

APPIN BUSINESS PARK
MOUNTAIN VIEW COUNTY NEAR CARSTAIRS
STORMWATER MANAGEMENT PLAN (REVISED)

CLIENT: APPIN DEVELOPMENTS INC.

FILE: 200583

DATE: 10 OCTOBER 2023

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EXECUTIVE SUMMARY

The proposed subdivision is located south of Township Road 294 and west of Range Road 10 in Mountain View County, approximately 8.5 km southeast of the Town of Carstairs. The subject parcel is 62.9 ha.

The subject parcels are located on either side of an unnamed drainage course. This drainage course drains approximately 2,671 ha [26.7 km²] upstream of Township Road 294—on both sides of Highway 2. Approximately 1 km north of Twp. Rd. 294, the unnamed drainage course meets Carstairs Creek. Carstairs Creek is tributary to the Rosebud River and is part of the Red Deer River Basin.

Immediately downstream of the proposed development is an existing single-barrel, 1600-mm diameter corrugated steel pipe (CSP) culvert under Twp. Rd. 294. Given the height of the road surface above the culvert, it is unlikely that this has overtopped.

Design of storm drainage works will provide flow control to manage peak runoff and water quality as follows:

- No net increase in peak flow downstream,
- Sedimentation to ensure removal of 85% or particles larger than 75 µm.

To accomplish the above, three onsite wet ponds are proposed:

- East Pond: located SW of the future intersection of Range Road 10 and the internal subdivision road.
- Central Pond: located north of the internal subdivision road above the east coulee slope.
- West Pond: located north of the internal subdivision road above the west coulee slope.

The existing upstream catchment was modelled to estimate flows for various return periods based on a 50-year continuous hourly precipitation record. From this, a unit release rate of 3.1 L/s/ha was derived for the 100-year return period. This was the basis for determining the allowable discharge for each pond. Water quality modeling was performed to estimate the removal of sediment for the 50-year period of record.



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I. BACKGROUND

The Appin Business Park is located west of Range Road 10 and south of Township Road 294 in Mountain View County. The location of the development is shown on Figure 1. The gross area of the land within the proposed development is 62.9 ha more or less. Table 1 and Figure 2 provides details specific to this site:

Table 1 – Development Details

Legal Description	NE24-29-1-5
Alberta Township System (ATS) reference	NE24-29-1-5
Discharges to	Carstairs Creek

The proponent proposes to develop the site as noted:

- 23 commercial/light industrial lots of approximately 2-3 ha each and
- Construct an internal road network.

A plan of the subject parcel is shown in Figure 2.

A. REPORT PURPOSE AND LIMITATION

Osprey Engineering Inc. was engaged by the proponent to provide a stormwater management plan for the proposed development. Specifically, the following details were required:

- o Determine post-development runoff rates from the development
- o Design works to manage, control and treat runoff consistent with allowable discharge determined

This report and the conclusions contained herein are intended for the use of the proponent and the local and provincial authorities for the design of storm drainage works. Any use or extrapolation of the report's conclusions beyond the intent stated is neither supported nor warranted by Osprey Engineering Inc.

This report complies with *Standards and Guidelines for Municipal Water, Wastewater and Storm Drainage Works* (Alberta Environment and Protected Areas, 2013) except as noted. Where deviations are necessary, these are justified in the report.

B. STUDY AREA AND SURROUNDING DEVELOPMENT

Onsite landuse presently consists of the following:

- o Pasture/agriculture
- o Reclaimed gravel pit.

The surrounding area is developed as follows:

- o Pasture/agriculture



C. EXISTING DRAINAGE

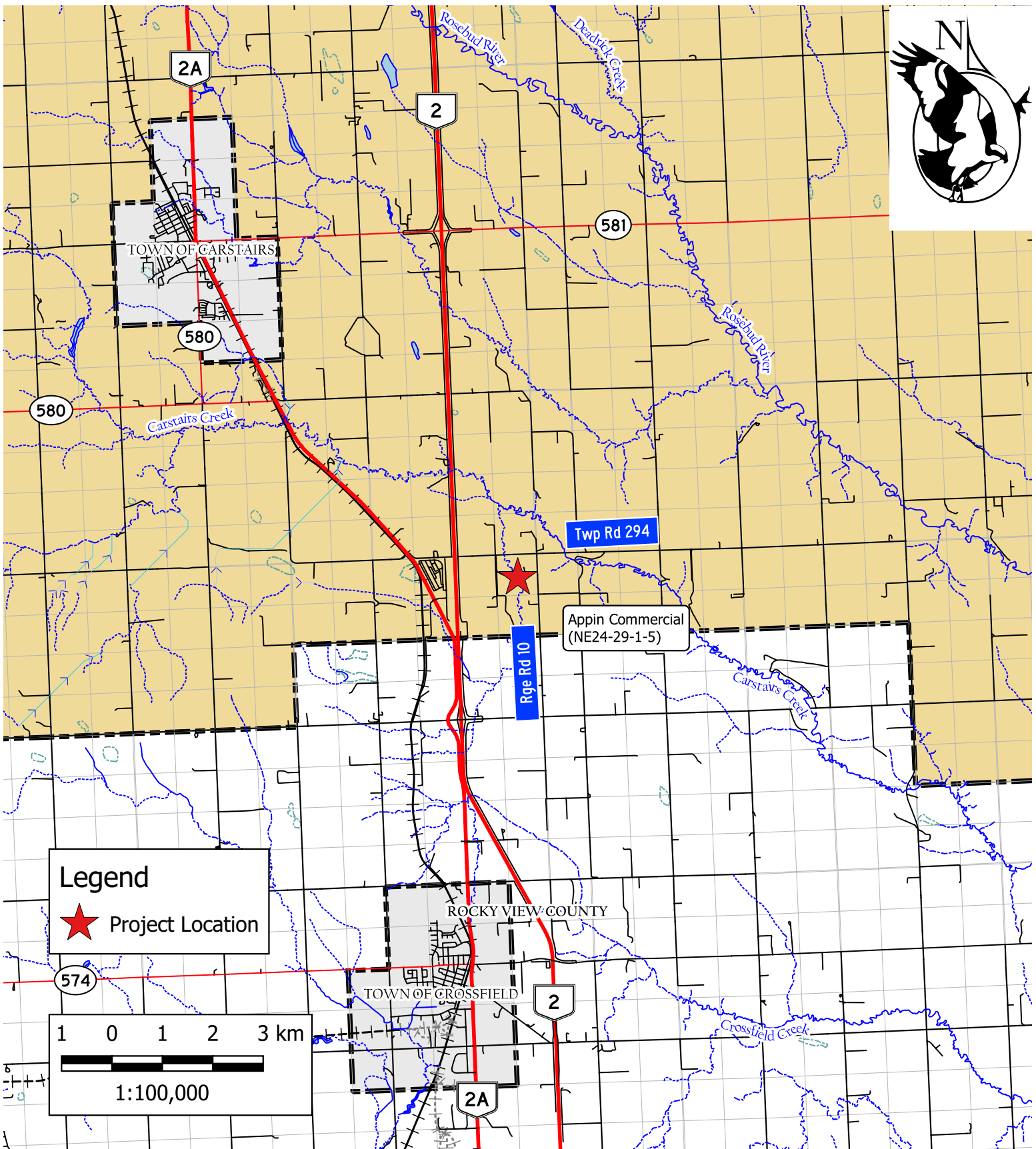
The subject lands are roughly bisected by a coulee and unnamed drainage course. South of Township Road 284, this drainage course drains a catchment of approximately 2,670 ha including significant areas both west and east of Highway 2. An additional area of approximately 19 ha flows east across Range Road 10 and across adjacent land. Runoff from the west crosses Highway 2 at several locations. The culverts under Highway 2 and its service roads and water bodies to the west significantly impact the hydrology of this drainage course.

Runoff crosses Township Road 284 in a single 1600-mm CSP culvert immediately north of the subject lands. The channel flows north for approximately 1.1 km where it joins Carstairs Creek. A smaller area adjacent Range Road 10 drains eastward over adjacent lands to a coulee which joins Carstairs Creek approximately 0.7 km east of the subject parcel. The entire drainage area is tributary to the Rosebud River and is within the Red Deer River basin.

D. PREVIOUS REPORTS AND DESIGNS

No previously approved reports are noted for the area.

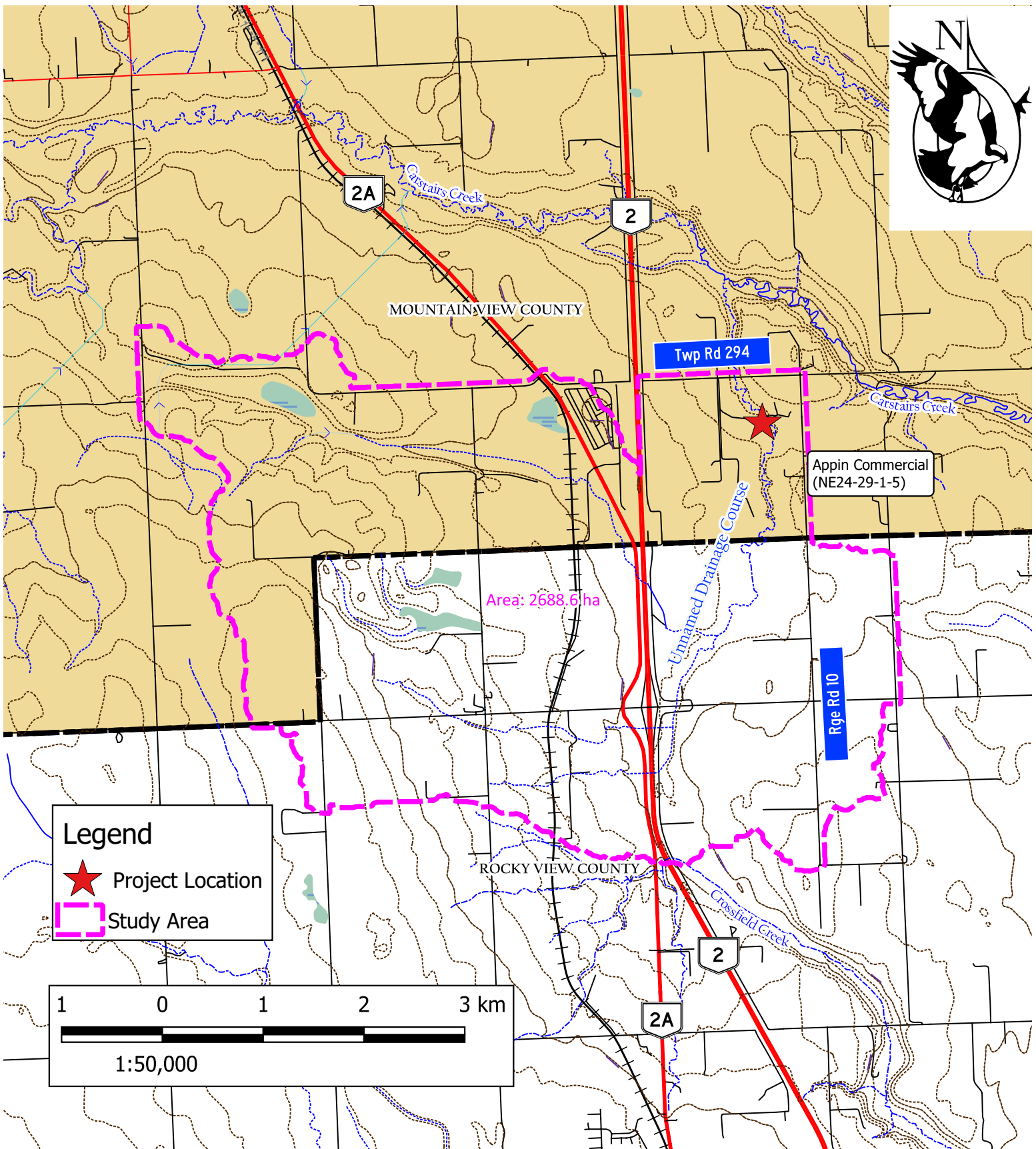




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Stormwater Management Plan

Figure 1 - Location



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Figure 2 - Study
Limits

II. METHODOLOGY & ASSUMPTIONS

This stormwater management plan and its associated analyses were consistent with the following documents:

- *Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems* (Alberta Environment and Protected Areas, 2013)
- *Municipal Policies and Procedures Manual* (Alberta Environment and Protected Areas, 2001)

Where appropriate, reference is made to *Stormwater Management and Design Guidelines* (Calgary (City of), 2011).

A. MODELS USED

Analysis of the proposed storm drainage system was performed using EPA-SWMM5 (version 5.1.015) (United States Environmental Protection Agency, 2020). EPA-SWMM allows seasonal variation of hydraulic conductivity parameters using a multiplier in its climate module.

B. PRECIPITATION AND SCENARIOS

Both continuous and single-event models were used in simulating the operation of the storm drainage system. The following describes the precipitation simulated:

- o Continuous Simulation: data was that provided by the City of Calgary for the years 1960-2009 (50 years). Existing flows and volumes for individual return periods were derived annual maxima from the EPA-SWMM model using the best-fit statistical distribution (CDF) per methods developed for the City of Calgary (McMechan, van der Gugten, Wojcik, Beckstead, & Wagner, 2014).
- o Single-event: the single-event storms are those recommended by the City of Calgary (Calgary (City of), 2011) as detailed in Table 2.

Table 2 – Single-event Design Storms

Return period (T)	100 years
Time to peak (r)	0.3
Duration	24 hr
IDF Parameters ($i_T = \frac{a}{(b+t)^c}$)	a=663.1 b=1.870 c=0.712
Rainfall (mm)	89.67

The following scenarios were modeled:

1. Predevelopment runoff from the entire upstream catchment (continuous and design storms). This was used to determine baseline overall runoff volumes and to generate hydrographs for the design of on-site BMPs;
2. Post-development runoff from the site. A more detailed model of the subject area and offsite area tributary to the proposed BMPs. Explicitly models proposed onsite BMPs.



C. ALLOWABLE DISCHARGE FROM DEVELOPMENT

No master drainage plans or watershed management plans are noted as affecting the subject parcel. Given this, the development will be designed such that the post-development peak discharge will be controlled such that it does not exceed predevelopment. Generally, this can be achieved using existing and proposed road culverts crossing the water course.

No volume control targets are noted for this area. As such, no volume control target is defined.

D. HYDROLOGY

Storm drainage area (subcatchment) boundaries are shown on Figure 3 and Figure 4. The specific hydrologic assumptions made for each subcatchment and listed in Appendix A. Assumptions common to all subcatchments are detailed in Table 3.

Table 3 – General Hydrologic Assumptions

Parameter	Value	Source
Surface roughness (Manning's n)	Impervious = 0.015 Pervious = 0.25	Pervious assumes lawn or pasture (American Society of Civil Engineers, 1992)
Depression storage	Imperv.: 1.6 mm Pervious: 3.2 mm (proposed developed areas) 7.5 mm (existing pasture or natural areas)	(Calgary (City of), 2011)
Sub-area routing	Pervious surfaces	Development is surface drained to grassed ditches. No piped stormwater collection (e.g. direct storm sewer connections).

1. IMPERVIOUSNESS

Existing imperviousness was calculated using PC-SWMM's area-weighting algorithm based on the land uses and assumed imperviousness noted on Figure 5 (existing) and Figure 6 (proposed).

For the proposed lots, discussion with the proponent indicated an overall imperviousness for developed areas of 50% based on other, similar landuses in greater Calgary. For example, a similar development at 29339 Highway 2A appears to have an approximate imperviousness of approximately 45% (including roads). Caveats will be registered that require developments whose imperviousness exceeds 50% to provide on-site stormwater best management practices to manage rate of discharge and water quality.



2. INFILTRATION

Infiltration from subcatchment surfaces uses the Green-Ampt method (Green & Ampt, 1911). Soil characteristics (saturated hydraulic conductivity, capillary suction head and initial moisture deficit) were determined as follows:

1. The Agricultural Regions of Alberta Soil Inventory Database (AGRASID) (Government of Alberta, 20__) was obtained from the Government of Alberta website. This database has divided the agricultural area of Alberta into many soil polygons having consistent soils.
2. Through queries of the AGRISID database, soil polygons were matched with typical fractions of sand, silt and clay for the upper 2 soil horizons (generally A and B). These were assumed to dominate the shallow infiltration that is the concern of a surface runoff model.
3. Fractions of sand and clay were each averaged for each soil polygon.
4. Silt fraction was calculated from the average fractions of sand and clay such that $\%sand + \%clay + \%silt = 100\%$.
5. A dominant soil texture (Bentham, Ahrens, & Nettleton, 1993) was determined for each polygon (see Figure 7).
6. Green-Ampt parameters were determined for each soil polygon using recommended values for SWMM (Rossman, 2016), (Calgary (City of), 2011), (Rawls, Brakensiek, & Miller, 1983). The table does not identify values for silt-textured soil, this was assumed to be similar to silty clay loam.
7. Based on the soil polygons, an area-weighted average was used to assign values for the saturated hydraulic conductivity, suction head and initial moisture deficit parameters for each subcatchment using GIS-based PC-SWMM's area-weighting algorithm.

3. EVAPORATION

Evaporation was modeled using SWMM's internal algorithm which calculates evaporation based on daily maximum and minimum temperatures (Rossman, 2016). These were derived from the published temperature values provided by the City of Calgary. Evaporation is only assumed in the continuous models.

4. SEASONAL VARIATION

To account for winter operation, seasonal adjustments were applied to soil hydraulic conductivity using EPA-SWMM's climate module. The adjustments are a multiplier applied to the soil hydraulic conductivity (both for subcatchments and storage units) per Table 4. These adjustments are only applied to the continuous model.



Table 4 – EPA-SWMM Seasonal Adjustments to Soil Conductivity

January	February	March	April	May	June
0.05	0.05	0.05	0.05	1.0	1.0
July	August	September	October	November	December
1.0	1.0	1.0	1.0	0.05	0.05

5. SNOWMELT

Snowmelt was considered in the model using parameters suggested in SWMM User's Guide (Rossman, 2016). Temperatures are from the same data file as is used for estimating evaporation. Table 5 is a summary of important parameters. Snowmelt is only considered in the continuous model.

Table 5 – Snowmelt Parameters

Parameter	Value
Dividing temperature between rain and snow	2°C
Antecedent temperature index	0.5
Negative melt ratio	0.6
Elevation above MSL	1047 m
Latitude	51°N
Longitude correction	36 min (Mtn. Std. Time [105°W] to 114°W)
Minimum melt coefficient	0.05 mm/hr/°C
Maximum melt coefficient	0.3 mm/hr/°C
Base temperature for melt	0°C
Free water fraction to produce liquid	0.1

The monthly average windspeeds shown in Table 6 were used in the snowmelt model.

Table 6 – Average Windspeeds [km/h] for Calgary Airport

January	February	March	April	May	June
14.8	14.6	15	16.5	16.6	15.6
July	August	September	October	November	December
14	13.2	14.1	14.6	13.7	14.9

E. FLOW ROUTING ASSUMPTIONS

Runoff from the developed portions of the proposed subdivision (outside the protected area in the coulee) will be directed to 3 wet ponds located as noted on Figure 9. Table 7 below provides the conceptual stage-discharge relationship assumed for each pond. The peak flow allowable is based on an allowable unit release rate (AURR) of 3.1 L/s/ha for the drainage area upstream of Twp Rd 294 (based on analysis of the results of Scenario 1). Allowable discharge may be refined during detailed design of each pond's control structure.



Table 7 – Stage Discharge for Proposed Ponds' Flow Control

Pond	Area (ha)	Allowable Release (m³/s)	ICD size (mm)	Stage discharge assumed ($Q_a = 0.65(\frac{\pi}{4}d^2)\sqrt{2gH}$ in m³/s)
East	14.05	0.044	R100	$Q_a = 0.0226\sqrt{H}$
Northeast	13.74	0.043	R100	$Q_a = 0.0226\sqrt{H}$
Northwest	27.70	0.086	R150	$Q_a = 0.0509\sqrt{H}$

Other flow routing assumptions are consistent with City guidelines (Calgary 2011). Schematic of the model is provided as Figure 5.

F. CULVERTS

Future development of the subject parcel will require crossing the existing unnamed drainage course, thus requiring a culvert of significant size to ensure 100-year discharge can be accommodated without overflow. This crossing's size will be confirmed at detail design. However, an initial assessment has been performed using methods consistent with those recommended by the US Federal Highway Administration (and similar to those used in Alberta) (Schall, Thompson, Zerges, Kilgore, & Morris, 2012). The following assumptions were made regarding this crossing:

Material assumed:	Corrugated steel pipe (CSP) with ends mitered to match slope
Roughness (n):	0.024
Culvert length:	50 m
Elevation of road crossing:	1023 m
Upstream culvert invert:	1020 m
Downstream culvert invert:	1018.5 m

G. OVERLAND FLOWS

During detailed design of overland flow conveyances (individual phases), depths and velocities will be calculated to ensure they do not exceed those noted in Table 8. Where larger drainage courses exist (e.g. within the coulee), these will be duly signed and/or fenced as required to control access.



Table 8 – AEP Permissible Depths and Velocities for 1:100-year Overland Flows

Velocity	Depth
V (m/s)	D (m)
0.5	0.8
1	0.32
2	0.21
3	0.09

H. POND DESIGN

The proposed storm ponds are to be as described below and on Figure 9. Pond locations were selected based on the most practical locations due to topography.

1. East Pond: This pond is to serve a low area that historically drained east across Range Road 1-0 to a coulee tributary to Carstairs Creek. It is impractical to route overland flows from this area west to the major drainage course. The East Pond is to be located immediately west of Range Road 10 south of the proposed east-west subdivision road. It is to be a hybrid wet-pond with wetland enhancements and is to provide runoff attenuation and water quality enhancement for the easterly portion of the proposed subdivision. This area has no effective drainage eastward. As such, this facility will be drained by a storm sewer to the coulee.
2. Central Pond: The Central Pond is to be located immediately east of the east coulee slope and north of the proposed east west subdivision road. It is intended to be a hybrid wet pond with wetland enhancements and is to provide water quality enhancement for the east central portion of the proposed subdivision. This pond will discharge directly to the coulee via a spillway or culvert and spillway.
3. West Pond: The Northwest Pond is to be located west of the west coulee slope and north of the proposed east west subdivision road. It is intended to be a hybrid wet pond with wetland enhancements and is to provide water quality enhancement for the east central portion of the proposed subdivision. This pond will discharge directly to the coulee via a spillway or culvert and spillway.

General details used in sizing the pond are as noted below.

1. STAGE-STORAGE

Assumed stage storage relationships are provided in Appendix A.

2. INITIAL DEPTH

Where water quality enhancement is intended, the depth below normal water level is assumed to be submerged. For the purposes of this analysis, normal water level is assumed to be 2.0 m above pond bottom. This may be varied during detailed design.



3. SEEPAGE AND INFILTRATION

Seepage and infiltration were not explicitly modeled in this analysis.

I. WATER QUALITY MODELING

Water quality enhancement is proposed with following BMPs:

1. The East Pond,
2. The Central Pond and
3. The Northwest Pond.

To ensure BMPs are of adequate size to provide the required water quality enhancement, water quality simulation was included in the continuous model scenario. Assumptions used in this scenario were consistent with City of Calgary guidelines (Calgary 2011).

To model pollutant generation, a buildup-washoff model was used as noted below.

- Buildup was modeled as a power-linear relationship, $B = \min (C_{max}, C_2 t^{1.0})$ [kg/ha], where:
 - o C_{max} is the maximum pollutant buildup for the land use noted in kg/ha
 - o C_2 is the rate of pollutant buildup in kg/day
 - o t is the simulation time
- Initial buildup assumes 30 days of no washoff
- Washoff was modeled using an exponential relationship, $W = C_w q^e B$ [kg/m³] where:
 - o C_w is the washoff coefficient for the pollutant and land use in mg/L
 - o q is the runoff rate per unit area in mm/hr
 - o e is the exponent, assumed to be 1.2

Table 9 and Table 10 below show the buildup and washoff (respectively) parameters used in constructing the model. It must be noted that in SWMM5, each individual size fraction is modeled individually.

Table 9 – Water Quality Modeling Parameters (Pollutant Buildup)

Size fraction	Size assumed	Density	Fraction	Cumulative	Max Buildup	Buildup rate	Initial buildup
µm	µm	kg/m ³	% (w/w)	% (w/w)	C_{max} (kg/ha)	C_2 (kg/ha/day)	kg/ha
<10	5	1500	23	23	460	1.265	37.95
10-20	10	2000	9	32	180	0.495	14.85
20-50	20	2500	13	45	260	0.715	21.45
50-150	50	2650	23	68	460	1.265	37.95
>150	150	2650	32	100	640	1.76	52.8
TOTALS					2000	5.5	165



Table 10 - Water Quality Modeling Parameters (Pollutant Washoff)

Size	Size assumed	Washoff (Pervious)	Washoff (Impervious)
µm	µm	C_W (mg/L [g/m ³])	C_W (mg/L [g/m ³])
<10	5	690	1380
10-20	10	270	540
20-50	20	390	780
50-150	50	690	1380
>150	150	960	1920
TOTALS		3000	6000

Treatment is assumed to occur by settling in the pond. The following general equation is used in SWMM to simulate this.

$$R = 1 - e^{\left(-v_s \cdot \frac{HRT}{d}\right)} \text{ where:}$$

- R is the fractional removal of the pollutant
- v_s is the settling velocity from Table 11
- HRT is the calculated hydraulic retention time for the pond
- d is the calculated depth of the pond
-

Table 11 – Settling Velocities Assumed for Particle Size Fractions

Size	Size assumed	Settling velocity
µm	µm	m/s
<10	5	0.00000592
10-20	10	0.0000473
20-50	20	0.000283
50-150	50	0.00195
>150	150	0.0124

These size fractions do not provide data specific to the 75 µm particle size. Removal rates for the 50 µm particles size and total TSS load will be quoted and a target of 85% removal will be assumed. This is conservative and will ensure adequate removal for the 75 µm size fraction.

J. EMERGENCY OVERLAND ESCAPE

Emergency overland escape is as noted below:



- East Pond: Emergency overflow for this pond will be east over Range Road 10.
- The remainder of the site overflows north through the coulee. If sufficient water were held, overflow over the low point in Township Road 294 could occur—however, there is no evidence of this having occurred as this low point is approximately 6.1 m above the coulee bottom.



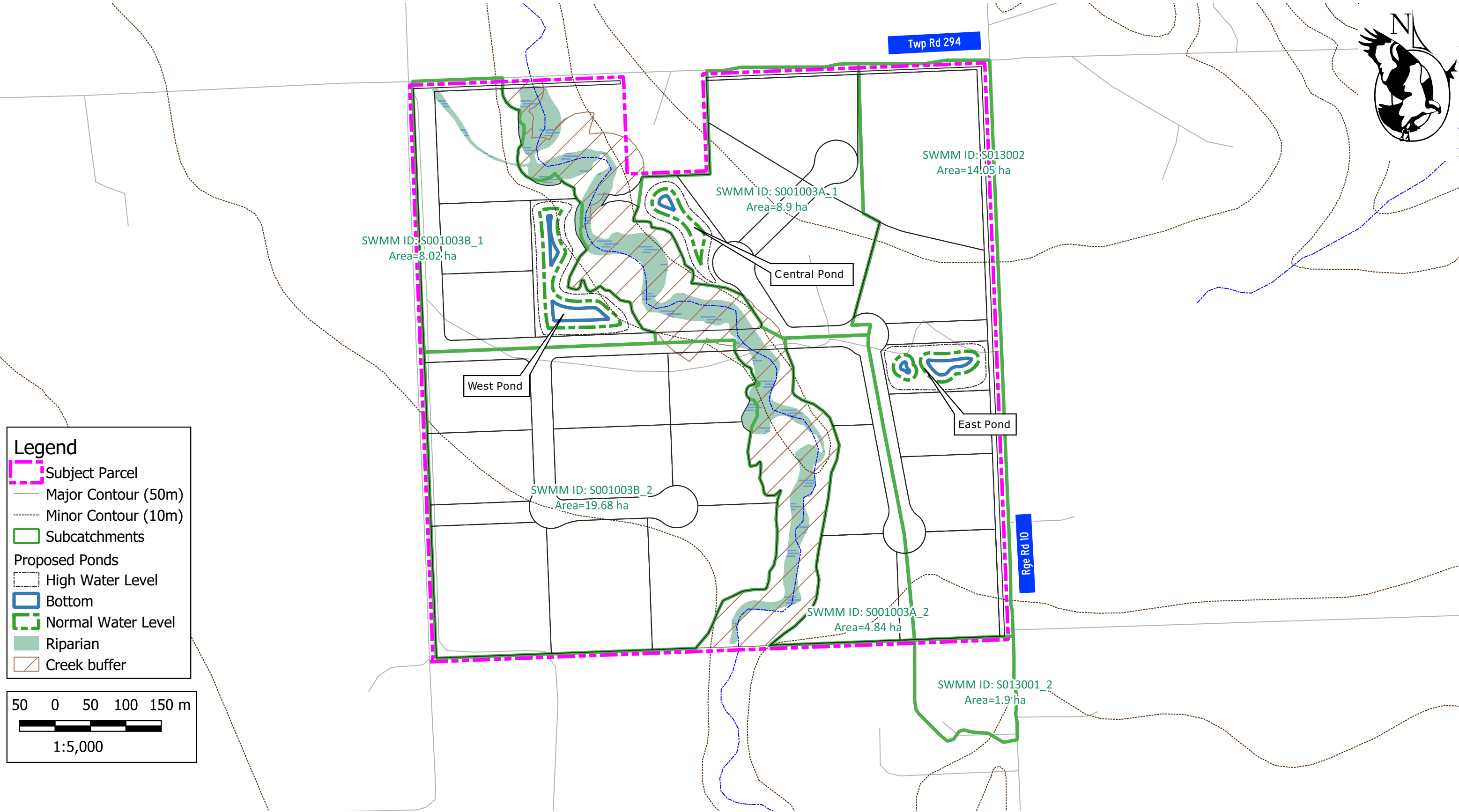
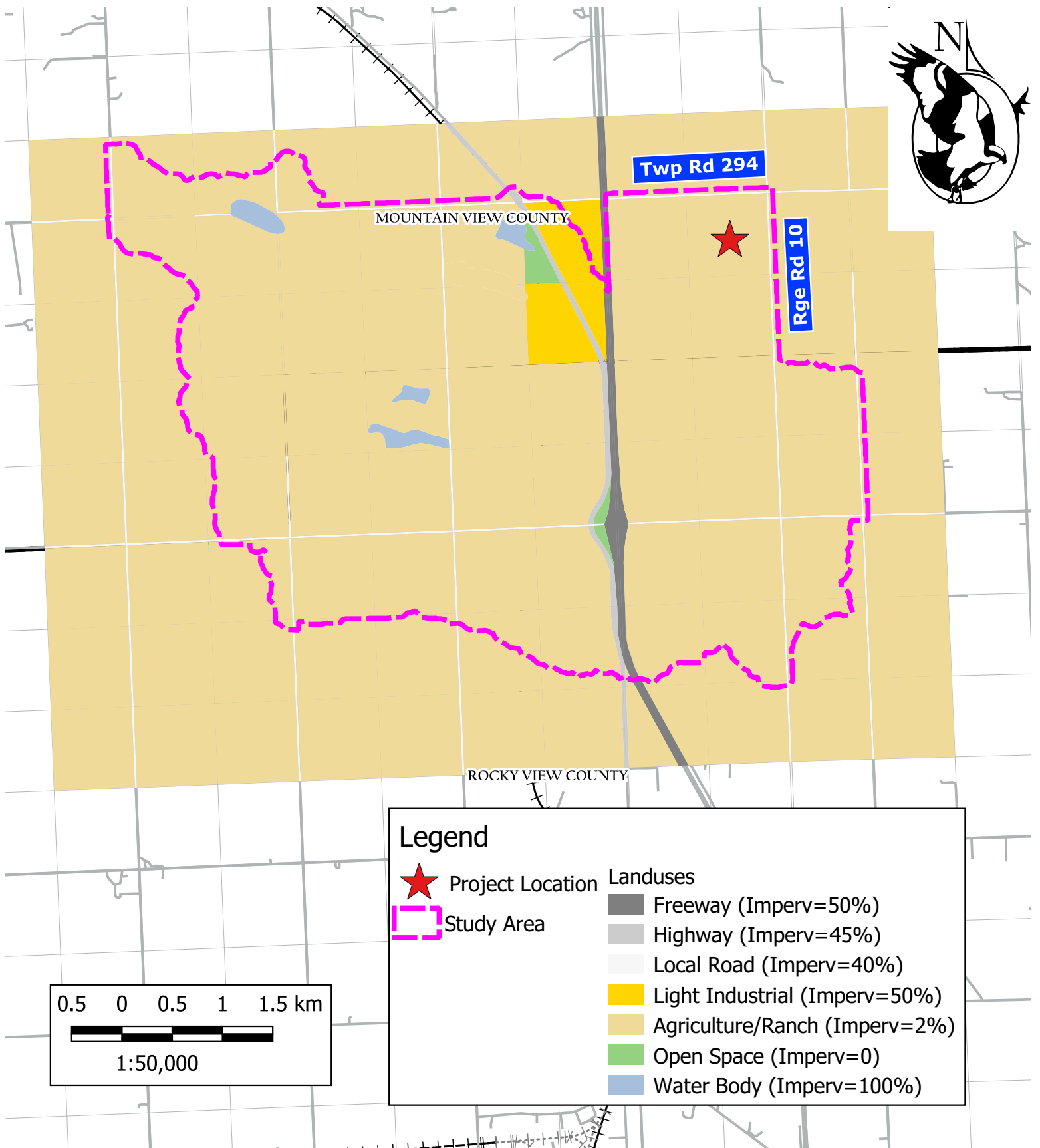


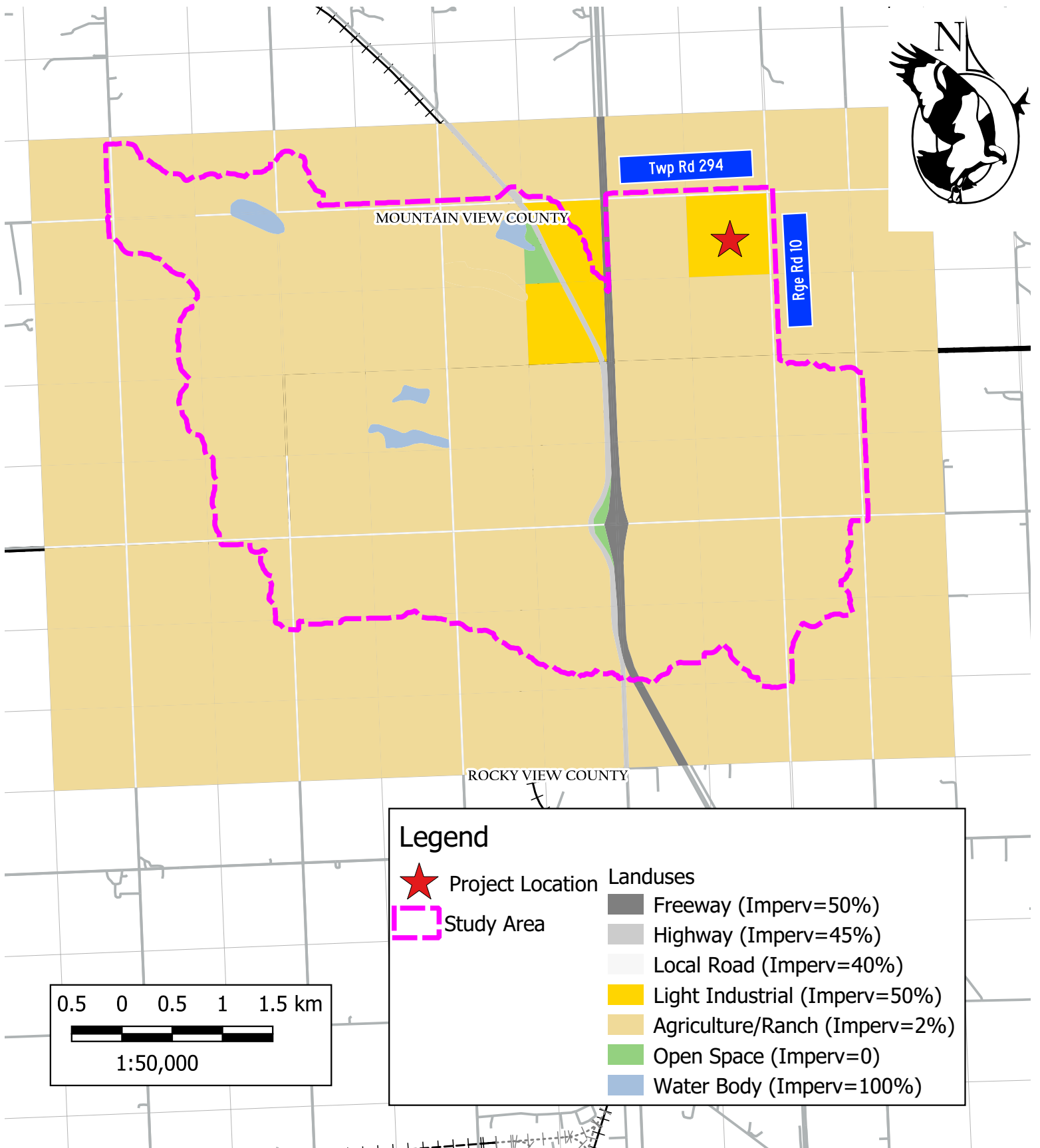
Figure 4 - Post-development Subcatchments



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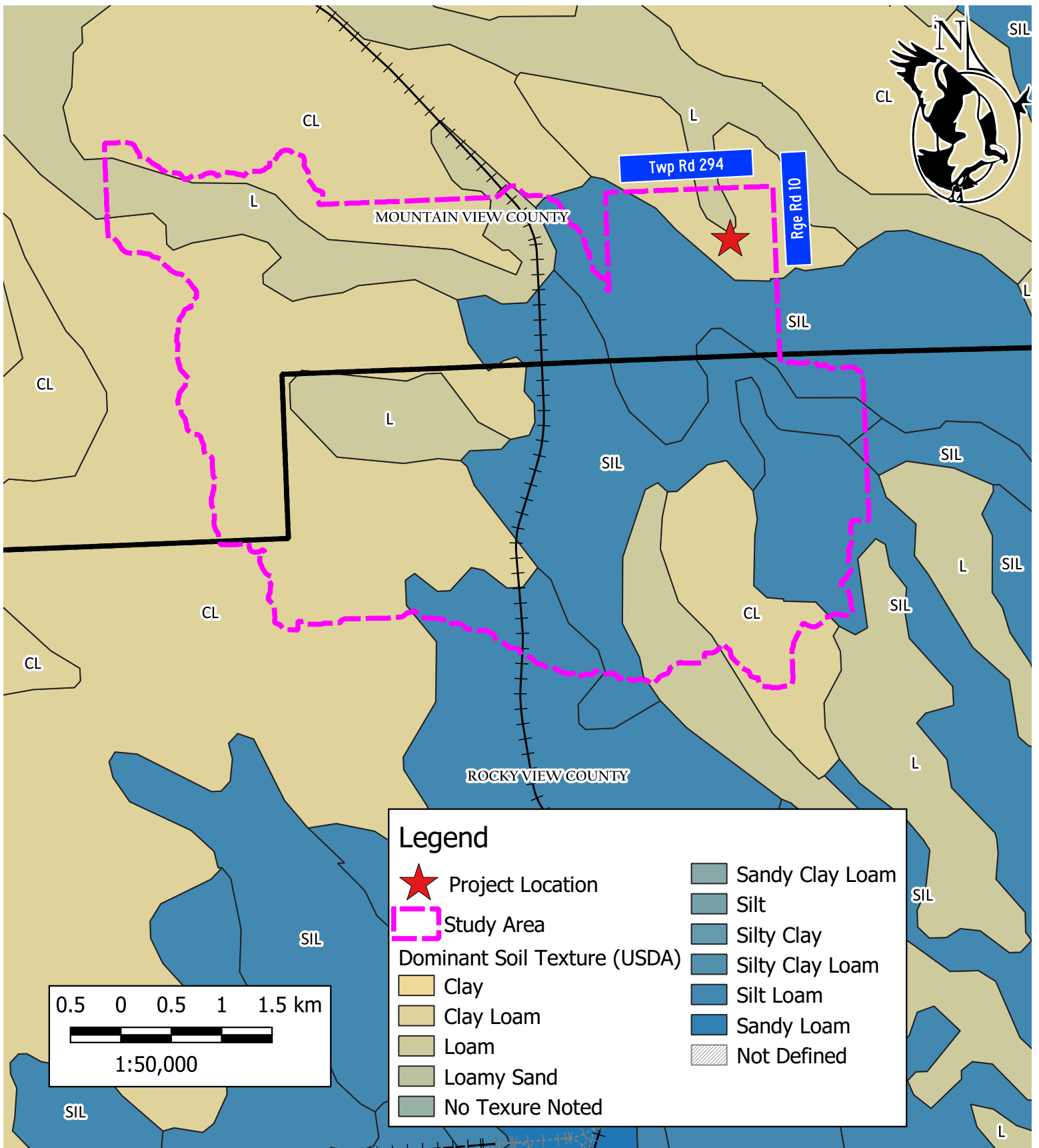
Figure 5 - Existing
Landuses Assumed



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Figure 6 - Proposed
Landuses Assumed

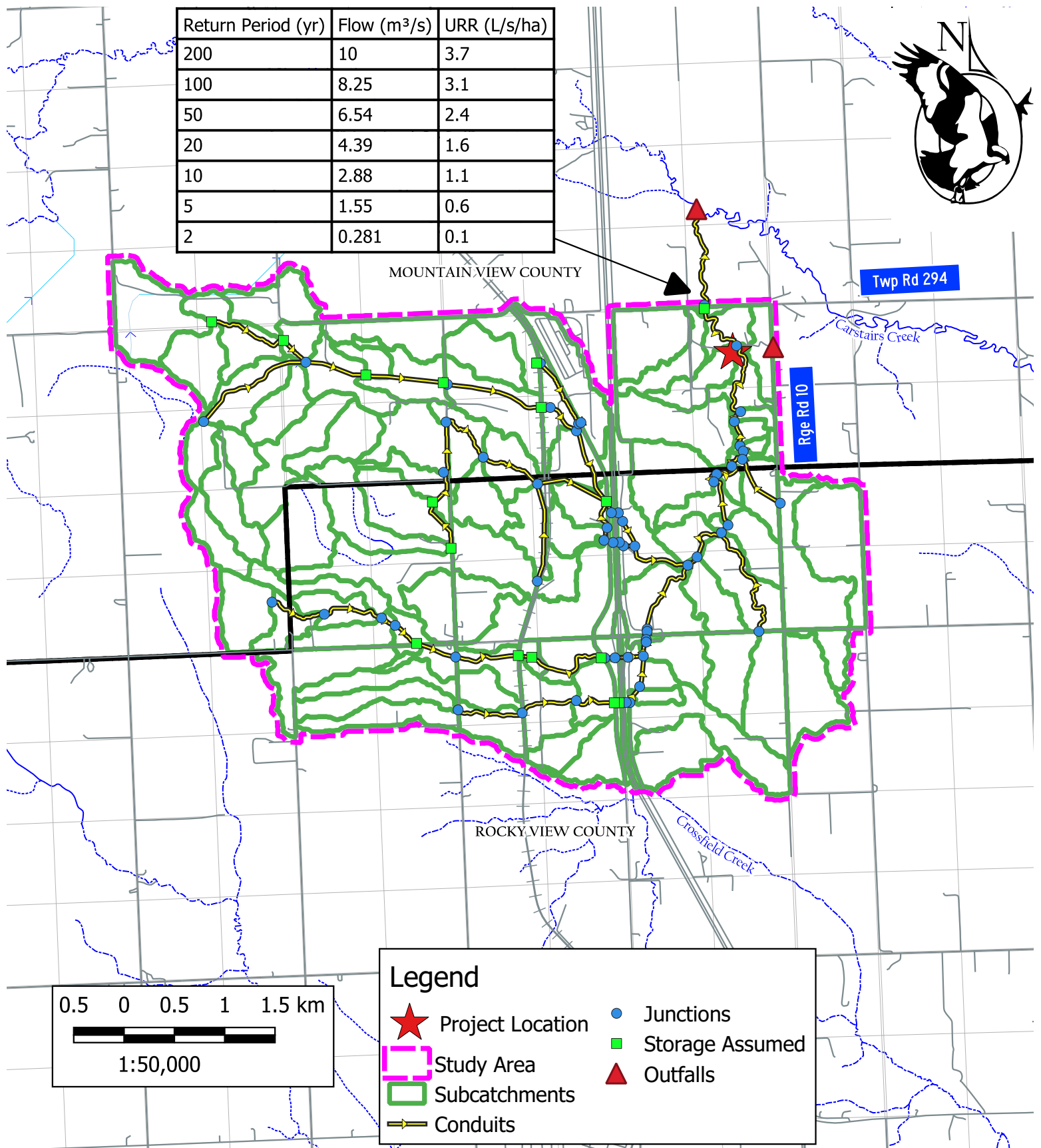
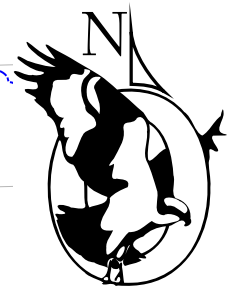


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Figure 7 - AGRASID
Soil Polygons

Return Period (yr)	Flow (m ³ /s)	URR (L/s/ha)
200	10	3.7
100	8.25	3.1
50	6.54	2.4
20	4.39	1.6
10	2.88	1.1
5	1.55	0.6
2	0.281	0.1



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Figure 8 - Predevelopment
Drainage Assumed



Figure 9 - Postdevelopment Drainage Concept

III. RESULTS

The following summarizes the results of the analyses performed.

A. RUNOFF RATE

The existing runoff rates are as shown in Figure 8 and Table 12. A statistical analysis of the peak flows north of Twp Rd 294 (node J001002) was performed and is detailed in Appendix C. Based on this analysis, an allowable unit release rate of 3.1 L/s/ha (100 year flow of 8.25 m³/s over 2,688 ha) was selected for the subdivision's storm ponds (see previous).

Table 12 – Flow Rates and Unit Release Rates (URR) by Return Period for Drainage Course
North of Twp Rd 294

Return Period (yr)	Flow (m ³ /s)	URR (L/s/ha)
200	10	3.7
100	8.25	3.1
50	6.54	2.4
20	4.39	1.6
10	2.88	1.1
5	1.55	0.6
2	0.281	0.1

B. POND PERFORMANCE

The performance of the proposed ponds is summarized below.

1. POND DESIGN

Table 13 details the ponds' conformance to design. Details of the statistical analyses of the ponds annual peak volumes are provided in Appendix D.



Table 13 – Pond Design

Parameter		East Pond	Central Pond	West Pond	Unit
General	Contributing Drainage Area	14.05	13.74	27.70	ha
	Side slopes (max)	5H:1V	5H:1V	5H:1V	
Elevation	Bottom	1021.00	1022.00	1017.50	m AGD
	Outflow	1023.00	1024.00	1019.50	m AGD
	100-year (per CDF)	1024.46	1025.89	1020.95	m AGD
	100-year (design storm)	1024.16	1025.48	1020.60	m AGD
	Peak attained (1960-2009)	1024.45	1025.82	1020.89	m AGD
	Spill	1025.00	1026.00	1021.50	m AGD
Depth	Operational (outflow to spill)	2.00	2.00	2.00	m
	100-year (per CDF)	3.46	3.89	3.45	m
	100-year (design storm)	3.16	3.48	3.10	m
	Peak attained (1960-2009)	3.45	3.82	3.39	m
	Spill	4.00	4.00	4.00	m
Area	Bottom	800	250	1,600	m ²
	Outflow	3,400	2,200	6,300	m ²
	Spill	8,500	5,500	12,100	m ²
Volume	100-year (per CDF)	11,900	9,560	20,100	m ³
	100-year (design storm)	9,842	7,527	16,581	m ³
	Peak attained (1960-2009)	11,800	9,170	19,451	m ³
	Spill	16,100	10,150	26,300	m ³
Discharge	Post-dev 100 year (CDF) Extrapolated	0.027	0.031	0.061	m ³ /s
	Post-dev 100 year Design Discharge	0.024	0.027	0.052	m ³ /s
	Post-dev Maximum (1960-2009)	0.027	0.030	0.059	m ³ /s
	Allowable discharge at spill	0.044	0.044	0.086	m ³ /s

2. WATER QUALITY

Water quality enhancement modeled exceeds the requirements noted (85% removal of sediment particles 50 µm and larger). The following tables summarize pollutant removal for the proposed ponds.



Table 14 – East Pond Water Quality Enhancement

Size	Size assumed	Washoff (Input pond) to	Outfall loading (Outflow from pond)	% Removal
µm	µm	kg	kg	
<10	5	315,590	20,767	93%
20-Oct	10	123,492	9,240	93%
20-50	20	178,377	9,515	95%
50-150	50	315,590	5,153	98%
>150	150	439,082	46	100%

Removal of particles > 50 µm 95%
 Total TSS removal 97%

Table 15 – Central Pond Water Quality Enhancement

Size	Size assumed	Washoff (Input pond) to	Outfall loading (Outflow from pond)	% Removal
µm	µm	kg	kg	
<10	5	308,860	34,161	89%
20-Oct	10	120,858	16,547	86%
20-50	20	174,573	18,772	89%
50-150	50	308,860	11,290	96%
>150	150	429,718	210	100%

Removal of particles > 50 µm 91%
 Total TSS removal 94%



Table 16 – Central Pond Water Quality Enhancement

Size	Size assumed	Washoff (Input pond) to	Outfall loading (Outflow from pond)	% Removal
µm	µm	kg	kg	
<10	5	575,996	17,764	97%
20-Oct	10	224,872	8,877	96%
20-50	20	325,042	10,046	97%
50-150	50	575,996	2,667	100%
>150	150	802,247	63	100%

Removal of particles > 50 µm 98%
 Total TSS removal 98%

C. CONCEPTUAL STREAM CROSSING PERFORMANCE

The culvert concept for the internal road crossing of the existing drainage course consists of 3 × 1000 mm diameter CSP barrels. Performance is as noted in Table 17. Note that this design will be confirmed during detail design. Headwater is considered acceptable if it does not overtop in the 1:100-year design flow.

Table 17 – Culvert Performance

Culvert ID	Upstream Inv. m AGD	Downstream Inv. m AGD	Length m	Long. Slope %	Design Flow			Performance at Design Flow				Calc. Method.
					AURR L/s/ha	Trib. Area ha	Design Flow m³/s	Culvert Size mm	No. of Barrels	Headwater Elev m	Tailwater Elev m AGD	
EW Road	1020.00	1018.5	50.0	3.0%	3.1	2,688	8.25	1000	3	1022.75	1019.00	FHWA 2012

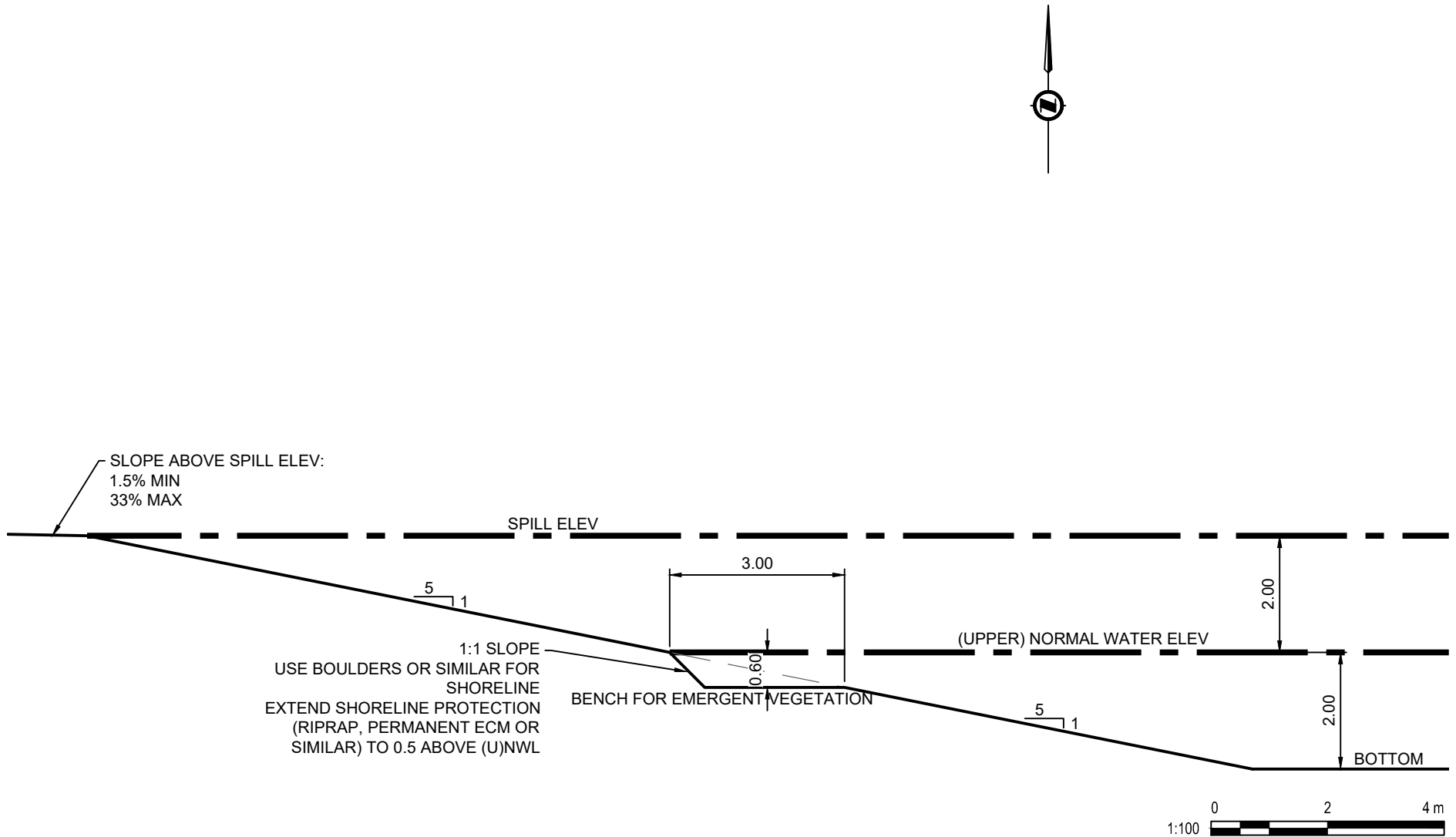


IV. RECOMMENDATIONS

The following recommendations are made regarding future development of the Appin site:

1. Individual lot development:
 - a. Lots of 50% impervious surface or less can discharge freely to perimeter ditches.
 - b. Lots of greater than 50% impervious, must limit rate of discharge to less than 10 L/s/ha. Stormwater management calculations must be provided to justify the above.
2. Conceptual pond designs are as shown on Figure 9. A minimum cross-section is provided on Figure 10 per county request. However, pond design will be confirmed at detailed design and may vary depending on factors determined at the time of subdivision.
3. Pond outfalls shall be constructed as far upland from the existing drainage course as is practical. Per county direction, outfall shall not be installed below the 5-year water surface elevation for the channel. In this case, this elevation is taken as the 5-year tailwater elevation for the proposed culvert, 1018.68 m.





 SPREY ENGINEERING INC.		
PROJECT Appin Commercial		
FIGURE TITLE Conceptual Pond Cross Section		
PROJECT No. 200583	SCALE AS SHOWN	FIGURE No. 10

AUTHENTICATION/SIGNATURES

The following report was prepared by Osprey Engineering Inc. by or under the responsible supervision of the following professional/s. This report is to be used by the client/s noted and municipality for the purposes noted.

Osprey Engineering Inc. accepts no responsibility for the work of others.

Osprey Engineering Inc. accepts no responsibility for others' conclusions and designs derived from this report.

Michael A. Kitchen, P.Eng.
President

Responsible member for
OSPREY ENGINEERING INC.
APEGA Permit to Practice No. P10743

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APPENDIX A – SUBCATCHMENT DETAILS

The following tables detail the assumed parameters for the subcatchments (drainage areas) modeled.



Predevelopment Subdcatchment Details

Name	Outlet	Area (ha)	Width (m)	Flow Length (m)	Slope (%)	Imperv. (%)
S001003_1	SU001003	2.42	29	836	5.5	8.2
S001003_2	SU001003	18.26	586	311	8.5	2.4
S001003_3	SU001003	44.11	598	738	3.6	2.6
S001003_4	SU001003	24.24	281	864	3.6	2.1
S001004_1	J001004	19.20	433	444	8.3	2.3
S001004_2	J001004	23.50	279	842	2.8	2.0
S001005	J001005	5.60	351	159	5.8	3.5
S001006	J001006	7.29	345	211	6.7	2.0
S001007_1	J001007	53.88	722	746	2.8	2.0
S001007_2	J001007	3.67	198	185	4.8	2.0
S001008	J001008	4.38	292	150	5.0	5.7
S001009	J001009	24.28	798	304	3.6	3.7
S001010	J001010	6.64	301	221	3.2	2.0
S001011	J001011	49.03	588	834	2.7	2.0
S001012	J001012	17.36	326	533	2.7	2.0
S001013	J001013	26.93	459	586	2.6	2.8
S001014_1	J001014	18.21	500	365	3.1	2.0
S001014_2	J001014	40.04	651	615	3.0	2.9
S001015_1	J001015	15.20	296	514	3.0	3.5
S001015_2	J001015	36.01	759	475	2.8	2.6
S001015_3	J001015	43.76	559	783	4.1	3.7
S001015_4	J001015	44.73	671	667	3.4	2.8
S002001_1	J002001	55.30	692	799	3.1	3.2
S002001_2	J002001	63.02	578	1090	2.9	3.2
S003001	J003001	25.82	761	339	3.2	2.6
S003002_1	J003002	44.95	1013	444	5.0	4.0
S003002_2	J003002	39.81	703	566	6.4	7.9
S003005	J003005	7.59	249	304	16.3	50.0
S003006	J003006	6.37	85	753	10.5	48.1
S003007	SU003007	19.06	484	394	3.5	4.4
S003008_1	J003008	24.67	337	731	9.1	2.0
S003008_2	J003008	27.18	839	324	4.2	4.1
S003009_1	J003009	26.53	557	476	3.5	2.2
S003009_2	J003009	25.89	845	306	4.2	3.8
S003010	J003010	39.09	661	591	3.7	2.5
S003011	J003011	19.85	437	454	3.2	3.0
S003012	SU003012	41.46	895	463	8.1	12.5
S003013_1	SU003013	44.60	438	1019	9.8	14.6
S003013_2	SU003013	50.41	848	595	9.7	2.0
S003013_3	SU003013	49.54	643	770	8.9	11.0
S003013_4	SU003013	26.16	300	873	5.2	3.2
S004002	J004002	2.33	249	94	23.3	13.7
S004005_1	J004005	24.86	341	730	3.9	2.7
S004005_2	J004005	18.68	939	199	7.8	9.6
S004006_1	J004006	4.43	246	180	12.0	31.6
S004006_2	J004006	7.11	394	180	12.0	2.0
S004006_3	J004006	53.07	556	955	3.5	2.2
S004006_4	J004006	38.30	668	573	4.0	2.0
S004008_1	J004008	2.03	57	357	42.9	50.0
S004008_2	J004008	1.74	94	186	10.5	50.0
S004009	SU004009	7.50	210	357	42.9	44.5
S004010_1	SU004010	21.98	65	3366	5.3	5.1
S004010_2	SU004010	18.31	346	530	3.2	2.0
S004010_3	SU004010	24.64	354	696	4.1	4.7
S004011	J004011	32.61	773	422	7.6	2.0
S004012_1	J004012	17.91	317	566	6.5	2.6
S004012_2	J004012	22.63	486	465	10.6	2.5
S004013_1	J004013	27.33	260	1051	3.1	2.5
S004013_2	J004013	29.63	331	894	2.9	2.3
S004013_3	J004013	28.34	260	1090	3.5	2.3
S005003	J005003	9.45	125	753	10.5	33.4
S006001	J006001	17.65	268	658	7.2	2.6
S006002_1	J006002	16.83	236	712	6.4	2.0
S006002_2	J006002	46.42	415	1118	4.9	4.9
S007001_1	J007001	22.78	842	271	15.0	36.0
S007001_2	J007001	27.94	727	384	7.1	35.4
S007003	SU007003	49.55	662	749	6.9	8.0
S007005	SU007005	31.22	417	749	6.9	8.0
S007006_1	SU007006	11.05	256	431	6.5	2.0
S007006_2	SU007006	32.69	1139	287	10.5	2.0
S007006_3	SU007006	51.58	519	993	5.0	2.0
S007006_4	SU007006	31.11	360	864	6.0	2.0
S007007_1	J007007	13.49	538	251	9.6	8.9
S007007_2	J007007	34.52	540	640	10.7	2.0
S007007_3	J007007	27.27	531	514	9.0	2.0
S007008_1	J007008	37.53	438	857	2.8	2.0

Predevelopment Subdcatchment Details

Name	Outlet	Area (ha)	Width (m)	Flow Length (m)	Slope (%)	Imperv. (%)
S007008_2	J007008	16.03	354	453	3.8	2.0
S007008_3	J007008	31.56	395	798	3.2	2.0
S008001_1	J008001	39.51	739	535	5.7	2.5
S008001_2	J008001	27.86	451	618	5.7	3.1
S008001_3	J008001	20.04	403	497	10.5	4.4
S009002	J009002	4.82	291	166	8.8	28.9
S009004	SU009004	19.89	209	952	9.1	4.5
S009005	SU009005	6.23	65	952	9.1	3.3
S009006	SU009006	18.40	193	952	9.1	2.5
S009007	J009007	13.53	142	952	9.1	4.3
S009008_1	SU009008	2.21	103	215	6.8	8.0
S009008_2	SU009008	43.71	464	941	4.2	4.5
S009008_3	SU009008	10.13	471	215	6.8	3.2
S009009	J009009	23.13	371	624	4.9	3.8
S009010_1	J009010	23.68	285	829	3.6	2.6
S009010_2	J009010	20.10	594	338	4.7	2.0
S009011	J009011	18.71	449	417	2.8	4.2
S009012	J009012	33.60	849	396	2.5	2.2
S010002	J010002	42.65	389	1096	5.4	49.3
S011001_1	SU011001	34.37	553	621	4.9	18.2
S011001_2	SU011001	33.68	829	406	8.0	15.7
S011002_1	SU011002	56.28	649	868	9.1	2.7
S011002_2	SU011002	31.83	596	534	8.1	2.2
S012002_1	SU012002	36.48	311	1175	4.2	4.5
S012002_2	SU012002	20.09	809	248	11.6	28.3
S012002_3	SU012002	31.54	750	421	3.5	9.9
S013001	OF013001	17.37	253	687	6.2	5.1

Post-development Subcatchment Details

Name	Outlet	Area (ha)	Width (m)	Flow Length	Slope (%)	Imperv. (%)
S001003A_1	SU001003A	8.90	614	145	6.1	50.0
S001003A_2	SU001003A	4.84	484	100	6.2	50.0
S001003B_1	SU001003B	8.02	535	150	2.0	10.0
S001003B_2	SU001003B	19.68	1312	150	6.1	50.0
S013001_2	SU013002	1.90	28	687	6.2	5.1
S013002	SU013002	14.05	936	150	6.2	50.0

APPENDIX B – STAGE STORAGE

The following details the stage-storage curves assumed for various storage nodes assumed in the model.



Stage Storage Assumed for Proposed Ponds

East pond

Water surface Elevation	Depth	Area	Volume	
m AGD	m	m ²	m ³	
1021.00	0	800		
1023.00	2	3,400	4,200	NWL
1025.00	4	8,500	16,100	Spill

Central Pond

Water surface Elevation	Depth	Area	Volume	
m AGD	m	m ²	m ³	
1022.00	0	250		
1024.00	2	2,200	2,450	NWL
1026.00	4	5,500	10,150	Spill

West Pond

Water surface Elevation	Depth	Area	Volume	
m AGD	m	m ²	m ³	
1017.50	0	1,600		
1019.50	2	6,300	7,900	NWL
1021.50	4	12,100	26,300	Spill

Existing Impoundment (Scenario 1 only)

Water surface Elevation	Depth	Area	Volume	
m AGD	m	m ²	m ³	
1018.35	0	1,000		
1020.35	2	3,200	4,200	NWL/Culvert invert
1021.35	3	8,800	10,200	

Coulee at Twp Rd 294 (Scenario 1 only)

Water surface Elevation	Depth	Area	Volume	
m AGD	m	m ²	m ³	
1011.75	0.00	1		
1012.08	0.33	1	0	
1012.33	0.58	425	54	
1012.58	0.83	1,275	266	
1012.83	1.08	2,750	769	
1013.08	1.33	3,500	1,551	
1013.33	1.58	4,375	2,535	
1013.58	1.83	5,750	3,801	
1013.83	2.08	6,775	5,366	
1014.08	2.33	7,850	7,194	
1014.33	2.58	8,900	9,288	
1014.58	2.83	10,150	11,669	
1014.83	3.08	11,275	14,347	
1015.08	3.33	12,550	17,326	
1015.33	3.58	13,925	20,635	
1015.58	3.83	15,100	24,263	
1015.83	4.08	16,700	28,238	
1016.08	4.33	18,300	32,613	
1016.33	4.58	19,900	37,388	
1016.58	4.83	22,000	42,626	
1016.83	5.08	23,525	48,316	
1017.08	5.33	25,450	54,438	
1017.33	5.58	27,125	61,010	
1017.58	5.83	29,375	68,072	
1017.83	6.08	31,025	75,622	
1017.88	6.13	31,425	77,090	

APPENDIX C – STATISTICAL ANALYSIS OF EXISTING FLOWS

The following summarizes the statistical analysis of the annual maximum discharge in the existing drainage course north of Twp Rd 294 (SWMM Node J001002 in Scenario 1).

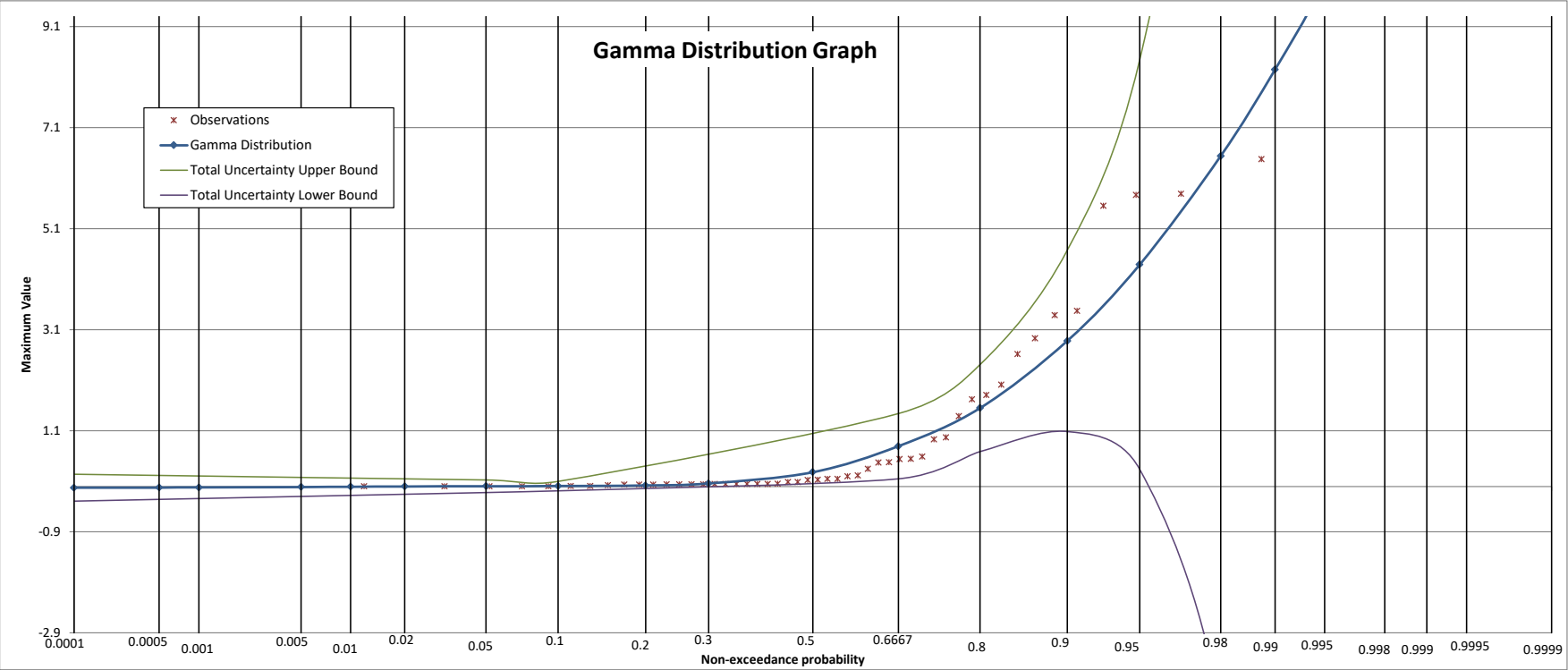
Table 18 – Annual Maximum Flows North of Range Road 294 (Node J001002)

Year of Record	Discharge (m ³ /s)	Year of Record	Discharge (m ³ /s)
1960	0.198	1985	2.929
1961	5.555	1986	0.127
1962	0.000	1987	0.032
1963	0.346	1988	0.045
1964	0.472	1989	0.048
1965	0.546	1990	0.004
1966	1.390	1991	0.084
1967	0.538	1992	0.146
1968	0.038	1993	0.086
1969	3.388	1994	0.041
1970	6.475	1995	0.042
1971	0.045	1996	0.146
1972	0.590	1997	2.012
1973	0.000	1998	1.722
1974	3.473	1999	2.618
1975	0.053	2000	0.024
1976	0.035	2001	0.475
1977	0.001	2002	0.000
1978	0.133	2003	1.806
1979	0.218	2004	0.040
1980	0.046	2005	5.793
1981	0.970	2006	0.035
1982	0.006	2007	5.768
1983	0.927	2008	0.043
1984	0.000	2009	0.045



Summary Sheet								
Initial Statistical Tests:				Project Information				
Tests for Stationarity								
Test		Result			Project Name:			
Spearman Rank Order Correlation Coefficient		No Significant Trend at 0.05 Significance Level			Appin Existing Flows (Node J001002)			
Mann-Whitney Test for jump (a.k.a. Mann-Whitney U test)		No Jump at 0.05 Significance Level			Project Description: Exisitng modeled annual maximum flows in drainage course N of Twp Rd 294			
Wald-Wolfowitz Test (The runs test)		No Jump at 0.05 Significance Level						
Tests for Homogeneity								
Test		Result			Location:			
Mann-Whitney Test for jump (a.k.a. Mann-Whitney U test)		Sample is Homogeneous at 0.05 Significance Level			1600 CSP culv (d/s end) under Twp Rd 294 W of Rge Rd 10, Mountain View County			
Terry Test		Sample is Homogeneous at 0.05 Significance Level			Date:			
Tests for Independence				2022-01-11				
Test		Result			Designed by:			
Spearman Rank Order Correlation Coefficient		Non-independence Detected at 0.05 Significance Level			MAK			
Wald-Wolfowitz Test for Independence		Data is independent at 0.05 Significance Level			Company Name:			
Anderson Test		Data is independent at 0.05 Significance Level			Osprey Engineering Inc.			
Test for Outliers				Reviewed by:				
Test		Result			MAK			
Grubbs and Beck Test for Outliers								
Are any high outliers present?		No High Outliers Present						
Are and low outliers present?		Low Outlier May Be Present						
Numerical Goodness-of-fit Tests Results								
Distribution Type	Numerical Goodness-of-fit Tests from Spreadsheet			Average of Ranks	Ranking from Numerical Tests	Numerical Goodness-of-fit Tests from Hyfran (Input by user)		Notes from Visual Goodness-of-fit Test
	A-D Test	K-S Test	Least Squares Ranking			BIC	AIC	
Normal	9	5	9	7.67	9	203.028	199.204	
Lognormal	3	3	10	5.33	4	36.694	32.87	
Lognormal III	5	8	5	6.00	5	169.021	163.285	
Exponential	10	10	8	9.33	10	108.95	105.126	
Pearson III	6	9	3	6.00	5	164.326	158.59	
Log Pearson III	1	1	4	2.00	2	37.112	31.376	
Gumbel	8	7	7	7.33	8	178.307	174.483	
GEV	7	6	6	6.33	7	171.164	165.428	
Weibull	4	4	2	3.33	3	36.002	32.178	
Gamma	2	2	1	1.67	1	25.834	22.01	

Selected Distribution and Results					Instructions:
Distribution type chosen based on visual and numerical goodness-of-fit tests:		Gamma			- Based on the results of the numerical and visual goodness-of-fit tests presented above, choose the preferred distribution in the cell on the left
Return Period	Probability	Magnitude	Total Uncertainty (Upper Bound)	Total Uncertainty (Lower Bound)	
10000	0.9999	20.5	1390	-1340	
2000	0.9995	16.1	383	-351	
1000	0.9990	14.2	215	-186	
500	0.9980	12	149	-124	
200	0.9950	10	54.8	-34.8	
100	0.9900	8.25	30.6	-14.1	
50	0.9800	6.54	17.5	-4.41	
20	0.9500	4.39	8.44	0.337	
10	0.9000	2.88	4.68	1.09	
5	0.8000	1.55	2.41	0.688	
3	0.6667	0.796	1.44	0.151	
2	0.5000	0.281	#N/A	#N/A	
1.4286	0.3000	0.0569	#N/A	#N/A	
1.25	0.2000	0.0182	#N/A	#N/A	
1.1111	0.1000	0.0061	0.0994	-0.0872	
1.0526	0.0500	0.00367	0.128	-0.121	
1.0204	0.0200	-0.00117	#N/A	#N/A	
1.0101	0.0100	-0.00599	#N/A	#N/A	
1.005	0.0050	-0.0112	#N/A	#N/A	
1.001	0.0010	-0.0199	#N/A	#N/A	
1.0005	0.0005	-0.0227	#N/A	#N/A	
1.0001	0.0001	-0.0254	0.239	-0.29	
*Total uncertainty is based on sampling uncertainty at ((95%) Confidence Interval) plus distribution uncertainty of Top 4 distributions (based on numerical goodness of fit tests)					



Errors and Warnings	
Cumulative distribution function warning	If a warning is present, please check if hyfran output results were pasted correctly. If hyfran results were pasted correctly the warning signifies that the Continuous Distribution Function (CDF) used in this workbook does not produce same output values as the input frequency analysis results, which in turn indicates that the numerical goodness-of-fit tests calculated by this spreadsheet for this distribution may be based on inaccurate numbers. Another possible solution would be to use a different method of estimating the CDF parameters for example: method of weighted moments.
No warning	
No warning	
No warning	
No warning	
CDF based on parameters does not match Pearson III distribution	
CDF based on parameters does not match Log Pearson III distribution	
No warning	
No warning	
No warning	
No warning	

APPENDIX D – STATISTICAL ANALYSIS OF PROPOSED POND VOLUMES

The following summarizes the statistical analysis of the annual maximum volumes of the proposed ponds (east, northeast and northwest).

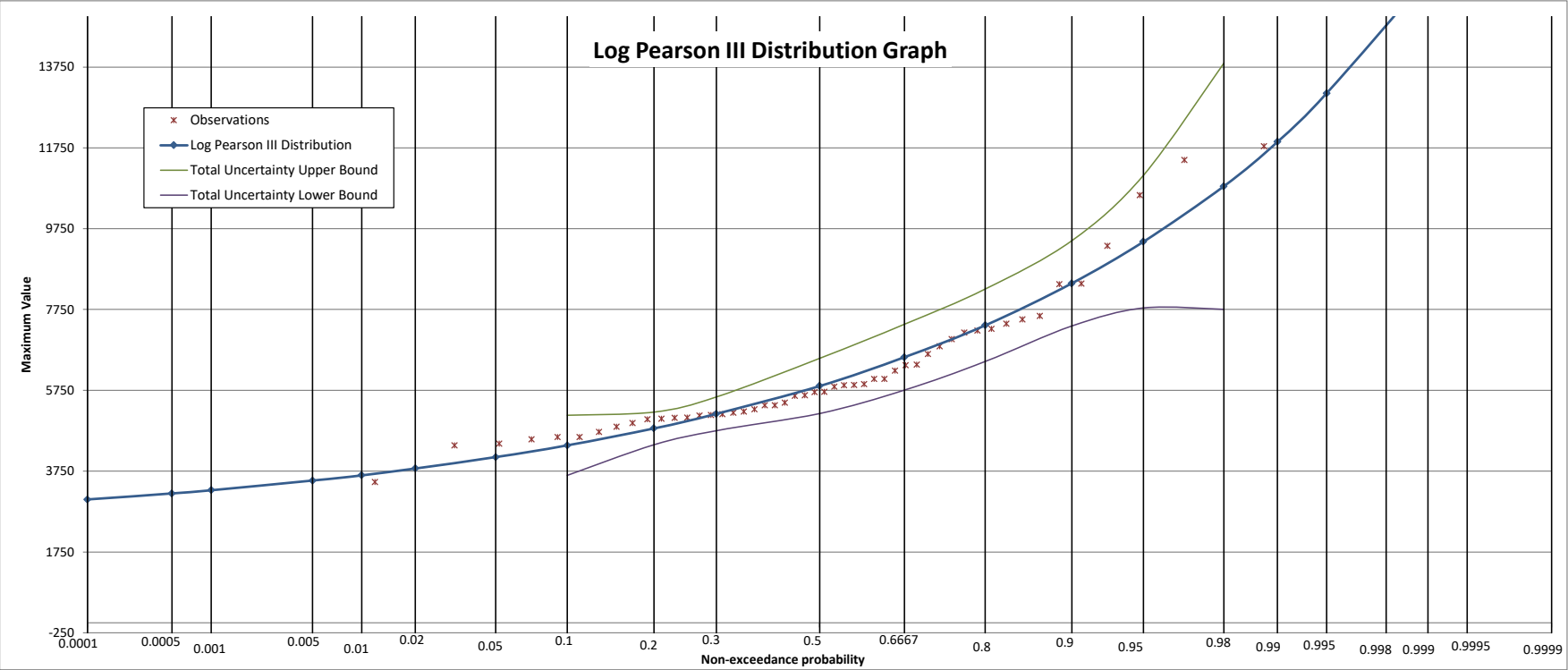
Table 19 – Annual Maximum Volume Detailed in East Pond

Year of Record	Volume Detained (m ³)	Year of Record	Volume Detained (m ³)
1960	6,031	1985	9,326
1961	7,587	1986	5,874
1962	4,433	1987	5,221
1963	6,839	1988	5,614
1964	6,650	1989	4,386
1965	7,400	1990	5,050
1966	6,030	1991	4,944
1967	4,724	1992	5,715
1968	5,163	1993	5,839
1969	7,230	1994	4,537
1970	11,450	1995	5,380
1971	5,141	1996	5,880
1972	7,178	1997	8,373
1973	5,032	1998	8,390
1974	7,268	1999	7,018
1975	5,284	2000	5,066
1976	4,849	2001	5,907
1977	4,593	2002	4,597
1978	6,239	2003	6,371
1979	5,444	2004	5,705
1980	5,073	2005	10,580
1981	7,505	2006	5,627
1982	5,193	2007	11,790
1983	6,384	2008	5,378
1984	3,482	2009	5,122



Summary Sheet								
Initial Statistical Tests:				Project Information				
Tests for Stationarity								
Test		Result			Project Name:			
Spearman Rank Order Correlation Coefficient		No Significant Trend at 0.05 Significance Level			Appin East Pond			
Mann-Whitney Test for jump (a.k.a. Mann-Whitney U test)		No Jump at 0.05 Significance Level			Project Description:			
Wald-Wolfowitz Test (The runs test)		No Jump at 0.05 Significance Level						
Tests for Homogeneity								
Test		Result			Location:			
Mann-Whitney Test for jump (a.k.a. Mann-Whitney U test)		Sample is Homogeneous at 0.05 Significance Level			Adjacent Rge Rd 1.0, Mountain View County			
Terry Test		Sample is Homogeneous at 0.05 Significance Level						
Tests for Independence				Date:				
Test		Result			2023-01-11			
Spearman Rank Order Correlation Coefficient		Data is independent at 0.05 Significance Level			Designed by:			
Wald-Wolfowitz Test for Independence		Data is independent at 0.05 Significance Level			MAK			
Anderson Test		Data is independent at 0.05 Significance Level			Company Name:			
				Osprey Engineering Inc.				
Test for Outliers				Reviewed by:				
Test		Result			MAK			
Grubbs and Beck Test for Outliers								
Are any high outliers present?		No High Outliers Present						
Are and low outliers present?		No Low Outliers Present						
Numerical Goodness-of-fit Tests Results								
Distribution Type	Numerical Goodness-of-fit Tests from Spreadsheet			Average of Ranks	Ranking from Numerical Tests	Numerical Goodness-of-fit Tests from Hyfran (Input by user)		Notes from Visual Goodness-of-fit Test
	A-D Test	K-S Test	Least Squares Ranking			BIC	AIC	
Normal	7	7	7	7.00	8	895.14	891.316	
Lognormal	6	6	6	6.00	6	880.087	876.263	
Lognormal III	3	3	3	3.00	3	879.886	874.15	
Exponential	9	9	9	9.00	10	900.53	896.706	
Pearson III	1	5	2	2.67	2			
Log Pearson III	2	2	1	1.67	1	879.773	874.037	
Gumbel	5	4	5	4.67	5	878.218	874.394	
GEV	4	1	4	3.00	3	879.473	873.737	
Weibull	8	8	8	8.00	9	901.593	897.769	
Gamma		10	10	6.67	7	885.01	881.186	

Selected Distribution and Results				
Distribution type chosen based on visual and numerical goodness-of-fit tests:		Log Pearson III		
		Instructions: - Based on the results of the numerical and visual goodness-of-fit tests presented above, choose the preferred distribution in the cell on the left		
Return Period	Probability	Magnitude	Total Uncertainty (Upper Bound)	Total Uncertainty (Lower Bound)
10000	0.9999	20700	#N/A	#N/A
2000	0.9995	17300	#N/A	#N/A
1000	0.9990	16000	#N/A	#N/A
500	0.9980	14800	#N/A	#N/A
200	0.9950	13100	#N/A	#N/A
100	0.9900	11900	#N/A	#N/A
50	0.9800	10800	13800	7750
20	0.9500	9430	11100	7790
10	0.9000	8400	9460	7340
5	0.8000	7360	8260	6470
3	0.6667	6570	7380	5760
2	0.5000	5860	6540	5180
1.4286	0.3000	5170	5590	4760
1.25	0.2000	4810	5220	4400
1.1111	0.1000	4390	5130	3650
1.0526	0.0500	4100	#N/A	#N/A
1.0204	0.0200	3820	#N/A	#N/A
1.0101	0.0100	3650	#N/A	#N/A
1.005	0.0050	3520	#N/A	#N/A
1.001	0.0010	3280	#N/A	#N/A
1.0005	0.0005	3200	#N/A	#N/A
1.0001	0.0001	3050	#N/A	#N/A
*Total uncertainty is based on sampling uncertainty at ((95%) Confidence Interval) plus distribution uncertainty of Top 4 distributions (based on numerical goodness of fit tests)				



Errors and Warnings	
Cumulative distribution function warning	If a warning is present, please check if hyfran output results were pasted correctly. If hyfran results were pasted correctly the warning signifies that the Continuous Distribution Function (CDF) used in this workbook does not produce same output values as the input frequency analysis results, which in turn indicates that the numerical goodness-of-fit tests calculated by this spreadsheet for this distribution may be based on inaccurate numbers. Another possible solution would be to use a different method of estimating the CDF parameters for example: method of weighted moments.
No warning	
No warning	
No warning	
No warning	
CDF based on parameters does not match Pearson III distribution	
No warning	
No warning	
No warning	
No warning	

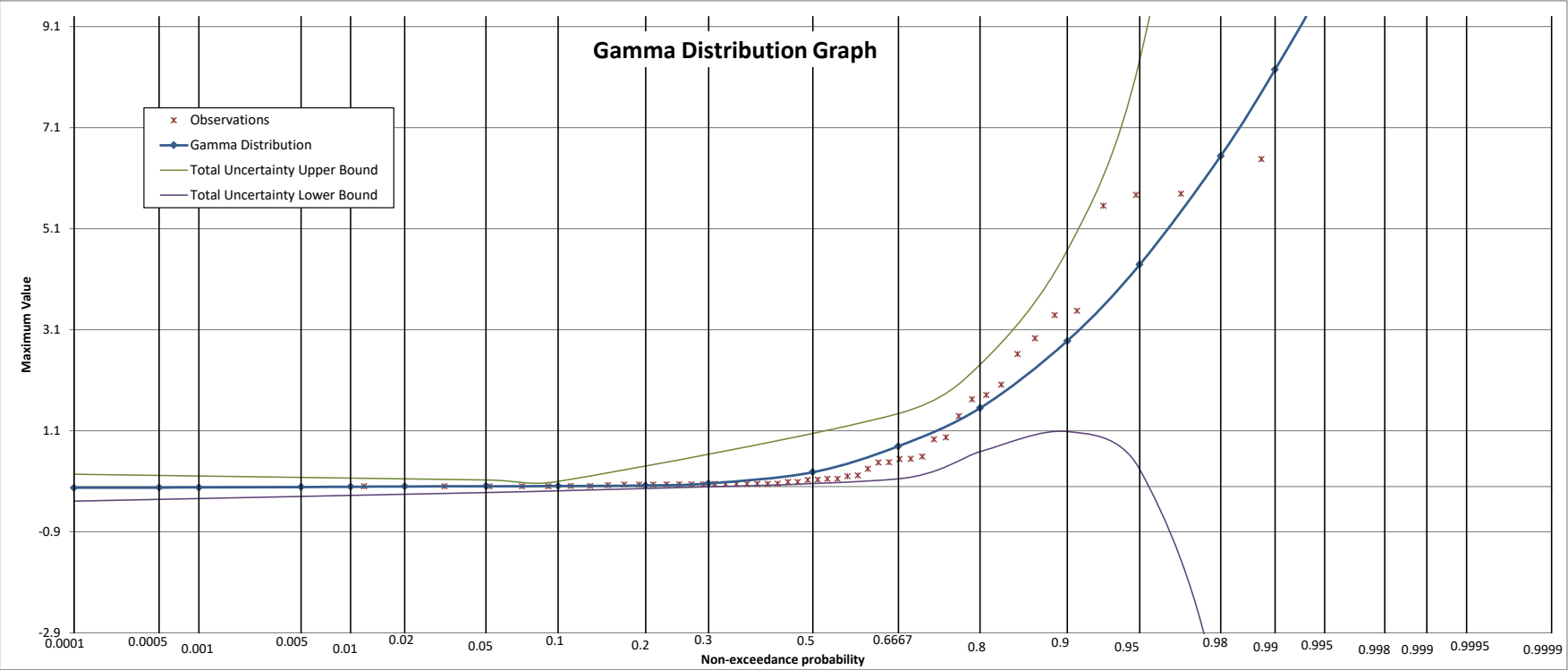
Table 20 – Annual Maximum Volume Detailed in Central Pond

Year of Record	Volume Detained (m ³)	Year of Record	Volume Detained (m ³)
1960	4,065	1985	8,095
1961	5,521	1986	3,968
1962	2,860	1987	3,614
1963	4,913	1988	3,783
1964	4,826	1989	2,668
1965	5,506	1990	3,609
1966	4,134	1991	3,201
1967	2,911	1992	3,897
1968	3,559	1993	4,087
1969	4,960	1994	3,011
1970	9,164	1995	3,594
1971	3,391	1996	3,941
1972	5,340	1997	6,202
1973	3,231	1998	6,058
1974	5,158	1999	4,903
1975	3,469	2000	3,357
1976	3,043	2001	4,285
1977	3,348	2002	3,005
1978	3,963	2003	4,423
1979	3,610	2004	3,909
1980	3,278	2005	8,273
1981	5,382	2006	3,796
1982	3,374	2007	9,102
1983	4,352	2008	3,543
1984	2,482	2009	3,494



Summary Sheet								
Initial Statistical Tests:				Project Information				
Tests for Stationarity								
Test		Result			Project Name:			
Spearman Rank Order Correlation Coefficient		No Significant Trend at 0.05 Significance Level			Appin Existing Flows (Node J001002)			
Mann-Whitney Test for jump (a.k.a. Mann-Whitney U test)		No Jump at 0.05 Significance Level			Project Description: Exisitng modeled annual maximum flows in drainage course N of Twp Rd 294			
Wald-Wolfowitz Test (The runs test)		No Jump at 0.05 Significance Level						
Tests for Homogeneity								
Test		Result			Location:			
Mann-Whitney Test for jump (a.k.a. Mann-Whitney U test)		Sample is Homogeneous at 0.05 Significance Level			1600 CSP culv (d/s end) under Twp Rd 294 W of Rge Rd 10, Mountain View County			
Terry Test		Sample is Homogeneous at 0.05 Significance Level			Date:			
Tests for Independence				2022-01-11				
Test		Result			Designed by:			
Spearman Rank Order Correlation Coefficient		Non-independence Detected at 0.05 Significance Level			MAK			
Wald-Wolfowitz Test for Independence		Data is independent at 0.05 Significance Level			Company Name:			
Anderson Test		Data is independent at 0.05 Significance Level			Osprey Engineering Inc.			
Test for Outliers				Reviewed by:				
Test		Result			MAK			
Grubbs and Beck Test for Outliers								
Are any high outliers present?		No High Outliers Present						
Are and low outliers present?		Low Outlier May Be Present						
Numerical Goodness-of-fit Tests Results								
Distribution Type	Numerical Goodness-of-fit Tests from Spreadsheet			Average of Ranks	Ranking from Numerical Tests	Numerical Goodness-of-fit Tests from Hyfran (Input by user)		Notes from Visual Goodness-of-fit Test
	A-D Test	K-S Test	Least Squares Ranking			BIC	AIC	
Normal	9	5	9	7.67	9	203.028	199.204	
Lognormal	3	3	10	5.33	4	36.694	32.87	
Lognormal III	5	8	5	6.00	5	169.021	163.285	
Exponential	10	10	8	9.33	10	108.95	105.126	
Pearson III	6	9	3	6.00	5	164.326	158.59	
Log Pearson III	1	1	4	2.00	2	37.112	31.376	
Gumbel	8	7	7	7.33	8	178.307	174.483	
GEV	7	6	6	6.33	7	171.164	165.428	
Weibull	4	4	2	3.33	3	36.002	32.178	
Gamma	2	2	1	1.67	1	25.834	22.01	

Selected Distribution and Results					Instructions:
Distribution type chosen based on visual and numerical goodness-of-fit tests:		Gamma			- Based on the results of the numerical and visual goodness-of-fit tests presented above, choose the preferred distribution in the cell on the left
Return Period	Probability	Magnitude	Total Uncertainty (Upper Bound)	Total Uncertainty (Lower Bound)	
10000	0.9999	20.5	1390	-1340	
2000	0.9995	16.1	383	-351	
1000	0.9990	14.2	215	-186	
500	0.9980	12	149	-124	
200	0.9950	10	54.8	-34.8	
100	0.9900	8.25	30.6	-14.1	
50	0.9800	6.54	17.5	-4.41	
20	0.9500	4.39	8.44	0.337	
10	0.9000	2.88	4.68	1.09	
5	0.8000	1.55	2.41	0.688	
3	0.6667	0.796	1.44	0.151	
2	0.5000	0.281	#N/A	#N/A	
1.4286	0.3000	0.0569	#N/A	#N/A	
1.25	0.2000	0.0182	#N/A	#N/A	
1.1111	0.1000	0.0061	0.0994	-0.0872	
1.0526	0.0500	0.00367	0.128	-0.121	
1.0204	0.0200	-0.00117	#N/A	#N/A	
1.0101	0.0100	-0.00599	#N/A	#N/A	
1.005	0.0050	-0.0112	#N/A	#N/A	
1.001	0.0010	-0.0199	#N/A	#N/A	
1.0005	0.0005	-0.0227	#N/A	#N/A	
1.0001	0.0001	-0.0254	0.239	-0.29	
*Total uncertainty is based on sampling uncertainty at ((95%) Confidence Interval) plus distribution uncertainty of Top 4 distributions (based on numerical goodness of fit tests)					



Errors and Warnings	
Cumulative distribution function warning	If a warning is present, please check if hyfran output results were pasted correctly. If hyfran results were pasted correctly the warning signifies that the Continuous Distribution Function (CDF) used in this workbook does not produce same output values as the input frequency analysis results, which in turn indicates that the numerical goodness-of-fit tests calculated by this spreadsheet for this distribution may be based on inaccurate numbers. Another possible solution would be to use a different method of estimating the CDF parameters for example: method of weighted moments.
No warning	
No warning	
No warning	
No warning	
CDF based on parameters does not match Pearson III distribution	
CDF based on parameters does not match Log Pearson III distribution	
No warning	
No warning	
No warning	
No warning	

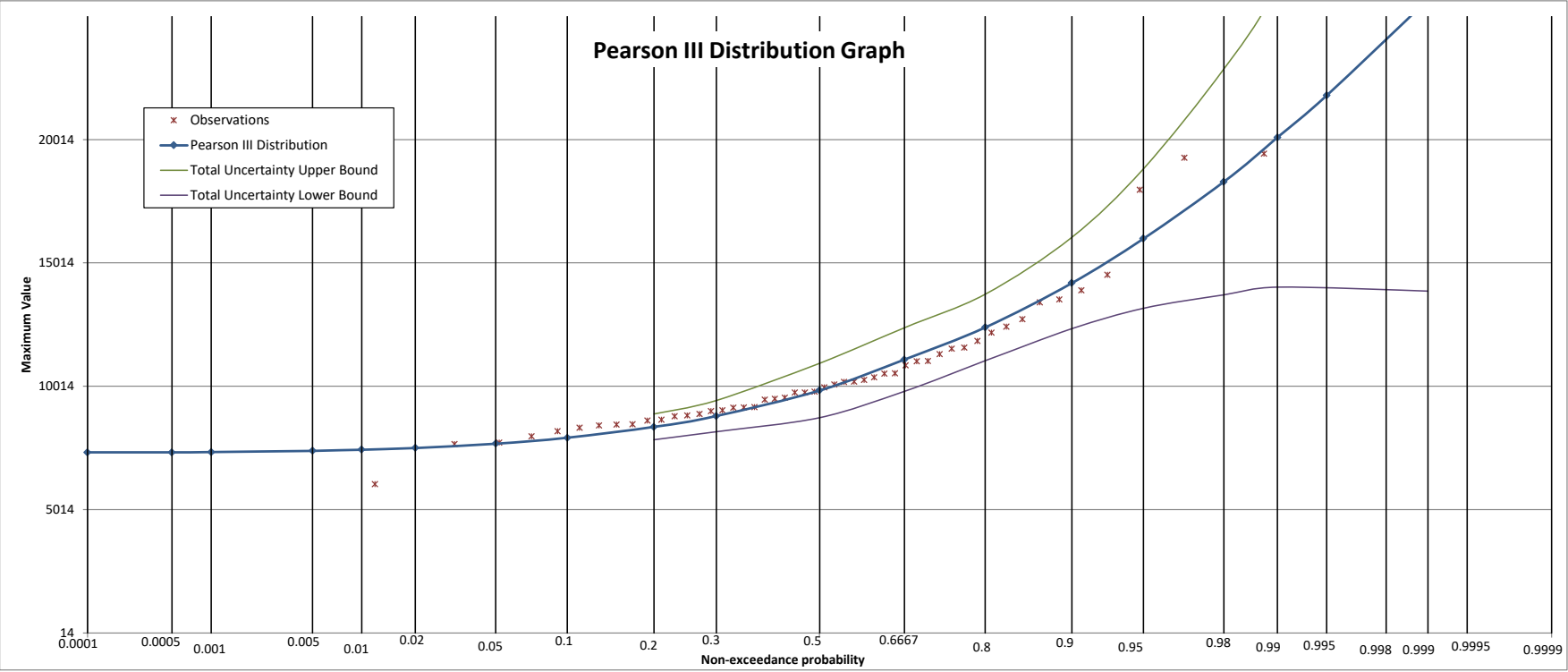
Table 21 – Annual Maximum Volume Detailed in West Pond

Year of Record	Volume Detained (m ³)	Year of Record	Volume Detained (m ³)
1960	10,530	1985	13,530
1961	13,420	1986	10,190
1962	7,668	1987	8,627
1963	11,040	1988	9,761
1964	11,580	1989	7,981
1965	12,730	1990	8,425
1966	10,080	1991	8,794
1967	8,658	1992	9,556
1968	8,830	1993	10,200
1969	12,430	1994	7,728
1970	19,280	1995	8,457
1971	8,888	1996	10,380
1972	11,530	1997	13,900
1973	9,042	1998	14,530
1974	12,180	1999	11,020
1975	9,465	2000	9,007
1976	8,338	2001	10,270
1977	8,467	2002	8,196
1978	10,540	2003	11,320
1979	9,756	2004	9,800
1980	9,145	2005	17,980
1981	11,850	2006	9,974
1982	9,161	2007	19,440
1983	10,860	2008	9,503
1984	6,043	2009	9,168



Summary Sheet								
Initial Statistical Tests:				Project Information				
Tests for Stationarity								
Test		Result			Project Name:			
Spearman Rank Order Correlation Coefficient		No Significant Trend at 0.05 Significance Level			Appin Central Pond			
Mann-Whitney Test for jump (a.k.a. Mann-Whitney U test)		No Jump at 0.05 Significance Level			Project Description: Wet pond serving west portion of Appin			
Wald-Wolfowitz Test (The runs test)		No Jump at 0.05 Significance Level						
Tests for Homogeneity								
Test		Result			Location:			
Mann-Whitney Test for jump (a.k.a. Mann-Whitney U test)		Sample is Homogeneous at 0.05 Significance Level			Appin, W side of creek, Mountain View County			
Terry Test		Sample is Homogeneous at 0.05 Significance Level						
Tests for Independence				Date:				
Test		Result			2023-01-16			
Spearman Rank Order Correlation Coefficient		Data is independent at 0.05 Significance Level			Designed by:			
Wald-Wolfowitz Test for Independence		Data is independent at 0.05 Significance Level			MAK			
Anderson Test		Data is independent at 0.05 Significance Level			Company Name:			
				Osprey Engineering Inc.				
Test for Outliers				Reviewed by:				
Test		Result			MAK			
Grubbs and Beck Test for Outliers								
Are any high outliers present?		No High Outliers Present						
Are and low outliers present?		No Low Outliers Present						
Numerical Goodness-of-fit Tests Results								
Distribution Type	Numerical Goodness-of-fit Tests from Spreadsheet			Average of Ranks	Ranking from Numerical Tests	Numerical Goodness-of-fit Tests from Hyfran (Input by user)		Notes from Visual Goodness-of-fit Test
	A-D Test	K-S Test	Least Squares Ranking			BIC	AIC	
Normal	8	8	8	8.00	8	940.546	936.722	
Lognormal	5	5	6	5.33	6	925.969	922.145	
Lognormal III	3	3	3	3.00	4	928.353	922.617	
Exponential	10	10	10	10.00	10	951.956	948.132	
Pearson III	1	4	2	2.33	1			
Log Pearson III	6	1	1	2.67	2	926.361	920.625	
Gumbel	4	6	5	5.00	5	923.527	919.703	
GEV	2	2	4	2.67	2	924.998	919.262	
Weibull	9	9	9	9.00	9	950.389	946.564	
Gamma	7	7	7	7.00	7	930.777	926.953	

Selected Distribution and Results				
Distribution type chosen based on visual and numerical goodness-of-fit tests:		Pearson III		Instructions:
				- Based on the results of the numerical and visual goodness-of-fit tests presented above, choose the preferred distribution in the cell on the left
Return Period	Probability	Magnitude	Total Uncertainty (Upper Bound)	Total Uncertainty (Lower Bound)
10000	0.9999	31300	#N/A	#N/A
2000	0.9995	27400	#N/A	#N/A
1000	0.9990	25700	37500	13900
500	0.9980	24100	34200	14000
200	0.9950	21800	29500	14100
100	0.9900	20100	26200	14000
50	0.9800	18300	22900	13700
20	0.9500	16000	18800	13200
10	0.9000	14200	16100	12400
5	0.8000	12400	13800	11100
3	0.6667	11100	12400	9810
2	0.5000	9850	11000	8750
1.4286	0.3000	8810	9440	8180
1.25	0.2000	8370	8890	7850
1.1111	0.1000	7930	#N/A	#N/A
1.0526	0.0500	7690	#N/A	#N/A
1.0204	0.0200	7520	#N/A	#N/A
1.0101	0.0100	7450	#N/A	#N/A
1.005	0.0050	7400	#N/A	#N/A
1.001	0.0010	7350	#N/A	#N/A
1.0005	0.0005	7340	#N/A	#N/A
1.0001	0.0001	7340	#N/A	#N/A
*Total uncertainty is based on sampling uncertainty at ((95%) Confidence Interval) plus distribution uncertainty of Top 4 distributions (based on numerical goodness of fit tests)				



Errors and Warnings	
Cumulative distribution function warning	If a warning is present, please check if hyfran output results were pasted correctly. If hyfran results were pasted correctly the warning signifies that the Continuous Distribution Function (CDF) used in this workbook does not produce same output values as the input frequency analysis results, which in turn indicates that the numerical goodness-of-fit tests calculated by this spreadsheet for this distribution may be based on inaccurate numbers. Another possible solution would be to use a different method of estimating the CDF parameters for example: method of weighted moments.
No warning	
No warning	
No warning	
No warning	
CDF based on parameters does not match Pearson III distribution	
No warning	
No warning	
No warning	
No warning	

APPENDIX E – MODEL FILES

The following pages contain the report files for the SWMM5 models of each scenario considered. Input files were truncated to remove data tables (e.g. object vertices) not pertinent to the design. Text files and ESRI shapefiles can be provided if requested by the municipality.

Table 22 – SWMM Model Input and Output

Model Name	Scenario	Pages
200583-1 - CONT	Predevelopment runoff from entire catchment upstream of Rge Rd 294	Input: 17 pp Report: 22 pp
200583-3 – CONT - WQ	Post-development model of proposed subdivision including ponds. Continuous model with water quality analysis	Input: 8 pp Report: 4 pp
200583-3 - 100	Post-development model of proposed subdivision including ponds. 100-year, 24-hour design storm	Input: 10 pp Report: 4 pp



[TITLE]
;;Project Title/Notes
Appin Postdev Model - Continuous

[OPTIONS]
;;Option Value
FLOW_UNITS CMS
INFILTRATION MODIFIED_GREEN_AMPT
FLOW_ROUTING DYNWAVE
LINK_OFFSETS DEPTH
MIN_SLOPE 0
ALLOW_PONDING NO
SKIP_STEADY_STATE NO

START_DATE 01/01/1960
START_TIME 00:00:00
REPORT_START_DATE 01/01/1960
REPORT_START_TIME 00:00:00
END_DATE 01/01/2010
END_TIME 00:00:00
SWEEP_START 01/01
SWEEP_END 12/31
DRY_DAYS 0
REPORT_STEP 01:00:00
WET_STEP 00:05:00
DRY_STEP 00:05:00
ROUTING_STEP 60
RULE_STEP 00:00:00

INERTIAL_DAMPING PARTIAL
NORMAL_FLOW_LIMITED BOTH
FORCE_MAIN_EQUATION H-W
VARIABLE_STEP 0.75
LENGTHENING_STEP 0
MIN_SURFAREA 0
MAX_TRIALS 8
HEAD_TOLERANCE 0.0015
SYS_FLOW_TOL 5
LAT_FLOW_TOL 5
MINIMUM_STEP 0.5
THREADS 8

[EVAPORATION]
;;Data Source Parameters
;;-----
TEMPERATURE
DRY_ONLY NO

[TEMPERATURE]
FILE "D:\Data\SWMM\Climate Data\Calgary Approved Data\Final_Hour_Temperature_Data SWMM Daily MinMax.txt"
WINDSPEED MONTHLY 14.8 14.6 15 16.5 16.6 15.6 14 13.2 14.1 14.6 13.7 14.9
SNOWMELT 2 0.5 0.6 0.0 51.5 36
ADC IMPERVIOUS 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
ADC PERVIOUS 0.10 0.35 0.53 0.66 0.75 0.82 0.87 0.92 0.95 0.98

[RAINGAGES]
;;Name Format Interval SCF Source
;;-----
Raingage1 INTENSITY 1:00 1.0 FILE "D:\Data\SWMM\Climate Data\Calgary Approved Data\Final_Hour_Precip_Data HLY03.txt" 3031093 MM

[SUBCATCHMENTS]
;;Name Rain Gage Outlet Area %Imperv width %Slope CurbLen SnowPack
;;-----
S001003_1 Raingage1 SU001003 2.424988 8.247 29.014 5.525 0
S001003_2 Raingage1 SU001003 18.2578 2.404 586.18 8.46 0
S001003_3 Raingage1 SU001003 44.1114 2.627 597.762 3.582 0
S001003_4 Raingage1 SU001003 24.2439 2.102 280.667 3.61 0
S001004_1 Raingage1 J001004 19.2 2.309 432.772 8.256 0
S001004_2 Raingage1 J001004 23.4964 2 279.096 2.833 0
S001005 Raingage1 J001005 5.596 3.483 351.221 5.798 0
S001006 Raingage1 J001006 7.2881 2 344.88 6.669 0
S001007_1 Raingage1 J001007 53.8788 2 721.919 2.819 0
S001007_2 Raingage1 J001007 3.6666 2 198.082 4.837 0
S001008 Raingage1 J001008 4.3838 5.687 292.337 4.963 0
S001009 Raingage1 J001009 24.2794 3.696 798.063 3.572 0
S001010 Raingage1 J001010 6.6383 2 300.937 3.175 0
S001011 Raingage1 J001011 49.0251 2 587.764 2.725 0
S001012 Raingage1 J001012 17.3581 2 325.956 2.737 0
S001013 Raingage1 J001013 26.9255 2.837 459.313 2.576 0
S001014_1 Raingage1 J001014 18.2103 2 499.582 3.149 0
S001014_2 Raingage1 J001014 40.0421 2.936 651.204 3.014 0
S001015_1 Raingage1 J001015 15.1984 3.513 295.746 3.008 0
S001015_2 Raingage1 J001015 36.0082 2.57 758.823 2.82 0
S001015_3 Raingage1 J001015 43.7584 3.699 558.833 4.123 0
S001015_4 Raingage1 J001015 44.7305 2.76 670.817 3.396 0
S002001_1 Raingage1 J002001 55.2954 3.161 691.809 3.084 0
S002001_2 Raingage1 J002001 63.0165 3.227 577.996 2.902 0
S003001 Raingage1 J003001 25.8158 2.644 761.041 3.18 0
S003002_1 Raingage1 J003002 44.9487 4.007 1013.335 5.044 0
S003002_2 Raingage1 J003002 39.8076 7.856 703.287 6.372 0
S003005 Raingage1 J003005 7.5856 49.998 249.18 16.271 0
S003006 Raingage1 J003006 6.3676 48.134 84.548 10.519 0
S003007 Raingage1 S003007 19.0628 4.354 484.215 3.502 0
S003008_1 Raingage1 J003008 24.6716 2 337.422 9.146 0
S003008_2 Raingage1 J003008 27.1786 4.052 838.91 4.207 0
S003009_1 Raingage1 J003009 26.5313 2.227 557.465 3.517 0
S003009_2 Raingage1 J003009 25.894 3.808 845.008 4.198 0
S003010 Raingage1 J003010 39.0911 2.481 660.888 3.693 0
S003011 Raingage1 J003011 19.8505 2.956 437.446 3.188 0
S003012 Raingage1 S003012 41.4556 12.53 895.383 8.13 0
S003013_1 Raingage1 SU003013 44.6001 14.638 437.79 9.8 0
S003013_2 Raingage1 SU003013 50.4066 2.02 847.701 9.673 0
S003013_3 Raingage1 SU003013 49.5439 11 643.157 8.869 0
S003013_4 Raingage1 SU003013 26.164 3.211 299.556 5.248 0
S004002 Raingage1 J004002 2.3344 13.691 248.769 23.346 0
S004005_1 Raingage1 J004005 24.8637 2.699 340.551 3.851 0
S004005_2 Raingage1 J004005 18.6832 9.561 939.463 7.793 0
S004006_1 Raingage1 J004006 4.433374 31.6 245.842 12.045 0
S004006_2 Raingage1 J004006 7.106526 2 394.076 12.045 0
S004006_3 Raingage1 J004006 53.0689 2.205 555.94 3.483 0
S004006_4 Raingage1 J004006 38.3028 2 668.292 3.983 0
S004008_1 Raingage1 J004008 2.0304 50 56.845 42.865 0
S004008_2 Raingage1 J004008 1.7438 50 93.516 10.476 0
S004009 Raingage1 SU004009 7.4973 44.54 209.901 42.865 0
S004010_1 Raingage1 SU004010 21.9821 5.094 65.306 5.309 0
S004010_2 Raingage1 SU004010 18.3081 2.005 345.57 3.168 0
S004010_3 Raingage1 SU004010 24.6414 4.701 353.942 4.101 0
S004011 Raingage1 J004011 32.6146 2 773.136 7.631 0
S004012_1 Raingage1 J004012 17.9058 2.572 316.575 6.496 0
S004012_2 Raingage1 J004012 22.6297 2.544 486.445 10.581 0
S004013_1 Raingage1 J004013 27.3314 2.548 259.964 3.057 0

S004013_2	Raingage1	J004013	29.6334	2.274	331.421	2.947	0
S004013_3	Raingage1	J004013	28.3437	2.319	259.967	3.488	0
S005003	Raingage1	J005003	9.4476	33.389	125.443	10.519	0
S006001	Raingage1	J006001	17.6482	2.645	268.015	7.167	0
S006002_1	Raingage1	J006002	16.8284	2	236.224	6.354	0
S006002_2	Raingage1	J006002	46.4162	4.921	415.034	4.853	0
S007001_1	Raingage1	J007001	22.7788	36.038	841.621	14.99	0
S007001_2	Raingage1	J007001	27.9407	35.431	726.746	7.101	0
S007003	Raingage1	Su007003	49.5471	8.036	661.937	6.948	0
S007005	Raingage1	Su007005	31.2238	8.036	417.142	6.948	0
S007006_1	Raingage1	Su007006	11.045	2	256.077	6.472	0
S007006_2	Raingage1	Su007006	32.6853	2	1138.829	10.488	0
S007006_3	Raingage1	Su007006	51.5764	2	519.264	5.036	0
S007006_4	Raingage1	Su007006	31.1131	2	360.049	5.971	0
S007007_1	Raingage1	J007007	13.492	8.894	538.143	9.562	0
S007007_2	Raingage1	J007007	34.5152	2	539.674	10.683	0
S007007_3	Raingage1	J007007	27.2742	2	530.514	9.031	0
S007008_1	Raingage1	J007008	37.5347	2	438.086	2.765	0
S007008_2	Raingage1	J007008	16.0341	2	354.306	3.815	0
S007008_3	Raingage1	J007008	31.5584	2	395.482	3.154	0
S008001_1	Raingage1	J008001	39.5107	2.482	739	5.663	0
S008001_2	Raingage1	J008001	27.8635	3.105	451.156	5.712	0
S008001_3	Raingage1	J008001	20.0428	4.364	403.475	10.487	0
S009002	Raingage1	J009002	4.8186	28.871	290.785	8.81	0
S009004	Raingage1	S009004	19.8879	4.507	208.818	9.083	0
S009005	Raingage1	S009005	6.2299	3.332	65.412	9.083	0
S009006	Raingage1	S009006	18.4009	2.456	193.205	9.083	0
S009007	Raingage1	J009007	13.5258	4.331	142.027	9.083	0
S009008_1	Raingage1	Su009008	2.2071	8.049	102.662	6.752	0
S009008_2	Raingage1	Su009008	43.7054	4.486	464.458	4.163	0
S009008_3	Raingage1	Su009008	10.1317	3.194	471.273	6.752	0
S009009	Raingage1	J009009	23.1274	3.82	370.536	4.895	0
S009010_1	Raingage1	J009010	23.6773	2.561	285.468	3.569	0
S009010_2	Raingage1	J009010	20.1006	2.013	594.06	4.699	0
S009011	Raingage1	J009011	18.706	4.175	448.776	2.752	0
S009012	Raingage1	J009012	33.598	2.213	848.912	2.493	0
S010002	Raingage1	J010002	42.6471	49.258	388.955	5.365	0
S011001_1	Raingage1	Su011001	34.3652	18.171	553.189	4.88	0
S011001_2	Raingage1	Su011001	33.6829	15.733	829.071	7.987	0
S011002_1	Raingage1	Su011002	56.2812	2.706	648.502	9.139	0
S011002_2	Raingage1	Su011002	31.8334	2.247	596.482	8.097	0
S012002_1	Raingage1	Su012002	36.48323	4.498	310.615	4.226	0
S012002_2	Raingage1	Su012002	20.085164	28.283	809.491	11.569	0
S012002_3	Raingage1	Su012002	31.5376	9.866	749.862	3.541	0
S013001	Raingage1	OF013001	17.371103	5.132	252.834	6.248	0

[SUBAREAS]							
:::Subcatchment	N-Imperv	N-Perv	S-Imperv	S-Perv	PctZero	RouteTo	PctRouted
S001003_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001003_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001003_3	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001003_4	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001004_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001004_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001005	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001006	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001007_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001007_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001008	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001009	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001010	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001011	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001012	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001013	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001014_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001014_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001015_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001015_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001015_3	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S001015_4	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S002001_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S002001_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S003001	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S003002_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S003002_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S003005	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S003006	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S003007	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S003008_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S003008_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S003009_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S003009_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S003010	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S003011	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S003012	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S003013_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S003013_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S003013_3	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S003013_4	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S004002	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S004005_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S004005_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S004006_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S004006_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S004006_3	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S004006_4	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S004008_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S004008_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S004009	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S004010_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S004010_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S004010_3	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S004011	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S004012_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S004012_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S004013_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S004013_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S004013_3	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S005003	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S006001	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S006002_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S006002_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S007001_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S007001_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S007003	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S007005	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S007006_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S007006_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S007006_3	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S007006_4	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S007007_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100

S007007_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S007007_3	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S007008_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S007008_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S007008_3	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S008001_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S008001_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S008001_3	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S009002	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S009004	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S009005	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S009006	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S009007	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S009008_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S009008_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S009008_3	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S009009	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S009010_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S009010_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S009011	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S009012	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S010002	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S011001_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S011001_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S011002_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S011002_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S012002_1	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S012002_2	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S012002_3	0.015	0.25	1.6	7.5	0	PERVIOUS	100
S013001	0.015	0.25	1.6	7.5	0	PERVIOUS	100

[INFILTRATION]

::Subcatchment	Param1	Param2	Param3	Param4	Param5
S001003_1	109.605	2.907	0.298	0	0
S001003_2	162.349	1.904	0.267	0	0
S001003_3	176.497	5.322	0.302	0	0
S001003_4	178.496	4.92	0.296	0	0
S001004_1	188.864	3.673	0.278	0	0
S001004_2	179.747	4.888	0.295	0	0
S001005	166.878	6.604	0.32	0	0
S001006	166.878	6.604	0.32	0	0
S001007_1	166.878	6.604	0.32	0	0
S001007_2	166.878	6.604	0.32	0	0
S001008	166.878	6.604	0.32	0	0
S001009	166.878	6.604	0.32	0	0
S001010	166.878	6.604	0.32	0	0
S001011	166.878	6.604	0.32	0	0
S001012	166.878	6.604	0.32	0	0
S001013	166.878	6.604	0.32	0	0
S001014_1	166.878	6.604	0.32	0	0
S001014_2	176.676	5.298	0.301	0	0
S001015_1	166.878	6.604	0.32	0	0
S001015_2	208.758	1.02	0.24	0	0
S001015_3	187.974	3.791	0.28	0	0
S001015_4	174.344	5.609	0.306	0	0
S002001_1	166.878	6.604	0.32	0	0
S002001_2	166.878	6.604	0.32	0	0
S003001	198.315	2.412	0.26	0	0
S003002_1	161.596	4.658	0.299	0	0
S003002_2	166.878	6.604	0.32	0	0
S003005	166.878	6.604	0.32	0	0
S003006	166.878	6.604	0.32	0	0
S003007	166.878	6.604	0.32	0	0
S003008_1	188.061	3.78	0.28	0	0
S003008_2	177.749	5.155	0.299	0	0
S003009_1	196.385	1.396	0.249	0	0
S003009_2	192.066	2.793	0.267	0	0
S003010	208.788	1.016	0.24	0	0
S003011	169.531	1.765	0.263	0	0
S003012	119.856	2.712	0.292	0	0
S003013_1	117.669	2.753	0.293	0	0
S003013_2	160.409	1.938	0.268	0	0
S003013_3	142.288	2.284	0.279	0	0
S003013_4	208.11	1.029	0.24	0	0
S004002	115.879	4.444	0.313	0	0
S004005_1	187.252	1.427	0.253	0	0
S004005_2	111.848	3.604	0.305	0	0
S004006_1	134.093	5.216	0.316	0	0
S004006_2	110.692	2.886	0.297	0	0
S004006_3	174.93	1.669	0.26	0	0
S004006_4	102.07	3.239	0.304	0	0
S004008_1	166.878	6.604	0.32	0	0
S004008_2	166.878	6.604	0.32	0	0
S004009	166.878	6.604	0.32	0	0
S004010_1	166.878	6.604	0.32	0	0
S004010_2	166.878	6.604	0.32	0	0
S004010_3	166.878	6.604	0.32	0	0
S004011	172.766	5.819	0.309	0	0
S004012_1	183.743	4.355	0.288	0	0
S004012_2	166.878	6.604	0.32	0	0
S004013_1	208.3	1.081	0.241	0	0
S004013_2	203.772	1.685	0.25	0	0
S004013_3	194.325	2.944	0.268	0	0
S005003	166.878	6.604	0.32	0	0
S006001	166.878	6.604	0.32	0	0
S006002_1	166.878	6.604	0.32	0	0
S006002_2	166.878	6.604	0.32	0	0
S007001_1	143.417	5.611	0.317	0	0
S007001_2	166.878	6.604	0.32	0	0
S007003	118.829	3.838	0.305	0	0
S007005	118.829	3.838	0.305	0	0
S007006_1	140.586	2.316	0.28	0	0
S007006_2	116.702	2.772	0.294	0	0
S007006_3	196.054	1.259	0.247	0	0
S007006_4	208.101	1.029	0.24	0	0
S007007_1	118.6	2.736	0.293	0	0
S007007_2	192.013	1.336	0.25	0	0
S007007_3	158.655	1.972	0.269	0	0
S007008_1	208.788	1.016	0.24	0	0
S007008_2	208.788	1.016	0.24	0	0
S007008_3	208.788	1.016	0.24	0	0
S008001_1	135.732	4.496	0.307	0	0
S008001_2	193.321	2.983	0.268	0	0
S008001_3	182.708	4.493	0.29	0	0
S009002	166.878	6.604	0.32	0	0
S009004	166.878	6.604	0.32	0	0
S009005	170.095	6.175	0.314	0	0
S009006	208.327	1.077	0.241	0	0
S009007	208.788	1.016	0.24	0	0
S009008_1	208.788	1.016	0.24	0	0
S009008_2	208.788	1.016	0.24	0	0

S009008_3	208.788	1.016	0.24	0	0
S009009	208.788	1.016	0.24	0	0
S009010_1	208.788	1.016	0.24	0	0
S009010_2	208.788	1.016	0.24	0	0
S009011	208.788	1.016	0.24	0	0
S009012	208.788	1.016	0.24	0	0
S010002	155.205	6.028	0.318	0	0
S011001_1	158.286	1.979	0.269	0	0
S011001_2	119.937	2.71	0.292	0	0
S011002_1	128.505	2.547	0.287	0	0
S011002_2	160.877	1.93	0.268	0	0
S012002_1	207.8	1.035	0.241	0	0
S012002_2	104.117	3.012	0.301	0	0
S012002_3	177.123	1.62	0.258	0	0
S013001	206.548	1.315	0.244	0	0

[SNOWPACKS]

;;Name	Surface	Parameters						
Snowpack1	PLOWABLE	0.05	0.3	0.0	0.10	0.00	0.00	0.0
Snowpack1	IMPERVIOUS	0.05	0.3	0.0	0.10	0.00	0.00	25.4
Snowpack1	PERVIOUS	0.05	0.3	0.0	0.10	0.00	0.00	25.4
Snowpack1	REMOVAL	25.4	0.0	0.0	0.0	0.0	0.0	

[JUNCTIONS]

;;Name	Elevation	MaxDepth	InitDepth	SurDepth	Aponded
J001002	1011.577	2	0	0	0
J001004	1020.347	1	0	0	0
J001005	1027.069	1	0	0	0
J001006	1027.465	1	0	0	0
J001007	1028.665	1	0	0	0
J001008	1028.975	1	0	0	0
J001009	1029.869	1	0	0	0
J001010	1031.122	1	0	0	0
J001011	1033.251	1	0	0	0
J001012	1034.401	1	0	0	0
J001013	1034.83	1	0	0	0
J001014	1035.716	1	0	0	0
J001015	1050.406	1	0	0	0
J002001	1037.631	1	0	0	0
J003001	1037.424	1	0	0	0
J003002	1038.413	1	0	0	0
J003003	1041.9	0.299	0	0	0
J003004	1042.087	2	0	0	0
J003005	1042.222	2	0	0	0
J003006	1042.702	2	0	0	0
J003008	1051.9	1	0	0	0
J003009	1056.141	1	0	0	0
J003010	1060.18	1	0	0	0
J003011	1064.682	1	0	0	0
J004001	1039.127	2	0	0	0
J004002	1038.954	2	0	0	0
J004003	1039.626	2	0	0	0
J004004	1040.223	2	0	0	0
J004005	1039.908	2	0	0	0
J004006	1040.039	2	0	0	0
J004007	1040.361	2	0	0	0
J004008	1040.418	2	0	0	0
J004011	1053.228	1	0	0	0
J004012	1067.88	1	0	0	0
J004013	1086.629	1	0	0	0
J005001	1042.159	2	0	0	0
J005002	1042.297	2	0	0	0
J005003	1043.297	2	0	0	0
J006001	1043.848	1	0	0	0
J006002	1044.791	1	0	0	0
J007001	1044.557	1	0	0	0
J007002	1047.3	1	0	0	0
J007004	1048.2	2	0	0	0
J007007	1056.29	1	0	0	0
J007008	1094.431	1	0	0	0
J008001	1057.679	1	0	0	0
J009001	1040.203	2	0	0	0
J009002	1043.125	2	0	0	0
J009003	1044.958	2	0	0	0
J009007	1077.935	1	0	0	0
J009009	1087.842	1	0	0	0
J009010	1090.177	1	0	0	0
J009011	1109.526	1	0	0	0
J009012	1122.389	1	0	0	0
J010001	1045.309	1	0	0	0
J010002	1045.484	2	0	0	0
J012001	1045.16	1	0	0	0

[OUTFALLS]

;;Name	Elevation	Type	Stage Data	Gated	Route To
OF001001	1002.189	FREE		NO	
OF013001	0	FREE		NO	

[STORAGE]

;;Name	Elev.	MaxDepth	InitDepth	Shape	Curve	Name/Params	N/A	Fevap	Psi	Ksat	IMD
SU001003	1011.751	8	0	FUNCTIONAL	3000	0	0	0	1		
SU003007	1043.023	1	0	FUNCTIONAL	47000	0	0	0	1		
SU003012	1065.372	3	1	FUNCTIONAL	40700	0	0	0	1		
SU003013	1071.612	3	1	FUNCTIONAL	104000	0	0	0	1		
SU004009	1041.218	2	0	FUNCTIONAL	7000	0	0	0	1		
SU004010	1042.407	2	0	FUNCTIONAL	7000	0	0	0	1		
SU007003	1047.3	3	1	FUNCTIONAL	162000	0	0	0	1		
SU007005	1049.972	3	1	FUNCTIONAL	12300	0	0	0	1		
SU007006	1051.049	3	0	FUNCTIONAL	4000	0	0	0	1		
SU009004	1045.165	2	0	FUNCTIONAL	1000	0	0	0	1		
SU009005	1061.8	3	1	FUNCTIONAL	6000	0	0	0	1		
SU009006	1063.2	3	0	FUNCTIONAL	7000	0	0	0	1		
SU009008	1084.4	2.5	0	FUNCTIONAL	3300	0	0	0	1		
SU011001	1056.179	2	0	FUNCTIONAL	85000	0	0	0	1		
SU011002	1057.5	1.5	0	FUNCTIONAL	21000	0	0	0	1		
SU012002	1045.1	1	0	FUNCTIONAL	90000	0	0	0	1		

[CONDUITS]

;;Name	From Node	To Node	Length	Roughness	InOffset	OutOffset	InitFlow	MaxFlow
C001002	J001002	OF001001	1153.685	0.03	0	0	0	0
C001003	SU001003	J001002	35.25	0.024	0	0	0	0
C001004	J001004	SU001003	663.826	0.03	0	0	0	0
C001005	J001005	J001004	877.777	0.03	0	0	0	0
C001006	J001006	J001005	139.145	0.03	0	0	0	0
C001007	J001007	J001006	275.346	0.03	0	0	0	0
C001008	J001008	J001007	76.143	0.03	0	0	0	0
C001009	J001009	J001008	98.816	0.03	0	0	0	0

C001010	J001010	J001009	221.621	0.03	0	0	0	0
C001011	J001011	J001010	307.943	0.03	0	0	0	0
C001012	J001012	J001011	122.724	0.03	0	0	0	0
C001013	J001013	J001012	509.85	0.03	0	0	0	0
C001014	J001014	J001013	104.29	0.03	0	0	0	0
C001015	J001015	J001014	1361.149	0.03	0	0	0	0
C002001	J002001	J001009	608.468	0.03	0	0	0	0
C003001	J003001	J001014	468.015	0.03	0	0	0	0
C003002	J003002	J003001	127.364	0.03	0	0	0	0
C003003	J003003	J003002	646.204	0.03	0	0	0	0
C003004	J003004	J003003	275.716	0.03	0	0	0	0
C003005	J003005	J003004	55.746	0.024	0.101	0	0	0
C003006	J003006	J003005	69.667	0.024	0	0	0	0
C003007	SU003007	J003006	27.921	0.024	0	0.22	0	0
C003008	J003008	SU003007	741.749	0.03	0	0	0	0
C003009	J003009	J003008	641.213	0.03	0	0	0	0
C003010	J003010	J003009	597.487	0.03	0	0	0	0
C003011	J003011	J003010	523.273	0.03	0	0	0	0
C003012	SU003012	J003011	377.239	0.03	1	0	0	0
C003013	SU003013	SU003012	551.28	0.03	1	1	0	0
C004001	J004001	J003002	863.943	0.03	0	0	0	0
C004002	J004002	J004001	23.703	0.024	0	0	0	0
C004003	J004003	J004002	70.215	0.024	0	0.413	0	0
C004004	J004004	J004003	25.529	0.024	0	0.58	0	0
C004005	J004005	J004004	142.432	0.03	0	0	0	0
C004006	J004006	J004005	307.166	0.03	0	0	0	0
C004007	J004007	J004006	189.044	0.03	0	0	0	0
C004008	J004008	J004007	13.761	0.024	0.104	0	0	0
C004009	SU004009	J004008	70.198	0.024	0	0	0	0
C004010	SU004010	SU004009	22.283	0.024	0	0.7	0	0
C004011	J004011	SU004010	433.066	0.03	0	0	0	0
C004012	J004012	J004011	580.395	0.03	0	0	0	0
C004013	J004013	J004012	676.961	0.03	0	0	0	0
C005001	J005001	J003003	112.809	0.03	0	0	0	0
C005002	J005002	J005001	53.733	0.024	0	0	0	0
C005003	J005003	J005002	63.178	0.024	0	0.242	0	0
C006001	J006001	SU003007	302.469	0.03	0	0	0	0
C006002	J006002	J006001	132.761	0.03	0	0	0	0
C007001	J007001	SU003007	785.647	0.03	0	0	0	0
C007002	J007002	J007001	369.431	0.03	0	0	0	0
C007003	SU007003	J007002	90.334	0.024	0.5	0	0	0
C007004	J007004	SU007003	145	0.03	0	0.5	0	0
C007005_1	SU007005_1	J007004	44.306	0.024	1.1	0	0	0
C007006	SU007006	SU007005	247.931	0.03	1	1	0	0
C007007	J007007	SU007006	200	0.03	0	1	0	0
C007008	J007008	J007007	1262.016	0.03	0	0	0	0
C008001	J008001	J003008	990.007	0.03	0	0	0	0
C009001	J009001	J004005	153.333	0.03	0	0	0	0
C009002_1	J009002_1	J009001	129.266	0.024	0	0	0	0
C009003	J009003	J009002	100.949	0.03	0	0	0	0
C009004_1	SU009004_1	SU009003	35.598	0.024	0	0	0	0
C009005	SU009005	SU009004	876.613	0.03	1	1	0	0
C009006	SU009006	SU009005	30	0.024	0	1	0	0
C009007	J009007	SU009006	657.132	0.03	0	0	0	0
C009008	SU009008	J009007	411.412	0.03	0	0	0	0
C009009	J009009	SU009008	284.333	0.03	0	0	0	0
C009010	J009010	J009009	155.922	0.03	0	0	0	0
C009011	J009011	J009010	650.879	0.03	0	0	0	0
C009012	J009012	J009011	621.191	0.03	0	0	0	0
C010001	J010001	J007001	75.869	0.03	0	0	0	0
C010002	J010002	J010001	26.378	0.024	0	0	0	0
C011001	SU011001	J007007	314.8	0.03	0.2	0	0	0
C011002	SU011002	SU011001	161	0.05	0	0	0	0
C012001	J012001	J010001	735.772	0.03	0	0	0	0
C012002	SU012002	J012001	30	0.024	0.5	0	0	0

[WEIRS] ;;Name Curve ;;-----	From Node	To Node	Type	CrestHt	Qcoeff	Gated	EndCon	EndCoeff	Surcharge	Roadwidth	RoadSurf	Coeff.
W007005_2	SU007005	J007004	TRANSVERSE	1	1.3	NO	0	0	YES			
W009002_2	J009002	SU004009	TRANSVERSE	1	1.3	NO	0	0	YES			
W009004_2	SU009004	SU004010	TRANSVERSE	1	1.3	NO	0	0	YES			

[XSECTIONS] ;;Link ;;-----	Shape	Geom1	Geom2	Geom3	Geom4	Barrels	Culvert
C001002	IRREGULAR	C156	0	0	0	1	
C001003	CIRCULAR	1.6	0	0	0	1	6
C001004	IRREGULAR	C157	0	0	0	1	
C001005	IRREGULAR	C16	0	0	0	1	
C001006	IRREGULAR	C17	0	0	0	1	
C001007	IRREGULAR	C18	0	0	0	1	
C001008	IRREGULAR	C19	0	0	0	1	
C001009	IRREGULAR	C20	0	0	0	1	
C001010	IRREGULAR	C21	0	0	0	1	
C001011	IRREGULAR	C22	0	0	0	1	
C001012	IRREGULAR	C23	0	0	0	1	
C001013	IRREGULAR	C24	0	0	0	1	
C001014	IRREGULAR	C25	0	0	0	1	
C001015	IRREGULAR	C113	0	0	0	1	
C002001	IRREGULAR	C91	0	0	0	1	
C003001	IRREGULAR	C158	0	0	0	1	
C003002	IRREGULAR	C26	0	0	0	1	
C003003	IRREGULAR	C27	0	0	0	1	
C003004	IRREGULAR	C27	0	0	0	1	
C003005	CIRCULAR	0.9	0	0	0	2	5
C003006	CIRCULAR	0.9	0	0	0	2	5
C003007	CIRCULAR	0.9	0	0	0	2	5
C003008	TRIANGULAR	1	20	0	0	2	
C003009	IRREGULAR	C43	0	0	0	1	
C003010	IRREGULAR	C50	0	0	0	1	
C003011	TRIANGULAR	1	6	0	0	1	
C003012	TRIANGULAR	1	6	0	0	1	
C003013	TRIANGULAR	1	6	0	0	1	
C004001	IRREGULAR	C33	0	0	0	2	
C004002	CIRCULAR	0.8	0	0	0	2	5
C004003	CIRCULAR	0.9	0	0	0	2	5
C004004	CIRCULAR	0.9	0	0	0	2	5
C004005	TRAPEZOIDAL	2	100	6	4	1	
C004006	TRAPEZOIDAL	2	100	6	4	1	
C004007	TRAPEZOIDAL	2	100	6	4	1	
C004008	CIRCULAR	0.8	0	0	0	2	
C004009	CIRCULAR	0.9	0	0	0	2	
C004010	CIRCULAR	0.9	0	0	0	2	
C004011	IRREGULAR	C64	0	0	0	1	
C004012	IRREGULAR	C82	0	0	0	1	
C004013	IRREGULAR	C169	0	0	0	1	
C005001	DUMMY	0	0	0	0		
C005002	CIRCULAR	0.8	0	0	0	2	5
C005003	CIRCULAR	0.8	0	0	0	2	5

C006001	IRREGULAR	C164	0	0	0	1	
C006002	IRREGULAR	C95	0	0	0	1	
C007001	IRREGULAR	C29	0	0	0	1	
C007002	IRREGULAR	C32_2	0	0	0	1	
C007003	CIRCULAR	0.9	0	0	0	1	6
C007004	TRIANGULAR	1	20	0	0	1	
C007005_1	CIRCULAR	0.6	0	0	0	1	6
C007006	TRAPEZOIDAL	1	3	3	3	1	
C007007	TRIANGULAR	1	6	0	0	1	
C007008	IRREGULAR	C97	0	0	0	1	
C008001	TRIANGULAR	1	6	0	0	1	
C009001	DUMMY	0	0	0	0	1	
C009002_1	CIRCULAR	0.9	0	0	0	2	
C009003	DUMMY	0	0	0	0	1	
C009004_1	CIRCULAR	0.9	0	0	0	2	
C009005	IRREGULAR	C65_5	0	0	0	1	
C009006	CIRCULAR	0.9	0	0	0	2	6
C009007	IRREGULAR	C65_3	0	0	0	1	
C009008	IRREGULAR	C65_1	0	0	0	1	
C009009	IRREGULAR	C72_1	0	0	0	1	
C009010	IRREGULAR	C78	0	0	0	1	
C009011	IRREGULAR	C111	0	0	0	1	
C009012	IRREGULAR	C140	0	0	0	1	
C010001	TRAPEZOIDAL	1	3	5	3	1	
C010002	CIRCULAR	2.1	0	0	0	1	5
C011001	TRIANGULAR	1	6	0	0	1	
C011002	TRIANGULAR	1	6	0	0	1	
C012001	IRREGULAR	C70_1	0	0	0	1	
C012002	CIRCULAR	0.6	0	0	0	1	
W007005_2	RECT_OPEN	1	20	0	0		
W009002_2	RECT_OPEN	1	10	0	0		
W009004_2	RECT_OPEN	1	10	0	0		

[TRANSECTS]

;;Transect Data in HEC-2 format

```

;
;Averaged transect, created from transects:
;13, 10, 9, 8, 7
NC 0.01 0.01 0.01 0 0 0.0 0.0 0.0 0.0 0.0
X1 C111 81
GR 1101.82 8.2 1101.775 10.2 1101.735 12.2 1101.709 13.2 1101.696 14.2
GR 1101.662 15.2 1101.622 16.2 1101.601 17.2 1101.557 18.2 1101.541 19.2
GR 1101.506 20.2 1101.481 21.2 1101.447 22.2 1101.392 23.2 1101.382 24.2
GR 1101.364 25.2 1101.317 26.2 1101.298 27.2 1101.237 28.2 1101.202 29.2
GR 1101.164 30.2 1101.109 31.2 1101.087 32.2 1101.033 33.2 1100.993 34.2
GR 1100.967 35.2 1100.91 36.2 1100.871 37.2 1100.835 38.2 1100.794 39.2
GR 1100.776 40.2 1100.742 41.2 1100.732 42.2 1100.754 45.2 1100.846 46.2
GR 1100.865 47.2 1100.886 48.2 1100.976 49.2 1101.003 50.2 1101.092 51.2
GR 1101.118 52.2 1101.159 53.2 1101.241 54.2 1101.271 55.2 1101.354 56.2
GR 1101.402 57.2 1101.519 59.2 1101.546 60.2 1101.605 61.2 1101.682 62.2
GR 1101.74 63.2 1101.786 64.2 1101.834 65.2 1101.898 66.2 1101.98 67.2
GR 1102.037 68.2 1102.072 69.2 1102.108 70.2 1102.158 71.2 1102.228 72.2
GR 1102.289 73.2 1102.316 74.2 1102.357 75.2 1102.406 76.2 1102.451 77.2
GR 1102.501 78.2 1102.534 79.2 1102.561 80.2 1102.597 81.2 1102.63 82.2
GR 1102.682 83.2 1102.708 84.2 1102.75 85.2 1102.785 86.2 1102.817 87.2
GR 1102.857 88.2 1102.875 89.2 1102.903 90.2 1102.916 91.2 1102.943 92.2
GR 1102.947 92.532
;
;Averaged transect, created from transects:
;276, 275, 274, 272, 279, 278, 271, 62
NC 0.01 0.01 0.01 0 0 0.0 0.0 0.0 0.0
X1 C113 65
GR 1043.597 15.75 1043.593 16.75 1043.57 17.75 1043.559 19.75 1043.544 20.75
GR 1043.533 21.75 1043.486 23.75 1043.469 24.75 1043.448 25.75 1043.412 26.75
GR 1043.392 27.75 1043.37 28.75 1043.353 29.75 1043.316 30.75 1043.296 31.75
GR 1043.269 32.75 1043.246 33.75 1043.216 34.75 1043.166 35.75 1043.15 36.75
GR 1043.124 37.75 1043.07 38.75 1043.044 39.75 1042.971 41.75 1042.946 42.75
GR 1042.878 43.75 1042.859 44.75 1042.829 45.75 1042.792 46.75 1042.752 47.75
GR 1042.731 48.75 1042.706 49.75 1042.685 50.75 1042.656 51.75 1042.639 52.75
GR 1042.619 53.75 1042.602 54.75 1042.587 55.75 1042.563 56.75 1042.557 57.75
GR 1042.545 58.75 1042.541 59.75 1042.541 61.75 1042.554 62.75 1042.569 63.75
GR 1042.6 64.75 1042.609 65.75 1042.64 66.75 1042.663 67.75 1042.684 68.75
GR 1042.708 69.75 1042.731 70.75 1042.759 71.75 1042.783 72.75 1042.809 73.75
GR 1042.823 74.75 1042.844 75.75 1042.862 76.75 1042.875 77.75 1042.893 78.75
GR 1042.9 79.75 1042.947 81.75 1042.957 82.75 1042.979 83.75 1042.987 84.896
;
;Transect created from transect line: 242
NC 0.01 0.01 0.01 0 0 0.0 0.0 0.0 0.0
X1 C119 82
GR 1040.267 0 1040.273 1 1040.274 5 1040.277 6 1040.277 7
GR 1040.291 17 1040.286 18 1040.288 19 1040.293 20 1040.295 21
GR 1040.305 22 1040.312 23 1040.315 24 1040.316 25 1040.325 27
GR 1040.326 28 1040.332 30 1040.323 32 1040.304 33 1040.299 34
GR 1040.297 35 1040.278 36 1040.272 37 1040.25 38 1040.243 39
GR 1040.239 40 1040.215 41 1040.211 42 1040.189 43 1040.183 44
GR 1040.179 45 1040.17 46 1040.171 47 1040.183 48 1040.187 49
GR 1040.189 50 1040.206 51 1040.213 53 1040.229 54 1040.232 55
GR 1040.247 56 1040.25 57 1040.255 58 1040.27 59 1040.274 60
GR 1040.283 61 1040.288 62 1040.292 63 1040.305 64 1040.309 67
GR 1040.313 68 1040.326 69 1040.33 70 1040.34 71 1040.343 72
GR 1040.348 73 1040.362 74 1040.366 75 1040.381 76 1040.388 78
GR 1040.404 79 1040.407 80 1040.424 81 1040.426 82 1040.43 83
GR 1040.44 84 1040.442 85 1040.447 86 1040.447 88 1040.457 89
GR 1040.459 90 1040.481 91 1040.486 92 1040.495 93 1040.533 94
GR 1040.542 95 1040.593 96 1040.606 97 1040.629 98 1040.678 99
GR 1040.704 100 1040.719 100.647603261442
;
;Averaged transect, created from transects:
;241, 239
NC 0.01 0.01 0.01 0 0 0.0 0.0 0.0 0.0
X1 C134 86
GR 1040.522 5 1040.519 6 1040.492 7 1040.481 8 1040.479 9
GR 1040.467 10 1040.468 11 1040.443 12 1040.447 13 1040.476 14
GR 1040.463 15 1040.465 17 1040.471 18 1040.475 19 1040.467 20
GR 1040.461 21 1040.452 22 1040.429 23 1040.423 24 1040.42 25
GR 1040.414 26 1040.405 27 1040.381 28 1040.374 29 1040.355 30
GR 1040.354 31 1040.35 32 1040.32 33 1040.318 34 1040.312 35
GR 1040.307 36 1040.307 37 1040.291 38 1040.289 39 1040.289 40
GR 1040.27 41 1040.264 42 1040.246 43 1040.243 44 1040.242 45
GR 1040.249 46 1040.254 47 1040.24 48 1040.23 50 1040.231 51
GR 1040.236 52 1040.21 55 1040.217 56 1040.219 57 1040.229 58
GR 1040.229 60 1040.242 61 1040.253 62 1040.294 64 1040.302 65
GR 1040.325 66 1040.336 67 1040.359 68 1040.371 69 1040.387 70
GR 1040.408 71 1040.412 72 1040.428 73 1040.439 74 1040.44 75
GR 1040.45 76 1040.452 77 1040.459 78 1040.458 79 1040.454 80
GR 1040.457 81 1040.459 82 1040.468 83 1040.464 84 1040.461 85
GR 1040.461 86 1040.464 87 1040.472 88 1040.468 89 1040.468 90
GR 1040.475 92 1040.483 93 1040.486 94 1040.488 95 1040.496 96
GR 1040.496 96.168
;
;Averaged transect, created from transects:
;6, 5, 4, 3, 2

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NC 0.01      0.01      0.01
X1 C140      47      0      0      0.0      0.0      0.0      0.0      0.0
GR 1118.461 28.2      1118.445 29.2      1118.406 30.2      1118.398 31.2      1118.393 32.2
GR 1118.377 33.2      1118.384 35.2      1118.399 36.2      1118.43  37.2      1118.459 38.2
GR 1118.473 39.2      1118.498 40.2      1118.513 41.2      1118.556 42.2      1118.617 44.2
GR 1118.665 45.2      1118.676 46.2      1118.711 47.2      1118.737 48.2      1118.766 49.2
GR 1118.784 50.2      1118.791 51.2      1118.806 52.2      1118.828 53.2      1118.828 54.2
GR 1118.836 55.2      1118.832 56.2      1118.835 57.2      1118.851 58.2      1118.839 59.2
GR 1118.828 60.2      1118.83  61.2      1118.83  62.2      1118.853 63.2      1118.856 64.2
GR 1118.877 65.2      1118.887 66.2      1118.899 67.2      1118.928 68.2      1118.952 69.2
GR 1118.954 70.2      1118.973 71.2      1118.989 72.2      1119.008 73.2      1119.024 74.2
GR 1119.027 75.2      1119.029 75.364
```

```
;
;Averaged transect, created from transects:
;106, 105, 104, 103, 102, 101, 100, 99
NC 0.01      0.01      0.01
X1 C156      76      0      0      0.0      0.0      0.0      0.0      0.0
GR 1014.094 14.375      1013.835 15.375      1013.477 16.375      1013.238 17.375      1012.959 18.375
GR 1012.741 19.375      1012.48  20.375      1012.158 21.375      1011.861 22.375      1011.618 23.375
GR 1011.383 24.375      1011.143 25.375      1010.846 26.375      1010.626 27.375      1010.423 28.375
GR 1010.128 29.375      1009.906 30.375      1009.696 31.375      1009.474 32.375      1009.309 33.375
GR 1008.942 35.375      1008.579 37.375      1008.41  38.375      1008.248 39.375      1008.126 40.375
GR 1007.977 41.375      1007.824 42.375      1007.69  43.375      1007.57  44.375      1007.491 45.375
GR 1007.44  47.375      1007.487 48.375      1007.579 49.375      1007.703 50.375      1007.762 51.375
GR 1007.921 52.375      1007.99  53.375      1008.096 54.375      1008.267 55.375      1008.348 56.375
GR 1008.584 57.375      1008.656 58.375      1008.82  59.375      1008.982 60.375      1009.166 61.375
GR 1009.423 62.375      1009.67  63.375      1009.949 64.375      1010.268 65.375      1010.598 66.375
GR 1010.812 67.375      1011.137 68.375      1011.436 69.375      1011.764 70.375      1011.969 71.375
GR 1012.307 72.375      1012.608 73.375      1012.901 74.375      1013.303 75.375      1013.599 76.375
GR 1014.037 77.375      1014.357 78.375      1014.605 79.375      1015.035 80.375      1015.28  81.375
GR 1015.651 82.375      1015.939 83.375      1016.191 84.375      1016.599 85.375      1016.886 86.375
GR 1017.255 87.375      1017.536 88.375      1017.844 89.375      1018.177 90.375      1018.377 91.375
GR 1018.513 91.873
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;Averaged transect, created from transects:
;92, 91, 89, 88
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GR 1020.641 10.5      1020.43  11.5      1020.214 12.5      1019.976 13.5      1019.848 14.5
GR 1019.628 15.5      1019.333 16.5      1019.281 17.5      1019.124 18.5      1018.937 19.5
GR 1018.74  20.5      1018.549 21.5      1018.416 22.5      1018.107 23.5      1017.944 24.5
GR 1017.858 25.5      1017.53  26.5      1017.467 27.5      1017.246 28.5      1017.119 29.5
GR 1017.052 30.5      1016.83  31.5      1016.749 32.5      1016.614 33.5      1016.506 34.5
GR 1016.466 35.5      1016.335 36.5      1016.303 38.5      1016.253 39.5      1016.23  40.5
GR 1016.201 41.5      1016.144 42.5      1016.116 43.5      1016.073 44.5      1016.005 46.5
GR 1015.959 47.5      1015.932 48.5      1015.88  49.5      1015.864 50.5      1015.9  52.5
GR 1015.928 53.5      1015.967 54.5      1016.079 55.5      1016.116 56.5      1016.23  57.5
GR 1016.321 59.5      1016.464 60.5      1016.509 61.5      1016.681 62.5      1016.762 63.5
GR 1016.836 64.5      1017.027 65.5      1017.201 66.5      1017.425 67.5      1017.681 68.5
GR 1017.823 69.5      1017.959 70.5      1018.134 71.5      1018.357 73.5      1018.597 74.5
GR 1018.702 75.5      1018.802 76.5      1018.972 77.5      1019.096 78.5      1019.285 79.5
GR 1019.36  80.5      1019.534 81.5      1019.623 82.5      1019.728 83.5      1019.912 84.5
GR 1019.937 85.5      1020.136 86.5      1020.205 87.5      1020.212 88.5      1020.325 89.5
GR 1020.347 90.5      1020.412 91.5      1020.42  92.5      1020.421 92.515
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;Averaged transect, created from transects:
;62, 60, 59, 58
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GR 1037.284 26.25      1037.25  27.25      1037.221 28.25      1037.196 29.25      1037.179 30.25
GR 1037.125 31.25      1037.104 32.25      1037.066 33.25      1037.065 34.25      1037.039 35.25
GR 1036.98  36.25      1036.921 38.25      1036.885 39.25      1036.859 40.25      1036.804 41.25
GR 1036.781 42.25      1036.756 43.25      1036.729 44.25      1036.713 45.25      1036.681 46.25
GR 1036.653 47.25      1036.645 48.25      1036.625 49.25      1036.598 50.25      1036.573 51.25
GR 1036.556 52.25      1036.553 54.25      1036.58  56.25      1036.615 57.25      1036.622 58.25
GR 1036.633 59.25      1036.65  60.25      1036.673 61.25      1036.686 62.25      1036.706 63.25
GR 1036.733 64.25      1036.742 65.25      1036.765 66.25      1036.793 67.25      1036.8  68.25
GR 1036.827 69.25      1036.87  70.25      1036.894 71.25      1036.93  72.25      1036.979 73.25
GR 1037.008 74.25      1037.025 75.25      1037.082 76.25      1037.106 77.25      1037.109 77.396
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;Averaged transect, created from transects:
;87, 86, 85, 84, 82, 81
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GR 1027.056 11.5      1027.017 12.5      1026.964 13.5      1026.95  14.5      1026.891 15.5
GR 1026.85  16.5      1026.803 17.5      1026.788 18.5      1026.716 19.5      1026.604 20.5
GR 1026.48  21.5      1026.282 22.5      1026.12  23.5      1026.059 24.5      1025.878 25.5
GR 1025.748 26.5      1025.551 27.5      1025.395 28.5      1025.302 29.5      1025.141 30.5
GR 1025.007 31.5      1024.787 32.5      1024.676 33.5      1024.516 34.5      1024.319 35.5
GR 1024.183 36.5      1023.936 37.5      1023.772 38.5      1023.676 39.5      1023.42  40.5
GR 1023.306 41.5      1023.107 42.5      1022.929 43.5      1022.831 44.5      1022.534 45.5
GR 1022.441 46.5      1022.27  47.5      1022.082 48.5      1022.001 49.5      1021.922 51.5
GR 1021.971 52.5      1022.068 53.5      1022.139 54.5      1022.26  55.5      1022.322 56.5
GR 1022.38  57.5      1022.507 58.5      1022.612 59.5      1022.707 60.5      1022.781 61.5
GR 1022.89  62.5      1023.017 63.5      1023.139 64.5      1023.265 65.5      1023.488 66.5
GR 1023.713 67.5      1024.054 68.5      1024.347 69.5      1024.745 70.5      1024.95  71.5
GR 1025.251 72.5      1025.676 73.5      1025.901 74.5      1026.163 75.5      1026.406 76.5
GR 1026.62  77.5      1026.947 78.5      1027.257 79.5      1027.511 80.5      1027.652 81.5
GR 1027.783 82.5      1027.977 83.5      1028.032 84.5      1028.16  85.5      1028.296 86.5
GR 1028.343 87.5      1028.527 88.5      1028.564 89.5      1028.645 90.5      1028.749 91.317
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GR 1043.41  0      1043.337 1      1043.33  2      1043.312 3      1043.236 4
GR 1043.211 5      1043.169 6      1043.159 7      1043.144 8      1043.092 9
GR 1043.076 10      1043.034 11      1043.025 12      1043.011 13      1042.965 14
GR 1042.952 15      1042.924 16      1042.924 18      1042.919 19      1042.919 20
GR 1042.918 21      1042.918 23      1042.916 24      1042.916 31      1042.913 32
GR 1042.912 46      1042.932 47      1042.942 48      1042.967 50      1042.976 51
GR 1042.989 52      1042.988 53      1042.984 54      1042.993 56      1042.98  58
GR 1042.972 59      1042.972 60      1042.985 63      1043.024 64      1043.034 65
GR 1043.043 66      1043.071 67      1043.091 68      1043.149 69      1043.191 71
GR 1043.226 72      1043.253 73      1043.315 74      1043.341 75      1043.368 76
GR 1043.379 77      1043.385 78      1043.4  79      1043.408 80      1043.414 81
GR 1043.424 82      1043.428 83      1043.439 84      1043.445 85      1043.449 86
GR 1043.458 87      1043.459 88      1043.467 89      1043.472 91      1043.49  92
GR 1043.496 93      1043.523 94      1043.529 95      1043.533 96      1043.558 97
GR 1043.562 98      1043.589 99      1043.595 100.592022978738
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;Averaged transect, created from transects:
;175, 174, 173, 172, 171, 170
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X1 C169      82      0      0      0.0      0.0      0.0      0.0      0.0
GR 1079.893 10      1079.912 11      1079.908 12      1079.918 13      1079.924 14
GR 1079.922 15      1079.924 16      1079.902 17      1079.887 18      1079.858 19
GR 1079.833 20      1079.805 21      1079.76  22      1079.697 23      1079.64  24
GR 1079.604 25      1079.491 27      1079.437 28      1079.367 29      1079.326 30
GR 1079.259 31      1079.19  32      1079.146 33      1079.041 34      1078.97  35
GR 1078.878 36      1078.798 37      1078.702 38      1078.623 39      1078.568 40
GR 1078.462 41      1078.382 42      1078.339 43      1078.266 44      1078.241 45
GR 1078.226 47      1078.225 48      1078.272 49      1078.315 50      1078.426 51
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GR 1078.557 52      1078.623 53      1078.802 54      1078.887 55      1079.062 56
GR 1079.168 57      1079.231 58      1079.435 59      1079.509 60      1079.692 61
GR 1079.789 62      1079.858 63      1080.018 64      1080.08 65      1080.159 66
GR 1080.232 67      1080.266 68      1080.364 69      1080.403 70      1080.437 71
GR 1080.516 72      1080.56 73      1080.609 74      1080.643 75      1080.658 76
GR 1080.713 77      1080.732 78      1080.772 79      1080.803 80      1080.823 81
GR 1080.862 82      1080.887 83      1080.936 84      1080.966 85      1081.022 87
GR 1081.037 88      1081.08 89      1081.092 90      1081.111 91      1081.128 92
GR 1081.137 93      1081.14 93.141
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GR 1033.345 0      1033.288 1      1033.274 2      1033.16 3      1033.124 4
GR 1033.059 5      1032.879 6      1032.801 7      1032.704 8      1032.62 9
GR 1032.547 10      1032.374 11      1032.319 12      1032.296 13      1032.108 14
GR 1032.066 15      1031.877 16      1031.836 17      1031.808 18      1031.491 19
GR 1031.416 20      1030.84 21      1030.751 22      1030.701 23      1030.415 24
GR 1030.319 25      1030.001 26      1029.906 27      1029.949 28      1029.797 29
GR 1029.696 30      1029.591 31      1029.329 32      1029.262 33      1028.971 34
GR 1028.926 35      1028.863 36      1028.474 37      1028.467 38      1028.052 39
GR 1028.003 40      1027.912 41      1027.531 42      1027.425 43      1027.153 44
GR 1027.127 45      1027.072 46      1026.805 47      1026.769 48      1026.813 49
GR 1026.883 50      1026.933 51      1026.948 52      1026.948 53      1026.946 54
GR 1026.981 55      1027.006 56      1026.925 57      1026.967 59      1026.99 60
GR 1026.988 61      1026.878 62      1026.842 63      1026.823 64      1026.756 65
GR 1026.757 66      1026.763 67      1026.773 68      1026.8 69      1026.795 70
GR 1026.733 71      1026.769 72      1026.668 73      1026.637 74      1026.557 75
GR 1026.523 76      1026.486 77      1026.365 78      1026.339 79      1026.415 80
GR 1026.45 81      1026.403 82      1026.697 83      1026.726 84      1026.738 85
GR 1026.88 86      1026.909 87      1027.049 88      1027.076 89      1027.076 90
GR 1027.163 91      1027.162 92      1027.39 93      1027.434 94      1027.449 95
GR 1027.916 96      1028.161 97      1029.019 98      1029.278 99      1029.445 100
GR 1030.397 101      1030.686 102      1030.928 103      1031.839 104      1032.039 105
GR 1032.867 106      1032.99 107      1033.223 108      1033.998 109      1034.289 110
GR 1034.64 111      1034.811 112      1034.929 113      1035.172 114      1035.249 115
GR 1035.287 116      1035.555 117      1035.624 118      1035.802 119      1035.864 120
GR 1035.973 121      1036.112 122      1036.136 123      1036.274 124      1036.279 124.152752986461
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;78, 77
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GR 1033.185 2      1033.206 3      1033.28 4      1033.436 5      1033.524 6
GR 1033.635 7      1033.631 8      1033.673 9      1033.814 10      1033.869 11
GR 1033.88 12      1033.755 13      1033.68 14      1033.43 15      1033.305 16
GR 1033.244 17      1032.939 18      1032.786 19      1032.499 20      1032.374 21
GR 1032.256 22      1032.024 23      1031.938 24      1031.708 25      1031.568 26
GR 1031.488 27      1031.304 28      1031.175 29      1030.978 30      1030.794 31
GR 1030.722 32      1030.45 33      1030.382 34      1030.27 35      1029.96 36
GR 1029.902 37      1029.575 38      1029.532 39      1029.411 40      1029.095 41
GR 1029.018 42      1028.838 43      1028.738 44      1028.684 45      1028.496 46
GR 1028.421 47      1028.323 48      1028.276 49      1028.187 50      1028.071 51
GR 1028.028 52      1028.004 53      1027.89 54      1027.858 55      1027.732 56
GR 1027.698 57      1027.678 58      1027.672 60      1027.726 61      1027.742 62
GR 1027.762 63      1027.883 64      1027.906 65      1027.992 66      1028.057 67
GR 1028.109 68      1028.252 69      1028.327 70      1028.407 71      1028.671 72
GR 1028.756 73      1029.075 74      1029.248 75      1029.547 76      1030.166 77
GR 1030.344 78      1031.014 79      1031.202 80      1031.408 81      1032.022 82
GR 1032.191 83      1032.499 84      1032.84 85      1032.974 86      1033.486 87
GR 1033.631 88      1033.942 89      1034.054 90      1034.13 91      1034.352 92
GR 1034.412 93      1034.584 94      1034.681 95      1034.726 96      1034.893 97
GR 1034.954 98      1035.028 99      1035.094 99.749
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GR 1031.207 7      1031.164 8      1031.124 9      1031.081 10      1030.902 11
GR 1030.862 12      1030.839 13      1030.599 14      1030.563 15      1030.503 16
GR 1030.309 17      1030.178 18      1030.139 19      1029.891 20      1029.826 21
GR 1029.693 22      1029.362 23      1029.276 24      1029.155 25      1028.99 26
GR 1028.886 27      1028.834 28      1028.778 29      1028.75 30      1028.678 31
GR 1028.659 32      1028.657 33      1028.656 34      1028.641 35      1028.638 36
GR 1028.638 37      1028.628 39      1028.635 41      1028.642 42      1028.652 43
GR 1028.689 45      1028.703 46      1028.746 47      1028.757 48      1028.765 49
GR 1028.843 50      1028.852 51      1028.878 52      1029.018 53      1029.057 54
GR 1029.083 55      1029.222 56      1029.254 57      1029.35 58      1029.488 59
GR 1029.53 60      1029.594 61      1029.709 62      1029.934 63      1030.056 64
GR 1030.127 65      1030.743 66      1030.852 67      1031.009 68      1031.33 69
GR 1031.39 70      1031.881 71      1032.136 72      1032.241 73      1032.341 74
GR 1032.829 75      1032.904 76      1032.987 77      1033.207 78      1033.323 79
GR 1033.536 80      1033.773 81      1033.939 82      1034.174 83      1034.275 84
GR 1034.338 85      1034.634 86      1034.66 87      1034.695 88      1034.842 89
GR 1034.877 90      1034.922 91      1034.971 92      1035.009 93      1035.13 94
GR 1035.164 95      1035.185 96      1035.297 97      1035.311 98      1035.33 99
GR 1035.39 100      1035.416 101      1035.452 101.982014363881
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GR 1032.073 5      1032.099 7      1032.094 8      1032.106 10      1032.099 11
GR 1032.094 12      1031.997 13      1031.988 14      1031.976 15      1031.89 16
GR 1031.863 17      1031.765 18      1031.727 19      1031.68 20      1031.589 21
GR 1031.538 22      1031.258 23      1031.196 24      1031.168 25      1031.018 26
GR 1030.933 27      1030.744 28      1030.675 29      1030.635 30      1030.397 31
GR 1030.282 33      1030.073 34      1030.022 35      1029.751 36      1029.718 37
GR 1029.672 38      1029.498 39      1029.469 40      1029.313 41      1029.286 42
GR 1029.241 43      1029.098 44      1029.048 45      1028.976 46      1028.986 47
GR 1028.992 48      1028.982 49      1028.981 50      1028.972 51      1028.966 52
GR 1028.97 53      1028.991 54      1029.003 55      1029.024 56      1029.021 57
GR 1029.024 58      1029.103 59      1029.11 60      1029.201 61      1029.221 62
GR 1029.25 63      1029.431 64      1029.484 65      1029.504 66      1029.69 67
GR 1029.729 68      1029.898 69      1029.943 70      1029.98 71      1030.263 72
GR 1030.38 73      1030.633 74      1030.816 75      1031.055 76      1031.283 77
GR 1031.763 78      1032.255 79      1032.443 80      1032.542 81      1032.959 82
GR 1033.181 83      1033.587 84      1033.757 85      1033.855 86      1034.311 87
GR 1034.392 88      1034.71 89      1034.817 90      1034.891 91      1035.274 92
GR 1035.321 93      1035.385 94      1035.566 95      1035.609 96      1035.734 97
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;73, 72
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GR 1032.817 24.5      1033.003 25.5      1033.036 26.5      1033.059 27.5      1033.222 28.5
GR 1033.231 29.5      1033.282 30.5      1033.431 31.5      1033.415 32.5      1033.521 33.5
GR 1033.517 34.5      1033.552 35.5      1033.708 36.5      1033.653 37.5      1033.626 38.5
GR 1033.495 39.5      1033.41 40.5      1033.284 41.5      1032.89 42.5      1032.756 43.5
GR 1032.57 44.5      1032.397 45.5      1032.253 46.5      1031.945 47.5      1031.849 48.5

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GR 1031.812 49.5    1031.362 50.5    1031.287 51.5    1030.888 52.5    1030.787 53.5
GR 1030.704 54.5    1030.474 55.5    1030.47  56.5    1030.488 58.5    1030.486 59.5
GR 1030.564 60.5    1030.598 61.5    1030.742 62.5    1030.825 63.5    1030.845 64.5
GR 1031.019 65.5    1031.058 66.5    1031.266 67.5    1031.31  68.5    1031.334 69.5
GR 1031.492 70.5    1031.546 71.5    1031.704 72.5    1031.762 73.5    1031.824 74.5
GR 1031.896 75.5    1031.914 76.5    1031.92  77.5    1031.93  78.5    1031.968 79.5
GR 1031.981 80.5    1031.991 81.5    1032.007 82.05

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;71, 69
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GR 1033.719 38.5    1033.678 39.5    1033.628 40.5    1033.595 41.5    1033.543 42.5
GR 1033.526 43.5    1033.419 44.5    1033.374 45.5    1033.338 46.5    1033.262 47.5
GR 1033.209 48.5    1033.171 49.5    1033.012 50.5    1032.979 51.5    1032.87  52.5
GR 1032.807 53.5    1032.751 54.5    1032.628 55.5    1032.605 56.5    1032.474 57.5
GR 1032.459 58.5    1032.433 59.5    1032.348 60.5    1032.315 61.5    1032.294 62.5
GR 1032.256 63.5    1032.249 64.5    1032.211 65.5    1032.196 66.5    1032.175 67.5
GR 1032.142 68.5    1032.12  69.5    1032.018 72.5    1031.99  73.5    1031.97  74.5
GR 1031.935 75.5    1031.914 76.5    1031.98  78.5    1032.012 79.5    1032.067 80.5
GR 1032.195 81.5    1032.324 82.5    1032.476 83.5    1032.544 84.5    1032.737 85.5
GR 1032.948 86.5    1033.029 87.5    1033.16  88.5    1033.274 89.5    1033.32  90.5
GR 1033.399 91.5    1033.421 92.5    1033.47  93.5    1033.512 94.5    1033.539 95.5
GR 1033.599 96.5    1033.619 97.5    1033.692 98.5    1033.706 99.5    1033.721 100.5
GR 1033.793 101.5    1033.806 102.5    1033.871 103.5    1033.88  104.5    1033.876 105.5
GR 1033.927 106.5    1033.925 107.5    1033.926 108.5    1033.956 109.5    1033.946 110.5
GR 1033.945 111.5    1033.952 112.5    1033.947 113.5    1033.943 114.5    1033.941 115.5
GR 1033.963 116.5    1033.966 117.5    1033.971 118.5    1033.98  119.5    1033.998 120.5
GR 1034.001 120.885

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;Transect created from transect line: 68
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GR 1034.997 0 1034.905 1 1034.883 2 1034.803 3 1034.736 5
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GR 1034.348 11 1034.284 12 1034.121 13 1034.055 14 1034.007 15
GR 1033.867 16 1033.823 17 1033.658 18 1033.606 19 1033.574 20
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GR 1033.111 26 1033.105 27 1033.096 28 1033.09 29 1033.082 30
GR 1033.058 31 1033.055 32 1033.057 34 1033.054 35 1033.064 36
GR 1033.072 37 1033.081 38 1033.098 39 1033.102 40 1033.135 41
GR 1033.165 42 1033.201 43 1033.26 44 1033.333 46 1033.343 47
GR 1033.358 48 1033.421 49 1033.436 50 1033.473 51 1033.49 52
GR 1033.51 53 1033.566 54 1033.58 55 1033.652 56 1033.666 57
GR 1033.686 58 1033.782 59 1033.801 60 1033.882 61 1033.918 62
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GR 1038.928 79      1038.952 80      1039.01 81      1039.075 82      1039.142 83
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GR 1040.114 49.667 1040.107 50.667 1040.088 51.667 1040.079 52.667 1040.05 53.667
GR 1040.035 54.667 1040.025 55.667 1040.003 56.667 1039.985 57.667 1039.96 58.667
GR 1039.947 59.667 1039.939 60.667 1039.92 61.667 1039.911 62.667 1039.896 63.667
GR 1039.893 64.667 1039.895 66.667 1039.899 67.667 1039.93 68.667 1039.931 69.667
GR 1039.942 70.667 1039.966 71.667 1039.974 72.667 1039.997 73.667 1040.005 74.667
GR 1040.017 75.667 1040.038 76.667 1040.044 77.667 1040.078 78.667 1040.105 79.667
GR 1040.146 80.667 1040.198 81.667 1040.229 82.667 1040.284 83.667 1040.319 84.667
GR 1040.343 85.667 1040.422 86.667 1040.443 87.667 1040.505 88.667 1040.539 89.667
GR 1040.563 90.667 1040.615 91.667 1040.642 92.667 1040.711 93.667 1040.761 94.645

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;Averaged transect, created from transects:
;243, 190
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GR 1040.085 18.5 1040.086 19.5 1040.092 20.5 1040.09 21.5 1040.092 22.5
GR 1040.106 24.5 1040.11 25.5 1040.121 26.5 1040.123 27.5 1040.128 28.5
GR 1040.139 29.5 1040.144 30.5 1040.158 31.5 1040.177 34.5 1040.18 35.5
GR 1040.189 36.5 1040.193 37.5 1040.193 38.5 1040.19 40.5 1040.192 41.5
GR 1040.191 42.5 1040.188 43.5 1040.184 44.5 1040.183 45.5 1040.179 46.5
GR 1040.177 47.5 1040.172 48.5 1040.169 50.5 1040.158 51.5 1040.155 52.5
GR 1040.14 53.5 1040.131 55.5 1040.114 56.5 1040.108 57.5 1040.095 58.5
GR 1040.087 59.5 1040.083 60.5 1040.066 61.5 1040.064 62.5 1040.04 64.5
GR 1040.036 65.5 1040.024 66.5 1040.03 68.5 1040.039 70.5 1040.052 71.5
GR 1040.057 72.5 1040.071 73.5 1040.072 74.5 1040.087 76.5 1040.086 77.5
GR 1040.097 78.5 1040.099 79.5 1040.102 80.5 1040.108 81.5 1040.11 82.5
GR 1040.127 83.5 1040.139 84.5 1040.152 85.5 1040.19 86.5 1040.198 87.5
GR 1040.219 88.5 1040.248 89.5 1040.257 90.5 1040.3 91.5 1040.302 91.699

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;Averaged transect, created from transects:
;185, 184
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GR 1050.808 24 1050.662 25 1050.587 26 1050.364 27 1050.232 28
GR 1050.024 29 1049.935 30 1049.892 31 1049.702 32 1049.604 33
GR 1049.468 34 1049.438 35 1049.441 36 1049.341 37 1049.342 38
GR 1049.318 39 1049.198 40 1049.12 41 1048.966 42 1048.91 43
GR 1048.866 44 1048.737 45 1048.72 46 1048.672 47 1048.628 48
GR 1048.693 50 1048.75 51 1048.917 52 1049.094 53 1049.154 54
GR 1049.316 55 1049.372 56 1049.599 57 1049.676 58 1049.75 59
GR 1049.878 60 1049.935 61 1050.015 62 1050.071 63 1050.118 64
GR 1050.183 65 1050.196 66 1050.273 67 1050.269 68 1050.284 69
GR 1050.384 70 1050.362 71 1050.456 72 1050.471 73 1050.543 74
GR 1050.601 75 1050.642 76 1050.82 77 1050.78 78 1050.802 79
GR 1050.91 80 1050.923 81 1050.972 81.911

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;Averaged transect, created from transects:

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;23, 22, 21
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GR 1087.321 10.333 1087.104 11.333 1087.036 12.333 1086.928 13.333 1086.763 14.333
GR 1086.634 15.333 1086.41 16.333 1086.279 17.333 1086.04 18.333 1085.622 20.333
GR 1085.298 21.333 1085.157 22.333 1084.956 23.333 1084.636 24.333 1084.534 25.333
GR 1084.263 26.333 1083.858 27.333 1083.647 28.333 1083.219 29.333 1083.095 30.333
GR 1082.863 31.333 1082.484 32.333 1082.223 33.333 1081.797 34.333 1081.62 35.333
GR 1081.341 36.333 1081.017 37.333 1080.874 38.333 1080.631 39.333 1080.357 40.333
GR 1080.296 41.333 1080.03 42.333 1079.933 43.333 1079.801 44.333 1079.673 45.333
GR 1079.601 46.333 1079.511 47.333 1079.435 48.333 1079.431 50.333 1079.482 51.333
GR 1079.537 52.333 1079.693 53.333 1079.778 54.333 1080.014 55.333 1080.097 56.333
GR 1080.2 57.333 1080.559 58.333 1080.71 59.333 1080.901 60.333 1081.14 61.333
GR 1081.293 62.333 1081.686 63.333 1081.841 64.333 1082.139 65.333 1082.399 66.333
GR 1082.596 67.333 1083.022 68.333 1083.255 69.333 1083.361 70.333 1083.816 71.333
GR 1083.923 72.333 1084.121 73.333 1084.435 74.333 1084.58 75.333 1084.842 76.333
GR 1085.113 77.333 1085.267 78.333 1085.545 79.333 1085.642 80.333 1085.804 81.333
GR 1085.983 82.333 1086.121 83.333 1086.283 84.333 1086.432 85.333 1086.547 86.333
GR 1086.723 87.333 1086.79 88.333 1086.91 89.333 1087.056 90.333 1087.181 91.333
GR 1087.283 92.333 1087.388 93.333 1087.465 94.333 1087.62 95.333 1087.681 96.333
GR 1087.725 96.757
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;Averaged transect, created from transects:
;28, 27, 26, 25, 24
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GR 1075.575 25.4 1075.456 26.4 1075.269 27.4 1075.153 28.4 1075.1 29.4
GR 1074.899 30.4 1074.762 31.4 1074.588 32.4 1074.474 33.4 1074.406 34.4
GR 1074.215 35.4 1074.066 36.4 1073.994 37.4 1073.836 38.4 1073.792 39.4
GR 1073.696 40.4 1073.586 41.4 1073.545 42.4 1073.44 43.4 1073.38 44.4
GR 1073.314 45.4 1073.237 46.4 1073.215 47.4 1073.197 49.4 1073.237 50.4
GR 1073.28 51.4 1073.297 52.4 1073.433 53.4 1073.487 54.4 1073.619 55.4
GR 1073.729 56.4 1073.791 57.4 1073.974 58.4 1074.036 59.4 1074.138 60.4
GR 1074.327 61.4 1074.42 62.4 1074.634 63.4 1074.725 64.4 1074.869 65.4
GR 1075.093 66.4 1075.206 67.4 1075.452 68.4 1075.55 69.4 1075.65 70.4
GR 1075.868 71.4 1075.917 72.4 1076.141 73.4 1076.22 74.4 1076.236 74.537
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;Averaged transect, created from transects:
;40, 36, 35, 33
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GR 1055.449 38.5 1055.409 39.5 1055.394 40.5 1055.357 41.5 1055.339 42.5
GR 1055.326 43.5 1055.327 45.5 1055.339 46.5 1055.357 47.5 1055.371 48.5
GR 1055.395 49.5 1055.426 50.5 1055.441 51.5 1055.46 52.5 1055.481 53.5
GR 1055.512 54.5 1055.523 55.5 1055.539 56.5 1055.551 57.5 1055.544 58.5
GR 1055.549 59.5 1055.548 60.5 1055.549 61.5 1055.547 62.5 1055.538 63.5
GR 1055.536 65.5 1055.541 66.5 1055.543 67.5 1055.548 68.5 1055.556 69.5
GR 1055.558 70.5 1055.57 71.5 1055.579 73.5 1055.595 74.5 1055.595 75.492
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;Averaged transect, created from transects:
;255, 254, 252, 251, 250
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GR 1045.639 15.2 1045.741 16.2 1045.824 17.2 1045.895 18.2 1046.024 19.2
GR 1046.156 20.2 1046.271 21.2 1046.441 22.2 1046.563 23.2 1046.637 24.2
GR 1046.859 25.2 1046.92 26.2 1047.026 27.2 1047.182 28.2 1047.271 29.2
GR 1047.339 30.2 1047.371 31.2 1047.379 32.2 1047.339 33.2 1047.345 34.2
GR 1047.342 35.2 1047.274 36.2 1047.266 37.2 1047.24 38.2 1047.153 39.2
GR 1047.073 40.2 1047.039 41.2 1046.939 42.2 1046.87 43.2 1046.786 44.2
GR 1046.633 45.2 1046.594 46.2 1046.532 47.2 1046.482 48.2 1046.501 49.2
GR 1046.506 50.2 1046.515 51.2 1046.55 52.2 1046.609 53.2 1046.654 54.2
GR 1046.697 55.2 1046.777 56.2 1046.817 57.2 1046.863 58.2 1046.901 59.2
GR 1046.945 60.2 1046.999 61.2 1047.05 62.2 1047.093 63.2 1047.113 64.2
GR 1047.148 65.2 1047.16 66.2 1047.187 67.2 1047.199 68.2 1047.206 69.2
GR 1047.225 70.2 1047.235 71.2 1047.264 72.2 1047.28 73.2 1047.306 74.2
GR 1047.322 75.2 1047.346 76.2 1047.359 77.2 1047.363 78.2 1047.383 79.2
GR 1047.397 80.2 1047.405 81.2 1047.41 81.441
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;Averaged transect, created from transects:
;18, 17, 16
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X1 C72_1 83 0 0 0.0 0.0 0.0 0.0
GR 1089.72 8.667 1089.646 9.667 1089.502 10.667 1089.311 11.667 1089.174 12.667
GR 1088.998 13.667 1088.74 14.667 1088.647 15.667 1088.506 16.667 1088.242 17.667
GR 1088.122 18.667 1088.061 19.667 1087.822 20.667 1087.712 21.667 1087.592 22.667
GR 1087.422 23.667 1087.323 24.667 1087.204 25.667 1087.079 26.667 1086.909 27.667
GR 1086.683 29.667 1086.625 30.667 1086.512 31.667 1086.342 32.667 1086.199 34.667
GR 1086.073 35.667 1086.009 36.667 1085.937 37.667 1085.861 38.667 1085.811 40.667
GR 1085.804 42.667 1085.811 43.667 1085.834 44.667 1085.902 45.667 1085.945 46.667
GR 1085.982 47.667 1086.014 48.667 1086.12 49.667 1086.193 50.667 1086.218 51.667
GR 1086.297 52.667 1086.39 53.667 1086.447 54.667 1086.597 55.667 1086.66 56.667
GR 1086.704 57.667 1086.818 58.667 1086.902 59.667 1087.037 60.667 1087.179 61.667
GR 1087.263 62.667 1087.342 63.667 1087.547 64.667 1087.614 65.667 1087.733 66.667
GR 1087.93 67.667 1088.003 68.667 1088.134 69.667 1088.212 70.667 1088.309 71.667
GR 1088.384 72.667 1088.439 73.667 1088.469 74.667 1088.574 75.667 1088.684 76.667
GR 1088.724 77.667 1088.827 78.667 1088.91 79.667 1088.984 80.667 1089.041 81.667
GR 1089.169 82.667 1089.254 83.667 1089.345 84.667 1089.48 85.667 1089.557 86.667
GR 1089.626 87.667 1089.744 88.667 1089.87 89.667 1089.901 90.667 1090 91.667
GR 1090.074 92.667 1090.17 93.667 1090.194 93.875
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;Averaged transect, created from transects:
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GR 1092.024 8 1091.862 9 1091.72 10 1091.664 11 1091.522 12
GR 1091.354 13 1091.286 14 1091.13 15 1091.03 16 1090.968 17
GR 1090.732 18 1090.678 19 1090.578 20 1090.394 21 1090.358 22
GR 1090.255 23 1090.112 24 1090.006 25 1090.978 26 1089.832 27
GR 1089.78 28 1089.742 29 1089.562 30 1089.523 31 1089.47 32
GR 1089.366 33 1089.327 34 1089.24 35 1089.168 36 1089.148 37
GR 1089.113 38 1089.067 39 1089.049 40 1088.988 41 1088.972 42
GR 1088.962 43 1088.92 44 1088.903 45 1088.902 47 1088.89 48
GR 1088.898 49 1088.952 50 1088.97 51 1088.992 52 1089.056 53
GR 1089.078 54 1089.116 55 1089.166 56 1089.186 57 1089.224 58
GR 1089.277 59 1089.3 60 1089.344 61 1089.397 62 1089.422 63
GR 1089.446 64 1089.494 65 1089.528 66 1089.605 67 1089.644 69
GR 1089.71 70 1089.756 71 1089.809 72 1089.869 73 1089.898 74
GR 1089.923 75 1090.034 76 1090.084 77 1090.104 78 1090.196 79
GR 1090.214 80 1090.264 81 1090.38 82 1090.434 84 1090.506 85
GR 1090.552 86 1090.629 87 1090.688 88 1090.714 89 1090.862 91
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GR 1091.278 97 1091.307 97.743
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;182, 181, 179, 178, 177
NC 0.01 0.01
X1 C82 75 0 0 0.0 0.0 0.0 0.0

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GR 1061.765 18.2 1061.697 19.2 1061.571 20.2 1061.523 21.2 1061.47 22.2
GR 1061.424 23.2 1061.349 24.2 1061.306 25.2 1061.257 26.2 1061.204 27.2
GR 1061.086 28.2 1061.061 29.2 1061.019 30.2 1060.995 31.2 1060.943 32.2
GR 1060.897 33.2 1060.887 34.2 1060.829 35.2 1060.784 36.2 1060.759 37.2
GR 1060.717 38.2 1060.682 39.2 1060.653 40.2 1060.552 41.2 1060.496 42.2
GR 1060.422 43.2 1060.382 44.2 1060.323 45.2 1060.246 46.2 1060.223 47.2
GR 1060.196 48.2 1060.12 49.2 1060.099 50.2 1060.057 51.2 1060.04 52.2
GR 1060.027 54.2 1060.041 55.2 1060.081 56.2 1060.137 57.2 1060.183 58.2
GR 1060.256 59.2 1060.324 60.2 1060.432 61.2 1060.471 62.2 1060.529 63.2
GR 1060.612 64.2 1060.712 65.2 1060.789 66.2 1060.859 67.2 1060.905 68.2
GR 1061.026 69.2 1061.083 70.2 1061.154 71.2 1061.287 72.2 1061.364 73.2
GR 1061.411 74.2 1061.501 75.2 1061.581 76.2 1061.623 77.2 1061.712 78.2
GR 1061.797 79.2 1061.88 80.2 1061.939 81.2 1061.968 82.2 1062.019 83.2
GR 1062.049 84.2 1062.082 85.2 1062.1 86.2 1062.148 87.2 1062.183 87.983

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;237, 235
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GR 1034.11 10.5 1034.213 17.5 1034.22 18.5 1034.238 19.5 1034.268 20.5
GR 1034.198 16.5 1034.268 22.5 1034.276 23.5 1034.28 24.5 1034.268 25.5
GR 1034.277 21.5 1034.253 27.5 1034.234 28.5 1034.22 29.5 1034.216 30.5
GR 1034.263 26.5 1034.168 33.5 1034.162 34.5 1034.132 35.5 1034.09 36.5
GR 1034.202 31.5 1034 38.5 1033.934 39.5 1033.883 40.5 1033.764 41.5
GR 1034.074 37.5 1033.553 43.5 1033.421 44.5 1033.382 45.5 1033.352 46.5
GR 1033.652 42.5 1033.22 48.5 1033.166 49.5 1033.095 50.5 1033.08 51.5
GR 1033.249 47.5 1033.056 53.5 1033.061 55.5 1033.146 57.5 1033.358 58.5
GR 1033.059 52.5 1033.466 60.5 1033.688 61.5 1033.728 62.5 1033.8 63.5
GR 1033.43 59.5 1034.12 65.5 1034.226 66.5 1034.294 67.5 1034.335 68.5
GR 1033.994 64.5 1034.517 70.5 1034.574 71.5 1034.702 72.5 1034.72 73.5
GR 1034.452 69.5 1034.862 75.5 1034.901 76.5 1034.951 77.5 1035.011 78.5
GR 1034.749 74.5 1035.08 80.5 1035.165 81.5 1035.185 82.5 1035.248 83.5
GR 1035.037 79.5 1035.303 85.5 1035.382 86.5 1035.425 87.5 1035.45 88.426
GR 1035.287 84.5

;Averaged transect, created from transects:
;245, 244
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GR 1045.113 20 1045.004 26 1044.995 27 1044.966 28 1044.955 29
GR 1045.034 25 1044.918 31 1044.911 32 1044.871 33 1044.863 34
GR 1044.95 30 1044.835 36 1044.865 37 1044.89 38 1044.952 39
GR 1044.858 35 1044.999 41 1045.046 42 1045.07 43 1045.124 44
GR 1044.982 40 1045.151 46 1045.218 47 1045.228 48 1045.292 49
GR 1045.148 45 1045.286 51 1045.272 52 1045.251 53 1045.111 54
GR 1045.307 50 1045.074 56 1044.937 57 1044.912 58 1044.784 59
GR 1045.09 55 1044.719 61 1044.603 62 1044.568 63 1044.496 64
GR 1044.748 60 1044.356 66 1044.329 68 1044.345 69 1044.359 70
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GR 1044.444 77

;Averaged transect, created from transects:
;116, 115, 114, 113, 111, 110, 109, 108
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GR 1082.24 20.375 1081.204 26.375 1081.066 27.375 1080.77 28.375 1080.633 29.375
GR 1081.31 25.375 1080.163 31.375 1079.984 32.375 1079.703 33.375 1079.521 34.375
GR 1080.403 30.375 1078.923 36.375 1078.726 37.375 1078.494 38.375 1078.15 39.375
GR 1079.31 35.375 1077.758 41.375 1077.575 42.375 1077.381 43.375 1077.247 44.375
GR 1077.926 40.375 1076.873 46.375 1076.754 47.375 1076.728 48.375 1076.473 49.375
GR 1077.118 45.375 1076.342 51.375 1076.199 52.375 1076.112 53.375 1076.048 54.375
GR 1076.386 50.375 1076.055 57.375 1076.164 58.375 1076.271 59.375 1076.491 60.375
GR 1076.018 55.375 1076.808 62.375 1077.008 63.375 1077.234 64.375 1077.521 65.375
GR 1076.644 61.375 1078.034 67.375 1078.264 68.375 1078.392 69.375 1078.712 70.375
GR 1077.654 66.375 1079.18 72.375 1079.475 73.375 1079.752 74.375 1080.032 75.375
GR 1079.004 71.375 1080.545 77.375 1080.743 78.375 1080.936 79.375 1081.139 80.375
GR 1080.238 76.375 1081.566 82.375 1081.885 83.375 1081.993 84.375 1082.237 85.375
GR 1081.451 81.375 1082.62 87.375 1082.825 88.375 1082.857 88.607
GR 1082.488 86.375

[LOSSES]
;;Link Kentry Kexit kavg Flap Gate Seepage
;;

[TIMESERIES]
;;Name Date Time Value
;;
100y24h 0:00 0
100y24h 0:05 1.094
100y24h 0:10 1.103
100y24h 0:15 1.113
100y24h 0:20 1.122
100y24h 0:25 1.132
100y24h 0:30 1.143
100y24h 0:35 1.153
100y24h 0:40 1.163
100y24h 0:45 1.174
100y24h 0:50 1.185
100y24h 0:55 1.197
100y24h 1:00 1.208
100y24h 1:05 1.22
100y24h 1:10 1.232
100y24h 1:15 1.245
100y24h 1:20 1.257
100y24h 1:25 1.27
100y24h 1:30 1.284
100y24h 1:35 1.297
100y24h 1:40 1.311
100y24h 1:45 1.326
100y24h 1:50 1.341
100y24h 1:55 1.356
100y24h 2:00 1.372
100y24h 2:05 1.388
100y24h 2:10 1.404
100y24h 2:15 1.421
100y24h 2:20 1.439
100y24h 2:25 1.457
100y24h 2:30 1.476
100y24h 2:35 1.495
100y24h 2:40 1.515
100y24h 2:45 1.535
100y24h 2:50 1.556
100y24h 2:55 1.578
100y24h 3:00 1.601
100y24h 3:05 1.624
100y24h 3:10 1.648
100y24h 3:15 1.674
100y24h 3:20 1.7
100y24h 3:25 1.727
100y24h 3:30 1.755

100y24h	3:35	1.784
100y24h	3:40	1.815
100y24h	3:45	1.846
100y24h	3:50	1.88
100y24h	3:55	1.914
100y24h	4:00	1.95
100y24h	4:05	1.988
100y24h	4:10	2.028
100y24h	4:15	2.07
100y24h	4:20	2.113
100y24h	4:25	2.159
100y24h	4:30	2.208
100y24h	4:35	2.259
100y24h	4:40	2.313
100y24h	4:45	2.371
100y24h	4:50	2.432
100y24h	4:55	2.497
100y24h	5:00	2.566
100y24h	5:05	2.64
100y24h	5:10	2.719
100y24h	5:15	2.805
100y24h	5:20	2.897
100y24h	5:25	2.997
100y24h	5:30	3.105
100y24h	5:35	3.224
100y24h	5:40	3.354
100y24h	5:45	3.497
100y24h	5:50	3.656
100y24h	5:55	3.833
100y24h	6:00	4.033
100y24h	6:05	4.259
100y24h	6:10	4.519
100y24h	6:15	4.821
100y24h	6:20	5.176
100y24h	6:25	5.601
100y24h	6:30	6.12
100y24h	6:35	6.773
100y24h	6:40	7.624
100y24h	6:45	8.785
100y24h	6:50	10.488
100y24h	6:55	13.283
100y24h	7:00	18.961
100y24h	7:05	40.516
100y24h	7:10	168.138
100y24h	7:15	54.372
100y24h	7:20	31.748
100y24h	7:25	23.236
100y24h	7:30	18.66
100y24h	7:35	15.763
100y24h	7:40	13.746
100y24h	7:45	12.251
100y24h	7:50	11.093
100y24h	7:55	10.166
100y24h	8:00	9.405
100y24h	8:05	8.768
100y24h	8:10	8.225
100y24h	8:15	7.756
100y24h	8:20	7.346
100y24h	8:25	6.985
100y24h	8:30	6.664
100y24h	8:35	6.376
100y24h	8:40	6.116
100y24h	8:45	5.88
100y24h	8:50	5.665
100y24h	8:55	5.468
100y24h	9:00	5.287
100y24h	9:05	5.119
100y24h	9:10	4.964
100y24h	9:15	4.819
100y24h	9:20	4.684
100y24h	9:25	4.558
100y24h	9:30	4.44
100y24h	9:35	4.329
100y24h	9:40	4.224
100y24h	9:45	4.125
100y24h	9:50	4.032
100y24h	9:55	3.943
100y24h	10:00	3.859
100y24h	10:05	3.78
100y24h	10:10	3.704
100y24h	10:15	3.631
100y24h	10:20	3.562
100y24h	10:25	3.496
100y24h	10:30	3.433
100y24h	10:35	3.373
100y24h	10:40	3.315
100y24h	10:45	3.259
100y24h	10:50	3.206
100y24h	10:55	3.154
100y24h	11:00	3.105
100y24h	11:05	3.057
100y24h	11:10	3.011
100y24h	11:15	2.967
100y24h	11:20	2.924
100y24h	11:25	2.883
100y24h	11:30	2.843
100y24h	11:35	2.805
100y24h	11:40	2.767
100y24h	11:45	2.731
100y24h	11:50	2.696
100y24h	11:55	2.662
100y24h	12:00	2.629
100y24h	12:05	2.597
100y24h	12:10	2.566
100y24h	12:15	2.536
100y24h	12:20	2.506
100y24h	12:25	2.478
100y24h	12:30	2.45
100y24h	12:35	2.423
100y24h	12:40	2.396
100y24h	12:45	2.371
100y24h	12:50	2.346
100y24h	12:55	2.321
100y24h	13:00	2.297
100y24h	13:05	2.274
100y24h	13:10	2.252
100y24h	13:15	2.229
100y24h	13:20	2.208
100y24h	13:25	2.187
100y24h	13:30	2.166
100y24h	13:35	2.146
100y24h	13:40	2.126

100y24h	13:45	2.107
100y24h	13:50	2.088
100y24h	13:55	2.069
100y24h	14:00	2.051
100y24h	14:05	2.034
100y24h	14:10	2.016
100y24h	14:15	1.999
100y24h	14:20	1.983
100y24h	14:25	1.966
100y24h	14:30	1.95
100y24h	14:35	1.935
100y24h	14:40	1.919
100y24h	14:45	1.904
100y24h	14:50	1.889
100y24h	14:55	1.875
100y24h	15:00	1.86
100y24h	15:05	1.846
100y24h	15:10	1.833
100y24h	15:15	1.819
100y24h	15:20	1.806
100y24h	15:25	1.793
100y24h	15:30	1.78
100y24h	15:35	1.767
100y24h	15:40	1.755
100y24h	15:45	1.743
100y24h	15:50	1.731
100y24h	15:55	1.719
100y24h	16:00	1.707
100y24h	16:05	1.696
100y24h	16:10	1.685
100y24h	16:15	1.673
100y24h	16:20	1.663
100y24h	16:25	1.652
100y24h	16:30	1.641
100y24h	16:35	1.631
100y24h	16:40	1.621
100y24h	16:45	1.611
100y24h	16:50	1.601
100y24h	16:55	1.591
100y24h	17:00	1.581
100y24h	17:05	1.572
100y24h	17:10	1.562
100y24h	17:15	1.553
100y24h	17:20	1.544
100y24h	17:25	1.535
100y24h	17:30	1.526
100y24h	17:35	1.517
100y24h	17:40	1.509
100y24h	17:45	1.5
100y24h	17:50	1.492
100y24h	17:55	1.484
100y24h	18:00	1.476
100y24h	18:05	1.467
100y24h	18:10	1.46
100y24h	18:15	1.452
100y24h	18:20	1.444
100y24h	18:25	1.436
100y24h	18:30	1.429
100y24h	18:35	1.421
100y24h	18:40	1.414
100y24h	18:45	1.407
100y24h	18:50	1.399
100y24h	18:55	1.392
100y24h	19:00	1.385
100y24h	19:05	1.378
100y24h	19:10	1.372
100y24h	19:15	1.365
100y24h	19:20	1.358
100y24h	19:25	1.352
100y24h	19:30	1.345
100y24h	19:35	1.339
100y24h	19:40	1.332
100y24h	19:45	1.326
100y24h	19:50	1.32
100y24h	19:55	1.313
100y24h	20:00	1.307
100y24h	20:05	1.301
100y24h	20:10	1.295
100y24h	20:15	1.289
100y24h	20:20	1.284
100y24h	20:25	1.278
100y24h	20:30	1.272
100y24h	20:35	1.266
100y24h	20:40	1.261
100y24h	20:45	1.255
100y24h	20:50	1.25
100y24h	20:55	1.244
100y24h	21:00	1.239
100y24h	21:05	1.234
100y24h	21:10	1.229
100y24h	21:15	1.223
100y24h	21:20	1.218
100y24h	21:25	1.213
100y24h	21:30	1.208
100y24h	21:35	1.203
100y24h	21:40	1.198
100y24h	21:45	1.193
100y24h	21:50	1.188
100y24h	21:55	1.184
100y24h	22:00	1.179
100y24h	22:05	1.174
100y24h	22:10	1.17
100y24h	22:15	1.165
100y24h	22:20	1.16
100y24h	22:25	1.156
100y24h	22:30	1.151
100y24h	22:35	1.147
100y24h	22:40	1.143
100y24h	22:45	1.138
100y24h	22:50	1.134
100y24h	22:55	1.13
100y24h	23:00	1.125
100y24h	23:05	1.121
100y24h	23:10	1.117
100y24h	23:15	1.113
100y24h	23:20	1.109
100y24h	23:25	1.105
100y24h	23:30	1.101
100y24h	23:35	1.097
100y24h	23:40	1.093
100y24h	23:45	1.089
100y24h	23:50	1.085

100y24h	23:55	1.081
100y24h	24:00	1.077

[REPORT]
;;Reporting Options
INPUT YES
CONTROLS NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[ADJUSTMENTS]	
;;Parameter	Subcatchment
CONDUCTIVITY	Monthly Adjustments
	0.05 0.05 0.05 0.05 1.0 1.0 1.0 1.0 1.0 1.0 0.05 0.05

[TAGS]
Subcatch S001003_1 WDT
Subcatch S001003_2 WDT
Subcatch S001003_3 WDT
Subcatch S001003_4 WDT
Subcatch S001004_1 WDT
Subcatch S001004_2 WDT
Subcatch S001005 WDT
Subcatch S001006 WDT
Subcatch S001007_1 WDT
Subcatch S001007_2 WDT
Subcatch S001008 WDT
Subcatch S001009 WDT
Subcatch S001010 WDT
Subcatch S001011 WDT
Subcatch S001012 WDT
Subcatch S001013 WDT
Subcatch S001014_1 WDT
Subcatch S001014_2 WDT
Subcatch S001015_1 WDT
Subcatch S001015_2 WDT
Subcatch S001015_3 WDT
Subcatch S001015_4 WDT
Subcatch S002001_1 WDT
Subcatch S002001_2 WDT
Subcatch S003001 WDT
Subcatch S003002_1 WDT
Subcatch S003002_2 WDT
Subcatch S003005 WDT
Subcatch S003006 WDT
Subcatch S003007 WDT
Subcatch S003008_1 WDT
Subcatch S003008_2 WDT
Subcatch S003009_1 WDT
Subcatch S003009_2 WDT
Subcatch S003010 WDT
Subcatch S003011 WDT
Subcatch S003012 WDT
Subcatch S003013_1 WDT
Subcatch S003013_2 WDT
Subcatch S003013_3 WDT
Subcatch S003013_4 WDT
Subcatch S004002 WDT
Subcatch S004005_1 WDT
Subcatch S004005_2 WDT
Subcatch S004006_1 WDT
Subcatch S004006_2 WDT
Subcatch S004006_3 WDT
Subcatch S004006_4 WDT
Subcatch S004008_1 WDT
Subcatch S004008_2 WDT
Subcatch S004009 WDT
Subcatch S004010_1 WDT
Subcatch S004010_2 WDT
Subcatch S004010_3 WDT
Subcatch S004011 WDT
Subcatch S004012_1 WDT
Subcatch S004012_2 WDT
Subcatch S004013_1 WDT
Subcatch S004013_2 WDT
Subcatch S004013_3 WDT
Subcatch S005003 WDT
Subcatch S006001 WDT
Subcatch S006002_1 WDT
Subcatch S006002_2 WDT
Subcatch S007001_1 WDT
Subcatch S007001_2 WDT
Subcatch S007003 WDT
Subcatch S007005 WDT
Subcatch S007006_1 WDT
Subcatch S007006_2 WDT
Subcatch S007006_3 WDT
Subcatch S007006_4 WDT
Subcatch S007007_1 WDT
Subcatch S007007_2 WDT
Subcatch S007007_3 WDT
Subcatch S007008_1 WDT
Subcatch S007008_2 WDT
Subcatch S007008_3 WDT
Subcatch S008001_1 WDT
Subcatch S008001_2 WDT
Subcatch S008001_3 WDT
Subcatch S009002 WDT
Subcatch S009004 WDT
Subcatch S009005 WDT
Subcatch S009006 WDT
Subcatch S009007 WDT
Subcatch S009008_1 WDT
Subcatch S009008_2 WDT
Subcatch S009008_3 WDT
Subcatch S009009 WDT
Subcatch S009010_1 WDT
Subcatch S009010_2 WDT
Subcatch S009011 WDT
Subcatch S009012 WDT
Subcatch S010002 WDT
Subcatch S011001_1 WDT
Subcatch S011001_2 WDT
Subcatch S011002_1 WDT
Subcatch S011002_2 WDT
Subcatch S012002_1 WDT
Subcatch S012002_2 WDT
Subcatch S012002_3 WDT
Subcatch S013001 WDT
Node J001004 WDT
Node J001005 WDT
Node J001006 WDT

Node	J001007	WDT
Node	J001008	WDT
Node	J001009	WDT
Node	J001010	WDT
Node	J001011	WDT
Node	J001012	WDT
Node	J001013	WDT
Node	J001014	WDT
Node	J001015	WDT
Node	J002001	WDT
Node	J003001	WDT
Node	J003002	WDT
Node	J003008	WDT
Node	J003009	WDT
Node	J003010	WDT
Node	J003011	WDT
Node	J004005	WDT
Node	J004006	WDT
Node	J004011	WDT
Node	J004012	WDT
Node	J004013	WDT
Node	J006001	WDT
Node	J006002	WDT
Node	J007001	WDT
Node	J007007	WDT
Node	J007008	WDT
Node	J008001	WDT
Node	J009009	WDT
Node	J009010	WDT
Node	J009011	WDT
Node	J009012	WDT
Node	OF001001	WDT
Node	SU003007	WDT
Node	SU003012	WDT
Node	SU003013	WDT
Node	SU007003	WDT
Node	SU007005	WDT
Node	SU007006	WDT
Node	SU011001	WDT
Node	SU011002	WDT
Node	SU012002	WDT
Link	C001002	WDT
Link	C001004	WDT
Link	C001005	WDT
Link	C001006	WDT
Link	C001007	WDT
Link	C001008	WDT
Link	C001009	WDT
Link	C001010	WDT
Link	C001011	WDT
Link	C001012	WDT
Link	C001013	WDT
Link	C001014	WDT
Link	C001015	WDT
Link	C002001	WDT
Link	C003001	WDT
Link	C003002	WDT
Link	C003003	WDT
Link	C003004	WDT
Link	C003005	SURVEYED
Link	C003006	SURVEYED
Link	C003007	SURVEYED
Link	C003008	WDT
Link	C003009	WDT
Link	C003010	WDT
Link	C003011	WDT
Link	C003012	WDT
Link	C003013	WDT
Link	C004001	WDT
Link	C004002	SURVEYED
Link	C004003	SURVEYED
Link	C004004	SURVEYED
Link	C004005	WDT
Link	C004006	WDT
Link	C004007	WDT
Link	C004008	SURVEYED
Link	C004009	SURVEYED
Link	C004010	SURVEYED
Link	C004011	WDT
Link	C004012	WDT
Link	C004013	WDT
Link	C005002	SURVEYED
Link	C005003	SURVEYED
Link	C006001	WDT
Link	C006002	WDT
Link	C007001	WDT
Link	C007002	WDT
Link	C007003	ASSUMED
Link	C007004	WDT
Link	C007005_1	WDT
Link	C007006	WDT
Link	C007007	WDT
Link	C007008	WDT
Link	C008001	WDT
Link	C009001	UNK
Link	C009002_1	SURVEYED
Link	C009003	WDT
Link	C009004_1	SURVEYED
Link	C009005	WDT
Link	C009006	WDT
Link	C009007	WDT
Link	C009008	WDT
Link	C009009	WDT
Link	C009010	WDT
Link	C009011	WDT
Link	C009012	WDT
Link	C010001	WDT
Link	C010002	SURVEYED
Link	C011001	WDT
Link	C011002	WDT
Link	C012001	WDT
Link	C012002	ASSUMED

[MAP]				
DIMENSIONS	701173.25	5704950.4666	709406.75	5711359.5154
UNITS	Meters			

Coordinates removed. Shapefile available upon request.

Appin Postdev Model - Continuous

WARNING 02: maximum depth increased for Node 1001002
 WARNING 02: maximum depth increased for Node 1001004
 WARNING 02: maximum depth increased for Node 1001005
 WARNING 02: maximum depth increased for Node 1001006
 WARNING 02: maximum depth increased for Node 1001007
 WARNING 02: maximum depth increased for Node 1001008
 WARNING 02: maximum depth increased for Node 1001009
 WARNING 02: maximum depth increased for Node 1001010
 WARNING 02: maximum depth increased for Node 1001011
 WARNING 02: maximum depth increased for Node 1001012
 WARNING 02: maximum depth increased for Node 1001013
 WARNING 02: maximum depth increased for Node 1001014
 WARNING 02: maximum depth increased for Node 1001015
 WARNING 02: maximum depth increased for Node 1002001
 WARNING 02: maximum depth increased for Node 1003001
 WARNING 02: maximum depth increased for Node 1003002
 WARNING 02: maximum depth increased for Node 1003003
 WARNING 02: maximum depth increased for Node 1003004
 WARNING 02: maximum depth increased for Node 1003008
 WARNING 02: maximum depth increased for Node 1003009
 WARNING 02: maximum depth increased for Node 1004011
 WARNING 02: maximum depth increased for Node 1004012
 WARNING 02: maximum depth increased for Node 1004013
 WARNING 02: maximum depth increased for Node 1007001
 WARNING 02: maximum depth increased for Node 1007002
 WARNING 02: maximum depth increased for Node 1007007
 WARNING 02: maximum depth increased for Node 1007008
 WARNING 02: maximum depth increased for Node 1009007
 WARNING 02: maximum depth increased for Node 1009009
 WARNING 02: maximum depth increased for Node 1009010
 WARNING 02: maximum depth increased for Node 1009011
 WARNING 02: maximum depth increased for Node 1010001
 WARNING 02: maximum depth increased for Node 1010002
 WARNING 02: maximum depth increased for Node 1012001

Element Count

Number of rain gages 1
 Number of subcatchments ... 103
 Number of nodes 75
 Number of links 76
 Number of pollutants 0
 Number of land uses 0

Raingage Summary

Name	Data Source	Data Type	Recording Interval
Raingage1	D:\Data\SWMM\Climate Data\Calgary Approved Data\Final_Hour_Precip_Data	HLY03.txt	

Subcatchment Summary

Name	Area	width	%Imperv	%Slope	Rain Gage	Outlet
S001003_1	2.42	29.01	8.25	5.5250	Raingage1	SU001003
S001003_2	18.26	586.18	2.40	8.4600	Raingage1	SU001003
S001003_3	44.11	597.76	2.63	3.5820	Raingage1	SU001003
S001003_4	24.24	280.67	2.10	3.6100	Raingage1	SU001003
S001004_1	19.20	432.77	2.31	8.2560	Raingage1	1001004
S001004_2	23.50	279.10	2.00	2.8330	Raingage1	1001004
S001005	5.60	351.22	3.48	5.7980	Raingage1	1001005
S001006	7.29	344.88	2.00	6.6690	Raingage1	1001006
S001007_1	53.88	721.92	2.00	2.8190	Raingage1	1001007
S001007_2	3.67	198.08	2.00	4.8370	Raingage1	1001007
S001008	4.38	292.34	5.69	4.9630	Raingage1	1001008
S001009	24.28	798.06	3.70	3.5720	Raingage1	1001009
S001010	6.64	300.94	2.00	3.1750	Raingage1	1001010
S001011	49.03	587.76	2.00	2.7250	Raingage1	1001011
S001012	17.36	325.96	2.00	2.7370	Raingage1	1001012
S001013	26.93	459.31	2.84	2.5760	Raingage1	1001013
S001014_1	18.21	499.58	2.00	3.1490	Raingage1	1001014
S001014_2	40.04	651.20	2.94	3.0140	Raingage1	1001014
S001015_1	15.20	295.75	3.51	3.0080	Raingage1	1001015
S001015_2	36.01	758.82	2.57	2.8200	Raingage1	1001015
S001015_3	43.76	558.83	3.70	4.1230	Raingage1	1001015
S001015_4	44.73	670.82	2.76	3.3960	Raingage1	1001015
S002001_1	55.30	691.81	3.16	3.0840	Raingage1	1002001
S002001_2	63.02	578.00	3.23	2.9020	Raingage1	1002001
S003001_1	25.82	761.04	2.64	3.1800	Raingage1	1003001
S003002_1	44.95	1013.34	4.01	5.0440	Raingage1	1003002
S003002_2	39.81	703.29	7.86	6.3720	Raingage1	1003002
S003005	7.59	249.18	50.00	16.2710	Raingage1	1003005
S003006	6.37	84.55	48.13	10.5190	Raingage1	1003006
S003007	19.06	484.21	4.35	3.5020	Raingage1	1003007
S003008_1	24.67	337.42	2.00	9.1460	Raingage1	1003008
S003008_2	27.18	838.91	4.05	4.2070	Raingage1	1003008
S003009_1	26.53	557.47	2.23	3.5170	Raingage1	1003009
S003009_2	25.89	845.01	3.81	4.1980	Raingage1	1003009
S003010	39.09	660.89	2.48	3.6930	Raingage1	1003010
S003011	19.85	437.45	2.96	3.1880	Raingage1	1003011
S003012	41.46	895.38	12.53	8.1300	Raingage1	1003012
S003013_1	44.60	437.79	14.64	9.8000	Raingage1	SU003013
S003013_2	50.41	847.70	2.02	9.6730	Raingage1	SU003013
S003013_3	49.54	643.16	11.00	8.8690	Raingage1	SU003013
S003013_4	26.16	299.56	3.21	5.2480	Raingage1	SU003013
S004002	2.33	248.77	13.69	23.3460	Raingage1	1004002
S004005_1	24.86	340.55	2.70	3.8510	Raingage1	1004005
S004005_2	18.68	939.46	9.56	7.7930	Raingage1	1004005
S004006_1	4.43	245.84	31.60	12.0450	Raingage1	1004006
S004006_2	7.11	394.08	2.00	12.0450	Raingage1	1004006
S004006_3	53.07	555.94	2.21	3.4830	Raingage1	1004006
S004006_4	38.30	668.29	2.00	3.9830	Raingage1	1004006
S004008_1	2.03	56.85	50.00	42.8650	Raingage1	1004008
S004008_2	1.74	93.52	50.00	10.4760	Raingage1	1004008
S004009	7.50	209.90	44.54	42.8650	Raingage1	SU004009
S004010_1	21.98	65.31	5.09	5.3090	Raingage1	SU004010
S004010_2	18.31	345.57	2.00	3.1680	Raingage1	SU004010
S004010_3	24.64	353.94	4.70	4.1010	Raingage1	SU004010
S004011	32.61	773.14	2.00	7.6310	Raingage1	1004011
S004012_1	17.91	316.57	2.57	6.4960	Raingage1	1004012

S004012_2	22.63	486.44	2.54	10.5810	RaIngage1	3004012
S004013_1	27.33	259.96	2.55	3.0570	RaIngage1	3004013
S004013_2	29.63	331.42	2.27	2.9470	RaIngage1	3004013
S004013_3	28.34	259.97	2.32	3.4880	RaIngage1	3004013
S005003	9.45	125.44	33.39	10.5190	RaIngage1	3005003
S006001	17.65	268.01	2.65	7.1670	RaIngage1	3006001
S006002_1	16.83	236.22	2.00	6.3540	RaIngage1	3006002
S006002_2	46.42	415.03	4.92	4.8530	RaIngage1	3006002
S007001_1	22.78	841.62	36.04	14.9900	RaIngage1	3007001
S007001_2	27.94	726.75	35.43	7.1010	RaIngage1	3007001
S007003	49.55	661.94	8.04	6.9480	RaIngage1	SU007003
S007005	31.22	417.14	8.04	6.9480	RaIngage1	SU007005
S007006_1	11.04	256.08	2.00	6.4720	RaIngage1	SU007006
S007006_2	32.69	1138.83	2.00	10.4880	RaIngage1	SU007006
S007006_3	51.58	519.26	2.00	5.0360	RaIngage1	SU007006
S007006_4	31.11	360.05	2.00	5.9710	RaIngage1	SU007006
S007007_1	13.49	538.14	8.89	9.5620	RaIngage1	3007007
S007007_2	34.52	539.67	2.00	10.6830	RaIngage1	3007007
S007007_3	27.27	530.51	2.00	9.0310	RaIngage1	3007007
S007008_1	37.53	438.09	2.00	2.7650	RaIngage1	3007008
S007008_2	16.03	354.31	2.00	3.8150	RaIngage1	3007008
S007008_3	31.56	395.48	2.00	3.1540	RaIngage1	3007008
S008001_1	39.51	739.00	2.48	5.6630	RaIngage1	3008001
S008001_2	27.86	451.16	3.10	5.7120	RaIngage1	3008001
S008001_3	20.04	403.48	4.36	10.4870	RaIngage1	3008001
S009002	4.82	290.79	28.87	8.8100	RaIngage1	3009002
S009004	19.89	208.82	4.51	9.0830	RaIngage1	S009004
S009005	6.23	65.41	3.33	9.0830	RaIngage1	S009005
S009006	18.40	193.21	2.46	9.0830	RaIngage1	S009006
S009007	13.53	142.03	4.33	9.0830	RaIngage1	3009007
S009008_1	2.21	102.66	8.05	6.7520	RaIngage1	SU009008
S009008_2	43.71	464.46	4.49	4.1630	RaIngage1	SU009008
S009008_3	10.13	471.27	3.19	6.7520	RaIngage1	SU009008
S009009	23.13	370.54	3.82	4.8950	RaIngage1	3009009
S009010_1	23.68	285.47	2.56	3.5690	RaIngage1	3009010
S009010_2	20.10	594.06	2.01	4.6990	RaIngage1	3009010
S009011	18.71	448.78	4.17	2.7520	RaIngage1	3009011
S009012	33.60	848.91	2.21	2.4930	RaIngage1	3009012
S010002	42.65	388.95	49.26	5.3650	RaIngage1	3010002
S011001_1	34.37	553.19	18.17	4.8800	RaIngage1	SU011001
S011001_2	33.68	829.07	15.73	7.9870	RaIngage1	SU011001
S011002_1	56.28	648.50	2.71	9.1390	RaIngage1	SU011002
S011002_2	31.83	596.48	2.25	8.0970	RaIngage1	SU011002
S012002_1	36.48	310.62	4.50	4.2260	RaIngage1	SU012002
S012002_2	20.09	809.49	28.28	11.5690	RaIngage1	SU012002
S012002_3	31.54	749.86	9.87	3.5410	RaIngage1	SU012002
S013001	17.37	252.83	5.13	6.2480	RaIngage1	OF013001

Node Summary

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
J001002	JUNCTION	1011.58	11.07	0.0	
J001004	JUNCTION	1020.35	6.83	0.0	
J001005	JUNCTION	1027.07	9.94	0.0	
J001006	JUNCTION	1027.46	9.94	0.0	
J001007	JUNCTION	1028.66	7.42	0.0	
J001008	JUNCTION	1028.97	6.94	0.0	
J001009	JUNCTION	1029.87	6.94	0.0	
J001010	JUNCTION	1031.12	3.24	0.0	
J001011	JUNCTION	1033.25	2.09	0.0	
J001012	JUNCTION	1034.40	2.15	0.0	
J001013	JUNCTION	1034.83	2.18	0.0	
J001014	JUNCTION	1035.72	2.18	0.0	
J001015	JUNCTION	1050.41	1.06	0.0	
J002001	JUNCTION	1037.63	2.39	0.0	
J003001	JUNCTION	1037.42	1.38	0.0	
J003002	JUNCTION	1038.41	2.06	0.0	
J003003	JUNCTION	1041.90	2.06	0.0	
J003004	JUNCTION	1042.09	2.06	0.0	
J003005	JUNCTION	1042.22	2.00	0.0	
J003006	JUNCTION	1042.70	2.00	0.0	
J003008	JUNCTION	1051.90	2.25	0.0	
J003009	JUNCTION	1056.14	2.25	0.0	
J003010	JUNCTION	1060.18	1.00	0.0	
J003011	JUNCTION	1064.68	1.00	0.0	
J004001	JUNCTION	1039.13	2.00	0.0	
J004002	JUNCTION	1038.95	2.00	0.0	
J004003	JUNCTION	1039.63	2.00	0.0	
J004004	JUNCTION	1040.22	2.00	0.0	
J004005	JUNCTION	1039.91	2.00	0.0	
J004006	JUNCTION	1040.04	2.00	0.0	
J004007	JUNCTION	1040.36	2.00	0.0	
J004008	JUNCTION	1040.42	2.00	0.0	
J004011	JUNCTION	1053.23	3.07	0.0	
J004012	JUNCTION	1067.88	2.92	0.0	
J004013	JUNCTION	1086.63	2.92	0.0	
J005001	JUNCTION	1042.16	2.00	0.0	
J005002	JUNCTION	1042.30	2.00	0.0	
J005003	JUNCTION	1043.30	2.00	0.0	
J006001	JUNCTION	1043.85	1.00	0.0	
J006002	JUNCTION	1044.79	1.00	0.0	
J007001	JUNCTION	1044.56	1.08	0.0	
J007002	JUNCTION	1047.30	1.08	0.0	
J007004	JUNCTION	1048.20	2.00	0.0	
J007007	JUNCTION	1056.29	6.84	0.0	
J007008	JUNCTION	1094.43	6.84	0.0	
J008001	JUNCTION	1057.68	1.00	0.0	
J009001	JUNCTION	1040.20	2.00	0.0	
J009002	JUNCTION	1043.13	2.00	0.0	
J009003	JUNCTION	1044.96	2.00	0.0	
J009007	JUNCTION	1077.93	8.29	0.0	
J009009	JUNCTION	1087.84	4.39	0.0	
J009010	JUNCTION	1090.18	3.71	0.0	
J009011	JUNCTION	1109.53	2.21	0.0	
J009012	JUNCTION	1122.39	1.00	0.0	
J010001	JUNCTION	1045.31	2.10	0.0	
J010002	JUNCTION	1045.48	2.10	0.0	
J012001	JUNCTION	1045.16	1.82	0.0	
OF001001	OUTFALL	1002.19	11.07	0.0	
OF013001	OUTFALL	0.00	0.00	0.0	
SU001003	STORAGE	1011.75	8.00	0.0	
SU003007	STORAGE	1043.02	1.00	0.0	
SU003012	STORAGE	1065.37	3.00	0.0	
SU003013	STORAGE	1071.61	3.00	0.0	
SU004009	STORAGE	1041.22	2.00	0.0	
SU004010	STORAGE	1042.41	2.00	0.0	
SU007003	STORAGE	1047.00	3.00	0.0	
SU007005	STORAGE	1049.97	3.00	0.0	

SU007006	STORAGE	1051.05	3.00	0.0
SU009004	STORAGE	1045.16	2.00	0.0
SU009005	STORAGE	1061.80	3.00	0.0
SU009006	STORAGE	1063.20	3.00	0.0
SU009008	STORAGE	1084.40	2.50	0.0
SU011001	STORAGE	1056.18	2.00	0.0
SU011002	STORAGE	1057.50	1.50	0.0
SU012002	STORAGE	1045.10	1.00	0.0

Link Summary

Name	From Node	To Node	Type	Length	%Slope	Roughness
C001002	J001002	OF001001	CONDUIT	1153.7	0.8138	0.0100
C001003	SU001003	J001002	CONDUIT	35.3	0.4936	0.0240
C001004	J001004	SU001003	CONDUIT	663.8	1.2950	0.0100
C001005	J001005	J001004	CONDUIT	877.8	0.7658	0.0100
C001006	J001006	J001005	CONDUIT	139.1	0.2846	0.0100
C001007	J001007	J001006	CONDUIT	275.3	0.4358	0.0100
C001008	J001008	J001007	CONDUIT	76.1	0.4071	0.0100
C001009	J001009	J001008	CONDUIT	98.8	0.9047	0.0100
C001010	J001010	J001009	CONDUIT	221.6	0.5654	0.0100
C001011	J001011	J001010	CONDUIT	307.9	0.6914	0.0100
C001012	J001012	J001011	CONDUIT	122.7	0.9371	0.0100
C001013	J001013	J001012	CONDUIT	509.9	0.0841	0.0100
C001014	J001014	J001013	CONDUIT	104.3	0.8496	0.0100
C001015	J001015	J001014	CONDUIT	1361.1	1.0793	0.0100
C002001	J002001	J001009	CONDUIT	608.5	1.2758	0.0100
C003001	J003001	J001014	CONDUIT	468.0	0.3649	0.0100
C003002	J003002	J003001	CONDUIT	127.4	0.7765	0.0100
C003003	J003003	J003002	CONDUIT	646.2	0.5396	0.0100
C003004	J003004	J003003	CONDUIT	275.7	0.0678	0.0100
C003005	J003005	J003004	CONDUIT	55.7	0.4234	0.0240
C003006	J003006	J003005	CONDUIT	69.7	0.6890	0.0240
C003007	SU003007	J003006	CONDUIT	27.9	0.3617	0.0240
C003008	J003008	SU003007	CONDUIT	741.7	1.1969	0.0300
C003009	J003009	J003008	CONDUIT	641.2	0.6614	0.0100
C003010	J003010	J003009	CONDUIT	597.5	0.6760	0.0100
C003011	J003011	J003010	CONDUIT	523.3	0.8604	0.0300
C003012	SU003012	J003011	CONDUIT	377.2	0.4480	0.0300
C003013	SU003013	SU003012	CONDUIT	551.3	1.1320	0.0300
C004001	J004001	J003002	CONDUIT	863.9	0.0826	0.0100
C004002	J004002	J004001	CONDUIT	23.7	-0.7299	0.0240
C004003	J004003	J004002	CONDUIT	70.2	0.3689	0.0240
C004004	J004004	J004003	CONDUIT	25.5	0.0666	0.0240
C004005	J004005	J004004	CONDUIT	142.4	-0.2212	0.0300
C004006	J004006	J004005	CONDUIT	307.2	0.0426	0.0300
C004007	J004007	J004006	CONDUIT	189.0	0.1703	0.0300
C004008	J004008	J004007	CONDUIT	13.8	1.1701	0.0240
C004009	SU004009	J004008	CONDUIT	70.2	1.1397	0.0240
C004010	SU004010	SU004009	CONDUIT	22.3	2.1950	0.0240
C004011	J004011	SU004010	CONDUIT	433.1	2.4995	0.0100
C004012	J004012	J004011	CONDUIT	580.4	2.5253	0.0100
C004013	J004013	J004012	CONDUIT	677.0	2.7706	0.0100
C005001	J005001	J003003	CONDUIT	112.8	0.2296	0.0300
C005002	J005002	J005001	CONDUIT	53.7	0.2568	0.0240
C005003	J005003	J005002	CONDUIT	63.2	1.1999	0.0240
C006001	J006001	SU003007	CONDUIT	302.5	0.2728	0.0100
C006002	J006002	J006001	CONDUIT	132.8	0.7103	0.0100
C007001	J007001	SU003007	CONDUIT	785.6	0.1953	0.0100
C007002	J007002	J007001	CONDUIT	369.4	0.7425	0.0100
C007003	SU007003	J007002	CONDUIT	90.3	0.2214	0.0240
C007004	J007004	SU007003	CONDUIT	145.0	0.4828	0.0300
C007005_1	SU007005	J007004	CONDUIT	44.3	6.4959	0.0240
C007006	SU007006	SU007005	CONDUIT	247.9	0.4344	0.0300
C007007	J007007	SU007006	CONDUIT	200.0	2.1210	0.0300
C007008	J007008	J007007	CONDUIT	1262.0	3.0236	0.0100
C008001	J008001	J003008	CONDUIT	990.0	0.5837	0.0300
C009001	J009001	J004005	CONDUIT	153.3	0.1924	0.0300
C009002_1	J009002	J009001	CONDUIT	129.3	2.2610	0.0240
C009003	J009003	J009002	CONDUIT	100.9	1.8161	0.0300
C009004_1	SU009004	J009003	CONDUIT	35.6	0.5815	0.0240
C009005	SU009005	SU009004	CONDUIT	876.6	2.0121	0.0100
C009006	SU009006	SU009005	CONDUIT	30.0	1.3335	0.0240
C009007	J009007	SU009006	CONDUIT	657.1	2.2429	0.0100
C009008	SU009008	J009007	CONDUIT	411.4	1.5716	0.0100
C009009	J009009	SU009008	CONDUIT	284.3	1.2106	0.0100
C009010	J009010	J009009	CONDUIT	155.9	1.4977	0.0100
C009011	J009011	J009010	CONDUIT	650.9	2.9741	0.0100
C009012	J009012	J009011	CONDUIT	621.2	2.0711	0.0100
C010001	J010001	J007001	CONDUIT	75.9	0.9912	0.0300
C010002	J010002	J010001	CONDUIT	26.4	0.6634	0.0240
C011001	SU011001	J007007	CONDUIT	314.8	0.0283	0.0300
C011002	SU011002	SU011001	CONDUIT	161.0	0.8205	0.0500
C012001	J012001	J010001	CONDUIT	735.8	-0.0203	0.0100
C012002	SU012002	J012001	CONDUIT	30.0	1.4668	0.0240
W007005_2	SU007005	J007004	WEIR			
W009002_2	J009002	SU004009	WEIR			
W009004_2	SU009004	SU004010	WEIR			

Cross Section Summary

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C001002	C156	11.07	565.85	6.69	77.50	1	18125.58
C001003	CIRCULAR	1.60	2.01	0.40	1.60	1	3.20
C001004	C157	4.78	233.43	2.81	82.02	1	5288.22
C001005	C16	6.83	301.73	3.63	79.82	1	6241.82
C001006	C17	9.94	816.85	6.25	124.15	1	14786.06
C001007	C18	7.42	404.29	3.97	97.75	1	6692.16
C001008	C19	6.82	445.74	4.14	101.98	1	7335.32
C001009	C20	6.94	462.22	4.34	101.07	1	11692.11
C001010	C21	3.24	101.88	1.58	62.55	1	1041.00
C001011	C22	2.09	77.96	0.89	87.38	1	597.98
C001012	C23	1.94	183.19	1.23	148.02	1	2037.60
C001013	C24	2.15	62.92	0.64	97.63	1	135.65
C001014	C25	2.18	111.75	1.39	104.09	1	1283.15
C001015	C113	1.06	43.63	0.63	69.15	1	332.55
C002001	C91	2.39	102.61	1.29	77.93	1	1371.12
C003001	C158	0.73	23.07	0.45	51.15	1	81.76
C003002	C26	1.38	58.52	0.70	88.05	1	407.98
C003003	C27	2.06	86.47	0.97	88.40	1	623.78
C003004	C27	2.06	86.47	0.97	88.40	1	221.14
C003005	CIRCULAR	0.90	0.64	0.23	0.90	2	0.64
C003006	CIRCULAR	0.90	0.64	0.23	0.90	2	0.81
C003007	CIRCULAR	0.90	0.64	0.23	0.90	2	0.59
C003008	TRIANGULAR	1.00	10.00	0.50	20.00	1	22.90

C003009	C43	2.25	137.64	1.57	85.82	1	1514.38
C003010	C50	0.90	46.04	0.50	92.57	1	236.95
C003011	TRIANGULAR	1.00	3.00	0.47	6.00	1	5.64
C003012	TRIANGULAR	1.00	3.00	0.47	6.00	1	4.07
C003013	TRIANGULAR	1.00	3.00	0.47	6.00	1	6.47
C004001	C33	1.22	42.49	0.53	79.28	1	80.13
C004002	CIRCULAR	0.80	0.50	0.20	0.80	2	0.61
C004003	CIRCULAR	0.90	0.64	0.23	0.90	2	0.60
C004004	CIRCULAR	0.90	0.64	0.23	0.90	2	0.25
C004005	TRAPEZOIDAL	2.00	220.00	1.83	120.00	1	515.50
C004006	TRAPEZOIDAL	2.00	220.00	1.83	120.00	1	226.37
C004007	TRAPEZOIDAL	2.00	220.00	1.83	120.00	1	452.40
C004008	CIRCULAR	0.80	0.50	0.20	0.80	2	0.77
C004009	CIRCULAR	0.90	0.64	0.23	0.90	2	1.05
C004010	CIRCULAR	0.90	0.64	0.23	0.90	2	1.45
C004011	C64	3.07	112.18	1.77	62.91	1	2591.15
C004012	C82	2.16	86.90	1.15	74.78	1	1518.14
C004013	C169	2.92	118.36	1.39	83.14	1	2458.47
C005001	DUMMY	0.00	0.00	0.00	0.00	1	0.00
C005002	CIRCULAR	0.80	0.50	0.20	0.80	2	0.36
C005003	CIRCULAR	0.80	0.50	0.20	0.80	2	0.78
C006001	C164	0.68	46.95	0.46	100.59	1	146.95
C006002	C95	0.98	28.48	0.47	60.31	1	144.80
C007001	C29	0.65	31.75	0.40	79.62	1	75.63
C007002	C32_2	1.08	25.25	0.49	50.24	1	135.89
C007003	CIRCULAR	0.90	0.64	0.23	0.90	1	0.46
C007004	TRIANGULAR	1.00	10.00	0.50	20.00	1	14.54
C007005_1	CIRCULAR	0.60	0.28	0.15	0.60	1	0.85
C007006	TRAPEZOIDAL	1.00	6.00	0.64	9.00	1	9.83
C007007	TRIANGULAR	1.00	3.00	0.47	6.00	1	8.86
C007008	C97	6.84	264.66	3.75	68.23	1	11106.01
C008001	TRIANGULAR	1.00	3.00	0.47	6.00	1	4.65
C009001	DUMMY	0.00	0.00	0.00	0.00	1	0.00
C009002_1	CIRCULAR	0.90	0.64	0.23	0.90	2	1.47
C009003	DUMMY	0.00	0.00	0.00	0.00	1	0.00
C009004_1	CIRCULAR	0.90	0.64	0.23	0.90	2	0.75
C009005	C65_5	0.27	4.66	0.11	41.99	1	15.21
C009006	CIRCULAR	0.90	0.64	0.23	0.90	2	1.13
C009007	C65_3	3.04	95.77	1.74	54.14	1	2079.24
C009008	C65_1	8.29	365.78	3.90	91.42	1	11362.61
C009009	C72_1	4.39	215.78	2.49	85.21	1	4365.84
C009010	C78	3.71	238.32	2.50	94.74	1	5369.56
C009011	C111	2.21	108.04	1.26	84.33	1	2171.43
C009012	C140	0.65	14.83	0.31	47.16	1	97.66
C010001	TRAPEZOIDAL	1.00	7.00	0.62	11.00	1	16.92
C010002	CIRCULAR	2.10	3.46	0.53	2.10	1	7.65
C011001	TRIANGULAR	1.00	3.00	0.47	6.00	1	1.02
C011002	TRIANGULAR	1.00	3.00	0.47	6.00	1	3.31
C012001	C70_1	1.82	43.33	0.58	72.24	1	43.03
C012002	CIRCULAR	0.60	0.28	0.15	0.60	1	0.40

Transect Summary

Transect C111

Area:					
	0.0015	0.0041	0.0076	0.0122	0.0174
	0.0234	0.0303	0.0378	0.0462	0.0555
	0.0654	0.0762	0.0877	0.0999	0.1131
	0.1274	0.1423	0.1583	0.1753	0.1933
	0.2121	0.2317	0.2524	0.2744	0.2975
	0.3211	0.3449	0.3689	0.3932	0.4179
	0.4430	0.4686	0.4945	0.5207	0.5472
	0.5740	0.6014	0.6292	0.6574	0.6859
	0.7149	0.7446	0.7747	0.8053	0.8364
	0.8679	0.9000	0.9326	0.9659	1.0000
Hrad:					
	0.0240	0.0479	0.0658	0.0850	0.1103
	0.1255	0.1471	0.1706	0.1818	0.2018
	0.2216	0.2394	0.2586	0.2779	0.2846
	0.3061	0.3236	0.3376	0.3496	0.3672
	0.3877	0.4021	0.4146	0.4257	0.4452
	0.4744	0.5040	0.5338	0.5615	0.5861
	0.6085	0.6340	0.6614	0.6889	0.7154
	0.7346	0.7576	0.7814	0.8046	0.8282
	0.8455	0.8639	0.8833	0.9073	0.9243
	0.9446	0.9625	0.9825	0.9936	1.0000
width:					
	0.0624	0.0874	0.1165	0.1451	0.1602
	0.1889	0.2088	0.2244	0.2574	0.2785
	0.2992	0.3224	0.3435	0.3644	0.4028
	0.4216	0.4457	0.4750	0.5081	0.5333
	0.5544	0.5839	0.6170	0.6532	0.6769
	0.6851	0.6921	0.6985	0.7073	0.7196
	0.7343	0.7451	0.7531	0.7609	0.7695
	0.7857	0.7979	0.8088	0.8203	0.8311
	0.8482	0.8642	0.8791	0.8892	0.9061
	0.9198	0.9357	0.9496	0.9722	1.0000

Transect C113

Area:					
	0.0021	0.0057	0.0102	0.0160	0.0226
	0.0303	0.0387	0.0481	0.0583	0.0694
	0.0812	0.0937	0.1069	0.1210	0.1359
	0.1518	0.1688	0.1867	0.2051	0.2244
	0.2447	0.2659	0.2874	0.3092	0.3313
	0.3537	0.3763	0.3991	0.4223	0.4460
	0.4700	0.4942	0.5186	0.5434	0.5687
	0.5943	0.6204	0.6469	0.6736	0.7009
	0.7287	0.7569	0.7854	0.8143	0.8437
	0.8737	0.9040	0.9351	0.9671	1.0000
Hrad:					
	0.0227	0.0476	0.0665	0.0860	0.1062
	0.1258	0.1457	0.1642	0.1832	0.2019
	0.2235	0.2445	0.2630	0.2797	0.2961
	0.3067	0.3213	0.3439	0.3661	0.3786
	0.3921	0.4170	0.4448	0.4720	0.4968
	0.5258	0.5547	0.5814	0.6038	0.6253
	0.6533	0.6810	0.7048	0.7266	0.7481
	0.7694	0.7897	0.8148	0.8342	0.8523
	0.8703	0.8932	0.9173	0.9349	0.9505
	0.9700	0.9890	0.9968	0.9921	1.0000
width:					
	0.0925	0.1201	0.1536	0.1859	0.2131
	0.2405	0.2659	0.2928	0.3183	0.3437
	0.3634	0.3833	0.4065	0.4325	0.4588
	0.4951	0.5253	0.5428	0.5603	0.5928
	0.6242	0.6377	0.6461	0.6551	0.6668
	0.6728	0.6784	0.6865	0.6994	0.7132

0.7194	0.7256	0.7358	0.7479	0.7601
0.7725	0.7856	0.7938	0.8075	0.8224
0.8372	0.8474	0.8562	0.8709	0.8876
0.9006	0.9141	0.9381	0.9748	1.0000

Transect C119

Area:	0.0006	0.0021	0.0043	0.0070	0.0105
	0.0145	0.0190	0.0245	0.0304	0.0380
	0.0491	0.0629	0.0783	0.0955	0.1145
	0.1344	0.1549	0.1757	0.1968	0.2183
	0.2402	0.2625	0.2850	0.3080	0.3315
	0.3561	0.3812	0.4066	0.4321	0.4581
	0.4842	0.5103	0.5366	0.5630	0.5896
	0.6163	0.6430	0.6698	0.6966	0.7237
	0.7509	0.7783	0.8057	0.8332	0.8608
	0.8884	0.9161	0.9440	0.9719	1.0000

Hrad:	0.0167	0.0289	0.0514	0.0602	0.0810
	0.0968	0.1097	0.1204	0.1410	0.1453
	0.1463	0.1494	0.1508	0.1665	0.1641
	0.1872	0.2125	0.2361	0.2619	0.2821
	0.3077	0.3300	0.3554	0.3729	0.3912
	0.4044	0.4257	0.4515	0.4724	0.4961
	0.5227	0.5492	0.5756	0.5973	0.6240
	0.6507	0.6773	0.7038	0.7281	0.7506
	0.7749	0.7996	0.8258	0.8520	0.8781
	0.9041	0.9287	0.9528	0.9766	1.0000

width:	0.0331	0.0726	0.0840	0.1171	0.1307
	0.1503	0.1743	0.2041	0.2194	0.3352
	0.4642	0.5164	0.5826	0.6329	0.7002
	0.7207	0.7314	0.7463	0.7535	0.7760
	0.7828	0.7975	0.8039	0.8282	0.8495
	0.8828	0.8976	0.9025	0.9168	0.9252
	0.9280	0.9309	0.9338	0.9441	0.9463
	0.9484	0.9506	0.9527	0.9578	0.9651
	0.9699	0.9741	0.9764	0.9786	0.9808
	0.9830	0.9867	0.9909	0.9953	1.0000

Transect C134

Area:	0.0004	0.0017	0.0038	0.0080	0.0137
	0.0208	0.0293	0.0385	0.0481	0.0582
	0.0686	0.0794	0.0907	0.1029	0.1157
	0.1291	0.1434	0.1585	0.1740	0.1899
	0.2061	0.2225	0.2392	0.2569	0.2750
	0.2935	0.3124	0.3318	0.3516	0.3716
	0.3919	0.4125	0.4340	0.4561	0.4790
	0.5026	0.5266	0.5516	0.5776	0.6054
	0.6366	0.6720	0.7104	0.7499	0.7906
	0.8321	0.8739	0.9158	0.9578	1.0000

Hrad:	0.0213	0.0415	0.0676	0.0750	0.0962
	0.1256	0.1522	0.1746	0.2087	0.2403
	0.2755	0.3101	0.3195	0.3499	0.3787
	0.3936	0.4179	0.4384	0.4720	0.5035
	0.5380	0.5730	0.5953	0.6113	0.6402
	0.6692	0.6928	0.7201	0.7524	0.7850
	0.8173	0.8369	0.8496	0.8598	0.8746
	0.9011	0.9127	0.9392	0.9482	0.9005
	0.9146	0.8359	0.7769	0.7964	0.8169
	0.8490	0.8893	0.9296	0.9697	1.0000

width:	0.0177	0.0415	0.0563	0.1220	0.1429
	0.1852	0.2125	0.2206	0.2304	0.2421
	0.2491	0.2560	0.2837	0.2942	0.3056
	0.3281	0.3432	0.3615	0.3686	0.3772
	0.3830	0.3883	0.4019	0.4203	0.4296
	0.4386	0.4509	0.4608	0.4673	0.4734
	0.4795	0.4929	0.5108	0.5304	0.5477
	0.5577	0.5770	0.5996	0.6250	0.6911
	0.7807	0.8781	0.9143	0.9416	0.9679
	0.9801	0.9826	0.9852	0.9877	1.0000

Transect C140

Area:	0.0017	0.0057	0.0113	0.0176	0.0246
	0.0324	0.0414	0.0511	0.0613	0.0720
	0.0834	0.0951	0.1071	0.1193	0.1319
	0.1449	0.1583	0.1720	0.1861	0.2004
	0.2150	0.2298	0.2452	0.2612	0.2775
	0.2942	0.3113	0.3288	0.3468	0.3651
	0.3840	0.4038	0.4246	0.4460	0.4691
	0.4978	0.5288	0.5608	0.5936	0.6274
	0.6618	0.6967	0.7320	0.7678	0.8047
	0.8424	0.8808	0.9198	0.9594	1.0000

Hrad:	0.0256	0.0470	0.0793	0.1112	0.1408
	0.1628	0.1850	0.2147	0.2460	0.2712
	0.3008	0.3351	0.3687	0.4007	0.4297
	0.4582	0.4862	0.5138	0.5440	0.5759
	0.6073	0.6384	0.6414	0.6692	0.6966
	0.7219	0.7442	0.7671	0.7911	0.8131
	0.8267	0.8183	0.8303	0.8511	0.8249
	0.7759	0.6902	0.7196	0.7401	0.7599
	0.7920	0.8242	0.8546	0.8844	0.8929
	0.9189	0.9431	0.9697	0.9944	1.0000

width:	0.0682	0.1223	0.1444	0.1604	0.1770
	0.2016	0.2261	0.2403	0.2513	0.2677
	0.2793	0.2857	0.2922	0.2993	0.3084
	0.3174	0.3265	0.3356	0.3427	0.3484
	0.3542	0.3599	0.3822	0.3901	0.3980
	0.4070	0.4176	0.4278	0.4373	0.4478
	0.4632	0.4923	0.5101	0.5227	0.6388
	0.7219	0.7668	0.7800	0.8026	0.8262
	0.8361	0.8457	0.8567	0.8682	0.9014
	0.9168	0.9339	0.9484	0.9647	1.0000

Transect C156

Area:	0.0016	0.0049	0.0096	0.0157	0.0229
	0.0313	0.0407	0.0510	0.0623	0.0743
	0.0871	0.1006	0.1147	0.1294	0.1448
	0.1610	0.1777	0.1950	0.2130	0.2317
	0.2510	0.2709	0.2913	0.3123	0.3340
	0.3563	0.3792	0.4026	0.4265	0.4509
	0.4758	0.5009	0.5264	0.5521	0.5780
	0.6042	0.6307	0.6574	0.6845	0.7118
	0.7395	0.7673	0.7954	0.8238	0.8524
	0.8814	0.9106	0.9401	0.9698	1.0000

Hrad:	0.0211	0.0407	0.0581	0.0763	0.0975
	0.1149	0.1342	0.1540	0.1742	0.1950
	0.2158	0.2367	0.2588	0.2795	0.2973
	0.3176	0.3382	0.3573	0.3765	0.3943
	0.4134	0.4340	0.4535	0.4718	0.4892
	0.5093	0.5274	0.5468	0.5679	0.5868
	0.6099	0.6316	0.6548	0.6789	0.7001
	0.7217	0.7443	0.7651	0.7847	0.8055
	0.8277	0.8482	0.8683	0.8893	0.9088
	0.9277	0.9470	0.9667	0.9835	1.0000
width:	0.0829	0.1309	0.1794	0.2220	0.2536
	0.2933	0.3266	0.3567	0.3844	0.4097
	0.4335	0.4559	0.4749	0.4955	0.5211
	0.5418	0.5611	0.5826	0.6035	0.6263
	0.6469	0.6645	0.6833	0.7041	0.7258
	0.7432	0.7633	0.7814	0.7962	0.8143
	0.8237	0.8347	0.8430	0.8497	0.8599
	0.8691	0.8769	0.8866	0.8974	0.9066
	0.9136	0.9226	0.9317	0.9395	0.9489
	0.9587	0.9679	0.9765	0.9881	1.0000
Transect C157					
Area:	0.0016	0.0051	0.0101	0.0166	0.0250
	0.0348	0.0454	0.0569	0.0690	0.0819
	0.0955	0.1095	0.1240	0.1391	0.1548
	0.1708	0.1871	0.2040	0.2213	0.2388
	0.2568	0.2754	0.2945	0.3141	0.3341
	0.3546	0.3756	0.3969	0.4187	0.4410
	0.4639	0.4872	0.5111	0.5354	0.5602
	0.5854	0.6116	0.6381	0.6651	0.6926
	0.7206	0.7490	0.7781	0.8078	0.8379
	0.8688	0.9005	0.9332	0.9665	1.0000
Hrad:	0.0192	0.0408	0.0580	0.0761	0.0891
	0.1169	0.1370	0.1633	0.1878	0.2071
	0.2332	0.2602	0.2820	0.3047	0.3300
	0.3560	0.3798	0.4020	0.4290	0.4526
	0.4747	0.4904	0.5119	0.5338	0.5544
	0.5747	0.5982	0.6187	0.6389	0.6556
	0.6732	0.6942	0.7136	0.7321	0.7521
	0.7665	0.7787	0.8015	0.8204	0.8372
	0.8568	0.8772	0.8846	0.9070	0.9262
	0.9299	0.9377	0.9438	0.9720	1.0000
width:	0.0832	0.1251	0.1758	0.2202	0.2828
	0.2999	0.3339	0.3512	0.3700	0.3980
	0.4121	0.4234	0.4421	0.4591	0.4714
	0.4819	0.4948	0.5095	0.5176	0.5293
	0.5425	0.5630	0.5768	0.5897	0.6040
	0.6182	0.6288	0.6424	0.6561	0.6734
	0.6898	0.7026	0.7168	0.7319	0.7453
	0.7642	0.7858	0.7964	0.8108	0.8274
	0.8411	0.8539	0.8797	0.8906	0.9045
	0.9342	0.9604	0.9890	0.9945	1.0000
Transect C158					
Area:	0.0017	0.0046	0.0084	0.0128	0.0180
	0.0246	0.0324	0.0412	0.0508	0.0614
	0.0727	0.0847	0.0978	0.1118	0.1266
	0.1421	0.1585	0.1759	0.1938	0.2121
	0.2308	0.2499	0.2698	0.2903	0.3114
	0.3329	0.3550	0.3776	0.4007	0.4243
	0.4484	0.4731	0.4983	0.5240	0.5501
	0.5773	0.6050	0.6334	0.6624	0.6917
	0.7211	0.7508	0.7806	0.8108	0.8415
	0.8726	0.9040	0.9357	0.9677	1.0000
Hrad:	0.0224	0.0435	0.0666	0.0882	0.0979
	0.1121	0.1245	0.1456	0.1625	0.1823
	0.2027	0.2190	0.2320	0.2515	0.2709
	0.2904	0.3009	0.3234	0.3469	0.3718
	0.3960	0.4152	0.4324	0.4528	0.4739
	0.4940	0.5149	0.5356	0.5562	0.5768
	0.5976	0.6134	0.6352	0.6558	0.6750
	0.6819	0.6996	0.7145	0.7355	0.7627
	0.7906	0.8183	0.8440	0.8612	0.8831
	0.9053	0.9283	0.9517	0.9759	1.0000
width:	0.0736	0.1062	0.1258	0.1447	0.1843
	0.2198	0.2603	0.2830	0.3129	0.3369
	0.3586	0.3871	0.4217	0.4448	0.4675
	0.4896	0.5269	0.5439	0.5587	0.5705
	0.5828	0.6021	0.6241	0.6413	0.6572
	0.6740	0.6896	0.7051	0.7206	0.7358
	0.7505	0.7713	0.7845	0.7990	0.8150
	0.8467	0.8648	0.8865	0.9005	0.9069
	0.9122	0.9175	0.9249	0.9416	0.9530
	0.9639	0.9738	0.9832	0.9916	1.0000
Transect C16					
Area:	0.0012	0.0039	0.0076	0.0125	0.0185
	0.0253	0.0331	0.0419	0.0516	0.0621
	0.0734	0.0853	0.0977	0.1108	0.1245
	0.1387	0.1534	0.1687	0.1845	0.2008
	0.2177	0.2353	0.2535	0.2722	0.2916
	0.3117	0.3323	0.3535	0.3752	0.3977
	0.4208	0.4448	0.4693	0.4944	0.5204
	0.5473	0.5758	0.6060	0.6367	0.6676
	0.6987	0.7302	0.7621	0.7944	0.8272
	0.8606	0.8945	0.9290	0.9641	1.0000
Hrad:	0.0217	0.0457	0.0657	0.0859	0.1073
	0.1287	0.1481	0.1683	0.1899	0.2123
	0.2338	0.2600	0.2842	0.3051	0.3297
	0.3557	0.3787	0.4005	0.4248	0.4470
	0.4643	0.4853	0.5063	0.5256	0.5452
	0.5637	0.5861	0.6079	0.6238	0.6440
	0.6560	0.6752	0.6959	0.7127	0.7283
	0.7253	0.7182	0.7302	0.7606	0.7896
	0.8180	0.8416	0.8644	0.8906	0.9070
	0.9289	0.9439	0.9687	0.9803	1.0000
width:	0.0578	0.0885	0.1194	0.1502	0.1775
	0.2025	0.2301	0.2563	0.2796	0.3008
	0.3223	0.3367	0.3527	0.3725	0.3870
	0.3993	0.4146	0.4309	0.4439	0.4588
	0.4789	0.4951	0.5110	0.5285	0.5457

0.5640	0.5780	0.5925	0.6131	0.6292
0.6538	0.6712	0.6871	0.7069	0.7281
0.7692	0.8178	0.8460	0.8515	0.8582
0.8653	0.8775	0.8902	0.8990	0.9179
0.9311	0.9512	0.9612	0.9847	1.0000

Transect C164

Area:	0.0067	0.0158	0.0254	0.0356	0.0468
	0.0602	0.0748	0.0896	0.1050	0.1210
	0.1373	0.1538	0.1707	0.1879	0.2053
	0.2228	0.2404	0.2583	0.2768	0.2956
	0.3146	0.3339	0.3535	0.3733	0.3933
	0.4135	0.4339	0.4543	0.4748	0.4956
	0.5167	0.5382	0.5600	0.5820	0.6045
	0.6274	0.6508	0.6747	0.6991	0.7242
	0.7501	0.7767	0.8036	0.8308	0.8581
	0.8860	0.9141	0.9425	0.9711	1.0000

Hrad:	0.0219	0.0494	0.0755	0.0998	0.1227
	0.1217	0.1493	0.1749	0.1955	0.2196
	0.2455	0.2708	0.2927	0.3187	0.3452
	0.3716	0.3977	0.4176	0.4349	0.4575
	0.4809	0.5047	0.5269	0.5487	0.5725
	0.5985	0.6243	0.6500	0.6755	0.6955
	0.7078	0.7284	0.7509	0.7686	0.7803
	0.7964	0.8062	0.8162	0.8290	0.8346
	0.8301	0.8523	0.8688	0.8932	0.9129
	0.9260	0.9498	0.9655	0.9897	1.0000

width:	0.3056	0.3209	0.3375	0.3579	0.4138
	0.4957	0.5021	0.5136	0.5381	0.5522
	0.5603	0.5691	0.5843	0.5908	0.5957
	0.6007	0.6057	0.6198	0.6376	0.6473
	0.6555	0.6628	0.6722	0.6816	0.6883
	0.6923	0.6963	0.7002	0.7042	0.7138
	0.7313	0.7403	0.7472	0.7586	0.7761
	0.7892	0.8086	0.8279	0.8446	0.8689
	0.9047	0.9122	0.9258	0.9308	0.9406
	0.9573	0.9627	0.9763	0.9814	1.0000

Transect C169

Area:	0.0019	0.0051	0.0091	0.0139	0.0192
	0.0249	0.0315	0.0388	0.0465	0.0547
	0.0635	0.0730	0.0830	0.0934	0.1045
	0.1160	0.1284	0.1417	0.1555	0.1700
	0.1851	0.2010	0.2178	0.2352	0.2534
	0.2723	0.2921	0.3130	0.3355	0.3617
	0.3882	0.4152	0.4425	0.4702	0.4984
	0.5271	0.5561	0.5858	0.6161	0.6467
	0.6780	0.7102	0.7431	0.7770	0.8118
	0.8476	0.8841	0.9215	0.9601	1.0000

Hrad:	0.0293	0.0591	0.0860	0.1149	0.1443
	0.1697	0.1874	0.2144	0.2420	0.2683
	0.2878	0.3120	0.3373	0.3599	0.3842
	0.4045	0.4140	0.4350	0.4570	0.4754
	0.4963	0.5091	0.5297	0.5475	0.5664
	0.5854	0.6000	0.5999	0.6011	0.5668
	0.6021	0.6327	0.6648	0.6959	0.7202
	0.7531	0.7822	0.8021	0.8328	0.8576
	0.8810	0.8932	0.9106	0.9299	0.9432
	0.9609	0.9809	0.9940	1.0084	1.0000

width:	0.0661	0.0878	0.1081	0.1227	0.1348
	0.1491	0.1706	0.1834	0.1949	0.2068
	0.2238	0.2372	0.2493	0.2632	0.2756
	0.2907	0.3144	0.3301	0.3447	0.3624
	0.3779	0.4002	0.4166	0.4353	0.4534
	0.4715	0.4933	0.5288	0.5984	0.6462
	0.6523	0.6631	0.6720	0.6815	0.6974
	0.7047	0.7152	0.7342	0.7431	0.7569
	0.7720	0.7972	0.8178	0.8370	0.8618
	0.8829	0.9017	0.9273	0.9519	1.0000

Transect C17

Area:	0.0009	0.0031	0.0089	0.0189	0.0307
	0.0431	0.0562	0.0695	0.0833	0.0976
	0.1120	0.1269	0.1419	0.1575	0.1735
	0.1901	0.2070	0.2244	0.2425	0.2609
	0.2796	0.2987	0.3185	0.3385	0.3587
	0.3791	0.3998	0.4209	0.4427	0.4650
	0.4880	0.5114	0.5355	0.5603	0.5858
	0.6122	0.6386	0.6650	0.6916	0.7182
	0.7451	0.7721	0.7993	0.8269	0.8547
	0.8830	0.9116	0.9406	0.9700	1.0000

Hrad:	0.0171	0.0323	0.0402	0.0534	0.0805
	0.1052	0.1344	0.1626	0.1855	0.2139
	0.2383	0.2662	0.2900	0.3114	0.3317
	0.3543	0.3762	0.3974	0.4133	0.4392
	0.4593	0.4807	0.4955	0.5221	0.5487
	0.5694	0.5940	0.6044	0.6183	0.6377
	0.6503	0.6643	0.6774	0.6904	0.6941
	0.7167	0.7441	0.7713	0.7971	0.8212
	0.8460	0.8695	0.8881	0.9092	0.9203
	0.9429	0.9592	0.9736	0.9897	1.0000

width:	0.0555	0.1025	0.2496	0.3701	0.3980
	0.4283	0.4360	0.4450	0.4676	0.4741
	0.4878	0.4938	0.5062	0.5229	0.5408
	0.5542	0.5679	0.5854	0.6046	0.6114
	0.6262	0.6391	0.6609	0.6659	0.6704
	0.6821	0.6889	0.7127	0.7329	0.7460
	0.7676	0.7874	0.8085	0.8302	0.8639
	0.8727	0.8748	0.8769	0.8806	0.8861
	0.8906	0.8963	0.9073	0.9154	0.9339
	0.9402	0.9531	0.9678	0.9808	1.0000

Transect C18

Area:	0.0021	0.0059	0.0114	0.0183	0.0264
	0.0356	0.0454	0.0563	0.0677	0.0797
	0.0923	0.1053	0.1189	0.1330	0.1474
	0.1623	0.1775	0.1932	0.2096	0.2264
	0.2435	0.2612	0.2793	0.2979	0.3172
	0.3370	0.3574	0.3783	0.3994	0.4212
	0.4435	0.4664	0.4898	0.5137	0.5379
	0.5627	0.5880	0.6140	0.6413	0.6695
	0.6992	0.7304	0.7625	0.7951	0.8280

Hrad:	0.8614	0.8952	0.9296	0.9644	1.0000
	0.0260	0.0481	0.0661	0.0921	0.1115
	0.1388	0.1640	0.1865	0.2151	0.2387
	0.2667	0.2940	0.3132	0.3437	0.3737
	0.3957	0.4237	0.4428	0.4618	0.4899
	0.5106	0.5352	0.5575	0.5752	0.5931
	0.6134	0.6329	0.6580	0.6806	0.6977
	0.7182	0.7347	0.7556	0.7806	0.8010
	0.8184	0.8450	0.8606	0.8787	0.8944
	0.9045	0.8296	0.8537	0.8760	0.9041
	0.9239	0.9470	0.9641	0.9842	1.0000
width:	0.0837	0.1271	0.1786	0.2053	0.2451
	0.2654	0.2862	0.3115	0.3246	0.3444
	0.3566	0.3687	0.3905	0.3976	0.4047
	0.4203	0.4289	0.4466	0.4642	0.4721
	0.4869	0.4979	0.5108	0.5281	0.5454
	0.5600	0.5754	0.5853	0.5972	0.6143
	0.6283	0.6459	0.6594	0.6692	0.6827
	0.6991	0.7070	0.7461	0.7710	0.8015
	0.8495	0.8889	0.9004	0.9139	0.9207
	0.9362	0.9480	0.9660	0.9807	1.0000
Transect C19					
Area:	0.0041	0.0109	0.0190	0.0281	0.0380
	0.0488	0.0601	0.0722	0.0848	0.0980
	0.1117	0.1261	0.1410	0.1561	0.1719
	0.1880	0.2050	0.2226	0.2411	0.2621
	0.2835	0.3050	0.3267	0.3484	0.3702
	0.3923	0.4146	0.4373	0.4601	0.4829
	0.5059	0.5292	0.5529	0.5768	0.6010
	0.6254	0.6500	0.6748	0.6998	0.7250
	0.7504	0.7762	0.8023	0.8286	0.8554
	0.8828	0.9110	0.9398	0.9693	1.0000
Hrad:	0.0225	0.0462	0.0733	0.0976	0.1196
	0.1450	0.1669	0.1916	0.2149	0.2382
	0.2593	0.2808	0.3069	0.3306	0.3502
	0.3735	0.3833	0.4058	0.3991	0.4007
	0.4279	0.4576	0.4870	0.5159	0.5430
	0.5682	0.5889	0.6157	0.6439	0.6720
	0.6969	0.7127	0.7375	0.7597	0.7820
	0.8060	0.8304	0.8539	0.8757	0.8996
	0.9203	0.9335	0.9583	0.9829	0.9858
	0.9930	0.9958	1.0009	1.0058	1.0000
width:	0.1907	0.2482	0.2725	0.3021	0.3333
	0.3526	0.3775	0.3947	0.4130	0.4304
	0.4507	0.4696	0.4798	0.4929	0.5119
	0.5248	0.5577	0.5719	0.6299	0.6811
	0.6885	0.6912	0.6939	0.6971	0.7023
	0.7098	0.7229	0.7278	0.7305	0.7333
	0.7393	0.7554	0.7615	0.7700	0.7784
	0.7847	0.7903	0.7967	0.8046	0.8102
	0.8187	0.8342	0.8387	0.8433	0.8679
	0.8888	0.9146	0.9386	0.9633	1.0000
Transect C20					
Area:	0.0033	0.0086	0.0151	0.0226	0.0310
	0.0403	0.0503	0.0611	0.0725	0.0843
	0.0970	0.1100	0.1237	0.1380	0.1528
	0.1681	0.1842	0.2006	0.2174	0.2348
	0.2529	0.2722	0.2945	0.3182	0.3421
	0.3663	0.3907	0.4152	0.4398	0.4645
	0.4894	0.5145	0.5396	0.5649	0.5904
	0.6163	0.6422	0.6682	0.6944	0.7209
	0.7475	0.7743	0.8015	0.8289	0.8564
	0.8841	0.9124	0.9410	0.9701	1.0000
Hrad:	0.0230	0.0458	0.0692	0.0878	0.1140
	0.1308	0.1539	0.1730	0.1989	0.2172
	0.2391	0.2640	0.2785	0.3017	0.3212
	0.3393	0.3574	0.3834	0.4027	0.4163
	0.4300	0.4348	0.3926	0.4211	0.4478
	0.4721	0.5005	0.5287	0.5562	0.5821
	0.6090	0.6364	0.6635	0.6880	0.7089
	0.7340	0.7608	0.7875	0.8081	0.8323
	0.8574	0.8776	0.8944	0.9199	0.9452
	0.9582	0.9762	0.9896	0.9906	1.0000
width:	0.1514	0.1962	0.2293	0.2694	0.2846
	0.3224	0.3420	0.3696	0.3810	0.4059
	0.4239	0.4351	0.4639	0.4775	0.4963
	0.5168	0.5375	0.5453	0.5621	0.5871
	0.6122	0.6771	0.7796	0.7838	0.7911
	0.8022	0.8054	0.8087	0.8127	0.8189
	0.8233	0.8267	0.8301	0.8367	0.8477
	0.8532	0.8562	0.8592	0.8690	0.8745
	0.8789	0.8884	0.9014	0.9050	0.9086
	0.9246	0.9357	0.9513	0.9797	1.0000
Transect C21					
Area:	0.0024	0.0060	0.0104	0.0153	0.0209
	0.0277	0.0355	0.0436	0.0522	0.0615
	0.0711	0.0810	0.0914	0.1033	0.1157
	0.1285	0.1420	0.1559	0.1702	0.1850
	0.2007	0.2176	0.2367	0.2581	0.2803
	0.3026	0.3251	0.3477	0.3706	0.3937
	0.4171	0.4408	0.4647	0.4888	0.5137
	0.5406	0.5687	0.5973	0.6262	0.6559
	0.6866	0.7177	0.7493	0.7821	0.8155
	0.8499	0.8855	0.9227	0.9608	1.0000
Hrad:	0.0315	0.0582	0.0908	0.1185	0.1378
	0.1500	0.1804	0.2125	0.2327	0.2631
	0.2945	0.3251	0.3333	0.3398	0.3699
	0.3961	0.4164	0.4456	0.4742	0.4893
	0.4971	0.5023	0.4720	0.4708	0.5081
	0.5452	0.5821	0.6169	0.6493	0.6817
	0.7149	0.7479	0.7808	0.8138	0.8451
	0.8707	0.8943	0.9225	0.9533	0.9819
	1.0109	1.0400	1.0667	1.0891	1.1081
	1.1207	1.1347	1.1493	1.1552	1.0000
width:	0.0782	0.1048	0.1165	0.1313	0.1549
	0.1884	0.2005	0.2090	0.2283	0.2376
	0.2452	0.2527	0.2783	0.3086	0.3174
	0.3291	0.3457	0.3545	0.3634	0.3829

	0.4088	0.4390	0.5088	0.5565	0.5598
	0.5632	0.5666	0.5717	0.5789	0.5858
	0.5918	0.5978	0.6035	0.6091	0.6624
	0.6920	0.7136	0.7237	0.7319	0.7672
	0.7762	0.7852	0.8144	0.8327	0.8478
	0.8846	0.9053	0.9490	0.9716	1.0000
Transect C22					
Area:					
	0.0008	0.0031	0.0069	0.0118	0.0175
	0.0242	0.0320	0.0409	0.0510	0.0620
	0.0739	0.0862	0.0990	0.1129	0.1273
	0.1422	0.1574	0.1733	0.1895	0.2059
	0.2228	0.2401	0.2580	0.2762	0.2947
	0.3137	0.3334	0.3535	0.3739	0.3947
	0.4159	0.4379	0.4604	0.4837	0.5077
	0.5326	0.5586	0.5853	0.6128	0.6416
	0.6714	0.7023	0.7341	0.7676	0.8020
	0.8374	0.8744	0.9130	0.9542	1.0000
Hrad:					
	0.0251	0.0468	0.0743	0.1034	0.1326
	0.1579	0.1776	0.2060	0.2275	0.2520
	0.2860	0.3227	0.3497	0.3726	0.4059
	0.4440	0.4712	0.5063	0.5434	0.5801
	0.6094	0.6390	0.6693	0.7043	0.7373
	0.7562	0.7816	0.8159	0.8499	0.8835
	0.8995	0.9205	0.9405	0.9581	0.9703
	0.9747	0.9935	1.0132	1.0108	1.0284
	1.0294	1.0504	1.0530	1.0551	1.0832
	1.0777	1.0916	1.0963	1.0070	1.0000
width:					
	0.0327	0.0665	0.0929	0.1140	0.1323
	0.1538	0.1804	0.1989	0.2245	0.2466
	0.2588	0.2676	0.2836	0.3034	0.3141
	0.3206	0.3344	0.3425	0.3489	0.3552
	0.3657	0.3760	0.3855	0.3921	0.3996
	0.4148	0.4265	0.4332	0.4398	0.4466
	0.4622	0.4755	0.4894	0.5047	0.5231
	0.5464	0.5622	0.5776	0.6063	0.6240
	0.6524	0.6688	0.6974	0.7278	0.7406
	0.7775	0.8015	0.8333	0.9479	1.0000
Transect C23					
Area:					
	0.0014	0.0043	0.0077	0.0114	0.0155
	0.0199	0.0245	0.0296	0.0351	0.0411
	0.0474	0.0542	0.0613	0.0687	0.0765
	0.0850	0.0971	0.1122	0.1295	0.1495
	0.1708	0.1928	0.2157	0.2396	0.2641
	0.2897	0.3160	0.3434	0.3718	0.4004
	0.4292	0.4581	0.4871	0.5161	0.5453
	0.5747	0.6041	0.6337	0.6634	0.6932
	0.7231	0.7532	0.7835	0.8139	0.8445
	0.8753	0.9063	0.9374	0.9686	1.0000
Hrad:					
	0.0204	0.0420	0.0676	0.0913	0.1151
	0.1389	0.1612	0.1746	0.1924	0.2073
	0.2273	0.2445	0.2686	0.2825	0.3029
	0.3145	0.3222	0.3278	0.3287	0.3292
	0.3361	0.3471	0.3562	0.3726	0.3831
	0.3956	0.4070	0.4160	0.4087	0.4373
	0.4677	0.4978	0.5269	0.5561	0.5852
	0.6144	0.6434	0.6712	0.6998	0.7289
	0.7562	0.7834	0.8118	0.8375	0.8621
	0.8905	0.9189	0.9428	0.9714	1.0000
width:					
	0.0687	0.1022	0.1136	0.1250	0.1350
	0.1431	0.1521	0.1695	0.1824	0.1982
	0.2088	0.2218	0.2282	0.2432	0.2526
	0.3224	0.4460	0.5136	0.5947	0.6707
	0.6899	0.7132	0.7466	0.7686	0.7985
	0.8254	0.8577	0.8918	0.9097	0.9159
	0.9179	0.9204	0.9245	0.9282	0.9319
	0.9355	0.9390	0.9442	0.9480	0.9511
	0.9562	0.9615	0.9652	0.9718	0.9797
	0.9830	0.9863	0.9943	0.9971	1.0000
Transect C24					
Area:					
	0.0016	0.0044	0.0078	0.0116	0.0164
	0.0219	0.0279	0.0347	0.0425	0.0509
	0.0600	0.0699	0.0802	0.0913	0.1029
	0.1150	0.1276	0.1408	0.1552	0.1704
	0.1862	0.2025	0.2192	0.2367	0.2549
	0.2738	0.2931	0.3129	0.3334	0.3545
	0.3765	0.3992	0.4225	0.4468	0.4721
	0.4983	0.5251	0.5530	0.5819	0.6115
	0.6421	0.6738	0.7066	0.7411	0.7766
	0.8135	0.8517	0.8917	0.9394	1.0000
Hrad:					
	0.0436	0.0946	0.1437	0.1820	0.2123
	0.2551	0.2880	0.3222	0.3482	0.3852
	0.4218	0.4604	0.5051	0.5306	0.5776
	0.6206	0.6628	0.6737	0.6963	0.7325
	0.7747	0.8165	0.8543	0.8795	0.9168
	0.9556	0.9957	1.0341	1.0717	1.0907
	1.1227	1.1591	1.1834	1.1988	1.2179
	1.2503	1.2850	1.2937	1.3263	1.3512
	1.3752	1.3922	1.3965	1.4131	1.4268
	1.4464	1.4532	1.4307	1.3518	1.0000
width:					
	0.0361	0.0466	0.0540	0.0638	0.0773
	0.0856	0.0969	0.1077	0.1218	0.1320
	0.1421	0.1515	0.1585	0.1717	0.1778
	0.1850	0.1921	0.2086	0.2225	0.2322
	0.2398	0.2474	0.2560	0.2686	0.2775
	0.2858	0.2937	0.3019	0.3103	0.3243
	0.3346	0.3436	0.3562	0.3719	0.3868
	0.3977	0.4079	0.4267	0.4379	0.4517
	0.4661	0.4831	0.5052	0.5236	0.5435
	0.5617	0.5853	0.6225	0.8153	1.0000
Transect C25					
Area:					
	0.0018	0.0080	0.0181	0.0297	0.0417
	0.0539	0.0668	0.0800	0.0934	0.1069
	0.1206	0.1344	0.1483	0.1626	0.1773
	0.1922	0.2074	0.2229	0.2384	0.2541
	0.2699	0.2861	0.3025	0.3190	0.3358
	0.3531	0.3707	0.3883	0.4061	0.4238
	0.4417	0.4598	0.4791	0.4994	0.5212
	0.5447	0.5699	0.5972	0.6254	0.6546

	0.6849	0.7162	0.7482	0.7809	0.8144
	0.8491	0.8849	0.9214	0.9600	1.0000
Hrad:	0.0187	0.0295	0.0491	0.0789	0.1080
	0.1342	0.1594	0.1871	0.2164	0.2454
	0.2742	0.3027	0.3283	0.3511	0.3725
	0.3971	0.4203	0.4479	0.4753	0.5026
	0.5257	0.5458	0.5726	0.5986	0.6110
	0.6287	0.6553	0.6819	0.7109	0.7398
	0.7686	0.7966	0.8222	0.8400	0.8521
	0.8684	0.8826	0.8944	0.9067	0.9192
	0.9316	0.9431	0.9554	0.9606	0.9684
	0.9744	0.9821	0.9899	0.9910	1.0000
width:	0.0747	0.2081	0.2838	0.2899	0.2966
	0.3091	0.3220	0.3287	0.3317	0.3348
	0.3378	0.3408	0.3468	0.3554	0.3650
	0.3712	0.3785	0.3815	0.3845	0.3874
	0.3933	0.4016	0.4045	0.4080	0.4209
	0.4301	0.4330	0.4358	0.4371	0.4383
	0.4396	0.4635	0.4883	0.5180	0.5516
	0.6015	0.6458	0.6827	0.7081	0.7315
	0.7584	0.7808	0.7955	0.8154	0.8356
	0.8745	0.8895	0.9151	0.9763	1.0000
Transect C26					
Area:	0.0015	0.0041	0.0082	0.0134	0.0195
	0.0263	0.0342	0.0432	0.0527	0.0630
	0.0738	0.0849	0.0962	0.1079	0.1199
	0.1327	0.1458	0.1593	0.1730	0.1870
	0.2013	0.2160	0.2314	0.2474	0.2638
	0.2806	0.2984	0.3186	0.3400	0.3626
	0.3861	0.4102	0.4351	0.4609	0.4877
	0.5158	0.5448	0.5746	0.6055	0.6378
	0.6722	0.7070	0.7421	0.7773	0.8128
	0.8484	0.8844	0.9214	0.9598	1.0000
Hrad:	0.0270	0.0552	0.0646	0.0963	0.1163
	0.1475	0.1549	0.1835	0.2055	0.2339
	0.2637	0.2957	0.3271	0.3572	0.3781
	0.4000	0.4279	0.4581	0.4885	0.5184
	0.5430	0.5619	0.5766	0.5950	0.6214
	0.6479	0.6724	0.6897	0.6996	0.7059
	0.7209	0.7423	0.7606	0.7787	0.7787
	0.7932	0.8129	0.8249	0.8332	0.8369
	0.7532	0.7869	0.8208	0.8546	0.8882
	0.9218	0.9548	0.9841	1.0091	1.0000
width:	0.0540	0.0698	0.1194	0.1306	0.1580
	0.1678	0.2078	0.2212	0.2412	0.2533
	0.2630	0.2698	0.2765	0.2839	0.2981
	0.3117	0.3203	0.3268	0.3328	0.3389
	0.3483	0.3612	0.3770	0.3906	0.3988
	0.4068	0.4657	0.4986	0.5294	0.5557
	0.5721	0.5867	0.6105	0.6287	0.6628
	0.6865	0.7043	0.7282	0.7566	0.8143
	0.8340	0.8394	0.8444	0.8492	0.8540
	0.8587	0.8788	0.9073	0.9338	1.0000
Transect C27					
Area:	0.0006	0.0023	0.0052	0.0089	0.0131
	0.0180	0.0234	0.0293	0.0356	0.0423
	0.0497	0.0576	0.0659	0.0746	0.0838
	0.0936	0.1038	0.1146	0.1259	0.1376
	0.1497	0.1622	0.1754	0.1892	0.2036
	0.2183	0.2335	0.2496	0.2664	0.2854
	0.3073	0.3358	0.3695	0.4039	0.4385
	0.4734	0.5087	0.5444	0.5802	0.6163
	0.6525	0.6890	0.7258	0.7631	0.8011
	0.8395	0.8783	0.9178	0.9585	1.0000
Hrad:	0.0211	0.0409	0.0645	0.0959	0.1231
	0.1448	0.1736	0.2025	0.2317	0.2520
	0.2724	0.3003	0.3272	0.3496	0.3713
	0.3940	0.4166	0.4349	0.4584	0.4853
	0.5120	0.5340	0.5462	0.5630	0.5883
	0.6152	0.6280	0.6391	0.6613	0.6643
	0.6675	0.5023	0.4547	0.4930	0.5310
	0.5679	0.6034	0.6415	0.6794	0.7178
	0.7560	0.7922	0.8263	0.8508	0.8836
	0.9166	0.9435	0.9620	0.9851	1.0000
width:	0.0269	0.0568	0.0813	0.0930	0.1064
	0.1241	0.1348	0.1447	0.1535	0.1678
	0.1824	0.1917	0.2011	0.2131	0.2255
	0.2372	0.2489	0.2631	0.2743	0.2832
	0.2920	0.3034	0.3206	0.3357	0.3456
	0.3544	0.3714	0.3900	0.4245	0.4886
	0.5417	0.7771	0.8126	0.8191	0.8257
	0.8335	0.8430	0.8486	0.8539	0.8585
	0.8630	0.8696	0.8782	0.8969	0.9065
	0.9158	0.9308	0.9540	0.9729	1.0000
Transect C29					
Area:	0.0012	0.0043	0.0083	0.0131	0.0188
	0.0251	0.0322	0.0396	0.0475	0.0562
	0.0656	0.0754	0.0856	0.0965	0.1080
	0.1201	0.1326	0.1457	0.1595	0.1745
	0.1903	0.2071	0.2249	0.2436	0.2630
	0.2833	0.3048	0.3300	0.3569	0.3844
	0.4123	0.4405	0.4693	0.4986	0.5280
	0.5579	0.5880	0.6183	0.6491	0.6802
	0.7115	0.7428	0.7743	0.8059	0.8379
	0.8701	0.9025	0.9349	0.9674	1.0000
Hrad:	0.0164	0.0405	0.0613	0.0817	0.1029
	0.1211	0.1451	0.1701	0.1888	0.2013
	0.2241	0.2478	0.2669	0.2802	0.2983
	0.3198	0.3398	0.3549	0.3708	0.3740
	0.3810	0.3883	0.4051	0.4178	0.4336
	0.4482	0.4487	0.4098	0.4278	0.4542
	0.4803	0.5058	0.5269	0.5555	0.5821
	0.6075	0.6357	0.6621	0.6827	0.7117
	0.7419	0.7720	0.8020	0.8272	0.8522
	0.8775	0.9083	0.9389	0.9695	1.0000
width:	0.0763	0.1063	0.1359	0.1612	0.1828
	0.2081	0.2223	0.2336	0.2524	0.2804
	0.2938	0.3053	0.3217	0.3454	0.3634

0.3768	0.3915	0.4120	0.4483	0.4681
0.5013	0.5352	0.5572	0.5850	0.6088
0.6343	0.6910	0.8082	0.8373	0.8490
0.8611	0.8734	0.8932	0.8997	0.9093
0.9203	0.9269	0.9356	0.9524	0.9573
0.9604	0.9635	0.9666	0.9752	0.9840
0.9922	0.9941	0.9961	0.9980	1.0000

Transect C32_2

Area:

0.0014	0.0045	0.0089	0.0145	0.0212
0.0286	0.0368	0.0457	0.0553	0.0655
0.0764	0.0879	0.1002	0.1134	0.1274
0.1423	0.1581	0.1749	0.1922	0.2096
0.2274	0.2454	0.2639	0.2829	0.3026
0.3225	0.3428	0.3634	0.3843	0.4054
0.4272	0.4498	0.4730	0.4969	0.5215
0.5468	0.5726	0.5989	0.6258	0.6534
0.6816	0.7104	0.7405	0.7720	0.8054
0.8405	0.8780	0.9170	0.9580	1.0000

Hrad:

0.0267	0.0517	0.0781	0.1024	0.1290
0.1599	0.1876	0.2134	0.2418	0.2693
0.2971	0.3233	0.3408	0.3623	0.3840
0.4011	0.4205	0.4437	0.4803	0.5164
0.5521	0.5815	0.6073	0.6314	0.6595
0.6910	0.7221	0.7547	0.7870	0.8190
0.8234	0.8421	0.8609	0.8799	0.8980
0.9146	0.9427	0.9705	0.9800	1.0018
1.0237	1.0413	1.0239	1.0307	1.0028
1.0131	0.9871	1.0122	0.9931	1.0000

width:

0.0541	0.0890	0.1159	0.1435	0.1664
0.1815	0.1987	0.2170	0.2318	0.2467
0.2607	0.2755	0.2980	0.3172	0.3362
0.3595	0.3812	0.3995	0.4050	0.4105
0.4160	0.4259	0.4381	0.4515	0.4619
0.4695	0.4772	0.4836	0.4900	0.4964
0.5201	0.5352	0.5504	0.5655	0.5812
0.5981	0.6075	0.6168	0.6382	0.6516
0.6650	0.6811	0.7223	0.7480	0.8025
0.8441	0.8897	0.9363	0.9645	1.0000

Transect C33

Area:

0.0007	0.0031	0.0063	0.0105	0.0154
0.0210	0.0277	0.0352	0.0432	0.0520
0.0613	0.0713	0.0819	0.0932	0.1049
0.1171	0.1299	0.1434	0.1576	0.1723
0.1876	0.2034	0.2199	0.2373	0.2553
0.2742	0.2937	0.3138	0.3345	0.3560
0.3782	0.4016	0.4267	0.4534	0.4819
0.5120	0.5435	0.5755	0.6080	0.6407
0.6738	0.7073	0.7412	0.7753	0.8098
0.8448	0.8805	0.9166	0.9561	1.0000

Hrad:

0.0229	0.0500	0.0783	0.1050	0.1341
0.1596	0.1772	0.2071	0.2356	0.2631
0.2912	0.3170	0.3428	0.3705	0.4010
0.4300	0.4543	0.4736	0.4983	0.5253
0.5538	0.5766	0.5949	0.6136	0.6324
0.6535	0.6799	0.7060	0.7257	0.7442
0.7644	0.7580	0.7500	0.7563	0.7523
0.7497	0.7847	0.8155	0.8527	0.8893
0.9252	0.9599	0.9948	1.0317	1.0647
1.0887	1.1186	1.1388	1.0186	1.0000

width:

0.0305	0.0620	0.0806	0.1002	0.1152
0.1324	0.1570	0.1705	0.1844	0.1984
0.2115	0.2258	0.2400	0.2525	0.2627
0.2735	0.2871	0.3040	0.3175	0.3294
0.3401	0.3541	0.3712	0.3882	0.4054
0.4213	0.4338	0.4462	0.4628	0.4803
0.4968	0.5320	0.5713	0.6021	0.6433
0.6858	0.6952	0.7080	0.7150	0.7223
0.7298	0.7381	0.7460	0.7522	0.7609
0.7762	0.7870	0.8045	0.9386	1.0000

Transect C37

Area:

0.0008	0.0020	0.0034	0.0056	0.0087
0.0124	0.0170	0.0225	0.0290	0.0365
0.0445	0.0530	0.0616	0.0705	0.0796
0.0895	0.1002	0.1116	0.1235	0.1363
0.1512	0.1676	0.1850	0.2033	0.2220
0.2414	0.2621	0.2836	0.3056	0.3285
0.3528	0.3785	0.4049	0.4320	0.4602
0.4891	0.5188	0.5499	0.5820	0.6146
0.6481	0.6838	0.7208	0.7584	0.7964
0.8349	0.8740	0.9142	0.9562	1.0000

Hrad:

0.0320	0.0635	0.0914	0.0813	0.1100
0.1293	0.1478	0.1586	0.1743	0.2031
0.2315	0.2667	0.3029	0.3383	0.3621
0.3752	0.4006	0.4288	0.4493	0.4723
0.4758	0.4865	0.4887	0.5193	0.5491
0.5626	0.5805	0.6077	0.6370	0.6385
0.6251	0.6413	0.6697	0.6918	0.7146
0.7440	0.7653	0.7714	0.7954	0.8200
0.8250	0.8324	0.8553	0.8874	0.9195
0.9439	0.9703	0.9903	0.9823	1.0000

width:

0.0235	0.0299	0.0364	0.0661	0.0769
0.0928	0.1112	0.1370	0.1609	0.1738
0.1859	0.1919	0.1966	0.2013	0.2124
0.2305	0.2494	0.2605	0.2750	0.3061
0.3584	0.3778	0.4049	0.4140	0.4264
0.4512	0.4752	0.4901	0.4977	0.5242
0.5646	0.5853	0.5985	0.6199	0.6427
0.6553	0.6806	0.7117	0.7261	0.7400
0.7803	0.8169	0.8394	0.8478	0.8563
0.8707	0.8902	0.9135	0.9663	1.0000

Transect C41

Area:

0.0008	0.0024	0.0046	0.0072	0.0104
0.0142	0.0187	0.0233	0.0282	0.0335
0.0392	0.0456	0.0538	0.0636	0.0747
0.0880	0.1044	0.1218	0.1403	0.1601
0.1810	0.2035	0.2290	0.2551	0.2813
0.3075	0.3339	0.3604	0.3870	0.4138
0.4408	0.4678	0.4949	0.5221	0.5493

	0.5766	0.6040	0.6315	0.6592	0.6869
	0.7147	0.7428	0.7712	0.8003	0.8299
	0.8602	0.8930	0.9279	0.9636	1.0000
Hrad:					
	0.0224	0.0477	0.0676	0.0904	0.1079
	0.1221	0.1485	0.1764	0.2012	0.2214
	0.2447	0.2636	0.2621	0.2737	0.2881
	0.2919	0.2953	0.3074	0.3056	0.3200
	0.3329	0.3258	0.3167	0.3514	0.3859
	0.4203	0.4545	0.4886	0.5201	0.5517
	0.5861	0.6203	0.6545	0.6885	0.7225
	0.7555	0.7876	0.8196	0.8519	0.8843
	0.9167	0.9487	0.9763	0.9859	1.0128
	1.0359	1.0602	1.0821	0.9777	1.0000
width:					
	0.0361	0.0505	0.0666	0.0789	0.0948
	0.1152	0.1241	0.1306	0.1385	0.1495
	0.1580	0.2001	0.2480	0.2867	0.3228
	0.4309	0.4633	0.4888	0.5260	0.5562
	0.5846	0.6483	0.7109	0.7134	0.7159
	0.7185	0.7210	0.7236	0.7297	0.7353
	0.7370	0.7387	0.7404	0.7421	0.7438
	0.7463	0.7496	0.7529	0.7558	0.7584
	0.7633	0.7693	0.7792	0.8038	0.8140
	0.8569	0.9307	0.9675	0.9842	1.0000
Transect C43					
Area:					
	0.0028	0.0080	0.0145	0.0221	0.0308
	0.0403	0.0508	0.0620	0.0739	0.0862
	0.0994	0.1133	0.1279	0.1432	0.1592
	0.1756	0.1928	0.2109	0.2296	0.2491
	0.2696	0.2911	0.3135	0.3365	0.3596
	0.3830	0.4065	0.4302	0.4541	0.4783
	0.5027	0.5272	0.5519	0.5767	0.6016
	0.6267	0.6521	0.6777	0.7035	0.7295
	0.7558	0.7822	0.8088	0.8355	0.8623
	0.8894	0.9168	0.9444	0.9721	1.0000
Hrad:					
	0.0190	0.0384	0.0586	0.0766	0.0972
	0.1148	0.1336	0.1520	0.1742	0.1938
	0.2078	0.2273	0.2428	0.2606	0.2801
	0.2985	0.3112	0.3268	0.3408	0.3543
	0.3683	0.3786	0.3902	0.4150	0.4397
	0.4644	0.4889	0.5133	0.5350	0.5578
	0.5819	0.6067	0.6317	0.6566	0.6794
	0.7012	0.7213	0.7441	0.7662	0.7868
	0.8089	0.8312	0.8549	0.8785	0.8999
	0.9180	0.9358	0.9591	0.9824	1.0000
width:					
	0.1488	0.2110	0.2511	0.2936	0.3213
	0.3568	0.3857	0.4143	0.4306	0.4514
	0.4857	0.5060	0.5346	0.5579	0.5767
	0.5971	0.6287	0.6547	0.6835	0.7136
	0.7428	0.7800	0.8152	0.8221	0.8288
	0.8351	0.8414	0.8477	0.8579	0.8663
	0.8722	0.8769	0.8810	0.8852	0.8919
	0.8998	0.9097	0.9160	0.9230	0.9316
	0.9383	0.9445	0.9490	0.9535	0.9603
	0.9705	0.9810	0.9855	0.9899	1.0000
Transect C50					
Area:					
	0.0016	0.0048	0.0091	0.0146	0.0211
	0.0285	0.0370	0.0460	0.0556	0.0663
	0.0776	0.0895	0.1020	0.1154	0.1295
	0.1443	0.1597	0.1756	0.1921	0.2094
	0.2274	0.2459	0.2648	0.2842	0.3043
	0.3250	0.3461	0.3678	0.3901	0.4129
	0.4363	0.4604	0.4849	0.5101	0.5357
	0.5620	0.5888	0.6162	0.6444	0.6730
	0.7022	0.7322	0.7629	0.7945	0.8269
	0.8602	0.8943	0.9290	0.9641	1.0000
Hrad:					
	0.0254	0.0463	0.0659	0.0875	0.1106
	0.1303	0.1524	0.1792	0.2021	0.2164
	0.2428	0.2672	0.2887	0.3024	0.3258
	0.3475	0.3700	0.3947	0.4128	0.4313
	0.4519	0.4769	0.5032	0.5210	0.5415
	0.5649	0.5880	0.6087	0.6275	0.6481
	0.6677	0.6884	0.7074	0.7292	0.7521
	0.7681	0.7900	0.8048	0.8233	0.8453
	0.8632	0.8784	0.8866	0.9000	0.9174
	0.9251	0.9422	0.9713	0.9881	1.0000
width:					
	0.0638	0.1040	0.1373	0.1668	0.1907
	0.2188	0.2425	0.2569	0.2753	0.3063
	0.3197	0.3350	0.3534	0.3816	0.3977
	0.4153	0.4316	0.4449	0.4654	0.4856
	0.5031	0.5156	0.5262	0.5455	0.5621
	0.5753	0.5887	0.6043	0.6216	0.6371
	0.6535	0.6688	0.6856	0.6995	0.7123
	0.7317	0.7454	0.7657	0.7826	0.7962
	0.8136	0.8335	0.8605	0.8828	0.9013
	0.9298	0.9492	0.9564	0.9756	1.0000
Transect C51					
Area:					
	0.0013	0.0034	0.0063	0.0102	0.0147
	0.0197	0.0255	0.0320	0.0393	0.0472
	0.0555	0.0644	0.0738	0.0839	0.0952
	0.1110	0.1319	0.1540	0.1771	0.2011
	0.2257	0.2505	0.2755	0.3006	0.3259
	0.3514	0.3770	0.4028	0.4285	0.4544
	0.4803	0.5065	0.5328	0.5592	0.5857
	0.6123	0.6391	0.6660	0.6932	0.7205
	0.7479	0.7754	0.8031	0.8310	0.8589
	0.8870	0.9151	0.9433	0.9716	1.0000
Hrad:					
	0.0220	0.0411	0.0521	0.0703	0.0873
	0.1058	0.1183	0.1339	0.1460	0.1674
	0.1855	0.2017	0.2158	0.2320	0.2412
	0.2327	0.1745	0.1953	0.2143	0.2370
	0.2605	0.2880	0.3150	0.3415	0.3673
	0.3926	0.4200	0.4473	0.4745	0.5017
	0.5267	0.5509	0.5774	0.6038	0.6302
	0.6551	0.6794	0.7023	0.7260	0.7514
	0.7768	0.8010	0.8233	0.8487	0.8746
	0.9004	0.9261	0.9509	0.9755	1.0000
width:					
	0.0598	0.0824	0.1224	0.1455	0.1691
	0.1876	0.2171	0.2405	0.2709	0.2836

0.3009	0.3210	0.3442	0.3637	0.4625
0.6425	0.7607	0.7931	0.8312	0.8533
0.8712	0.8748	0.8793	0.8849	0.8916
0.8993	0.9018	0.9042	0.9067	0.9092
0.9152	0.9226	0.9257	0.9289	0.9320
0.9371	0.9428	0.9505	0.9568	0.9606
0.9643	0.9695	0.9767	0.9802	0.9830
0.9858	0.9887	0.9924	0.9962	1.0000

Transect C54

Area:	0.0005	0.0017	0.0037	0.0063	0.0093
	0.0127	0.0166	0.0210	0.0260	0.0316
	0.0376	0.0462	0.0568	0.0688	0.0826
	0.0978	0.1139	0.1305	0.1479	0.1660
	0.1850	0.2047	0.2250	0.2457	0.2672
	0.2892	0.3123	0.3366	0.3621	0.3888
	0.4179	0.4477	0.4776	0.5076	0.5377
	0.5679	0.5981	0.6285	0.6589	0.6894
	0.7200	0.7508	0.7818	0.8128	0.8439
	0.8750	0.9062	0.9374	0.9687	1.0000

Hrad:	0.0157	0.0339	0.0487	0.0721	0.0937
	0.1079	0.1291	0.1411	0.1521	0.1715
	0.1857	0.1832	0.1940	0.1951	0.2073
	0.2162	0.2379	0.2582	0.2791	0.2953
	0.3106	0.3316	0.3540	0.3732	0.3935
	0.4145	0.4195	0.4287	0.4390	0.4520
	0.4428	0.4718	0.5016	0.5312	0.5607
	0.5906	0.6205	0.6504	0.6801	0.7098
	0.7366	0.7625	0.7926	0.8227	0.8526
	0.8826	0.9125	0.9423	0.9721	1.0000

width:	0.0289	0.0507	0.0771	0.0882	0.0994
	0.1181	0.1288	0.1492	0.1714	0.1847
	0.2092	0.3066	0.3548	0.4166	0.4593
	0.5021	0.5180	0.5441	0.5647	0.5894
	0.6177	0.6378	0.6527	0.6723	0.6924
	0.7115	0.7550	0.7954	0.8325	0.8780
	0.9451	0.9500	0.9533	0.9566	0.9599
	0.9623	0.9647	0.9671	0.9695	0.9719
	0.9781	0.9852	0.9868	0.9884	0.9900
	0.9916	0.9933	0.9949	0.9965	1.0000

Transect C64

Area:	0.0009	0.0035	0.0070	0.0111	0.0159
	0.0214	0.0275	0.0339	0.0412	0.0491
	0.0575	0.0669	0.0777	0.0895	0.1021
	0.1151	0.1287	0.1431	0.1581	0.1735
	0.1895	0.2066	0.2245	0.2433	0.2628
	0.2832	0.3047	0.3277	0.3516	0.3763
	0.4020	0.4284	0.4557	0.4838	0.5123
	0.5420	0.5726	0.6040	0.6362	0.6685
	0.7009	0.7334	0.7661	0.7989	0.8318
	0.8649	0.8982	0.9318	0.9657	1.0000

Hrad:	0.0174	0.0358	0.0639	0.0883	0.1049
	0.1270	0.1519	0.1722	0.1861	0.2074
	0.2291	0.2208	0.2436	0.2491	0.2752
	0.2995	0.3163	0.3347	0.3577	0.3816
	0.3944	0.4063	0.4219	0.4376	0.4553
	0.4655	0.4635	0.4857	0.4955	0.5115
	0.5322	0.5516	0.5634	0.5885	0.6141
	0.6154	0.6401	0.6513	0.6799	0.7115
	0.7430	0.7744	0.8056	0.8363	0.8666
	0.8967	0.9255	0.9494	0.9745	1.0000

width:	0.0517	0.0971	0.1105	0.1257	0.1517
	0.1692	0.1810	0.1972	0.2215	0.2369
	0.2511	0.3035	0.3192	0.3600	0.3714
	0.3846	0.4073	0.4280	0.4423	0.4551
	0.4808	0.5090	0.5326	0.5563	0.5776
	0.6090	0.6582	0.6753	0.7102	0.7363
	0.7561	0.7772	0.8097	0.8228	0.8350
	0.8816	0.8952	0.9282	0.9364	0.9401
	0.9438	0.9475	0.9511	0.9554	0.9600
	0.9646	0.9705	0.9815	0.9910	1.0000

Transect C65_1

Area:	0.0020	0.0056	0.0104	0.0163	0.0232
	0.0309	0.0393	0.0483	0.0581	0.0687
	0.0799	0.0917	0.1040	0.1168	0.1304
	0.1445	0.1590	0.1741	0.1897	0.2059
	0.2224	0.2395	0.2572	0.2758	0.2948
	0.3142	0.3341	0.3549	0.3761	0.3978
	0.4202	0.4434	0.4672	0.4916	0.5167
	0.5426	0.5691	0.5964	0.6245	0.6534
	0.6831	0.7138	0.7454	0.7779	0.8117
	0.8466	0.8828	0.9201	0.9593	1.0000

Hrad:	0.0294	0.0548	0.0834	0.1062	0.1340
	0.1599	0.1901	0.2146	0.2387	0.2635
	0.2885	0.3169	0.3457	0.3675	0.3917
	0.4204	0.4473	0.4707	0.4930	0.5216
	0.5490	0.5719	0.5863	0.6051	0.6346
	0.6604	0.6758	0.6973	0.7227	0.7465
	0.7591	0.7766	0.8004	0.8213	0.8336
	0.8536	0.8759	0.8877	0.9038	0.9190
	0.9353	0.9465	0.9594	0.9733	0.9780
	0.9851	0.9946	0.9966	1.0017	1.0000

width:	0.0693	0.1042	0.1269	0.1555	0.1754
	0.1956	0.2087	0.2272	0.2455	0.2627
	0.2788	0.2911	0.3022	0.3193	0.3341
	0.3445	0.3559	0.3701	0.3849	0.3944
	0.4044	0.4177	0.4378	0.4546	0.4629
	0.4736	0.4923	0.5065	0.5177	0.5299
	0.5506	0.5680	0.5805	0.5952	0.6166
	0.6323	0.6462	0.6684	0.6877	0.7078
	0.7273	0.7512	0.7742	0.7968	0.8278
	0.8577	0.8862	0.9225	0.9574	1.0000

Transect C65_3

Area:	0.0019	0.0058	0.0108	0.0167	0.0237
	0.0315	0.0402	0.0497	0.0599	0.0710
	0.0831	0.0958	0.1089	0.1229	0.1378
	0.1533	0.1693	0.1857	0.2026	0.2200
	0.2382	0.2570	0.2764	0.2962	0.3166
	0.3376	0.3591	0.3811	0.4036	0.4264

	0.4497	0.4734	0.4981	0.5233	0.5490
	0.5751	0.6015	0.6284	0.6561	0.6844
	0.7133	0.7426	0.7727	0.8033	0.8347
	0.8667	0.8992	0.9322	0.9659	1.0000
Hrad:					
	0.0221	0.0437	0.0686	0.0901	0.1106
	0.1322	0.1526	0.1750	0.1949	0.2107
	0.2311	0.2568	0.2801	0.2927	0.3126
	0.3357	0.3604	0.3856	0.4084	0.4271
	0.4430	0.4649	0.4869	0.5090	0.5270
	0.5480	0.5681	0.5894	0.6139	0.6383
	0.6624	0.6724	0.6863	0.7069	0.7308
	0.7547	0.7784	0.7932	0.8069	0.8230
	0.8432	0.8619	0.8752	0.8958	0.9044
	0.9255	0.9464	0.9613	0.9796	1.0000
width:					
	0.0878	0.1335	0.1588	0.1872	0.2158
	0.2396	0.2653	0.2857	0.3093	0.3393
	0.3619	0.3752	0.3910	0.4224	0.4433
	0.4592	0.4723	0.4841	0.4984	0.5175
	0.5401	0.5553	0.5700	0.5842	0.6030
	0.6183	0.6343	0.6489	0.6596	0.6701
	0.6807	0.7061	0.7278	0.7423	0.7532
	0.7638	0.7743	0.7940	0.8148	0.8333
	0.8477	0.8633	0.8846	0.8985	0.9247
	0.9382	0.9517	0.9714	0.9870	1.0000
Transect C65_5					
Area:					
	0.0025	0.0062	0.0109	0.0163	0.0224
	0.0292	0.0366	0.0447	0.0533	0.0624
	0.0718	0.0818	0.0921	0.1031	0.1147
	0.1268	0.1393	0.1522	0.1655	0.1793
	0.1937	0.2086	0.2241	0.2401	0.2568
	0.2741	0.2921	0.3108	0.3302	0.3502
	0.3704	0.3910	0.4118	0.4330	0.4546
	0.4768	0.4996	0.5230	0.5470	0.5746
	0.6062	0.6446	0.6852	0.7274	0.7702
	0.8141	0.8594	0.9057	0.9524	1.0000
Hrad:					
	0.0380	0.0719	0.1053	0.1383	0.1695
	0.1998	0.2307	0.2605	0.2935	0.3274
	0.3605	0.3929	0.4212	0.4454	0.4696
	0.5002	0.5341	0.5674	0.5958	0.6193
	0.6428	0.6690	0.6945	0.7142	0.7346
	0.7563	0.7756	0.7943	0.8145	0.8491
	0.8842	0.9191	0.9536	0.9878	1.0123
	1.0296	1.0514	1.0771	1.1026	1.1091
	1.1050	0.7863	0.7977	0.8333	0.8685
	0.8893	0.9103	0.9480	0.9853	1.0000
width:					
	0.0663	0.0869	0.1037	0.1180	0.1323
	0.1462	0.1588	0.1715	0.1816	0.1904
	0.1993	0.2081	0.2187	0.2315	0.2442
	0.2535	0.2609	0.2683	0.2778	0.2895
	0.3013	0.3118	0.3226	0.3362	0.3496
	0.3625	0.3766	0.3913	0.4054	0.4124
	0.4189	0.4254	0.4318	0.4383	0.4490
	0.4630	0.4752	0.4855	0.5131	0.6053
	0.7018	0.8197	0.8590	0.8729	0.8869
	0.9154	0.9441	0.9554	0.9666	1.0000
Transect C70_1					
Area:					
	0.0014	0.0044	0.0083	0.0131	0.0187
	0.0250	0.0317	0.0389	0.0464	0.0543
	0.0623	0.0706	0.0792	0.0879	0.0969
	0.1062	0.1156	0.1254	0.1354	0.1457
	0.1561	0.1667	0.1774	0.1884	0.1998
	0.2141	0.2304	0.2480	0.2674	0.2880
	0.3097	0.3320	0.3552	0.3794	0.4049
	0.4318	0.4604	0.4904	0.5216	0.5539
	0.5878	0.6233	0.6605	0.6998	0.7418
	0.7867	0.8348	0.8853	0.9405	1.0000
Hrad:					
	0.0351	0.0777	0.1185	0.1581	0.1960
	0.2367	0.2820	0.3242	0.3697	0.4175
	0.4641	0.5094	0.5539	0.5975	0.6401
	0.6810	0.7198	0.7579	0.7969	0.8401
	0.8827	0.9247	0.9661	1.0035	1.0363
	1.0521	1.0591	1.0556	1.0560	1.0745
	1.0942	1.1158	1.1373	1.1558	1.1717
	1.1638	1.1655	1.1786	1.1931	1.2102
	1.2251	1.2390	1.2532	1.2625	1.2565
	1.2567	1.2506	1.2526	1.2007	1.0000
width:					
	0.0402	0.0579	0.0721	0.0850	0.0975
	0.1077	0.1143	0.1214	0.1267	0.1307
	0.1346	0.1385	0.1423	0.1461	0.1500
	0.1540	0.1584	0.1628	0.1668	0.1698
	0.1728	0.1757	0.1787	0.1823	0.2031
	0.2545	0.2784	0.3038	0.3307	0.3479
	0.3622	0.3741	0.3886	0.4090	0.4289
	0.4576	0.4832	0.5030	0.5223	0.5429
	0.5704	0.5995	0.6286	0.6630	0.7149
	0.7594	0.8115	0.8517	0.9511	1.0000
Transect C72_1					
Area:					
	0.0022	0.0057	0.0107	0.0165	0.0232
	0.0309	0.0395	0.0488	0.0585	0.0691
	0.0807	0.0930	0.1059	0.1194	0.1334
	0.1479	0.1630	0.1789	0.1954	0.2122
	0.2297	0.2478	0.2665	0.2855	0.3050
	0.3251	0.3459	0.3674	0.3894	0.4121
	0.4357	0.4599	0.4847	0.5103	0.5366
	0.5634	0.5908	0.6189	0.6475	0.6768
	0.7066	0.7369	0.7678	0.7995	0.8318
	0.8645	0.8977	0.9314	0.9655	1.0000
Hrad:					
	0.0256	0.0469	0.0686	0.0938	0.1112
	0.1317	0.1548	0.1795	0.2037	0.2161
	0.2364	0.2576	0.2798	0.3043	0.3279
	0.3488	0.3664	0.3857	0.4097	0.4335
	0.4505	0.4701	0.4919	0.5179	0.5372
	0.5567	0.5707	0.5876	0.6074	0.6227
	0.6364	0.6555	0.6698	0.6853	0.7060
	0.7247	0.7401	0.7620	0.7803	0.7975
	0.8189	0.8406	0.8558	0.8709	0.8894
	0.9154	0.9322	0.9551	0.9764	1.0000
width:					
	0.0851	0.1235	0.1575	0.1776	0.2104

0.2371	0.2576	0.2742	0.2900	0.3225
0.3444	0.3640	0.3818	0.3955	0.4099
0.4271	0.4484	0.4674	0.4804	0.4930
0.5134	0.5308	0.5453	0.5549	0.5714
0.5875	0.6098	0.6290	0.6450	0.6657
0.6887	0.7056	0.7279	0.7490	0.7644
0.7818	0.8028	0.8167	0.8343	0.8533
0.8675	0.8813	0.9021	0.9229	0.9399
0.9481	0.9659	0.9770	0.9898	1.0000

Transect C78

Area:	0.0016	0.0050	0.0097	0.0156	0.0226
	0.0306	0.0395	0.0493	0.0602	0.0718
	0.0842	0.0973	0.1113	0.1260	0.1414
	0.1575	0.1743	0.1917	0.2098	0.2283
	0.2477	0.2677	0.2883	0.3094	0.3313
	0.3538	0.3767	0.4002	0.4242	0.4488
	0.4740	0.4997	0.5258	0.5522	0.5788
	0.6056	0.6324	0.6596	0.6870	0.7146
	0.7423	0.7702	0.7982	0.8265	0.8549
	0.8835	0.9123	0.9413	0.9706	1.0000

Hrad:	0.0192	0.0381	0.0543	0.0695	0.0898
	0.1075	0.1252	0.1417	0.1574	0.1756
	0.1962	0.2123	0.2299	0.2455	0.2649
	0.2843	0.3018	0.3187	0.3386	0.3583
	0.3699	0.3901	0.4093	0.4273	0.4394
	0.4607	0.4801	0.4998	0.5154	0.5309
	0.5510	0.5723	0.5895	0.6151	0.6413
	0.6671	0.6925	0.7136	0.7381	0.7632
	0.7887	0.8141	0.8360	0.8605	0.8864
	0.9114	0.9308	0.9539	0.9770	1.0000

width:	0.0835	0.1325	0.1785	0.2248	0.2528
	0.2853	0.3160	0.3490	0.3832	0.4097
	0.4302	0.4592	0.4849	0.5144	0.5348
	0.5549	0.5786	0.6023	0.6203	0.6381
	0.6705	0.6871	0.7051	0.7250	0.7548
	0.7687	0.7854	0.8012	0.8236	0.8461
	0.8609	0.8736	0.8925	0.8983	0.9030
	0.9081	0.9137	0.9247	0.9311	0.9366
	0.9415	0.9463	0.9550	0.9607	0.9647
	0.9694	0.9802	0.9869	0.9935	1.0000

Transect C82

Area:	0.0017	0.0047	0.0087	0.0135	0.0192
	0.0258	0.0330	0.0408	0.0492	0.0583
	0.0682	0.0788	0.0900	0.1017	0.1139
	0.1269	0.1407	0.1555	0.1710	0.1874
	0.2049	0.2230	0.2419	0.2616	0.2823
	0.3036	0.3254	0.3475	0.3702	0.3936
	0.4176	0.4424	0.4679	0.4940	0.5208
	0.5483	0.5765	0.6052	0.6343	0.6639
	0.6941	0.7252	0.7570	0.7892	0.8221
	0.8561	0.8911	0.9267	0.9631	1.0000

Hrad:	0.0246	0.0482	0.0734	0.0977	0.1136
	0.1388	0.1636	0.1881	0.2089	0.2283
	0.2481	0.2681	0.2928	0.3182	0.3369
	0.3515	0.3680	0.3805	0.3993	0.4143
	0.4266	0.4493	0.4657	0.4823	0.4983
	0.5239	0.5521	0.5766	0.5987	0.6174
	0.6363	0.6543	0.6744	0.6941	0.7135
	0.7333	0.7528	0.7789	0.8038	0.8254
	0.8435	0.8553	0.8806	0.9030	0.9133
	0.9212	0.9382	0.9527	0.9761	1.0000

width:	0.0674	0.0970	0.1190	0.1385	0.1694
	0.1866	0.2025	0.2176	0.2363	0.2562
	0.2757	0.2949	0.3083	0.3205	0.3388
	0.3619	0.3833	0.4096	0.4295	0.4533
	0.4814	0.4976	0.5206	0.5438	0.5679
	0.5809	0.5907	0.6041	0.6197	0.6389
	0.6578	0.6777	0.6953	0.7134	0.7317
	0.7494	0.7675	0.7786	0.7907	0.8060
	0.8247	0.8497	0.8613	0.8757	0.9020
	0.9313	0.9513	0.9738	0.9873	1.0000

Transect C91

Area:	0.0020	0.0053	0.0092	0.0137	0.0187
	0.0241	0.0300	0.0368	0.0443	0.0522
	0.0604	0.0688	0.0776	0.0869	0.0968
	0.1072	0.1179	0.1289	0.1405	0.1526
	0.1651	0.1783	0.1933	0.2109	0.2322
	0.2575	0.2844	0.3116	0.3390	0.3667
	0.3947	0.4231	0.4517	0.4804	0.5096
	0.5394	0.5695	0.5998	0.6306	0.6618
	0.6934	0.7257	0.7584	0.7914	0.8249
	0.8589	0.8934	0.9286	0.9640	1.0000

Hrad:	0.0265	0.0540	0.0824	0.1040	0.1330
	0.1611	0.1735	0.1895	0.2117	0.2408
	0.2681	0.2942	0.3201	0.3335	0.3525
	0.3751	0.4010	0.4198	0.4387	0.4581
	0.4771	0.4802	0.4852	0.4618	0.4381
	0.3558	0.3863	0.4200	0.4533	0.4843
	0.5142	0.5444	0.5772	0.6098	0.6307
	0.6583	0.6900	0.7190	0.7430	0.7691
	0.7939	0.8140	0.8417	0.8708	0.8894
	0.9147	0.9288	0.9572	0.9827	1.0000

width:	0.0787	0.1004	0.1139	0.1338	0.1432
	0.1520	0.1757	0.1975	0.2129	0.2204
	0.2287	0.2377	0.2463	0.2646	0.2788
	0.2900	0.2984	0.3117	0.3251	0.3380
	0.3512	0.3770	0.4394	0.5326	0.6275
	0.7336	0.7458	0.7511	0.7563	0.7651
	0.7752	0.7842	0.7890	0.7938	0.8137
	0.8248	0.8302	0.8385	0.8527	0.8641
	0.8766	0.8944	0.9035	0.9108	0.9292
	0.9402	0.9630	0.9708	0.9813	1.0000

Transect C95

Area:	0.0009	0.0038	0.0081	0.0141	0.0213
	0.0296	0.0395	0.0504	0.0616	0.0730
	0.0846	0.0963	0.1083	0.1207	0.1333
	0.1461	0.1589	0.1719	0.1850	0.1982
	0.2117	0.2257	0.2400	0.2547	0.2695

	0.2843	0.3000	0.3174	0.3362	0.3557
	0.3768	0.3989	0.4227	0.4477	0.4743
	0.5018	0.5309	0.5614	0.5931	0.6265
	0.6611	0.6963	0.7325	0.7691	0.8059
	0.8433	0.8813	0.9198	0.9593	1.0000
Hrad:	0.0206	0.0415	0.0658	0.0892	0.1122
	0.1377	0.1568	0.1885	0.2270	0.2646
	0.3016	0.3380	0.3695	0.3992	0.4368
	0.4742	0.5113	0.5481	0.5846	0.6199
	0.6399	0.6623	0.6863	0.7195	0.7558
	0.7918	0.8252	0.8526	0.8771	0.8956
	0.8935	0.9128	0.9314	0.9494	0.9654
	0.9830	0.9957	1.0110	0.9918	0.9815
	1.0026	1.0204	1.0431	1.0674	1.0925
	1.1130	1.1387	1.1419	1.1334	1.0000
width:	0.0448	0.0912	0.1237	0.1588	0.1905
	0.2156	0.2532	0.2686	0.2725	0.2770
	0.2815	0.2860	0.2942	0.3035	0.3063
	0.3091	0.3119	0.3147	0.3175	0.3208
	0.3320	0.3419	0.3509	0.3552	0.3577
	0.3635	0.3909	0.4417	0.4629	0.4902
	0.5226	0.5558	0.5907	0.6201	0.6549
	0.6750	0.7212	0.7473	0.7863	0.8285
	0.8414	0.8694	0.8791	0.8862	0.8934
	0.9147	0.9220	0.9408	0.9668	1.0000
Transect C97					
Area:	0.0018	0.0053	0.0099	0.0156	0.0221
	0.0297	0.0383	0.0475	0.0575	0.0682
	0.0797	0.0919	0.1048	0.1184	0.1324
	0.1471	0.1624	0.1783	0.1947	0.2116
	0.2291	0.2471	0.2657	0.2848	0.3044
	0.3246	0.3454	0.3668	0.3887	0.4112
	0.4344	0.4581	0.4824	0.5073	0.5330
	0.5594	0.5863	0.6140	0.6425	0.6717
	0.7017	0.7322	0.7634	0.7956	0.8286
	0.8621	0.8960	0.9302	0.9649	1.0000
Hrad:	0.0240	0.0480	0.0679	0.0922	0.1165
	0.1307	0.1548	0.1795	0.1994	0.2202
	0.2435	0.2609	0.2843	0.3068	0.3303
	0.3525	0.3725	0.3949	0.4176	0.4394
	0.4595	0.4820	0.5020	0.5254	0.5455
	0.5643	0.5823	0.6037	0.6249	0.6406
	0.6579	0.6785	0.6986	0.7142	0.7273
	0.7459	0.7642	0.7774	0.7914	0.8088
	0.8244	0.8460	0.8587	0.8657	0.8851
	0.9079	0.9338	0.9548	0.9773	1.0000
width:	0.0792	0.1134	0.1495	0.1736	0.1942
	0.2325	0.2529	0.2702	0.2941	0.3159
	0.3333	0.3587	0.3752	0.3923	0.4074
	0.4238	0.4423	0.4578	0.4724	0.4878
	0.5048	0.5188	0.5354	0.5479	0.5639
	0.5811	0.5991	0.6135	0.6278	0.6478
	0.6663	0.6812	0.6964	0.7164	0.7393
	0.7564	0.7738	0.7966	0.8190	0.8376
	0.8585	0.8727	0.8965	0.9272	0.9444
	0.9569	0.9649	0.9779	0.9891	1.0000

Rainfall File Summary

Station ID	First Date	Last Date	Recording Frequency	Periods w/Precip	Periods Missing	Periods Malfunc.
3031093	01/02/1960	12/31/2009	60 min	27424	0	0

NOTE: The summary statistics displayed in this report are based on results found at every computational time step, not just on results from each reporting time step.

Analysis options

Flow Units CMS
Process Models:
Rainfall/Runoff YES
RDII NO
Snowmelt YES
Groundwater NO
Flow Routing YES
Ponding Allowed NO
Water Quality NO
Infiltration Method MODIFIED_GREEN_AMPT
Flow Routing Method DYNWAVE
Surcharge Method EXTRAN
Starting Date 01/01/1960 00:00:00
Ending Date 01/01/2010 00:00:00
Antecedent Dry Days 0.0
Report Time Step 01:00:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step 60.00 sec
Variable Time Step YES
Maximum Trials 8
Number of Threads 8
Head Tolerance 0.001500 m

	Volume hectare-m	Depth mm
Runoff Quantity Continuity	-----	-----
Initial Snow Cover	0.000	0.000
Total Precipitation	54983.770	20455.700
Evaporation Loss	2725.882	1014.114
Infiltration Loss	51335.566	19098.453
Surface Runoff	949.830	353.367
Snow Removed	0.000	0.000
Final Snow Cover	0.000	0.000
Final Storage	0.300	0.112
Continuity Error (%)	-0.051	

Volume Volume

```
Flow Routing Continuity      hectare-m      10A6 ltr
*****
Dry weather Inflow .....      0.000      0.000
Wet weather Inflow .....    916.059    9160.690
Groundwater Inflow .....      0.000      0.000
RDII Inflow .....          0.000      0.000
External Inflow .....        0.000      0.000
External Outflow .....     404.574    4045.786
Flooding Loss .....          0.000      0.000
Evaporation Loss .....     542.882    5428.872
Exfiltration Loss .....      0.000      0.000
Initial Stored Volume ....    32.507    325.074
Final Stored Volume .....     2.257     22.574
Continuity Error (%) .....    -0.121
```

Highest Continuity Errors

Node J012001 (5.18%)
Node J007001 (-2.51%)
Node SU003007 (1.40%)
Node J006001 (-1.23%)

Time-Step Critical Elements

Link C004002 (7.74%)
Link C004008 (6.87%)
Link C009006 (1.78%)

Highest Flow Instability Indexes

Link C004002 (29)
Link C004006 (7)
Link C003005 (4)
Link C003006 (3)
Link C004003 (2)

Routing Time Step Summary

Minimum Time Step : 0.50 sec
Average Time Step : 52.75 sec
Maximum Time Step : 60.00 sec
Percent in Steady State : -0.00
Average Iterations per Step : 2.04
Percent Not Converging : 0.01
Time Step Frequencies :
60.000 - 23.031 sec : 87.58 %
23.031 - 8.841 sec : 10.07 %
8.841 - 3.393 sec : 2.02 %
3.393 - 1.303 sec : 0.32 %
1.303 - 0.500 sec : 0.01 %

Subcatchment Runoff Summary

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10A6 ltr	Peak Runoff CMS	Runoff Coeff
S001003_1	20455.70	0.00	1061.87	19142.50	1074.93	261.71	261.71	6.35	0.08	0.013
S001003_2	20455.70	0.00	848.62	19126.29	318.33	493.81	493.81	90.16	1.55	0.024
S001003_3	20455.70	0.00	350.11	20022.99	345.10	87.17	87.17	38.45	0.69	0.004
S001003_4	20455.70	0.00	329.84	20037.15	276.26	93.19	93.19	22.59	0.39	0.005
S001004_1	20455.70	0.00	425.65	19853.65	305.23	183.62	183.62	35.25	0.80	0.009
S001004_2	20455.70	0.00	327.79	20041.93	262.77	90.31	90.31	21.22	0.35	0.004
S001005	20455.70	0.00	364.47	19999.72	461.43	98.43	98.43	5.51	0.26	0.005
S001006	20455.70	0.00	255.53	20115.89	265.39	89.33	89.33	6.51	0.29	0.004
S001007_1	20455.70	0.00	258.54	20146.34	262.97	54.27	54.27	29.24	0.57	0.003
S001007_2	20455.70	0.00	254.67	20117.32	265.35	88.77	88.77	3.25	0.14	0.004
S001008	20455.70	0.00	526.57	19832.09	751.48	105.78	105.78	4.64	0.22	0.005
S001009	20455.70	0.00	384.37	19996.60	487.17	80.31	80.31	19.50	0.63	0.004
S001010	20455.70	0.00	255.38	20124.11	264.88	80.88	80.88	5.37	0.20	0.004
S001011	20455.70	0.00	258.96	20148.39	262.76	51.72	51.72	25.36	0.46	0.003
S001012	20455.70	0.00	257.68	20140.92	263.50	60.86	60.86	10.56	0.25	0.003
S001013	20455.70	0.00	320.23	20079.20	372.66	60.21	60.21	16.21	0.35	0.003
S001014_1	20455.70	0.00	258.09	20131.53	264.18	70.26	70.26	12.79	0.38	0.003
S001014_2	20455.70	0.00	372.23	19995.86	385.66	92.44	92.44	37.01	0.69	0.005
S001015_1	20455.70	0.00	370.89	20022.95	461.45	66.38	66.38	10.09	0.24	0.003
S001015_2	20455.70	0.00	1573.23	18024.58	338.34	874.82	874.82	315.01	1.99	0.043
S001015_3	20455.70	0.00	516.38	19800.95	484.85	144.79	144.79	63.36	1.09	0.007
S001015_4	20455.70	0.00	344.46	20034.12	362.63	81.62	81.62	36.51	0.66	0.004
S002001_1	20455.70	0.00	347.80	20054.95	414.30	56.72	56.72	31.37	0.59	0.003
S002001_2	20455.70	0.00	352.54	20057.09	421.83	49.56	49.56	31.23	0.49	0.002
S003001	20455.70	0.00	694.78	19470.92	348.85	300.31	300.31	77.53	1.34	0.015
S003002_1	20455.70	0.00	492.60	19825.98	527.25	143.96	143.96	64.71	1.43	0.007
S003002_2	20455.70	0.00	693.57	19683.01	1028.16	85.47	85.47	34.02	0.86	0.004
S003005	20455.70	0.00	3865.93	16137.67	6501.80	473.81	473.81	35.94	0.86	0.023
S003006	20455.70	0.00	3800.11	16304.80	6176.04	361.93	361.93	23.05	0.47	0.018
S003007	20455.70	0.00	431.31	19953.46	572.38	76.30	76.30	14.55	0.41	0.004
S003008_1	20455.70	0.00	390.77	19915.18	263.93	156.01	156.01	38.49	0.80	0.008
S003008_2	20455.70	0.00	457.33	19878.54	533.86	126.44	126.44	34.37	0.89	0.006
S003009_1	20455.70	0.00	1151.78	18707.91	293.63	610.37	610.37	161.94	1.51	0.030
S003009_2	20455.70	0.00	679.40	19521.67	502.06	264.83	264.83	68.58	1.47	0.013
S003010	20455.70	0.00	1579.71	18038.62	326.53	854.23	854.23	333.93	2.02	0.042
S003011	20455.70	0.00	967.42	19030.74	389.09	470.04	470.04	93.31	1.02	0.023
S003012	20455.70	0.00	1408.95	18682.65	1638.09	377.97	377.97	156.69	2.82	0.018
S003013_1	20455.70	0.00	1571.22	18565.11	1899.07	331.05	331.05	147.65	1.93	0.016
S003013_2	20455.70	0.00	813.49	19229.11	266.91	424.88	424.88	214.17	2.99	0.021
S003013_3	20455.70	0.00	1406.31	18644.67	1434.14	417.55	417.55	206.87	2.57	0.020
S003013_4	20455.70	0.00	1615.92	18030.84	421.32	825.43	825.43	215.97	1.16	0.040
S004002	20455.70	0.00	1234.75	18927.58	1812.60	317.08	317.08	7.40	0.26	0.016
S004005_1	20455.70	0.00	1182.07	18730.02	354.61	557.73	557.73	138.67	1.06	0.027
S004005_2	20455.70	0.00	1019.33	19152.99	1259.21	297.85	297.85	55.65	1.61	0.015
S004006_1	20455.70	0.00	2519.98	17594.36	4137.81	364.08	364.08	16.14	0.48	0.018
S004006_2	20455.70	0.00	584.85	19547.14	265.89	334.75	334.75	23.79	0.70	0.016
S004006_3	20455.70	0.00	975.96	19097.44	289.48	394.48	394.48	209.35	1.59	0.019
S004006_4	20455.70	0.00	526.20	19724.01	263.67	213.60	213.60	81.81	1.29	0.010
S004008_1	20455.70	0.00	3850.13	16136.74	6521.19	494.80	494.80	10.05	0.24	0.024
S004008_2	20455.70	0.00	3853.89	16134.96	6518.13	492.06	492.06	8.58	0.20	0.024
S004009	20455.70	0.00	3434.60	16637.91	5814.67	407.58	407.58	30.56	0.84	0.020
S004010_1	20455.70	0.00	500.10	19921.55	657.43	37.10	37.10	8.15	0.08	0.002
S004010_2	20455.70	0.00	258.75	20138.27	264.28	62.50	62.50	11.44	0.28	0.003

S004010_3	20455.70	0.00	461.48	19932.69	615.64	66.19	66.19	16.31	0.35	0.003
S004011	20455.70	0.00	276.62	20088.04	264.60	95.80	95.80	31.25	0.90	0.005
S004012_1	20455.70	0.00	402.03	19916.43	339.10	143.40	143.40	25.68	0.56	0.007
S004012_2	20455.70	0.00	295.82	20085.37	336.26	79.45	79.45	17.98	0.63	0.004
S004013_1	20455.70	0.00	1509.53	18292.49	333.81	668.93	668.93	182.83	0.82	0.033
S004013_2	20455.70	0.00	946.74	19129.44	298.44	390.96	390.96	115.86	0.87	0.019
S004013_3	20455.70	0.00	549.42	19750.51	304.07	163.19	163.19	46.26	0.57	0.008
S005003	20455.70	0.00	2647.83	17610.33	4306.84	207.37	207.37	19.59	0.47	0.010
S006001	20455.70	0.00	304.79	20087.16	348.45	68.12	68.12	12.02	0.32	0.003
S006002_1	20455.70	0.00	258.90	20137.10	263.70	63.57	63.57	10.70	0.27	0.003
S006002_2	20455.70	0.00	478.67	19922.71	642.29	58.48	58.48	27.14	0.46	0.003
S007001_1	20455.70	0.00	2838.76	17273.25	4703.35	363.99	363.99	82.91	2.36	0.018
S007001_2	20455.70	0.00	2780.33	17441.85	4593.17	246.57	246.57	68.89	1.98	0.012
S007003	20455.70	0.00	875.28	19392.03	1049.63	196.98	196.98	97.60	1.66	0.010
S007005	20455.70	0.00	875.28	19392.03	1049.63	196.98	196.98	61.51	1.05	0.010
S007006_1	20455.70	0.00	722.04	19396.07	264.45	348.42	348.42	38.48	0.65	0.017
S007006_2	20455.70	0.00	604.38	19544.11	265.29	317.65	317.65	103.82	2.63	0.016
S007006_3	20455.70	0.00	1252.26	18645.74	262.98	571.80	571.80	294.92	1.94	0.028
S007006_4	20455.70	0.00	1542.74	18122.18	263.35	806.80	806.80	251.02	1.44	0.039
S007007_1	20455.70	0.00	1123.44	18959.69	1170.95	388.03	388.03	52.35	1.24	0.019
S007007_2	20455.70	0.00	1178.26	18604.59	264.25	687.85	687.85	237.41	2.36	0.034
S007007_3	20455.70	0.00	797.01	19243.97	264.44	426.31	426.31	116.27	1.73	0.021
S007008_1	20455.70	0.00	1587.51	18135.44	262.72	748.74	748.74	281.04	1.28	0.037
S007008_2	20455.70	0.00	1538.81	18040.17	264.00	893.57	893.57	143.28	1.01	0.044
S007008_3	20455.70	0.00	1579.49	18123.73	262.96	768.67	768.67	242.58	1.20	0.038
S008001_1	20455.70	0.00	402.80	19911.43	327.28	147.64	147.64	58.34	1.19	0.007
S008001_2	20455.70	0.00	595.98	19656.63	408.53	211.74	211.74	59.00	0.98	0.010
S008001_3	20455.70	0.00	519.91	19785.26	574.82	158.02	158.02	31.67	0.76	0.008
S009002	20455.70	0.00	2257.24	17983.09	3780.97	235.13	235.13	11.33	0.44	0.011
S009004	20455.70	0.00	444.59	19948.30	590.76	67.57	67.57	13.44	0.30	0.003
S009005	20455.70	0.00	370.64	20016.95	437.64	72.65	72.65	4.53	0.09	0.004
S009006	20455.70	0.00	1486.55	18203.04	323.21	782.08	782.08	143.91	0.93	0.038
S009007	20455.70	0.00	1713.91	17859.78	567.85	899.43	899.43	121.66	0.71	0.044
S009008_1	20455.70	0.00	1940.16	17272.54	1060.22	1264.86	1264.86	27.92	0.25	0.062
S009008_2	20455.70	0.00	1739.91	17912.68	586.40	819.85	819.85	358.32	1.70	0.040
S009008_3	20455.70	0.00	1593.35	17767.03	422.88	1114.92	1114.92	112.96	1.12	0.055
S009009	20455.70	0.00	1659.81	17918.27	501.66	894.90	894.90	206.97	1.30	0.044
S009010_1	20455.70	0.00	1610.40	18076.45	336.23	785.29	785.29	185.94	0.93	0.038
S009010_2	20455.70	0.00	1524.90	17967.25	266.28	981.03	981.03	197.19	1.62	0.048
S009011	20455.70	0.00	1690.08	17851.42	548.37	931.78	931.78	174.30	1.15	0.046
S009012	20455.70	0.00	1561.24	18009.87	291.82	901.53	901.53	302.90	2.01	0.044
S010002	20455.70	0.00	3993.29	16117.22	6232.56	352.83	352.83	150.47	2.12	0.017
S011001_1	20455.70	0.00	2014.26	17864.26	2355.64	591.36	591.36	203.22	2.01	0.029
S011001_2	20455.70	0.00	1647.46	18397.55	2055.12	425.83	425.83	143.43	2.59	0.021
S011002_1	20455.70	0.00	713.58	19479.86	356.10	272.21	272.21	153.21	2.19	0.013
S011002_2	20455.70	0.00	832.21	19206.47	296.77	429.00	429.00	136.57	1.92	0.021
S012002_1	20455.70	0.00	1712.13	18020.19	586.94	739.37	739.37	269.75	1.18	0.036
S012002_2	20455.70	0.00	2521.15	17312.34	3697.14	644.27	644.27	129.40	2.28	0.031
S012002_3	20455.70	0.00	1548.16	18272.67	1289.01	650.68	650.68	205.21	2.06	0.032
S013001	20455.70	0.00	1417.31	18373.89	672.73	680.01	680.01	118.13	0.98	0.033

Node Depth Summary

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max occurrence days hr:min	Reported Max Depth Meters
J001002	JUNCTION	0.00	0.36	1011.93	3816 15:03	0.36
J001004	JUNCTION	0.00	0.34	1020.69	17322 19:21	0.32
J001005	JUNCTION	0.01	0.52	1027.59	17322 19:18	0.49
J001006	JUNCTION	0.01	0.53	1028.00	17322 19:17	0.51
J001007	JUNCTION	0.00	0.43	1029.09	17322 19:16	0.41
J001008	JUNCTION	0.00	0.29	1029.27	17322 19:14	0.28
J001009	JUNCTION	0.00	0.26	1030.13	17322 19:15	0.24
J001010	JUNCTION	0.00	0.44	1031.56	17322 19:14	0.42
J001011	JUNCTION	0.01	0.35	1033.61	17322 19:13	0.34
J001012	JUNCTION	0.00	0.22	1034.62	17322 19:12	0.21
J001013	JUNCTION	0.01	0.64	1035.47	17322 19:11	0.62
J001014	JUNCTION	0.01	0.19	1035.91	17322 19:09	0.19
J001015	JUNCTION	0.00	0.15	1050.55	17322 19:05	0.14
J002001	JUNCTION	0.00	0.10	1037.73	473 22:03	0.09
J003001	JUNCTION	0.00	0.24	1037.67	17322 19:06	0.24
J003002	JUNCTION	0.00	0.19	1038.60	17322 19:06	0.19
J003003	JUNCTION	0.01	0.19	1042.09	17322 19:04	0.19
J003004	JUNCTION	0.01	0.29	1042.38	3816 15:58	0.29
J003005	JUNCTION	0.12	0.95	1043.17	3816 15:46	0.95
J003006	JUNCTION	0.01	0.98	1043.68	3816 16:11	0.98
J003008	JUNCTION	0.01	0.76	1052.66	17322 19:22	0.72
J003009	JUNCTION	0.00	0.17	1056.31	17322 19:07	0.16
J003010	JUNCTION	0.00	0.13	1060.31	17322 19:05	0.13
J003011	JUNCTION	0.01	0.60	1065.29	17322 19:06	0.59
J004001	JUNCTION	0.01	0.29	1039.42	17323 01:39	0.29
J004002	JUNCTION	0.19	1.38	1040.33	17323 02:14	1.38
J004003	JUNCTION	0.02	1.65	1041.28	17323 02:14	1.65
J004004	JUNCTION	0.02	1.40	1041.62	17323 02:14	1.40
J004005	JUNCTION	0.21	1.71	1041.62	17323 02:15	1.71
J004006	JUNCTION	0.08	1.58	1041.62	17323 02:11	1.58
J004007	JUNCTION	0.01	1.26	1041.62	17323 02:12	1.26
J004008	JUNCTION	0.11	1.25	1041.67	17323 00:30	1.24
J004011	JUNCTION	0.00	0.21	1053.44	17322 19:04	0.20
J004012	JUNCTION	0.00	0.15	1068.03	17322 19:03	0.14
J004013	JUNCTION	0.00	0.12	1086.75	17322 19:02	0.12
J005001	JUNCTION	0.01	0.05	1042.21	417 21:24	0.05
J005002	JUNCTION	0.00	0.42	1042.72	17322 19:01	0.41
J005003	JUNCTION	0.00	0.36	1043.66	17322 19:00	0.36
J006001	JUNCTION	0.00	0.05	1043.90	473 22:05	0.05
J006002	JUNCTION	0.00	0.11	1044.90	473 22:00	0.11
J007001	JUNCTION	0.00	0.26	1044.81	17322 19:02	0.25
J007002	JUNCTION	0.00	0.09	1047.39	0 00:08	0.08
J007004	JUNCTION	0.01	0.95	1049.15	17322 19:32	0.91
J007007	JUNCTION	0.01	0.91	1057.20	17322 19:11	0.85
J007008	JUNCTION	0.00	0.19	1094.62	17322 19:03	0.18
J008001	JUNCTION	0.00	0.89	1058.57	17322 19:04	0.88
J009001	JUNCTION	0.00	0.03	1040.23	4544 02:45	0.03
J009002	JUNCTION	0.01	1.08	1044.21	17322 22:23	1.08
J009003	JUNCTION	0.00	0.06	1045.02	4544 02:44	0.06
J009007	JUNCTION	0.00	0.29	1078.22	17322 19:06	0.28
J009009	JUNCTION	0.00	0.24	1088.09	17322 19:04	0.24
J009010	JUNCTION	0.00	0.19	1090.37	17322 19:03	0.19
J009011	JUNCTION	0.00	0.14	1109.67	17322 19:04	0.14
J009012	JUNCTION	0.00	0.11	1122.50	17322 19:01	0.11
J010001	JUNCTION	0.00	0.32	1045.63	17322 19:28	0.31
J010002	JUNCTION	0.00	1.03	1046.51	17322 19:04	0.92
J012001	JUNCTION	0.15	0.48	1045.64	17322 19:20	0.46
OF001001	OUTFALL	0.00	0.35	1002.54	3816 15:04	0.35
OF013001	OUTFALL	0.00	0.00	0.00	00:00	0.00
SU001003	STORAGE	0.03	2.74	1014.49	3816 15:01	2.74
SU003007	STORAGE	0.01	0.86	1043.88	3816 16:11	0.86

SU003012	STORAGE	0.02	1.00	1066.37	0	00:00	1.00
SU003013	STORAGE	0.06	1.00	1072.61	0	00:00	1.00
SU004009	STORAGE	0.00	0.92	1042.14	3816	14:58	0.92
SU004010	STORAGE	0.00	0.75	1043.16	3816	14:21	0.67
SU007003	STORAGE	0.06	1.00	1048.00	0	00:00	0.99
SU007005	STORAGE	0.58	1.57	1051.54	17322	19:31	1.53
SU007006	STORAGE	0.75	2.42	1053.47	17322	19:24	2.09
SU009004	STORAGE	0.01	1.18	1046.35	17322	22:23	1.18
SU009005	STORAGE	0.74	1.15	1062.95	17322	21:19	1.15
SU009006	STORAGE	0.01	2.28	1065.48	17322	21:15	2.26
SU009008	STORAGE	0.00	0.35	1084.75	17322	19:04	0.34
SU011001	STORAGE	0.03	0.56	1056.74	17323	11:23	0.56
SU011002	STORAGE	0.01	0.83	1058.33	17322	21:16	0.82
SU012002	STORAGE	0.02	0.45	1045.55	17323	16:12	0.45

Node Inflow Summary

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
J001002	JUNCTION	0.000	6.476	3816 15:01	0	3.95e+03	0.044
J001004	JUNCTION	1.140	12.430	17322 19:18	56.5	3.82e+03	-0.148
J001005	JUNCTION	0.260	11.719	17322 19:17	5.51	3.78e+03	-0.001
J001006	JUNCTION	0.293	11.635	17322 19:16	6.51	3.78e+03	-0.000
J001007	JUNCTION	0.719	11.529	17322 19:15	32.5	3.78e+03	0.001
J001008	JUNCTION	0.216	11.120	17322 19:15	4.64	3.75e+03	-0.021
J001009	JUNCTION	0.630	11.041	17322 19:14	19.5	3.75e+03	-0.248
J001010	JUNCTION	0.203	9.972	17322 19:13	5.37	3.67e+03	0.004
J001011	JUNCTION	0.465	9.883	17322 19:12	25.4	3.67e+03	-0.005
J001012	JUNCTION	0.247	9.598	17322 19:12	10.6	3.65e+03	0.002
J001013	JUNCTION	0.348	9.463	17322 19:09	16.2	3.65e+03	0.009
J001014	JUNCTION	0.958	9.389	17322 19:06	49.8	3.64e+03	0.032
J001015	JUNCTION	3.696	3.696	17322 19:00	425	425	-0.397
J002001	JUNCTION	1.082	1.082	473 22:00	62.6	62.6	-0.132
J003001	JUNCTION	1.342	5.166	17322 19:04	77.5	3.17e+03	-0.012
J003002	JUNCTION	2.274	4.123	17322 19:00	98.7	3.09e+03	-0.011
J003003	JUNCTION	0.000	1.776	17322 19:02	0	1.2e+03	0.006
J003004	JUNCTION	0.000	1.677	3816 16:12	0	1.19e+03	0.009
J003005	JUNCTION	0.856	1.677	3816 16:11	35.9	1.19e+03	0.215
J003006	JUNCTION	0.474	1.679	3816 15:39	23	1.15e+03	-0.252
J003008	JUNCTION	1.638	9.553	17322 19:06	72.8	880	-0.095
J003009	JUNCTION	2.980	5.700	17322 19:01	230	657	-0.456
J003010	JUNCTION	2.023	2.906	17322 19:01	334	427	-0.126
J003011	JUNCTION	1.021	1.021	17322 19:00	93.3	93.3	0.012
J004001	JUNCTION	0.000	2.276	17323 02:14	0	1.82e+03	0.165
J004002	JUNCTION	0.263	2.276	17323 02:14	7.4	1.82e+03	-0.140
J004003	JUNCTION	0.000	2.276	17323 02:14	0	1.8e+03	-0.001
J004004	JUNCTION	0.000	2.572	17322 22:32	0	1.85e+03	-0.008
J004005	JUNCTION	2.675	4.260	17322 20:41	194	3.09e+03	0.079
J004006	JUNCTION	4.062	4.599	17322 19:00	331	1.74e+03	-0.026
J004007	JUNCTION	0.000	2.472	3816 14:26	0	503	-0.087
J004008	JUNCTION	0.440	2.368	3816 14:49	18.6	498	0.019
J004011	JUNCTION	0.899	3.933	17322 19:02	31.2	418	-0.120
J004012	JUNCTION	1.067	3.182	17322 19:00	43.6	388	-0.002
J004013	JUNCTION	2.178	2.178	17322 19:00	345	345	-0.019
J005001	JUNCTION	0.000	0.463	17322 19:01	0	19.6	-0.009
J005002	JUNCTION	0.000	0.463	17322 19:00	0	19.6	0.022
J005003	JUNCTION	0.467	0.467	17322 19:00	19.6	19.6	-0.036
J006001	JUNCTION	0.320	1.044	473 22:00	12	50.3	-1.211
J006002	JUNCTION	0.732	0.732	473 22:00	37.8	37.8	-0.020
J007001	JUNCTION	4.335	5.511	17322 19:00	152	442	-2.447
J007002	JUNCTION	0.000	0.338	0 00:07	0	141	-0.005
J007004	JUNCTION	0.000	11.505	17322 19:31	0	1.32e+03	0.007
J007007	JUNCTION	5.325	8.594	17322 19:00	406	1.15e+03	0.114
J007008	JUNCTION	3.494	3.494	17322 19:00	667	667	-0.062
J008001	JUNCTION	2.935	2.935	17322 19:00	149	149	-1.285
J009001	JUNCTION	0.000	2.518	16689 16:03	0	1.43e+03	-0.004
J009002	JUNCTION	0.442	2.759	17322 22:23	11.3	1.44e+03	0.001
J009003	JUNCTION	0.000	2.759	17322 22:23	0	1.43e+03	-0.001
J009007	JUNCTION	0.705	10.219	17322 19:05	122	1.68e+03	-0.377
J009009	JUNCTION	1.301	6.710	17322 19:03	207	1.06e+03	-0.010
J009010	JUNCTION	2.554	5.483	17322 19:02	383	858	-0.023
J009011	JUNCTION	1.148	3.103	17322 19:01	174	476	0.033
J009012	JUNCTION	2.010	2.010	17322 19:00	303	303	-0.120
J010001	JUNCTION	0.000	2.345	17322 19:04	0	162	-0.302
J010002	JUNCTION	2.118	2.118	17322 19:05	150	150	0.022
J012001	JUNCTION	0.000	0.695	17322 19:06	0	12.9	5.468
OF001001	OUTFALL	0.000	6.475	3816 15:04	0	3.93e+03	0.000
OF013001	OUTFALL	0.983	0.983	17322 19:00	118	118	0.000
SU001003	STORAGE	2.558	13.923	17322 19:20	157	3.97e+03	0.059
SU003007	STORAGE	0.000	13.015	3816 14:07	0	1.38e+03	1.416
SU003012	STORAGE	0.000	0.000	0 00:00	0	40.7	-0.011
SU003013	STORAGE	8.639	8.639	17322 19:00	784	888	-0.002
SU004009	STORAGE	0.836	3.118	3816 14:13	30.5	489	0.002
SU004010	STORAGE	0.708	4.447	17322 19:04	35.9	463	0.113
SU007003	STORAGE	1.659	12.559	17322 19:30	97.6	1.58e+03	-0.015
SU007005	STORAGE	1.046	11.693	17322 19:22	61.5	1.73e+03	0.000
SU007006	STORAGE	6.657	12.645	17322 19:04	688	1.8e+03	-0.029
SU009004	STORAGE	0.000	4.002	17322 21:19	0	1.45e+03	0.667
SU009005	STORAGE	0.000	4.005	17322 21:15	0	1.67e+03	-0.421
SU009006	STORAGE	0.000	10.174	17322 19:06	0	1.68e+03	0.354
SU009008	STORAGE	3.068	9.584	17322 19:02	499	1.56e+03	-0.002
SU011001	STORAGE	4.597	5.153	17322 19:00	346	625	0.030
SU011002	STORAGE	4.113	4.113	17322 19:00	290	290	-0.070
SU012002	STORAGE	5.523	5.523	17322 19:00	604	604	-0.002

Node Surge Summary

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
J004002	JUNCTION	5.49	0.064	0.623
J004003	JUNCTION	6.30	0.171	0.349
J004008	JUNCTION	13.65	0.350	0.746

Node Flooding Summary

No nodes were flooded.

Storage Volume Summary

Storage Unit	Average Volume 1000 m3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m3	Max Pcnt Full	Time of Max Occurrence days hr:min		Maximum Outflow CMS
SU001003	0.079	0	0	0	8.226	34	3816	15:01	6.477
SU003007	0.671	1	17	0	40.254	86	3816	16:11	1.913
SU003012	0.771	1	50	0	40.700	33	0	00:00	0.003
SU003013	6.062	2	90	0	104.000	33	0	00:00	0.007
SU004009	0.032	0	2	0	6.450	46	3816	14:58	2.368
SU004010	0.025	0	2	0	5.258	38	3816	14:21	3.001
SU007003	9.485	2	83	0	162.000	33	0	00:00	0.338
SU007005	7.183	19	23	0	19.346	52	17322	19:31	11.505
SU007006	2.990	25	8	0	9.674	81	17322	19:24	10.946
SU009004	0.010	0	0	0	1.185	59	17322	22:23	3.794
SU009005	4.466	25	13	0	6.902	38	17322	21:19	4.003
SU009006	0.080	0	1	0	15.938	76	17322	21:15	4.005
SU009008	0.005	0	0	0	1.144	14	17322	19:04	9.543
SU011001	2.309	1	87	0	47.677	28	17323	11:23	0.074
SU011002	0.187	1	18	0	17.428	55	17322	21:16	1.008
SU012002	2.128	2	100	0	40.485	45	17323	16:12	0.006

Outfall Loading Summary

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10A6 ltr
OF001001	22.36	0.118	6.475	3927.716
OF013001	2.48	0.034	0.983	118.052
System	12.42	0.152	6.769	4045.767

Link Flow Summary

Link	Type	Maximum Flow CMS	Time of Max Occurrence days hr:min		Maximum Velocity m/sec	Max/ Full Flow	Max/ Full Depth
C001002	CHANNEL	6.475	3816	15:04	3.36	0.00	0.03
C001003	CONDUIT	6.476	3816	15:01	5.02	2.03	0.61
C001004	CHANNEL	12.310	17322	19:21	1.72	0.00	0.31
C001005	CHANNEL	11.712	17322	19:19	4.66	0.00	0.06
C001006	CHANNEL	11.616	17322	19:17	2.65	0.00	0.05
C001007	CHANNEL	11.508	17322	19:16	2.19	0.00	0.06
C001008	CHANNEL	11.126	17322	19:15	1.55	0.00	0.05
C001009	CHANNEL	11.023	17322	19:15	2.82	0.00	0.04
C001010	CHANNEL	9.961	17322	19:15	4.12	0.01	0.11
C001011	CHANNEL	9.863	17322	19:13	2.22	0.02	0.19
C001012	CHANNEL	9.590	17322	19:12	1.98	0.00	0.15
C001013	CHANNEL	9.443	17322	19:12	2.95	0.07	0.20
C001014	CHANNEL	9.224	17322	19:09	>50.00	0.01	0.19
C001015	CHANNEL	3.441	17322	19:05	1.67	0.01	0.16
C002001	CHANNEL	1.058	473	22:03	1.40	0.00	0.07
C003001	CHANNEL	5.140	17322	19:07	1.82	0.06	0.30
C003002	CHANNEL	3.945	17322	19:06	1.72	0.01	0.16
C003003	CHANNEL	1.744	17322	19:05	1.82	0.00	0.09
C003004	CHANNEL	1.677	3816	16:13	1.12	0.01	0.12
C003005	CONDUIT	1.677	3816	16:12	1.97	1.31	0.63
C003006	CONDUIT	1.677	3816	16:11	1.32	1.03	1.00
C003007	CONDUIT	1.677	3816	16:11	1.45	1.42	0.90
C003008	CONDUIT	8.522	3816	14:12	2.94	0.37	0.66
C003009	CHANNEL	5.476	17322	19:07	1.14	0.00	0.21
C003010	CHANNEL	2.872	17322	19:05	1.25	0.01	0.17
C003011	CONDUIT	0.947	17322	19:06	2.32	0.17	0.37
C003012	CONDUIT	0.000	0	00:00	0.00	0.00	0.30
C003013	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C004001	CHANNEL	2.278	17323	02:17	8.41	0.03	0.20
C004002	CONDUIT	2.276	17323	02:14	3.11	1.86	0.68
C004003	CONDUIT	2.276	17323	02:14	1.79	1.91	1.00
C004004	CONDUIT	2.276	17323	02:14	1.79	4.50	1.00
C004005	CONDUIT	2.572	17322	22:32	0.03	0.00	0.78
C004006	CONDUIT	1.784	17322	19:27	0.04	0.01	0.82
C004007	CONDUIT	1.724	3816	14:52	0.06	0.00	0.71
C004008	CONDUIT	2.472	3816	14:26	4.64	1.59	1.00
C004009	CONDUIT	2.368	3816	14:50	1.92	1.13	1.00
C004010	CONDUIT	3.001	3816	14:21	2.69	1.03	0.82
C004011	CHANNEL	3.878	17322	19:04	4.65	0.00	0.15
C004012	CHANNEL	3.114	17322	19:03	2.55	0.00	0.08
C004013	CHANNEL	2.155	17322	19:02	2.89	0.00	0.05
C005001	DUMMY	0.463	17322	19:01			
C005002	CONDUIT	0.463	17322	19:01	2.27	0.64	0.26
C005003	CONDUIT	0.463	17322	19:00	1.22	0.30	0.40
C006001	CHANNEL	1.009	473	22:05	0.61	0.01	0.52
C006002	CHANNEL	0.729	473	22:01	1.76	0.01	0.08
C007001	CHANNEL	5.513	17322	19:06	1.86	0.07	0.63
C007002	CHANNEL	0.355	0	00:13	1.83	0.00	0.12
C007003	CONDUIT	0.338	0	00:07	2.06	0.73	0.33
C007004	CONDUIT	11.501	17322	19:32	1.56	0.79	0.86
C007005_1	CONDUIT	0.230	17322	19:31	0.86	0.27	0.89
C007006	CONDUIT	10.946	17322	19:24	2.07	1.11	0.92
C007007	CONDUIT	6.845	17322	19:10	2.51	0.77	0.95
C007008	CHANNEL	3.404	17322	19:03	1.71	0.00	0.08
C008001	CONDUIT	2.830	3816	14:02	1.75	0.61	0.80
C009001	DUMMY	2.518	16689	16:03			
C009002_1	CONDUIT	2.518	16689	16:03	4.43	0.85	0.51
C009003	DUMMY	2.759	17322	22:23			
C009004_1	CONDUIT	2.759	17322	22:23	4.26	1.84	0.51
C009005	CHANNEL	4.002	17322	21:19	2.55	0.26	0.78
C009006	CONDUIT	4.005	17322	21:15	3.21	1.77	0.95
C009007	CHANNEL	10.174	17322	19:06	4.70	0.00	0.41
C009008	CHANNEL	9.543	17322	19:05	4.98	0.00	0.04
C009009	CHANNEL	6.697	17322	19:04	2.42	0.00	0.07
C009010	CHANNEL	5.454	17322	19:04	2.45	0.00	0.06
C009011	CHANNEL	3.037	17322	19:04	2.55	0.00	0.07
C009012	CHANNEL	1.972	17322	19:01	2.00	0.02	0.19
C010001	CONDUIT	1.691	17322	19:28	1.65	0.10	0.26

C010002	CONDUIT	2.345	17322	19:04	2.87	0.31	0.31
C011001	CONDUIT	0.677	17322	19:11	0.53	0.66	0.65
C011002	CONDUIT	1.006	17322	21:22	1.00	0.30	0.60
C012001	CHANNEL	0.695	17322	19:06	0.38	0.02	0.22
C012002	CONDUIT	0.005	17322	19:20	0.04	0.01	0.44
W007005_2	WEIR	11.274	17322	19:31			0.57
W009002_2	WEIR	0.304	17322	22:23			0.08
W009004_2	WEIR	1.034	17322	22:23			0.18

Flow Classification Summary

Conduit	Adjusted /Actual Length	----- Dry	Up Dry	Fraction of Down Dry	Sub Crit	Time Sup Crit	in Up Crit	Flow Down Crit	Class Norm Ltd	Inlet Ctrl
C001002	1.00	0.70	0.00	0.00	0.06	0.25	0.00	0.00	0.70	0.00
C001003	1.00	0.69	0.01	0.00	0.18	0.11	0.00	0.00	0.00	0.03
C001004	1.00	0.51	0.00	0.00	0.30	0.19	0.00	0.00	0.20	0.00
C001005	1.00	0.29	0.02	0.00	0.18	0.51	0.00	0.00	0.10	0.00
C001006	1.00	0.29	0.00	0.00	0.38	0.32	0.00	0.00	0.35	0.00
C001007	1.00	0.29	0.11	0.00	0.58	0.01	0.00	0.00	0.97	0.00
C001008	1.00	0.41	0.17	0.00	0.42	0.01	0.00	0.00	0.95	0.00
C001009	1.00	0.57	0.09	0.00	0.21	0.13	0.00	0.00	0.88	0.00
C001010	1.00	0.62	0.08	0.00	0.06	0.23	0.00	0.00	0.01	0.00
C001011	1.00	0.00	0.00	0.00	0.64	0.36	0.00	0.00	0.01	0.00
C001012	1.00	0.00	0.54	0.00	0.45	0.01	0.00	0.00	1.00	0.00
C001013	1.00	0.33	0.00	0.00	0.63	0.04	0.00	0.00	0.00	0.00
C001014	1.00	0.33	0.28	0.00	0.34	0.05	0.00	0.00	0.94	0.00
C001015	1.00	0.61	0.31	0.00	0.08	0.01	0.00	0.00	0.99	0.00
C002001	1.00	0.66	0.33	0.00	0.01	0.00	0.00	0.00	0.98	0.00
C003001	1.00	0.57	0.04	0.00	0.36	0.04	0.00	0.00	0.38	0.00
C003002	1.00	0.60	0.10	0.00	0.21	0.09	0.00	0.00	0.22	0.00
C003003	1.00	0.13	0.01	0.00	0.61	0.25	0.00	0.00	0.15	0.00
C003004	1.00	0.14	0.05	0.00	0.73	0.08	0.00	0.00	0.76	0.00
C003005	1.00	0.19	0.55	0.00	0.26	0.00	0.00	0.00	0.00	0.96
C003006	1.00	0.00	0.74	0.00	0.26	0.00	0.00	0.00	0.00	1.00
C003007	1.00	0.74	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.06
C003008	1.00	0.00	0.01	0.00	0.90	0.09	0.00	0.00	0.14	0.00
C003009	1.00	0.01	0.91	0.00	0.09	0.00	0.00	0.00	1.00	0.00
C003010	1.00	0.91	0.02	0.00	0.04	0.03	0.00	0.00	0.95	0.00
C003011	1.00	0.01	0.00	0.00	0.98	0.02	0.00	0.00	0.46	0.00
C003012	1.00	0.01	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C003013	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C004001	1.00	0.34	0.07	0.00	0.51	0.08	0.00	0.00	0.46	0.00
C004002	1.00	0.01	0.41	0.00	0.58	0.00	0.00	0.00	0.00	0.72
C004003	1.00	0.16	0.00	0.00	0.00	0.00	0.00	0.83	0.00	0.64
C004004	1.00	0.82	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00
C004005	1.00	0.01	0.81	0.00	0.18	0.00	0.00	0.00	0.89	0.00
C004006	1.00	0.01	0.34	0.00	0.65	0.00	0.00	0.00	0.01	0.00
C004007	1.00	0.37	0.50	0.00	0.13	0.00	0.00	0.00	0.99	0.00
C004008	1.00	0.01	0.00	0.00	0.93	0.06	0.00	0.00	0.17	0.00
C004009	1.00	0.01	0.87	0.00	0.13	0.00	0.00	0.00	1.00	0.00
C004010	1.00	0.88	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00
C004011	1.00	0.01	0.00	0.00	0.93	0.07	0.00	0.00	0.21	0.00
C004012	1.00	0.01	0.92	0.00	0.05	0.02	0.00	0.00	1.00	0.00
C004013	1.00	0.93	0.02	0.00	0.02	0.03	0.00	0.00	0.98	0.00
C005002	1.00	0.01	0.86	0.00	0.13	0.00	0.00	0.00	0.00	0.86
C005003	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.31
C006001	1.00	0.74	0.24	0.00	0.02	0.00	0.00	0.00	0.98	0.00
C006002	1.00	0.16	0.00	0.00	0.83	0.01	0.00	0.00	0.00	0.00
C007001	1.00	0.72	0.10	0.00	0.17	0.00	0.00	0.00	0.66	0.00
C007002	1.00	0.83	0.14	0.00	0.00	0.03	0.00	0.00	0.99	0.00
C007003	1.00	0.97	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00
C007004	1.00	0.01	0.01	0.00	0.02	0.00	0.00	0.97	0.08	0.00
C007005_1	1.00	0.02	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.97
C007006	1.00	0.85	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00
C007007	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C007008	1.00	0.01	0.92	0.00	0.07	0.00	0.00	0.00	1.00	0.00
C008001	1.00	0.01	0.11	0.00	0.88	0.00	0.00	0.00	1.00	0.00
C009002_1	1.00	0.01	0.77	0.00	0.13	0.09	0.00	0.00	0.87	0.00
C009004_1	1.00	0.77	0.08	0.00	0.08	0.07	0.00	0.00	0.07	0.00
C009005	1.00	0.85	0.05	0.00	0.10	0.00	0.00	0.00	1.00	0.00
C009006	1.00	0.83	0.00	0.00	0.02	0.00	0.00	0.15	0.00	0.01
C009007	1.00	0.83	0.08	0.00	0.09	0.01	0.00	0.00	0.84	0.00
C009008	1.00	0.91	0.03	0.00	0.02	0.04	0.00	0.00	0.97	0.00
C009009	1.00	0.92	0.00	0.00	0.04	0.04	0.00	0.00	0.14	0.00
C009010	1.00	0.92	0.00	0.00	0.00	0.08	0.00	0.00	0.05	0.00
C009011	1.00	0.92	0.01	0.00	0.04	0.03	0.00	0.00	0.99	0.00
C009012	1.00	0.93	0.00	0.00	0.00	0.07	0.00	0.00	0.10	0.00
C010001	1.00	0.83	0.12	0.00	0.06	0.00	0.00	0.00	0.70	0.00
C010002	1.00	0.93	0.04	0.00	0.03	0.00	0.00	0.00	0.00	1.00
C011001	1.00	0.01	0.91	0.00	0.06	0.00	0.02	0.00	0.08	0.00
C011002	1.00	0.76	0.09	0.00	0.15	0.00	0.00	0.00	0.67	0.00
C012001	1.00	0.01	0.77	0.00	0.22	0.00	0.00	0.00	0.08	0.00
C012002	1.00	0.01	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Conduit Surge Summary

Conduit	----- Both Ends	Hours Full Upstream	----- Downstream	Hours Above Full Normal Flow	Hours Capacity Limited
C001003	0.01	25.60	0.01	36.58	0.01
C003005	0.01	0.01	0.01	10.67	0.01
C003006	3.98	3.98	6.42	1.41	1.41
C003007	0.01	0.01	0.01	12.52	0.01
C004002	0.01	0.01	62.20	57.89	0.01
C004003	5.49	37.98	5.49	59.57	5.49
C004004	6.30	31.24	6.30	218.53	6.30
C004008	12.27	13.65	27.55	9.85	2.61
C004009	0.75	1.23	13.89	2.64	0.01
C004010	0.01	0.01	0.01	0.38	0.01
C006001	0.01	0.01	13.90	0.01	0.01
C007001	0.01	0.01	17.43	0.01	0.01
C007005_1	0.01	0.01	13.81	0.01	0.01
C007006	0.01	1.74	0.01	0.78	0.01
C007007	0.01	0.01	1.74	0.01	0.01
C009002_1	0.01	12.13	0.01	0.01	0.01
C009004_1	0.01	7.51	0.01	30.93	0.01
C009005	0.01	0.01	345.61	0.01	0.01
C009006	0.01	26.53	0.01	17.30	0.01

Analysis ended on: Thu Jan 7 15:10:37 2021
Total elapsed time: 00:45:13

```

[TITLE]
;;Project Title/Notes
Appin Site Model - Post-dev Continuous w BMP

[OPTIONS]
;;Option      Value
FLOW_UNITS    CMS
INFILTRATION  MODIFIED_GREEN_AMPT
FLOW_ROUTING  DYNWAVE
LINK_OFFSETS  DEPTH
MIN_SLOPE     0
ALLOW_PONDING NO
SKIP_STEADY_STATE NO

START_DATE    01/01/1960
START_TIME    00:00:00
REPORT_START_DATE 01/01/1960
REPORT_START_TIME 00:00:00
END_DATE      01/01/2010
END_TIME      00:00:00
SWEEP_START   01/01
SWEEP_END     12/31
DRY_DAYS      0
REPORT_STEP   01:00:00
WET_STEP      00:05:00
DRY_STEP      00:05:00
ROUTING_STEP  60
RULE_STEP     00:00:00

INERTIAL_DAMPING PARTIAL
NORMAL_FLOW_LIMITED BOTH
FORCE_MAIN_EQUATION H-W
VARIABLE_STEP     0.75
LENGTHENING_STEP 0
MIN_SURFAREA      0
MAX_TRIALS         8
HEAD_TOLERANCE     0.0015
SYS_FLOW_TOL       5
LAT_FLOW_TOL       5
MINIMUM_STEP       0.5
THREADS            8

[EVAPORATION]
;;Data Source Parameters
;;-----
TEMPERATURE
DRY_ONLY      NO

[TEMPERATURE]
FILE "D:\Data\SWMM\Climate Data\Calgary Approved Data\Final_Hour_Temperature_Data SWMM Daily MinMax.txt"
WINDSPEED MONTHLY 14.8 14.6 15 16.5 16.6 15.6 14 13.2 14.1 14.6 13.7 14.9
SNOWMELT    2 0.5 0.6 1020 51.5 36
ADC          IMPERVIOUS 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
ADC          PERVIOUS   0.10 0.35 0.53 0.66 0.75 0.82 0.87 0.92 0.95 0.98

[RAINGAGES]
;;Name      Format      Interval SCF      Source
;;-----
Raingage1   INTENSITY 1:00      1.0      FILE      "D:\Data\SWMM\Climate Data\Calgary Approved Data\Final_Hour_Precip_Data HLY03.txt" 3031093 MM

[SUBCATCHMENTS]
;;Name      Rain Gage      Outlet      Area      %Imperv      width      %Slope      CurbLen      SnowPack
;;-----
S001003A_1  Raingage1      SU001003A  8.9002    50           613.807    6.124      0           Snowpack1
S001003A_2  Raingage1      SU001003A  4.8409    50           484.09     6.193      0           Snowpack1
S001003B_1  Raingage1      SU001003B  8.0228    10           534.853    2          0           Snowpack1
S001003B_2  Raingage1      SU001003B  19.6774   50           1311.827   6.086      0           Snowpack1
S013001_2   Raingage1      SU013002   1.8959    5.132        27.595     6.248      0           Snowpack1
S013002     Raingage1      SU013002   14.0461   50           936.407    6.159      0           Snowpack1

[SUBAREAS]
;;Subcatchment N-Imperv N-Perv S-Imperv S-Perv PctZero RouteTo PctRouted
;;-----
S001003A_1  0.015 0.25 1.6 3.2 0 PERVIOUS 100
S001003A_2  0.015 0.25 1.6 3.2 0 PERVIOUS 100
S001003B_1  0.015 0.25 1.6 7.5 0 PERVIOUS 100
S001003B_2  0.015 0.25 1.6 3.2 0 PERVIOUS 100
S013001_2   0.015 0.25 1.6 7.5 0 PERVIOUS 100
S013002     0.015 0.25 1.6 3.2 0 PERVIOUS 100

[INFILTRATION]
;;Subcatchment Param1 Param2 Param3 Param4 Param5
;;-----
S001003A_1  89 3.4 0.25 0 0
S001003A_2  89 3.4 0.25 0 0
S001003B_1  89 3.4 0.25 0 0
S001003B_2  89 3.4 0.25 0 0
S013001_2   206.548 1.315 0.244 0 0
S013002     89 3.4 0.25 0 0

[SNOWPACKS]
;;Name      Surface Parameters
;;-----
Snowpack1  PLOWABLE 0.05 0.3 0.0 0.10 0.00 0.00 0.0
Snowpack1  IMPERVIOUS 0.05 0.3 0.0 0.10 0.00 0.00 25.4
Snowpack1  PERVIOUS 0.05 0.3 0.0 0.10 0.00 0.00 25.4
Snowpack1  REMOVAL 25.4 0.0 0.0 0.0 0.0 0.0 0.0

[OUTFALLS]
;;Name      Elevation Type Stage Data Gated Route To
;;-----
OF001003A  0 FREE NO NO
OF001003B  1011.751 FREE NO NO
OF013001  1020 FREE NO NO

[STORAGE]
;;Name      Elev. MaxDepth InitDepth Shape Curve Name/Params N/A Fevap Psi Ksat IMD
;;-----
SU001003A  1022 5 2 TABULAR ST001003A 0 1
SU001003B  1017.5 5 2 TABULAR ST001003B_1 0 1
SU013002  1021 5 2 TABULAR ST013002 0 1

[ORIFICES]
;;Name      From Node To Node Type Offset Qcoeff Gated CloseTime
;;-----
OR001003A  SU001003A OF001003A SIDE 2 0.65 NO 0
OR001003B  SU001003B OF001003B SIDE 2 0.65 NO 0
OR013002  SU013002 OF013001 SIDE 2 0.65 NO 0

[XSECTIONS]
;;Link      Shape Geom1 Geom2 Geom3 Geom4 Barrels Culvert

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-----
OR001003A CIRCULAR 0.1 0 0 0
OR001003B CIRCULAR 0.15 0 0 0
OR013002 CIRCULAR 0.1 0 0 0
-----

[POLLUTANTS]
;;Name Units Crain Cgw Crdii Kdecay SnowOnly Co-Pollutant Co-Frac Cdwf Cinit
-----
TSS005 MG/L 0 0 0 0 NO * 0.0 0 0
TSS010 MG/L 0 0 0 0 NO * 0.0 0 0
TSS020 MG/L 0 0 0 0 NO * 0.0 0 0
TSS050 MG/L 0 0 0 0 NO * 0.0 0 0
TSS150 MG/L 0 0 0 0 NO * 0.0 0 0
-----

[LANDUSES]
;; Sweeping Fraction Last
;; Name Interval Available Swept
-----
IMPERV 0 0 0
PERV 0 0 0
-----

[COVERAGES]
;;Subcatchment Land Use Percent
-----
S001003A_1 IMPERV 50
S001003A_1 PERV 50
S001003A_2 IMPERV 50
S001003A_2 PERV 50
S001003B_1 IMPERV 50
S001003B_1 PERV 50
S001003B_2 IMPERV 50
S001003B_2 PERV 50
S013002 IMPERV 50
S013002 PERV 50
-----

[LOADINGS]
;;Subcatchment Pollutant Buildup
-----
S001003A_1 TSS005 37.95
S001003A_1 TSS010 14.85
S001003A_1 TSS020 21.45
S001003A_1 TSS050 37.95
S001003A_1 TSS150 52.8
S001003A_2 TSS005 37.95
S001003A_2 TSS010 14.85
S001003A_2 TSS020 21.45
S001003A_2 TSS050 37.95
S001003A_2 TSS150 52.8
S001003B_1 TSS005 37.95
S001003B_1 TSS010 14.85
S001003B_1 TSS020 21.45
S001003B_1 TSS050 37.95
S001003B_1 TSS150 52.8
S001003B_2 TSS005 37.95
S001003B_2 TSS010 14.85
S001003B_2 TSS020 21.45
S001003B_2 TSS050 37.95
S001003B_2 TSS150 52.8
S013002 TSS005 37.95
S013002 TSS010 14.85
S013002 TSS020 21.45
S013002 TSS050 37.95
S013002 TSS150 52.8
-----

[BUILDUP]
;;Land Use Pollutant Function Coeff1 Coeff2 Coeff3 Per Unit
-----
IMPERV TSS005 POW 460 1.265 1 AREA
IMPERV TSS010 POW 180 0.495 1 AREA
IMPERV TSS020 POW 260 0.715 1 AREA
IMPERV TSS050 POW 460 1.265 1 AREA
IMPERV TSS150 POW 640 1.76 1 AREA
PERV TSS005 POW 460 1.265 1 AREA
PERV TSS010 POW 180 0.495 1 AREA
PERV TSS020 POW 260 0.715 1 AREA
PERV TSS050 POW 460 1.265 1 AREA
PERV TSS150 POW 640 1.76 1 AREA
-----

[WASHOFF]
;;Land Use Pollutant Function Coeff1 Coeff2 SweepRmv1 BmpRmv1
-----
IMPERV TSS005 EXP 1380 1.2 0 0
IMPERV TSS010 EXP 540 1.2 0 0
IMPERV TSS020 EXP 780 1.2 0 0
IMPERV TSS050 EXP 1380 1.2 0 0
IMPERV TSS150 EXP 1920 1.2 0 0
PERV TSS005 EXP 690 1.2 0.0 0.0
PERV TSS010 EXP 270 1.2 0 0
PERV TSS020 EXP 390 1.2 0 0
PERV TSS050 EXP 690 1.2 0 0
PERV TSS150 EXP 960 1.2 0 0
-----

[TREATMENT]
;;Node Pollutant Function
-----
SU001003A TSS005 R=1-exp((-0.00000592*HRT/DEPTH))
SU001003A TSS010 R=1-exp((-0.0000473*HRT/DEPTH))
SU001003A TSS020 R=1-exp((-0.000283*HRT/DEPTH))
SU001003A TSS050 R=1-exp((-0.00195*HRT/DEPTH))
SU001003A TSS150 R=1-exp((-0.0124*HRT/DEPTH))
SU001003B TSS005 R=1-exp((-0.00000592*HRT/DEPTH))
SU001003B TSS010 R=1-exp((-0.0000473*HRT/DEPTH))
SU001003B TSS020 R=1-exp((-0.000283*HRT/DEPTH))
SU001003B TSS050 R=1-exp((-0.00195*HRT/DEPTH))
SU001003B TSS150 R=1-exp((-0.0124*HRT/DEPTH))
SU013002 TSS005 R=1-exp((-0.00000592*HRT/DEPTH))
SU013002 TSS010 R=1-exp((-0.0000473*HRT/DEPTH))
SU013002 TSS020 R=1-exp((-0.000283*HRT/DEPTH))
SU013002 TSS050 R=1-exp((-0.00195*HRT/DEPTH))
SU013002 TSS150 R=1-exp((-0.0124*HRT/DEPTH))
-----

[CURVES]
;;Name Type X-Value Y-Value
-----
;From Storage Creator, Name = SU001003; Minimum Elev. = 1011.751; Maximum Elev. = 1017.877; Depth = 6.126
ST001003 Storage 0 1.167
ST001003 0.329 1.167
ST001003 0.579 425
ST001003 0.829 1275
ST001003 1.079 2750
ST001003 1.329 3500
ST001003 1.579 4375

```

ST001003		1.829	5750
ST001003		2.079	6775
ST001003		2.329	7850
ST001003		2.579	8900
ST001003		2.829	10150
ST001003		3.079	11275
ST001003		3.329	12550
ST001003		3.579	13925
ST001003		3.829	15100
ST001003		4.079	16700
ST001003		4.329	18300
ST001003		4.579	19900
ST001003		4.829	22000
ST001003		5.079	23525
ST001003		5.329	25450
ST001003		5.579	27125
ST001003		5.829	29375
ST001003		6.079	31025
ST001003		6.126	31425

ST001003A	Storage	0	250
ST001003A		2	2200
ST001003A		4	5500

ST001003B_1	Storage	0	1600
ST001003B_1		2	6300
ST001003B_1		4	12100

ST001004	Storage	0	1000
ST001004		2	3200
ST001004		3	8800

ST013002	Storage	0	800
ST013002		2	3400
ST013002		4	8500

[REPORT]
;;Reporting Options
INPUT YES
CONTROLS NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[ADJUSTMENTS]
;;Parameter Subcatchment Monthly Adjustments
CONDUCTIVITY 0.05 0.05 0.05 0.05 1.0 1.0 1.0 1.0 1.0 1.0 1.0 0.05 0.05

[TAGS]
Subcatch S001003A_1 WDT
Subcatch S001003A_2 WDT
Subcatch S001003B_2 WDT
Subcatch S013001_2 WDT
Subcatch S013002 WDT

[MAP]
DIMENSIONS 707225.44825 5709104.22535 708165.21675 5710164.44165
UNITS Meters

[COORDINATES]
;;Node X-Coord Y-Coord

OF001003A 707473.193 5710086.526
OF001003B 707427.222 5710075.46
OF013001 708111.964 5709693.179
SU001003A 707614.766 5709897.544
SU001003B 707383.65 5709977.492
SU013002 708070.878 5709676.615

[VERTICES]
;;Link X-Coord Y-Coord

;;

[POLYGONS]
;;Subcatchment X-Coord Y-Coord

S001003A_1 707760.67 5709739.637
S001003A_1 707760.84 5709739.975
S001003A_1 707760.986 5709740.325
S001003A_1 707761.109 5709740.684
S001003A_1 707761.206 5709741.05
S001003A_1 707761.279 5709741.422
S001003A_1 707761.326 5709741.798
S001003A_1 707761.347 5709742.177
S001003A_1 707761.342 5709742.556
S001003A_1 707761.311 5709742.934
S001003A_1 707761.255 5709743.309
S001003A_1 707761.173 5709743.679
S001003A_1 707761.066 5709744.043
S001003A_1 707760.935 5709744.398
S001003A_1 707760.78 5709744.744
S001003A_1 707760.601 5709745.078
S001003A_1 707760.4 5709745.4
S001003A_1 707758.975 5709747.546
S001003A_1 707740.85 5709774.846
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S001003B_2	707765.235	5709504.701
S001003B_2	707765.477	5709504.237
S001003B_2	707765.758	5709503.796
S001003B_2	707766.076	5709503.381

S001003B_2	707766.43	5709502.995
S001003B_2	707766.816	5709502.641
S001003B_2	707767.231	5709502.323
S001003B_2	707767.673	5709502.041
S001003B_2	707768.137	5709501.8
S001003B_2	707768.62	5709501.6
S001003B_2	707769.12	5709501.442
S001003B_2	707769.631	5709501.329
S001003B_2	707770.15	5709501.261
S001003B_2	707770.672	5709501.238
S001003B_2	707777.626	5709501.238
S001003B_2	707778.167	5709501.262
S001003B_2	707778.703	5709501.335
S001003B_2	707779.231	5709501.456
S001003B_2	707779.746	5709501.625
S001003B_2	707780.243	5709501.839
S001003B_2	707780.719	5709502.097
S001003B_2	707781.17	5709502.396
S001003B_2	707781.592	5709502.736
S001003B_2	707788.96	5709509.226
S001003B_2	707784.494	5709496.851
S001003B_2	707784.35	5709496.399
S001003B_2	707784.243	5709495.938
S001003B_2	707784.173	5709495.469
S001003B_2	707782.956	5709484.395
S001003B_2	707782.935	5709484.158
S001003B_2	707781.848	5709468.607
S001003B_2	707781.765	5709467.419
S001003B_2	707781.752	5709466.837
S001003B_2	707781.796	5709466.257
S001003B_2	707783.36	5709453.719
S001003B_2	707783.309	5709448.399
S001003B_2	707783.215	5709438.522
S001003B_2	707783.213	5709438.362
S001003B_2	707781.781	5709415.655
S001003B_2	707778.701	5709402.498
S001003B_2	707773.309	5709394.607
S001003B_2	707773.019	5709394.139
S001003B_2	707772.774	5709393.647
S001003B_2	707772.575	5709393.134
S001003B_2	707772.424	5709392.605
S001003B_2	707772.322	5709392.065
S001003B_2	707772.27	5709391.517
S001003B_2	707771.767	5709381.322
S001003B_2	707768.302	5709370.031
S001003B_2	707765.303	5709368.629
S001003B_2	707751.128	5709368.367
S001003B_2	707750.717	5709368.345
S001003B_2	707750.307	5709368.295
S001003B_2	707735.093	5709365.901
S001003B_2	707734.638	5709365.812
S001003B_2	707734.19	5709365.687
S001003B_2	707733.754	5709365.528
S001003B_2	707733.332	5709365.335
S001003B_2	707720.419	5709358.847
S001003B_2	707708.872	5709353.644
S001003B_2	707708.397	5709353.405
S001003B_2	707707.945	5709353.124
S001003B_2	707707.52	5709352.804
S001003B_2	707707.125	5709352.448
S001003B_2	707706.763	5709352.058
S001003B_2	707706.437	5709351.638
S001003B_2	707706.15	5709351.19
S001003B_2	707705.903	5709350.719
S001003B_2	707699.04	5709336.072
S001003B_2	707698.901	5709335.75
S001003B_2	707692.391	5709319.438
S001003B_2	707685.943	5709306.314
S001003B_2	707670.524	5709288.144
S001003B_2	707670.206	5709287.735
S001003B_2	707669.925	5709287.3
S001003B_2	707669.682	5709286.842
S001003B_2	707669.48	5709286.364
S001003B_2	707669.329	5709285.801
S001003B_2	707669.209	5709285.316
S001003B_2	707463.848	5709277.45
S001003B_2	707457.818	5709277.217
S001003B_2	707301.886	5709271.24
S001003B_2	707297.976	5709365.737
S001003B_2	707284.826	5709703.538
S001003B_2	707611.831	5709716.342
S001003B_2	707723.46	5709720.713
S001003B_2	707723.302	5709705.419
S001003B_2	707729.073	5709694.094
S001003B_2	707738.06	5709685.106
S001003B_2	707746.273	5709680.921
S001003B_2	707747.218	5709674.957
S001003B_2	707748.257	5709672.919
S001003B_2	707753.155	5709663.304
S001003B_2	707758.595	5709657.865
S001003B_2	707758.183	5709657.75
S001003B_2	707754.93	5709656.609
S001003B_2	707753.596	5709657.288
S001003B_2	707750.255	5709657.818
S001003B_2	707746.913	5709657.288
S001003B_2	707745.584	5709656.611
S001003B_2	707743.899	5709655.753
S013001_2	707977.466	5709297.135
S013001_2	708116.773	5709302.475
S013001_2	708117.855	5709275.991
S013001_2	708117.827	5709275.903
S013001_2	708117.773	5709236.504
S013001_2	708122.222	5709215.962
S013001_2	708120.244	5709192.256
S013001_2	708122.231	5709180.952
S013001_2	708122.5	5709156.231
S013001_2	708103.14	5709152.417
S013001_2	708081.587	5709165.317
S013001_2	708058.359	5709167.09
S013001_2	708046.973	5709170.039
S013001_2	708040.464	5709168.159
S013001_2	708032.227	5709156.611
S013001_2	708023.799	5709154.258
S013001_2	708013.75	5709162.481
S013001_2	707983.804	5709192.534
S013001_2	707979.663	5709198.394
S013001_2	707977.554	5709211.284
S013001_2	707977.466	5709297.135
S013002	707911.705	5709714.393
S013002	707912.417	5709728.112
S013002	707915.286	5709743.03
S013002	707888.685	5709741.719

S013002	707928.395	5709887.226
S013002	707905.203	5709899.62
S013002	707902.315	5709975.076
S013002	707898.329	5710111.271
S013002	707912.5	5710111.231
S013002	707992.446	5710111.284
S013002	708022.554	5710116.177
S013002	708083.542	5710116.25
S013002	708095.235	5709829.906
S013002	708099.093	5709735.421
S013002	708112.786	5709400.112
S013002	708113.359	5709347.09
S013002	708115.223	5709340.433
S013002	708116.773	5709302.475
S013002	707977.466	5709297.135
S013002	707967.618	5709401.783
S013002	707962.876	5709446.772
S013002	707932.81	5709601.238
S013002	707911.705	5709714.393

[SYMBOLS]		
;;Gage	X-Coord	Y-Coord
;;-----	-----	-----
;;		

Appin Site Model - Post-dev Continuous w BMP

Element Count

```

*****
Number of rain gages ..... 1
Number of subcatchments ... 6
Number of nodes ..... 6
Number of links ..... 3
Number of pollutants ..... 5
Number of land uses ..... 2

```

Pollutant Summary

```

*****
Name          Units      Ppt.      Gw      Kdecay
                Concen.   Concen.   1/days
-----
TSS005        MG/L        0.00     0.00    0.00
TSS010        MG/L        0.00     0.00    0.00
TSS020        MG/L        0.00     0.00    0.00
TSS050        MG/L        0.00     0.00    0.00
TSS150        MG/L        0.00     0.00    0.00

```

Landuse Summary

```

*****
Name          Sweeping      Maximum      Last
                Interval    Removal     Swept
-----
IMPERV        0.00         0.00        0.00
PERV          0.00         0.00        0.00

```

Raingage Summary

```

*****
Name          Data Source          Data      Recording
                Type              Type      Interval
-----
Raingage1     D:\Data\SWMM\Climate Data\Calgary Approved Data\Final_Hour_Precip_Data HLY03.txt

```

Subcatchment Summary

```

*****
Name          Area      width      %Imperv      %Slope Rain Gage      Outlet
-----
S001003A_1    8.90      613.81    50.00        6.1240 Raingage1      SU001003A
S001003A_2    4.84      484.09    50.00        6.1930 Raingage1      SU001003A
S001003B_1    8.02      534.85    10.00        2.0000 Raingage1      SU001003B
S001003B_2    19.68     1311.83   50.00        6.0860 Raingage1      SU001003B
S013001_2     1.90      27.59     5.13         6.2480 Raingage1      SU013002
S013002       14.05     936.41    50.00        6.1590 Raingage1      SU013002

```

Node Summary

```

*****
Name          Type          Invert      Max.      Ponded      External
                Elev.      Depth      Area      Inflow
-----
OF001003A     OUTFALL        0.00        0.00      0.0
OF001003B     OUTFALL       1011.75     0.00      0.0
OF013001      OUTFALL       1020.00     0.00      0.0
SU001003A     STORAGE       1022.00     5.00      0.0
SU001003B     STORAGE       1017.50     5.00      0.0
SU013002      STORAGE       1021.00     5.00      0.0

```

Link Summary

```

*****
Name          From Node      To Node      Type          Length      %Slope Roughness
-----
OR001003A     SU001003A      OF001003A    ORIFICE
OR001003B     SU001003B      OF001003B    ORIFICE
OR013002      SU013002      OF013001    ORIFICE

```

Cross Section Summary

```

*****
Conduit      Shape          Full      Full      Hyd.      Max.      No. of      Full
                Depth      Area      Rad.      width    Barrels    Flow
-----

```

Rainfall File Summary

```

*****
Station      First      Last      Recording      Periods      Periods      Periods
ID           Date       Date       Frequency      w/Precip     Missing     Malfunc.
-----
3031093      01/02/1960 12/31/2009 60 min        27424        0           0

```

```

*****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
*****

```

Analysis options

```

*****
Flow Units ..... CMS
Process Models:
Rainfall/Runoff ..... YES
RDII ..... NO
Snowmelt ..... YES
Groundwater ..... NO
Flow Routing ..... YES
Ponding Allowed ..... NO

```

water Quality YES
Infiltration Method MODIFIED_GREEN_AMPT
Flow Routing Method DYNWAVE
Surcharge Method EXTRAN
Starting Date 01/01/1960 00:00:00
Ending Date 01/01/2010 00:00:00
Antecedent Dry Days 0.0
Report Time Step 01:00:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step 60.00 sec
Variable Time Step YES
Maximum Trials 8
Number of Threads 1
Head Tolerance 0.001500 m

Runoff Quantity Continuity

Initial Snow Cover 0.000
Total Precipitation 1173.816
Evaporation Loss 200.070
Infiltration Loss 851.557
Surface Runoff 122.819
Snow Removed 0.000
Final Snow Cover 0.967
Final Storage 0.000
Continuity Error (%) -0.136

Runoff Quality Continuity

Initial Buildup 2105.747
Surface Buildup 1200897.675
Wet Deposition 0.000
Sweeping Removal 0.000
Infiltration Loss 0.000
BMP Removal 0.000
Surface Runoff 1200446.082
Remaining Buildup 2557.340
Continuity Error (%) 0.000

Flow Routing Continuity

Dry weather Inflow 0.000
Wet weather Inflow 122.819
Groundwater Inflow 0.000
RDII Inflow 0.000
External Inflow 0.000
External Outflow 81.922
Flooding Loss 0.000
Evaporation Loss 41.060
Exfiltration Loss 0.000
Initial Stored Volume 1.455
Final Stored Volume 1.292
Continuity Error (%) 0.000

Quality Routing Continuity

Dry weather Inflow 0.000
Wet weather Inflow 457195.227
Groundwater Inflow 0.000
RDII Inflow 0.000
External Inflow 0.000
External Outflow 72693.100
Flooding Loss 0.000
Exfiltration Loss 0.000
Mass Reacted 384134.689
Initial Stored Mass 0.000
Final Stored Mass 166.537
Continuity Error (%) 0.044

Time-Step Critical Elements

None

Highest Flow Instability Indexes

All links are stable.

Routing Time Step Summary

Minimum Time Step : 59.50 sec
Average Time Step : 60.00 sec
Maximum Time Step : 60.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 2.00
Percent Not Converging : 0.00
Time Step Frequencies :
60.000 - 23.031 sec : 100.00 %
23.031 - 8.841 sec : 0.00 %
8.841 - 3.393 sec : 0.00 %
3.393 - 1.303 sec : 0.00 %
1.303 - 0.500 sec : 0.00 %

Subcatchment Runoff Summary

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10A6 ltr	Peak Runoff CMS	Runoff Coeff
S001003A_1	20455.70	0.00	3966.76	14018.39	6590.88	2484.42	2484.42	221.12	1.19	0.121
S001003A_2	20455.70	0.00	3947.34	13936.55	6611.00	2591.82	2591.82	125.47	0.66	0.127
S001003B_1	20455.70	0.00	1129.14	18916.64	1328.04	405.76	405.76	32.55	0.66	0.020
S001003B_2	20455.70	0.00	3969.82	14024.50	6588.76	2474.65	2474.65	486.95	2.63	0.121
S013001_2	20455.70	0.00	1437.56	18259.80	680.27	755.65	755.65	14.33	0.11	0.037

S013002 20455.70 0.00 3969.53 14023.56 6589.10 2475.97 2475.97 347.78 1.88 0.121

Subcatchment Washoff Summary

Subcatchment	TSS005 kg	TSS010 kg	TSS020 kg	TSS050 kg	TSS150 kg
S001003A_1	199988.213	78256.257	113036.816	199988.213	278244.470
S001003A_2	108871.714	42601.975	61536.186	108871.714	151473.689
S001003B_1	133888.895	51873.813	75155.240	133888.895	187141.318
S001003B_2	442107.219	172998.477	249886.689	442107.219	615105.696
S013001_2	0.000	0.000	0.000	0.000	0.000
S013002	315590.041	123491.755	178376.980	315590.041	439081.796
System	1200446.082	469222.278	677991.911	1200446.082	1671046.970

Node Depth Summary

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
OF001003A	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
OF001003B	OUTFALL	0.00	0.00	1011.75	0 00:00	0.00
OF013001	OUTFALL	0.00	0.00	1020.00	0 00:00	0.00
SU001003A	STORAGE	1.88	3.82	1025.82	3816 14:50	3.82
SU001003B	STORAGE	1.83	3.39	1020.89	17322 21:49	3.39
SU013002	STORAGE	1.86	3.45	1024.45	17323 10:15	3.45

Node Inflow Summary

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
OF001003A	OUTFALL	0.000	0.030	3816 14:50	0	270	0.000
OF001003B	OUTFALL	0.000	0.058	17322 21:49	0	304	0.000
OF013001	OUTFALL	0.000	0.027	17323 10:15	0	245	0.000
SU001003A	STORAGE	1.848	1.848	17322 19:00	347	349	0.000
SU001003B	STORAGE	3.291	3.291	17322 19:00	520	527	-0.000
SU013002	STORAGE	1.988	1.988	17322 19:00	362	366	0.000

Node Surge Summary

No nodes were surcharged.

Node Flooding Summary

No nodes were flooded.

Storage Volume Summary

Storage Unit	Average Volume 1000 m3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CMS
SU001003A	2.206	13	22	0	9.170	56	3816 14:50	0.030
SU001003B	6.903	17	40	0	19.451	49	17322 21:49	0.059
SU013002	3.739	14	32	0	11.800	46	17323 10:15	0.027

Outfall Loading Summary

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr	Total TSS005 kg	Total TSS010 kg	Total TSS020 kg	Total TSS050 kg	Total TSS150 kg
OF001003A	6.70	0.003	0.030	270.264	34161.372	16547.474	18772.076	11289.631	210.363
OF001003B	6.48	0.003	0.058	304.269	17764.265	8877.192	10046.091	2667.282	62.911
OF013001	7.05	0.002	0.027	244.689	20767.462	9239.557	9514.924	5153.491	46.340
System	6.75	0.008	0.115	819.223	72693.100	34664.223	38333.092	19110.404	319.613

Link Flow Summary

Link	Type	Maximum Flow CMS	Time of Max Occurrence days hr:min	Maximum Veloc m/sec	Max/ Full Flow	Max/ Full Depth
OR001003A	ORIFICE	0.030	3816 14:50			1.00
OR001003B	ORIFICE	0.058	17322 21:49			1.00
OR013002	ORIFICE	0.027	17323 10:15			1.00

Flow Classification Summary

Conduit	Adjusted /Actual Length	Up Dry	Down Dry	Fraction of Time in Dry Crit	Sub Crit	Up Crit	Down Crit	Flow Class Norm Ltd	Inlet Ctrl
---------	-------------------------------	-----------	-------------	------------------------------------	-------------	------------	--------------	---------------------------	---------------

Conduit Surcharge Summary

No conduits were surcharged.

Link Pollutant Load Summary

Link	TSS005 kg	TSS010 kg	TSS020 kg	TSS050 kg	TSS150 kg
OR001003A	3.416e+04	1.655e+04	1.877e+04	1.129e+04	210.363
OR001003B	1.776e+04	8877.192	1.005e+04	2667.282	62.911
OR013002	2.077e+04	9239.557	9514.924	5153.491	46.340

Analysis begun on: Tue Jan 17 14:57:48 2023
Analysis ended on: Tue Jan 17 14:58:54 2023
Total elapsed time: 00:01:06

[TITLE]
;;Project Title/Notes
Appin Site Model - 100-yr Design w BMP

[OPTIONS]
;;Option Value
FLOW_UNITS CMS
INFILTRATION MODIFIED_GREEN_AMPT
FLOW_ROUTING DYNWAVE
LINK_OFFSETS DEPTH
MIN_SLOPE 0
ALLOW_PONDING NO
SKIP_STEADY_STATE NO

START_DATE 07/01/2023
START_TIME 00:00:00
REPORT_START_DATE 07/01/2023
REPORT_START_TIME 00:00:00
END_DATE 07/04/2023
END_TIME 00:00:00
SWEEP_START 01/01
SWEEP_END 12/31
DRY_DAYS 0
REPORT_STEP 00:01:00
WET_STEP 00:01:00
DRY_STEP 00:01:00
ROUTING_STEP 10
RULE_STEP 00:00:00

INERTIAL_DAMPING PARTIAL
NORMAL_FLOW_LIMITED BOTH
FORCE_MAIN_EQUATION H-W
VARIABLE_STEP 0.75
LENGTHENING_STEP 0
MIN_SURFAREA 0
MAX_TRIALS 8
HEAD_TOLERANCE 0.0015
SYS_FLOW_TOL 5
LAT_FLOW_TOL 5
MINIMUM_STEP 0.5
THREADS 8

[EVAPORATION]
;;Data Source Parameters

CONSTANT 0.0
DRY_ONLY NO

[RAINGAGES]
;;Name Format Interval SCF Source

Raingage1 INTENSITY 0:05 1.0 TIMESERIES 100y24h

[SUBCATCHMENTS]
;;Name Rain Gage Outlet Area %Imperv width %Slope CurbLen SnowPack

S001003A_1 Raingage1 SU001003A 8.9002 50 613.807 6.124 0 Snowpack1
S001003A_2 Raingage1 SU001003A 4.8409 50 484.09 6.193 0 Snowpack1
S001003B_1 Raingage1 SU001003B 8.0228 10 534.853 2 0 Snowpack1
S001003B_2 Raingage1 SU001003B 19.6774 50 1311.827 6.086 0 Snowpack1
S013001_2 Raingage1 SU013002 1.8959 5.132 27.595 6.248 0 Snowpack1
S013002 Raingage1 SU013002 14.0461 50 936.407 6.159 0 Snowpack1

[SUBAREAS]
;;Subcatchment N-Imperv N-Perv S-Imperv S-Perv PctZero RouteTo PctRouted

S001003A_1 0.015 0.25 1.6 3.2 0 PERVIOUS 100
S001003A_2 0.015 0.25 1.6 3.2 0 PERVIOUS 100
S001003B_1 0.015 0.25 1.6 7.5 0 PERVIOUS 100
S001003B_2 0.015 0.25 1.6 3.2 0 PERVIOUS 100
S013001_2 0.015 0.25 1.6 7.5 0 PERVIOUS 100
S013002 0.015 0.25 1.6 3.2 0 PERVIOUS 100

[INFILTRATION]
;;Subcatchment Param1 Param2 Param3 Param4 Param5

S001003A_1 89 3.4 0.25 0 0
S001003A_2 89 3.4 0.25 0 0
S001003B_1 89 3.4 0.25 0 0
S001003B_2 89 3.4 0.25 0 0
S013001_2 206.548 1.315 0.244 0 0
S013002 89 3.4 0.25 0 0

[SNOWPACKS]
;;Name Surface Parameters

Snowpack1 PLOWABLE 0.05 0.3 0.0 0.10 0.00 0.00 0.0
Snowpack1 IMPERVIOUS 0.05 0.3 0.0 0.10 0.00 0.00 25.4
Snowpack1 PERVIOUS 0.05 0.3 0.0 0.10 0.00 0.00 25.4
Snowpack1 REMOVAL 25.4 0.0 0.0 0.0 0.0 0.0

[OUTFALLS]
;;Name Elevation Type Stage Data Gated Route To

OF001003A 0
OF001003B 1011.751 FREE NO
OF013001 1020 FREE NO

[STORAGE]
;;Name Elev. MaxDepth InitDepth Shape Curve Name/Params N/A Fevap Psi Ksat IMD

SU001003A 1022 5 2 TABULAR ST001003A 0 1
SU001003B 1017.5 5 2 TABULAR ST001003B_1 0 1
SU013002 1021 5 2 TABULAR ST013002 0 1

[ORIFICES]
;;Name From Node To Node Type Offset Qcoeff Gated CloseTime

OR001003A SU001003A OF001003A SIDE 2 0.65 NO 0
OR001003B SU001003B OF001003B SIDE 2 0.65 NO 0
OR013002 SU013002 OF013001 SIDE 2 0.65 NO 0

[XSECTIONS]
;;Link Shape Geom1 Geom2 Geom3 Geom4 Barrels Culvert

OR001003A CIRCULAR 0.1 0 0 0
OR001003B CIRCULAR 0.15 0 0 0
OR013002 CIRCULAR 0.1 0 0 0

[POLLUTANTS]
;;Name Units Crain Cgw Crdii Kdecay SnowOnly Co-Pollutant Co-Frac Cdwf Cinit

TSS005	MG/L	0	0	0	0	NO	*	0.0	0	0
TSS010	MG/L	0	0	0	0	NO	*	0.0	0	0
TSS020	MG/L	0	0	0	0	NO	*	0.0	0	0
TSS050	MG/L	0	0	0	0	NO	*	0.0	0	0
TSS150	MG/L	0	0	0	0	NO	*	0.0	0	0

[LANDUSES]

;;Name	Sweeping Interval	Fraction Available	Last Swept
IMPERV	0	0	0
PERV	0	0	0

[COVERAGES]

;;Subcatchment	Land Use	Percent
S001003A_1	IMPERV	50
S001003A_1	PERV	50
S001003A_2	IMPERV	50
S001003A_2	PERV	50
S001003B_2	IMPERV	50
S001003B_2	PERV	50
S013002	IMPERV	50
S013002	PERV	50

[LOADINGS]

;;Subcatchment	Pollutant	Buildup
S001003A_1	TSS005	37.95
S001003A_1	TSS010	14.85
S001003A_1	TSS020	21.45
S001003A_1	TSS050	37.95
S001003A_1	TSS150	52.8
S001003A_2	TSS005	37.95
S001003A_2	TSS010	14.85
S001003A_2	TSS020	21.45
S001003A_2	TSS050	37.95
S001003A_2	TSS150	52.8
S001003B_2	TSS005	37.95
S001003B_2	TSS010	14.85
S001003B_2	TSS020	21.45
S001003B_2	TSS050	37.95
S001003B_2	TSS150	52.8
S013002	TSS005	37.95
S013002	TSS010	14.85
S013002	TSS020	21.45
S013002	TSS050	37.95
S013002	TSS150	52.8

[BUILDUP]

;;Land Use	Pollutant	Function	Coeff1	Coeff2	Coeff3	Per Unit
IMPERV	TSS005	POW	460	1.265	1	AREA
IMPERV	TSS010	POW	180	0.495	1	AREA
IMPERV	TSS020	POW	260	0.715	1	AREA
IMPERV	TSS050	POW	460	1.265	1	AREA
IMPERV	TSS150	POW	640	1.76	1	AREA
PERV	TSS005	POW	460	1.265	1	AREA
PERV	TSS010	POW	180	0.495	1	AREA
PERV	TSS020	POW	260	0.715	1	AREA
PERV	TSS050	POW	460	1.265	1	AREA
PERV	TSS150	POW	640	1.76	1	AREA

[WASHOFF]

;;Land Use	Pollutant	Function	Coeff1	Coeff2	SweepRmv1	BmpRmv1
IMPERV	TSS005	EXP	1380	1.2	0	0
IMPERV	TSS010	EXP	540	1.2	0	0
IMPERV	TSS020	EXP	780	1.2	0	0
IMPERV	TSS050	EXP	1380	1.2	0	0
IMPERV	TSS150	EXP	1920	1.2	0	0
PERV	TSS005	EXP	690	1.2	0.0	0.0
PERV	TSS010	EXP	270	1.2	0	0
PERV	TSS020	EXP	390	1.2	0	0
PERV	TSS050	EXP	690	1.2	0	0
PERV	TSS150	EXP	960	1.2	0	0

[TREATMENT]

;;Node	Pollutant	Function
SU001003A	TSS005	R=1-exp((-0.00000592*HRT/DEPTH))
SU001003A	TSS010	R=1-exp((-0.0000473*HRT/DEPTH))
SU001003A	TSS020	R=1-exp((-0.000283*HRT/DEPTH))
SU001003A	TSS050	R=1-exp((-0.00195*HRT/DEPTH))
SU001003A	TSS150	R=1-exp((-0.0124*HRT/DEPTH))
SU001003B	TSS005	R=1-exp((-0.00000592*HRT/DEPTH))
SU001003B	TSS010	R=1-exp((-0.0000473*HRT/DEPTH))
SU001003B	TSS020	R=1-exp((-0.000283*HRT/DEPTH))
SU001003B	TSS050	R=1-exp((-0.00195*HRT/DEPTH))
SU001003B	TSS150	R=1-exp((-0.0124*HRT/DEPTH))
SU013002	TSS005	R=1-exp((-0.00000592*HRT/DEPTH))
SU013002	TSS010	R=1-exp((-0.0000473*HRT/DEPTH))
SU013002	TSS020	R=1-exp((-0.000283*HRT/DEPTH))
SU013002	TSS050	R=1-exp((-0.00195*HRT/DEPTH))
SU013002	TSS150	R=1-exp((-0.0124*HRT/DEPTH))

[CURVES]

;;Name	Type	X-Value	Y-Value
;From Storage Creator, Name = SU001003; Minimum Elev. = 1011.751; Maximum Elev. = 1017.877; Depth = 6.126			
ST001003	Storage	0	1.167
ST001003		0.329	1.167
ST001003		0.579	425
ST001003		0.829	1275
ST001003		1.079	2750
ST001003		1.329	3500
ST001003		1.579	4375
ST001003		1.829	5750
ST001003		2.079	6775
ST001003		2.329	7850
ST001003		2.579	8900
ST001003		2.829	10150
ST001003		3.079	11275
ST001003		3.329	12550
ST001003		3.579	13925
ST001003		3.829	15100
ST001003		4.079	16700
ST001003		4.329	18300
ST001003		4.579	19900
ST001003		4.829	22000
ST001003		5.079	23525
ST001003		5.329	25450

ST001003		5.579	27125
ST001003		5.829	29375
ST001003		6.079	31025
ST001003		6.126	31425
ST001003A	Storage	0	250
ST001003A		2	2200
ST001003A		4	5500
ST001003B_1	Storage	0	1600
ST001003B_1		2	6300
ST001003B_1		4	12100
ST001004	Storage	0	1000
ST001004		2	3200
ST001004		3	8800
ST013002	Storage	0	800
ST013002		2	3400
ST013002		4	8500

[TIMESERIES]

;;Name	Date	Time	Value
100y24h		0:00	0
100y24h		0:05	1.094
100y24h		0:10	1.103
100y24h		0:15	1.113
100y24h		0:20	1.122
100y24h		0:25	1.132
100y24h		0:30	1.143
100y24h		0:35	1.153
100y24h		0:40	1.163
100y24h		0:45	1.174
100y24h		0:50	1.185
100y24h		0:55	1.197
100y24h		1:00	1.208
100y24h		1:05	1.22
100y24h		1:10	1.232
100y24h		1:15	1.245
100y24h		1:20	1.257
100y24h		1:25	1.27
100y24h		1:30	1.284
100y24h		1:35	1.297
100y24h		1:40	1.311
100y24h		1:45	1.326
100y24h		1:50	1.341
100y24h		1:55	1.356
100y24h		2:00	1.372
100y24h		2:05	1.388
100y24h		2:10	1.404
100y24h		2:15	1.421
100y24h		2:20	1.439
100y24h		2:25	1.457
100y24h		2:30	1.476
100y24h		2:35	1.495
100y24h		2:40	1.515
100y24h		2:45	1.535
100y24h		2:50	1.556
100y24h		2:55	1.578
100y24h		3:00	1.601
100y24h		3:05	1.624
100y24h		3:10	1.648
100y24h		3:15	1.674
100y24h		3:20	1.7
100y24h		3:25	1.727
100y24h		3:30	1.755
100y24h		3:35	1.784
100y24h		3:40	1.815
100y24h		3:45	1.846
100y24h		3:50	1.88
100y24h		3:55	1.914
100y24h		4:00	1.95
100y24h		4:05	1.988
100y24h		4:10	2.028
100y24h		4:15	2.07
100y24h		4:20	2.113
100y24h		4:25	2.159
100y24h		4:30	2.208
100y24h		4:35	2.259
100y24h		4:40	2.313
100y24h		4:45	2.371
100y24h		4:50	2.432
100y24h		4:55	2.497
100y24h		5:00	2.566
100y24h		5:05	2.64
100y24h		5:10	2.719
100y24h		5:15	2.805
100y24h		5:20	2.897
100y24h		5:25	2.997
100y24h		5:30	3.105
100y24h		5:35	3.224
100y24h		5:40	3.354
100y24h		5:45	3.497
100y24h		5:50	3.656
100y24h		5:55	3.833
100y24h		6:00	4.033
100y24h		6:05	4.259
100y24h		6:10	4.519
100y24h		6:15	4.821
100y24h		6:20	5.176
100y24h		6:25	5.601
100y24h		6:30	6.12
100y24h		6:35	6.773
100y24h		6:40	7.624
100y24h		6:45	8.785
100y24h		6:50	10.488
100y24h		6:55	13.283
100y24h		7:00	18.961
100y24h		7:05	40.516
100y24h		7:10	168.138
100y24h		7:15	54.372
100y24h		7:20	31.748
100y24h		7:25	23.236
100y24h		7:30	18.66
100y24h		7:35	15.763
100y24h		7:40	13.746
100y24h		7:45	12.251
100y24h		7:50	11.093
100y24h		7:55	10.166
100y24h		8:00	9.405
100y24h		8:05	8.768

100y24h	8:10	8.225
100y24h	8:15	7.756
100y24h	8:20	7.346
100y24h	8:25	6.985
100y24h	8:30	6.664
100y24h	8:35	6.376
100y24h	8:40	6.116
100y24h	8:45	5.88
100y24h	8:50	5.665
100y24h	8:55	5.468
100y24h	9:00	5.287
100y24h	9:05	5.119
100y24h	9:10	4.964
100y24h	9:15	4.819
100y24h	9:20	4.684
100y24h	9:25	4.558
100y24h	9:30	4.44
100y24h	9:35	4.329
100y24h	9:40	4.224
100y24h	9:45	4.125
100y24h	9:50	4.032
100y24h	9:55	3.943
100y24h	10:00	3.859
100y24h	10:05	3.78
100y24h	10:10	3.704
100y24h	10:15	3.631
100y24h	10:20	3.562
100y24h	10:25	3.496
100y24h	10:30	3.433
100y24h	10:35	3.373
100y24h	10:40	3.315
100y24h	10:45	3.259
100y24h	10:50	3.206
100y24h	10:55	3.154
100y24h	11:00	3.105
100y24h	11:05	3.057
100y24h	11:10	3.011
100y24h	11:15	2.967
100y24h	11:20	2.924
100y24h	11:25	2.883
100y24h	11:30	2.843
100y24h	11:35	2.805
100y24h	11:40	2.767
100y24h	11:45	2.731
100y24h	11:50	2.696
100y24h	11:55	2.662
100y24h	12:00	2.629
100y24h	12:05	2.597
100y24h	12:10	2.566
100y24h	12:15	2.536
100y24h	12:20	2.506
100y24h	12:25	2.478
100y24h	12:30	2.45
100y24h	12:35	2.423
100y24h	12:40	2.396
100y24h	12:45	2.371
100y24h	12:50	2.346
100y24h	12:55	2.321
100y24h	13:00	2.297
100y24h	13:05	2.274
100y24h	13:10	2.252
100y24h	13:15	2.229
100y24h	13:20	2.208
100y24h	13:25	2.187
100y24h	13:30	2.166
100y24h	13:35	2.146
100y24h	13:40	2.126
100y24h	13:45	2.107
100y24h	13:50	2.088
100y24h	13:55	2.069
100y24h	14:00	2.051
100y24h	14:05	2.034
100y24h	14:10	2.016
100y24h	14:15	1.999
100y24h	14:20	1.983
100y24h	14:25	1.966
100y24h	14:30	1.95
100y24h	14:35	1.935
100y24h	14:40	1.919
100y24h	14:45	1.904
100y24h	14:50	1.889
100y24h	14:55	1.875
100y24h	15:00	1.86
100y24h	15:05	1.846
100y24h	15:10	1.833
100y24h	15:15	1.819
100y24h	15:20	1.806
100y24h	15:25	1.793
100y24h	15:30	1.78
100y24h	15:35	1.767
100y24h	15:40	1.755
100y24h	15:45	1.743
100y24h	15:50	1.731
100y24h	15:55	1.719
100y24h	16:00	1.707
100y24h	16:05	1.696
100y24h	16:10	1.685
100y24h	16:15	1.673
100y24h	16:20	1.663
100y24h	16:25	1.652
100y24h	16:30	1.641
100y24h	16:35	1.631
100y24h	16:40	1.621
100y24h	16:45	1.611
100y24h	16:50	1.601
100y24h	16:55	1.591
100y24h	17:00	1.581
100y24h	17:05	1.572
100y24h	17:10	1.562
100y24h	17:15	1.553
100y24h	17:20	1.544
100y24h	17:25	1.535
100y24h	17:30	1.526
100y24h	17:35	1.517
100y24h	17:40	1.509
100y24h	17:45	1.5
100y24h	17:50	1.492
100y24h	17:55	1.484
100y24h	18:00	1.476
100y24h	18:05	1.467
100y24h	18:10	1.46
100y24h	18:15	1.452

100y24h	18:20	1.444
100y24h	18:25	1.436
100y24h	18:30	1.429
100y24h	18:35	1.421
100y24h	18:40	1.414
100y24h	18:45	1.407
100y24h	18:50	1.399
100y24h	18:55	1.392
100y24h	19:00	1.385
100y24h	19:05	1.378
100y24h	19:10	1.372
100y24h	19:15	1.365
100y24h	19:20	1.358
100y24h	19:25	1.352
100y24h	19:30	1.345
100y24h	19:35	1.339
100y24h	19:40	1.332
100y24h	19:45	1.326
100y24h	19:50	1.32
100y24h	19:55	1.313
100y24h	20:00	1.307
100y24h	20:05	1.301
100y24h	20:10	1.295
100y24h	20:15	1.289
100y24h	20:20	1.284
100y24h	20:25	1.278
100y24h	20:30	1.272
100y24h	20:35	1.266
100y24h	20:40	1.261
100y24h	20:45	1.255
100y24h	20:50	1.25
100y24h	20:55	1.244
100y24h	21:00	1.239
100y24h	21:05	1.234
100y24h	21:10	1.229
100y24h	21:15	1.223
100y24h	21:20	1.218
100y24h	21:25	1.213
100y24h	21:30	1.208
100y24h	21:35	1.203
100y24h	21:40	1.198
100y24h	21:45	1.193
100y24h	21:50	1.188
100y24h	21:55	1.184
100y24h	22:00	1.179
100y24h	22:05	1.174
100y24h	22:10	1.17
100y24h	22:15	1.165
100y24h	22:20	1.16
100y24h	22:25	1.156
100y24h	22:30	1.151
100y24h	22:35	1.147
100y24h	22:40	1.143
100y24h	22:45	1.138
100y24h	22:50	1.134
100y24h	22:55	1.13
100y24h	23:00	1.125
100y24h	23:05	1.121
100y24h	23:10	1.117
100y24h	23:15	1.113
100y24h	23:20	1.109
100y24h	23:25	1.105
100y24h	23:30	1.101
100y24h	23:35	1.097
100y24h	23:40	1.093
100y24h	23:45	1.089
100y24h	23:50	1.085
100y24h	23:55	1.081
100y24h	24:00	1.077

[REPORT]
;Reporting Options
INPUT YES
CONTROLS NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]
Subcatch S001003A_1 WDT
Subcatch S001003A_2 WDT
Subcatch S001003B_2 WDT
Subcatch S013001_2 WDT
Subcatch S013002 WDT

[MAP]
DIMENSIONS 707225.44825 5709104.22535 708165.21675 5710164.44165
UNITS Meters

[COORDINATES]
;;Node X-Coord Y-Coord

OF001003A 707473.193 5710086.526
OF001003B 707427.222 5710075.46
OF013001 708111.964 5709693.179
SU001003A 707614.766 5709897.544
SU001003B 707383.65 5709977.492
SU013002 708070.878 5709676.615

[VERTICES]
;;Link X-Coord Y-Coord

[POLYGONS]
;;Subcatchment X-Coord Y-Coord

S001003A_1 707760.67 5709739.637
S001003A_1 707760.84 5709739.975
S001003A_1 707760.986 5709740.325
S001003A_1 707761.109 5709740.684
S001003A_1 707761.206 5709741.05
S001003A_1 707761.279 5709741.422
S001003A_1 707761.326 5709741.798
S001003A_1 707761.347 5709742.177
S001003A_1 707761.342 5709742.556
S001003A_1 707761.311 5709742.934
S001003A_1 707761.255 5709743.309
S001003A_1 707761.173 5709743.679
S001003A_1 707761.066 5709744.043
S001003A_1 707760.935 5709744.398
S001003A_1 707760.78 5709744.744
S001003A_1 707760.601 5709745.078

S001003A_1	707760.4	5709745.4
S001003A_1	707758.975	5709747.546
S001003A_1	707740.85	5709774.846
S001003A_1	707735.282	5709783.233
S001003A_1	707733.224	5709784.738
S001003A_1	707732.86	5709784.985
S001003A_1	707732.478	5709785.204
S001003A_1	707732.082	5709785.394
S001003A_1	707711.953	5709794.178
S001003A_1	707711.468	5709794.365
S001003A_1	707710.97	5709794.509
S001003A_1	707710.46	5709794.61
S001003A_1	707694.906	5709796.989
S001003A_1	707694.861	5709796.995
S001003A_1	707683.515	5709798.642
S001003A_1	707683.378	5709798.661
S001003A_1	707669.836	5709800.308
S001003A_1	707669.445	5709800.342
S001003A_1	707663.04	5709800.698
S001003A_1	707662.435	5709801.908
S001003A_1	707664.531	5709807.935
S001003A_1	707664.687	5709808.458
S001003A_1	707664.795	5709808.993
S001003A_1	707664.853	5709809.536
S001003A_1	707664.862	5709810.082
S001003A_1	707664.679	5709816.304
S001003A_1	707664.642	5709816.815
S001003A_1	707664.561	5709817.322
S001003A_1	707664.438	5709817.819
S001003A_1	707664.273	5709818.305
S001003A_1	707664.066	5709818.774
S001003A_1	707663.821	5709819.224
S001003A_1	707663.537	5709819.652
S001003A_1	707663.219	5709820.053
S001003A_1	707662.867	5709820.426
S001003A_1	707662.485	5709820.768
S001003A_1	707662.075	5709821.076
S001003A_1	707655.67	5709825.468
S001003A_1	707655.364	5709825.664
S001003A_1	707652.924	5709827.128
S001003A_1	707652.965	5709828.148
S001003A_1	707652.963	5709828.677
S001003A_1	707652.914	5709829.204
S001003A_1	707652.819	5709829.725
S001003A_1	707652.679	5709830.235
S001003A_1	707650.666	5709836.457
S001003A_1	707650.394	5709837.147
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S001003B_2	707773.309	5709394.607
S001003B_2	707773.019	5709394.139
S001003B_2	707772.774	5709393.647
S001003B_2	707772.575	5709393.134
S001003B_2	707772.424	5709392.605
S001003B_2	707772.322	5709392.065
S001003B_2	707772.27	5709391.517
S001003B_2	707771.767	5709381.322
S001003B_2	707768.302	5709370.031
S001003B_2	707765.303	5709368.629
S001003B_2	707751.128	5709368.367
S001003B_2	707750.717	5709368.345
S001003B_2	707750.307	5709368.295
S001003B_2	707735.093	5709365.901
S001003B_2	707734.638	5709365.812
S001003B_2	707734.19	5709365.687
S001003B_2	707733.754	5709365.528
S001003B_2	707733.332	5709365.335
S001003B_2	707720.419	5709358.847
S001003B_2	707708.872	5709353.644
S001003B_2	707708.397	5709353.405
S001003B_2	707707.945	5709353.124
S001003B_2	707707.52	5709352.804
S001003B_2	707707.125	5709352.448
S001003B_2	707706.763	5709352.058
S001003B_2	707706.437	5709351.638
S001003B_2	707706.15	5709351.19
S001003B_2	707705.903	5709350.719
S001003B_2	707699.04	5709336.072
S001003B_2	707698.901	5709335.75
S001003B_2	707692.391	5709319.438
S001003B_2	707685.943	5709306.314
S001003B_2	707670.524	5709288.144
S001003B_2	707670.206	5709287.735
S001003B_2	707669.925	5709287.3
S001003B_2	707669.682	5709286.842
S001003B_2	707669.48	5709286.364
S001003B_2	707669.329	5709285.801
S001003B_2	707669.209	5709285.316
S001003B_2	707463.848	5709277.45
S001003B_2	707457.818	5709277.217
S001003B_2	707301.886	5709271.24
S001003B_2	707297.976	5709365.737
S001003B_2	707284.826	5709703.538
S001003B_2	707611.831	5709716.342
S001003B_2	707723.46	5709720.713
S001003B_2	707723.302	5709705.419
S001003B_2	707729.073	5709694.094
S001003B_2	707738.06	5709685.106
S001003B_2	707746.273	5709680.921
S001003B_2	707747.218	5709674.957
S001003B_2	707748.257	5709672.919
S001003B_2	707753.155	5709663.304
S001003B_2	707758.595	5709657.865
S001003B_2	707758.183	5709657.75
S001003B_2	707754.93	5709656.609

S001003B_2	707753.596	5709657.288
S001003B_2	707750.255	5709657.818
S001003B_2	707746.913	5709657.288
S001003B_2	707745.584	5709656.611
S001003B_2	707743.899	5709655.753
S013001_2	707977.466	5709297.135
S013001_2	708116.773	5709302.475
S013001_2	708117.855	5709275.991
S013001_2	708117.827	5709275.903
S013001_2	708117.773	5709236.504
S013001_2	708122.222	5709215.962
S013001_2	708120.244	5709192.256
S013001_2	708122.231	5709180.952
S013001_2	708122.5	5709156.231
S013001_2	708103.14	5709152.417
S013001_2	708081.587	5709165.317
S013001_2	708058.359	5709167.09
S013001_2	708046.973	5709170.039
S013001_2	708040.464	5709168.159
S013001_2	708032.227	5709156.611
S013001_2	708023.799	5709154.258
S013001_2	708013.75	5709162.481
S013001_2	707983.804	5709192.534
S013001_2	707979.663	5709198.394
S013001_2	707977.554	5709211.284
S013001_2	707977.466	5709297.135
S013002	707911.705	5709714.393
S013002	707912.417	5709728.112
S013002	707915.286	5709743.03
S013002	707888.685	5709741.719
S013002	707928.395	5709887.226
S013002	707905.203	5709899.62
S013002	707902.315	5709975.076
S013002	707898.329	5710111.271
S013002	707912.5	5710111.231
S013002	707992.446	5710111.284
S013002	708022.554	5710116.177
S013002	708083.542	5710116.25
S013002	708095.235	5709829.906
S013002	708099.093	5709735.421
S013002	708112.786	5709400.112
S013002	708113.359	5709347.09
S013002	708115.223	5709340.433
S013002	708116.773	5709302.475
S013002	707977.466	5709297.135
S013002	707967.618	5709401.783
S013002	707962.876	5709446.772
S013002	707932.81	5709601.238
S013002	707911.705	5709714.393

[SYMBOLS]

;;Gage

X-Coord

Y-Coord

;;-----

Appin Site Model - 100-yr Design w BMP

Element Count

```

*****
Number of rain gages ..... 1
Number of subcatchments ... 6
Number of nodes ..... 6
Number of links ..... 3
Number of pollutants ..... 5
Number of land uses ..... 2

```

Pollutant Summary

```

*****
Name          Units      Ppt.   Gw      Kdecay
                Concen.  Concen. 1/days
-----
TSS005        MG/L        0.00    0.00    0.00
TSS010        MG/L        0.00    0.00    0.00
TSS020        MG/L        0.00    0.00    0.00
TSS050        MG/L        0.00    0.00    0.00
TSS150        MG/L        0.00    0.00    0.00

```

Landuse Summary

```

*****
Name          Sweeping  Maximum  Last
                Interval  Removal  Swept
-----
IMPERV        0.00      0.00    0.00
PERV          0.00      0.00    0.00

```

Raingage Summary

```

*****
Name          Data Source          Data      Recording
                Type              Type      Interval
-----
Raingage1     100y24h                      INTENSITY  5 min.

```

Subcatchment Summary

```

*****
Name          Area      width  %Imperv  %Slope Rain Gage      Outlet
-----
S001003A_1    8.90      613.81  50.00    6.1240 Raingage1      SU001003A
S001003A_2    4.84      484.09  50.00    6.1930 Raingage1      SU001003A
S001003B_1    8.02      534.85  10.00    2.0000 Raingage1      SU001003B
S001003B_2    19.68     1311.83  50.00    6.0860 Raingage1      SU001003B
S013001_2     1.90      27.59   5.13     6.2480 Raingage1      SU013002
S013002       14.05     936.41  50.00    6.1590 Raingage1      SU013002

```

Node Summary

```

*****
Name          Type          Invert  Max.    Ponded  External
                Type          Elev.   Depth   Area    Inflow
-----
OF001003A     OUTFALL          0.00    0.00    0.0     0.0
OF001003B     OUTFALL         1011.75  0.00    0.0     0.0
OF013001      OUTFALL         1020.00  0.00    0.0     0.0
SU001003A     STORAGE         1022.00  5.00    0.0     0.0
SU001003B     STORAGE         1017.50  5.00    0.0     0.0
SU013002      STORAGE         1021.00  5.00    0.0     0.0

```

Link Summary

```

*****
Name          From Node      To Node      Type          Length  %Slope Roughness
-----
OR001003A     SU001003A      OF001003A    ORIFICE
OR001003B     SU001003B      OF001003B    ORIFICE
OR013002      SU013002       OF013001     ORIFICE

```

Cross Section Summary

```

*****
Conduit      Shape          Full    Full    Hyd.    Max.    No. of    Full
                Shape          Depth   Area    Rad.    width  Barrels  Flow
-----

```

NOTE: The summary statistics displayed in this report are based on results found at every computational time step, not just on results from each reporting time step.

Analysis options

```

*****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... YES
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  water Quality ..... YES
Infiltration Method ..... MODIFIED_GREEN_AMPT
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date ..... 07/01/2023 00:00:00
Ending Date ..... 07/04/2023 00:00:00
Antecedent Dry Days ..... 0.0
Report Time Step ..... 00:01:00
Wet Time Step ..... 00:01:00

```

Dry Time Step 00:01:00
Routing Time Step 10.00 sec
Variable Time Step YES
Maximum Trials 8
Number of Threads 1
Head Tolerance 0.001500 m

*****	Volume	Depth
Runoff Quantity Continuity	hectare-m	mm
*****	-----	-----
Initial Snow Cover	0.000	0.000
Total Precipitation	5.145	89.667
Evaporation Loss	0.000	0.000
Infiltration Loss	2.976	51.868
Surface Runoff	2.132	37.149
Snow Removed	0.000	0.000
Final Snow Cover	0.000	0.000
Final Storage	0.039	0.687
Continuity Error (%)	-0.040	

*****	TSS005	TSS010	TSS020	TSS050	TSS150
Runoff Quality Continuity	kg	kg	kg	kg	kg
*****	-----	-----	-----	-----	-----
Initial Buildup	1801.282	704.849	1018.116	1801.282	2506.131
Surface Buildup	121.145	47.405	68.473	121.145	168.550
Wet Deposition	0.000	0.000	0.000	0.000	0.000
Sweeping Removal	0.000	0.000	0.000	0.000	0.000
Infiltration Loss	0.000	0.000	0.000	0.000	0.000
BMP Removal	0.000	0.000	0.000	0.000	0.000
Surface Runoff	1804.988	706.300	1020.211	1804.988	2511.288
Remaining Buildup	117.438	45.954	66.378	117.438	163.392
Continuity Error (%)	0.000	0.000	0.000	0.000	0.000

*****	Volume	Volume
Flow Routing Continuity	hectare-m	10A6 ltr
*****	-----	-----
Dry weather Inflow	0.000	0.000
Wet weather Inflow	2.132	21.317
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	1.772	17.716
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	1.455	14.549
Final Stored Volume	1.815	18.150
Continuity Error (%)	0.001	

*****	TSS005	TSS010	TSS020	TSS050	TSS150
Quality Routing Continuity	kg	kg	kg	kg	kg
*****	-----	-----	-----	-----	-----
Dry weather Inflow	0.000	0.000	0.000	0.000	0.000
Wet weather Inflow	1559.153	668.658	941.674	1559.153	2035.418
Groundwater Inflow	0.000	0.000	0.000	0.000	0.000
RDII Inflow	0.000	0.000	0.000	0.000	0.000
External Inflow	0.000	0.000	0.000	0.000	0.000
External Outflow	786.106	336.766	474.406	786.106	1027.064
Flooding Loss	0.000	0.000	0.000	0.000	0.000
Exfiltration Loss	0.000	0.000	0.000	0.000	0.000
Mass Reacted	0.000	0.000	0.000	0.000	0.000
Initial Stored Mass	0.000	0.000	0.000	0.000	0.000
Final Stored Mass	771.056	331.043	466.070	771.056	1005.747
Continuity Error (%)	0.128	0.127	0.127	0.128	0.128

Time-Step Critical Elements

None

Highest Flow Instability Indexes

All links are stable.

Routing Time Step Summary	

Minimum Time Step :	9.50 sec
Average Time Step :	10.00 sec
Maximum Time Step :	10.00 sec
Percent in Steady State :	0.00
Average Iterations per Step :	2.00
Percent Not Converging :	0.00
Time Step Frequencies :	
10.000 - 5.493 sec :	100.00 %
5.493 - 3.017 sec :	0.00 %
3.017 - 1.657 sec :	0.00 %
1.657 - 0.910 sec :	0.00 %
0.910 - 0.500 sec :	0.00 %

Subcatchment Runoff Summary

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10A6 ltr	Peak Runoff CMS	Runoff Coeff
S001003A_1	89.67	0.00	0.00	48.34	44.06	40.57	40.57	3.61	1.62	0.452
S001003A_2	89.67	0.00	0.00	48.15	44.07	40.77	40.77	1.97	1.10	0.455
S001003B_1	89.67	0.00	0.00	69.49	8.82	20.03	20.03	1.61	0.34	0.223
S001003B_2	89.67	0.00	0.00	48.36	44.06	40.55	40.55	7.98	3.51	0.452
S013001_2	89.67	0.00	0.00	65.82	4.52	23.77	23.77	0.45	0.04	0.265
S013002	89.67	0.00	0.00	48.35	44.06	40.55	40.55	5.70	2.51	0.452

Subcatchment washoff Summary

TSS005 TSS010 TSS020 TSS050 TSS150

Subcatchment	kg	kg	kg	kg	kg
S001003A_1	338.458	132.440	191.303	338.458	470.899
S001003A_2	184.086	72.034	104.049	184.086	256.120
S001003B_1	0.000	0.000	0.000	0.000	0.000
S001003B_2	748.296	292.811	422.950	748.296	1041.107
S013001_2	0.000	0.000	0.000	0.000	0.000
S013002	534.148	209.014	301.910	534.148	743.162
System	1804.988	706.300	1020.211	1804.988	2511.288

Node Depth Summary

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
OF001003A	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
OF001003B	OUTFALL	0.00	0.00	1011.75	0 00:00	0.00
OF013001	OUTFALL	0.00	0.00	1020.00	0 00:00	0.00
SU001003A	STORAGE	2.83	3.48	1025.48	0 11:37	3.48
SU001003B	STORAGE	2.56	3.10	1020.60	0 11:19	3.10
SU013002	STORAGE	2.72	3.16	1024.16	0 12:22	3.16

Node Inflow Summary

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
OF001003A	OUTFALL	0.000	0.027	0 11:37	0	4.8	0.000
OF001003B	OUTFALL	0.000	0.052	0 11:19	0	8.4	0.000
OF013001	OUTFALL	0.000	0.024	0 12:22	0	4.52	0.000
SU001003A	STORAGE	2.704	2.704	0 07:17	5.58	8.03	0.001
SU001003B	STORAGE	3.764	3.764	0 07:18	9.59	17.5	0.001
SU013002	STORAGE	2.537	2.537	0 07:18	6.15	10.3	0.002

Node Surcharge Summary

No nodes were surcharged.

Node Flooding Summary

No nodes were flooded.

Storage Volume Summary

Storage Unit	Average Volume 1000 m3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CMS
SU001003A	4.987	30	0	0	7.527	46	0 11:37	0.027
SU001003B	12.016	30	0	0	16.581	42	0 11:19	0.052
SU013002	7.446	29	0	0	9.842	38	0 12:22	0.024

Outfall Loading Summary

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr	Total TSS005 kg	Total TSS010 kg	Total TSS020 kg	Total TSS050 kg	Total TSS150 kg
OF001003A	90.33	0.020	0.027	4.798	275.985	116.808	165.085	275.985	363.834
OF001003B	90.27	0.036	0.052	8.403	310.001	133.510	187.811	310.001	403.409
OF013001	90.27	0.019	0.024	4.515	200.129	86.452	121.515	200.129	259.833
System	90.29	0.076	0.102	17.716	786.115	336.770	474.411	786.115	1027.076

Link Flow Summary

Link	Type	Maximum Flow CMS	Time of Max Occurrence days hr:min	Maximum Veloc m/sec	Max/ Full Flow	Max/ Full Depth
OR001003A	ORIFICE	0.027	0 11:37			1.00
OR001003B	ORIFICE	0.052	0 11:19			1.00
OR013002	ORIFICE	0.024	0 12:22			1.00

Flow Classification Summary

Conduit	Adjusted /Actual Length	----- Dry	Up Dry	Fraction of Time Down Dry	Sub Crit	Time in Flow Sup Crit	Up Crit	Flow Class Down Crit	Norm Ltd	Inlet Ctrl
---------	-------------------------	--------------	--------	---------------------------	----------	-----------------------	---------	----------------------	----------	------------

Conduit Surcharge Summary

No conduits were surcharged.

Link Pollutant Load Summary

Link	TSS005 kg	TSS010 kg	TSS020 kg	TSS050 kg	TSS150 kg
OR001003A	275.985	116.808	165.085	275.985	363.834
OR001003B	310.001	133.510	187.811	310.001	403.409
OR013002	200.129	86.452	121.515	200.129	259.833

Analysis begun on: wed Jan 11 14:23:44 2023
Analysis ended on: wed Jan 11 14:23:44 2023
Total elapsed time: < 1 sec

APPENDIX F – CULVERT ANALYSIS

Attached are the results of the culvert analysis for the future major culvert for the road crossing the drainage course.



HY-8 Culvert Analysis Report

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 1.55 cms

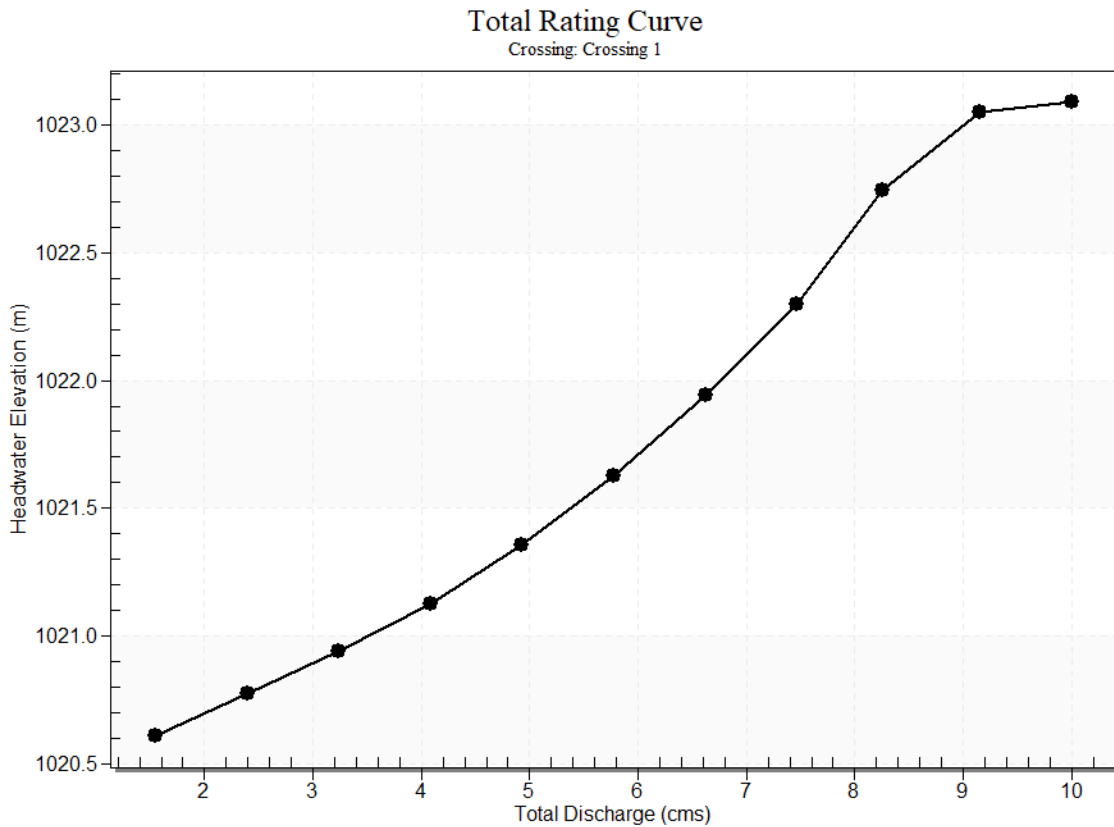
Design Flow: 8.25 cms

Maximum Flow: 10.00 cms

Table 1 - Summary of Culvert Flows at Crossing: Crossing 1

Headwater Elevation (m)	Total Discharge (cms)	Culvert 1 Discharge (cms)	Roadway Discharge (cms)	Iterations
1020.61	1.55	1.55	0.00	1
1020.78	2.40	2.40	0.00	1
1020.94	3.24	3.24	0.00	1
1021.13	4.08	4.08	0.00	1
1021.35	4.93	4.93	0.00	1
1021.63	5.77	5.77	0.00	1
1021.94	6.62	6.62	0.00	1
1022.30	7.46	7.46	0.00	1
1022.75	8.25	8.25	0.00	1
1023.05	9.15	8.61	0.54	3
1023.09	10.00	8.66	1.34	6
1023.00	8.55	8.55	0.00	Overtopping

Rating Curve Plot for Crossing: Crossing 1



Culvert Data: Culvert 1

Table 1 - Culvert Summary Table: Culvert 1

Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
1.55 cms	1.55 cms	1020.61	0.61	0.0*	1-S2n	0.33	0.41	0.33	0.18	2.33	0.44
2.40 cms	2.40 cms	1020.78	0.78	0.0*	1-S2n	0.41	0.51	0.41	0.23	2.62	0.52
3.24 cms	3.24 cms	1020.94	0.94	0.0*	1-S2n	0.49	0.60	0.49	0.28	2.84	0.59
4.08 cms	4.08 cms	1021.13	1.13	0.0*	5-S2n	0.56	0.67	0.56	0.32	3.00	0.64

4.93 cms	4.93 cms	1021.3 5	1.35	0.41 5	5- S2 n	0.63	0.74	0.6 3	0.36	3.13	0.69
5.77 cms	5.77 cms	1021.6 3	1.63	1.01 2	5- S2 n	0.71	0.80	0.7 1	0.39	3.22	0.74
6.62 cms	6.62 cms	1021.9 4	1.94	1.54 3	5- S2 n	0.80	0.85	0.8 0	0.43	3.27	0.78
7.46 cms	7.46 cms	1022.3 0	2.30	2.08 1	7- M2 c	1.00	0.89	0.8 9	0.46	3.38	0.82
8.25 cms	8.25 cms	1022.7 5	2.65	2.74 7	7- M2 c	1.00	0.92	0.9 2	0.49	3.65	0.85
9.15 cms	8.61 cms	1023.0 5	2.82	3.05 0	7- M2 c	1.00	0.93	0.9 3	0.52	3.78	0.88
10.00 cms	8.66 cms	1023.0 9	2.84	3.09 0	7- M2 c	1.00	0.93	0.9 3	0.55	3.80	0.91

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

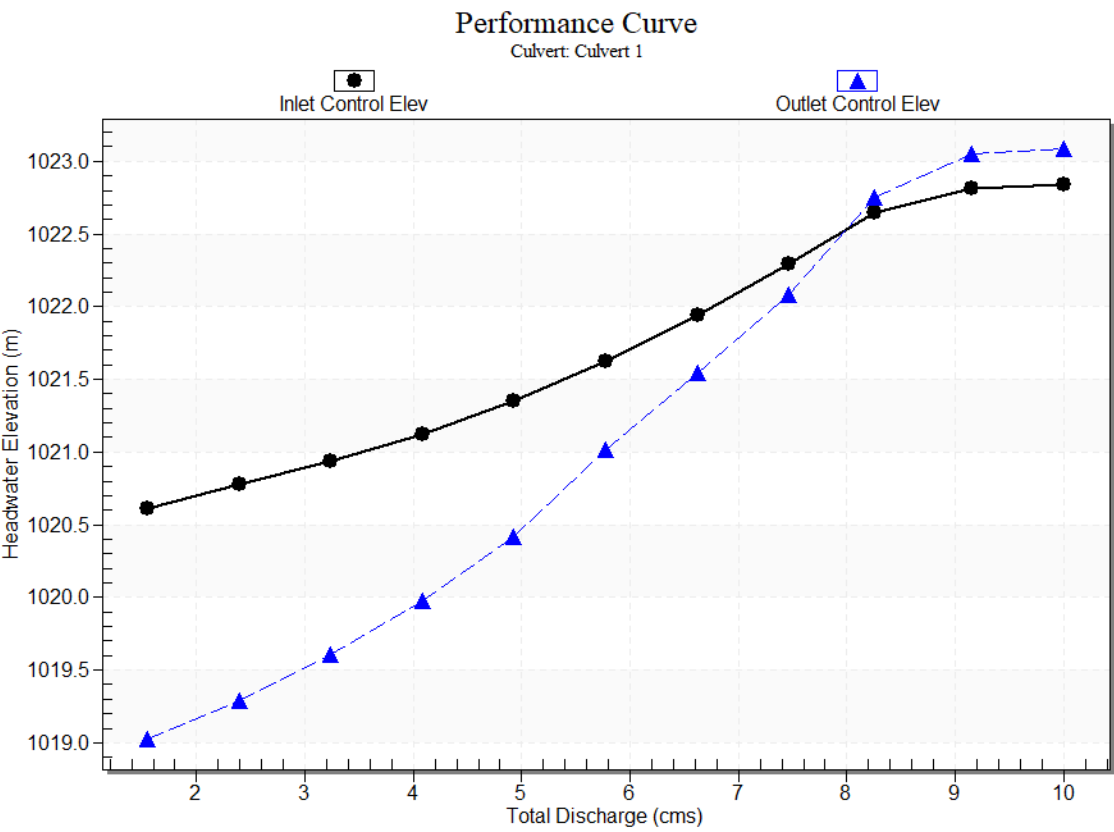
Inlet Elevation (invert): 1020.00 m,

Outlet Elevation (invert): 1018.50 m

Culvert Length: 50.02 m,

Culvert Slope: 0.0300

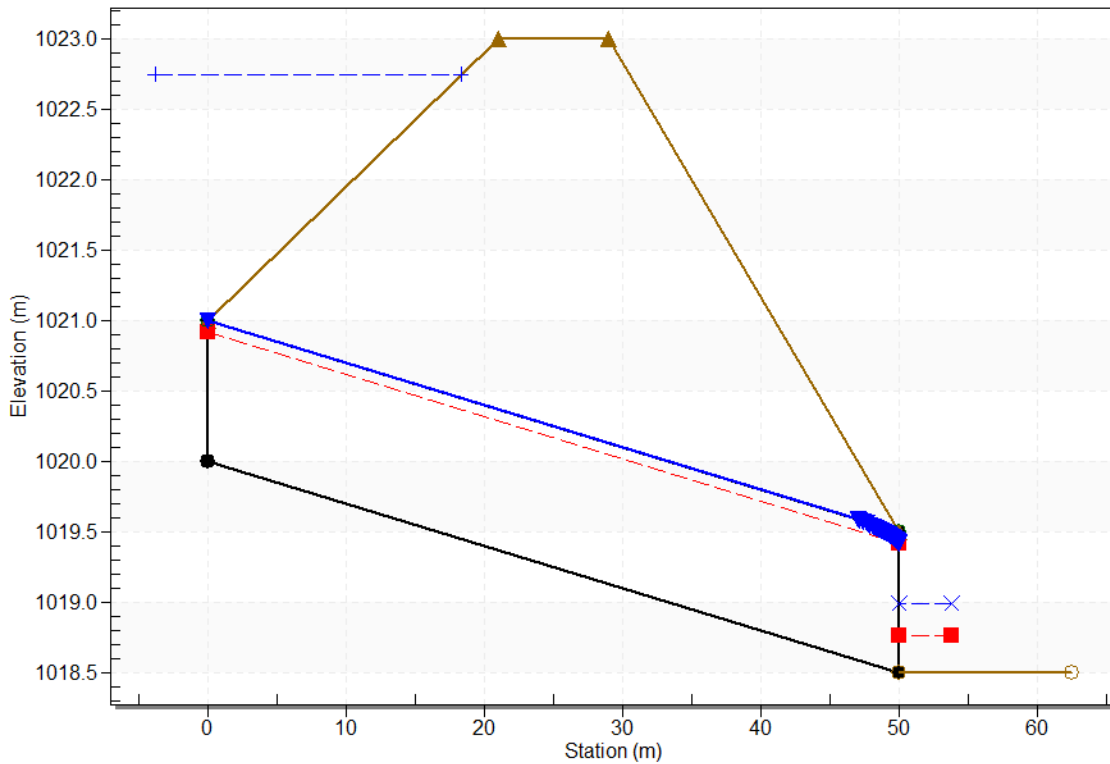
Culvert Performance Curve Plot: Culvert 1



Water Surface Profile Plot for Culvert: Culvert 1

Crossing - Crossing 1, Design Discharge - 8.25 cms

Culvert - Culvert 1, Culvert Discharge - 8.25 cms



Site Data - Culvert 1

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 m

Inlet Elevation: 1020.00 m

Outlet Station: 50.00 m

Outlet Elevation: 1018.50 m

Number of Barrels: 3

Culvert Data Summary - Culvert 1

Barrel Shape: Circular

Barrel Diameter: 1000.00 mm

Barrel Material: Corrugated Steel

Embedment: 0.00 mm

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Mitered to Conform to Slope ($K_e=0.7$)

Inlet Depression: None

Tailwater Data for Crossing: Crossing 1

Table 2 - Downstream Channel Rating Curve (Crossing: Crossing 1)

Flow (cms)	Water Surface Elev (m)	Velocity (m/s)	Depth (m)	Shear (Pa)	Froude Number
1.55	1018.68	0.18	0.44	34.57	0.33
2.40	1018.73	0.23	0.52	44.97	0.35
3.24	1018.78	0.28	0.59	54.01	0.36
4.08	1018.82	0.32	0.64	62.16	0.37
4.93	1018.86	0.36	0.69	69.69	0.37
5.77	1018.89	0.39	0.74	76.74	0.38
6.62	1018.93	0.43	0.78	83.40	0.38
7.46	1018.96	0.46	0.82	89.75	0.38
8.25	1018.99	0.49	0.85	95.40	0.39
9.15	1019.02	0.52	0.88	101.67	0.39
10.00	1019.05	0.55	0.91	107.32	0.39

Tailwater Channel Data - Crossing 1

Tailwater Channel Option: Rectangular Channel

Bottom Width: 20.00 m

Channel Slope: 0.0200

Channel Manning's n: 0.1000

Channel Invert Elevation: 1018.50 m

Roadway Data for Crossing: Crossing 1

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 30.00 m

Crest Elevation: 1023.00 m

Roadway Surface: Paved

Roadway Top Width: 8.00 m

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