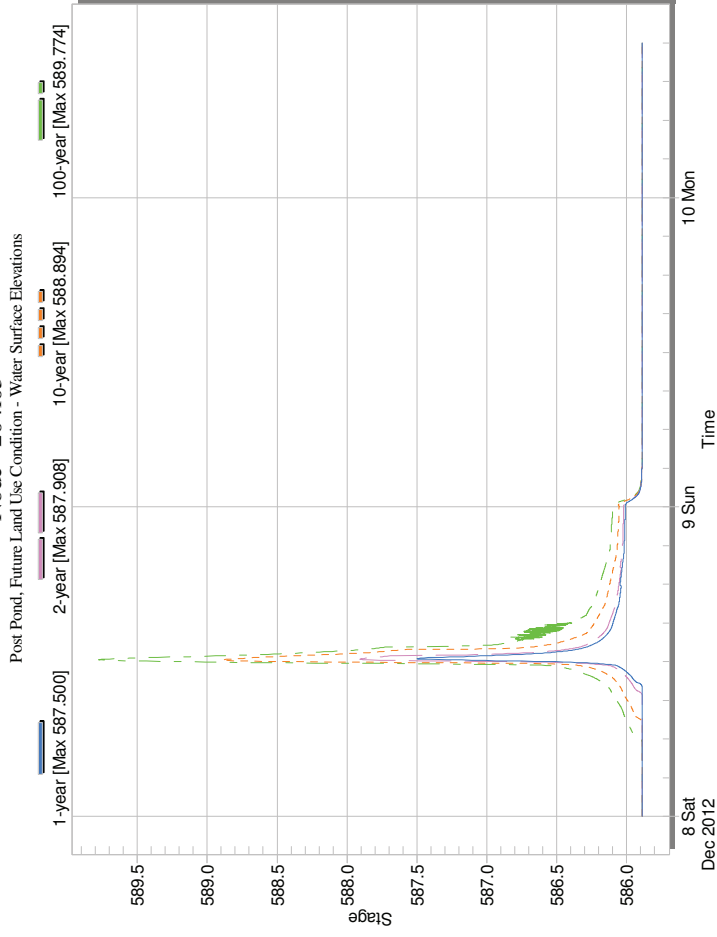
Bethel Pond Stage Elevations



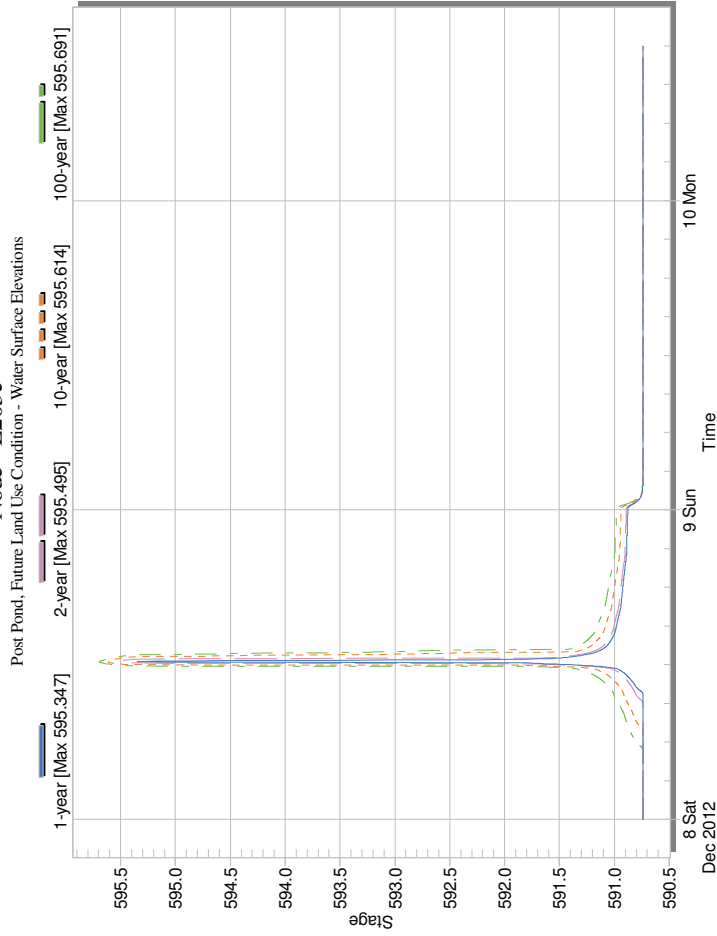
Node - 203M01



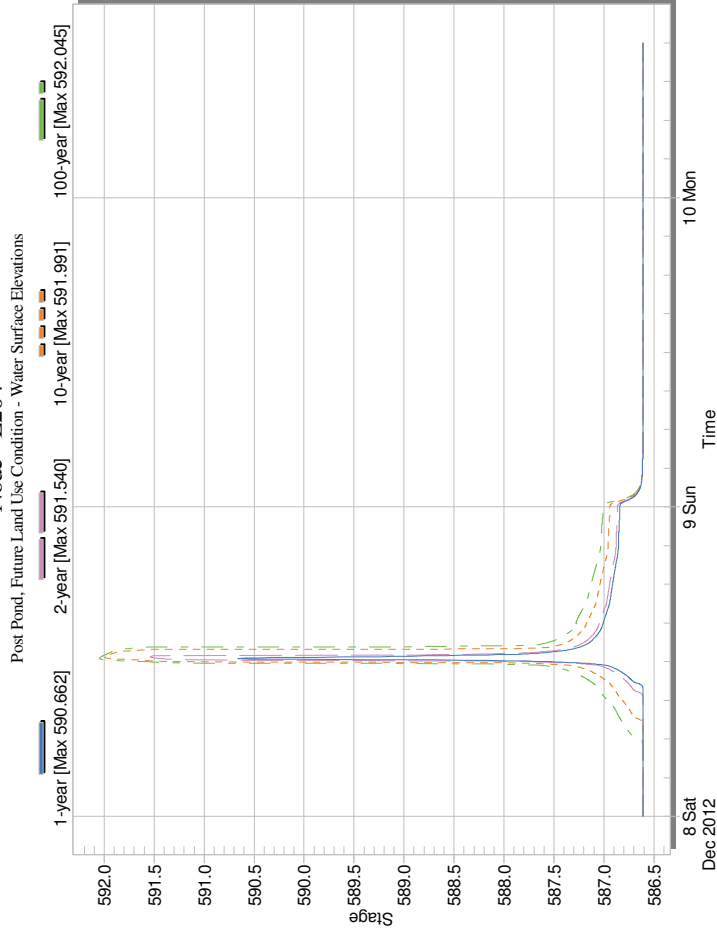
Node - 204i03



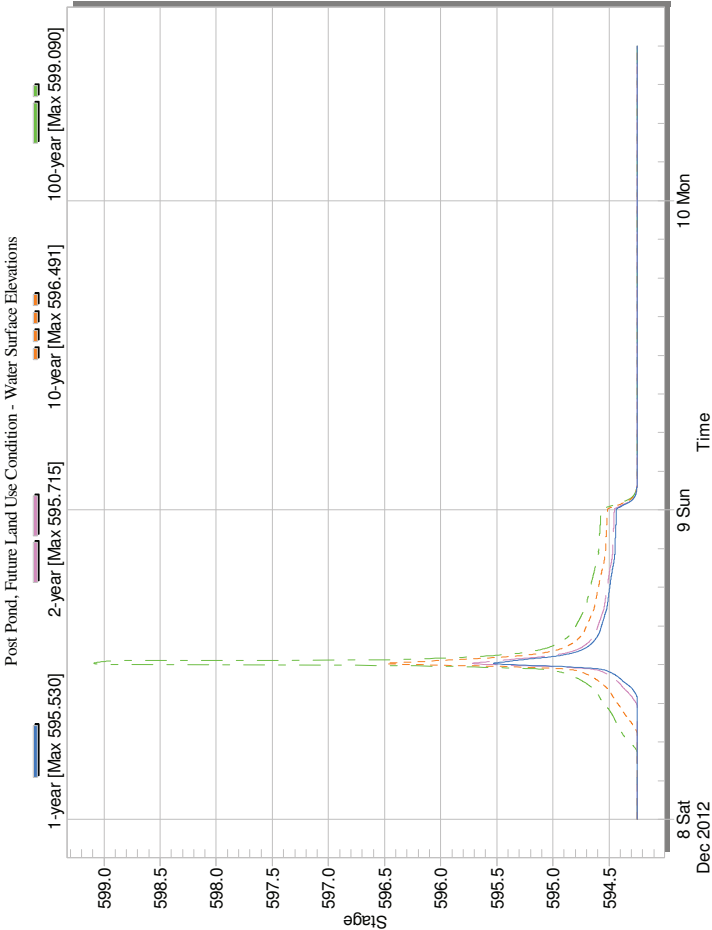
Node - E203c



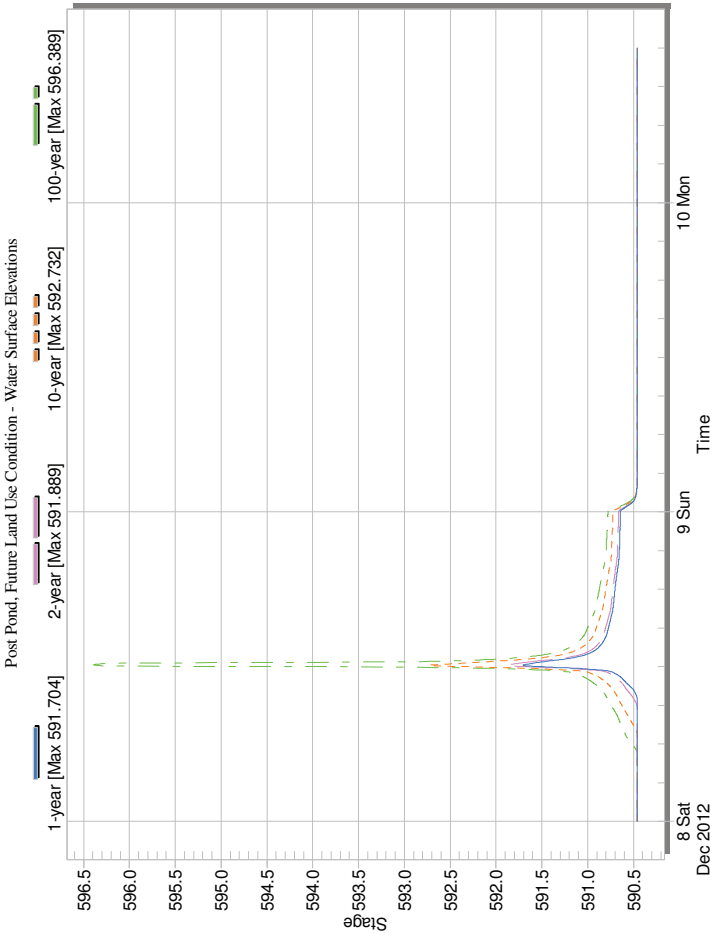
Node - E204



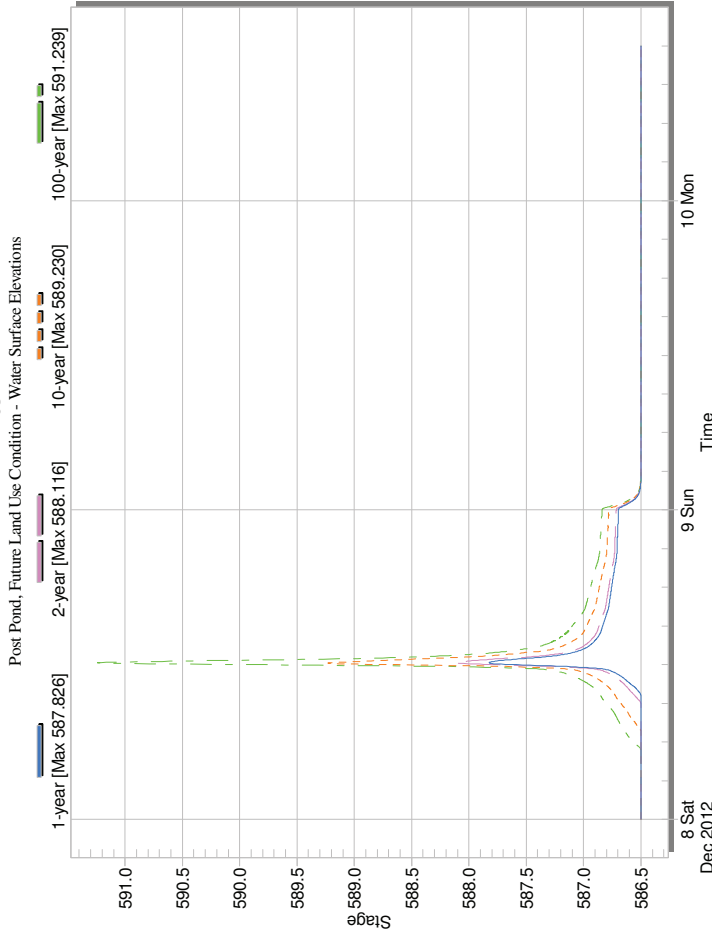
Node - E205a-c



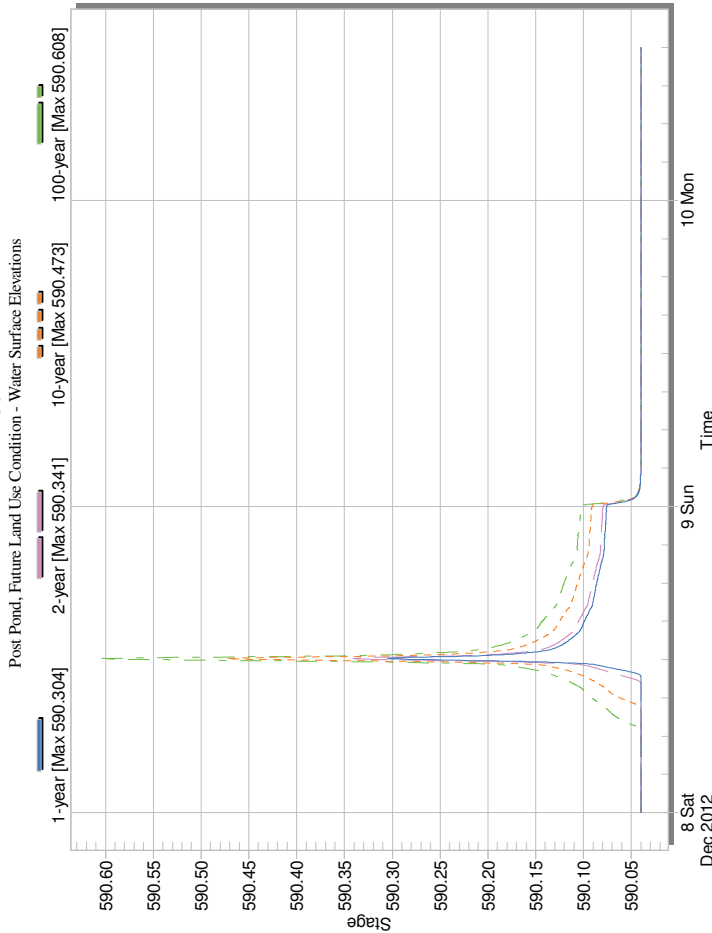
Node - E205d



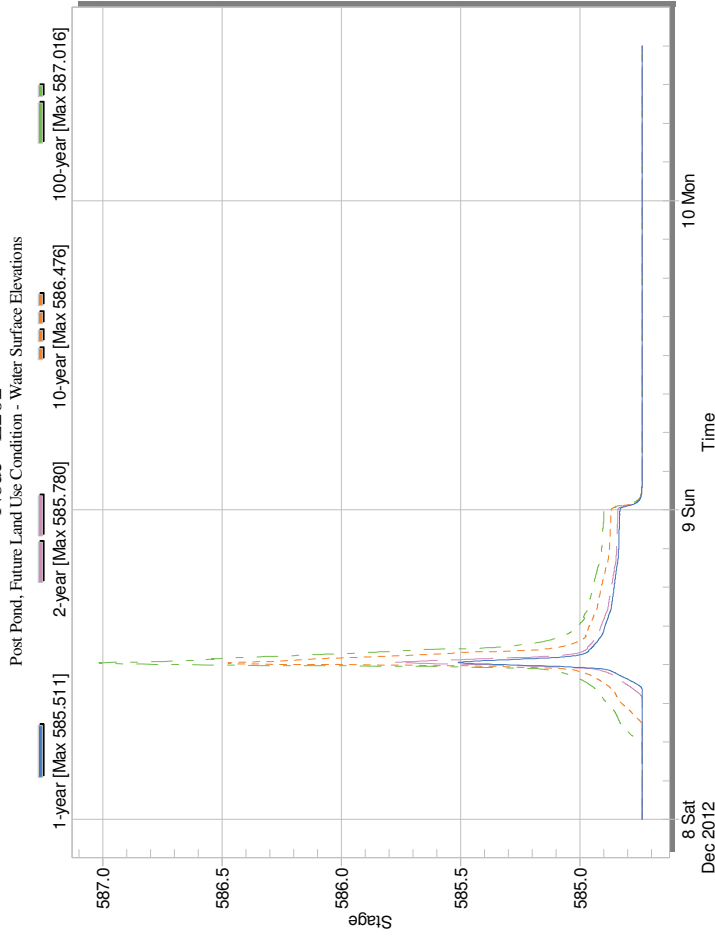
Node - E205e



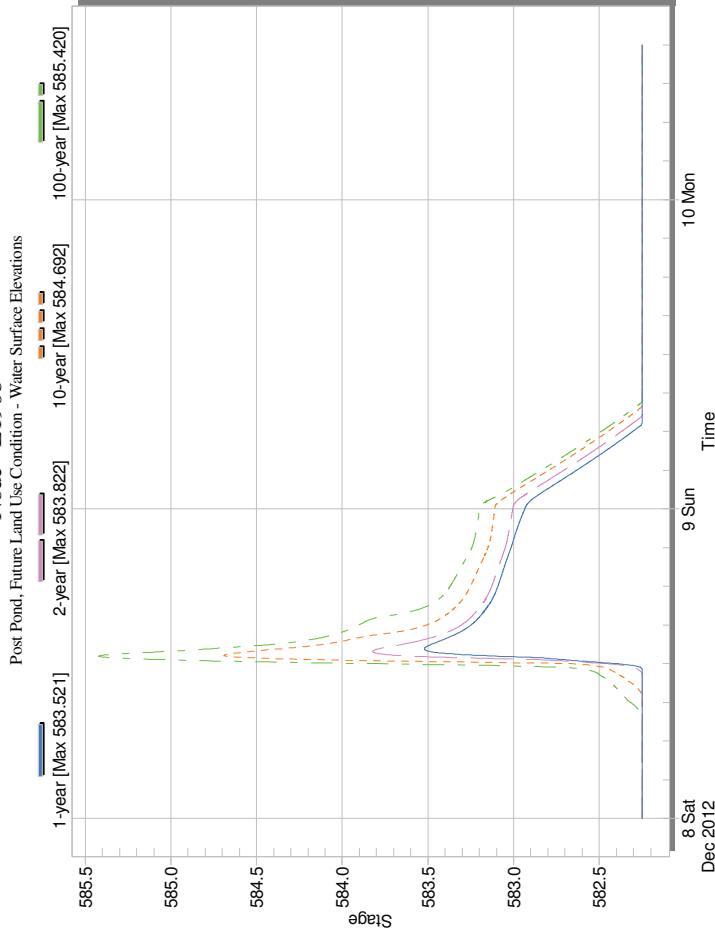
Node - E206f



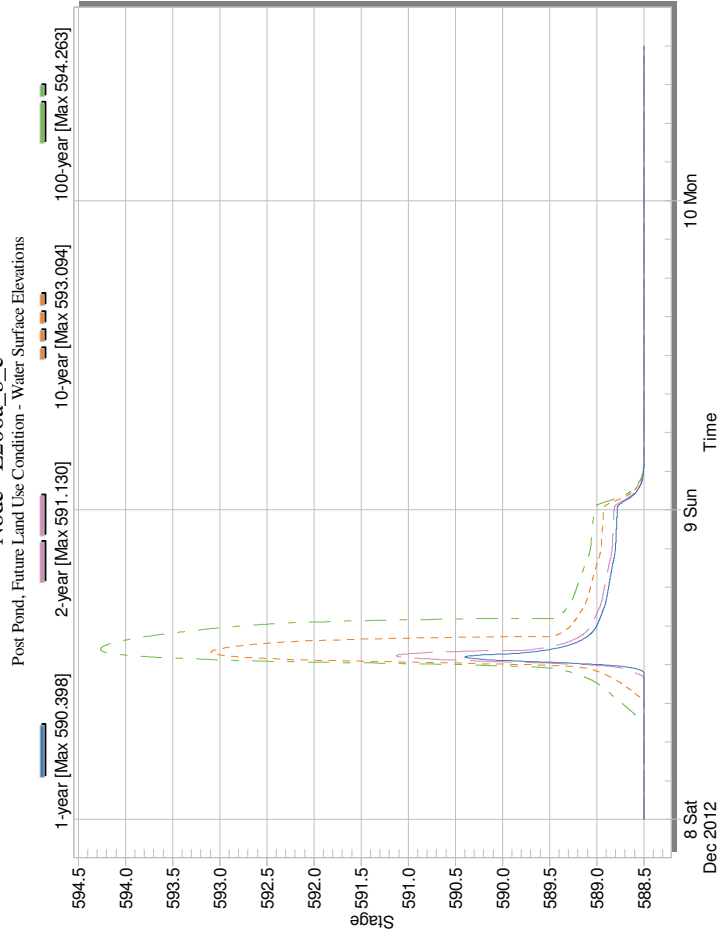
Node - E202



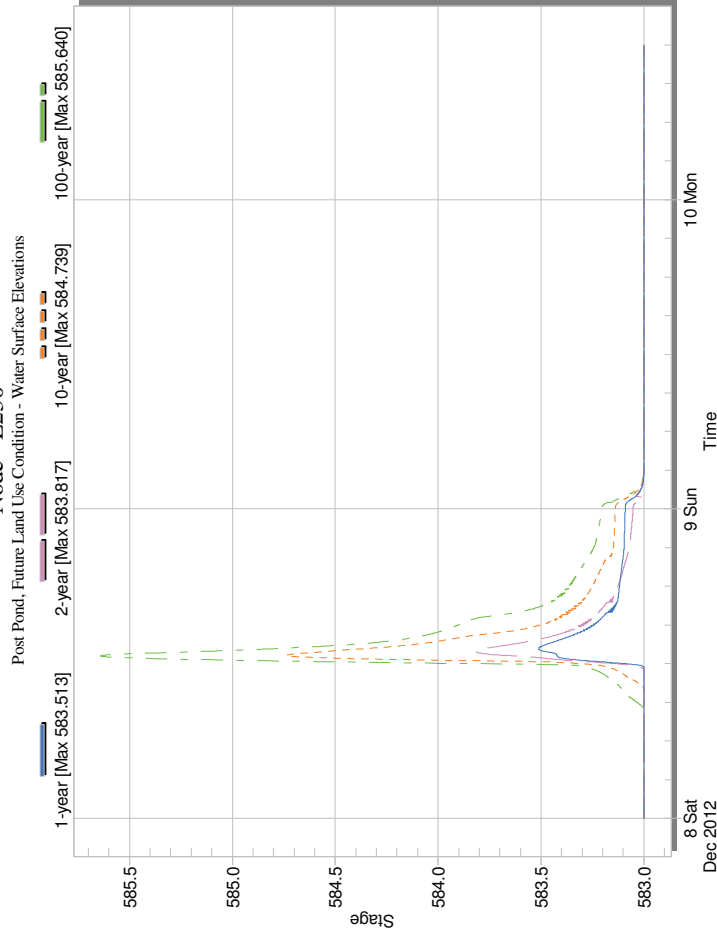
Node - E190b



Node - E206a_b_c

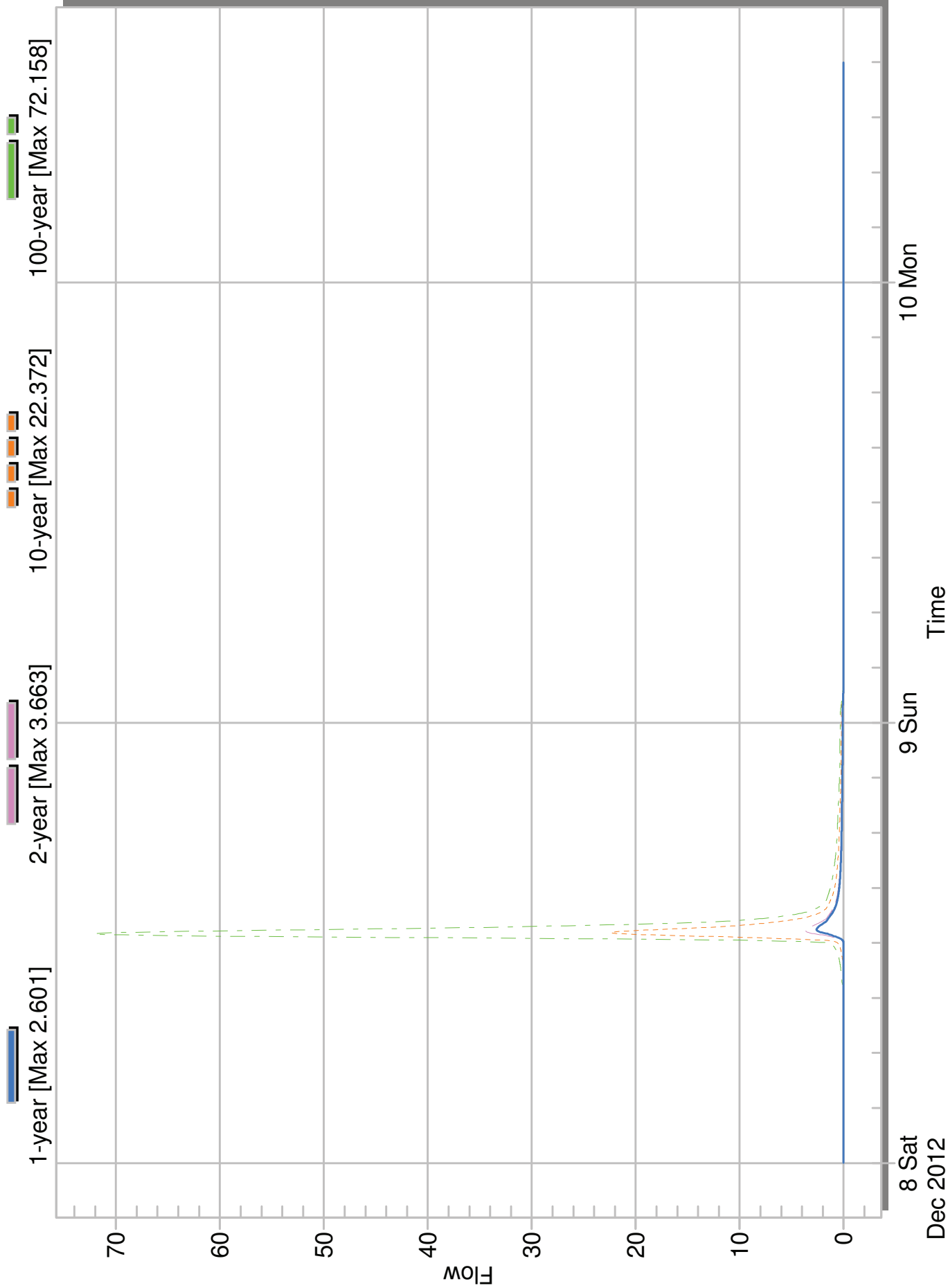


Node - E230



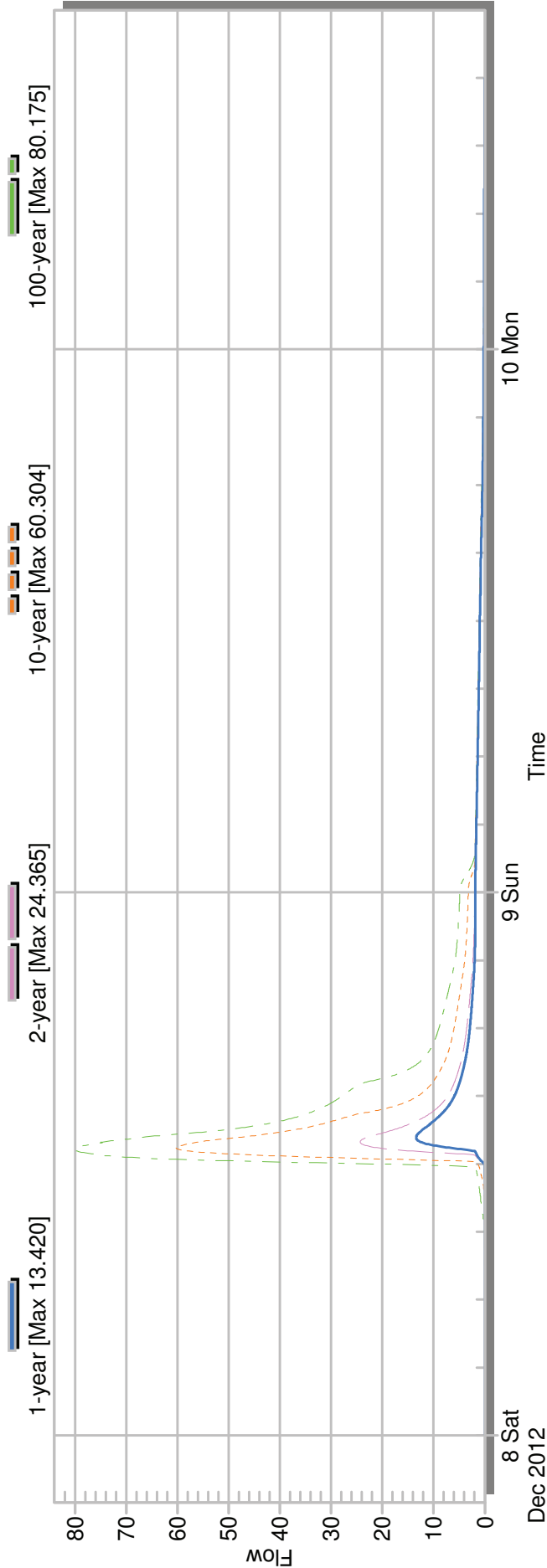
Conduit rav-E202 from S-LIBAL to 202-OUT

Post Pond, Future Land Use Condition - Outfall 01, Peak Flow Rates (cfs)



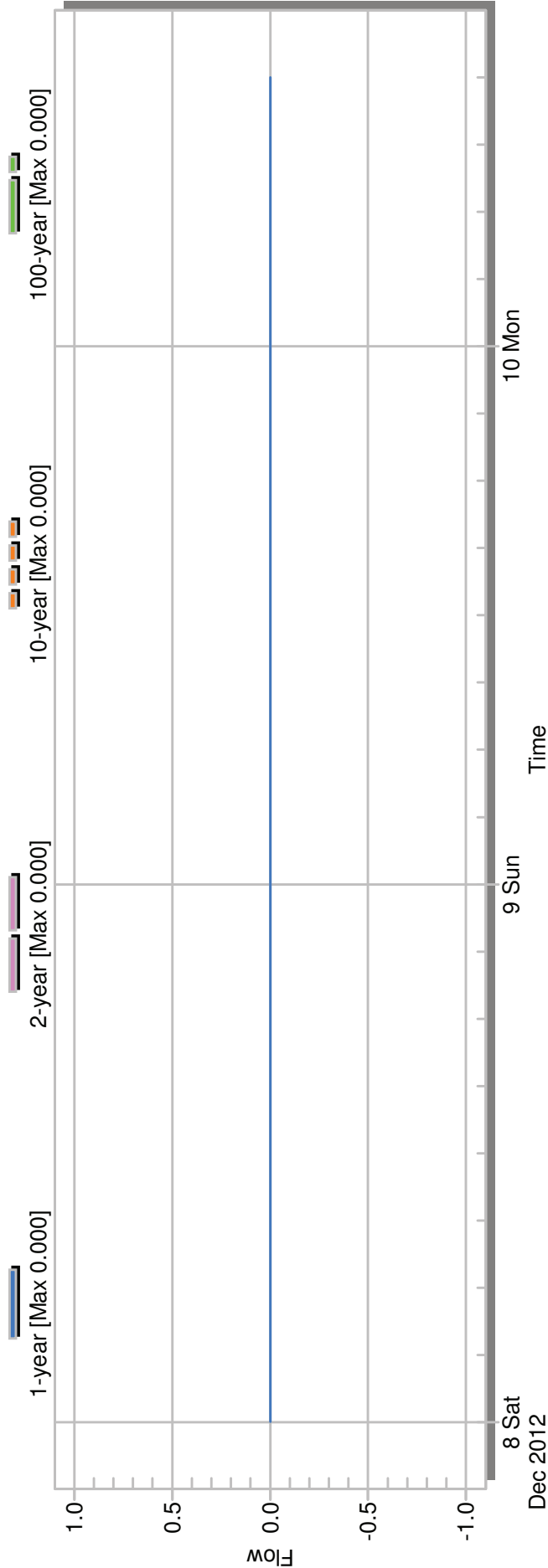
Conduit Pbmp-ss from PBMP-Str to BMP-Out

Post Pond, Future Land Use Condition - Outfall 02, Peak Pond OutFlow Rates (cfs)



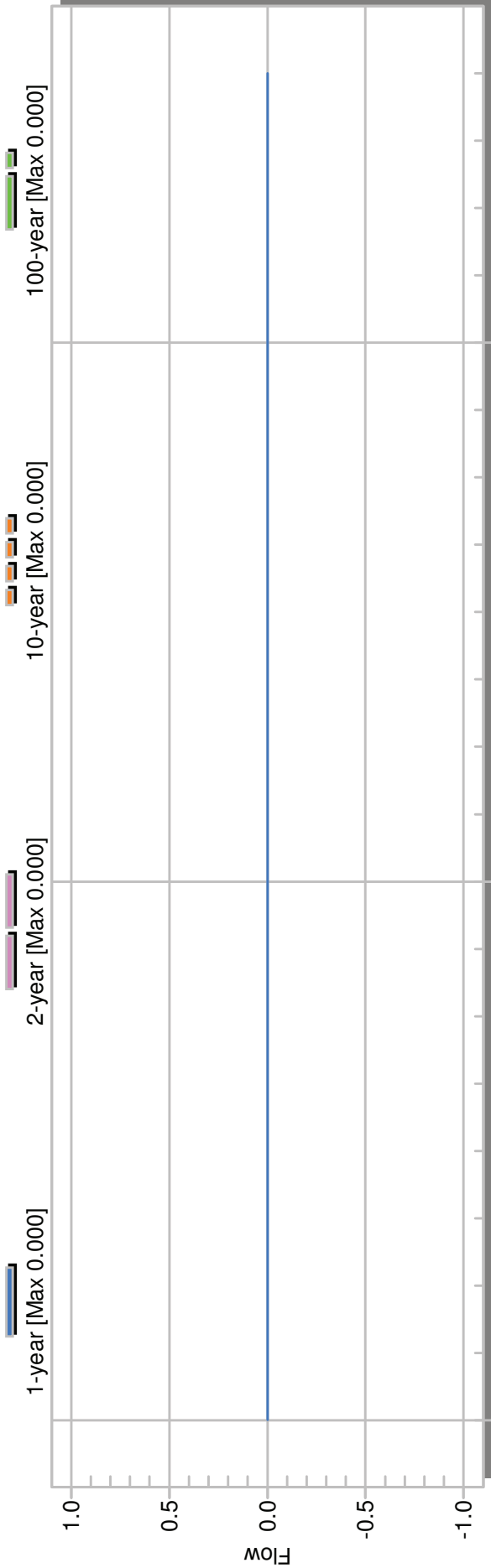
Conduit Pbmp-ov from BMP-ER10a to BMP-Out

Post Pond, Future Land Use Condition - Outfall 02, Peak Pond Overflow Rates (cfs)



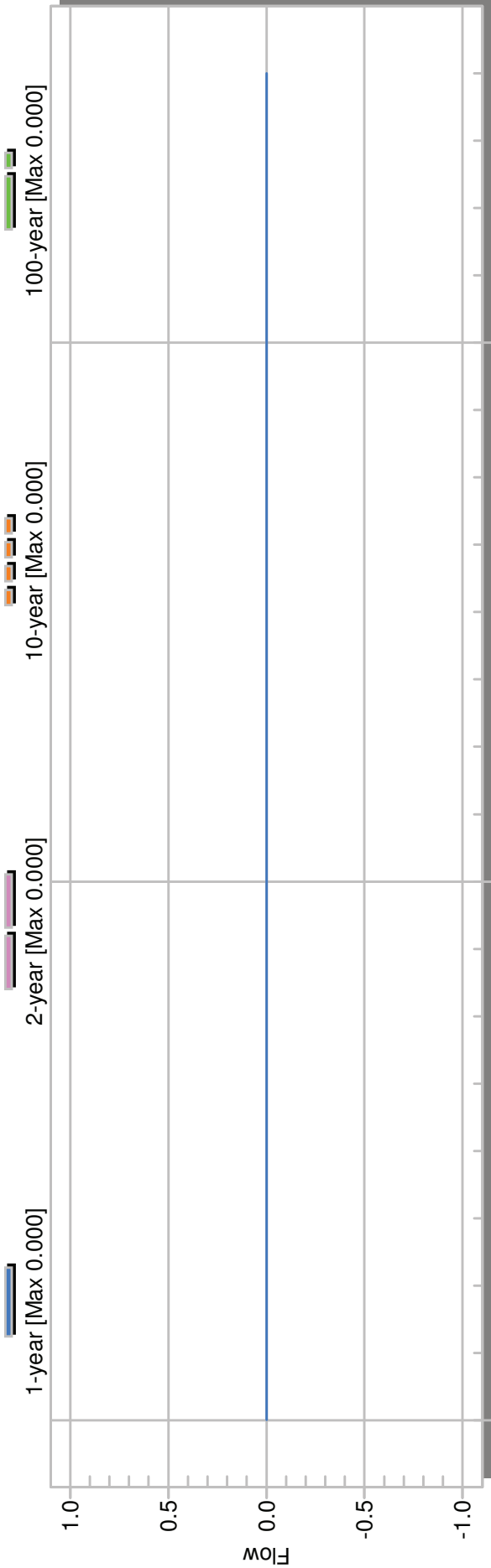
Conduit E190-Ov from E190b to 190b-Out

Post Pond, Future Land Use Condition - Outfall 03, Peak Overflow Rates (cfs)



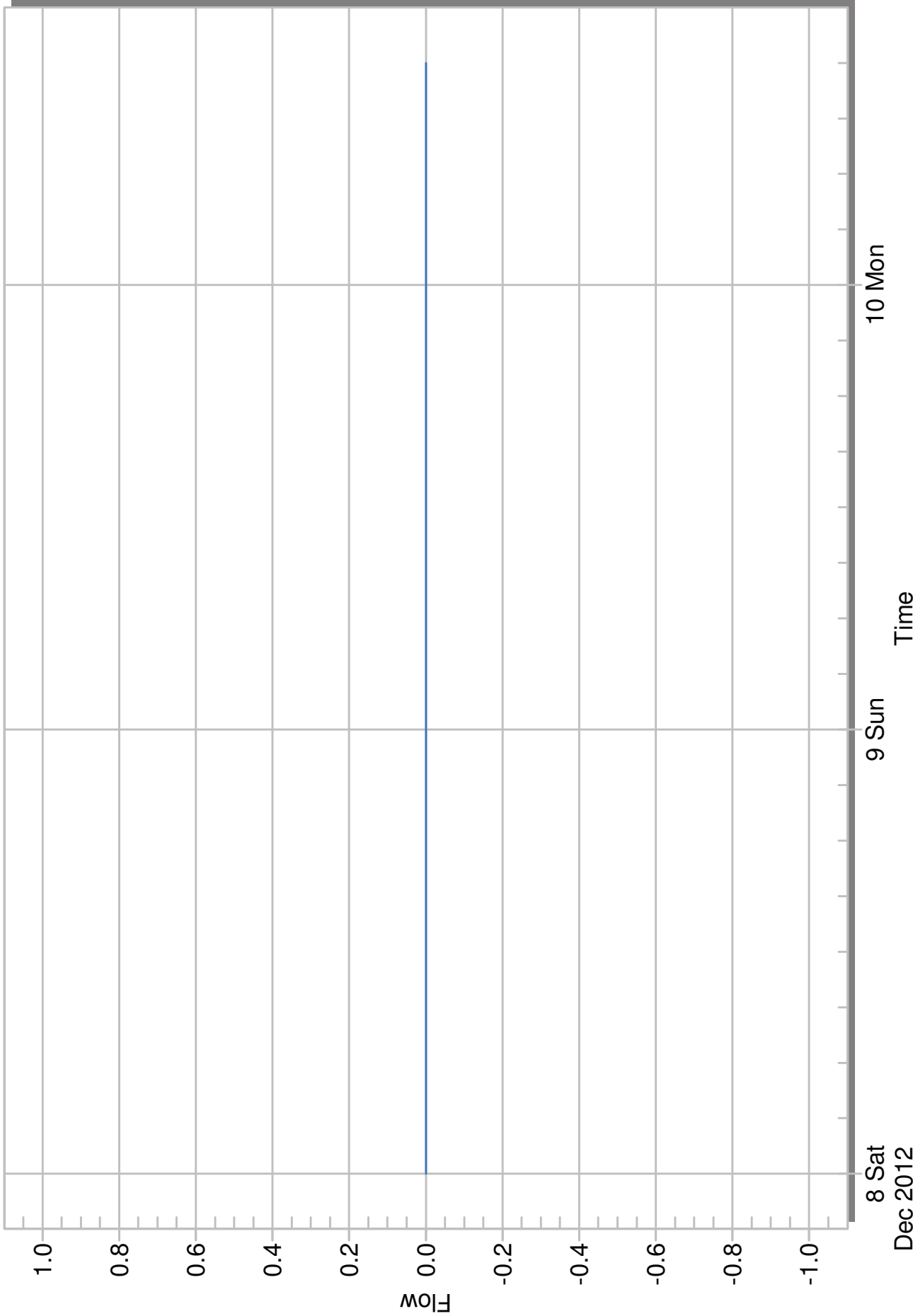
Conduit E190-Ov2 from P-INL-E190 to 190b-Out

Post Pond, Future Land Use Condition - Outfall 03, Peak Overflow Rates (cfs)



Conduit E230-Ov from E230 to 230-OUT

Post Pond, Future Land Use Condition - Outfall 04, Peak Overflow Rates (cfs)



Current Directory: C:\XPS\XPSWMM-3 Engine Name: C:\XPS\XPSWMM-3\SWMMEN~1.EXE
Input File : gs\aschmidt.MCM\Desktop\Bethel\SWMM\Post\Pro-BethelPond_1-year.XP

| xpswmm |
| Storm and Wastewater Management Model |
Developed by XP Software Inc.
Last Update : June, 2011
Interface Version: 13.0
Engine Version : 2011.0
Data File Version: 12.2
Serial Number :

Rainfall input summary from Runoff #

Total rainfall for gage # 1 is 2.2000 inches

Total Number of Subcatchments... 20
Total Tributary Area (acres).... 102.98
Impervious Area (acres)..... 0.00
Pervious Area (acres)..... 102.98
Total Width (feet)..... 20.00
Impervious Area (%)..... 0.00

| Table E9 - JUNCTION SUMMARY STATISTICS |
| The Maximum area is only the area of the node, it |
does not include the area of the surrounding conduits

Junction Name	Ground Elevation feet	Uppermost PipeCrown Elevation feet	Maximum Junction Elevation feet	Time of Occurrence Hr. Min.	Feet of Surge at Max Elevation	Freeboard of node feet	Maximum Junction Area ft^2	Maximum Gutter Depth feet	Maximum Gutter Width feet	Maximum Gutter Velocity ft/s
E230	600.0000	588.0000	583.5126	13 9	0.0000	16.4874	490.1395	0.0000	0.0000	0.0000
E190b	600.0000	588.5800	583.5206	13 9	0.0000	16.4794	12.5660	0.0000	0.0000	0.0000
E202	600.0000	589.9100	585.5110	12 10	0.0000	14.4890	12.5660	0.0000	0.0000	0.0000
202M03	600.0000	586.4000	585.3553	12 14	0.0000	14.6447	12.5660	0.0000	0.0000	0.0000
202M01	600.0000	585.7300	583.4800	0 0	0.0000	16.5200	12.5660	0.0000	0.0000	0.0000
S-LIBAL	600.0000	591.7400	581.9615	12 43	0.0000	18.0385	12.5660	0.0000	0.0000	0.0000
E203c	610.0000	597.3400	595.3472	12 15	0.0000	14.6528	12.5660	0.0000	0.0000	0.0000
203M01	610.0000	595.4900	593.2643	12 14	0.0000	16.7357	12.5660	0.0000	0.0000	0.0000
E204	600.0000	594.7400	590.6631	12 14	0.0000	9.3369	12.5660	0.0000	0.0000	0.0000
204i03	600.0000	593.3600	587.5009	12 14	0.0000	12.4991	12.5660	0.0000	0.0000	0.0000
E206d_e	600.0000	590.2500	587.2125	12 13	0.0000	12.7875	12.5660	0.0000	0.0000	0.0000
E205d	600.0000	598.1000	591.7042	12 7	0.0000	8.2958	12.5660	0.0000	0.0000	0.0000
E205a-c	605.0000	600.6900	595.5318	12 6	0.0000	9.4682	12.5660	0.0000	0.0000	0.0000
E203a	610.0000	601.0000	598.4294	12 15	0.0000	11.5706	12.5660	0.0000	0.0000	0.0000
E203b	610.0000	597.1000	594.2531	12 16	0.0000	15.7469	12.5660	0.0000	0.0000	0.0000
E206f	605.0000	596.0000	590.3046	12 5	0.0000	14.6954	12.5660	0.0000	0.0000	0.0000
E205e	600.0000	594.7900	587.8262	12 9	0.0000	12.1738	12.5660	0.0000	0.0000	0.0000
E206a_b_c	600.0000	597.5000	590.3980	12 36	0.0000	9.6020	1526.4411	0.0000	0.0000	0.0000
206M02	600.0000	589.7000	589.4569	12 36	0.0000	10.5431	12.5660	0.0000	0.0000	0.0000
205E00	600.0000	592.0500	585.8500	0 0	0.0000	14.1500	12.5660	0.0000	0.0000	0.0000
N-LIBAL	600.0000	592.1000	584.4263	12 27	0.0000	15.5737	12.5660	0.0000	0.0000	0.0000
202-OUT	600.0000	588.0000	579.0723	12 43	0.0000	20.9277	12.5660	0.0000	0.0000	0.0000
N-E206	600.0000	590.0000	584.6149	12 27	0.0000	15.3851	12.5660	0.0000	0.0000	0.0000
206i03	600.0000	595.6700	587.1596	12 13	0.0000	12.8404	12.5660	0.0000	0.0000	0.0000
P-MH01	600.0000	589.1300	587.1399	12 13	0.0000	12.8601	12.5660	0.0000	0.0000	0.0000
P-MH02	600.0000	590.8000	586.4125	12 13	0.0000	13.5875	12.5660	0.0000	0.0000	0.0000
P-MH03	600.0000	587.7500	585.3545	12 14	0.0000	14.6455	12.5660	0.0000	0.0000	0.0000
E190a	600.0000	585.2300	583.5243	13 8	0.0000	16.4757	12.5660	0.0000	0.0000	0.0000
BMP-ER10a	605.0000	590.3000	583.5206	13 9	0.0000	21.4794	53232.921	0.0000	0.0000	0.0000
P-conn2	600.0000	587.7000	584.1390	0 0	0.0000	15.8610	12.5660	0.0000	0.0000	0.0000
BMP-Out	600.0000	589.0000	580.9216	13 9	0.0000	19.0784	12.5660	0.0000	0.0000	0.0000
P-INL-E190	600.0000	589.0000	583.5206	13 9	0.0000	16.4794	12.5660	0.0000	0.0000	0.0000
PBMP-Str	600.0000	584.0000	581.9230	13 9	0.0000	18.0770	12.5660	0.0000	0.0000	0.0000
230-OUT	600.0000	587.8000	585.6000	0 0	0.0000	14.4000	12.5660	0.0000	0.0000	0.0000
P-conn	600.0000	590.1500	585.2930	0 0	0.0000	14.7070	12.5660	0.0000	0.0000	0.0000
190b-Out	600.0000	580.8600	578.8600	0 0	0.0000	21.1400	12.5660	0.0000	0.0000	0.0000
N-E203a	600.0000	596.8000	594.2983	12 15	0.0000	5.7017	12.5660	0.0000	0.0000	0.0000

| Table E15 - SPREADSHEET INFO LIST |
| Conduit Flow and Junction Depth Information for use in |
| spreadsheets. The maximum values in this table are the |
| true maximum values because they sample every time step. |
| The values in the review results may only be the |
| maximum of a subset of all the time steps in the run. |
Note: These flows are only the flows in a single barrel.

Conduit Name	Maximum Flow (cfs)	Total Flow (ft^3)	Maximum Velocity (ft/s)	Maximum Volume (ft^3)	##	Junction Name	Invert Elevation (ft)	Maximum Elevation (ft)
SS-E202M04	2.6006	8188.4190	2.4028	458.2194	##	E230	583.0000	583.5126
SS-E202M03	0.0000	0.0000	0.0000	0.0000	##	E190b	582.2500	583.5206
SS-E202M01	0.0000	0.0000	0.0000	0.0000	##	E202	584.7400	585.5110
SS-E204i03	10.2389	40106.0146	5.6359	50.2035	##	202M03	584.1500	585.3553
swl2-E203a	3.5120	13517.5563	1.4984	195.6146	##	202M01	583.4800	583.4800
SS-E205i01	27.2767	117886.6628	9.1234	186.8555	##	S-LIBAL	581.5500	581.9615
SS-E206c	8.9394	60747.4758	5.1047	194.9851	##	E203c	590.7400	595.3472
SS-E206M02	8.9395	60760.3171	5.6976	45.0110	##	203M01	588.5000	593.2643
rav1-E206	0.0000	0.0000	0.0000	0.0000	##	E204	586.6100	590.6631
rav-E202	2.6017	18248.3864	0.3703	5679.3037	##	204i03	585.5000	587.5009
rav2-E206	-3.3075	-18221.6274	-0.2845	4169.2232	##	E206d_e	585.2300	587.2125
swl-E203b	4.6829	18245.6264	1.3493	159.8615	##	E205d	590.4600	591.7042
SS-E206i03	40.9130	222949.3317	6.5986	89.1662	##	E205a-c	594.2500	595.5318
OV-E205i01	0.0000	0.0000	0.0000	0.0000	##	E203a	598.0000	598.4294
OV-E204i02	0.0000	0.0000	0.0000	210.5097	##	E203b	589.0000	594.2531
E206i03	0.0000	0.0000	0.0000	0.0000	##	E206f	590.0400	590.3046
OV2-202M04	0.0000	0.0000	0.0000	0.0000	##	E205e	586.5000	587.8262
OV-E206c	0.0000	0.0000	0.0000	0.0000	##	E206a_b_c	588.5000	590.3980
E206-SStub	41.1118	223790.7668	6.6058	44.0974	##	206M02	588.2000	589.4569
P-STO01	41.1082	223848.5578	5.3591	2460.8831	##	205E00	585.8500	585.8500
P-STO02	41.5241	225929.1817	5.4785	2970.1455	##	N-LIBAL	584.0500	584.4263
P-STO03	43.5197	234405.3637	6.3827	3090.5409	##	202-OUT	579.0000	579.0723
P-STO04	44.5836	239605.5325	9.4514	523.6529	##	N-E206	583.8000	584.6149
P-STO02a	0.6775	1957.8068	4.0713	2.2335	##	206i03	585.1700	587.1596
P-STO03b	2.3940	8184.4895	2.7344	17.4134	##	P-MH01	584.7900	587.1399
Pmp-ov	0.0000	0.0000	0.0000	0.0000	##	P-MH02	584.0700	586.4125
P-STO230	1.6807	11158.8214	3.2274	139.0817	##	P-MH03	583.1700	585.3545
P-STO2190a	2.5851	17091.6631	3.5249	126.8419	##	E190a	581.2300	583.5243
P-STO2190b	2.4236	17126.7663	2.2320	588.0529	##	BMP-ER10a	581.0000	583.5206
Pmp-sa	13.4209	262971.0813	7.2621	153.1717	##	P-conn2	584.1390	584.1390
E230-Ov	0.0000	0.0000	0.0000	0.0000	##	BMP-Out	580.0000	580.9216
P-connect	0.0000	0.0000	0.0000	0.0000	##	P-INL-E190	581.9000	583.5206
SS-E206M01	0.0000	0.0000	0.0000	0.0000	##	PBMP-Str	580.9900	581.9230
P-conn-206	0.0000	0.0000	0.0000	0.0000	##	230-OUT	585.6000	585.6000
E190-Ov	0.0000	0.0000	0.0000	0.0000	##	P-conn	585.2930	585.2930
E190-Ov2	0.0000	0.0000	0.0000	0.0000	##	190b-Out	578.8600	578.8600
swl3-E203a	3.5073	13471.5352	1.0549	137.8016	##	N-E203a	593.8000	594.2983
E203M02-SS	7.8737	30530.3312	4.8491	590.5925	##			
E203M02-Ov	0.0006	0.0340	0.2065	0.0000	##			
E203M01-SS	7.8677	30560.0677	4.3928	736.7397	##			
E203M01-Ov	0.0000	0.0000	0.0000	0.0000	##			
E204i02-SS	10.2295	40115.3214	5.7148	533.1849	##			
E204i02-Ov	0.0000	0.0000	0.0000	0.0000	##			
E205M02-SS	26.4645	112900.6860	9.4750	269.9447	##			
E205M02-Ov	0.0000	0.0000	0.0000	0.0000	##			
E205M03-SS	25.1219	105816.8531	8.7755	298.2436	##			
E205M03-Ov	0.0000	0.0000	0.0000	0.0000	##			
E206i04-SS	0.3034	837.7686	1.8598	7.8703	##			
E206i04-Ov	0.0000	0.0000	0.0000	0.0000	##			
Libal-Cv	3.4625	18265.0270	5.9274	11.2532	##			
Libal-Ov	0.0000	0.0000	0.0000	0.0000	##			
ol	2.1999	174204.8318	6.2745	365.8638	##			
weir1	11.2687	88781.0438	0.0000	0.0000	##			
weir2	0.0000	0.0000	0.0000	0.0000	##			
FREE # 1	2.6017	18249.3665	0.0000	0.0000	##			
FREE # 2	13.4209	262980.1548	0.0000	0.0000	##			
FREE # 3	0.0000	0.0000	0.0000	0.0000	##			
FREE # 4	0.0000	0.0000	0.0000	0.0000	##			

```

* =====*
*                               *
|      Table E9 - JUNCTION SUMMARY STATISTICS      |
| The Maximum area is only the area of the node, it |
| does not include the area of the surrounding conduits|

```

Table E15 - SPREADSHEET INFO LIST

Conduit Flow and Junction Depth Information for use in spreadsheets. The maximum values in this table are the true maximum values because they sample every time step. The values in the review results may only be the maximum of a subset of all the time steps in the run.

Note: These flows are only the flows in a single barrel.

Conduit Name	Maximum Flow (cfs)	Total Flow (ft^3)	Maximum Velocity (ft/s)	Maximum Volume (ft^3)	## ##	Junction Name	Invert Elevation (ft)	Maximum Elevation (ft)
SS-E202M04	3.1976	10341.7411	2.4139	649.2303	##	E230	583.0000	583.8167
SS-E202M03	0.0000	0.0000	0.0000	0.0000	##	E190b	582.2500	583.8219
SS-E202M01	0.0000	0.0000	0.0000	0.0000	##	E202	584.7400	585.7806
SS-E204I03	11.2976	50236.0620	6.2983	50.2613	##	202M03	584.1500	585.6810
sw12-E203a	4.5596	17258.9576	6.1232	246.3546	##	202M01	583.4800	583.4800
SS-E205I01	34.7090	148867.2816	9.4093	244.5018	##	S-LIBAL	581.5500	582.0120
SS-E206c	11.1459	80199.4367	6.2867	203.0241	##	E203c	590.7400	595.4947
SS-E206M02	11.1458	80210.8266	6.4277	49.5590	##	203M01	588.5000	593.6475
rav1-E206	0.0000	0.0000	0.0000	0.0000	##	E204	586.6100	591.5400
rav2-E202	3.66202	23417.4111	4.0023	7085.8830	##	204I03	585.8900	587.9084
rav2-E206	-4.1970	-23412.4642	-0.3216	4981.1224	##	E206d_e	585.2300	587.5738
sw1-E203b	6.1129	23436.1567	1.4607	205.4823	##	E205d	590.4600	591.8895
SS-E206I03	51.0541	284702.4436	6.7511	109.9821	##	E205a-c	594.2500	595.7177
Ov-E205I01	0.0000	0.0000	0.0000	22.7841	##	E203a	598.0000	598.4781
Ov-E204I02	0.0000	0.0000	0.0000	277.3839	##	E203b	589.0000	594.2773
E206I03	0.0000	0.0000	0.0000	0.0000	##	E206f	590.0400	590.3413
Ov2-202M04	0.0000	0.0000	0.0000	0.0000	##	E205e	586.5000	588.1160
Ov-E206c	0.0000	0.0000	0.0000	0.0000	##	E206a_b_c	588.5000	591.1297
E206-SStub	51.3710	285781.4826	6.7523	54.4571	##	206M02	588.2000	589.6536
P-ST001	51.3619	285850.2717	5.6434	2912.8659	##	205E00	585.8500	585.8500
P-ST002	52.0157	288502.2565	5.8153	3508.2496	##	N-LIBAL	584.0500	584.4819
P-ST003	55.0552	299141.2844	6.8375	3983.0705	##	202-OUT	579.0000	579.1019
P-ST004	56.5351	305742.5200	10.1867	600.7072	##	N-E206	583.8000	584.6934
P-ST002a	0.8732	35072.3031	4.3770	2.6792	##	206I03	585.1700	587.5921
P-ST003b	3.0276	10338.0147	2.7174	23.1062	##	P-MH01	584.7900	587.5130
Ptmp-cv	0.0000	0.0000	0.0000	0.0000	##	P-MH02	584.0700	586.7695
P-ST0E230	2.2521	15010.4840	3.2887	201.2123	##	P-MH03	583.1700	585.6800
P-ST0E190a	3.5185	22872.5221	3.4508	151.1698	##	E190a	581.2300	583.8326
P-ST0E190b	3.3717	22912.8124	2.1169	678.7703	##	BMP-ER10a	581.0000	583.8192
Ptmp-ss	24.3306	338120.9372	8.5333	256.0830	##	P-conm2	584.1390	584.1390
E230-cv	0.0000	0.0000	0.0000	0.0000	##	BMP-out	580.0000	581.2689
P-connect	0.0000	0.0000	0.0000	0.0000	##	P-1N1-E190	581.9000	583.8203
SS-E206M01	0.0000	0.0000	0.0000	0.0000	##	PBMP-Str	580.9900	582.2698
P-connn-206	0.0000	0.0000	0.0000	0.0000	##	230-OUT	585.6000	585.6000
E190-cv	0.0000	0.0000	0.0000	0.0000	##	P_conn	585.2930	585.2930
E190-Ov2	0.0000	0.0000	0.0000	0.0000	##	190b-Out	578.8600	578.8600
sw13-E203a	4.5540	17212.4745	1.2189	150.2320	##	N-E203a	593.8000	594.3347
E203M02-SS	7.8200	36634.5815	4.8583	590.7501	##			
E203M02-Ov	2.3543	1477.1876	1.9725	28.5917	##			
E203M01-SS	7.6841	36571.5197	4.2872	737.2012	##			
E203M01-Ov	2.2613	1420.0728	1.8113	44.2539	##			
E204I02-SS	11.2803	50251.3879	6.2764	539.6206	##			
E204I02-Ov	0.0000	0.0000	0.0000	0.0000	##			
E205M02-SS	33.7693	142470.5757	10.0141	410.1629	##			
E205M02-Ov	0.0000	0.0000	0.0000	0.0000	##			
E205M03-SS	31.9632	133363.8176	9.3607	409.7063	##			
E205M03-Ov	0.0000	0.0000	0.0000	0.0000	##			
E206I04-SS	0.3926	1080.2790	2.0066	10.8088	##			
E206I04-Ov	0.0000	0.0000	0.0000	0.0000	##			
Libal-Cv	4.6625	23475.2858	6.4844	15.3839	##			
Libal-cv	0.0000	0.0000	0.0000	0.0000	##			
cl	2.1979	180793.9121	6.2745	365.8649	##			
weir1	22.2420	157338.9539	0.0000	0.0000	##			
weir2	0.0000	0.0000	0.0000	0.0000	##			
FREE # 1	3.6642	23418.8356	0.0000	0.0000	##			
FREE # 2	24.3652	338137.6097	0.0000	0.0000	##			
FREE # 3	0.0000	0.0000	0.0000	0.0000	##			
FREE # 4	0.0000	0.0000	0.0000	0.0000	##			

```
#####
# Rainfall input summary from Runoff #
#####
Total rainfall for gage #      1 is      3.7000 inches

Total Number of Subcatchments...      20
Total Tributary Area (acres)....      102.98
Impervious Area (acres).....      0.00
Pervious Area (acres).....      102.98
Total Width (feet).....      20.00
Impervious Area (%).....      0.00
```

Junction Name	Ground Elevation feet	Uppermost PipeCrown Elevation feet	Maximum Junction Elevation feet	Time of Occurrence Hr. Min
------------------	-----------------------------	---	--	-------------------------------------

E230	600.0000	588.0000	584.7386	12	39	0.0000	15.2614	2137.3159	0.0000	0.0000	0.0000
E190b	600.0000	588.5800	584.6918	12	39	0.0000	15.3082	12.5660	0.0000	0.0000	0.0000
E202	600.0000	589.9100	586.4767	12	7	0.0000	13.5233	12.5660	0.0000	0.0000	0.0000
20ZM03	600.0000	586.4000	586.3544	12	8	0.0000	13.6456	12.5660	0.0000	0.0000	0.0000
20ZM01	600.0000	585.7300	584.2986	12	12	0.0000	15.7014	12.5660	0.0000	0.0000	0.0000
S-LIBAL	600.0000	591.7800	582.6315	12	33	0.0000	17.5369	12.5660	0.0000	0.0000	0.0000
E203c	610.0000	597.3400	595.6139	12	14	0.0000	14.3861	12.5660	0.0000	0.0000	0.0000
20M301	610.0000	595.4500	593.7801	12	15	0.0000	16.2199	12.5660	0.0000	0.0000	0.0000
E204	600.0000	591.9000	591.9001	12	20	0.0000	8.0000	12.5660	0.0000	0.0000	0.0000
20A103	600.0000	593.3600	588.9485	12	8	0.0000	11.0055	12.5660	0.0000	0.0000	0.0000
E206d_e	600.0000	590.2500	588.6268	12	7	0.0000	11.3732	12.5660	0.0000	0.0000	0.0000
E205d	600.0000	598.1000	592.7318	12	7	0.0000	7.2682	12.5660	0.0000	0.0000	0.0000
E205a-c	605.0000	600.6900	596.4974	12	6	0.0000	8.5026	12.5660	0.0000	0.0000	0.0000
E203a	610.0000	601.0000	598.6329	12	13	0.0000	11.3671	12.5660	0.0000	0.0000	0.0000
E203b	610.0000	597.1000	594.3589	12	14	0.0000	15.6411	12.5660	0.0000	0.0000	0.0000
E206f	605.0000	596.0000	590.4732	12	4	0.0000	14.5268	12.5660	0.0000	0.0000	0.0000
E205e	600.0000	594.7900	589.2341	12	7	0.0000	10.7659	12.5660	0.0000	0.0000	0.0000
E206a_b_c	600.0000	597.5000	593.0936	12	59	0.0000	6.9064	28644.570	0.0000	0.0000	0.0000
206M02	600.0000	589.7000	590.1893	12	59	0.4893	9.8107	12.5660	0.0000	0.0000	0.0000
20SE00	600.0000	592.0500	586.6286	12	13	0.0000	13.3714	12.5660	0.0000	0.0000	0.0000
N-LIBAL	600.0000	592.1000	585.0130	12	26	0.0000	14.9870	12.5660	0.0000	0.0000	0.0000
20Z-OUT	600.0000	588.0000	579.4163	12	33	0.0000	20.5837	12.5660	0.0000	0.0000	0.0000
N-E206	600.0000	590.0000	585.3246	12	25	0.0000	14.6754	12.5660	0.0000	0.0000	0.0000
206103	600.0000	595.6700	588.5893	12	7	0.0000	11.4107	12.5660	0.0000	0.0000	0.0000
P-MH01	600.0000	589.1300	588.5733	12	7	0.0000	11.4267	12.5660	0.0000	0.0000	0.0000
P-MH02	600.0000	590.8000	587.6655	12	8	0.0000	12.3345	12.5660	0.0000	0.0000	0.0000
P-MH03	600.0000	587.7500	586.3511	12	8	0.0000	13.6489	12.5660	0.0000	0.0000	0.0000
E190a	600.0000	585.2300	584.6355	12	38	0.0000	15.3645	12.5660	0.0000	0.0000	0.0000
BMP-IR10a	590.0000	590.0000	584.5500	12	41	0.0000	14.0000	57753.291	0.0000	0.0000	0.0000
P-conn2	600.0000	587.7000	585.1888	12	10	0.0000	14.8112	12.5660	0.0000	0.0000	0.0000
BMP-OUT	600.0000	589.0000	582.2755	12	42	0.0000	17.7245	12.5660	0.0000	0.0000	0.0000
P-IN1-E190	600.0000	589.0000	584.6156	12	40	0.0000	15.3844	12.5660	0.0000	0.0000	0.0000
PBMP-Str	600.0000	584.0000	583.2756	12	42	0.0000	16.7244	12.5660	0.0000	0.0000	0.0000
230-OUT	600.0000	587.8000	585.6000	0	0	0.0000	14.4000	12.5660	0.0000	0.0000	0.0000
P_conn	600.0000	590.1500	586.7563	12	10	0.0000	13.2437	12.5660	0.0000	0.0000	0.0000
190b-Out	600.0000	580.8600	578.8600	0	0	0.0000	21.1400	12.5660	0.0000	0.0000	0.0000
N-E203a	600.0000	596.8000	594.4573	12	14	0.0000	5.5427	12.5660	0.0000	0.0000	0.0000

Conduit Name	Maximum Flow (cfs)	Total Flow (ft^3)	Maximum Velocity (ft/s)
-----------------	--------------------------	-------------------------	-------------------------------

SS-E202M04	6.3709	19720.0321	2.2940	1012.9309	##	E230	583.0000	584.7386
SS-E202M03	4.0153	4942.4828	2.2778	1006.7086	##	E190b	582.2500	584.6918
SS-E202M01	49.1396	49.4599	3.4569	66.9056	##	E202	584.7400	586.4767
SS-E204I03	11.6553	85744.3102	6.5589	50.3227	##	E20M03	584.1500	586.3544
sw12-E203a	9.1040	33827.1675	1.9487	473.6594	##	E20M01	583.4800	584.2986
SS-E205I01	66.9913	283945.7276	8.8902	404.5227	##	S-LIBAL	581.5500	582.4631
SS-E206c	15.6388	169581.7853	8.7446	212.4914	##	E203c	590.7400	595.6139
SS-E206M02	15.6388	169590.4062	8.7546	52.5052	##	E203M1	588.5000	593.7801
rav1-E206	11.1193	14822.7101	0.8576	7005.8601	##	E204	586.6100	591.9913
rav-E202	22.3793	76910.0305	0.6774	27648.6578	##	E204I03	585.8900	588.8945
rav2-E206	-23.9868	-71888.3240	-0.5921	14817.8364	##	E206e_e	585.2300	588.6268
sw1-E203b	12.3513	46594.7716	1.6735	813.1348	##	E205d	590.4600	592.7318
SS-E206I03	74.3832	535821.2686	6.9463	163.2541	##	E205a-c	594.2500	596.4974
Ov-E205I01	0.0000	0.0000	0.0000	971.4767	##	E203a	598.0000	598.6329
Ov-E204I02	11.5786	10176.8556	0.2518	1496.8791	##	E203b	589.0000	594.3589
Ov-E205I03	0.0000	0.0000	0.0000	0.0000	##	E206f	590.0400	590.4732
Cv2-E202M04	0.0000	0.0000	0.0000	0.0000	##	E205e	586.5000	589.2341
Ov-E206c	0.0000	0.0000	0.0000	0.0000	##	E206a_b_c	588.5000	593.0936
E206-SSub	75.1162	537977.1553	6.9472	80.4832	##	E206M02	588.2000	590.1893
P-STO01	75.0774	538100.2631	6.1282	3885.1594	##	E205E0	585.8500	586.6286
P-STO02	76.6453	543295.9731	6.5099	4578.1761	##	N-LIBAL	584.0500	585.0130
P-STO03	78.7640	558426.0755	7.5015	5788.0756	##	E202-OvT	579.0000	579.4163
P-STO04	81.3919	571393.8903	10.4504	769.2305	##	N-E206	583.8000	585.3246
P-STO02a	1.7205	4938.2804	5.2766	4.3804	##	E206I03	585.1700	588.5893
P-STO03b	6.3375	19722.1566	2.4769	31.6037	##	P-MH01	584.7900	588.5733
Pfmp-Ov20	0.0000	0.0000	0.0000	0.0000	##	P-MH02	584.0700	587.6655
P-ST0E230	5.2910	33091.1011	2.9252	337.9274	##	P-MH03	583.1700	586.3511
P-ST0E190a	6.0348	49878.6130	2.9189	172.9992	##	E190a	581.2300	584.6355
P-ST0E190b	8.3347	49878.4396	1.4621	702.0886	##	BMP-ER10a	581.0000	584.5983
Pfmp-ss	60.3047	644970.2917	10.4845	517.6826	##	P-conn2	584.1390	585.1888
E230-Ov	0.0000	0.0000	0.0000	0.0000	##	BMP-OvT	580.0000	582.2755
P-connect	4.1377	4903.1367	5.2028	3.9756	##	P-INL-E190	581.9000	584.6156
SS-E206M01	-14.1937	-14037.0324	-4.6235	104.5443	##	PBMP-Str	580.9900	583.2756
P-conn-206	14.2348	14062.6923	9.2665	7.6767	##	E202-Ov	585.6000	585.6000
E190-Ov	0.0000	0.0000	0.0000	0.0000	##	P_conn	585.2930	586.7563
E190-Ov2	0.0000	0.0000	0.0000	0.0000	##	190b-OvT	578.8600	578.8600
sw13-E203a	9.0941	33781.0583	1.7152	196.1186	##	N-E203a	593.8000	594.4573
E203M02-SS	7.6216	58122.5556	4.8296	591.0775	##			
E203M02-Ov	10.9534	13013.2849	2.8691	178.3552	##			
E203M01-SS	7.2893	56875.7315	4.0651	377.0396	##			
E203M1-Ov	11.5511	14849.5992	2.2554	1297.5451	##			
E204I02-SS	11.6474	85748.2155	6.4870	539.8333	##			
E204I02-Ov	0.0000	0.0000	0.0000	0.0000	##			
E205M02-SS	64.7481	271221.6565	11.0894	1209.0360	##			
E205M02-Ov	0.0000	0.0000	0.0000	0.0000	##			
E205M03-SS	61.0112	253098.6839	10.7496	1099.8748	##			
E205M03-Ov	0.0000	0.0000	0.0000	0.0000	##			
E206I04-SS	0.7796	2165.4336	2.4386	25.2008	##			
E206I04-Ov	0.0000	0.0000	0.0000	0.0000	##			
Libal-Cv	23.7474	71870.3058	10.4128	91.2910	##			
Libal-Ov	0.0000	0.0000	0.0000	0.0000	##			
ol	2.1981	192937.7857	6.2744	365.8647	##			
wei1r1	58.3554	452010.9328	0.0000	0.0000	##			
wei1r2	0.0000	0.0000	0.0000	0.0000	##			
FREE # 1	22.3794	76910.8006	0.0000	0.0000	##			
FREE # 2	60.3048	645000.8338	0.0000	0.0000	##			
FREE # 3	0.0000	0.0000	0.0000	0.0000	##			
FREE # 4	0.0000	0.0000	0.0000	0.0000	##			

Rainfall input summary from Runoff #
#####

Total rainfall for Gage # 1 is 5.1000 inches

Data Group FT #
Evaporation Rate (in/day) #
#####

JAN. FEB. MAR. APR. MAY JUN. JUL. AUG. SEP. OCT. NOV. DEC.

0.100 0.100 0.100 0.100 0.100 0.100 0.100 0.100 0.100 0.100 0.100 0.100

Table RL SUBCATCHMENT DATA #
Physical Hydrology data #
#####

Number	Subcatchment	Name	Channel or Inlet	Width (ft)	Area (ac)	Per- Imperv ft/ft	Slope	"n"	Per- Imperv	Storage	Strge	Prctn	Zero
1	E230#1	E230		1.0000	5.9660	0.00	1.000	0.020	0.020	0.000	0.00	0.00	
2	E202#1	E202		1.0000	12.953	0.00	1.000	0.020	0.020	0.000	0.00	0.00	
3	E205a-c#1	E205a-c		1.0000	14.044	0.00	1.000	0.020	0.020	0.000	0.00	0.00	
4	E205a-c#2	E205a-c		1.0000	5.540	0.00	1.000	0.020	0.020	0.000	0.00	0.00	
5	E205a-c#3	E205d		1.0000	2.6000	0.00	1.000	0.020	0.020	0.000	0.00	0.00	
6	E205e#1	E205e		1.0000	1.8140	0.00	1.000	0.020	0.020	0.000	0.00	0.00	
7	E205e#1	E205e		1.0000	3.350	0.00	1.000	0.020	0.020	0.000	0.00	0.00	
8	E205e#1	E205e		1.0000	3.650	0.00	1.000	0.020	0.020	0.000	0.00	0.00	
9	E203#1	E203		1.0000	4.6880	0.00	1.000	0.020	0.020	0.000	0.00	0.00	
10	E203a#1	E203a		1.0000	1.9370	0.00	1.000	0.020	0.020	0.000	0.00	0.00	
11	E203b#1	E203b		1.0000	11.306	0.00	1.000	0.020	0.020	0.000	0.00	0.00	
12	E206a_b-c#1	E206a_b_c		1.0000	3.1410	0.00	1.000	0.020	0.020	0.000	0.00	0.00	
13	E206a_b-c#2	E206a_b_c		1.0000	13.434	0.00	1.000	0.020	0.020	0.000	0.00	0.00	
14	E206a_b-c#3	E206d		1.0000	3.430	0.00	1.000	0.020	0.020	0.000	0.00	0.00	
15	E206e#1	E206e		1.0000	3.430	0.00	1.000	0.020	0.020	0.000	0.00	0.00	
16	E206f#1	E206f		1.0000	1.0030	0.00	1.000	0.020	0.020	0.000	0.00	0.00	
17	E190a#1	E190a		1.0000	1.7720	0.00	1.000	0.020	0.020	0.000	0.00	0.00	
18	BMP-ER10a#1	BMP-ER10a		1.0000	3.7110	0.00	1.000	0.020	0.020	0.000	0.00	0.00	
19	E190b#1	E190b		1.0000	2.7990	0.00	1.000	0.020	0.020	0.000	0.00	0.00	
20													

Table R2. SUBCATCHMENT DATA

Number	Subcatchment	Name	Infl #1	Infl #2	Infl #3	Infl #4	Infl #5	Infl #6	Infl #7	Infl #8
1	E230#1	E230	77.3000	0.8000	484.0000	0.2000				
2	E202#1	E202	85.2000	0.2833	484.0000	0.2000				
3	E205a-c#1	E205a-c	87.1000	0.5500	484.0000	0.2000				
4	E205a-c#2	E205a-c	84.9000	0.2167	484.0000	0.2000				
5	E205a-c#3	E205d	82.6000	0.4333	484.0000	0.2000				
6	E205e#1	E205e	83.0000	0.5000	484.0000	0.2000				
7	E203#1	E203	86.4000	0.4500	484.0000	0.2000				
8	E203a#1	E203a	83.3000	0.4667	484.0000	0.2000				
9	E203b#1	E203b	83.5000	0.4000	484.0000	0.2000				
10	E206a_b-c#1	E206a_b_c	81.4000	0.4500	484.0000	0.2000				
11	E206a_b-c#2	E206d	80.2000	0.9300	484.0000	0.2000				
12	E206a_b-c#3	E206e	79.2000	0.9167	484.0000	0.2000				
13	E206e#1	E206e	81.3000	0.2500	484.0000	0.2000				
14	E206f#1	E206f	87.6000	0.1167	484.0000	0.2000				
15	E190a#1	E190a	83.0000	0.2333	484.0000	0.2000				
16	E190b#1	E190b	83.3000	0.3333	484.0000	0.2000				
17	BMP-ER10a#1	BMP-ER10a	79.1000	0.7167	484.0000	0.2000				
18	E190b#1	E190b	79.1000	0.7167	484.0000	0.2000				
19										
20										

Table R3. SUBCATCHMENT DATA

Number	Subcatchment	Name	Infl #1	Infl #2	Infl #3	Infl #4	Infl #5	Infl #6	Infl #7	Infl #8
1	E230#1	E230	77.3000	0.8000	484.0000	0.2000				
2	E202#1	E202	85.2000	0.2833	484.0000	0.2000				
3	E205a-c#1	E205a-c	87.1000	0.5500	484.0000	0.2000				
4	E205a-c#2	E205a-c	84.9000	0.2167	484.0000	0.2000				
5	E205a-c#3	E205d	82.6000	0.4333	484.0000	0.2000				
6	E205e#1	E205e	83.0000	0.5000	484.0000	0.2000				
7	E203#1	E203	86.4000	0.4500	484.0000	0.2000				
8	E203a#1	E203a	83.3000	0.4667	484.0000	0.2000				
9	E203b#1	E203b	83.5000	0.4000	484.0000	0.2000				
10	E206a_b-c#1	E206a_b_c	81.4000	0.4500	484.0000	0.2000				
11	E206a_b-c#2	E206d	80.2000	0.9300	484.0000	0.2000				
12	E206a_b-c#3	E206e	79.2000	0.9167	484.0000	0.2000				
13	E206e#1	E206e	81.3000	0.2500	484.0000	0.2000				
14	E206f#1	E206f	87.6000	0.1167	484.0000	0.2000				
15	E190a#1	E190a	83.0000	0.2333	484.0000	0.2000				
16	E190b#1	E190b	83.3000	0.3333	484.0000	0.2000				
17	BMP-ER10a#1	BMP-ER10a	79.1000	0.7167	484.0000	0.2000				
18	E190b#1	E190b	79.1000	0.7167	484.0000	0.2000				
19										
20										

Number	Name	No	Type	Type
1	E230#1	1	SCS Method	SCS curvilinear
2	E202#1	1	SCS Method	SCS curvilinear
3	E205a-c#1	1	SCS Method	SCS curvilinear
4	E205a-c#2	1	SCS Method	SCS curvilinear
5	E205a-c#3	1	SCS Method	SCS curvilinear
6	E205e#1	1	SCS Method	SCS curvilinear
7	E203#1	1	SCS Method	SCS curvilinear
8	E203a#1	1	SCS Method	SCS curvilinear
9	E203b#1	1	SCS Method	SCS curvilinear
10	E206a_b-c#1	1	SCS Method	SCS curvilinear
11	E206a_b-c#2	1	SCS Method	SCS curvilinear
12	E206a_b-c#3	1	SCS Method	SCS curvilinear
13	E206e#1	1	SCS Method	SCS curvilinear
14	E206f#1	1	SCS Method	SCS curvilinear
15	E190a#1	1	SCS Method	SCS curvilinear
16	E190b#1	1	SCS Method	SCS curvilinear
17	BMP-ER10a#1	1	SCS Method	SCS curvilinear
18	E190b#1	1	SCS Method	SCS curvilinear
19				
20				

Total Number of Subcatchments... 20

Total Tributary Area (acres).... 102.98

Impervious Area (acres)..... 0.00

Impervious Area (h)..... 0.00

Impervious Area (h)..... 0.00

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SUBCATCHMENT DATA #####
Default, Ratio values for subcatchment data #
Used with the calibrate node in the runoff. #
1 - width 2 - area 3 - impervious % #
4 - slope 5 - imp. n 6 - perv. n 7 -
8 - perv. ds 9 - perv. n 10 -
11 - 2nd infil 12 - 3rd infil 13 -

Column 1 2 3 4 5 6 7 8 9 10 11
Default 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000
Ratio 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000

* Arrangement of Subcatchments and Channel/Pipes *

Inlet
E230 No Tributary Channel/Pipes E230#1
E202 No Tributary Channel/Pipes
E203a-c No Tributary Subareas..... E203a-c#1 E203a-c#2 E203a-c#3
E203d No Tributary Channel/Pipes
E203e No Tributary Subareas..... E203e#1
E203c No Tributary Channel/Pipes
E204 No Tributary Subareas..... E204c#1
E203a No Tributary Channel/Pipes
E203b No Tributary Channel/Pipes E203a#1
E203c No Tributary Channel/Pipes E203b#1
E206a_b_c No Tributary Subareas..... E206a_b_c# E206a_b_c# E206a_b_c#
E206d_e No Tributary Channel/Pipes
E206f No Tributary Subareas..... E206f#1
E190a No Tributary Channel/Pipes
BMP-ER10a No Tributary Channel/Pipes
E190b No Tributary Subareas..... BMP-ER10a#
E190a No Tributary Channel/Pipes
E190b#1

* Hydrographs will be stored for the following 15 INLETS *
E230 E202 E203a-c E203d E203e E203f E203g E203h E203i E203j E203k E203l E203m E203n
E204 E203a E203b E206a_b_c E206d_e E206f
E190a BMP-ER10a E190b

* Quality Simulation not included in this run *

* Precipitation Interface File Summary *
* Number of precipitation station.... 1 *

Location Station Number
1. 1

Bethel Baptist Pond
Village of Allouez

HYDRAULICS TABLES IN THE OUTPUT FILE

These are the more important tables in the output file.
You can use your editor to find the table numbers,
for example, search for Table E20 to check continuity.
This output file can be imported into a Word Processor
and printed. The printer will select the desired printing format
mode, column font, a size of 8 pt., and margins of 0.75
inches.

Table E1 - Basic Conduit Data
Table E2 - Conduit Factor Data
Table E3a - Junction Data
Table E3b - Junction Data
Table E3c - Junction Data
Table E4a - Dry Weather Flow Data
Table E4b - Real Time Control Data
Table E5 - Junction Time Step Limitation Summary
Table E5a - Conduit Explicit Condition Summary
Table E6 - Final Model Condition
Table E7 - Junction Summary
Table E8 - Junction Time Step Limitation Summary
Table E9 - Junction Summary Statistics
Table E10 - Conduit Summary Statistics
Table E11 - Area assumptions used in the analysis
Table E12 - Mean conduit information
Table E13 - Channel losses(h) and culvert info
Table E14 - Natural Channel Overbank Flow Information

Table E14a - Natural Channel Overbank Flow Information
Table E14b - Pipe Channel Overbank Flow Information
Table E15 - Spreadsheet Info List
Table E15a - Spreadsheet Reach List
Table E16 - New Conduit Output Section
Table E17 - Pump Operation
Table E18 - Junction Continuity Error
Table E19 - Junction Continuity Error Listing
Table E20 - Junction Flooding and Volume List
Table E21 - Continuity balance at simulation end
Table E22 - Model Judgement Section

Time Control from Hydraulics Job Control
Year..... 2012
Day..... 8 Hour..... 12
Minute..... 0

Control information for simulation

Integration cycles..... 7200
Length of integration step is..... 30.00 seconds
Simulation length..... 60.00 hours
Do not create equiv. Pipes (NEQUAL)..... 0
Use U.S. customary units for I/O..... 0
Intermediate printout intervals of..... 500 cycles
Summary printout intervals of..... 250.00 minutes
Summary printout time interval of..... 500 cycles
Hot start file parameter (REDO)..... 0
Initial time..... 0.00 hours

Iteration variables: Flow Tolerance..... 0.00010
Head Tolerance..... 0.00050
Minimum depth (m or ft)..... 0.00001
Underrelaxation parameter..... 0.85000
Time weighting parameter..... 0.85000
Flow adjustment factor..... 1.00000
Flow adjustment factor..... 1.00000
Initial Condition Smoothing..... 0
Current Time Step Factor..... 1.00000
Default Expansion/Contraction K..... 0.00000
Routing Method..... Dynamic Wave
Default Entrance/Exit K..... 0.00000
Minimum Junction/Conduit Depth..... 0.0001 feet
Ponding Area Coefficient..... 5000.00
Ponding Area Exponent..... 1.0000
Minimum Orifice length..... 1000.00 feet
NPSW input hydrograph junctions..... 0
or user defined hydrographs.....

Natural Cross-Section Information for Channel rav1-E206
Cross-Section ID (from X1 card) : 1.0 Channel sequence number : 1

Left Overbank Length : 541.8 ft
Main Channel Length : 541.8 ft
Right Overbank Length : 541.8 ft
Manning N : 0.050 to Station 26.1
" " : 0.050 in main Channel
" " : 0.050 Beyond station 108.0
Allowable Encroachment Depth : 0.00 ft

Natural Cross-Section Information for Channel rav2-E207
Cross-Section ID (from X1 card) : 2.0 Channel sequence number : 2

Left Overbank Length : 869.2 ft
Main Channel Length : 869.2 ft
Right Overbank Length : 869.2 ft
Manning N : 0.050 to Station 43.0
" " : 0.050 in main Channel
" " : 0.050 Beyond station 126.0
Allowable Encroachment Depth : 0.00 ft

Natural Cross-Section Information for Channel rav2-E208
Cross-Section ID (from X1 card) : 3.0 Channel sequence number : 3

Left Overbank Length : 363.6 ft
Main Channel Length : 363.6 ft
Right Overbank Length : 363.6 ft
Manning N : 0.050 to Station 26.1
" " : 0.050 in main Channel
" " : 0.050 Beyond station 108.0
Allowable Encroachment Depth : 0.00 ft

Table E1 - Conduit Data

Imp Node	Conduit Name	Length (ft)	Conduit Class	Area (ft^2)	Manning Coeff.	Max Width (ft)	Depth (ft)	Side Slopes
1	SS-E202M04	280.2500	Circular	3.9761	0.0140	2.2500	2.2500	
2	SS-E202M03	651.8000	Circular	3.9761	0.0140	2.2500	2.2500	
3	SS-E204I03	56.6600	Circular	3.9761	0.0140	2.2500	2.2500	
4	SS-E204I03	28.2300	Circular	3.9761	0.0140	1.5000	1.5000	10.0000
5	sw12-E203a	629.9000	Trapezoid	93.0000	0.0300	1.0000	3.0000	
6	SS-E205I01	59.1300	Circular	7.0686	0.0140	3.0000	3.0000	
7	SS-E206C	115.2100	Circular	1.7671	0.0140	1.5000	1.5000	
8	SS-E206M02	29.6000	Circular	1.7671	0.0140	1.5000	1.5000	
9	rav-E206	541.8000	Natural	568.7900	0.0500	155.0000	6.2000	
10	rav-E202	869.2500	Natural	1232.5000	0.0600	208.0000	9.0000	
11	sw1-E202	363.5500	Natural	568.7900	0.0500	155.0000	6.2000	
12	sw1-E203b	209.3800	Trapezoid	210.0000	0.0350	10.0000	3.0000	20.0000
13	SS-E206I03	14.3200	Circular	12.5664	0.0140	4.0000	4.0000	
14	Ov-E205I01	330.0000	Trapezoid	200.2000	0.0110	2.0000	2.0000	50.0000
15	Ov-E204I02	47.0000	Trapezoid	800.2000	0.0300	0.1000	2.0000	200.0000
16	E206I03	32.0000	Trapezoid	200.2000	0.0300	0.1000	2.0000	200.0000
17	Ov2-E202M04	56.0000	Trapezoid	200.2000	0.0110	1.0000	2.0000	0.62
18	Ov2-E202M04	56.0000	Trapezoid	183.0000	0.0300	1.0000	3.0000	50.0000
19	E206-SSTub	7.0200	Circular	12.5664	0.0140	4.0000	4.0000	20.0000
20	P-STO01	321.3200	Circular	12.5664	0.0140	4.0000	4.0000	2.95
21	P-STO02	405.2400	Circular	12.5664	0.0140	4.0000	4.0000	10.64
22	P-STO03	552.8900	Circular	12.5664	0.0140	4.0000	4.0000	
23	P-STO04	66.3400	Circular	12.5664	0.0140	4.0000	4.0000	
24	P-STO02a	13.4400	Circular	3.9761	0.0140	1.0000	1.0000	
25	P-STO03b	8.0000	Circular	3.9761	0.0140	2.2500	2.2500	
26	Pump-Ov	40.0000	Trapezoid	159.0000	0.0300	35.0000	3.0000	6.0000
27	P-STO2E230	107.0000	Circular	3.1416	0.0140	2.0000	2.0000	
28	P-STO2E190a	52.6600	Circular	3.1416	0.0140	2.0000	2.0000	
29	P-STO2E190b	142.0000	Circular	4.9087	0.0140	2.5000	2.5000	
30	Pump-as	90.0000	Circular	7.0686	0.0140	3.0000	3.0000	200.0000
31	E230-Ov	10.0000	Trapezoid	801.0000	0.0110	0.5000	2.0000	
32	P-connect	5.0000	Circular	3.1416	0.0140	2.0000	2.0000	
33	P-conn2	45.0000	Circular	4.9087	0.0140	2.5000	2.5000	
34	P-conn-206	5.0000	Circular	4.9087	0.0140	2.5000	2.5000	
35	E190-Ov	33.5500	Trapezoid	820.0000	0.0300	10.0000	2.0000	200.0000
36	E190-Ov2	33.5500	Trapezoid	820.0000	0.0300	10.0000	2.0000	200.0000
37	sw13-E203a	30.0000	Trapezoid	93.0000	0.0300	1.0000	3.0000	10.0000
38	E203M02-Ov	329.2000	Circular	1.7671	0.0140	1.5000	1.5000	50.0000
39	E203M02-SS	435.9000	Trapezoid	200.2000	0.0110	0.1000	2.0000	
40	E203M01-SS	410.3200	Circular	1.7671	0.0140	1.5000	1.5000	
41	E203M01-Ov	400.0000	Trapezoid	200.2000	0.0110	0.1000	2.0000	50.0000
42	E204I02-SS	294.6500	Circular	1.7671	0.0140	1.5000	1.5000	
43	E204I02-Ov	295.0000	Trapezoid	200.2000	0.0110	0.1000	2.0000	50.0000
44	E205M02-SS	280.8000	Circular	7.0686	0.0140	3.0000	3.0000	50.0000
45	E205M02-Ov	321.8900	Circular	200.2000	0.0110	0.1000	2.0000	50.0000
46	E205M03-SS	276.0000	Trapezoid	200.2000	0.0110	0.1000	2.0000	50.0000
47	E205M03-Ov	325.8800	Circular	0.7854	0.0140	1.0000	2.0000	50.0000
48	E206I04-SS	330.0000	Trapezoid	200.2000	0.0110	4.0000	4.0000	150.0000
49	E206I04-Ov	88.0000	Trapezoid	12.5664	0.0140	4.0000	2.0000	
50	Libal-Ov	115.3400	Circular	12.5664	0.0140	4.0000	2.0000	
51	Libal-Ov	16.0000	Trapezoid	601.0000	0.0110	0.5000	2.0000	
Total length of all conduits 10236.7400 feet								
* If there are messages about (sqrt(r*d)/dt/ds), or the (sqrt(wave celerity)*time step/conduit length) in the output file all it means is that the time step is too large for the hydraulic model. Satisfy this condition (explicit condition). You control the actual internal time step by using the minimum courant time step factor in the HYDRALICS job control. The message put in words states that the smallest conduit with the fastest velocity will control the time step selection. If you are not sure, you can always use the conduit option in the HYDRALICS Job Control.								
Conduit Name	Courant Ratio							
SS-E202M04	0.91							
SS-E202M03	0.39							
SS-E202M01	4.51	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
SS-E204I03	7.39	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
sw12-E203a	0.33							
SS-E203b	0.33	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
SS-E205I01	4.99	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
SS-E206C	1.81	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
SS-E206M02	7.04	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
rav-E206	0.60							
rav-E202	0.48							
sw1-E203b	0.90	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
sw1-E203b	1.03	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
SS-E206I03	23.78	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
Ov-E205I01	0.52							
Ov-E204I02	3.62	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
E206I03	5.32	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
Ov2-E20M04	5.94	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
Ov-E20M04	5.98	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
E206-SSTub	48.50	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
P-STO01	1.06	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
P-STO02	0.84							
P-STO03	0.62							
P-STO04	5.13	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
P-STO02a	12.67	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
P-STO03b	31.92	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
P-STO03b	31.92	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
Pump-Ov	6.37	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
P-STO2E230	2.25	====> Warning ! (sqrt(wave celerity)*time step/conduit length)						
Imp Node	Junction Name	X Coord.	Y Coord.	Type of Manhole	Type of Inlet	Maximum Capacity	Pavement Shape	Slope
1	E230	0.0000	0.0000	No P	Normal	0	0.0000	0.0000
2	E190b	0.0000	0.0000	No P	Normal	0	0.0000	0.0000
3	E202	0.0000	0.0000	No P	Normal	0	0.0000	0.0000
4	202M03	0.0000	0.0000	No P	Normal	0	0.0000	0.0000
5	202M01	0.0000	0.0000	No P	Normal	0	0.0000	0.0000
6	S-LIBAL	0.0000	0.0000	No P	Normal	0	0.0000	0.0000
7	S-E203c	0.0000	0.0000	No P	Normal	0	0.0000	0.0000
Imp Node	Junction Name	X Coord.	Y Coord.	Type of Manhole	Type of Inlet	Maximum Capacity	Pavement Shape	Slope
1	E230	600.0000	583.0000	0.0000	0.0000	100.0000		
2	E190b	600.0000	582.2500	0.0000	0.0000	100.0000		
3	202M03	600.0000	584.1500	0.0000	0.0000	100.0000		
4	202M01	600.0000	581.5000	0.0000	0.0000	100.0000		
5	S-LIBAL	600.0000	591.7800	0.0000	0.0000	100.0000		
6	S-E203c	610.0000	597.3400	0.0000	0.0000	100.0000		
7	203M01	610.0000	595.4900	0.0000	0.0000	100.0000		
8	E204	600.0000	594.7400	0.0000	0.0000	100.0000		
9	204I03	600.0000	593.3600	0.0000	0.0000	100.0000		
10	E206I04	600.0000	590.2500	0.0000	0.0000	100.0000		
11	E206I04	600.0000	590.2500	0.0000	0.0000	100.0000		
12	E205a-C	600.0000	591.7800	0.0000	0.0000	100.0000		
13	E205a-C	600.0000	591.7800	0.0000	0.0000	100.0000		
14	E203a	610.0000	597.1000	0.0000	0.0000	100.0000		
15	E203b	610.0000	597.1000	0.0000	0.0000	100.0000		
16	E206f	605.0000	596.0000	0.0000	0.0000	100.0000		
17	E205e	605.0000	594.7900	0.0000	0.0000	100.0000		
18	E205a-C	600.0000	597.5000	0.0000	0.0000	100.0000		
19	E205a-C	600.0000	597.5000	0.0000	0.0000	100.0000		
20	205E00	600.0000	592.0500	0.0000	0.0000	100.0000		
21	N-LIBAL	600.0000	592.1000	0.0000	0.0000	100.0000		
22	202-OUT	600.0000	588.0000	0.0000	0.0000	100.0000		
23	N-E206	600.0000	590.0000	0.0000	0.0000	100.0000		
24	206I03	600.0000	595.6700	0.0000	0.0000	100.0000		
25	206I03	600.0000	595.6700	0.0000	0.0000	100.0000		
26	P-MH02	600.0000	590.8000	0.0000	0.0000	100.0000		
27	P-MH03	600.0000	587.7500	0.0000	0.0000	100.0000		
28	E190a	600.0000	585.2300	0.0000	0.0000	100.0000		
29	BMP-ER10a	605.0000	590.3000	0.0000	0.0000	100.0000		
30	P-conn2	600.0000	587.7000	0.0000	0.0000	100.0000		
31	BMP-Out	600.0000	589.0000	0.0000	0.0000	100.0000		
32	BMP-Out	600.0000	589.0000	0.0000	0.0000	100.0000		
33	BMP-SST	600.0000	584.0000	0.0000	0.0000	100.0000		
34	230-OUT	600.0000	587.8000	0.0000	0.0000	100.0000		
35	P-conn	600.0000	590.1500	0.0000	0.0000	100.0000		
36	190b-Out	600.0000	580.8600	0.0000	0.0000	100.0000		
37	N-E203a	600.0000	596.8000	0.0000	0.0000	100.0000		
* Table E3b - Junction Data								
* Table E3b - Junction Data								
Full pipe or full open conduit volume 2.3270E+06 cubic feet								
====> Warning ! The upstream and downstream junctions for the following conduits have been reversed to correspond to the positive flow and decreasing downstream junction. A negative flow in the output thus means the flow was from your original upstream junction to your original downstream junction. Any initial flow has been multiplied by -1.								
1. Conduit #...rav2-E206 has been changed.								
2. Conduit #...SS-E206M01 has been changed.								
* Table E3a - Junction Data								

Post Pond, Future Land Use Condition

XP-SWMM Model Results

100-year Storm Event

BMP-ER10a Stage/Area										79714.8000										1.757518E+06										605.0000 Node Invert									
Variable storage data for node E230										Variable storage data for node E230										Variable storage data for node E206a_b_c										Variable storage data for node E206a_b_c									
Data Point										Data Point										Data Point										Data Point									
Elevation										Elevation										Elevation										Elevation									
ft										ft										ft										ft									
Depth										Depth										Depth										Depth									
ft										ft										ft										ft									
Area										Area										Area										Area									
ft^2										ft^2										ft^2										ft^2									
Volume										Volume										Volume										Volume									
ft^3										ft^3										ft^3										ft^3									
ac-ft										ac-ft										ac-ft										ac-ft									
acres										acres										acres										acres									
1	SS-E202M04	0.0000	No P	Normal	0.0000	584.7400	584.1300	No Design	1	583.0000	0.0000	0.0000	43.5600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1	588.5000	0.0000	0.0000	43.5600	0.0000	0.0000	0.0000	0.0000	0.0000										
2	SS-E202M04	0.0000	No P	Normal	0.0000	584.7400	584.1300	No Design	2	584.0000	1.0000	0.0000	914.7600	385.9751	0.0210	0.0089	0.0000	0.0000	0.0000	2	584.0000	1.0000	0.0000	914.7600	385.9751	0.0210	0.0089	0.0000	0.0000										
3	SS-E202M01	0.0000	No P	Normal	0.0000	583.4800	583.4200	No Design	3	586.0000	3.0000	0.0000	4225.3200	5123.3140	0.0970	0.1176	0.0000	0.0000	0.0000	3	586.0000	3.0000	0.0000	4225.3200	5123.3140	0.0970	0.1176	0.0000	0.0000										
4	SS-E204L03	0.0000	No P	Normal	0.0000	585.9900	585.2300	No Design	4	584.0000	3.0000	0.0000	53321.2000	26781.4339	1.1700	1.3392	0.0000	0.0000	0.0000	4	584.0000	3.0000	0.0000	53321.2000	26781.4339	1.1700	1.3392	0.0000	0.0000										
5	SS-E205L01	0.0000	No P	Normal	0.0000	589.0000	589.0000	No Design	5	584.0000	3.0000	0.0000	53321.2000	26781.4339	1.1700	1.3392	0.0000	0.0000	0.0000	5	584.0000	3.0000	0.0000	53321.2000	26781.4339	1.1700	1.3392	0.0000	0.0000										
6	SS-E205L01	0.0000	No P	Normal	0.0000	589.0000	589.0000	No Design	6	586.0000	4.0000	0.0000	59677.2000	203796.1055	1.3700	4.6785	0.0000	0.0000	0.0000	6	586.0000	4.0000	0.0000	59677.2000	203796.1055	1.3700	4.6785	0.0000	0.0000										
7	SS-E206L02	0.0000	No P	Normal	0.0000	588.5000	588.5000	No Design	7	587.0000	6.0000	0.0000	69696.0000	32917.8191	1.6000	7.6427	0.0000	0.0000	0.0000	7	587.0000	6.0000	0.0000	69696.0000	32917.8191	1.6000	7.6427	0.0000	0.0000										
8	SS-E206L02	0.0000	No P	Normal	0.0000	588.5000	588.5000	No Design	8	588.0000	7.0000	0.0000	74487.6000	404995.6249	1.7100	9.2974	0.0000	0.0000	0.0000	8	588.0000	7.0000	0.0000	74487.6000	404995.6249	1.7100	9.2974	0.0000	0.0000										
9	SS-E206L02	0.0000	No P	Normal	0.0000	588.5000	588.5000	No Design	9	589.0000	8.0000	0.0000	77114.8000	404995.6249	1.7100	9.2974	0.0000	0.0000	0.0000	9	589.0000	8.0000	0.0000	77114.8000	404995.6249	1.7100	9.2974	0.0000	0.0000										
10	SS-E206L02	0.0000	No P	Normal	0.0000	589.0000	589.0000	No Design	10	591.0000	10.0000	0.0000	79714.8000	641510.8836	1.8300	14.2271	0.0000	0.0000	0.0000	10	591.0000	10.0000	0.0000	79714.8000	641510.8836	1.8300	14.2271	0.0000	0.0000										
11	SS-E206L02	0.0000	No P	Normal	0.0000	589.0000	589.0000	No Design	11	605.0000	24.0000	0.0000	79714.8000	1.757518E+06	1.8300	40.3471	0.0000	0.0000	0.0000	11	605.0000	24.0000	0.0000	79714.8000	1.757518E+06	1.8300	40.3471	0.0000	0.0000										
Office Data																																							
Conduit Name From Junction To Junction Type Type Bmp-Str CIRC Side																																							
o1 BMP-ER10a BMP-Str CIRC Side																																							
===== > EQUIVALENT PIPE INFORMATION FOR ORIFICE																																							
CONDUIT NAME.....																																							
Upstream node.....																																							
Downstream node.....																																							
PIPE DIAMETER.....																																							
PIPE LENGTH.....																																							
MANNING ROUGHNESS.....																																							
INVERT ELEVATION AT UPSTREAM END.....																																							
INVERT ELEVATION AT DOWNSTREAM END.....																																							
Note: For a Bottom-outlet orifice the invert elevation of the downstream node will be adjusted to accommodate the equivalent conduit. Conduit grades are not affected.																																							
=====																																							
Weir Data																																							
Weir Name From Junction To Junction Type Type Bmp-Str																																							
weir1 BMP-ER10a BMP-Str 1																																							
weir2 BMP-ER10a BMP-Str 1																																							
=====																																							
FREE OUTFALL DATA (DATA GROUP II)																																							
BOUNDARY CONDITION ON DATA GROUP J1																																							
=====																																							
Outfall at Junction...202-OUT has boundary condition number...1																																							
Outfall at Junction...230-OUT has boundary condition number...2																																							
Outfall at Junction...190b-OUT has boundary condition number...3																																							
Outfall at Junction...190b-OUT has boundary condition number...4																																							
=====																																							
Warning !! Outfall Junction BMP-OUT has two or more connecting conduits.																																							
Warning !! Outfall Junction 190b-OUT has two or more connecting conduits.																																							
=====																																							
Weir Outfall Data																																							
Boundary Condition on Data group J1																																							
=====																																							

Post Pond, Future Land Use Condition

XP-SWMM Model Results

100-year Storm Event

*** INTERNAL CONNECTIVITY INFORMATION ***			
CONDUIT	JUNCTION	JUNCTION	JUNCTION
weir1	BMP-ER10a	BMP-ER10a	PUMP-Str
weir2	BMP-ER10a	BMP-ER10a	PUMP-Str
FREE # 1	202-OUT	BOUNDARY	
FREE # 2	BMP-OUT	BOUNDARY	
FREE # 3	230-OUT	BOUNDARY	
FREE # 4	190b-OUT	BOUNDARY	
*** Boundary Condition Information ***			
Data Groups J1-J4			
BC NUMBER.. 1 has no control water surface.			
BC NUMBER.. 2 has no control water surface.			
BC NUMBER.. 4 has no control water surface.			
*** XP Note Field Summary ***			
*** Conduit Convergence Criteria ***			
Conduit	Name	Full Flow	Conduit Slope
SS-E202M04	13.1951		0.0021
SS-E202M03	9.1442		0.0010
SS-E204103	9.3583		0.0011
SW-E204103	14.9142		0.0234
SW-E203a	496.6547		0.0067
SS-E205101	68.3428		0.0122
SS-E206c	7.9774		0.0026
SS-E206103	2467.1609		0.0038
rav-E202	5391.0132		0.0029
rav2-E206	1051.7874		0.0007
sw1-E203b	2720.4330		0.0492
SS-E206103	86.3385		0.0042
SS-E206103	1763.2985		0.0042
OV-E204102	16435.2909		0.1715
E206103	11428.6385		0.0831
OV2-202M04	5137.5807		0.0361
OV-E206c	2728.7192		0.0523
E206-Srt-ub	100.6844		0.0057
P-ST001	63.1390		0.0070
P-ST002	17.5500		0.0070
P-ST003	79.0100		0.0035
P-ST004	78.5375		0.0035
P-ST002a	4.4209		0.0179
P-ST003b	9.0941		0.0010
Pump-ov	2419.0469		0.0325
P-ST0E230	17.5500		0.0070
P-ST0E190b	30.3220		0.0063
Pump-s	65.2844		0.0111
E230-Ov	15309.1405		0.0200
P-connect	21.0665		0.0100
SS-E206M01	69.3927		0.0126
P-E190-Ov	19633.6766		0.2301
sw13-E203a	608.2270		0.0100
E203M02-SS	8.0460		0.0068
E203M02-Ov	2179.4174		0.0065
E203M01-SS	6.6199		0.0046
E204102-SS	195.7574		0.0024
E204102-Ov	1850.1440		0.0047
E205M02-SS	73.5495		0.0141
E205M02-Ov	2841.3868		0.0110
E205M03-SS	67.2042		0.0118
E205M03-Ov	2810.8044		0.0108
E206104-Ov	2019.8956		0.0056
Libal-Cv	196.2025		0.0216
Libal-Ov	11488.1511		0.0200
oi	1.3720		0.0000

*** Initial Model Condition ***			
Initial Time = 0.01 hours			
Junction	Depth	Elevation	
E230/	0.00	583.00	
203M01/	0.00	583.00	
E203c/	0.00	590.74	

*** Junction is Surcharged. E190b/ 0.00 / 582.25 S-15/ 0.00 / 583.00 203M01/ 0.00 / 588.50

*** Conduit uses the normal flow option.

==> ** Conduit uses the normal flow option.													
Conduit/	Flow	SS-E202M04/	0.00	SS-E202M03/	0.00	SS-E202M01/	0.00	SS-E205101/	0.00	SS-E205101/	0.00	SS-E203b/	0.00
SS-E204103/	0.00	sw1-E203a/	0.00	SS-E206M02/	0.00	sw1-E203b/	0.00	SS-E206M01/	0.00	SS-E206M01/	0.00	SS-E206M01/	0.00
SS-E206c/	0.00	SS-E206M02/	0.00	SS-E206M02/	0.00	SS-E206M02/	0.00	SS-E206M02/	0.00	SS-E206M02/	0.00	SS-E206M02/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00
SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	0.00	SS-E206103/	

Post Pond, Future Land Use Condition

XP-SWMM Model Results

100-year Storm Event

Page 8 of 18

[illegible]

Post Pond, Future Land Use Condition

XP-SWMM Model Results

100-year Storm Event

Page 9 of 18

[illegible]

Post Pond, Future Land Use Condition

XP-SWMM Model Results

100-year Storm Event

Cycle										54 Hrs - 10.00 Min										7000										Time (sec)									
Junction / Depth / Elevation										Junction / Depth / Elevation										Junction / Depth / Elevation										Junction / Depth / Elevation									
P-ST003a/ 0.00/ 584.15										P-ST003a/ 0.00/ 584.15										P-ST003a/ 0.00/ 584.15										P-ST003a/ 0.00/ 584.15									
P-ST003b/ 0.00/ 584.15										P-ST003b/ 0.00/ 584.15										P-ST003b/ 0.00/ 584.15										P-ST003b/ 0.00/ 584.15									
P-ST003c/ 0.00/ 584.15										P-ST003c/ 0.00/ 584.15										P-ST003c/ 0.00/ 584.15										P-ST003c/ 0.00/ 584.15									
P-ST003d/ 0.00/ 584.15										P-ST003d/ 0.00/ 584.15										P-ST003d/ 0.00/ 584.15										P-ST003d/ 0.00/ 584.15									
P-ST003e/ 0.00/ 584.15										P-ST003e/ 0.00/ 584.15										P-ST003e/ 0.00/ 584.15										P-ST003e/ 0.00/ 584.15									
P-ST003f/ 0.00/ 584.15										P-ST003f/ 0.00/ 584.15										P-ST003f/ 0.00/ 584.15										P-ST003f/ 0.00/ 584.15									
P-ST003g/ 0.00/ 584.15										P-ST003g/ 0.00/ 584.15										P-ST003g/ 0.00/ 584.15										P-ST003g/ 0.00/ 584.15									
P-ST003h/ 0.00/ 584.15										P-ST003h/ 0.00/ 584.15										P-ST003h/ 0.00/ 584.15										P-ST003h/ 0.00/ 584.15									
P-ST003i/ 0.00/ 584.15										P-ST003i/ 0.00/ 584.15										P-ST003i/ 0.00/ 584.15										P-ST003i/ 0.00/ 584.15									
P-ST003j/ 0.00/ 584.15										P-ST003j/ 0.00/ 584.15										P-ST003j/ 0.00/ 584.15										P-ST003j/ 0.00/ 584.15									
P-ST003k/ 0.00/ 584.15										P-ST003k/ 0.00/ 584.15										P-ST003k/ 0.00/ 584.15										P-ST003k/ 0.00/ 584.15									
P-ST003l/ 0.00/ 584.15										P-ST003l/ 0.00/ 584.15										P-ST003l/ 0.00/ 584.15										P-ST003l/ 0.00/ 584.15									
P-ST003m/ 0.00/ 584.15										P-ST003m/ 0.00/ 584.15										P-ST003m/ 0.00/ 584.15										P-ST003m/ 0.00/ 584.15									
P-ST003n/ 0.00/ 584.15										P-ST003n/ 0.00/ 584.15										P-ST003n/ 0.00/ 584.15										P-ST003n/ 0.00/ 584.15									
P-ST003o/ 0.00/ 584.15										P-ST003o/ 0.00/ 584.15										P-ST003o/ 0.00/ 584.15										P-ST003o/ 0.00/ 584.15									
P-ST003p/ 0.00/ 584.15										P-ST003p/ 0.00/ 584.15										P-ST003p/ 0.00/ 584.15										P-ST003p/ 0.00/ 584.15									
P-ST003q/ 0.00/ 584.15										P-ST003q/ 0.00/ 584.15										P-ST003q/ 0.00/ 584.15										P-ST003q/ 0.00/ 584.15									
P-ST003r/ 0.00/ 584.15										P-ST003r/ 0.00/ 584.15										P-ST003r/ 0.00/ 584.15										P-ST003r/ 0.00/ 584.15									
P-ST003s/ 0.00/ 584.15										P-ST003s/ 0.00/ 584.15										P-ST003s/ 0.00/ 584.15										P-ST003s/ 0.00/ 584.15									
P-ST003t/ 0.00/ 584.15										P-ST003t/ 0.00/ 584.15										P-ST003t/ 0.00/ 584.15										P-ST003t/ 0.00/ 584.15									
P-ST003u/ 0.00/ 584.15										P-ST003u/ 0.00/ 584.15										P-ST003u/ 0.00/ 584.15										P-ST003u/ 0.00/ 584.15									
P-ST003v/ 0.00/ 584.15										P-ST003v/ 0.00/ 584.15										P-ST003v/ 0.00/ 584.15										P-ST003v/ 0.00/ 584.15									
P-ST003w/ 0.00/ 584.15										P-ST003w/ 0.00/ 584.15										P-ST003w/ 0.00/ 584.15										P-ST003w/ 0.00/ 584.15									
P-ST003x/ 0.00/ 584.15										P-ST003x/ 0.00/ 584.15										P-ST003x/ 0.00/ 584.15										P-ST003x/ 0.00/ 584.15									
P-ST003y/ 0.00/ 584.15										P-ST003y/ 0.00/ 584.15										P-ST003y/ 0.00/ 584.15										P-ST003y/ 0.00/ 584.15									
P-ST003z/ 0.00/ 584.15										P-ST003z/ 0.00/ 584.15										P-ST003z/ 0.00/ 584.15										P-ST003z/ 0.00/ 584.15									
P-ST003aa/ 0.00/ 584.15										P-ST003aa/ 0.00/ 584.15										P-ST003aa/ 0.00/ 584.15										P-ST003aa/ 0.00/ 584.15									

***** * Table R6. Continuity Check for Channel/Pipes ***** * If you should have zero continuity error * * If you are not using runoff hydraulics *****										***** * Table R5. CONTINUITY CHECK FOR SURFACE WATER ***** * Any continuity error can be fixed by lowering the * * Pervious Tc, (mins) * * should not be much greater than the wet time step. * *****									
Initial Channel/Pipe Storage..... Final Channel/Pipe Storage..... Surface Runoff from Watersheds..... Groundwater Subsurface Inflow or Diversion... Evaporation Loss from Channels..... Groundwater Flow Diverted Out of Network... Groundwater Flow Diverted Into Network... Initial Storage + Inflow..... Final Storage + Outflow + Diverted GW..... ***** * Final Storage + Outflow + Evaporation - * * Watershed Runoff - Groundwater Inflow - * * Initial Channel/Pipe Storage * * Final Storage + Outflow + Evaporation * *****										Total Precipitation (Rain plus Snow) Total Infiltration Total Evaporation Surface Runoff from Watersheds Total Water remaining in Surface Storage Infiltration over the Pervious Area... ***** Infiltration + Evaporation + Water Runoff from Snow Storage + Water remaining in Snow Cover..... Total Precipitation + Initial Storage..									
Percent Continuity Error.....										Total Precipitation (Rain plus Snow) Total Infiltration Total Evaporation Surface Runoff from Watersheds Total Water remaining in Surface Storage Infiltration over the Pervious Area... ***** Infiltration + Evaporation + Water Runoff from Snow Storage + Water remaining in Snow Cover..... Total Precipitation + Initial Storage..									
***** * Hydraulic design routine final results. * *****										***** * Rainfall input summary from Runoff Continuity Check * ***** Total rainfall read for gage # 1 is 5.1000 in Total rainfall duration for gage # 1 is 1440.00 minutes *****									
Conduit Name Height Width Barrels Height Width Barrels rav1-E206 6.2000 155.0000 1.0000 6.2000 155.0000 1.0000 rav-E202 9.0000 208.0000 1.0000 9.0000 208.0000 1.0000 rav2-E206 6.2000 155.0000 1.0000 6.2000 155.0000 1.0000 ol 0.6666 0.6666 1.0000 0.6666 0.6666 1.0000										Total Precipitation (Rain plus Snow) Total Infiltration Total Evaporation Surface Runoff from Watersheds Total Water remaining in Surface Storage Infiltration over the Pervious Area... ***** Infiltration + Evaporation + Water Runoff from Snow Storage + Water remaining in Snow Cover..... Total Precipitation + Initial Storage..									
***** * End of time step DO-loop in Runoff * *****										***** * Extrapolation Summary for Watersheds * * Explains the number of time steps and iterations * * used in the solution of the subcatchments. * * # Steps ==> Total Number of Extrapolated Steps * * # Calls ==> Total Number of OVERLAP Calls * *****									
Subcatchment # Steps # Calls Subcatchment # Steps # Calls E230#1 0 0 E202#1 0 0 E205a-c#2 0 0 E205a-c#3 0 0 E205#1 0 0 E203#1 0 0 E203#1 0 0 E203#1 0 0 E205a_b-c#2 0 0 E205a_b-c#3 0 0 E206#1 0 0 E206#1 0 0 E206#1 0 0 E206#1 0 0 EWG-EX10#1 0 0 E130#1 0 0										***** * Table R5. CONTINUITY CHECK FOR SURFACE WATER ***** * Any continuity error can be fixed by lowering the * * Pervious Tc, (mins) * * should not be much greater than the wet time step. * *****									
***** * Rainfall input summary from Runoff Continuity Check * ***** Total rainfall read for gage # 1 is 5.1000 in Total rainfall duration for gage # 1 is 1440.00 minutes *****										***** * Table R5. CONTINUITY CHECK FOR SURFACE WATER ***** * Any continuity error can be fixed by lowering the * * Pervious Tc, (mins) * * should not be much greater than the wet time step. * *****									
***** * Hydraulic design routine final results. * *****										***** * Rainfall input summary from Runoff Continuity Check * ***** Total rainfall read for gage # 1 is 5.1000 in Total rainfall duration for gage # 1 is 1440.00 minutes *****									
Conduit Name Height Width Barrels Height Width Barrels rav1-E206 6.2000 155.0000 1.0000 6.2000 155.0000 1.0000 rav-E202 9.0000 208.0000 1.0000 9.0000 208.0000 1.0000 rav2-E206 6.2000 155.0000 1.0000 6.2000 155.0000 1.0000 ol 0.6666 0.6666 1.0000 0.6666 0.6666 1.0000										Total Precipitation (Rain plus Snow) Total Infiltration Total Evaporation Surface Runoff from Watersheds Total Water remaining in Surface Storage Infiltration over the Pervious Area... ***** Infiltration + Evaporation + Water Runoff from Snow Storage + Water remaining in Snow Cover..... Total Precipitation + Initial Storage..									
***** * End of time step DO-loop in Runoff * *****										***** * Extrapolation Summary for Watersheds * * Explains the number of time steps and iterations * * used in the solution of the subcatchments. * * # Steps ==> Total Number of Extrapolated Steps * * # Calls ==> Total Number of OVERLAP Calls * *****									
Subcatchment # Steps # Calls Subcatchment # Steps # Calls E230#1 0 0 E202#1 0 0 E205a-c#2 0 0 E205a-c#3 0 0 E205#1 0 0 E203#1 0 0 E203#1 0 0 E203#1 0 0 E205a_b-c#2 0 0 E205a_b-c#3 0 0 E206#1 0 0 E206#1 0 0 E206#1 0 0 E206#1 0 0 EWG-EX10#1 0 0 E130#1 0 0										***** * Table R5. CONTINUITY CHECK FOR SURFACE WATER ***** * Any continuity error can be fixed by lowering the * * Pervious Tc, (mins) * * should not be much greater than the wet time step. * *****									
***** * Rainfall input summary from Runoff Continuity Check * ***** Total rainfall read for gage # 1 is 5.1000 in Total rainfall duration for gage # 1 is 1440.00 minutes *****										***** * Table R5. CONTINUITY CHECK FOR SURFACE WATER ***** * Any continuity error can be fixed by lowering the * * Pervious Tc, (mins) * * should not be much greater than the wet time step. * *****									
***** * Hydraulic design routine final results. * *****										***** * Rainfall input summary from Runoff Continuity Check * ***** Total rainfall read for gage # 1 is 5.1000 in Total rainfall duration for gage # 1 is 1440.00 minutes *****									
Conduit Name Height Width Barrels Height Width Barrels rav1-E206 6.2000 155.0000 1.0000 6.2000 155.0000 1.0000 rav-E202 9.0000 208.0000 1.0000 9.0000 208.0000 1.0000 rav2-E206 6.2000 155.0000 1.0000 6.2000 155.0000 1.0000 ol 0.6666 0.6666 1.0000 0.6666 0.6666 1.0000										Total Precipitation (Rain plus Snow) Total Infiltration Total Evaporation Surface Runoff from Watersheds Total Water remaining in Surface Storage Infiltration over the Pervious Area... ***** Infiltration + Evaporation + Water Runoff from Snow Storage + Water remaining in Snow Cover..... Total Precipitation + Initial Storage..									
***** * End of time step DO-loop in Runoff * *****										***** * Extrapolation Summary for Watersheds * * Explains the number of time steps and iterations * * used in the solution of the subcatchments. * * # Steps ==> Total Number of Extrapolated Steps * * # Calls ==> Total Number of OVERLAP Calls * *****									
Subcatchment # Steps # Calls Subcatchment # Steps # Calls E230#1 0 0 E202#1 0 0 E205a-c#2 0 0 E205a-c#3 0 0 E205#1 0 0 E203#1 0 0 E203#1 0 0 E203#1 0 0 E205a_b-c#2 0 0 E205a_b-c#3 0 0 E206#1 0 0 E206#1 0 0 E206#1 0 0 E206#1 0 0 EWG-EX10#1 0 0 E130#1 0 0										***** * Table R5. CONTINUITY CHECK FOR SURFACE WATER ***** * Any continuity error can be fixed by lowering the * * Pervious Tc, (mins) * * should not be much greater than the wet time step. * *****									
***** * Rainfall input summary from Runoff Continuity Check * ***** Total rainfall read for gage # 1 is 5.1000 in Total rainfall duration for gage # 1 is 1440.00 minutes *****										***** * Table R5. CONTINUITY CHECK FOR SURFACE WATER ***** * Any continuity error can be fixed by lowering the * * Pervious Tc, (mins) * * should not be much greater than the wet time step. * *****									
***** * Hydraulic design routine final results. * *****										***** * Rainfall input summary from Runoff Continuity Check * ***** Total rainfall read for gage # 1 is 5.1000 in Total rainfall duration for gage # 1 is 1440.00 minutes *****									
Conduit Name Height Width Barrels Height Width Barrels rav1-E206 6.2000 155.0000 1.0000 6.2000 155.0000 1.0000 rav-E202 9.0000 208.0000 1.0000 9.0000 208.0000 1.0000 rav2-E206 6.2000 155.0000 1.0000 6.2000 155.0000 1.0000 ol 0.6666 0.6666 1.0000 0.6666 0.6666 1.0000										Total Precipitation (Rain plus Snow) Total Infiltration Total Evaporation Surface Runoff from Watersheds Total Water remaining in Surface Storage Infiltration over the Pervious Area... ***** Infiltration + Evaporation + Water Runoff from Snow Storage + Water remaining in Snow Cover..... Total Precipitation + Initial Storage..									
***** * End of time step DO-loop in Runoff * *****										***** * Extrapolation Summary for Watersheds * * Explains the number of time steps and iterations * * used in the solution of the subcatchments. * * # Steps ==> Total Number of Extrapolated Steps * * # Calls ==> Total Number of OVERLAP Calls * *****									
Subcatchment # Steps # Calls Subcatchment # Steps # Calls E230#1 0 0 E202#1 0 0 E205a-c#2 0 0 E205a-c#3 0 0 E205#1 0 0 E203#1 0 0 E203#1 0 0 E203#1 0 0 E205a_b-c#2 0 0 E205a_b-c#3 0 0 E206#1 0 0 E206#1 0 0 E206#1 0 0 E206#1 0 0 EWG-EX10#1 0 0 E130#1 0 0										***** * Table R5. CONTINUITY CHECK FOR SURFACE WATER ***** * Any continuity error can be fixed by lowering the * * Pervious Tc, (mins) * * should not be much greater than the wet time step. * *****									
***** * Rainfall input summary from Runoff Continuity Check * ***** Total rainfall read for gage # 1 is 5.1000 in Total rainfall duration for gage # 1 is 1440.00 minutes *****										***** * Table R5. CONTINUITY CHECK FOR SURFACE WATER ***** * Any continuity error can be fixed by lowering the * * Pervious Tc, (mins) * * should not be much greater than the wet time step. * *****									
***** * Hydraulic design routine final results. * *****										***** * Rainfall input summary from Runoff Continuity Check * ***** Total rainfall read for gage # 1 is 5.1000 in Total rainfall duration for gage # 1 is 1440.00 minutes *****									
Conduit Name Height Width Barrels Height Width Barrels rav1-E206 6.2000 155.0000 1.0000 6.2000 155.0000 1.0000 rav-E202 9.0000 208.0000 1.0000 9.0000 208.0000 1.0000 rav2-E206 6.2000 155.0000 1.0000 6.2000 155.0000 1.0000 ol 0.6666 0.6666 1.0000 0.6666 0.6666 1.0000										Total Precipitation (Rain plus Snow) Total Infiltration Total Evaporation Surface Runoff from Watersheds Total Water remaining in Surface Storage Infiltration over the Pervious Area... ***** Infiltration + Evaporation + Water Runoff from Snow Storage + Water remaining in Snow Cover..... Total Precipitation + Initial Storage..									
***** * End of time step DO-loop in Runoff * *****										***** * Extrapolation Summary for Watersheds * * Explains the number of time steps and iterations * * used in the solution of the subcatchments. * * # Steps ==> Total Number of Extrapolated Steps * * # Calls ==> Total Number of OVERLAP Calls * *****									
Subcatchment # Steps # Calls Subcatchment # Steps # Calls E230#1 0 0 E202#1 0 0 E205a-c#2 0 0 E205a-c#3 0 0 E205#1 0 0 E203#1 0 0 E203#1 0 0 E203#1 0 0 E205a_b-c#2 0 0 E205a_b-c#3 0 0 E206#1 0 0 E206#1 0 0 E206#1 0 0 E206#1 0 0 EWG-EX10#1 0 0 E130#1 0 0										***** * Table R5. CONTINUITY CHECK FOR SURFACE WATER ***** * Any continuity error can be fixed by lowering the * * Pervious Tc, (mins) * * should not be much greater than the wet time step. * *****									
***** * Rainfall input summary from Runoff Continuity Check * ***** Total rainfall read for gage # 1 is 5.1000 in Total rainfall duration for gage # 1 is 1440.00 minutes *****										***** * Table R5. CONTINUITY CHECK FOR SURFACE WATER ***** * Any continuity error can be fixed by lowering the * * Pervious Tc, (mins) * * should not be much greater than the wet time step. * *****									
***** * Hydraulic design routine final results. * *****										***** * Rainfall input summary from Runoff Continuity Check * ***** Total rainfall read for gage # 1 is 5.1000 in Total rainfall duration for gage # 1 is 1440.00 minutes *****									
Conduit Name Height Width Barrels Height Width Barrels rav1-E206 6.2000 155.0000 1.0000 6.2000 155.0000 1.0000 rav-E202 9.0000 208.0000 1.0000 9.0000 208.0000 1.0000 rav2-E206 6.2000 155.0000 1.0000 6.2000 155.0000 1.0000 ol 0.6666 0.6666 1.0000 0.6666 0.6666 1.0000										Total Precipitation (Rain plus Snow) Total Infiltration Total Evaporation Surface Runoff from Watersheds Total Water remaining in Surface Storage Infiltration over the Pervious Area... ***** Infiltration + Evaporation + Water Runoff from Snow Storage + Water remaining in Snow Cover..... Total Precipitation + Initial Storage..									
***** * End of time step DO-loop in Runoff * *****										***** * Extrapolation Summary for Watersheds * * Explains the number of time steps and iterations * * used in the solution of the subcatchments. * * # Steps ==> Total Number of Extrapolated Steps * * # Calls ==> Total Number of OVERLAP Calls * *****									
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***** * Rainfall input summary from Runoff Continuity Check * ***** Total rainfall read for gage # 1 is 5.1000 in Total rainfall duration for gage # 1 is 1440.00 minutes *****										***** * Table R5. CONTINUITY CHECK FOR SURFACE WATER ***** * Any continuity error can be fixed by lowering the * * Pervious Tc, (mins) * * should not be much greater than the wet time step. * *****									
***** * Hydraulic design routine final results. * *****										***** * Rainfall input summary from Runoff Continuity Check * ***** Total rainfall read for gage # 1 is 5.1000 in Total rainfall duration for gage # 1 is 1440.00 minutes *****									
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***** * Rainfall input summary from Runoff Continuity Check * ***** Total rainfall read for gage # 1 is 5.1000 in Total rainfall duration for gage # 1 is 1440.00 minutes *****										***** * Table R5. CONTINUITY CHECK FOR SURFACE WATER ***** * Any continuity error can be fixed by lowering the * * Pervious Tc, (mins) * * should not be much greater than the wet time step. * *****									
***** * Hydraulic design routine final results. * *****										***** * Rainfall input summary from Runoff Continuity Check * ***** Total rainfall read for gage # 1 is 5.1000 in Total rainfall duration for gage # 1 is 1440.00 minutes *****									
Conduit Name Height Width Barrels Height Width Barrels rav1-E206 6.2000 155.0000 1.0000 6.2000 155.0000 1.0000 rav-E202 9.0000 208.0000 1.0000 9.0000 208.0000 1.0000 rav2-E206 6.2000 155.0000 1.0000 6.2000 155.0000 1.0000 ol 0.6666 0.6666 1.0000 0.6666 0.6666 1.0000										Total Precipitation (Rain plus Snow) Total Infiltration Total Evaporation Surface Runoff from Watersheds Total Water remaining in Surface Storage Infiltration over the Pervious Area... ***** Infiltration + Evaporation + Water Runoff from Snow Storage + Water remaining in Snow Cover..... Total Precipitation + Initial Storage..									
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***** * Rainfall input summary from Runoff Continuity Check * ***** Total rainfall read for gage # 1 is 5.1000 in Total rainfall duration for gage # 1 is 1440.00 minutes *****										***** * Table R5. CONTINUITY CHECK FOR SURFACE WATER ***** * Any continuity error can be fixed by lowering the * * Pervious Tc, (mins) * * should not be much greater than the wet time step. * *****									
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***** * Rainfall input summary																			

Post Pond, Future Land Use Condition

XP-SWMM Model Results

100-year Storm Event

Impervious Area without depression storage										Previous C(mins)...										0.00000										0.00000																			
Total Runoff Depth (in)										0.00000										0.00000										0.00000										0.00000									
Peak Runoff Rate (cfs)										0.00000										0.00000										0.00000										0.00000									
Total Area										0.00000										0.00000										0.00000										0.00000									
Total Runoff Depth (in)										3.17794										3.02634										2.91448										2.91448									
Peak Runoff Rate (cfs)										5.02892										14.99391										5.43498										24.20820									
Rational Formula																																																	
Pervious Tc. (mins)...										0.00000										0.00000										0.00000										0.00000									
Perv. Intensity (in/hr)...										0.00000										0.00000										0.00000										0.00000									
Pervious C(in/hr)...										0.00000										0.00000										0.00000										0.00000									
Impervious Tc. (mins)...										0.00000										0.00000										0.00000										0.00000									
Imp. Intensity (in/hr)...										0.00000										0.00000										0.00000										0.00000									
Impervious C(in/hr)...										0.00000										0.00000										0.00000										0.00000									
Partial Area (in)...										0.00000										0.00000										0.00000										0.00000									
Partial Area Tc.....										0.00000										0.00000										0.00000										0.00000									
Partial Area Intensity...										0.00000										0.00000										0.00000										0.00000									
Subcatchment.....										E206a_b_e2										E206d_e1										E206d_e2										E190a_e1									
Area (acres).....										3.14100										1.15300										0.34300										1.77200									
Percent Impervious.....										0.00000										0.00000										0.00000										0.00000									
Total Rainfall (in)...										5.10000										5.10000										5.10000										5.10000									
Max Intensity (in/hr)...										6.99210										6.99210										6.99210										6.99210									
Pervious Area																																																	
Total Runoff Depth (in)										2.82274										3.01694										3.18742										3.20386									
Peak Runoff Rate (cfs)										4.75548										21.93702										4.30856										6.18864									
Total Impervious Area																																																	
Total Runoff Depth (in)										0.00000										0.00000										0.00000										0.00000									
Peak Runoff Rate (cfs)										0.00000										0.00000										0.00000										0.00000									
Impervious Area with depression storage																																																	
Total Runoff Depth (in)										0.00000										0.00000										0.00000										0.00000									
Peak Runoff Rate (cfs)										0.00000										0.00000										0.00000										0.00000									
Impervious Area without depression storage																																																	
Total Runoff Depth (in)										0.00000										0.00000										0.00000										0.00000									
Peak Runoff Rate (cfs)										0.00000										0.00000										0.00000										0.00000									
Total Area																																																	
Total Runoff Depth (in)										2.82274										3.01694										3.18742										3.20386									
Peak Runoff Rate (cfs)										4.75548										21.93702										4.30856										6.18864									
Rational Formula																																																	
Pervious Tc. (mins)...										0.00000										0.00000										0.00000										0.00000									
Perv. Intensity (in/hr)...										0.00000										0.00000										0.00000										0.00000									
Pervious C(in/hr)...										0.00000										0.00000										0.00000										0.00000									
Impervious Tc. (mins)...										0.00000										0.00000										0.00000										0.00000									
Imp. Intensity (in/hr)...										0.00000										0.00000										0.00000										0.00000									
Impervious C(in/hr)...										0.00000										0.00000										0.00000										0.00000									
Partial Area (in)...										0.00000										0.00000										0.00000										0.00000									
Partial Area Tc.....										0.00000										0.00000										0.00000										0.00000									
Partial Area Intensity...										0.00000										0.00000										0.00000										0.00000									
Subcatchment.....										BMP-ER10a_e1										E190a_e1										E190a_e2										E190a_e3									
Area (acres).....										3.71100										2.79900										2.79900										2.79900									
Percent Impervious.....										0.00000										0.00000										0.00000										0.00000									
Total Rainfall (in)...										5.10000										5.10000										5.10000										5.10000									
Max Intensity (in/hr)...										6.99210										6.99210										6.99210										6.99210									
Pervious Area																																																	
Total Runoff Depth (in)										3.68237										3.68237										3.68237										3.68237									
Peak Runoff Rate (cfs)										18.93299										18.93299										18.93299										18.93299									
Total Impervious Area																																																	
Total Runoff Depth (in)										0.00000										0.00000										0.00000										0.00000									
Peak Runoff Rate (cfs)										0.00000										0.00000										0.00000										0.00000									
Impervious Area with depression storage																																																	
Total Runoff Depth (in)										0.00000										0.00000										0.00000										0.00000									
Peak Runoff Rate (cfs)										0.00000										0.00000										0.00000										0.00000									
Impervious Area without depression storage																																																	
Total Runoff Depth (in)										0.00000										0.00000										0.00000										0.00000									
Peak Runoff Rate (cfs)										0.00000										0.00000										0.00000										0.00000									
Total Area																																																	
Total Runoff Depth (in)										3.68237										3.68237										3.68237										3.68237									
Peak Runoff Rate (cfs)										18.93299										18.93299										18.93299										18.93299									
Rational Formula																																																	
Pervious Tc. (mins)...										0.00000										0.00000										0.00000										0.00000									
Perv. Intensity (in/hr)...										0.00000										0.00000										0.00000										0.00000									
Pervious C(in/hr)...										0.00000										0.00000										0.00000										0.00000									
Impervious Tc. (mins)...										0.00000										0.00000										0.00000										0.00000									
Imp. Intensity (in/hr)...										0.00000										0.00000										0.00000										0.00000									
Impervious C(in/hr)...										0.00000										0.00000										0.00000										0.00000									
Partial Area (in)...										0.00000										0.00000										0.00000										0.00000									
Partial Area Tc.....										0.00000										0.00000										0.00000										0.00000									
Partial Area Intensity...										0.00000										0.00000										0.00000										0.00000									
Subcatchment.....										BMP-ER10a_e1										E190a_e1										E190a_e2										E190a_e3									
Area (acres).....										3.71100										2.79900										2.79900										2.79900									
Percent Impervious.....										0.00000										0.00000										0.00000										0.00000									
Total Rainfall (in)...										5.10000										5.10000										5.10000										5.10000									
Max Intensity (in/hr)...										6.99210										6.99210										6.99210										6.99210									
Pervious Area																																																	
Total Runoff Depth (in)										3.68237										3.68237										3.68237										3.68237									
Peak Runoff Rate (cfs)										18.93299										18.93299										18.93299										18.93299									
Total Impervious Area																																																	
Total Runoff Depth (in)										0.00000										0.00000										0.00000										0.00000									
Peak Runoff Rate (cfs)										0.00000										0.00000										0.00000										0.00000									
Impervious Area with depression storage																																																	
Total Runoff Depth (in)										0.00000										0.00000										0.00000										0.00000									
Peak Runoff Rate (cfs)										0.00000										0.00000										0.00000										0.00000									
Total Area																																																	
Total Runoff Depth (in)										3.68237										3.68237										3.68237										3.68237									
Peak Runoff Rate (cfs)										18.93299										18.93299										18.93299										18.93299									
Rational Formula																																																	
Pervious Tc. (mins)...										0.00000										0.00000										0.00000										0.00000									
Perv. Intensity (in/hr)...										0.00000										0.00000										0.00000										0.00000									
Pervious C(in/hr)...										0.00000										0.00000										0.00000										0.00000									
Impervious Tc. (mins)...										0.00000										0.00000										0.00000										0.00000									
Imp. Intensity (in/hr)...										0.00000										0.00000										0.00000										0.00000									
Impervious C(in/hr)...										0.00000										0.00000										0.00000										0.00000									
Partial Area (in)...										0.00000										0.00000										0.00000										0.00000									
Partial Area Tc.....										0.00000										0.00000										0.00000										0.00000									
Partial Area Intensity...										0.00000										0.00000										0.00000										0.00000									
Subcatchment.....										BMP-ER10a_e1										E190a_e1										E190a_e2										E190a_e3									
Area (acres).....										3.71100										2.79900										2.79900										2.79900									
Percent Impervious.....										0.00000										0.00000										0.00000										0.00000									
Total Rainfall (in)...										5.10000										5.10000										5.10000										5.10000									
Max Intensity (in/hr)...										6.99210										6.99210										6.99210										6.99210									
Pervious Area																																																	
Total Runoff Depth (in)										3.68237										3.68237										3.68237										3.68237									
Peak Runoff Rate (cfs)										18.93299										18.93299										18.93299										18.93299									
Total Impervious Area																																																	
Total Runoff Depth (in)										0.00000										0.00000										0.00000										0.00000									
Peak Runoff Rate (cfs)										0.00000										0.00000										0.00000										0.00000									
Impervious Area with depression storage																																																	
Total Runoff Depth (in)										0.00000										0.00000										0.00000										0.00000									
Peak Runoff Rate (cfs)										0.00000										0.00000										0.00000										0.00000									
Total Area																																																	
Total Runoff Depth (in)										3.68237										3.68237										3.68237										3.68237									
Peak Runoff Rate (cfs)										18.93299										18.93299										18.93299										18.93299									
Rational Formula																																																	
Pervious Tc. (mins)...										0.00000										0.00000										0.00000										0.00000									
Perv. Intensity (in/hr)...										0.00000										0.00000										0.00000										0.00000									
Pervious C(in/hr)...										0.00000										0.00000										0.00000										0.00000									
Impervious Tc. (mins)...										0.00000										0.00000										0.00000										0.00000									
Imp. Intensity (in/hr)...										0.00000										0.00000										0.00000										0.00000									
Impervious C(in/hr)...										0.00000										0.00000										0.00000										0.00000									
Partial Area (in)...										0.00000										0.00000										0.00000										0.00000									
Partial Area Tc.....										0.00000										0.00000										0.00000										0.00000									
Partial Area Intensity...										0.00000										0.00000										0.00000										0.00000									
Subcatchment.....										BMP-ER10a_e1										E190a_e1										E190a_e2										E190a_e3									
Area (acres).....										3.71100										2.79900										2.79900										2.79900									
Percent Impervious.....										0.00000										0.00000										0.00000										0.00000									
Total Rainfall (in)...										5.10000										5.10000										5.10000										5.10000									
Max Intensity (in/hr)...										6.99210										6.99210										6.99210										6.99210									
Pervious Area																																																	
Total Runoff Depth (in)										3.68237										3.68237										3.68237										3.68237									
Peak Runoff Rate (cfs)										18.93299										18.93299										18.93299										18.93299									
Total Impervious Area																																																	
Total Runoff Depth (in)										0.00000										0.00000										0.00000										0.00000									
Peak Runoff Rate (cfs)										0.00000										0.00000										0.00000										0.00000									
Impervious Area with depression storage																																																	
Total Runoff Depth (in)										0.00000										0.00000										0.00000										0.00000									
Peak Runoff Rate (cfs)										0.00000										0.00000										0.00000										0.00000									
Total Area																																																	
Total Runoff Depth (in)										3.68237										3.68237										3.68237										3.68237									
Peak Runoff Rate (cfs)										18.93299										18.93299										18.93299										18.93299									
Rational Formula																																																	
Pervious Tc. (mins)...										0.00000										0.00000										0.00000										0.00000									
Perv. Intensity (in/hr)...										0.00000										0.00000										0.00000										0.00000									
Pervious C(in/hr)...										0.00000										0.00000										0.00000										0.00000									
Impervious Tc. (mins)...										0.00000										0.00000										0.00000										0.00000									
Imp. Intensity (in/hr)...										0.00000										0.00000										0.00000										0.00000									
Impervious C(in/hr)...										0.00000										0.00000										0.00000										0.00000									
Partial Area (in)...										0.00000										0.00000										0.00000										0.00000									
Partial Area Tc.....										0.00000										0.00000										0.00000										0.00000									
Partial Area Intensity...										0.00000										0.00000										0.00000										0.00000									
Subcatchment.....										BMP-ER10a_e1										E190a_e1										E190a_e2										E190a_e3									
Area (acres).....										3.71100										2.79900										2.79900										2.79900									
Percent Imp																																																	

206002/	0.00 /	N-LIBAL/	0.01 /	P-ST003b/	0.01 /	Pbmp-ov/	0.00 /	P-ST0230/	0.00 /
202103/	0.25 /	206103/	3.47 /	E230-ov/	0.00 /	P-ST0E190b/	0.02 /	Pbmp-sa/	0.00 /
P-MH01/	5.73 /	P-MH02/	0.00 /	P-connect/	0.00 /	P-connect/	0.00 /	SS-E206M01/	0.00 /
P-MH02/	0.00 /	P-MH03/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M02/	0.00 /
P-MH03/	0.00 /	P-MH04/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M03/	0.00 /
P-MH04/	0.00 /	P-MH05/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M04/	0.00 /
P-MH05/	0.00 /	P-MH06/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M05/	0.00 /
P-MH06/	0.00 /	P-MH07/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M06/	0.00 /
P-MH07/	0.00 /	P-MH08/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M07/	0.00 /
P-MH08/	0.00 /	P-MH09/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M08/	0.00 /
P-MH09/	0.00 /	P-MH10/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M09/	0.00 /
P-MH10/	0.00 /	P-MH11/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M10/	0.00 /
P-MH11/	0.00 /	P-MH12/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M11/	0.00 /
P-MH12/	0.00 /	P-MH13/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M12/	0.00 /
P-MH13/	0.00 /	P-MH14/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M13/	0.00 /
P-MH14/	0.00 /	P-MH15/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M14/	0.00 /
P-MH15/	0.00 /	P-MH16/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M15/	0.00 /
P-MH16/	0.00 /	P-MH17/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M16/	0.00 /
P-MH17/	0.00 /	P-MH18/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M17/	0.00 /
P-MH18/	0.00 /	P-MH19/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M18/	0.00 /
P-MH19/	0.00 /	P-MH20/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M19/	0.00 /
P-MH20/	0.00 /	P-MH21/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M20/	0.00 /
P-MH21/	0.00 /	P-MH22/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M21/	0.00 /
P-MH22/	0.00 /	P-MH23/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M22/	0.00 /
P-MH23/	0.00 /	P-MH24/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M23/	0.00 /
P-MH24/	0.00 /	P-MH25/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M24/	0.00 /
P-MH25/	0.00 /	P-MH26/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M25/	0.00 /
P-MH26/	0.00 /	P-MH27/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M26/	0.00 /
P-MH27/	0.00 /	P-MH28/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M27/	0.00 /
P-MH28/	0.00 /	P-MH29/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M28/	0.00 /
P-MH29/	0.00 /	P-MH30/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M29/	0.00 /
P-MH30/	0.00 /	P-MH31/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M30/	0.00 /
P-MH31/	0.00 /	P-MH32/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M31/	0.00 /
P-MH32/	0.00 /	P-MH33/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M32/	0.00 /
P-MH33/	0.00 /	P-MH34/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M33/	0.00 /
P-MH34/	0.00 /	P-MH35/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M34/	0.00 /
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P-MH36/	0.00 /	P-MH37/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M36/	0.00 /
P-MH37/	0.00 /	P-MH38/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M37/	0.00 /
P-MH38/	0.00 /	P-MH39/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M38/	0.00 /
P-MH39/	0.00 /	P-MH40/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M39/	0.00 /
P-MH40/	0.00 /	P-MH41/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M40/	0.00 /
P-MH41/	0.00 /	P-MH42/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M41/	0.00 /
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P-MH43/	0.00 /	P-MH44/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M43/	0.00 /
P-MH44/	0.00 /	P-MH45/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M44/	0.00 /
P-MH45/	0.00 /	P-MH46/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M45/	0.00 /
P-MH46/	0.00 /	P-MH47/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M46/	0.00 /
P-MH47/	0.00 /	P-MH48/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M47/	0.00 /
P-MH48/	0.00 /	P-MH49/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M48/	0.00 /
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P-MH50/	0.00 /	P-MH51/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M50/	0.00 /
P-MH51/	0.00 /	P-MH52/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M51/	0.00 /
P-MH52/	0.00 /	P-MH53/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M52/	0.00 /
P-MH53/	0.00 /	P-MH54/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M53/	0.00 /
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P-MH55/	0.00 /	P-MH56/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M55/	0.00 /
P-MH56/	0.00 /	P-MH57/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M56/	0.00 /
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P-MH58/	0.00 /	P-MH59/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M58/	0.00 /
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P-MH60/	0.00 /	P-MH61/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M60/	0.00 /
P-MH61/	0.00 /	P-MH62/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M61/	0.00 /
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P-MH66/	0.00 /	P-MH67/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M66/	0.00 /
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P-MH68/	0.00 /	P-MH69/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M68/	0.00 /
P-MH69/	0.00 /	P-MH70/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M69/	0.00 /
P-MH70/	0.00 /	P-MH71/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M70/	0.00 /
P-MH71/	0.00 /	P-MH72/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M71/	0.00 /
P-MH72/	0.00 /	P-MH73/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M72/	0.00 /
P-MH73/	0.00 /	P-MH74/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M73/	0.00 /
P-MH74/	0.00 /	P-MH75/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M74/	0.00 /
P-MH75/	0.00 /	P-MH76/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M75/	0.00 /
P-MH76/	0.00 /	P-MH77/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M76/	0.00 /
P-MH77/	0.00 /	P-MH78/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M77/	0.00 /
P-MH78/	0.00 /	P-MH79/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M78/	0.00 /
P-MH79/	0.00 /	P-MH80/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M79/	0.00 /
P-MH80/	0.00 /	P-MH81/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M80/	0.00 /
P-MH81/	0.00 /	P-MH82/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M81/	0.00 /
P-MH82/	0.00 /	P-MH83/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M82/	0.00 /
P-MH83/	0.00 /	P-MH84/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M83/	0.00 /
P-MH84/	0.00 /	P-MH85/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M84/	0.00 /
P-MH85/	0.00 /	P-MH86/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M85/	0.00 /
P-MH86/	0.00 /	P-MH87/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M86/	0.00 /
P-MH87/	0.00 /	P-MH88/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M87/	0.00 /
P-MH88/	0.00 /	P-MH89/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M88/	0.00 /
P-MH89/	0.00 /	P-MH90/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M89/	0.00 /
P-MH90/	0.00 /	P-MH91/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M90/	0.00 /
P-MH91/	0.00 /	P-MH92/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M91/	0.00 /
P-MH92/	0.00 /	P-MH93/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M92/	0.00 /
P-MH93/	0.00 /	P-MH94/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M93/	0.00 /
P-MH94/	0.00 /	P-MH95/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M94/	0.00 /
P-MH95/	0.00 /	P-MH96/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M95/	0.00 /
P-MH96/	0.00 /	P-MH97/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M96/	0.00 /
P-MH97/	0.00 /	P-MH98/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M97/	0.00 /
P-MH98/	0.00 /	P-MH99/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M98/	0.00 /
P-MH99/	0.00 /	P-MH100/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M99/	0.00 /
P-MH100/	0.00 /	P-MH101/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M100/	0.00 /
P-MH101/	0.00 /	P-MH102/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M101/	0.00 /
P-MH102/	0.00 /	P-MH103/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M102/	0.00 /
P-MH103/	0.00 /	P-MH104/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M103/	0.00 /
P-MH104/	0.00 /	P-MH105/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M104/	0.00 /
P-MH105/	0.00 /	P-MH106/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M105/	0.00 /
P-MH106/	0.00 /	P-MH107/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M106/	0.00 /
P-MH107/	0.00 /	P-MH108/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M107/	0.00 /
P-MH108/	0.00 /	P-MH109/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M108/	0.00 /
P-MH109/	0.00 /	P-MH110/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M109/	0.00 /
P-MH110/	0.00 /	P-MH111/	0.00 /	SS-E206/	0.00 /	SS-E206/	0.00 /	SS-E206M110/	0.00 /
P-MH111/	0.00 /	P-MH112/	0.0						

Post Pond, Future Land Use Condition

XP-SWMM Model Results

100-year Storm Event

Kinematic Wave Approximations									
Time in Minutes for Each Condition									

Conduit Duration of Slope Super-Roll									
Name Normal Flow Criteria Critical Waves									
SS-E20204	13.7000	236.4833	0.0000	0.0000					
SS-E20203	2821.9167	2824.8167	2447.5000	0.0000					
SS-E20201	0.0000	0.0000	1.1500	0.0000					
SS-E20403	432.9750	3263.1000	2870.2052	0.0000					
sw12-E20304	3120.5645	3127.8181	0.0000	0.0000					
SS-E205101	0.3125	199.4958	3217.0167	0.0000					
SS-E20606	0.0000	0.0000	186.8500	0.0000					
rav1-E206	2858.8500	2885.7333	0.0000	0.0000					
rav-E202	0.9820	0.9820	216.0478	0.0000					
sw1-E2030b	0.0000	0.0000	0.0000	0.0000					
sw1-E2030b	3111.0800	3111.1000	0.0200	0.0000					
SS-E206103	234.1917	2118.8833	2023.3750	0.0000					
Ov-E205101	0.0000	0.0000	0.0000	0.0000					
Ov-E204102	2874.4333	2874.4333	0.0000	0.0000					
Ov-E204102	0.0000	0.0000	0.0000	0.0000					
Ov2-E20204	0.0000	0.0000	0.0000	0.0000					
E206-E206c	0.0000	0.0000	0.0000	0.0000					
E206-SSub	1.7654	252.6321	2150.9026	0.0000					
P-ST001	2239.8230	3120.0667	1925.6250	0.0000					
P-ST002	2080.4654	2121.0987	1890.3750	0.0000					
P-ST003	2292.5042	3165.3126	0.0000	0.0000					
P-ST004	0.0500	2927.8167	274.7000	0.0000					
P-ST002a	8.0167	8.0333	3213.8750	0.0000					
P-ST003b	0.0833	225.7667	2088.8125	0.0000					
P-ST003b	0.0000	0.0000	0.0000	0.0000					
P-ST002c	2298.7525	3101.7000	0.0000	0.0000					
P-ST003a	1667.1667	2928.0667	0.0000	0.0000					
P-ST0E190a	1640.1935	3133.0435	0.0000	0.0000					
P-ST0E190b	29.0934	29.9268	3055.9333	0.0000					
E230-Ov	0.0000	0.0000	0.0000	0.0000					
P-connect	7.9333	7.9333	2882.8167	0.0000					
SS-E206061	896.5000	2369.2196	0.0000	0.0000					
P-comm-206	14.4333	14.7167	94.5833	0.0000					
E190-Ov2	0.0000	0.0000	0.0000	0.0000					
sw13-E20304	7.0435	3140.6304	0.0000	0.0000					
E203M02-S	3149.9364	3239.7273	2019.6429	0.0000					
E203M02-Ov	2869.2500	2873.3000	8.7500	0.0000					
E203M01-S	3143.9083	3222.3750	1933.3750	0.0000					
E203M02-S	2801.5133	2858.9667	0.0000	0.0000					
E203M02-S	0.5333	2858.9667	0.0000	0.0000					
E204102-Ov	0.0000	0.0000	0.0000	0.0000					
E203M02-S	3196.3667	3240.6167	3259.3167	0.0000					
E203M02-S	0.0000	0.2000	2876.2000	0.0000					
E203M03-S	2163.0833	2191.0667	3241.6145	0.0000					
E203M03-Ov	13.8500	2873.6167	2879.4333	0.0000					
E206104-Ov	0.0000	1.1500	2150.9026	0.0000					
E206104-Ov	0.0000	0.0000	0.0000	0.0000					
Libal-Ov	2895.7167	2897.4000	3071.2069	0.0000					
Libal-Ov	0.0000	0.0000	0.0000	0.0000					
o1	0.0000	0.0000	1374.0500	0.0000					

Table E14 - Natural Channel Overbank Flow Information									

<----- Maximum Velocity -----> <----- Maximum Flow -----> <----- Maximum Area -----> <----- Max. Storage									
Volume	Conduit	Left	Center	Right	Left	Center	Right	Left	Center
Right	Max	Velocity	Velocity	Velocity	Flow	Flow	Flow	Area	Area
Area	Depth								
0.0000	rav1-E206	0.0000	1.2094	0.0000	0.0000	44.4405	0.0000	36.7464	0.0000
0.0000	rav-E202	0.3539	1.0369	0.3535	0.2072	71.7759	0.1774	0.5956	69.2202
436.3073	rav2-E206	0.0000	0.7872	0.0000	0.0000	70.4238	0.0000	89.4664	0.0000
0.0000	2.1924								

Table E14a - Natural Channel Encroachment Information									

<----- Existing Conveyance Condition -----> <----- Encroachment Conveyance Condition -----> <- % Volume --> <-									
Encroachment	Left	Center	Right	Total	Left	Right	Total	Left	Right
Depth	Bank	Channel	Bank	Station	Station	Bank	Station	Left	Right
Incr.	Method								
0.0000	rav1-E206	0.0000	862.01	0.0000	862.01	0.0000	862.01	34.194	86.500
0.0000	None	4.3848	1518.6	3.7543	1526.8	39.493	129.01	39.493	129.01
0.0000	rav-E202	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	rav2-E206	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79
0.0000	None	0.0000	2823.4	0.0000	2823.4	26.178	107.79	26.178	107.79

0.0000 BMP-Out 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 980057.5211 0.0000

Table E20 - Junction Flooding and Volume Listing.
The maximum volume is the total volume in the node including the volume in the flood storage area.
The volume at any time. The volume in the flood storage area is the total volume above the ground elevation, where the flooded pond storage area starts.
The fourth column is instantaneous, the fifth is the sum of the flooded volume over the entire simulation.
The column of the maximum volume is the maximum volume over the entire simulation.

Junction Name	Surcharged Time (min)	Flooded Time (min)	ID-System Volume (Flooded)	Out of System Volume (Flooded)	Maximum Volume	Volume in allowed Flood Pond of ID-System	Passed to 2D cell OR Volume Stored in allowed Flood Pond of ID-System
---------------	-----------------------	--------------------	----------------------------	--------------------------------	----------------	---	---

E230	0.0000	0.0000	0.0000	3866.8233	0.0000	0.0000	0.0000
E190b	0.0000	0.0000	0.0000	39.8417	0.0000	0.0000	0.0000
E202	0.0000	0.0000	0.0000	28.6171	0.0000	0.0000	0.0000
202003	34.9833	0.0000	0.0000	32.4786	0.0000	0.0000	0.0000
202001	0.0000	0.0000	0.0000	16.2651	0.0000	0.0000	0.0000
3-E203c	0.0000	0.0000	0.0000	62.2124	0.0000	0.0000	0.0000
E203b	0.0000	0.0000	0.0000	67.3337	0.0000	0.0000	0.0000
E204	0.0000	0.0000	0.0000	68.2978	0.0000	0.0000	0.0000
204103	0.0000	0.0000	0.0000	48.8259	0.0000	0.0000	0.0000
E2064_e	0.0000	0.0000	0.0000	54.4386	0.0000	0.0000	0.0000
E205d	0.0000	0.0000	0.0000	74.0000	0.0000	0.0000	0.0000
E203a	0.0000	0.0000	0.0000	69.9252	0.0000	0.0000	0.0000
E203b	0.0000	0.0000	0.0000	68.2798	0.0000	0.0000	0.0000
E206f	0.0000	0.0000	0.0000	7.1400	0.0000	0.0000	0.0000
E205e	0.0000	0.0000	0.0000	59.5488	0.0000	0.0000	0.0000
E206a_c	0.0000	0.0000	0.0000	69334.2007	0.0000	0.0000	0.0000
205000	202.0000	0.0000	0.0000	16.6221	0.0000	0.0000	0.0000
N-LIBAL	0.0000	0.0000	0.0000	21.3887	0.0000	0.0000	0.0000
202-Out	0.0000	0.0000	0.0000	8.9660	0.0000	0.0000	0.0000
N-E206	0.0000	0.0000	0.0000	28.1752	0.0000	0.0000	0.0000
206103	0.0000	0.0000	0.0000	54.5670	0.0000	0.0000	0.0000
P-M01	16.1667	0.0000	0.0000	59.0369	0.0000	0.0000	0.0000
P-M02	0.0000	0.0000	0.0000	44.7097	0.0000	0.0000	0.0000
P-M03	0.0000	0.0000	0.0000	44.7097	0.0000	0.0000	0.0000
E190a	0.0000	0.0000	0.0000	49.0920	0.0000	0.0000	0.0000
BMP-ER10a	0.0000	0.0000	0.0000	203102.9458	0.0000	0.0000	0.0000
P-conn2	0.0000	0.0000	0.0000	22.4235	0.0000	0.0000	0.0000
P-BMP-out	0.0000	0.0000	0.0000	34.7893	0.0000	0.0000	0.0000
P-M04	0.0000	0.0000	0.0000	44.7097	0.0000	0.0000	0.0000
P-M05	31.2000	0.0000	0.0000	44.7097	0.0000	0.0000	0.0000
230-Out	0.0000	0.0000	0.0000	29.0366	0.0000	0.0000	0.0000
P-conn	0.0000	0.0000	0.0000	29.0366	0.0000	0.0000	0.0000
190B-Out	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
N-E203a	0.0000	0.0000	0.0000	9.6503	0.0000	0.0000	0.0000

Simulation Specific Information
Number of Input Conduits..... 51
Number of Natural Channels..... 3
Number of Storage Junctions..... 3
Number of Orifices..... 4
Number of Free Outfalls..... 4
Number of Weirs..... 3
Number of Pumps..... 0
Number of Hydrants..... 0

Average % Change in Junction or Conduit is defined as:
Conduit % Change ==> 100.0 * (Q(n) - Q(n-1)) / Q(n-1)
Junction % Change ==> 100.0 * (I(n) - I(n-1)) / I(n-1)

The Conduit with the largest average change was..SS-E206103 with 0.001 percent
The Junction with the largest average change was..204103 with 0.011 percent
The Conduit with the largest sinuosity was.....SS-E204103 with 18.650

Table E21. Continuity balance at the end of the simulation
Junction Inflow, Outflow or Street Flooding
Error = Inflow + Initial Volume - Outflow - Final Volume

Junction	Inflow Volume,ft^3	Outflow Volume,ft^3	Error
E230	57459.6151	0.2660	0.0000
E190b	28501.3854	0.1320	0.0000
E202	13455.2663	0.1456	0.0000
E204	13975.7659	0.1814	0.0000
E2064_e	17180.3523	0.0795	0.0000
E205d	29722.8271	0.1376	0.0000
E205a-c	403341.1488	1.8673	0.0000
E203a	54890.4123	0.2541	0.0000
E203b	21279.1041	0.0985	0.0000
E206f	20926.1795	0.0969	0.0000

Junction	Inflow	Outflow	Average
E2064_e	297431.9008	1.3316	0.0000
E190b	20609.3605	0.0954	0.0000
BMP-ER10a	49604.3120	0.2297	0.0000
E2064_e	0.0000	0.0000	0.0000
E205a-c	0.0000	0.0000	0.0000
E203b	-0.1159	0.0000	0.0000
202-Out	-202428.7699	-0.9372	0.0000
BMP-Out	-980057.5211	-4.5373	0.0000

Initial system volume = 0.0000 Cu Ft
Total system inflow volume = 1.186259E+06 Cu Ft
Inflow + Initial volume = 1.186259E+06 Cu Ft
Total system outflow = 1.182486E+06 Cu Ft
Outflow + Initial volume = 964.0000 Cu Ft
Evaporation = 0.0000 Cu Ft
Outflow + Final Volume = 1.192132E+06 Cu Ft

Total Model Continuity Error = -0.4950
Error in Continuity, ft^3 = -5872.358
+ Error means a continuity loss, - a gain

Table E22. Numerical Model Judgment section

Overall error was (minimum of Table E18 & E21) with -0.4915 percent
Worst nodal error was in node 205E00 with -2.1257 percent
Of the total inflow this loss was 0.2446 percent
Your overall continuity error was Excellent
Efficiency of the simulation 2.89
Most Number of Non Convergences at one Node 56
Total Number Non Convergences at all Nodes 177
Total Number of Nodes with Non Convergences 10

Table E23. New Basin Design Information
Maximum Hydraulic Grade Line, Out Conduit Sizes and Maximum Flow

Basin Name	Type	Max.HGL	Conduit	Diam. (ft)	Barrels	Max.Flow (ft^3/s)
------------	------	---------	---------	------------	---------	-------------------

Hydraulic model simulation ended normally.

XP-SWMM simulation ended normally.
Your input file was named : C:\Documents and Settings\aschmidt\My Documents\Pro-BethelPond\100-year.DAT
Your output file was named : C:\Documents and Settings\aschmidt\My Documents\Pro-BethelPond\100-year.out

SWMM Simulation Date and Time Summary
Starting Date... December 28, 2012 Time... 13:40:21.7
Ending Date... December 28, 2012 Time... 13:41:34.94
Elapsed Time... 1.54783 minutes or 92.87000 seconds

APPENDIX D

SLAMM WATER QUALITY ANALYSIS

Bethel - InputData.txt
Data file name: C:\Documents and Settings\aschmidt.MCM\Desktop\Bethel\SLAMM\Bethel.mdb
WinSLAMM Version 10.0.0

Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Green Bay WI 1969.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsv
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO02.ppdxd

Cost Data file name:

Seed for random number generator: -42

Study period starting date: 01/02/69

Study period ending date: 12/28/69

Start of Winter Season: 11/25

End of Winter Season: 03/29

Date: 12-21-2012

Time: 16:15:21

Site information:

Bethel Baptist Pond

LU# 1 - Other Urban: Cemetary_Non ROW Total area (ac): 2.280

1 - Roofs 1:	0.013 ac.	Flat	Connected						
8 - Roofs 8:	0.013 ac.	Pitched	Disconnected	Clayey	Low Density				
13 - Paved Parking 1:	0.051 ac.	Connected							
22 - Unpaved Parking 4:	0.002 ac.	Disconnected	Clayey	Low Density					
25 - Driveways 1:	0.175 ac.	Connected							
31 - Sidewalks 1:	0.001 ac.	Connected							
37 - :	0.016 ac.	Smooth	Street Length = 0.008436 curb-mi	Default St. Dirt Accum.	Annual Winter Load = 2500 lbs				
38 - Streets 2:	0.016 ac.	Intermediate	Street Length = 0.008436 curb-mi	Default St. Dirt Accum.	Annual Winter Load = 2500 lbs				
47 - Large Landscaped Areas 3:	1.970 ac.	Clayey	Low Density						
53 - Small Landscaped Areas 3:	0.005 ac.	Clayey	Low Density						
59 - Undeveloped Areas 3:	0.011 ac.	Clayey	Low Density						
69 - Isolated Areas:	0.006 ac.								
80 - Other Part Con Imp Areas 3:	0.001 ac.	Disconnected	Clayey	Low Density					

LU# 2 - Commercial: Strip Commercial_Non ROW Total area (ac): 4.076

1 - Roofs 1:	1.140 ac.	Flat	Connected						
3 - Roofs 3:	0.214 ac.	Pitched	Connected						
13 - Paved Parking 1:	2.366 ac.	Connected							
22 - Unpaved Parking 4:	0.081 ac.	Disconnected	Clayey	Medium/High Density	No Alleys				
25 - Driveways 1:	0.087 ac.	Connected							
31 - Sidewalks 1:	0.124 ac.	Connected							
73 - Other Pervious Areas 3:	0.064 ac.	Clayey	Medium/High Density	No Alleys					

LU# 3 - Other Urban: Open Space_Non ROW Total area (ac): 1.753

1 - Roofs 1:	0.010 ac.	Flat	Connected						
31 - Sidewalks 1:	0.010 ac.	Connected							
37 - :	0.030 ac.	Smooth	Street Length = 0.0180559 curb-mi	Default St. Dirt Accum.	Annual Winter Load = 2500 lbs				
38 - Streets 2:	0.035 ac.	Intermediate	Street Length = 0.0212113 curb-mi	Default St. Dirt Accum.	Annual Winter Load = 2500 lbs				
47 - Large Landscaped Areas 3:	0.010 ac.	Clayey	Low Density						
59 - Undeveloped Areas 3:	1.657 ac.	Clayey	Low Density						

LU# 4 - Institutional: Hospital_Non ROW Total area (ac): 0.138

1 - Roofs 1:	0.055 ac.	Flat	Connected						
3 - Roofs 3:	0.007 ac.	Pitched	Connected						
13 - Paved Parking 1:	0.036 ac.	Connected							
22 - Unpaved Parking 4:	0.001 ac.	Disconnected	Clayey	Medium/High Density	No Alleys				
25 - Driveways 1:	0.008 ac.	Connected							
31 - Sidewalks 1:	0.002 ac.	Connected							
47 - Large Landscaped Areas 3:	0.009 ac.	Clayey	Medium/High Density	No Alleys					
53 - Small Landscaped Areas 3:	0.013 ac.	Clayey	Medium/High Density	No Alleys					
59 - Undeveloped Areas 3:	0.000 ac.	Clayey	Medium/High Density	No Alleys					
69 - Isolated Areas:	0.002 ac.								
73 - Other Pervious Areas 3:	0.004 ac.	Clayey							

LU# 5 - Residential: Low Density Residential_Non ROW Total area (ac): 23.244

3 - Roofs 3:	0.521 ac.	Pitched	Connected						
8 - Roofs 8:	1.672 ac.	Pitched	Disconnected	Clayey	Low Density				
13 - Paved Parking 1:	0.027 ac.	Connected							
25 - Driveways 1:	0.658 ac.	Connected							
28 - Driveways 4:	0.356 ac.	Disconnected	Clayey	Low Density					
31 - Sidewalks 1:	0.047 ac.	Connected							
34 - Sidewalks 4:	0.096 ac.	Disconnected	Clayey	Medium/High Density	No Alleys				
53 - Small Landscaped Areas 3:	18.525 ac.	Clayey	Medium/High Density	No Alleys					
59 - Undeveloped Areas 3:	1.206 ac.	Clayey	Medium/High Density	No Alleys					
69 - Isolated Areas:	0.055 ac.								
73 - Other Pervious Areas 3:	0.055 ac.	Clayey	Medium/High Density	No Alleys					
80 - Other Part Con Imp Areas 3:	0.027 ac.	Disconnected	Clayey	Low Density					

LU# 6 - Residential: Medium Density Res. No Alleys_Non ROW Total area (ac): 29.314

3 - Roofs 3:	1.763 ac.	Pitched	Connected						
8 - Roofs 8:	4.113 ac.	Pitched	Disconnected	Clayey	Medium/High Density	No Alleys			
13 - Paved Parking 1:	0.078 ac.	Connected							
25 - Driveways 1:	1.645 ac.	Connected							
28 - Driveways 4:	0.744 ac.	Disconnected	Clayey	Medium/High Density	No Alleys				
31 - Sidewalks 1:	0.215 ac.	Connected							
34 - Sidewalks 4:	0.431 ac.	Disconnected	Clayey	Medium/High Density	No Alleys				
47 - Large Landscaped Areas 3:	0.078 ac.	Clayey							
53 - Small Landscaped Areas 3:	18.445 ac.	Clayey							
59 - Undeveloped Areas 3:	0.157 ac.	Clayey							
69 - Isolated Areas:	0.078 ac.								
73 - Other Pervious Areas 3:	1.567 ac.	Clayey							

LU# 7 - Residential: Multi Family Residential_Non ROW Total area (ac): 2.146

1 - Roofs 1:	0.102 ac.	Flat	Connected						
3 - Roofs 3:	0.425 ac.	Pitched	Connected						
8 - Roofs 8:	0.096 ac.	Pitched	Disconnected	Clayey	Medium/High Density	No Alleys			
13 - Paved Parking 1:	0.325 ac.	Connected							
19 - Unpaved Parking 1:	0.015 ac.	Connected							
25 - Driveways 1:	0.043 ac.	Connected							
28 - Driveways 4:	0.027 ac.	Disconnected	Clayey	Medium/High Density	No Alleys				
31 - Sidewalks 1:	0.032 ac.	Connected							
34 - Sidewalks 4:	0.063 ac.	Disconnected	Clayey	Medium/High Density	No Alleys				
47 - Large Landscaped Areas 3:	0.042 ac.	Clayey							
53 - Small Landscaped Areas 3:	0.764 ac.	Clayey							
59 - Undeveloped Areas 3:	0.090 ac.	Clayey							
66 - Paved Playgrounds 4:	0.003 ac.	Disconnected	Clayey	Low Density					
69 - Isolated Areas:	0.003 ac.								
73 - Other Pervious Areas 3:	0.115 ac.	Clayey							

LU# 8 - Institutional: Misc. Institutional_Non ROW Total area (ac): 4.462

Bethel - InputData.txt

1 - Roofs 1: 0.311 ac. Flat Connected
 3 - Roofs 3: 0.486 ac. Pitched Connected
 8 - Roofs 8: 0.033 ac. Pitched Disconnected Clayey Medium/High Density No Alleys
 13 - Paved Parking 1: 1.568 ac. Connected
 25 - Driveways 1: 0.130 ac. Connected
 31 - Sidewalks 1: 0.063 ac. Connected
 47 - Large Landscaped Areas 3: 0.308 ac. Clayey Low Density
 53 - Small Landscaped Areas 3: 1.033 ac. Clayey Low Density
 59 - Undeveloped Areas 3: 0.105 ac. Clayey Low Density
 63 - Paved Playgrounds 1: 0.098 ac. Connected
 66 - Paved Playgrounds 4: 0.098 ac. Disconnected Clayey Low Density
 73 - Other Pervious Areas 3: 0.153 ac. Clayey Low Density
 80 - Other Part Con Imp Areas 3: 0.077 ac. Disconnected Clayey Low Density

LU# 9 - Commercial: Office Park_Non ROW Total area (ac): 3.612

1 - Roofs 1: 0.562 ac. Flat Connected
 13 - Paved Parking 1: 1.829 ac. Connected
 25 - Driveways 1: 0.148 ac. Connected
 31 - Sidewalks 1: 0.029 ac. Connected
 47 - Large Landscaped Areas 3: 0.248 ac. Clayey Medium/High Density No Alleys
 53 - Small Landscaped Areas 3: 0.673 ac. Clayey Medium/High Density No Alleys
 73 - Other Pervious Areas 3: 0.098 ac. Clayey Medium/High Density No Alleys
 80 - Other Part Con Imp Areas 3: 0.024 ac. Disconnected Clayey Medium/High Density No Alleys

LU# 10 - Other Urban: Parks_Non ROW Total area (ac): 7.493

1 - Roofs 1: 0.008 ac. Flat Connected
 3 - Roofs 3: 0.009 ac. Pitched Connected
 8 - Roofs 8: 0.020 ac. Pitched Disconnected Clayey Low Density
 13 - Paved Parking 1: 0.337 ac. Connected
 22 - Unpaved Parking 4: 0.018 ac. Disconnected Clayey Low Density
 25 - Driveways 1: 0.073 ac. Connected
 31 - Sidewalks 1: 0.019 ac. Connected
 47 - Large Landscaped Areas 3: 6.026 ac. Clayey Low Density
 53 - Small Landscaped Areas 3: 0.068 ac. Clayey
 63 - Paved Playgrounds 1: 0.072 ac. Connected
 66 - Paved Playgrounds 4: 0.072 ac. Disconnected Clayey Low Density
 69 - Isolated Areas: 0.570 ac.
 80 - Other Part Con Imp Areas 3: 0.200 ac. Disconnected Clayey Low Density

LU# 11 - Commercial: Strip Commercial_ROW Total area (ac): 2.353

25 - Driveways 1: 0.040 ac. Connected
 31 - Sidewalks 1: 0.171 ac. Connected
 37 - : 0.916 ac. Smooth Street Length = 0.350601 curb-mi Default St. Dirt Accum. Annual Winter Load = 2500 lbs
 38 - Streets 2: 0.685 ac. Intermediate Street Length = 0.2709733 curb-mi Default St. Dirt Accum. Annual Winter Load = 2500 lbs
 53 - Small Landscaped Areas 3: 0.462 ac. Clayey Medium/High Density No Alleys
 59 - Undeveloped Areas 3: 0.016 ac. Clayey Medium/High Density No Alleys
 73 - Other Pervious Areas 3: 0.064 ac. Clayey Medium/High Density No Alleys

LU# 12 - Institutional: Hospital_ROW Total area (ac): 0.465

25 - Driveways 1: 0.035 ac. Connected
 31 - Sidewalks 1: 0.032 ac. Connected
 37 - : 0.096 ac. Smooth Street Length = 0.046682 curb-mi Default St. Dirt Accum. Annual Winter Load = 2500 lbs
 38 - Streets 2: 0.151 ac. Intermediate Street Length = 7.309418E-02 curb-mi Default St. Dirt Accum. Annual Winter Load = 2500 lbs
 53 - Small Landscaped Areas 3: 0.151 ac. Clayey Medium/High Density No Alleys

LU# 13 - Residential: Low Density Residential_ROW Total area (ac): 3.166

25 - Driveways 1: 0.167 ac. Connected
 31 - Sidewalks 1: 0.038 ac. Connected
 37 - : 0.459 ac. Smooth Street Length = 0.2924066 curb-mi Default St. Dirt Accum. Annual Winter Load = 2500 lbs
 38 - Streets 2: 0.876 ac. Intermediate Street Length = 0.5622883 curb-mi Default St. Dirt Accum. Annual Winter Load = 2500 lbs
 39 - : 0.125 ac. Rough Street Length = 0.083217 curb-mi Default St. Dirt Accum. Annual Winter Load = 2750 lbs
 53 - Small Landscaped Areas 3: 1.502 ac. Clayey

LU# 14 - Residential: Medium Density Res. No Alleys_ROW Total area (ac): 8.120

25 - Driveways 1: 0.452 ac. Connected
 31 - Sidewalks 1: 0.178 ac. Connected
 37 - : 1.194 ac. Smooth Street Length = 0.6461145 curb-mi Default St. Dirt Accum. Annual Winter Load = 2500 lbs
 38 - Streets 2: 2.453 ac. Intermediate Street Length = 1.289002 curb-mi Default St. Dirt Accum. Annual Winter Load = 2500 lbs
 39 - : 0.484 ac. Rough Street Length = 0.2585104 curb-mi Default St. Dirt Accum. Annual Winter Load = 2750 lbs
 53 - Small Landscaped Areas 3: 3.360 ac. Clayey

LU# 15 - Residential: Multi Family Residential_ROW Total area (ac): 0.351

25 - Driveways 1: 0.006 ac. Connected
 31 - Sidewalks 1: 0.013 ac. Connected
 37 - : 0.074 ac. Smooth Street Length = 0.0414663 curb-mi Default St. Dirt Accum. Annual Winter Load = 2500 lbs
 38 - Streets 2: 0.104 ac. Intermediate Street Length = 5.362567E-02 curb-mi Default St. Dirt Accum. Annual Winter Load = 2500 lbs
 53 - Small Landscaped Areas 3: 0.154 ac. Clayey

LU# 16 - Institutional: Misc. Institutional_ROW Total area (ac): 1.172

25 - Driveways 1: 0.039 ac. Connected
 31 - Sidewalks 1: 0.057 ac. Connected
 37 - : 0.208 ac. Smooth Street Length = 9.885339E-02 curb-mi Default St. Dirt Accum. Annual Winter Load = 2500 lbs
 38 - Streets 2: 0.351 ac. Intermediate Street Length = 0.16803 curb-mi Default St. Dirt Accum. Annual Winter Load = 2500 lbs
 39 - : 0.069 ac. Rough Street Length = 3.269126E-02 curb-mi Default St. Dirt Accum. Annual Winter Load = 2750 lbs
 53 - Small Landscaped Areas 3: 0.448 ac. Clayey Low Density

LU# 17 - Commercial: Office Park_ROW Total area (ac): 1.336

25 - Driveways 1: 0.101 ac. Connected
 31 - Sidewalks 1: 0.059 ac. Connected
 37 - : 0.271 ac. Smooth Street Length = 0.0851526 curb-mi Default St. Dirt Accum. Annual Winter Load = 2500 lbs
 38 - Streets 2: 0.696 ac. Intermediate Street Length = 0.2199703 curb-mi Default St. Dirt Accum. Annual Winter Load = 2500 lbs
 53 - Small Landscaped Areas 3: 0.210 ac. Clayey Medium/High Density No Alleys

LU# 18 - Other Urban: Parks_ROW Total area (ac): 0.824

25 - Driveways 1: 0.036 ac. Connected
 31 - Sidewalks 1: 0.030 ac. Connected
 37 - : 0.119 ac. Smooth Street Length = 7.393343E-02 curb-mi Default St. Dirt Accum. Annual Winter Load = 2500 lbs
 38 - Streets 2: 0.271 ac. Intermediate Street Length = 0.1648 curb-mi Default St. Dirt Accum. Annual Winter Load = 2500 lbs
 47 - Large Landscaped Areas 3: 0.368 ac. Clayey Low Density

Control Practice 1: Wet Detention Pond CP# 1 (DS)

Particle Size Distribution file name: C:\WinSLAMM Files\NURP.CPZ

Initial stage elevation (ft): 8

Peak to Average Flow Ratio: 3.8

Maximum flow allowed into pond (cfs): No maximum value entered

Outlet Characteristics:

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 1
2. Weir crest width (ft): 1
3. Discharge Coefficient (ft): 0
4. Height of weir opening (cfs): 1
5. Height from datum to bottom of weir opening: 15

Pond stage and surface area

Entry Number	Stage (ft)	Pond Area (acres)	Natural Seepage (in/hr)	Other Outflow (cfs)
0	0.00	0.0000	0.00	0.00
1	0.01	0.2200	0.00	0.00
2	7.00	0.7200	0.00	0.00
3	8.00	0.9700	0.00	0.00
4	8.10	0.9800	0.00	0.03
5	8.20	0.9900	0.00	0.10
6	8.30	1.0000	0.00	0.20
7	8.40	1.0100	0.00	0.33
8	8.50	1.0200	0.00	0.50
9	8.70	1.0400	0.00	0.88
10	9.00	1.0700	0.00	1.19
11	9.50	1.1200	0.00	1.61
12	10.00	1.1700	0.00	1.96
13	10.50	1.2200	0.00	12.10
14	11.00	1.2700	0.00	24.65
15	12.00	1.3700	0.00	40.01
16	13.00	1.4800	0.00	49.42
17	16.00	1.8300	0.00	301.78

SLAMM for Windows Version 10.0.0
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Data file name: C:\Documents and Settings\aschmidt.MCM\Desktop\Bethel\SLAMM\Bethel.mdb
 Data file description: Bethel Baptist Pond
 Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Green Bay WI 1969.RAN
 Particulate Solids Concentration file name: C:\WinSLAMM Files\WI_AVG01.pscx
 Runoff Coefficient file name: C:\WinSLAMM Files\v10 WI_SL06 Dec06.rsv
 Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
 Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
 Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
 Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
 Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
 Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
 Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO02.ppdex
 Start of Winter Season: 11/25 End of Winter Season: 03/29
 Model Run Start Date: 01/02/69 Model Run End Date: 12/28/69
 Date of run: 12-21-2012 Time of run: 16:16:40
 Total Area Modeled (acres): 96.305
 Years in Model Run: 0.99

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction				
Total of all Land Uses without Controls:	2.142E+06	-	161.3	21568	-				
Outfall Total with Controls:	2.142E+06	0.00%	30.88	4129	80.86%				
Annualized Total After Outfall Controls:	2.172E+06			4186					
Pollutant	Concentration - No Controls	Concentration - With Controls	Conc. Units mg/L	Pollutant Yield No Controls	Pollutant Yield With Controls	Pol. Yield Units lbs	Percent Reduction		
Total Phosphorus	0.5504	0.2293		73.60	30.67		58.33 %		

Bethel Baptist Pond
Village of Allouez
Pondpack Rating Table
McM No A0012-900458.26

Stage	Water Surface Elevation (ft)	Flow (ft³/s)	Contributing Structures
8.00	581.00	0.00	(no Q: Orifice - 1, Weir - 1, Weir - 2, Culvert - 1, Weir - 3)
8.10	581.10	0.03	Orifice - 1, Culvert - 1 (no Q: Weir - 1, Weir - 2, Weir - 3)
8.20	581.20	0.10	Orifice - 1, Culvert - 1 (no Q: Weir - 1, Weir - 2, Weir - 3)
8.30	581.30	0.21	Orifice - 1, Culvert - 1 (no Q: Weir - 1, Weir - 2, Weir - 3)
8.40	581.40	0.35	Orifice - 1, Culvert - 1 (no Q: Weir - 1, Weir - 2, Weir - 3)
8.50	581.50	0.51	Orifice - 1, Culvert - 1 (no Q: Weir - 1, Weir - 2, Weir - 3)
8.60	581.60	0.72	Orifice - 1, Culvert - 1 (no Q: Weir - 1, Weir - 2, Weir - 3)
8.70	581.70	0.90	Orifice - 1, Culvert - 1 (no Q: Weir - 1, Weir - 2, Weir - 3)
8.80	581.80	1.01	Orifice - 1, Culvert - 1 (no Q: Weir - 1, Weir - 2, Weir - 3)
8.90	581.90	1.11	Orifice - 1, Culvert - 1 (no Q: Weir - 1, Weir - 2, Weir - 3)
9.00	582.00	1.21	Orifice - 1, Culvert - 1 (no Q: Weir - 1, Weir - 2, Weir - 3)
9.50	582.50	1.63	Orifice - 1, Culvert - 1 (no Q: Weir - 1, Weir - 2, Weir - 3)
10.00	583.00	1.98	Orifice - 1, Culvert - 1 (no Q: Weir - 1, Weir - 2, Weir - 3)
10.50	583.50	2.28	Orifice - 1, Culvert - 1 (no Q: Weir - 1, Weir - 2, Weir - 3)
11.00	584.00	10.56	Orifice - 1, Weir - 1, Culvert - 1 (no Q: Weir - 2, Weir - 3)
12.00	585.00	39.97	Orifice - 1, Weir - 1, Culvert - 1 (no Q: Weir - 2, Weir - 3)
13.00	586.00	64.25	Orifice - 1, Weir - 1, Weir - 2, Culvert - 1 (no Q: Weir - 3)
14.00	587.00	77.33	Orifice - 1, Weir - 1, Weir - 2, Culvert - 1 (no Q: Weir - 3)
15.00	588.00	148.99	Orifice - 1, Weir - 1, Weir - 2, Culvert - 1, Weir - 3
16.00	589.00	329.08	Orifice - 1, Weir - 1, Weir - 2, Culvert - 1, Weir - 3