UPPER CANADA CONSULTANTS
ENGINEERS / PLANNERS

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File: 2152

FUNCTIONAL SERVICING REPORT

576 RIDGE ROAD NORTH
Town of Fort Erie
November 2022

INTRODUCTION

This report is prepared to address the servicing needs for the proposed residential subdivision development located in the Ridgway Park neighbourhood of Town of Fort Erie. The project site is located at 576 Ridge Road North and known as Ridgeway Chrystal Beach Secondary School. The subject lands are located between west of Prospect Point Road north, east of Ridge Road north, south of Nigh Road, and north of Hazel Street.

The subject land has frontage along the Ridge Road north on the west side and Prospect Point Road north on the east side. The subject lands are surrounded by existing low-density residential units on north-west and south-west of the subject lands. The adjoining lands on the north-east and south-east portion is currently are vacant lands with potential to be developed as medium-high density residential in future as per the Ridgeway/Thunder Bay Secondary Plan of Town of Fort Erie (2019).

As per the draft plan of the subdivision, the subject lands will comprise of 49 lot of single-family residential units, a multiple family residential block, an apartment block with a total area of approximately 6.32 hectares. The site shall include associated asphalt road, concrete curb, catch basins, storm sewers, sanitary sewers, and watermain.

The objectives of this study are as follows:

1. Identify domestic and fire protection water service needs for the site;
2. Identify sanitary servicing needs for the site; and,
3. Identify stormwater management needs for the site.

WATER SERVICING

The following existing watermains are within close proximity to the proposed development site:

- 200mm dia. municipal watermain on the west side of Ridge Road north along west limit of the site;
- 150mm dia. municipal watermain on the east side of Prospect Point Road north along the east limit of the site;

For proposed 49 single family residential units on the east side of the subject lands, it is proposed to construct a 150mm diameter watermain through the site connecting to an existing 150mm diameter watermain on Prospect Point Road North to provide both domestic water supply and fire protection for the proposed development. There are two fire hydrants located on east side of the Prospect Point Road north along the east boundary of the site.

It is proposed to construct two separate 150mm diameter watermains through a multiple family residential block and an apartment block connected to an existing 200mm diameter watermain located on the west side of the Ridge Road north for the water servicing need of the proposed apartment block and multiple family residential block on the west side of the property. There is an existing fire hydrant located on the west side of the property and north of the existing school building.

It is proposed to construct additional municipal fire hydrants within the proposed development of single-family residential units, apartment block and multiple family residential block to provide adequate fire protection for the proposed units. The spacing and locations of the proposed fire hydrants will be determined through detailed design.

SANITARY SERVICING

There are existing 200mm diameter municipal sanitary sewers flowing northward located on the west side of Prospect point Road north and on the east side of the Ridge Road north.

For the proposed development of the single-family residential units along the east side of the site, it is proposed to construct a sanitary sewer to convey future sanitary flows from the subject lands. The proposed sanitary sewer will be connected to an existing 200mm diameter sanitary sewers located on the west side of the Prospect Point Road north. The total drainage area of the subject lands constitutes of the 49 single-family residential units is approximately 2.53 hectares. Assuming a population density of 35 ppha (per Town of Fort Erie Standards, 2016) for future low-density residential units, the future population of 70 persons for the subject site. From the preliminary analysis, it has been determined that the future sanitary flows from the proposed development will utilise approximately 8.9% of the available capacity of the existing downstream sanitary sewer. It is expected that this will be an acceptable addition to the current capacity of the existing sanitary sewer system on Prospect Point Road north.

The proposed apartment block and multiple family residential block on the west side of the property will be serviced by two separate sanitary sewers and will be connected to an existing 200mm diameter sanitary sewer located on the east side of the Ridge Road north. The total drainage area for the apartment block is 1.06 ha and multiple family residential block is 2.08 ha. Assuming a population density of 80 ppha (per Town of Fort Erie Standards, 2016) for medium density residential block and 228 ppha (per Town of Fort Erie Standards, 2016) for high-density residential block proposed on the west side of the subject lands, the total future population will be 408 persons. A preliminary sanitary sewer analysis was carried out to determine the available

capacity in the existing sanitary sewers on Prospect Point Road north, Ridge Road north and Nigh Road. The future sanitary flow from the proposed high-density apartment block will utilise approximately 22.8% of available capacity of the existing sanitary sewer on the Ridge Road north. Additionally, future sanitary flows from the proposed medium density multiple family residential block will also use approximately 25.2% of available capacity of the existing sanitary sewer on the Ridge Road north downstream of the proposed apartment block. A preliminary sanitary sewer analysis with sanitary drainage area plan is attached in the appendix A for reference.

STORMWATER MANAGEMENT PLAN

As part of the site development for the proposed residential development, the following is a summary of the stormwater management plan.

It is proposed to develop the existing subject lands into single family residential lots, multiple family residential block and an apartment block. Currently, there is an existing school building and a race track with concrete surface is present on the subject lands. Figure 1 (Appendix B) shows the existing stormwater drainage areas and corresponding percentage imperviousness. The stormwater flows from the area A3 and A5 drains to Outlet A through a natural ditch located on the south of the Outlet A. While, the existing stormwater flows from the area A4 and A6 drains to Outlet A via a ditch located on the north of the Outlet A. Recently, as a part of the Royal Ridge subdivision development the north ditch has been replaced by a 600mm diameter by-pass storm sewer that has been designed to carry the existing stormwater flows up to 5 years from the areas A3, A4, A5 and A6 to Outlet A. The area A1 and A2 upstream of the subject land drains into the subject lands and hence considered for the quantity and quality controls. Following Table 1 shows the comparison of existing and future conditions of the subject land.

Table 1. Hydrological Parameters for Existing and Future Conditions

Area No.	Area (ha)	% Imperviousness
Existing Conditions		
A3	5.18	19.3
A4	3.17	21.5
Future Conditions		
A12	3.88	55
A13	0.85	57
A14	0.23	10
A15	2.08	65
A16	2.26	57

The proposed development will increase the overall imperviousness of the subject lands. Figure 2 (Appendix B) shows the future proposed stormwater drainage areas and corresponding increased percentage imperviousness. Therefore, it is required to control both quantity and quality of the future stormwater flows to the existing conditions from the subject lands.

It is proposed to construct a central Stormwater Management wet pond facility to provide both quality and quantity control of future stormwater flows from the subject lands (Area A12 & A15), external area A10, A11 located on the east of the subject lands and external area A13 and A14 located on the south-east portion of the site. The SWM facility is designed considering the potential future development on the external area A13 and land use on the areas A10 and A11.

To provide the required stormwater controls, the wet pond facility can provide enough storage volume to reduce the future stormwater flows to the existing allowable capacity of the existing 600mm diameter by-pass storm sewer for 5 year design storm event. The stormwater flows from the drainage area A16 will be uncontrolled and will be ouletting to the 600mm diameter by-pass storm sewer. The major overland flows from the drainage areas A10, A12, A13, A14 and A15 will follow the path shown in the Figure 3 (Appendix B) into the proposed wet pond facility and ultimately to the Outlet A. The major overland flows from the area A11 will follow the Prospect Point Road north, Nigh Road and will ultimately drain into the tributary of Beaver Creek located downstream of the Outlet A. Figure 2152-SCH (Appendix D) represents the schematic stormwater modelling A MIDUSS output file is attached with this report in Appendix D for reference.

Table 2. Impact of Wet Pond Facility on Peak Flows at Outlet A

Design Storm	Peak Flow (L/s)		
	Existing	Future with SWM	Change
5 Year	689	222	-67.8 %
100 Year	1307	508	-61.1 %

As shows in above table 2, the proposed wet pond facility can adequately restrict the future flows to below existing levels to the Outlet A that is draining into tributary of the Beaver Creek for the 5 year and 100 year design storm events.

To provide stormwater quality improvements to MECP Enhanced levels (80% TSS removal), a wet pond facility servicing a total drainage area of approximately 17.28 hectares with an overall imperviousness of 40% will be required to provide a permanent pool volume of 1987 m^3. The preliminary wet pond can provide approximately 2003 m^3 of permanent pool storage. Therefore, there is adequate permanent pool volume to provide 80% TSS removal. Wet pond calculations can be found in Appendix C for reference.

Therefore, the proposed wet pond facility can provide the required stormwater quality and quantity controls in accordance with MECP guidelines.

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CONCLUSIONS AND RECOMMENDATIONS

Therefore, based on the above comments and design calculations provided for this site, the following summarizes the servicing for this site.

1. The existing 150mm diameter watermain on Prospect Point Road north and 200mm diameter watermain on Ridge Road north the will have sufficient capacity to provide both domestic and fire protection water supply.

2. The existing 200mm diameter municipal sanitary sewer on Prospect Point Road north and 200mm diameter municipal sanitary sewer on Ridge Road north will have adequate capacity for the proposed residential development.

3. Stormwater quantity and erosion controls can be provided by the proposed wet pond facility to allowable conditions up to and including the 100 year design storm event.

4. Stormwater quality protection can be provided to MECP Enhanced Protection (80% TSS removal) by the proposed wet pond facility.

Based on the above information, there exists adequate municipal servicing for this development. We trust the above comments and enclosed calculations are satisfactory for approval. If you have any questions or require additional information, please do not hesitate to contact our office.

Yours very truly,

Prepared by:

K. J. Prajapati

Keyur Prajapati, E.I.T.,
November 11, 2022
Encl.

Reviewed by:

Adam Keane, P.Eng.

APPENDICES

APPENDIX A

(i) Sanitary Sewer Calculations
(ii) Sanitary Drainage area Plan

UPPER CANADA CONSULTANTS
3-30 HANNOVER DRIVE
ST.CATHARINES, ONTARIO, L2W 1A3

DESIGN FLOWS/DENSITIES

RESIDENTIAL: 340 LITRES/PERSON/DAY (AVERAGE DAILY FLOW)
INFILTRATION RATE: 0.18 L/ha (M.O.E FLOW ALLOWANCE IS BETWEEN 0.10 & 0.28 L/ha)
POPULATION / UNIT: 3 PERSONS PER UNIT

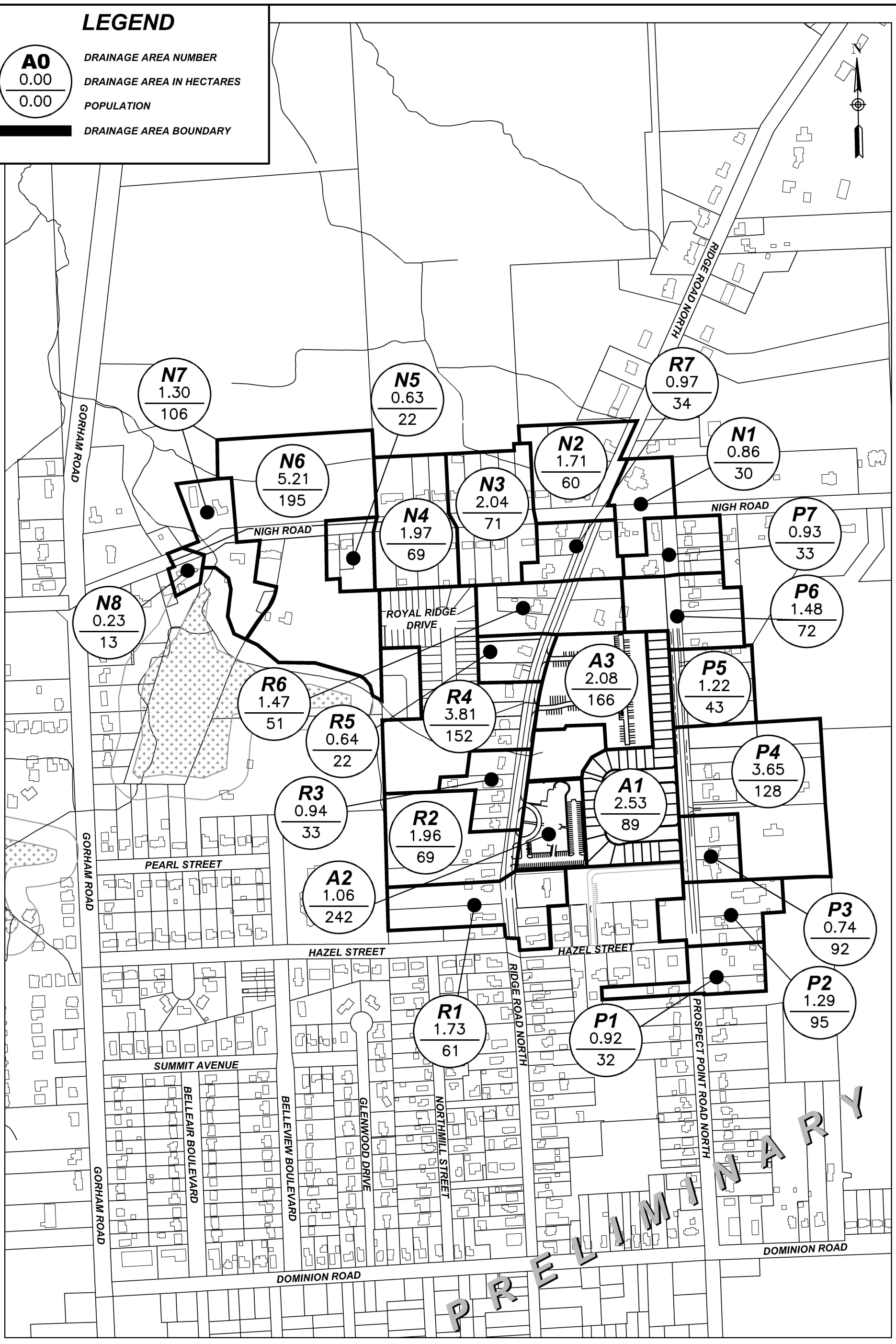
SEWER DESIGN

PIPE ROUGHNESS: 0.013 FOR MANNING'S EQUATION
PIPE SIZES: 1.016 IMPERIAL EQUIVALENT FACTOR
PERCENT FULL: TOTAL PEAK FLOW / CAPACITY

MUNICIPALITY: TOWN OF FORT ERIE
PROJECT : 576 RIDGE ROAD N
PROJECT NO: 2152

S A N I T A R Y S E W E R D E S I G N S H E E T

LOCATION			AREA					ACCUMULATED PEAK FLOW				DESIGN FLOW					
Description	From M.H	To M.H.	Increment (ha)	Accumulated (ha)	Population Density (ppha)	Increment	Total	Peaking Factor	Flow (L/s)	Infiltration Flow L/s	Total Peak Flow (L/s)	Pipe Length (m)	Pipe Diameter (mm)	Pipe Slope (%)	Full Flow Velocity (m/s)	Full Flow Capacity (L/s)	Check Percent Full
PROSPECT POINT ROAD - HAZEL ST TO NIGH ROAD																	
P1	MH 216	MH 215	0.92	0.92	35.00	32	32	4.50	0.57	0.17	0.74		200	0.39	0.7	21.37	3.4%
P2	MH 215	MH 214	1.29	2.21	73.92	95	128	4.50	2.26	0.40	2.66		200	0.45	0.7	22.95	11.6%
P3	MH 214	MH 213	0.74	2.95	85.04	63	190	4.50	3.37	0.53	3.90		200	0.38	0.7	21.09	18.5%
A1 (PROP. LOTS)			2.53	5.48	35.00	89	279	4.50	4.94	0.99	5.93		200	0.40	0.7	21.64	27.4%
P4	MH 213	MH 212	3.65	9.13	35.00	128	407	4.50	7.20	1.64	8.85		200	0.40	0.7	21.64	40.9%
P5	MH 212	MH 211	1.22	10.35	35.00	43	449	4.50	7.96	1.86	9.82		200	0.50	0.7	24.19	40.6%
P6	MH 211	MH 210	1.48	11.83	48.61	72	521	4.50	9.23	2.13	11.36		200	0.57	0.8	25.83	44.0%
P7	MH 210	MH 209	0.93	12.76	35.00	33	554	4.50	9.81	2.30	12.11		200	0.49	0.7	23.95	50.5%
NIGH ROAD - PROSPECT POINT RD N TO RIDGE RD N																	
N1	MH 209	MH 208	0.86	13.62	35.00	30	584	4.50	10.34	2.45	12.79		200	1.60	1.3	43.28	29.6%
RIDGE ROAD N - HAZEL ST TO NIGH ROAD																	
R1	MH 225	MH 224	1.73	1.73	35.00	61	61	4.50	1.07	0.31	1.38		200	0.81	0.9	30.79	4.5%
R2	MH 224	MH 223	1.96	3.69	35.00	69	129	4.50	2.29	0.66	2.95		200	0.52	0.8	24.67	12.0%
A2 (PROP APPT.)			1.06	4.75	228.00	242	371	4.50	6.57	0.86	7.42		200	0.39	0.7	21.37	34.7%
R3	MH 223	MH 222	0.94	5.69	35.00	33	404	4.50	7.15	1.02	8.17		200	0.39	0.7	21.37	38.3%
A3 (PROP MULTI FAM)			2.08	7.77	80.00	166	570	4.50	10.09	1.40	11.49		200	0.28	0.6	18.11	63.4%
R4	MH 222	MH 221	1.74	9.51	35.00	61	631	4.50	11.17	1.71	12.88		200	0.28	0.6	18.11	71.1%
R5	MH 221	MH 220	0.64	10.15	35.00	22	653	4.50	11.56	1.83	13.39		200	0.54	0.8	25.14	53.3%
R6	MH 220	MH 219	1.47	11.62	35.00	51	704	4.50	12.48	2.09	14.57		200	0.39	0.7	21.37	68.2%
R7	MH 219	MH 208	0.97	12.59	35.00	34	738	4.50	13.08	2.27	15.34		200	0.40	0.7	21.64	70.9%
NIGH ROAD - PROSPECT POINT RD N TO PUMPING ST																	
N2	MH 208	MH 207	1.71	27.92	35.00	60	1382	4.50	24.48	5.02	29.50		200	0.92	1.0	32.82	89.9%
N3	MH 207	MH 206	2.04	29.96	35.00	71	1454	4.50	25.74	5.39	31.14		200	1.59	1.3	43.15	72.2%
N4 + Royal Ridge	MH 206	MH 205	4.04	34.00	35.00	141	1595	4.50	28.25	6.12	34.37		250	0.36	0.7	37.22	92.3%
N5	MH 205	MH 204	0.63	34.63	35.00	22	1617	4.50	28.64	6.23	34.87		250	0.38	0.8	38.24	91.2%
N6	MH 204	MH 203	5.21	39.84	35.00	182	1800	4.45	31.48	7.17	38.65		250	0.31	0.7	34.54	111.9%
N7	MH 203	MH 202	1.30	41.14	35.00	46	1845	4.42	32.12	7.40	39.52		250	3.02	2.1	107.81	36.7%
N8	MH 202	MH 201	0.23	41.37	35.00	8	1853	4.42	32.23	7.45	39.68		300	0.27	0.7	52.42	75.7%



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SANITARY DRAINAGE AREA PLAN
576 RIDGE ROAD NORTH
TOWN OF FORT ERIE

DATE	2022–11–14
SCALE	1:5000 m
REF No.	2152
DWG No.	2152-SAN

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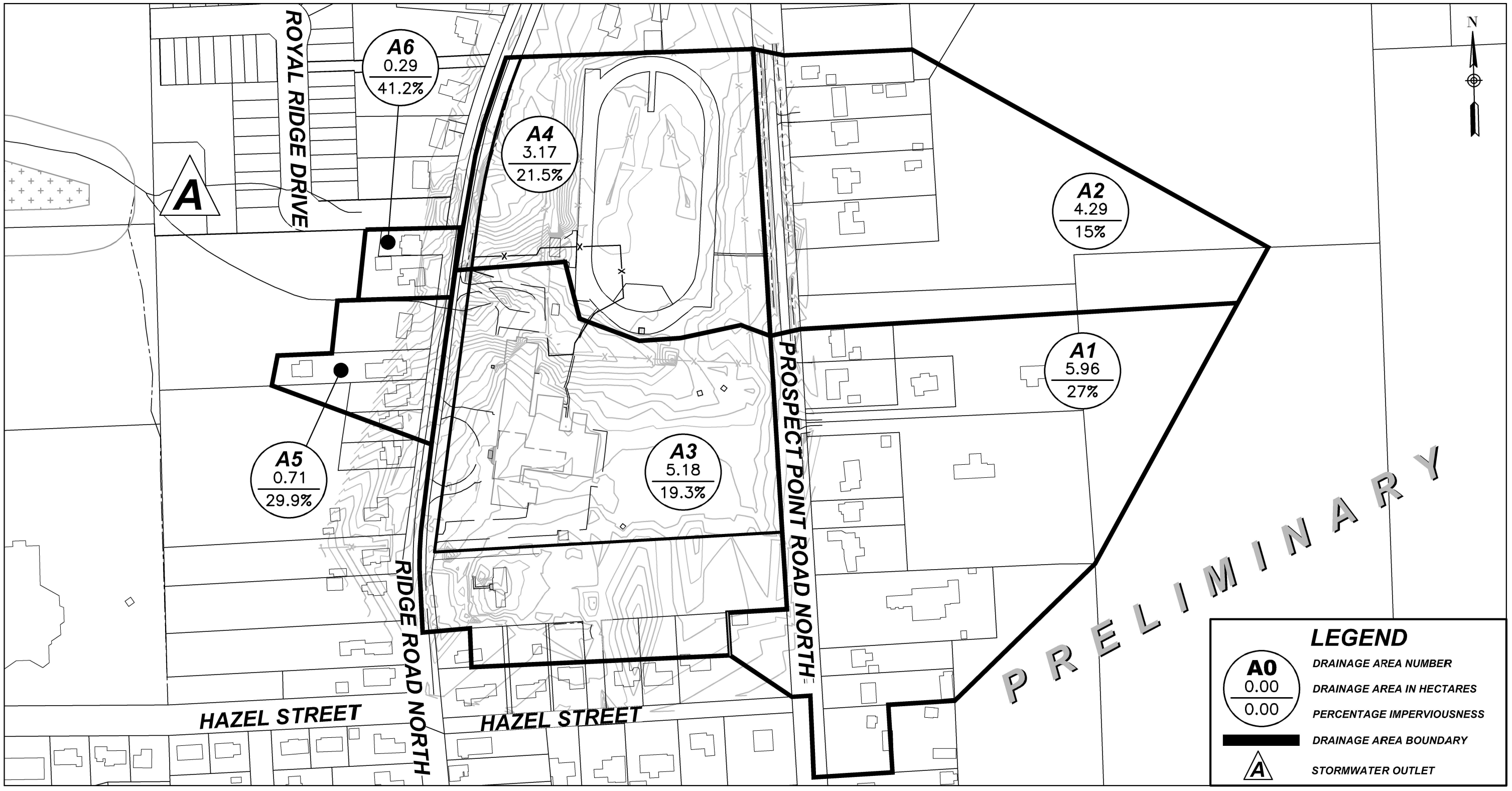
APPENDIX B

Figure 1 – Existing Storm Drainage Areas
Figure 2 - Proposed Storm Drainage Areas
Figure 3 – Proposed SWM Facility



UPPER CANADA CONSULTANTS
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EXISTING STORM DRAINAGE AREAS
576 RIDGE ROAD NORTH
TOWN OF FORT ERIE

DATE	2022–11–14
SCALE	1:2500 m
REF No.	*2152*
DWG No.	*FIGURE-1*

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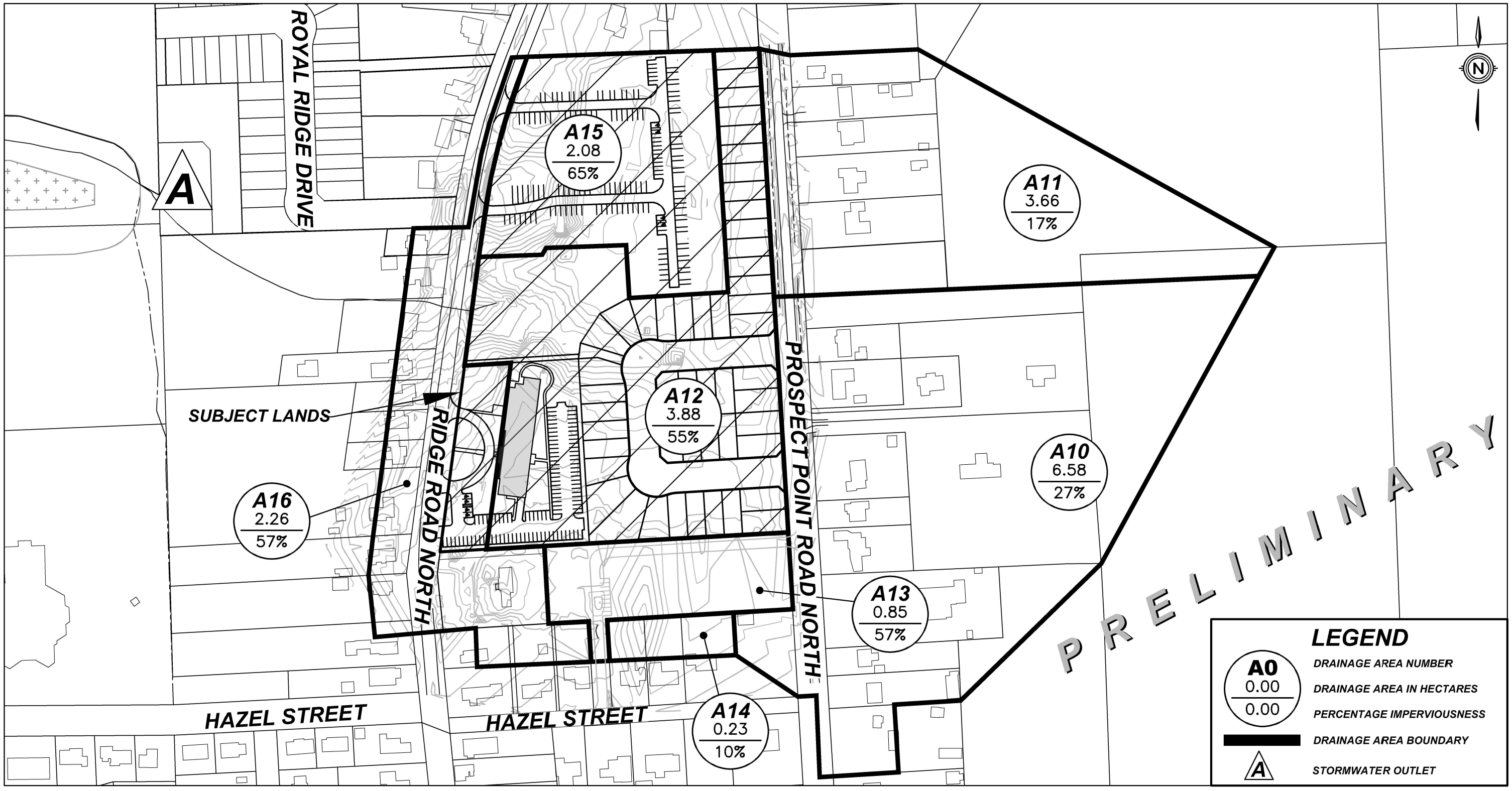

UPPER CANADA CONSULTANTS
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PROPOSED STORM DRAINAGE AREAS
576 RIDGE ROAD NORTH
TOWN OF FORT ERIE

DATE	2022–11–14
SCALE	1:2500 m
REF No.	*2152*
DWG No.	*FIGURE-2*

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LEGEND

MAJOR OVERLAND FLOW PATH

STORM SEWER SYSTEM WITH DIRECTION OF FLOW

A — STORMWATER OUTLET

N

NIGH ROAD

ROYAL RIDGE DRIVE

EX STM MH
RIM 187.50
W INV 185.90 (300ø)
E INV 186.08 (375ø)

600mmØ STM

1.5m HIGH CHAINLINK FENCE

600mmØ STM

375mmØ

TOP OF SWM FACILITY

300mmØ STM

PERMANENT POOL LEVEL

SEDIMENT FOREBAY

A

600mmØ STM

600mmØ STM

5:1

5:1

5:1

450mmØ STM

HEADWALL

EX STM MH
RIM 184.83
E INV 183.72 (300ø)
W INV 182.83 (600ø)

5:1

5:1

4m ACCESS ROUTE

10:1

10:1

7:1

7:1

OUTLET CONTROL STRUCTURE

REVERSE SLOPE PIPE

3m ACCESS ROUTE

PROSPECT POINT ROAD NORTH

RIDGE ROAD NORTH

HAZEL STREET

HAZEL STREET

PRELIMINARY

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SWM FACILITY
576 RIDGE ROAD NORTH
TOWN OF FORT ERIE

DATE	2022–11–14
SCALE	1:2000 m
REF No.	2152
DWG No.	FIGURE-3

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APPENDIX C

(i) Proposed Wet Pond Facility Calculations

Upper Canada Consultants
3-30 Hannover Drive
St. Catharines, ON, L2W 1A3
PROJECT NAME: **576 RIDGE ROAD N**
PROJECT NO.: **2152**

PROPOSED WET POND CALCULATIONS

Quality Requirements
Drainage Area (ha) = 17.28
Enhanced (m3/ha) = 155
Perm Pool (m3/ha) = 115
Perm Pool Vol (m3) = 1,987
Active Vol (m3) 691
25mm MOE Volume = 1,520
Water Level Elev. = **186.30** m

Quality Orifice
Diameter (m) = 0.150
Cd = 0.63
Invert (m) = 186.30

Outlet Weir
Perimeter Length (m) = 0.60
Inlet Elevation (m) = 186.90

Overflow Spillway
Length (m) = 2.50
Slopes (X:1) = 3.00
Invert (m) = 187.50

Outflow Pipe Orifice
Diameter (m) = 0.450
Cd = 0.65
Invert (m) = 186.30
Obvert (m) = 186.75
Top of Pipe (m) = 186.85

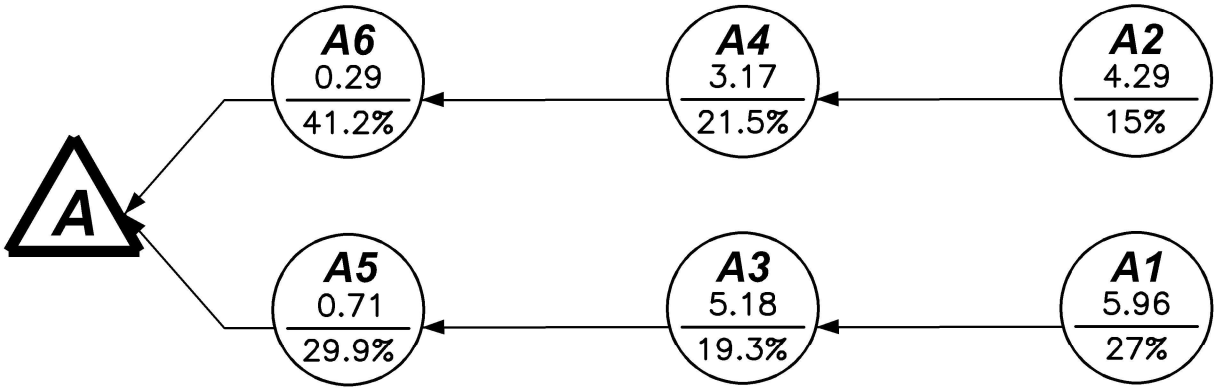
Pond Drawdown Time Calculation (MOE, 2003)
MOE Equation 4.11 Drawdown Coefficient 'C2' = 1,986
MOE Equation 4.11 Drawdown Coefficient 'C3' = 2,393
MOE Equation 4.11 Drawdown Time (h) = **24.7**

Elevation	Increment Depth (m)	Active Depth (m)	Surface Area (m2)	Average Surface Area (m2)	Increment Volume (m3)	Permanent Volume (m3)	Active Volume (m3)	Quality Orifice (m3/s)	Ditch Inlet (m3/s)	Max Pipe Orifice (m3/s)	Overflow Spillway (m3/s)	Total Outflow (m3/s)	Average Discharge (m3/s)
184.30		-2.00	249			0							
	0.25			314	78								
184.55		-1.75	379			78							
	0.25			471	118								
184.80		-1.50	564			196							
	0.30			672	201								
185.10		-1.20	779			398							
	0.30			905	272								
185.40		-0.90	1,032			669							
	0.30			1,172	351								
185.70		-0.60	1,311			1,021							
	0.30			1,471	441								
186.00		-0.30	1,630			1,462							
	0.30			1,803	541								
186.30		0.00	1,975			2,003							
186.30		0.00	2,413				0	0.000	0.000	0.000	0.000	0.000	
	0.30			2,712	814								0.011
186.60		0.30	3,012				814	0.022	0.000	0.051	0.000	0.022	
	0.30			3,282	985								0.028
186.90		0.60	3,552				1,798	0.035	0.000	0.251	0.000	0.035	
	0.30			3,833	1,150								0.124
187.20		0.90	4,115				2,948	0.044	0.168	0.355	0.000	0.212	
	0.30			4,466	1,340								0.323
187.50		1.20	4,817				4,288	0.052	0.475	0.434	0.000	0.434	
	0.30			5,102	1,531								0.911
187.80		1.50	5,388				5,819	0.058	0.874	0.502	0.886	1.388	

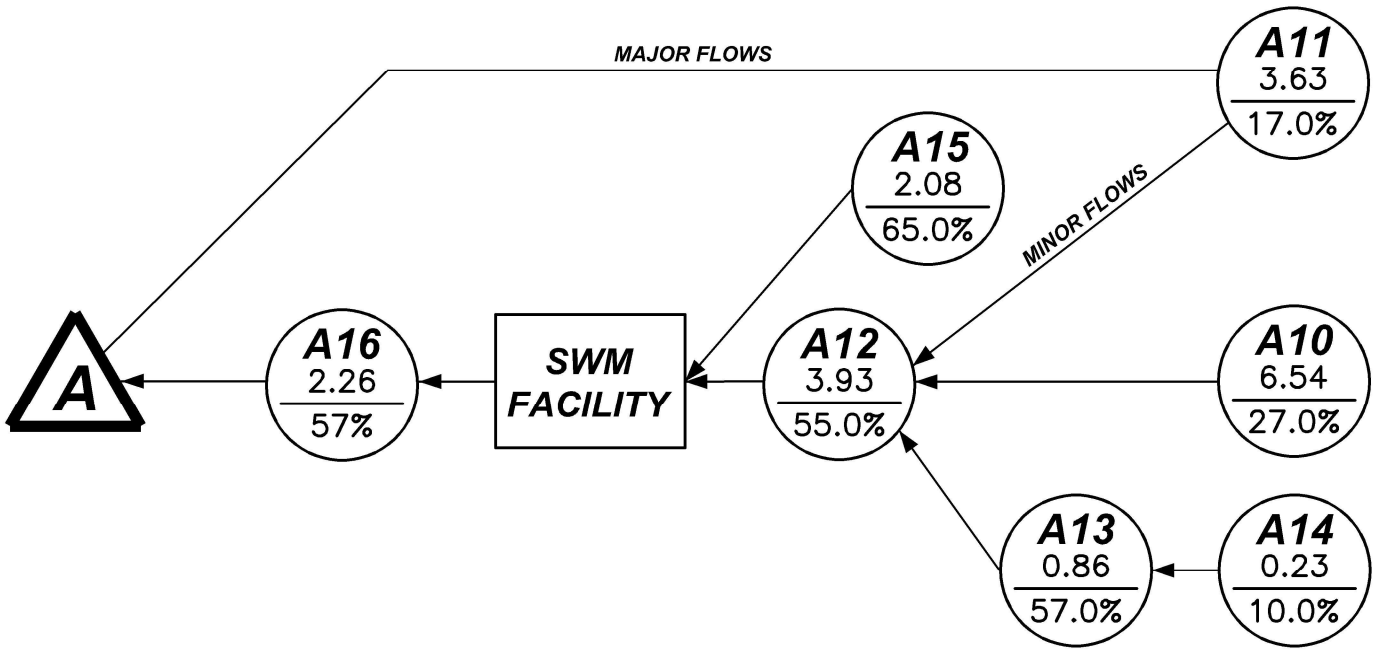
Notes
1. Quality Orifice flow is the orifice controlling for the 24 hour detention period and uses an orifice formula.
2. Pipe Orifice flow is calcuated using an orifice formula on the pipe from the ditch inlet to the outlet and uses the total head on the orifice.
3. Overflow Weir flow is calculated using a trapezondial weir to convey outflow for less frequent storms through the embankment with an emergency spillway.
4. Total Outflow is calculated by adding the Overflow Spillway with the lowest of Quality Orifice plus Ditch Inlet or Max Pipe Orifice.

APPENDIX D

(i) Schematic Stormwater Modelling
(ii) MIDUSS output file



EXISTING CONDITIONS



FUTURE CONDITIONS

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576 RIDGE ROAD NORTH

TOWN OF FORT ERIE

SCHEMATIC STORMWATER MODELLING

DATE	2022–11–15
SCALE	–
REF No.	2152
DWG No.	2152-SCH

DRAWING FILE: F:\2152\SWM\2152–SWM BASE PRELIM.dwg PLOTTED: Nov 15, 2022 – 9:02am PLOTTED BY: keyur

MIDUSS output – Existing Conditions

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       Units used are defined by G =    9.810
           24   144    10.000        are MAXDT MAXHYD & DTMIN values
       Licensee: UPPER CANADA CONSULTANTS
35     COMMENT
      4     line(s) of comment
       STORMWATER MANAGEMENT PLAN
       RIDGEWAY HIGHSCHOOL
       TOWN OF FORT ERIE
       EXISTING CONDITIONS
35     COMMENT
      3     line(s) of comment
       **********
       25mm STORM EVENT
       **********
 2     STORM
          1     1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic
    512.000     Coefficient  a
      6.000     Constant  b    (min)
       .800     Exponent  c
       .450     Fraction to peak  r
    240.000     Duration ó  240 min
               25.035 mm     Total depth
 3     IMPERVIOUS
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .015     Manning "n"
     98.000     SCS Curve No or C
       .100     Ia/S Coefficient
       .518     Initial Abstraction
 4     CATCHMENT
      1.000     ID No.ó 99999
      5.960     Area in hectares
    199.330     Length (PERV) metres
      1.000     Gradient (%)
     27.000     Per cent Impervious
    199.330     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .153       .000       .000       .000 c.m/s
             .098       .805       .289     C perv/imperv/total
15     ADD RUNOFF
             .153       .153       .000       .000 c.m/s
 4     CATCHMENT
      3.000     ID No.ó 99999
      5.180     Area in hectares
    185.830     Length (PERV) metres
      1.000     Gradient (%)
     19.300     Per cent Impervious
    185.830     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .096       .153       .000       .000 c.m/s
             .098       .806       .235     C perv/imperv/total
15     ADD RUNOFF
             .096       .249       .000       .000 c.m/s
 4     CATCHMENT
      5.000     ID No.ó 99999
       .710     Area in hectares
     68.800     Length (PERV) metres
      1.000     Gradient (%)
     29.900     Per cent Impervious
     68.800     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .019       .249       .000       .000 c.m/s
             .098       .797       .307     C perv/imperv/total
15     ADD RUNOFF
             .019       .267       .000       .000 c.m/s
27     HYDROGRAPH DISPLAY
      5     is # of Hyeto/Hydrograph chosen
       Volume  =  .7904515E+03 c.m
 9     ROUTE
       .000     Conduit Length
       .000     No Conduit defined
       .000     Zero lag
       .000     Beta weighting factor
       .000     Routing timestep
          0     No. of sub-reaches
             .019       .267       .267       .000 c.m/s
17     COMBINE
      1     Junction Node No.
             .019       .267       .267       .267 c.m/s
14     START
      1     1=Zero; 2=Define
 4     CATCHMENT
      2.000     ID No.ó 99999
      4.290     Area in hectares
    169.120     Length (PERV) metres
      1.000     Gradient (%)
     15.900     Per cent Impervious
    169.120     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .064       .000       .267       .267 c.m/s
             .098       .807       .211     C perv/imperv/total
15     ADD RUNOFF
             .064       .064       .267       .267 c.m/s
 4     CATCHMENT
      4.000     ID No.ó 99999
      3.170     Area in hectares
    145.370     Length (PERV) metres
      1.000     Gradient (%)
     21.500     Per cent Impervious
    145.370     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .064       .064       .267       .267 c.m/s
             .098       .803       .250     C perv/imperv/total
15     ADD RUNOFF
             .064       .128       .267       .267 c.m/s
 4     CATCHMENT
      6.000     ID No.ó 99999
       .290     Area in hectares
     43.970     Length (PERV) metres
      1.000     Gradient (%)
     41.200     Per cent Impervious
     43.970     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .012       .128       .267       .267 c.m/s
             .098       .797       .386     C perv/imperv/total
15     ADD RUNOFF
             .012       .137       .267       .267 c.m/s
27     HYDROGRAPH DISPLAY
      5     is # of Hyeto/Hydrograph chosen
       Volume  =  .4530229E+03 c.m
 9     ROUTE
       .000     Conduit Length
       .000     No Conduit defined
       .000     Zero lag
       .000     Beta weighting factor
       .000     Routing timestep
          0     No. of sub-reaches
             .012       .137       .137       .267 c.m/s
17     COMBINE
      1     Junction Node No.
             .012       .137       .137       .404 c.m/s
18     CONFLUENCE
      1     Junction Node No.
             .012       .404       .137       .000 c.m/s
14     START
      1     1=Zero; 2=Define
35     COMMENT
      3     line(s) of comment
       **********
       5-YEAR STORM EVENT
       **********
 2     STORM
          1     1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic
    747.930     Coefficient  a
      6.800     Constant  b    (min)
       .768     Exponent  c
       .400     Fraction to peak  r
    180.000     Duration ó  240 min
              40.415 mm     Total depth
 3     IMPERVIOUS
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .015     Manning "n"
     98.000     SCS Curve No or C
       .100     Ia/S Coefficient
       .518     Initial Abstraction
 4     CATCHMENT
      1.000     ID No.ó 99999
      5.960     Area in hectares
    199.330     Length (PERV) metres
      1.000     Gradient (%)
     27.000     Per cent Impervious
    199.330     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .258       .000       .137       .000 c.m/s
             .203       .868       .383     C perv/imperv/total
15     ADD RUNOFF
             .258       .258       .137       .000 c.m/s
```

```
 4     CATCHMENT
       3.000     ID No.ó 99999
       5.180     Area in hectares
     185.830     Length (PERV) metres
       1.000     Gradient (%)
      19.300     Per cent Impervious
     185.830     Length (IMPERV)
        .000     %Imp. with Zero Dpth
           1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
           1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
              .163       .258       .137       .000 c.m/s
              .203       .864       .331     C perv/imperv/total
15     ADD RUNOFF
              .163       .421       .137       .000 c.m/s
 4     CATCHMENT
       5.000     ID No.ó 99999
        .710     Area in hectares
      68.800     Length (PERV) metres
       1.000     Gradient (%)
      29.900     Per cent Impervious
      68.800     Length (IMPERV)
        .000     %Imp. with Zero Dpth
           1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
           1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
              .035       .421       .137       .000 c.m/s
              .203       .860       .400     C perv/imperv/total
15     ADD RUNOFF
              .035       .451       .137       .000 c.m/s
27     HYDROGRAPH DISPLAY
       5     is # of Hyeto/Hydrograph chosen
       Volume  =  .1728165E+04 c.m
 9     ROUTE
        .000     Conduit Length
        .000     No Conduit defined
        .000     Zero lag
        .000     Beta weighting factor
        .000     Routing timestep
           0     No. of sub-reaches
              .035       .451       .451       .000 c.m/s
17     COMBINE
       1     Junction Node No.
              .035       .451       .451       .451 c.m/s
14     START
       1     1=Zero; 2=Define
 4     CATCHMENT
       2.000     ID No.ó 99999
       4.290     Area in hectares
     169.120     Length (PERV) metres
       1.000     Gradient (%)
      15.900     Per cent Impervious
     169.120     Length (IMPERV)
        .000     %Imp. with Zero Dpth
           1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
           1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
              .112       .000       .451       .451 c.m/s
              .203       .860       .308     C perv/imperv/total
15     ADD RUNOFF
              .112       .112       .451       .451 c.m/s
 4     CATCHMENT
       4.000     ID No.ó 99999
       3.170     Area in hectares
     145.370     Length (PERV) metres
       1.000     Gradient (%)
      21.500     Per cent Impervious
     145.370     Length (IMPERV)
        .000     %Imp. with Zero Dpth
           1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
           1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
              .110       .112       .451       .451 c.m/s
              .203       .853       .343     C perv/imperv/total
15     ADD RUNOFF
              .110       .222       .451       .451 c.m/s
 4     CATCHMENT
       6.000     ID No.ó 99999
        .290     Area in hectares
      43.970     Length (PERV) metres
       1.000     Gradient (%)
      41.200     Per cent Impervious
      43.970     Length (IMPERV)
        .000     %Imp. with Zero Dpth
           1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
           1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
              .021       .222       .451       .451 c.m/s
              .203       .861       .474     C perv/imperv/total
15     ADD RUNOFF
              .021       .238       .451       .451 c.m/s
27     HYDROGRAPH DISPLAY
       5     is # of Hyeto/Hydrograph chosen
       Volume  =  .1028298E+04 c.m
 9     ROUTE
        .000     Conduit Length
        .000     No Conduit defined
        .000     Zero lag
        .000     Beta weighting factor
        .000     Routing timestep
           0     No. of sub-reaches
              .021       .238       .238       .451 c.m/s
17     COMBINE
       1     Junction Node No.
              .021       .238       .238       .689 c.m/s
18     CONFLUENCE
       1     Junction Node No.
              .021       .689       .238       .000 c.m/s
14     START
       1     1=Zero; 2=Define
35     COMMENT
       3     line(s) of comment
       *************
       100-YEAR STORM EVENT
       *************
 2     STORM
           1     1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic
    1083.550     Coefficient  a
       6.618     Constant  b    (min)
        .735     Exponent  c
        .450     Fraction to peak  r
     240.000     Duration ó  240 min
                75.636 mm     Total depth
 3     IMPERVIOUS
           1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .015     Manning "n"
      98.000     SCS Curve No or C
        .100     Ia/S Coefficient
        .518     Initial Abstraction
 4     CATCHMENT
       1.000     ID No.ó 99999
       5.960     Area in hectares
     199.330     Length (PERV) metres
       1.000     Gradient (%)
      27.000     Per cent Impervious
     199.330     Length (IMPERV)
        .000     %Imp. with Zero Dpth
           1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
           1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
              .469       .000       .238       .000 c.m/s
              .377       .910       .521     C perv/imperv/total
15     ADD RUNOFF
              .469       .469       .238       .000 c.m/s
 4     CATCHMENT
       3.000     ID No.ó 99999
       5.180     Area in hectares
     185.830     Length (PERV) metres
       1.000     Gradient (%)
      19.300     Per cent Impervious
     185.830     Length (IMPERV)
        .000     %Imp. with Zero Dpth
           1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
           1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
              .311       .469       .238       .000 c.m/s
              .377       .907       .479     C perv/imperv/total
15     ADD RUNOFF
              .311       .780       .238       .000 c.m/s
 4     CATCHMENT
       5.000     ID No.ó 99999
        .710     Area in hectares
      68.800     Length (PERV) metres
       1.000     Gradient (%)
      29.900     Per cent Impervious
      68.800     Length (IMPERV)
        .000     %Imp. with Zero Dpth
           1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
           1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
              .068       .780       .238       .000 c.m/s
              .377       .916       .538     C perv/imperv/total
15     ADD RUNOFF
              .068       .841       .238       .000 c.m/s
27     HYDROGRAPH DISPLAY
       5     is # of Hyeto/Hydrograph chosen
       Volume  =  .4513936E+04 c.m
 9     ROUTE
        .000     Conduit Length
        .000     No Conduit defined
        .000     Zero lag
        .000     Beta weighting factor
        .000     Routing timestep
           0     No. of sub-reaches
              .068       .841       .841       .000 c.m/s
17     COMBINE
       1     Junction Node No.
              .068       .841       .841       .841 c.m/s
14     START
       1     1=Zero; 2=Define
```

```
 4     CATCHMENT
       2.000     ID No.ó 99999
       4.290     Area in hectares
     169.120     Length (PERV) metres
       1.000     Gradient (%)
      15.900     Per cent Impervious
     169.120     Length (IMPERV)
        .000     %Imp. with Zero Dpth
           1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
           1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
              .225       .000       .841       .841 c.m/s
              .377       .910       .462     C perv/imperv/total
15     ADD RUNOFF
              .225       .225       .841       .841 c.m/s
 4     CATCHMENT
       4.000     ID No.ó 99999
       3.170     Area in hectares
     145.370     Length (PERV) metres
       1.000     Gradient (%)
      21.500     Per cent Impervious
     145.370     Length (IMPERV)
        .000     %Imp. with Zero Dpth
           1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
           1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
              .210       .225       .841       .841 c.m/s
              .377       .914       .493     C perv/imperv/total
15     ADD RUNOFF
              .210       .434       .841       .841 c.m/s
 4     CATCHMENT
       6.000     ID No.ó 99999
        .290     Area in hectares
     43.970     Length (PERV) metres
       1.000     Gradient (%)
     41.200     Per cent Impervious
     43.970     Length (IMPERV)
        .000     %Imp. with Zero Dpth
           1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
           1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
              .039       .434       .841       .841 c.m/s
              .376       .913       .598     C perv/imperv/total
15     ADD RUNOFF
              .039       .466       .841       .841 c.m/s
27     HYDROGRAPH DISPLAY
       5     is # of Hyeto/Hydrograph chosen
       Volume  =  .2810979E+04 c.m
 9     ROUTE
        .000     Conduit Length
        .000     No Conduit defined
        .000     Zero lag
        .000     Beta weighting factor
        .000     Routing timestep
           0     No. of sub-reaches
              .039       .466       .466       .841 c.m/s
17     COMBINE
       1     Junction Node No.
              .039       .466       .466      1.307 c.m/s
18     CONFLUENCE
       1     Junction Node No.
              .039      1.307       .466       .000 c.m/s
20     MANUAL
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MIDUSS output – Future Conditions

```
      Output File (4.7) FUT.OUT      opened 2022-11-02  10:43
      Units used are defined by G =    9.810
          24   144    10.000        are MAXDT MAXHYD & DTMIN values
      Licensee: UPPER CANADA CONSULTANTS
35    COMMENT
     4     line(s) of comment
      STORMWATER MANAGEMENT PLAN
      RIDGEWAY HIGHSCHOOL
      TOWN OF FORT ERIE
      FUTURE CONDITIONS WITHOUT SWM
35    COMMENT
     3     line(s) of comment
      **********
      25mm STORM EVENT
      **********
 2    STORM
          1     1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic
    512.000     Coefficient  a
      6.000     Constant  b    (min)
       .800     Exponent  c
       .450     Fraction to peak  r
    240.000     Duration ó  240 min
               25.035 mm     Total depth
 3    IMPERVIOUS
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .015     Manning "n"
     98.000     SCS Curve No or C
       .100     Ia/S Coefficient
       .518     Initial Abstraction
 4    CATCHMENT
     10.000     ID No.ó 99999
      6.540     Area in hectares
    208.820     Length (PERV) metres
      1.000     Gradient (%)
     27.000     Per cent Impervious
    208.820     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .167       .000       .000       .000 c.m/s
             .098       .804       .289     C perv/imperv/total
15    ADD RUNOFF
             .167       .167       .000       .000 c.m/s
 9    ROUTE
       .000     Conduit Length
       .000     No Conduit defined
       .000     Zero lag
       .000     Beta weighting factor
       .000     Routing timestep
          0     No. of sub-reaches
             .167       .167       .167       .000 c.m/s
17    COMBINE
     1     Junction Node No.
             .167       .167       .167       .167 c.m/s
14    START
     1     1=Zero; 2=Define
 4    CATCHMENT
     11.000     ID No.ó 99999
      3.630     Area in hectares
    155.620     Length (PERV) metres
      1.000     Gradient (%)
     17.000     Per cent Impervious
    155.620     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .058       .000       .167       .167 c.m/s
             .098       .805       .219     C perv/imperv/total
15    ADD RUNOFF
             .058       .058       .167       .167 c.m/s
 9    ROUTE
       .000     Conduit Length
       .000     No Conduit defined
       .000     Zero lag
       .000     Beta weighting factor
       .000     Routing timestep
          0     No. of sub-reaches
             .058       .058       .058       .167 c.m/s
17    COMBINE
     1     Junction Node No.
             .058       .058       .058       .225 c.m/s
18    CONFLUENCE
     1     Junction Node No.
             .058       .225       .058       .000 c.m/s
 9    ROUTE
       .000     Conduit Length
       .000     No Conduit defined
       .000     Zero lag
       .000     Beta weighting factor
       .000     Routing timestep
          0     No. of sub-reaches
             .058       .225       .225       .000 c.m/s
17    COMBINE
     1     Junction Node No.
             .058       .225       .225       .225 c.m/s
14    START
     1     1=Zero; 2=Define
 4    CATCHMENT
     14.000     ID No.ó 99999
       .230     Area in hectares
     39.080     Length (PERV) metres
      1.000     Gradient (%)
     10.000     Per cent Impervious
     39.080     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .002       .000       .225       .225 c.m/s
             .098       .797       .168     C perv/imperv/total
15    ADD RUNOFF
             .002       .002       .225       .225 c.m/s
 4    CATCHMENT
     13.000     ID No.ó 99999
       .860     Area in hectares
     75.910     Length (PERV) metres
      1.000     Gradient (%)
     57.000     Per cent Impervious
     75.910     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .044       .002       .225       .225 c.m/s
             .098       .794       .495     C perv/imperv/total
15    ADD RUNOFF
             .044       .046       .225       .225 c.m/s
 9    ROUTE
       .000     Conduit Length
       .000     No Conduit defined
       .000     Zero lag
       .000     Beta weighting factor
       .000     Routing timestep
          0     No. of sub-reaches
             .044       .046       .046       .225 c.m/s
17    COMBINE
     1     Junction Node No.
             .044       .046       .046       .271 c.m/s
18    CONFLUENCE
     1     Junction Node No.
             .044       .271       .046       .000 c.m/s
 4    CATCHMENT
     12.000     ID No.ó 99999
      3.930     Area in hectares
    161.880     Length (PERV) metres
      1.000     Gradient (%)
     55.000     Per cent Impervious
    162.090     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .201       .271       .046       .000 c.m/s
             .098       .806       .488     C perv/imperv/total
15    ADD RUNOFF
             .201       .472       .046       .000 c.m/s
 9    ROUTE
       .000     Conduit Length
       .000     No Conduit defined
       .000     Zero lag
       .000     Beta weighting factor
       .000     Routing timestep
          0     No. of sub-reaches
             .201       .472       .472       .000 c.m/s
17    COMBINE
     1     Junction Node No.
             .201       .472       .472       .472 c.m/s
14    START
     1     1=Zero; 2=Define
 4    CATCHMENT
     15.000     ID No.ó 99999
      2.080     Area in hectares
    117.640     Length (PERV) metres
      1.000     Gradient (%)
     65.000     Per cent Impervious
    117.640     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .126       .000       .472       .472 c.m/s
             .098       .794       .551     C perv/imperv/total
15    ADD RUNOFF
             .126       .126       .472       .472 c.m/s
 9    ROUTE
       .000     Conduit Length
       .000     No Conduit defined
       .000     Zero lag
       .000     Beta weighting factor
```

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      .000     Routing timestep
         0     No. of sub-reaches
            .126       .126       .126       .472 c.m/s
17    COMBINE
      1     Junction Node No.
            .126       .126       .126       .598 c.m/s
18    CONFLUENCE
      1     Junction Node No.
            .126       .598       .126       .000 c.m/s
27    HYDROGRAPH DISPLAY
      5     is # of Hyeto/Hydrograph chosen
       Volume  =  .1545599E+04 c.m
 4    CATCHMENT
      16.000     ID No.ó 99999
       2.260     Area in hectares
     122.660     Length (PERV) metres
       1.000     Gradient (%)
      57.000     Per cent Impervious
     122.660     Length (IMPERV)
        .000     %Imp. with Zero Dpth
           1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
           1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
            .120       .598       .126       .000 c.m/s
            .098       .796       .496     C perv/imperv/total
15    ADD RUNOFF
            .120       .718       .126       .000 c.m/s
27    HYDROGRAPH DISPLAY
      5     is # of Hyeto/Hydrograph chosen
       Volume  =  .1826344E+04 c.m
14    START
      1     1=Zero; 2=Define
35    COMMENT
      3     line(s) of comment
       **********
       5-YEAR STORM EVENT
       **********
 2    STORM
           1     1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic
     747.930     Coefficient  a
       6.800     Constant  b    (min)
        .768     Exponent  c
        .400     Fraction to peak  r
     180.000     Duration ó  240 min
               40.415 mm     Total depth
 3    IMPERVIOUS
           1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .015     Manning "n"
      98.000     SCS Curve No or C
        .100     Ia/S Coefficient
        .518     Initial Abstraction
 4    CATCHMENT
      10.000     ID No.ó 99999
       6.540     Area in hectares
     208.820     Length (PERV) metres
       1.000     Gradient (%)
      27.000     Per cent Impervious
     208.820     Length (IMPERV)
        .000     %Imp. with Zero Dpth
           1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
           1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
            .283       .000       .126       .000 c.m/s
            .203       .869       .383     C perv/imperv/total
15    ADD RUNOFF
            .283       .283       .126       .000 c.m/s
 9    ROUTE
        .000     Conduit Length
        .000     No Conduit defined
        .000     Zero lag
        .000     Beta weighting factor
        .000     Routing timestep
           0     No. of sub-reaches
            .283       .283       .283       .000 c.m/s
17    COMBINE
      1     Junction Node No.
            .283       .283       .283       .283 c.m/s
14    START
      1     1=Zero; 2=Define
 4    CATCHMENT
      11.000     ID No.ó 99999
       3.630     Area in hectares
     155.620     Length (PERV) metres
       1.000     Gradient (%)
      17.000     Per cent Impervious
     155.620     Length (IMPERV)
        .000     %Imp. with Zero Dpth
           1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
           1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
            .101       .000       .283       .283 c.m/s
            .203       .856       .314     C perv/imperv/total
15    ADD RUNOFF
            .101       .101       .283       .283 c.m/s
 9    ROUTE
        .000     Conduit Length
        .000     No Conduit defined
        .000     Zero lag
        .000     Beta weighting factor
        .000     Routing timestep
           0     No. of sub-reaches
            .101       .101       .101       .283 c.m/s
17    COMBINE
      1     Junction Node No.
            .101       .101       .101       .384 c.m/s
18    CONFLUENCE
      1     Junction Node No.
            .101       .384       .101       .000 c.m/s
 9    ROUTE
        .000     Conduit Length
        .000     No Conduit defined
        .000     Zero lag
        .000     Beta weighting factor
        .000     Routing timestep
           0     No. of sub-reaches
            .101       .384       .384       .000 c.m/s
17    COMBINE
      1     Junction Node No.
            .101       .384       .384       .384 c.m/s
14    START
      1     1=Zero; 2=Define
 4    CATCHMENT
      14.000     ID No.ó 99999
        .230     Area in hectares
      39.080     Length (PERV) metres
       1.000     Gradient (%)
      10.000     Per cent Impervious
      39.080     Length (IMPERV)
        .000     %Imp. with Zero Dpth
           1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
           1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
            .004       .000       .384       .384 c.m/s
            .203       .862       .269     C perv/imperv/total
15    ADD RUNOFF
            .004       .004       .384       .384 c.m/s
 4    CATCHMENT
      13.000     ID No.ó 99999
        .860     Area in hectares
      75.910     Length (PERV) metres
       1.000     Gradient (%)
      57.000     Per cent Impervious
      75.910     Length (IMPERV)
        .000     %Imp. with Zero Dpth
           1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
           1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
            .078       .004       .384       .384 c.m/s
            .203       .862       .579     C perv/imperv/total
15    ADD RUNOFF
            .078       .082       .384       .384 c.m/s
 9    ROUTE
        .000     Conduit Length
        .000     No Conduit defined
        .000     Zero lag
        .000     Beta weighting factor
        .000     Routing timestep
           0     No. of sub-reaches
            .078       .082       .082       .384 c.m/s
17    COMBINE
      1     Junction Node No.
            .078       .082       .082       .458 c.m/s
18    CONFLUENCE
      1     Junction Node No.
            .078       .458       .082       .000 c.m/s
 4    CATCHMENT
      12.000     ID No.ó 99999
       3.930     Area in hectares
     161.880     Length (PERV) metres
       1.000     Gradient (%)
      55.000     Per cent Impervious
     161.880     Length (IMPERV)
        .000     %Imp. with Zero Dpth
           1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
           1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
            .341       .458       .082       .000 c.m/s
            .203       .858       .563     C perv/imperv/total
15    ADD RUNOFF
            .341       .799       .082       .000 c.m/s
 9    ROUTE
        .000     Conduit Length
        .000     No Conduit defined
        .000     Zero lag
        .000     Beta weighting factor
        .000     Routing timestep
           0     No. of sub-reaches
            .341       .799       .799       .000 c.m/s
17    COMBINE
      1     Junction Node No.
            .341       .799       .799       .799 c.m/s
14    START
      1     1=Zero; 2=Define
 4    CATCHMENT
      15.000     ID No.ó 99999
       2.080     Area in hectares
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   117.640     Length (PERV) metres
     1.000     Gradient (%)
    65.000     Per cent Impervious
   117.640     Length (IMPERV)
      .000     %Imp. with Zero Dpth
         1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
      .250     Manning "n"
    74.000     SCS Curve No or C
      .100     Ia/S Coefficient
     8.924     Initial Abstraction
         1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
            .206       .000       .799       .799 c.m/s
            .203       .854       .627     C perv/imperv/total
15   ADD RUNOFF
            .206       .206       .799       .799 c.m/s
 9   ROUTE
      .000     Conduit Length
      .000     No Conduit defined
      .000     Zero lag
      .000     Beta weighting factor
      .000     Routing timestep
         0     No. of sub-reaches
            .206       .206       .206       .799 c.m/s
17   COMBINE
     1     Junction Node No.
            .206       .206       .206      1.005 c.m/s
18   CONFLUENCE
     1     Junction Node No.
            .206      1.005       .206       .000 c.m/s
27   HYDROGRAPH DISPLAY
      5     is # of Hyeto/Hydrograph chosen
     Volume  =  .3117600E+04 c.m
 4   CATCHMENT
     16.000     ID No.ó 99999
      2.260     Area in hectares
    122.660     Length (PERV) metres
      1.000     Gradient (%)
     57.000     Per cent Impervious
    122.660     Length (IMPERV)
      .000     %Imp. with Zero Dpth
         1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
      .250     Manning "n"
    74.000     SCS Curve No or C
      .100     Ia/S Coefficient
     8.924     Initial Abstraction
         1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
           .198      1.005       .206       .000 c.m/s
           .203       .852       .573     C perv/imperv/total
15   ADD RUNOFF
           .198      1.203       .206       .000 c.m/s
27   HYDROGRAPH DISPLAY
      5     is # of Hyeto/Hydrograph chosen
     Volume  =  .3641094E+04 c.m
14   START
     1     1=Zero; 2=Define
35   COMMENT
     3     line(s) of comment
     *************
     100-YEAR STORM EVENT
     *************
 2   STORM
         1     1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic
  1083.550     Coefficient  a
     6.618     Constant  b    (min)
      .735     Exponent  c
      .450     Fraction to peak  r
    240.000     Duration ó  240 min
           75.636 mm     Total depth
 3   IMPERVIOUS
         1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
      .015     Manning "n"
     98.000     SCS Curve No or C
      .100     Ia/S Coefficient
      .518     Initial Abstraction
 4   CATCHMENT
     10.000     ID No.ó 99999
      6.540     Area in hectares
    208.820     Length (PERV) metres
      1.000     Gradient (%)
     27.000     Per cent Impervious
    208.820     Length (IMPERV)
      .000     %Imp. with Zero Dpth
         1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
      .250     Manning "n"
    74.000     SCS Curve No or C
      .100     Ia/S Coefficient
     8.924     Initial Abstraction
         1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
           .514       .000       .206       .000 c.m/s
           .377       .912       .522     C perv/imperv/total
15   ADD RUNOFF
           .514       .514       .206       .000 c.m/s
 9   ROUTE
      .000     Conduit Length
      .000     No Conduit defined
      .000     Zero lag
      .000     Beta weighting factor
      .000     Routing timestep
         0     No. of sub-reaches
           .514       .514       .514       .000 c.m/s
17   COMBINE
     1     Junction Node No.
           .514       .514       .514       .514 c.m/s
14   START
     1     1=Zero; 2=Define
 4   CATCHMENT
     11.000     ID No.ó 99999
      3.630     Area in hectares
    155.620     Length (PERV) metres
      1.000     Gradient (%)
     17.000     Per cent Impervious
    155.620     Length (IMPERV)
      .000     %Imp. with Zero Dpth
         1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
      .250     Manning "n"
    74.000     SCS Curve No or C
      .100     Ia/S Coefficient
     8.924     Initial Abstraction
         1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
           .201       .000       .514       .514 c.m/s
           .377       .913       .468     C perv/imperv/total
15   ADD RUNOFF
           .201       .201       .514       .514 c.m/s
 9   ROUTE
      .000     Conduit Length
      .000     No Conduit defined
      .000     Zero lag
      .000     Beta weighting factor
      .000     Routing timestep
         0     No. of sub-reaches
           .201       .201       .201       .514 c.m/s
35   COMMENT
     1     line(s) of comment
     MAJOR FLOWS ABOVE 5-YEAR SURCHARGE OVERLAND A11 TO OUTLET
12   DIVERT
        50     U/S Node No.ó 99999
      .101     Threshold Discharge
      .116     Max. Outflow reqd.
           Qmax & Vol.Diverted =      .085 c.m/s       210.3 c.m
           No flow diverted
           .201       .201       .116       .514 c.m/s
17   COMBINE
     1     Junction Node No.
           .201       .201       .116       .630 c.m/s
18   CONFLUENCE
     1     Junction Node No.
           .201       .630       .116       .000 c.m/s
 9   ROUTE
      .000     Conduit Length
      .000     No Conduit defined
      .000     Zero lag
      .000     Beta weighting factor
      .000     Routing timestep
         0     No. of sub-reaches
           .201       .630       .630       .000 c.m/s
17   COMBINE
     1     Junction Node No.
           .201       .630       .630       .630 c.m/s
14   START
     1     1=Zero; 2=Define
 4   CATCHMENT
     14.000     ID No.ó 99999
      .230     Area in hectares
    39.080     Length (PERV) metres
     1.000     Gradient (%)
    10.000     Per cent Impervious
    39.080     Length (IMPERV)
      .000     %Imp. with Zero Dpth
         1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
      .250     Manning "n"
    74.000     SCS Curve No or C
      .100     Ia/S Coefficient
     8.924     Initial Abstraction
         1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
           .017       .000       .630       .630 c.m/s
           .377       .911       .430     C perv/imperv/total
15   ADD RUNOFF
           .017       .017       .630       .630 c.m/s
 4   CATCHMENT
     13.000     ID No.ó 99999
      .860     Area in hectares
    75.910     Length (PERV) metres
     1.000     Gradient (%)
    57.000     Per cent Impervious
    75.910     Length (IMPERV)
      .000     %Imp. with Zero Dpth
         1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
      .250     Manning "n"
    74.000     SCS Curve No or C
      .100     Ia/S Coefficient
     8.924     Initial Abstraction
         1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
           .146       .017       .630       .630 c.m/s
           .376       .915       .684     C perv/imperv/total
15   ADD RUNOFF
           .146       .157       .630       .630 c.m/s
 9   ROUTE
      .000     Conduit Length
      .000     No Conduit defined
      .000     Zero lag
      .000     Beta weighting factor
      .000     Routing timestep
         0     No. of sub-reaches
           .146       .157       .157       .630 c.m/s
17   COMBINE
     1     Junction Node No.
           .146       .157       .157       .762 c.m/s
18   CONFLUENCE
     1     Junction Node No.
           .146       .762       .157       .000 c.m/s
 4   CATCHMENT
     12.000     ID No.ó 99999
      3.930     Area in hectares
    161.880     Length (PERV) metres
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 1.000     Gradient (%)
 55.000    Per cent Impervious
161.880    Length (IMPERV)
  .000     %Imp. with Zero Dpth
    1      Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
  .250     Manning "n"
 74.000    SCS Curve No or C
  .100     Ia/S Coefficient
 8.924     Initial Abstraction
    1      Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
        .567       .762       .157       .000 c.m/s
        .377       .912       .671     C perv/imperv/total
15  ADD RUNOFF
        .567      1.329       .157       .000 c.m/s
 9  ROUTE
  .000     Conduit Length
  .000     No Conduit defined
  .000     Zero lag
  .000     Beta weighting factor
  .000     Routing timestep
    0      No. of sub-reaches
        .567      1.329      1.329       .000 c.m/s
17  COMBINE
 1     Junction Node No.
        .567      1.329      1.329      1.329 c.m/s
14  START
 1     1=Zero; 2=Define
 4  CATCHMENT
 15.000    ID No.ó 99999
 2.080     Area in hectares
117.640    Length (PERV) metres
 1.000     Gradient (%)
 65.000    Per cent Impervious
117.640    Length (IMPERV)
  .000     %Imp. with Zero Dpth
    1      Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
  .250     Manning "n"
 74.000    SCS Curve No or C
  .100     Ia/S Coefficient
 8.924     Initial Abstraction
    1      Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
        .370       .000      1.329      1.329 c.m/s
        .377       .916       .728     C perv/imperv/total
15  ADD RUNOFF
        .370       .370      1.329      1.329 c.m/s
 9  ROUTE
  .000     Conduit Length
  .000     No Conduit defined
  .000     Zero lag
  .000     Beta weighting factor
  .000     Routing timestep
    0      No. of sub-reaches
        .370       .370       .370      1.329 c.m/s
17  COMBINE
 1     Junction Node No.
        .370       .370       .370      1.663 c.m/s
18  CONFLUENCE
 1     Junction Node No.
        .370      1.663       .370       .000 c.m/s
27  HYDROGRAPH DISPLAY
 5     is # of Hyeto/Hydrograph chosen
 Volume  =  .7310400E+04 c.m
 4  CATCHMENT
 16.000    ID No.ó 99999
 2.260     Area in hectares
122.660    Length (PERV) metres
 1.000     Gradient (%)
 57.000    Per cent Impervious
122.660    Length (IMPERV)
  .000     %Imp. with Zero Dpth
    1      Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
  .250     Manning "n"
 74.000    SCS Curve No or C
  .100     Ia/S Coefficient
 8.924     Initial Abstraction
    1      Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
        .352      1.663       .370       .000 c.m/s
        .377       .917       .684     C perv/imperv/total
15  ADD RUNOFF
        .352      1.989       .370       .000 c.m/s
27  HYDROGRAPH DISPLAY
 5     is # of Hyeto/Hydrograph chosen
 Volume  =  .8480351E+04 c.m
 9  ROUTE
  .000     Conduit Length
  .000     No Conduit defined
  .000     Zero lag
  .000     Beta weighting factor
  .000     Routing timestep
    0      No. of sub-reaches
        .352      1.989      1.989       .000 c.m/s
17  COMBINE
 4     Junction Node No.
        .352      1.989      1.989      1.989 c.m/s
14  START
 1     1=Zero; 2=Define
35  COMMENT
 1     line(s) of comment
 MAJOR OVERLAND FLOWS FROM A11 TO OUTLET
22  FILE HYDROGRAPH
 1     1=READ: 2=WRITE
 12    DIV00050.100          is Filename
 1     1=Overland: 2=Inflow: 3=Outflow: 4=Temp'ary
        .085       .000      1.989      1.989 c.m/s
15  ADD RUNOFF
        .085       .085      1.989      1.989 c.m/s
 9  ROUTE
  .000     Conduit Length
  .000     No Conduit defined
  .000     Zero lag
  .000     Beta weighting factor
  .000     Routing timestep
    0      No. of sub-reaches
        .085       .085       .085      1.989 c.m/s
17  COMBINE
 4     Junction Node No.
        .085       .085       .085      2.074 c.m/s
18  CONFLUENCE
 4     Junction Node No.
        .085      2.074       .085       .000 c.m/s
27  HYDROGRAPH DISPLAY
 5     is # of Hyeto/Hydrograph chosen
 Volume  =  .8689200E+04 c.m
20  MANUAL
```

MIDUSS output – Future Conditions with SWM

```
      Output File (4.7) SWM.OUT      opened 2022-11-02  10:36
      Units used are defined by G =    9.810
          24   144    10.000        are MAXDT MAXHYD & DTMIN values
      Licensee: UPPER CANADA CONSULTANTS
35    COMMENT
     4     line(s) of comment
      STORMWATER MANAGEMENT PLAN
      RIDGEWAY HIGHSCHOOL
      TOWN OF FORT ERIE
      SWM CONDITIONS
35    COMMENT
     3     line(s) of comment
      **********
      25mm STORM EVENT
      **********
 2    STORM
          1     1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic
    512.000     Coefficient  a
      6.000     Constant  b    (min)
       .800     Exponent  c
       .450     Fraction to peak  r
    240.000     Duration ó  240 min
               25.035 mm     Total depth
 3    IMPERVIOUS
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .015     Manning "n"
     98.000     SCS Curve No or C
       .100     Ia/S Coefficient
       .518     Initial Abstraction
 4    CATCHMENT
     10.000     ID No.ó 99999
      6.540     Area in hectares
    208.820     Length (PERV) metres
      1.000     Gradient (%)
     27.000     Per cent Impervious
    208.820     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
              .167       .000       .000       .000 c.m/s
              .098       .804       .289     C perv/imperv/total
15    ADD RUNOFF
              .167       .167       .000       .000 c.m/s
 9    ROUTE
       .000     Conduit Length
       .000     No Conduit defined
       .000     Zero lag
       .000     Beta weighting factor
       .000     Routing timestep
          0     No. of sub-reaches
              .167       .167       .167       .000 c.m/s
17    COMBINE
      1     Junction Node No.
              .167       .167       .167       .167 c.m/s
14    START
      1     1=Zero; 2=Define
 4    CATCHMENT
     11.000     ID No.ó 99999
      3.630     Area in hectares
    155.620     Length (PERV) metres
      1.000     Gradient (%)
     17.000     Per cent Impervious
    155.620     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
              .058       .000       .167       .167 c.m/s
              .098       .805       .219     C perv/imperv/total
15    ADD RUNOFF
              .058       .058       .167       .167 c.m/s
 9    ROUTE
       .000     Conduit Length
       .000     No Conduit defined
       .000     Zero lag
       .000     Beta weighting factor
       .000     Routing timestep
          0     No. of sub-reaches
              .058       .058       .058       .167 c.m/s
17    COMBINE
      1     Junction Node No.
              .058       .058       .058       .225 c.m/s
18    CONFLUENCE
      1     Junction Node No.
              .058       .225       .058       .000 c.m/s
 9    ROUTE
       .000     Conduit Length
       .000     No Conduit defined
       .000     Zero lag
       .000     Beta weighting factor
       .000     Routing timestep
          0     No. of sub-reaches
              .058       .225       .225       .000 c.m/s
17    COMBINE
      1     Junction Node No.
              .058       .225       .225       .225 c.m/s
14    START
      1     1=Zero; 2=Define
 4    CATCHMENT
     14.000     ID No.ó 99999
       .230     Area in hectares
     39.080     Length (PERV) metres
      1.000     Gradient (%)
     10.000     Per cent Impervious
     39.080     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
              .002       .000       .225       .225 c.m/s
              .098       .797       .168     C perv/imperv/total
15    ADD RUNOFF
              .002       .002       .225       .225 c.m/s
 4    CATCHMENT
     13.000     ID No.ó 99999
       .860     Area in hectares
     75.910     Length (PERV) metres
      1.000     Gradient (%)
     57.000     Per cent Impervious
     75.910     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
              .044       .002       .225       .225 c.m/s
              .098       .794       .495     C perv/imperv/total
15    ADD RUNOFF
              .044       .046       .225       .225 c.m/s
 9    ROUTE
       .000     Conduit Length
       .000     No Conduit defined
       .000     Zero lag
       .000     Beta weighting factor
       .000     Routing timestep
          0     No. of sub-reaches
              .044       .046       .046       .225 c.m/s
17    COMBINE
      1     Junction Node No.
              .044       .046       .046       .271 c.m/s
18    CONFLUENCE
      1     Junction Node No.
              .044       .271       .046       .000 c.m/s
 4    CATCHMENT
     12.000     ID No.ó 99999
      3.930     Area in hectares
    161.880     Length (PERV) metres
      1.000     Gradient (%)
     55.000     Per cent Impervious
    162.090     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
              .201       .271       .046       .000 c.m/s
              .098       .806       .488     C perv/imperv/total
15    ADD RUNOFF
              .201       .472       .046       .000 c.m/s
 9    ROUTE
       .000     Conduit Length
       .000     No Conduit defined
       .000     Zero lag
       .000     Beta weighting factor
       .000     Routing timestep
          0     No. of sub-reaches
              .201       .472       .472       .000 c.m/s
17    COMBINE
      1     Junction Node No.
              .201       .472       .472       .472 c.m/s
14    START
      1     1=Zero; 2=Define
 4    CATCHMENT
     15.000     ID No.ó 99999
      2.080     Area in hectares
    117.640     Length (PERV) metres
      1.000     Gradient (%)
     65.000     Per cent Impervious
    117.640     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
              .126       .000       .472       .472 c.m/s
              .098       .794       .551     C perv/imperv/total
15    ADD RUNOFF
              .126       .126       .472       .472 c.m/s
 9    ROUTE
       .000     Conduit Length
       .000     No Conduit defined
       .000     Zero lag
       .000     Beta weighting factor
```

```
      .000     Routing timestep
         0     No. of sub-reaches
          .126       .126       .126       .472 c.m/s
17    COMBINE
      1     Junction Node No.
          .126       .126       .126       .598 c.m/s
18    CONFLUENCE
      1     Junction Node No.
          .126       .598       .126       .000 c.m/s
27    HYDROGRAPH DISPLAY
      5     is # of Hyeto/Hydrograph chosen
       Volume  =  .1545599E+04 c.m
10    POND
      6 Depth - Discharge - Volume sets
       186.300        .000          .0
       186.600       .0220       814.0
       186.900       .0350      1798.0
       187.200        .212      2948.0
       187.500        .434      4288.0
       187.800       1.388      5819.0
       Peak Outflow    =      .026 c.m/s
       Maximum Depth   =   186.702 metres
       Maximum Storage =     1150. c.m
          .126       .598       .026       .000 c.m/s
16    NEXT LINK
          .126       .026       .026       .000 c.m/s
 4    CATCHMENT
      16.000     ID No.ó 99999
       2.260     Area in hectares
     122.660     Length (PERV) metres
       1.000     Gradient (%)
      57.000     Per cent Impervious
     122.660     Length (IMPERV)
        .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
          .120       .026       .026       .000 c.m/s
          .098       .796       .496     C perv/imperv/total
15    ADD RUNOFF
          .120       .134       .026       .000 c.m/s
27    HYDROGRAPH DISPLAY
      5     is # of Hyeto/Hydrograph chosen
       Volume  =  .1230932E+04 c.m
14    START
      1     1=Zero; 2=Define
35    COMMENT
      3     line(s) of comment
       ***********
       5-YEAR STORM EVENT
       ***********
 2    STORM
          1     1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic
     747.930     Coefficient  a
       6.800     Constant  b    (min)
        .768     Exponent  c
        .400     Fraction to peak  r
     180.000     Duration ó  240 min
               40.415 mm     Total depth
 3    IMPERVIOUS
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .015     Manning "n"
       98.000     SCS Curve No or C
        .100     Ia/S Coefficient
        .518     Initial Abstraction
 4    CATCHMENT
      10.000     ID No.ó 99999
       6.540     Area in hectares
     208.820     Length (PERV) metres
       1.000     Gradient (%)
      27.000     Per cent Impervious
     208.820     Length (IMPERV)
        .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
          .283       .000       .026       .000 c.m/s
          .203       .869       .383     C perv/imperv/total
15    ADD RUNOFF
          .283       .283       .026       .000 c.m/s
 9    ROUTE
        .000     Conduit Length
        .000     No Conduit defined
        .000     Zero lag
        .000     Beta weighting factor
        .000     Routing timestep
           0     No. of sub-reaches
          .283       .283       .283       .000 c.m/s
17    COMBINE
      1     Junction Node No.
          .283       .283       .283       .283 c.m/s
14    START
      1     1=Zero; 2=Define
 4    CATCHMENT
      11.000     ID No.ó 99999
       3.630     Area in hectares
     155.620     Length (PERV) metres
       1.000     Gradient (%)
      17.000     Per cent Impervious
     155.620     Length (IMPERV)
        .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
          .101       .000       .283       .283 c.m/s
          .203       .856       .314     C perv/imperv/total
15    ADD RUNOFF
          .101       .101       .283       .283 c.m/s
 9    ROUTE
        .000     Conduit Length
        .000     No Conduit defined
        .000     Zero lag
        .000     Beta weighting factor
        .000     Routing timestep
           0     No. of sub-reaches
          .101       .101       .101       .283 c.m/s
17    COMBINE
      1     Junction Node No.
          .101       .101       .101       .384 c.m/s
18    CONFLUENCE
      1     Junction Node No.
          .101       .384       .101       .000 c.m/s
 9    ROUTE
        .000     Conduit Length
        .000     No Conduit defined
        .000     Zero lag
        .000     Beta weighting factor
        .000     Routing timestep
           0     No. of sub-reaches
          .101       .384       .384       .000 c.m/s
17    COMBINE
      1     Junction Node No.
          .101       .384       .384       .384 c.m/s
14    START
      1     1=Zero; 2=Define
 4    CATCHMENT
      14.000     ID No.ó 99999
       .230     Area in hectares
     39.080     Length (PERV) metres
       1.000     Gradient (%)
      10.000     Per cent Impervious
     39.080     Length (IMPERV)
        .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
          .004       .000       .384       .384 c.m/s
          .203       .862       .269     C perv/imperv/total
15    ADD RUNOFF
          .004       .004       .384       .384 c.m/s
 4    CATCHMENT
      13.000     ID No.ó 99999
        .860     Area in hectares
     75.910     Length (PERV) metres
       1.000     Gradient (%)
      57.000     Per cent Impervious
     75.910     Length (IMPERV)
        .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
          .078       .004       .384       .384 c.m/s
          .203       .862       .579     C perv/imperv/total
15    ADD RUNOFF
          .078       .082       .384       .384 c.m/s
 9    ROUTE
        .000     Conduit Length
        .000     No Conduit defined
        .000     Zero lag
        .000     Beta weighting factor
        .000     Routing timestep
           0     No. of sub-reaches
          .078       .082       .082       .384 c.m/s
17    COMBINE
      1     Junction Node No.
          .078       .082       .082       .458 c.m/s
18    CONFLUENCE
      1     Junction Node No.
          .078       .458       .082       .000 c.m/s
 4    CATCHMENT
      12.000     ID No.ó 99999
       3.930     Area in hectares
     161.880     Length (PERV) metres
       1.000     Gradient (%)
      55.000     Per cent Impervious
     161.880     Length (IMPERV)
        .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
        .250     Manning "n"
      74.000     SCS Curve No or C
        .100     Ia/S Coefficient
       8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
          .341       .458       .082       .000 c.m/s
          .203       .858       .563     C perv/imperv/total
15    ADD RUNOFF
          .341       .799       .082       .000 c.m/s
 9    ROUTE
        .000     Conduit Length
```

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      .000     No Conduit defined
      .000     Zero lag
      .000     Beta weighting factor
      .000     Routing timestep
         0     No. of sub-reaches
             .341       .799       .799       .000 c.m/s
17    COMBINE
      1     Junction Node No.
             .341       .799       .799       .799 c.m/s
14    START
      1     1=Zero; 2=Define
 4    CATCHMENT
     15.000     ID No.ó 99999
      2.080     Area in hectares
    117.640     Length (PERV) metres
      1.000     Gradient (%)
     65.000     Per cent Impervious
    117.640     Length (IMPERV)
      .000     %Imp. with Zero Dpth
         1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
      .250     Manning "n"
     74.000     SCS Curve No or C
      .100     Ia/S Coefficient
      8.924     Initial Abstraction
         1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .206       .000       .799       .799 c.m/s
             .203       .854       .627     C perv/imperv/total
15    ADD RUNOFF
             .206       .206       .799       .799 c.m/s
 9    ROUTE
      .000     Conduit Length
      .000     No Conduit defined
      .000     Zero lag
      .000     Beta weighting factor
      .000     Routing timestep
         0     No. of sub-reaches
             .206       .206       .206       .799 c.m/s
17    COMBINE
      1     Junction Node No.
             .206       .206       .206      1.005 c.m/s
18    CONFLUENCE
      1     Junction Node No.
             .206      1.005       .206       .000 c.m/s
27    HYDROGRAPH DISPLAY
      5     is # of Hyeto/Hydrograph chosen
      Volume  =  .3117600E+04 c.m
10    POND
      6 Depth - Discharge - Volume sets
      186.300        .000          .0
      186.600       .0220       814.0
      186.900       .0350      1798.0
      187.200        .212      2948.0
      187.500        .434      4288.0
      187.800       1.388      5819.0
      Peak Outflow    =      .103 c.m/s
      Maximum Depth   =   187.015 metres
      Maximum Storage =     2240. c.m
             .206      1.005       .103       .000 c.m/s
16    NEXT LINK
             .206       .103       .103       .000 c.m/s
 4    CATCHMENT
     16.000     ID No.ó 99999
      2.260     Area in hectares
    122.660     Length (PERV) metres
      1.000     Gradient (%)
     57.000     Per cent Impervious
    122.660     Length (IMPERV)
      .000     %Imp. with Zero Dpth
         1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
      .250     Manning "n"
     74.000     SCS Curve No or C
      .100     Ia/S Coefficient
      8.924     Initial Abstraction
         1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .198       .103       .103       .000 c.m/s
             .203       .852       .573     C perv/imperv/total
15    ADD RUNOFF
             .198       .222       .103       .000 c.m/s
27    HYDROGRAPH DISPLAY
      5     is # of Hyeto/Hydrograph chosen
      Volume  =  .2544999E+04 c.m
14    START
      1     1=Zero; 2=Define
35    COMMENT
      3     line(s) of comment
      *************
      100-YEAR STORM EVENT
      *************
 2    STORM
         1     1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic
   1083.550     Coefficient  a
      6.618     Constant  b    (min)
       .735     Exponent  c
       .450     Fraction to peak  r
    240.000     Duration ó  240 min
              75.636 mm     Total depth
 3    IMPERVIOUS
         1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .015     Manning "n"
     98.000     SCS Curve No or C
      .100     Ia/S Coefficient
      .518     Initial Abstraction
 4    CATCHMENT
     10.000     ID No.ó 99999
      6.540     Area in hectares
    208.820     Length (PERV) metres
      1.000     Gradient (%)
     27.000     Per cent Impervious
    208.820     Length (IMPERV)
      .000     %Imp. with Zero Dpth
         1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
      .250     Manning "n"
     74.000     SCS Curve No or C
      .100     Ia/S Coefficient
      8.924     Initial Abstraction
         1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .514       .000       .103       .000 c.m/s
             .377       .912       .522     C perv/imperv/total
15    ADD RUNOFF
             .514       .514       .103       .000 c.m/s
 9    ROUTE
      .000     Conduit Length
      .000     No Conduit defined
      .000     Zero lag
      .000     Beta weighting factor
      .000     Routing timestep
         0     No. of sub-reaches
             .514       .514       .514       .000 c.m/s
17    COMBINE
      1     Junction Node No.
             .514       .514       .514       .514 c.m/s
14    START
      1     1=Zero; 2=Define
 4    CATCHMENT
     11.000     ID No.ó 99999
      3.630     Area in hectares
    155.620     Length (PERV) metres
      1.000     Gradient (%)
     17.000     Per cent Impervious
    155.620     Length (IMPERV)
      .000     %Imp. with Zero Dpth
         1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
      .250     Manning "n"
     74.000     SCS Curve No or C
      .100     Ia/S Coefficient
      8.924     Initial Abstraction
         1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .201       .000       .514       .514 c.m/s
             .377       .913       .468     C perv/imperv/total
15    ADD RUNOFF
             .201       .201       .514       .514 c.m/s
 9    ROUTE
      .000     Conduit Length
      .000     No Conduit defined
      .000     Zero lag
      .000     Beta weighting factor
      .000     Routing timestep
         0     No. of sub-reaches
             .201       .201       .201       .514 c.m/s
35    COMMENT
      1     line(s) of comment
      MAJOR FLOWS ABOVE 5-YEAR SURCHARGE OVERLAND A11 TO OUTLET
12    DIVERT
        50     U/S Node No.ó 99999
      .101     Threshold Discharge
      .116     Max. Outflow reqd.
          Qmax & Vol.Diverted =      .085 c.m/s       210.3 c.m
          No flow diverted
             .201       .201       .116       .514 c.m/s
17    COMBINE
      1     Junction Node No.
             .201       .201       .116       .630 c.m/s
18    CONFLUENCE
      1     Junction Node No.
             .201       .630       .116       .000 c.m/s
 9    ROUTE
      .000     Conduit Length
      .000     No Conduit defined
      .000     Zero lag
      .000     Beta weighting factor
      .000     Routing timestep
         0     No. of sub-reaches
             .201       .630       .630       .000 c.m/s
17    COMBINE
      1     Junction Node No.
             .201       .630       .630       .630 c.m/s
14    START
      1     1=Zero; 2=Define
 4    CATCHMENT
     14.000     ID No.ó 99999
       .230     Area in hectares
     39.080     Length (PERV) metres
      1.000     Gradient (%)
     10.000     Per cent Impervious
     39.080     Length (IMPERV)
      .000     %Imp. with Zero Dpth
         1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
      .250     Manning "n"
     74.000     SCS Curve No or C
      .100     Ia/S Coefficient
      8.924     Initial Abstraction
         1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .017       .000       .630       .630 c.m/s
             .377       .911       .430     C perv/imperv/total
15    ADD RUNOFF
             .017       .017       .630       .630 c.m/s
 4    CATCHMENT
     13.000     ID No.ó 99999
       .860     Area in hectares
     75.910     Length (PERV) metres
      1.000     Gradient (%)
     57.000     Per cent Impervious
     75.910     Length (IMPERV)
      .000     %Imp. with Zero Dpth
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          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .146       .017       .630       .630 c.m/s
             .376       .915       .684     C perv/imperv/total
15   ADD RUNOFF
             .146       .157       .630       .630 c.m/s
 9   ROUTE
       .000     Conduit Length
       .000     No Conduit defined
       .000     Zero lag
       .000     Beta weighting factor
       .000     Routing timestep
          0     No. of sub-reaches
             .146       .157       .157       .630 c.m/s
17   COMBINE
     1     Junction Node No.
             .146       .157       .157       .762 c.m/s
18   CONFLUENCE
     1     Junction Node No.
             .146       .762       .157       .000 c.m/s
 4   CATCHMENT
     12.000     ID No.ó 99999
      3.930     Area in hectares
    161.880     Length (PERV) metres
      1.000     Gradient (%)
     55.000     Per cent Impervious
    161.880     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .567       .762       .157       .000 c.m/s
             .377       .912       .671     C perv/imperv/total
15   ADD RUNOFF
             .567      1.329       .157       .000 c.m/s
 9   ROUTE
       .000     Conduit Length
       .000     No Conduit defined
       .000     Zero lag
       .000     Beta weighting factor
       .000     Routing timestep
          0     No. of sub-reaches
             .567      1.329      1.329       .000 c.m/s
17   COMBINE
     1     Junction Node No.
             .567      1.329      1.329      1.329 c.m/s
14   START
     1     1=Zero; 2=Define
 4   CATCHMENT
     15.000     ID No.ó 99999
      2.080     Area in hectares
    117.640     Length (PERV) metres
      1.000     Gradient (%)
     65.000     Per cent Impervious
    117.640     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .370       .000      1.329      1.329 c.m/s
             .377       .916       .728     C perv/imperv/total
15   ADD RUNOFF
             .370       .370      1.329      1.329 c.m/s
 9   ROUTE
       .000     Conduit Length
       .000     No Conduit defined
       .000     Zero lag
       .000     Beta weighting factor
       .000     Routing timestep
          0     No. of sub-reaches
             .370       .370       .370      1.329 c.m/s
17   COMBINE
     1     Junction Node No.
             .370       .370       .370      1.663 c.m/s
18   CONFLUENCE
     1     Junction Node No.
             .370      1.663       .370       .000 c.m/s
27   HYDROGRAPH DISPLAY
     5     is # of Hyeto/Hydrograph chosen
     Volume  =  .7310400E+04 c.m
10   POND
     6 Depth - Discharge - Volume sets
      186.300        .000          .0
      186.600       .0220       814.0
      186.900       .0350      1798.0
      187.200        .212      2948.0
      187.500        .434      4288.0
      187.800       1.388      5819.0
      Peak Outflow    =      .389 c.m/s
      Maximum Depth   =   187.439 metres
      Maximum Storage =     4016. c.m
             .370      1.663       .389       .000 c.m/s
16   NEXT LINK
             .370       .389       .389       .000 c.m/s
 4   CATCHMENT
     16.000     ID No.ó 99999
      2.260     Area in hectares
    122.660     Length (PERV) metres
      1.000     Gradient (%)
     57.000     Per cent Impervious
    122.660     Length (IMPERV)
       .000     %Imp. with Zero Dpth
          1     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
       .250     Manning "n"
     74.000     SCS Curve No or C
       .100     Ia/S Coefficient
      8.924     Initial Abstraction
          1     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .352       .389       .389       .000 c.m/s
             .377       .917       .684     C perv/imperv/total
15   ADD RUNOFF
             .352       .440       .389       .000 c.m/s
27   HYDROGRAPH DISPLAY
     5     is # of Hyeto/Hydrograph chosen
     Volume  =  .7157760E+04 c.m
 9   ROUTE
       .000     Conduit Length
       .000     No Conduit defined
       .000     Zero lag
       .000     Beta weighting factor
       .000     Routing timestep
          0     No. of sub-reaches
             .352       .440       .440       .000 c.m/s
17   COMBINE
     4     Junction Node No.
             .352       .440       .440       .440 c.m/s
14   START
     1     1=Zero; 2=Define
35   COMMENT
     1     line(s) of comment
     MAJOR OVERLAND FLOWS FROM A11 TO OUTLET
22   FILE HYDROGRAPH
     1     1=READ: 2=WRITE
     12    DIV00050.100          is Filename
     1     1=Overland: 2=Inflow: 3=Outflow: 4=Temp'ary
             .085       .000       .440       .440 c.m/s
15   ADD RUNOFF
             .085       .085       .440       .440 c.m/s
 9   ROUTE
       .000     Conduit Length
       .000     No Conduit defined
       .000     Zero lag
       .000     Beta weighting factor
       .000     Routing timestep
          0     No. of sub-reaches
             .085       .085       .085       .440 c.m/s
17   COMBINE
     4     Junction Node No.
             .085       .085       .085       .508 c.m/s
18   CONFLUENCE
     4     Junction Node No.
             .085       .508       .085       .000 c.m/s
27   HYDROGRAPH DISPLAY
     5     is # of Hyeto/Hydrograph chosen
     Volume  =  .7366799E+04 c.m
20   MANUAL
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