

August 09, 2024

Project Number: P2267

David Schaeffer Engineering Limited
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Attention: Marc Pichette, P.Eng.

**Subject: Caivan Lands – Stittsville West Ltd. & Stittsville South Inc.:
Conceptual SWM Ponds Sizing and Preliminary HGL Analysis**

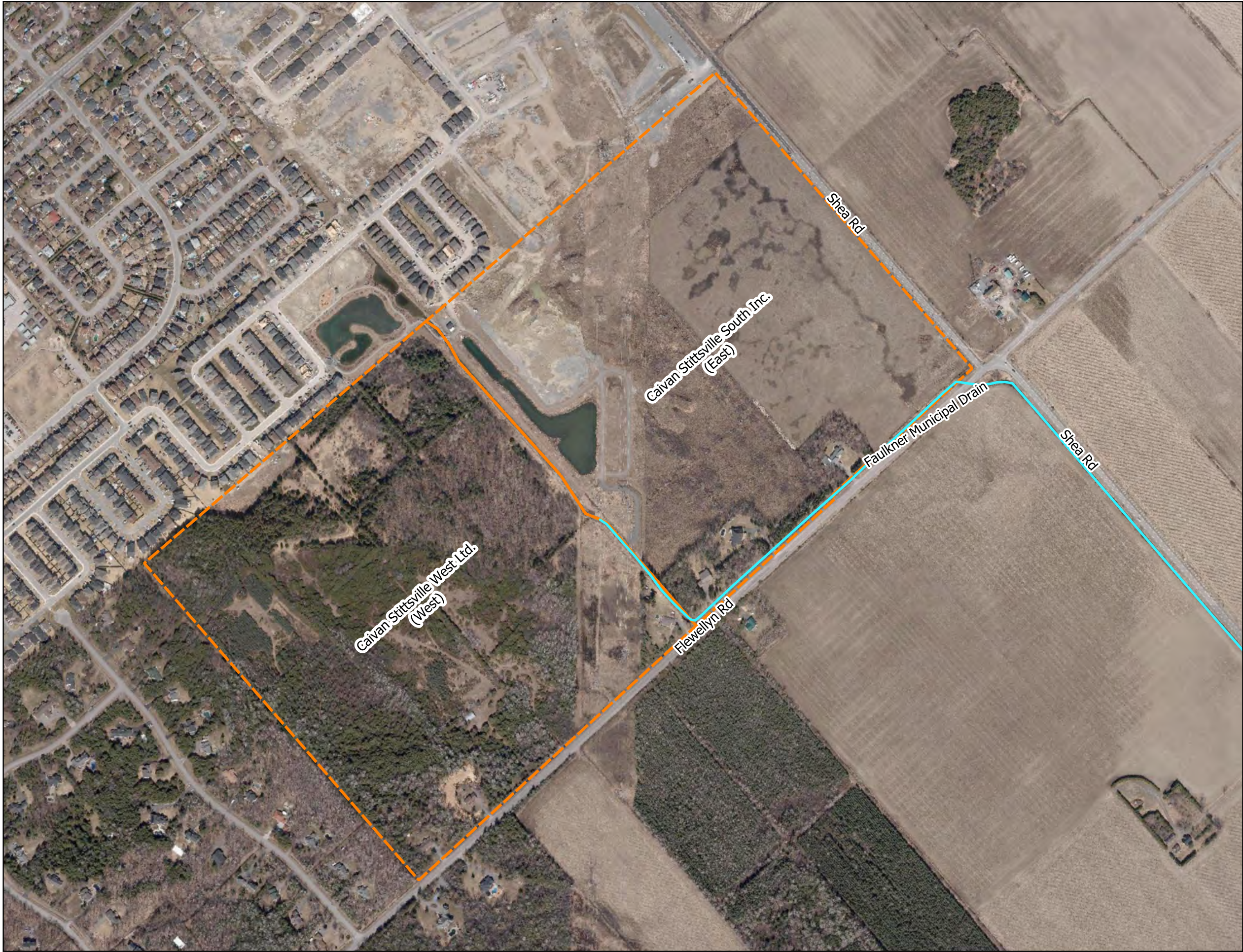
Introduction

JFSA Canada Inc. (JFSA) was retained by David Schaeffer Engineering Ltd. (DSEL) to complete a conceptual SWM ponds sizing and HGL analysis in support of their Master Servicing Study (MSS) for the proposed development of the Caivan Stittsville Lands (6030 Fernbank Road, 5993, 6070 & 6115 Flewellyn Road). This memo assesses and presents the following:

- A conceptual sizing of two SWM ponds (referred to hereon as East and West SWM Ponds) based on the existing stormwater conditions within the subject site.
- The impacts of discharging a portion of the proposed development to the existing Davidson Pond SWM facility.
- A preliminary storm HGL analysis within the proposed development based on the estimated 100-year water level in the SWM ponds and conceptual stormwater trunk sewer networks.
- A preliminary sanitary HGL analysis within the proposed development based on the estimated 100-year water level in the SWM ponds and conceptual sanitary trunk sewer networks.

Site Overview

The subject lands are bound by Flewellyn Road to the south, Shea Road to the east, an existing urban subdivision development to the north (Stittsville South – Area 6) and an estate lot subdivision to the west. The Faulkner Municipal Drain and a Hydro One power transmission corridor also bisect the area. For this study, the overall development area has been broken into two sections (referred to simply as east and west) bisected by the municipal drain and hydro corridor. The property parcel of 6030 Fernbank Road & 5993 Flewellyn Road (Caivan Stittsville South Inc.) to the east is predominantly agricultural land and grassed areas, while the west parcels (comprising 6070 & 6115 Flewellyn Road, Caivan Stittsville West Ltd.) are treed with patches of grassed areas. **Figure 1** provides an overview of the development site relative to the Faulkner drain and major roads.



Legend

-  Development Area
-  Municipal Drain

SCALE: 1:6000

0 100 200 300 m



Caivan - Stittsville Lands

Figure 1: Site Overview

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Existing Stormwater/Pre-Development Conditions

The pre-development conditions used for this site build on the work completed by JFSA in their January 30, 2023 memo titled ***“Caivan-Stittsville Lands (5993, 6070 & 6115 Flewellyn Road) – Pre-Development Hydraulic and Hydrologic Study”***. The January 2023 memo assessed the existing major flow patterns within and around the site and outlined the findings of a detailed pre-development water budget analysis based on site-specific land use, soil and historical rainfall data. In this latest study, adjustments were made to the existing conditions/pre-development drainage areas to reflect an additional portion of the existing Hydro One power transmission corridor within the existing Davidson Lands subdivision, located northeast of the subject site that was identified to drain uncontrolled towards the Faulkner Municipal Drain after the preparation of the January 2023 memo. The existing conditions modelling was also updated to align with the Municipal Drain stationing (**5+229.82** and **4+633.10**) shown in the ***“Amendment to the Engineer’s Report for the Faulkner Municipal Drain”*** prepared by Robinson Consultants Inc. (Robinson) in December 2020.

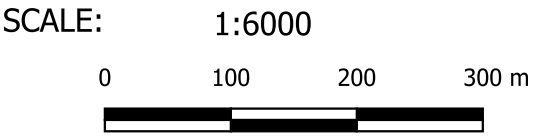
For this development, a post- to pre-development stormwater management approach was taken to size the conceptual SWM ponds and the drainage areas within the subject site were subdivided accordingly. **Figure 2** shows an overview of the existing conditions/pre-development drainage areas within the subject site. From this figure, it can be seen that for the eastern lands, the site primarily consists of **1 (one)** drainage area discharging to the Faulkner Municipal Drain, with subcatchment **Sb** corresponding to the pre-development drainage area draining to Station **4+633.10**, referred to hereon as **Node B**. For the westerly lands, the site primarily consists of **2 (two)** drainage areas discharging to the Faulkner Municipal Drain, with subcatchment **Sx** corresponding to the pre-development drainage area draining to **Node X** before reaching Station **5+229.82**, referred to hereon as **Node A** and subcatchment **Sa** corresponding to the pre-development drainage area draining to **Node A**.

A SWMHYMO model has been developed to assess the site's pre-development flows at each node and determine the allowable release rates for the conceptual SWM ponds. This model can be found in **Attachment B**, with pre-development CN and TP calculations.



Legend

- Development Area
- Drainage Areas
- Pre-Dev. Nodes
- Flow Paths
- Faulkner Municipal Drain
- LiDAR Contours
— 0.50m interval



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Figure 2: Existing/Pre-Development Conditions Overview

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Proposed Stormwater/Post-Development Conditions

The proposed SWM pond blocks will be located in the southeast most corners of the respective west and east blocks, to respect the existing drainage paths and topography of the site. It has been assumed that the site will have an average imperviousness of **69%** (RC=0.68) on the west, **67%** (RC=0.67) on the east and **63%** (RC=0.64) on the east portion of the development that will drain to the existing Davidson SWM Pond, based on DSEL's conceptual design and in line with the average imperviousness of a typical residential development. Approximately **35.34 ha** of the development will drain to the conceptual West SWM pond, approximately **26.25 ha** will drain to the conceptual East SWM Pond and approximately **4.1 ha** of development will drain to the existing Davidson SWM Pond. The remaining lands will remain unchanged from existing conditions and freely drain to the Faulkner Municipal Drain.

Figure 3 shows an overview of the post-development conditions and shows the location of both conceptual East and West SWM Ponds. Note that the location of the proposed conceptual SWM ponds is based on grading constraints and both ponds will outlet to the existing Faulkner Municipal Drain. The conceptual West SWM Pond, as well as post-development drainage areas **W_Und1**, **E_Und1** and **E_Und2** will outlet to **Node X**, before reaching **Node A**. Post-development drainage areas **W_Und2**, **W_Und3**, **E_Und3** and **W_UncF** outlet to **Node A**. The East SWM Pond, as well as post-development drainage areas **E_Und4** and **E_Und5**, outlet to **Node B**.

Based on a preliminary analysis, minor adjustments to the existing Davidson SWM Pond outlet structure can be made to maximize the storage capacity of the pond and accommodate the additional flows from the proposed development. Details of this preliminary analysis have also been provided in this report in the section titled "Existing Davidson Pond Updates".

SWMHYMO Post-Development Simulations

A SWMHYMO model has been developed to assess the proposed conceptual East and West SWM Pond outflows, as well as the total flows to **Nodes A** and **B** under post-development conditions to ensure that the target/pre-development release rates are not exceeded. Preliminary pond controls were set for both conceptual East and West SWM ponds and preliminary outflow-storage curves were applied to the model. Note that the simulations presented in this memo are limited to the subject site only and a detailed assessment of the impacts of the proposed development on the Faulkner Municipal Drain will be prepared at a later date by a designated party when more details regarding the development are solidified and the full external/Faulkner Municipal Drain model is updated to reflect the proposed post-development conditions. Currently, the preliminary pond controls are designed so that the post-development outflows from the proposed conceptual SWM ponds combined with the post-development flows from the uncontrolled drainage areas within the study area, do not exceed the existing/pre-development flows at **Nodes A** and **B**. Based on the information provided by DSEL during the preparation of this study, the portion of the Municipal Drain located upstream of **Node A** will be "abandoned/removed" from its status as a Municipal Drain. Consequently, construction works to improve the hydraulic capacity of that channel section can be undertaken to accommodate potential flow increases at **Node X** under post-development conditions, therefore preventing an increase in water levels in the channel.

The conceptual East and West SWM ponds have been analyzed under both free and restrictive downstream conditions according to the 100-year water levels shown in **Table 4.5** of the December 2020 **“Amendment to the Engineer’s Report for the Faulkner Municipal Drain”** prepared by Robinson. Based on that table, the 100-year water level at **Node A (Sta. 5+229.82)** and **Node B (Sta. 4+633.10)** are **102.74m** and **101.05m** respectively. Note that since the conceptual West SWM pond outlet is located at **Node X**, upstream of **Node A**, a 100-yr water level of **102.77m** was assumed in the analysis of the restrictive outfall conditions for that pond, in line with the 100-year water level used in the Davidson SWM Pond modelling presented in the DSEL/JFSA, November 2017 memo titled **“Design Brief for the Stormwater Management Pond for the Davidson Lands”**. DSEL prepared preliminary stage-storage curves for the conceptual East and West SWM ponds, which were then used in this analysis. Tables with details and calculations for both conceptual SWM ponds, including the preliminary stage-storage curves used in the analysis can be found in **Attachment C**.

Post-Development Simulation Results

Table 1 below provides a summary of the 100-year peak flows under pre- and post-development conditions at **Nodes X, A & B**. **Table 2** below provides a summary of the maximum 100-year release rates, storage volumes and preliminary water levels for the proposed conceptual SWM ponds. **Attachment C** contains the complete SWMHYMO modelling input and output files, along with a comprehensive summary of the modelling results and calculations.

Table 1: Pre- and Post-Development Flows
(100-year 24-hr SCS Type II Storm)

Node X		Node A		Node B	
100-year Target Flow ⁽¹⁾ (m ³ /s)	100-year Post-Dev. Flow (m ³ /s)	100-year Target Flow ⁽¹⁾ (m ³ /s)	100-year Post-Dev. Flow (m ³ /s)	100-year Target Flow ⁽¹⁾ (m ³ /s)	100-year Post-Dev. Flow (m ³ /s)
0.532	0.809	1.069	0.873	1.840	1.620

(1) Target flows based on peak pre-development flows.

Table 2: SWM Ponds Results Summary
(100-year 24-hr SCS Type II Storm)

SWM Pond ID	Release Rate ⁽¹⁾ (m ³ /s)	Volume Used ⁽²⁾ (m ³)	Preliminary Water Level (m)
West	0.590	20,870	103.80
East	0.899	13,990	101.95

(1) Maximum release rate between free and restrictive downstream conditions.

(2) Maximum active storage volume used based on restrictive downstream conditions.

As shown in **Table 1**, the 100-year post-development flows at **Nodes A** and **B** are less than the target flows. The 100-year post-development flows at **Node X** exceed the target flows by 277 L/s. That is mainly due to the fact that under existing/pre-development conditions the total drainage area to **Node X** is approximately **21.02 ha**, while under post-development conditions the total drainage area to the same node more than doubles, to approximately **44.85 ha**. However, as mentioned earlier in this report, the portion of the Municipal Drain located upstream of **Node A** will be “abandoned/removed” from its status as a Municipal Drain and construction works to improve the hydraulic capacity in the channel section between **Node X** and **Node A** will be undertaken to accommodate the flow increase under post-development conditions and prevent an increase in water level in the channel. As this is only a conceptual SWM analysis at this point in time, a more detailed flooding and erosion assessment will be prepared at a later date by a designated party once more information is available for the subdivision and the full external/Faulkner Municipal Drain model is updated to reflect the proposed post-development conditions to verify and mitigate any impacts the development may have on the Municipal Drain. As shown in **Table 2**, the estimated maximum 100-year storage volumes under restrictive downstream conditions for the West and East SWM ponds are **20,870 m³** and **13,990 m³** respectively. The estimated preliminary 100-year water levels under restrictive downstream conditions are **103.80 m** and **101.95 m** for the West and East SWM ponds respectively, providing a freeboard greater than 30 cm to the top of the berm for both SWM ponds.

Existing Davidson Pond Updates

It is assumed that approximately **4.1 ha** of the proposed development will drain to the existing Davidson SWM Pond. This additional area was added to the Davidson Pond SWMHYMO model with minor modifications to the existing pond controls to accommodate the additional drainage area. With these modifications in place, the Davidson SWM facility has sufficient storage volume to provide quality and quantity control to accommodate the additional drainage area (refer to **Tables F-1** and **F-2** of **Attachment F**). The pond’s maximum 100-year storage volume used increased from **23,600 m³** to **25,770 m³** and the 100-year water level has increased by **11 cm** from **103.17 m** to **103.28 m**. The average freeboard between the 100-year HGL and USF elevations within the existing Davidson Lands development is approximately **0.87m** based on **Table 5-11** of the June 2020 “**Design Brief for Davidson Lands – OPA 76 AREA 6a Phase 2**” prepared by IBI Group. Additionally, based on that same table, the minimum freeboard between the 100-year HGL and USF elevations within the existing Davidson Lands development are **0.38 m** at **MH 143** and **0.39 m** at **MH 233**. Based on IBI Group’s servicing design, **MH 143** is located approximately **1,020 m** from the existing Davidson SWM Pond and **MH 233** is located approximately **617 m** from the existing Davidson SWM Pond. The 100-year HGL at **MH 143** and **MH 233** are **108.77 m** and **105.11 m** respectively according to **Table 5-11**, which result in the HGL being approximately **5.49 m** and **1.83 m** higher than the estimated maximum 100-year water level in the existing Davidson SWM Pond. Based on this, it is expected that there will be no freeboard issues within the existing development due to the increase in the pond water levels. However, a detailed analysis of the pond operation to assess the release rates, pond water levels and HGL elevations within the proposed and existing development will be completed at the detailed design stage. Refer to **Attachment F** for preliminary model results and details, including an excerpt of **Table 5-11** from IBI’s report.



- Legend**
- Dev_Area_v02 copy
 - Drainage Areas
 - Pre-Dev. Nodes
 - Faulkner Municipal Drain
 - Conceptual Site Plan

SCALE: 1:6000

0 100 200 300 m



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Figure 3: Proposed/Post-Development Conditions Overview

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Preliminary Stormwater Hydraulic Grade Line Analysis (HGL)

A preliminary stormwater hydraulic grade line (HGL) analysis was conducted to ensure there will be sufficient freeboard between the HGL and the proposed top of manhole elevations within the site. Since the underside of footing (USF) elevations are not currently available, this analysis intends to verify the feasibility of gravity storm servicing connections for the units in the proposed development.

Storm Hydraulic Grade Line (HGL) Analysis Approach

Preliminary hydraulic grade line calculations for the proposed development were completed using PCSWMM modelling software. The proposed storm sewer infrastructure data was extracted from DSEL's compiled storm sewer design sheets and incorporated into a PCSWMM model, with flows derived from DSEL's Rational Method calculations applied to each Maintenance Hole (MH) in the model as steady flows (using the baseline inflow option). Exit losses were applied to all storm sewer pipes in the system based on the angle of the downstream connection. **Figure 4** provides an overview of the HGL model. The preliminary HGL analysis assumes the use of the typical City of Ottawa circular Inlet Control Devices (ICDs) throughout the proposed development, therefore, to simulate the flow in the storm sewers during the 100-year event, the Rational Method flows from DSEL's storm design sheets were increased by 14%, to account for the additional flow captured into the minor system during the 100-year event due to additional head acting on the ICDs. Refer to **Attachment A** for DSEL's storm design sheets. Additionally, the analysis assumes the highest estimated 100-year water levels in the conceptual West and East SWM Ponds (**103.80m** and **101.95m** respectively) as per **Tables C-4W** and **C-4E** of **Attachment C**. The 100-year water level in the existing Davidson SWM Pond with the adjustment of the pond controls to accommodate the additional drainage area mentioned earlier in this memo was estimated to be approximately **103.28m** and was used in the preliminary storm HGL assessment for this site.

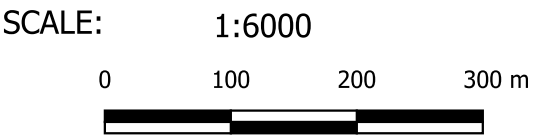
Preliminary Storm HGL Results

Table D-1 of **Attachment D** shows the maximum storm HGL elevation results and the calculated freeboard between the HGL and the top of the manhole elevation. As can be seen, the average freeboard was found to be **2.63m** (excluding **MH-1002** and **MH-314** located within the SWM pond blocks), which is considered to be sufficient to provide a minimum of 0.30m freeboard between the HGL and future USF elevations for units serviced by gravity storm connections, assuming that the typical USF elevation would be approximately 1.80m below the assumed top of manhole elevations. USF elevations may have to be slightly raised in some localized areas of the subject site due to grading constraints to maintain a minimum of 0.30m freeboard, however, this analysis shows that gravity service connections to the storm sewer are fundamentally feasible throughout the site.



Legend

- Manholes
- ▲ Outfalls
- Conduits
- Conceptual Site Plan
- Development Area



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Figure 4: PCSWMM Storm Model Overview

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Preliminary Sanitary Hydraulic Grade Line (HGL) Analysis

Sanitary flows from the proposed development will discharge into the existing Shea Road Pumping Station (SRPS). A sanitary hydraulic grade line (HGL) assessment has been conducted to ensure that the proposed sanitary system within the development is adequately sized to safely convey flows to the existing pumping station, even under a pump failure scenario.

Scenarios Analyzed

As per the City of Ottawa ISTB-2018-01, the site was assessed under Annual and Rare conditions. The following outlines the assumptions for both scenarios:

Rare Flows:

- Flow contributions based on Rare Event parameters set out in the City of Ottawa design guidelines and ISTB-2018-01.
- Pumping station operating at a maximum capacity of **71.5 L/s** – assumed a safety factor of 15% reduction of the firm capacity of 84 L/s as per information provided by Novatech to DSEL by email on August 18, 2023.
- Emergency overflow locations that discharge to the existing Davidson SWM Pond and proposed East SWM Pond are assumed to be flapped, with a downstream water level of **103.28m** and **101.95m** respectively based on the 100-year water level in the SWM ponds.

Annual Flows:

- Flow contributions based on Annual event parameters set out in the City of Ottawa design guidelines and ISTB-2018-01.
- Complete pumping station failure (**0 L/s**).
- Emergency overflow locations that discharge to the existing Davidson SWM Pond and proposed East SWM Pond are assumed to be flapped, with a downstream water level of **103.28m** and **101.95m** respectively based on the 100-year water level in the SWM ponds.

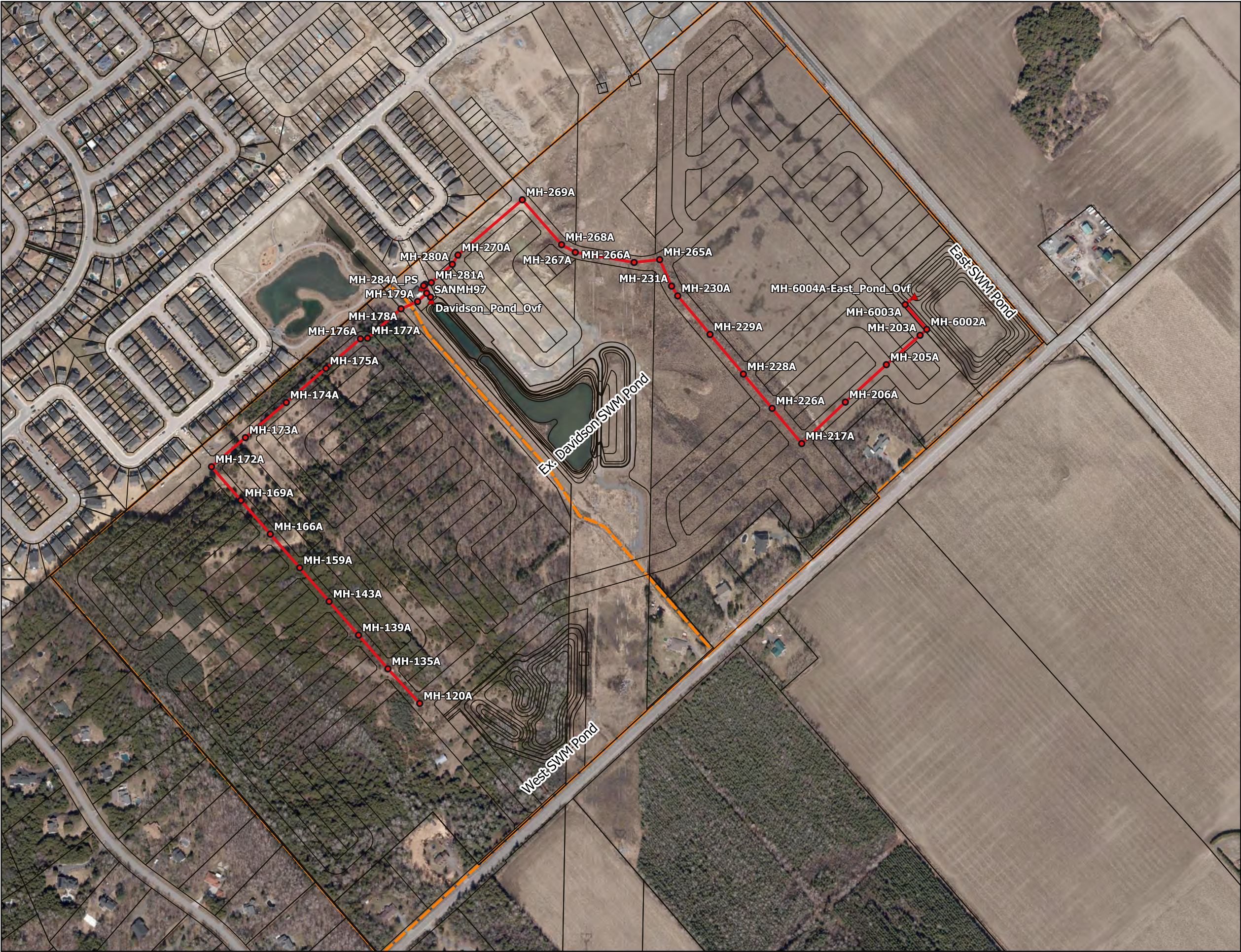
Note that a new sanitary emergency overflow at an invert of **102.344 m** is proposed to be installed and discharged to the proposed conceptual East SWM Pond. The existing sanitary overflow infrastructure to the Davidson SWM Pond will be maintained, however, modifications to the emergency overflow weir dimensions and crest/invert elevation in **SANMH 97** are proposed. The analysis assumes that the existing emergency overflow weir (sharp-crested weir) will be modified from an approximately **500mm** long by **300mm** high weir (assumed existing dimensions based on photos from the site as actual dimensions could not be obtained during the preparation of this memo) with a crest/invert elevation of **103.40 m** to a **900mm** long by **500mm** high emergency overflow weir with a crest/invert elevation of **103.05 m** (above the estimated 25-year water level in the Davidson SWM Pond). Note that no sanitary emergency overflow is proposed to discharge into the proposed conceptual West SWM Pond.

Sanitary Hydraulic Grade Line Analysis (HGL) Analysis Approach

Preliminary hydraulic grade line calculations for the proposed development were completed using PCSWMM modelling software. The proposed sanitary sewer infrastructure data was extracted from DSEL's compiled sanitary design sheets and incorporated into a PCSWMM model, with flows derived from DSEL's sanitary calculations applied to each Maintenance Hole (MH) in the model as steady flows (using the baseline inflow option). Exit losses were applied to all sanitary sewer pipes in the system based on the angle of the downstream connection. **Figure 5** provides an overview of the model.

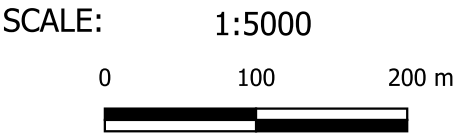
Preliminary Sanitary HGL Results

Tables E-1 and E-2 of Attachment E show the maximum sanitary HGL elevation results and the calculated freeboard between the HGL and the top of the manhole elevation. As can be seen, the minimum freeboard was found to be **3.18 m** and **2.16 m** (excluding **MH-284A_PS**, **SANMH97**, **MH-6002A** and **MH-6003A** located within the pump station and SWM pond blocks) for the Rare and Annual scenarios respectively, which is considered to be sufficient to provide a minimum of 0.30m freeboard between the HGL and future USF elevations under the Rare flows scenario and maintaining the HGL below the USF under the pumping station failure scenario (Annual flows), assuming that the typical USF elevation would be approximately 1.80m below the assumed top of manhole elevations. USF elevations may have to be slightly raised in some localized areas of the subject site due to grading constraints to maintain the minimum required freeboard, however, this analysis shows that the preliminary sanitary sewer system for the proposed development is adequately sized.



Legend

- Manholes
- ▲ Outfalls
- Conduits
- Conceptual Site Plan
- Development Area



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Figure 5: PCSWMM Sanitary Model Overview

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Conclusion

In summary, a post- to pre-development approach was taken to preliminarily size the conceptual West and East SWM ponds within the subject site that will outlet into the Faulkner Municipal Drain. At this time, the simulations presented in this memo are limited to the subject site only; however, a detailed assessment of the impacts of the proposed development on the Faulkner Municipal Drain will be completed at a later date by a designated party once site plan details become solidified and the full external/Faulkner Municipal Drain model is updated to reflect the proposed post-development conditions.

PCSWMM modelling has been completed to analyze the storm HGL elevations within the proposed development based on the flow details provided by DSEL. Based on this analysis, it was determined that according to the resulting freeboards between the HGL and the top of manhole elevations, it is feasible to have units serviced by gravity storm connections, assuming that the typical USF elevations would be approximately 1.80m below the assumed top of manhole elevations.

A preliminary analysis of the existing Davidson Pond has also been completed to assess the impact of draining approximately **4.1 ha** of the proposed development to this facility. It was seen that the pond outlet structure would need to be modified, but with these modifications, the pond is expected to accommodate the additional drainage area from the proposed development. A detailed analysis of the pond operation to assess the release rates, pond water levels and HGL elevations within the proposed and existing development will be completed at a later date when more details of the subdivision become solidified.

PCSWMM modelling has been completed to analyze the sanitary HGL elevations within the proposed development based on the flow details provided by DSEL. From this analysis, it was found that the proposed sanitary sewer infrastructure is sufficiently sized to safely convey sanitary flows away from the proposed development under various extreme conditions.

Yours truly,
JFSA Canada Inc.



Paulo Pickart, B.Eng., P.Eng.
Water Resources Project Engineer



Jonathon Burnett, B.Eng., P.Eng.
Senior Water Resources Engineer



cc: J.F Sabourin, M.Eng., P.Eng.
Director of Water Resources Projects

Figures

- Figure 1: Site Overview
- Figure 2: Existing/ Pre-Development Conditions Overview
- Figure 3: Proposed/ Post-Development Conditions Overview
- Figure 4: PCSWMM Storm Model Overview
- Figure 5: PCSWMM Sanitary Model Overview

Tables

- Table 1: Pre- and Post-Development (100-year 24-hr SCS Type II Storm)
- Table 2: SWM Ponds Results Summary (100-year 24-hr SCS Type II Storm)

Attachments

- Attachment A: Storm and Sanitary Design Sheets (as per DSEL)
- Attachment B: Existing/Pre-Development Conditions Simulations
- Attachment C: Proposed/Post-Development Conditions Simulations
- Attachment D: Preliminary Storm Hydraulic Grade Line Analysis
- Attachment E: Preliminary Sanitary Hydraulic Grade Line Analysis
- Attachment F: Existing Davidson SWM Pond Preliminary Analysis

Modelling Files

- SWMHYMO: STIT-Pre_v06 (refer to Attachment B)
STIT-Post_v10a-N (refer to Attachment C)
David_Lf (refer to Attachment F)
- PCSWMM: (Provided Electronically)
STIT-STM-MSS_v03.0
STIT-SAN-MSS-Rare_v03.0
STIT-SAN-MSS-Annual_v03.0



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Attachment A

Storm and Sanitary Design Sheets
(As per DSEL)

STORM SEWER CALCULATION SHEET (RATIONAL METHOD)



Local Roads Return Frequency = 2 years
Collector Roads Return Frequency = 5 years
Manning 0.013 Arterial Roads Return Frequency = 10 years

	LOCATION		AREA (Ha)																FLOW							SEWER DATA									
			2 YEAR				5 YEAR				10 YEAR				100 YEAR				Time of	Intensity	Intensity	Intensity	Intensity	Peak Flow	Peak	DIA. (mm)	DIA. (mm)	TYPE	SLOPE	LENGTH	CAPACITY	VELOCITY	TIME OF	RATIO	
Location	From Node	To Node	AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	Conc. (min)	2 Year (mm/h)	5 Year (mm/h)	10 Year (mm/h)	100 Year (mm/h)	Q (l/s)	Peak Flow + 14% Q (l/s)	(actual)	(nominal)		(%)	(m)	(l/s)	(m/s)	LOW (min)	Q/Q full	
Unknown Road1 - 100																																			
	112	116	5.24	0.68	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00			0.00	0.00	15.17																
					0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00			0.00	0.00	15.17	61.37	83.01	97.21	141.96	608	693	825	825	CONC	0.30	56.0	786.2205	1.4708	0.6346	0.773	
					0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00			0.00	0.00	12.91																
	116	120	1.62	0.68	3.06	12.97			0.00	0.00			0.00	0.00			0.00	0.00	15.80	59.93	81.05	94.90	138.56	777	886	975	975	CONC	0.20	60.0	1002.2295	1.3424	0.7450	0.775	
					0.00	12.97	0.00	0.00	0.00	0.00			0.00	0.00			0.00	0.00	14.26																
	120	124	1.80	0.68	3.40	16.37			0.00	0.00			0.00	0.00			0.00	0.00	16.55	58.34	78.87	92.34	134.80	955	1089	1200	1200	CONC	0.15	60.0	1509.9717	1.3351	0.7490	0.632	
					0.00	16.37	0.00	0.00	0.00	0.00			0.00	0.00			0.00	0.00	14.23																
	124	139	1.73	0.68	3.27	19.64			0.00	0.00			0.00	0.00			0.00	0.00	17.30	56.83	76.80	89.91	131.24	1116	1272	1200	1200	CONC	0.15	64.0	1509.9717	1.3351	0.7989	0.739	
					0.00	19.64	0.00	0.00	0.00	0.00			0.00	0.00			0.00	0.00	16.78																
	139	140	4.93	0.68	9.32	28.96			0.00	0.00			0.00	0.00			0.00	0.00	18.10	55.31	74.73	87.47	127.66	1602	1826	1350	1350	CONC	0.15	59.0	2067.1669	1.4442	0.6809	0.775	
					0.00	28.96	0.08	0.68	0.15	0.15			0.00	0.00			0.00	0.00	18.78	54.08	73.05	85.50	124.78	1577	1798	1500	1500	CONC	0.15	40.0	2737.7609	1.5493	0.4303	0.576	
					0.00	28.96	0.00	0.00	0.00	0.15			0.00	0.00			0.00	0.00	12.77																
					0.00	28.96	0.78	0.68	1.47	1.63			0.00	0.00			0.00	0.00																	
			1.70	0.68	3.21	32.17			0.00	1.63			0.00	0.00			0.00	0.00																	
	143	1002	2.70	0.80	6.00	38.18			0.00	1.63			0.00	0.00			0.00	0.00	19.21	53.34	72.04	84.31	123.03	2154	2455	1500	1500	CONC	0.15	52.0	2737.7609	1.5493	0.5594	0.787	
					0.00	38.18			0.00	1.63			0.00	0.00			0.00	0.00	19.77	52.41	70.77	82.82	120.84	2116	2412	1500	1500	CONC	0.15	17.0	2737.7609	1.5493	0.1829	0.773	
Unknown Road2 - 200																																			
					0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00			0.00	0.00	14.82																
	231	232	4.38	0.68	8.28	8.28			0.00	0.00			0.00	0.00			0.00	0.00	14.82	62.20	84.15	98.55	143.91	515	587	975	975	CONC	0.20	54.5	1002.2295	1.3424	0.6767	0.514	
					0.00	8.28			0.00	0.00			0.00	0.00			0.00	0.00	15.50	60.62	81.99	96.01	140.19	504	575	1050	1050	CONC	0.15	15.0	1057.6053	1.2214	0.2047	0.477	
					0.00	8.32	0.00	0.00	0.00	0.00			0.00	0.00			0.00	0.00	12.53																
	235	236	0.90	0.68	1.70	10.02			0.00	0.00			0.00	0.00			0.00	0.00	15.70	60.16	81.36	95.27	139.11	603	687	1050	1050	CONC	0.15	15.5	1057.6053	1.2214	0.2115	0.570	
					0.00	10.02			0.00	0.00			0.00	0.00			0.00	0.00	15.91	59.70	80.72	94.52	138.00	659	751	1050	1050	CONC	0.15	82.0	1057.6053	1.2214	1.1189	0.623	
	236	237	0.54	0.68	1.02	11.04			0.00	0.00			0.00	0.00			0.00	0.00	15.91	59.70	80.72	94.52	138.00	659	751	1050	1050	CONC	0.15	82.0	1057.6053	1.2214	1.1189	0.623	
					0.00	11.04			0.00	0.00			0.00	0.00			0.00	0.00	15.91	59.70	80.72	94.52	138.00	659	751	1050	1050	CONC	0.15	82.0	1057.6053	1.2214	1.1189	0.623	
	237	240	0.42	0.68	0.79	11.83			0.00	0.00			0.00	0.00			0.00	0.00	17.03	57.36	77.52	90.76	132.49	679	774	1050	1050	CONC	0.15	86.0	1057.6053	1.2214	1.1735	0.642	
					0.00	11.83	0.00	0.00	0.00	0.00			0.00	0.00			0.00	0.00	23.09																
					0.00	11.83	0.00	0.00	0.00	0.00			0.00	0.00			0.00	0.00																	
					0.00	11.83	0.93	0.40	1.03	1.03			0.00	0.00			0.00	0.00																	
					0.00	11.83	1.38	0.68	2.61	3.64			0.00	0.00			0.00	0.00																	
	240	HW2	3.47	0.68	6.56	18.39			0.00	3.64			0.00	0.00			0.00	0.00	23.09	47.54	64.12	75.01	109.40	1108	1263	1350	1350	CONC	0.25	58.0	2668.7010	1.8644	0.5185	0.415	
Unknown Road3 - 300																																			
					0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00			0.00	0.00	14.35																
	306	307	1.79	0.68	3.38	3.38			0.00	0.00			0.00	0.00			0.00	0.00	14.35	63.34	85.70	100.38	146.60	214	244	675	675	CONC	0.15	84.0	325.5584	0.9098	1.5389	0.658	
					0.00	3.38			0.00	0.00			0.00	0.00			0.00	0.00	14.35	63.34	85.70	100.38	146.60	214	244	675	675	CONC	0.15	84.0	325.5584	0.9098	1.5389	0.658	
	307	308	0.51	0.68	0.96	4.35			0.00	0.00			0.00	0.00			0.00	0.00	15.89	59.74	80.78	94.59	138.10	260	296	675	675	CONC	0.20	84.0	375.9224	1.0505	1.3327	0.691	
					0.00	4.35			0.00	0.00			0.00	0.00			0.00	0.00	17.23	56.97	76.99	90.14	131.57	248	282	750	750	CONC	0.20	5.0	497.8726	1.1270	0.0739	0.498	
	308	313			0.00	4.35	0.00	0.00	0.00	0.00			0.00	0.00			0.00	0.00	17.23	56.97	76.99	90.14	131.57	248	282	750	750	CONC	0.20	5.0	497.8726	1.1270	0.0739	0.498	
					0.00	4.35	0.00	0.00	0.00	0.00			0.00	0.00			0.00	0.00	13.71																
					0.00	4.35	0.73	0.40	0.81	0.81			0.00	0.00			0.00	0.00																	
	313	314	1.06	0.68	2.00	6.35			0.00	0.81			0.00	0.00			0.00	0.00	17.30	56.82	76.80	89.90	131.23	423	483	825	825	CONC	0.20	37.5	641.9463	1.2009	0.5205	0.659	
					0.00	6.35			0.00	0.81			0.00	0.00			0.00	0.00	17.82	55.82	75.43	88.30	12												

Local Roads Return Frequency = 2 years
Collector Roads Return Frequency = 5 years

	LOCATION	

Definitions: Q = 2.78 AIR, where Q = Peak Flow in Litres per second (L/s) A = Areas in hectares (ha) I = Rainfall Intensity (mm/h) R = Runoff Coefficient	Notes: 1) Ottawa Rainfall-Intensity Curve 2) Min. Velocity = 0.80 m/s	Designed:		PROJECT:	
		Checked:		LOCATION: City of Ottawa	
		Dwg. Reference:		File Ref:	Date: 30 Jul 2024

SANITARY SEWER CALCULATION SHEET (RARE FLOWS)

Manning's $n=0.013$

LOCATION			RESIDENTIAL AREA AND POPULATION						COMM		INSTIT		PARK		C+H+I	INFILTRATION				PIPE							
STREET		FROM M.H.	TO M.H.	AREA	UNITS	POP.	CUMULATIVE	PEAK FACT.	PEAK FLOW	AREA	ACCU. AREA	AREA	ACCU. AREA	AREA	ACCU. AREA	PEAK FLOW	TOTAL AREA	ACCU. AREA	INFILT. FLOW	TOTAL FLOW	DIST	DIA	SLOPE	CAP. (FULL)	RATIO Q act/Q cap	VEL.	
				(ha)			(ha)		(l/s)	(ha)	(ha)	(ha)	(ha)	(ha)	(ha)	(l/s)	(ha)	(ha)	(l/s)	(l/s)	(m)	(mm)	(%)	(l/s)		(FULL) (m/s)	(ACT.) (m/s)
Sanitary Trunk 1																											
				0.10		0	0.10	0			0.00		0.00	0.93	0.93		1.03	1.03									
				0.85		98	0.95	98			0.00		0.00		0.93		0.85	1.88									
				1.84		214	2.79	312			0.00		0.00		0.93		1.84	3.72									
				2.68		770	5.47	1082			0.00		0.00		0.93		2.68	6.40									
		120A	135A	2.96		221	8.43	1303	2.6	7.94	0.00		0.00		0.93	0.10	2.96	9.36	5.15	13.19	63.0	300	0.20	43.25	0.31	0.61	0.53
				0.20		23	8.63	1326			0.00		0.00		0.93		0.20	9.56									
				1.10		127	9.73	1453			0.00		0.00		0.93		1.10	10.66									
				1.30		152	11.03	1605			0.00		0.00		0.93		1.30	11.96									
				1.70		196	12.73	1801			0.00		0.00		0.93		1.70	13.66									
		135A	139A	2.43		184	15.16	1985	2.6	11.73	0.00		0.00		0.93	0.10	2.43	16.09	8.85	20.68	60.0	300	0.20	43.25	0.48	0.61	0.60
				0.23		27	15.39	2012			0.00		0.00		0.93		0.23	16.32									
				0.24		18	15.63	2030			0.00		0.00		0.93		0.24	16.56									
		139A	143A	1.28		148	16.91	2178	2.5	12.78	0.00		0.00		0.93	0.10	1.28	17.84	9.81	22.69	60.0	300	0.20	43.25	0.52	0.61	0.62
				0.20		23	17.11	2201			0.00		0.00		0.93		0.20	18.04									
				0.29		22	17.40	2223			0.00		0.00		0.93		0.29	18.33									
		143A	159A	1.28		148	18.68	2371	2.5	13.81	0.00		0.00		0.93	0.10	1.28	19.61	10.79	24.70	60.0	300	0.20	43.25	0.57	0.61	0.63
				0.20		23	18.88	2394			0.00		0.00		0.93		0.20	19.81									
				0.65		51	19.53	2445			0.00		0.00		0.93		0.65	20.46									
				1.36		101	20.89	2546			0.00		0.00		0.93		1.36	21.82									
		159A	166A	4.27		483	25.16	3029	2.5	17.27	0.00		0.00		0.93	0.10	4.27	26.09	14.35	31.72	60.0	300	0.20	43.25	0.73	0.61	0.67
				0.23		27	25.39	3056			0.00		0.00		0.93		0.23	26.32									
		166A	169A	2.26		171	27.65	3227	2.4	18.30	0.00		0.00		0.93	0.10	2.26	28.58	15.72	34.11	60.0	300	0.20	43.25	0.79	0.61	0.68
				0.20		23	27.85	3250			0.00		0.00		0.93		0.20	28.78									
		169A	172A	0.96		73	28.81	3323	2.4	18.79	0.00		0.00		0.93	0.10	0.96	29.74	16.36	35.25	60.0	300	0.20	43.25	0.82	0.61	0.68
				0.05		0	28.86	3323			0.00		0.00		0.93		0.05	29.79									
				0.20		15	29.06	3338			0.00		0.00		0.93		0.20	29.99									
		172A	173A	1.31		99	30.37	3437	2.4	19.37	0.00		0.00		0.93	0.10	1.31	31.30	17.22	36.69	60.0	375	0.20	78.41	0.47	0.71	0.70
		173A	174A	0.37		28	30.74	3465	2.4	19.52	0.00		0.00		0.93	0.10	0.37	31.67	17.42	37.03	72.5	375	0.20	78.41	0.47	0.71	0.70
		174A	175A	0.42		32	31.16	3497	2.4	19.68	0.00		0.00		0.93	0.10	0.42	32.09	17.65	37.43	70.5	375	0.20	78.41	0.48	0.71	0.70
		175A	176A	0.36		27	31.52	3524	2.4	19.82	0.00		0.00		0.93	0.10	0.36	32.45	17.85	37.76	61.0	375	0.20	78.41	0.48	0.71	0.70
		176A	177A	0.12		9	31.64	3533	2.4	19.86	0.00		0.00		0.93	0.10	0.12	32.57	17.91	37.88	9.5	375	0.20	78.41	0.48	0.71	0.70
		177A	178A	0.02		0	31.66	3533	2.4	19.86	0.00		0.00		0.93	0.10	0.02	32.59	17.92	37.89	60.0	375	0.20	78.41	0.48	0.71	0.70
		178A	179A				31.66	3533	2.4	19.86	0.00		0.00		0.93	0.10	0.00	32.59	17.92	37.89	24.5	375	0.20	78.41	0.48	0.71	0.70
		179A	180A				31.66	3533	2.4	19.86	0.00		0.00		0.93	0.10	0.00	32.59	17.92	37.89	16.5	375	0.20	78.41	0.48	0.71	0.70
		180A	283A				31.66	3533	2.4	19.86	0.00		0.00		0.93	0.10	0.00	32.59	17.92	37.89	11.0	375	0.20	78.41	0.48	0.71	0.70
To Sanitary Trunk 2, Pipe 283A - 284A							31.66	3533			0.00		0.00		0.93			32.59									
Sanitary Trunk 2																											
				0.04		0	0.04	0			0.00		0.00		0.00		0.04	0.04									
				0.28		33	0.32	33			0.00		0.00		0.00		0.28	0.32									
		203A	205A	0.43		50	0.75	83	3.0	0.57	0.00		0.00		0.00	0.00	0.43	0.75	0.41	0.98	60.0	200	0.35	19.40	0.05	0.62	0.32
				0.40		46	1.15	129			0.00		0.00		0.00		0.40	1.15									
		205A	206A	0.70		82	1.85	211	2.9	1.41	0.00		0.00		0.00	0.00	0.70	1.85	1.02	2.43	74.5	200	0.35	19.40	0.13	0.62	0.42
				0.38		44	2.23	255			0.00		0.00		0.00		0.38	2.23									
		206A	217A	0.68		79	2.91	334	2.8	2.19	0.00		0.00		0.00	0.00	0.68	2.91	1.60	3.79	81.0	200	0.35	19.40	0.20	0.62	0.47
DESIGN PARAMETERS														Designed:				PROJECT:									
Park Flow =				9300	L/ha/da	0.10764		l/s/ha																			
Average Daily Flow =				200	l/p/day					Industrial Peak Factor = as per MOE Graph																	
Comm/Inst Flow =				17000	L/ha/da	0.1968		l/s/ha		Extraneous Flow =				0.550		L/s/ha											
Industrial Flow =				10000	L/ha/da	0.11574		l/s/ha		Minimum Velocity =				0.600		m/s											
Max Res. Peak Factor =				4.00						Manning's n =				(Conc)		0.013		(Pvc)		0.013							
Commercial/Inst./Park Peak Factor =				1.00						Townhouse coeff=				2.7													
Institutional =				0.20	l/s/ha					Single house coeff=				3.4													

SANITARY SEWER CALCULATION SHEET (RARE FLOWS)																														
Manning's n=0.013																														
LOCATION				RESIDENTIAL AREA AND POPULATION							COMM		INSTIT		PARK		C+I+I	INFILTRATION					PIPE							
STREET		FROM M.H.	TO M.H.	AREA	UNITS	POP.	CUMULATIVE		PEAK FACT.	PEAK FLOW (l/s)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	PEAK FLOW (l/s)	TOTAL AREA (ha)	ACCU. AREA (ha)	INFILT. FLOW (l/s)	TOTAL FLOW (l/s)	DIST (m)	DIA (mm)	SLOPE (%)	CAP. (FULL) (l/s)	RATIO Q act/Q cap	VEL.			
							AREA (ha)	POP.																			(FULL) (m/s)	(ACT.) (m/s)		
				0.12		0	3.03	334				0.00		0.00		0.00		0.12	3.03											
				0.58		67	3.61	401				0.00		0.00		0.00		0.58	3.61											
				1.17		135	4.78	536				0.00		0.00		0.00		1.17	4.78											
		217A	226A	2.13		248	6.91	784	2.7	4.94		0.00		0.00	0.00	0.00	2.13	6.91	3.80	8.74	61.5	250	0.25	29.73	0.29	0.61	0.53			
				0.12		0	7.03	784				0.00		0.00		0.00	0.12	7.03												
				0.72		83	7.75	867				0.00		0.00		0.00	0.72	7.75												
				1.15		134	8.90	1001				0.00		0.00		0.00	1.15	8.90												
		226A	228A	1.30		98	10.20	1099	2.7	6.78		0.00		0.00	0.00	0.00	1.30	10.20	5.61	12.39	60.0	250	0.25	29.73	0.42	0.61	0.58			
		228A	229A	0.16		0	10.36	1099	2.7	6.78		0.00		0.00	1.85	1.85	0.20	2.01	12.21	6.72	13.69	69.5	250	0.30	32.57	0.42	0.66	0.63		
		229A	230A	0.16		0	10.52	1099	2.7	6.78		0.00		0.00	1.85	0.20	0.16	12.37	6.80	13.78	67.5	300	0.20	43.25	0.32	0.61	0.54			
		230A	231A	0.04		0	10.56	1099	2.7	6.78		0.00		0.00	1.85	0.20	0.04	12.41	6.83	13.80	15.5	300	0.20	43.25	0.32	0.61	0.54			
				0.08		0	10.64	1099				0.00		0.00	1.85		0.08	12.49												
				0.81		61	11.45	1160				0.00		0.00	1.85		0.81	13.30												
				2.74		787	14.19	1947				0.00		0.00	1.85		2.74	16.04												
				3.34		244	17.53	2191				0.00		0.00	1.85		3.34	19.38												
		231A	265A	3.90		452	21.43	2643	2.5	15.25		0.00		0.00	1.85	0.20	3.90	23.28	12.80	28.26	39.0	300	0.20	43.25	0.65	0.61	0.65			
		265A	266A	0.06		0	21.49	2643	2.5	15.25		0.00		0.00	1.85	0.20	0.06	23.34	12.84	28.29	34.5	300	0.20	43.25	0.65	0.61	0.65			
		266A	267A	0.14		0	21.63	2643	2.5	15.25		0.00		0.00	1.85	0.20	0.14	23.48	12.91	28.37	80.0	300	0.20	43.25	0.66	0.61	0			

SANITARY SEWER CALCULATION SHEET (ANNUAL FLOWS)

Manning's $n=0.013$

LOCATION			RESIDENTIAL AREA AND POPULATION					COMM		INSTT		PARK		C+H	INFILTRATION					PIPE									
STREET		FROM M.H.	TO M.H.	AREA	UNITS	POP.	CUMULATIVE	PEAK FACT.	PEAK FLOW	AREA	ACCU. AREA	AREA	ACCU. AREA	AREA	ACCU. AREA	PEAK FLOW	TOTAL AREA	ACCU. AREA	INFILT. FLOW	TOTAL FLOW	DIST	DIA	SLOPE	CAP. (FULL)	RATIO Q act/Q cap	VEL.			
				(ha)			(ha)		(l/s)	(ha)	(ha)	(ha)	(ha)	(ha)	(ha)	(l/s)	(ha)	(ha)	(l/s)	(l/s)	(m)	(mm)	(%)	(l/s)		(FULL) (m/s)	(ACT.) (m/s)		
Sanitary Trunk 1																													
				0.10		0	0.10	0					0.00		0.00		0.93	0.93		1.03	1.03								
				0.85		98	0.95	98					0.00		0.00			0.93		0.85	1.88								
				1.84		214	2.79	312					0.00		0.00			0.93		1.84	3.72								
				2.68		770	5.47	1082					0.00		0.00			0.93		2.68	6.40								
		120A	135A	2.96		221	8.43	1303	2.6	7.94			0.00		0.00		0.93	0.10	2.96	9.36	2.81	10.85	63.0	300	0.20	43.25	0.25	0.61	0.51
				0.20		23	8.63	1326					0.00		0.00		0.93		0.20	9.56									
				1.10		127	9.73	1453					0.00		0.00		0.93		1.10	10.66									
				1.30		152	11.03	1605					0.00		0.00		0.93		1.30	11.96									
				1.70		196	12.73	1801					0.00		0.00		0.93		1.70	13.66									
		135A	139A	2.43		184	15.16	1985	2.6	11.73			0.00		0.00		0.93	0.10	2.43	16.09	4.83	16.66	60.0	300	0.20	43.25	0.39	0.61	0.57
				0.23		27	15.39	2012					0.00		0.00		0.93		0.23	16.32									
				0.24		18	15.63	2030					0.00		0.00		0.93		0.24	16.56									
	Sanitary Trunk 1	139A	143A	1.28		148	16.91	2178	2.5	12.78			0.00		0.00		0.93	0.10	1.28	17.84	5.35	18.23	60.0	300	0.20	43.25	0.42	0.61	0.58
				0.20		23	17.11	2201					0.00		0.00		0.93		0.20	18.04									
				0.29		22	17.40	2223					0.00		0.00		0.93		0.29	18.33									
		143A	159A	1.28		148	18.68	2371	2.5	13.81			0.00		0.00		0.93	0.10	1.28	19.61	5.88	19.79	60.0	300	0.20	43.25	0.46	0.61	0.60
				0.20		23	18.88	2394					0.00		0.00		0.93		0.20	19.81									
				0.65		51	19.53	2445					0.00		0.00		0.93		0.65	20.46									
				1.36		101	20.89	2546					0.00		0.00		0.93		1.36	21.82									
		159A	166A	4.27		483	25.16	3029	2.5	17.27			0.00		0.00		0.93	0.10	4.27	26.09	7.83	25.20	60.0	300	0.20	43.25	0.58	0.61	0.63
				0.23		27	25.39	3056					0.00		0.00		0.93		0.23	26.32									
		166A	169A	2.26		171	27.65	3227	2.4	18.30			0.00		0.00		0.93	0.10	2.26	28.58	8.57	26.97	60.0	300	0.20	43.25	0.62	0.61	0.64
				0.20		23	27.85	3250					0.00		0.00		0.93		0.20	28.78									
		169A	172A	0.96		73	28.81	3323	2.4	18.79			0.00		0.00		0.93	0.10	0.96	29.74	8.92	27.81	60.0	300	0.20	43.25	0.64	0.61	0.65
				0.05		0	28.86	3323					0.00		0.00		0.93		0.05	29.79									
				0.20		15	29.06	3338					0.00		0.00		0.93		0.20	29.99									
		172A	173A	1.31		99	30.37	3437	2.4	19.37			0.00		0.00		0.93	0.10	1.31	31.30	9.39	28.86	60.0	375	0.20	78.41	0.37	0.71	0.65
		173A	174A	0.37		28	30.74	3465	2.4	19.52			0.00		0.00		0.93	0.10	0.37	31.67	9.50	29.12	72.5	375	0.20	78.41	0.37	0.71	0.66
		174A	175A	0.42		32	31.16	3497	2.4	19.68			0.00		0.00		0.93	0.10	0.42	32.09	9.63	29.41	70.5	375	0.20	78.41	0.38	0.71	0.66
		175A	176A	0.36		27	31.52	3524	2.4	19.82			0.00		0.00		0.93	0.10	0.36	32.45	9.74	29.65	61.0	375	0.20	78.41	0.38	0.71	0.66
		176A	177A	0.12		9	31.64	3533	2.4	19.86			0.00		0.00		0.93	0.10	0.12	32.57	9.77	29.73	9.5	375	0.20	78.41	0.38	0.71	0.66
		177A	178A	0.02		0	31.66	3533	2.4	19.86			0.00		0.00		0.93	0.10	0.02	32.59	9.78	29.74	60.0	375	0.20	78.41	0.38	0.71	0.66
		178A	179A				31.66	3533	2.4	19.86			0.00		0.00		0.93	0.10	0.00	32.59	9.78	29.74	24.5	375	0.20	78.41	0.38	0.71	0.66
		179A	180A				31.66	3533	2.4	19.86			0.00		0.00		0.93	0.10	0.00	32.59	9.78	29.74	16.5	375	0.20	78.41	0.38	0.71	0.66
		180A	283A				31.66	3533	2.4	19.86			0.00		0.00		0.93	0.10	0.00	32.59	9.78	29.74	11.0	375	0.20	78.41	0.38	0.71	0.66
To Sanitary Trunk 2, Pipe 283A - 284A							31.66	3533					0.00		0.00		0.93		32.59										
Sanitary Trunk 2																													
				0.04		0	0.04	0					0.00		0.00			0.04	0.04										
				0.28		33	0.32	33					0.00		0.00			0.28	0.32										
		203A	205A	0.43		50	0.75	83	3.0	0.57			0.00		0.00		0.00	0.00	0.43	0.75	0.23	0.79	60.0	200	0.35	19.40	0.04	0.62	0.30
				0.40		46	1.15	129					0.00		0.00			0.40	1.15										
		205A	206A	0.70		82	1.85	211	2.9	1.41			0.00		0.00		0.00	0.70	1.85	0.56	1.96	74.5	200	0.35	19.40	0.10	0.62	0.39	
				0.38		44	2.23	255					0.00		0.00			0.38	2.23										
		206A	217A	0.68		79	2.91	334	2.8	2.19			0.00		0.00		0.00	0.68	2.91	0.87	3.06	81.0	200	0.35	19.40	0.16	0.62	0.45	
DESIGN PARAMETERS													Designed:					PROJECT:											
Park Flow =				9300	L/ha/da		0.10764	l/s/ha																					
Average Daily Flow =				200	l/p/day																								
Comm/Inst Flow =				17000	L/ha/da		0.1968	l/s/ha		Industrial Peak Factor = as per MOE Graph																			
Industrial Flow =				10000	L/ha/da		0.11574	l/s/ha		Extraneous Flow = 0.300 l/s/ha																			
Max Res. Peak Factor =				4.00								Minimum Velocity = 0.600 m/s																	
Commercial/Inst./Park Peak Factor =				1.00								Manning's n = (Conc) 0.013 (Pvc) 0.013																	
Institutional =				0.20	l/s/ha							Townhouse coeff= 2.7					Dwg. Reference:												
												Single house coeff= 3.4					Sanitary Drainage Plan, Dwg. No.												
													File Ref:					Date:					Sheet No. of						
																		30 Jul 2024					1 of 2						

SANITARY SEWER CALCULATION SHEET (ANNUAL FLOWS)																													
Manning's n=0.013																													
LOCATION				RESIDENTIAL AREA AND POPULATION							COMM		INSTIT		PARK		C+I	INFILTRATION					PIPE						
STREET		FROM M.H.	TO M.H.	AREA	UNITS	POP.	CUMULATIVE		PEAK FACT.	PEAK FLOW (l/s)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	PEAK FLOW (l/s)	TOTAL AREA (ha)	ACCU. AREA (ha)	INFILT. FLOW (l/s)	TOTAL FLOW (l/s)	DIST (m)	DIA (mm)	SLOPE (%)	CAP. (FULL) (l/s)	RATIO Q act/Q cap	VEL.		
							AREA (ha)	POP.																			(FULL) (m/s)	(ACT.) (m/s)	
				0.12		0	3.03	334				0.00		0.00		0.00		0.12	3.03										
				0.58		67	3.61	401				0.00		0.00		0.00		0.58	3.61										
				1.17		135	4.78	536				0.00		0.00		0.00		1.17	4.78										
		217A	226A	2.13		248	6.91	784	2.7	4.94		0.00		0.00	0.00	0.00	2.13	6.91	2.07	7.01	61.5	250	0.25	29.73	0.24	0.61	0.50		
				0.12		0	7.03	784				0.00		0.00		0.00	0.12	7.03											
				0.72		83	7.75	867				0.00		0.00		0.00	0.72	7.75											
				1.15		134	8.90	1001				0.00		0.00		0.00	1.15	8.90											
		226A	228A	1.30		98	10.20	1099	2.7	6.78		0.00		0.00	0.00	0.00	1.30	10.20	3.06	9.84	60.0	250	0.25	29.73	0.33	0.61	0.54		
		228A	229A	0.16		0	10.36	1099	2.7	6.78		0.00		0.00	1.85	1.85	0.20	2.01	12.21	3.66	10.64	69.5	250	0.30	32.57	0.33	0.66	0.59	
		229A	230A	0.16		0	10.52	1099	2.7	6.78		0.00		0.00	1.85	0.20	0.16	12.37	3.71	10.69	67.5	300	0.20	43.25	0.25	0.61	0.50		
		230A	231A	0.04		0	10.56	1099	2.7	6.78		0.00		0.00	1.85	0.20	0.04	12.41	3.72	10.70	15.5	300	0.20	43.25	0.25	0.61	0.50		
				0.08		0	10.64	1099				0.00		0.00	1.85		0.08	12.49											
				0.81		61	11.45	1160				0.00		0.00	1.85		0.81	13.30											
				2.74		787	14.19	1947				0.00		0.00	1.85		2.74	16.04											
				3.34		244	17.53	2191				0.00		0.00	1.85		3.34	19.38											
		231A	265A	3.90		452	21.43	2643	2.5	15.25		0.00		0.00	1.85	0.20	3.90	23.28	6.98	22.44	39.0	300	0.20	43.25	0.52	0.61	0.62		
		265A	266A	0.06		0	21.49	2643	2.5	15.25		0.00		0.00	1.85	0.20	0.06	23.34	7.00	22.45	34.5	300	0.20	43.25	0.52	0.61	0.62		
		266A	267A	0.14		0	21.63	2643	2.5	15.25		0.00		0.00	1.85	0.20	0.14	23.48	7.04	22.50	80.0	300	0.20	43.25	0.52	0.61	0.62		

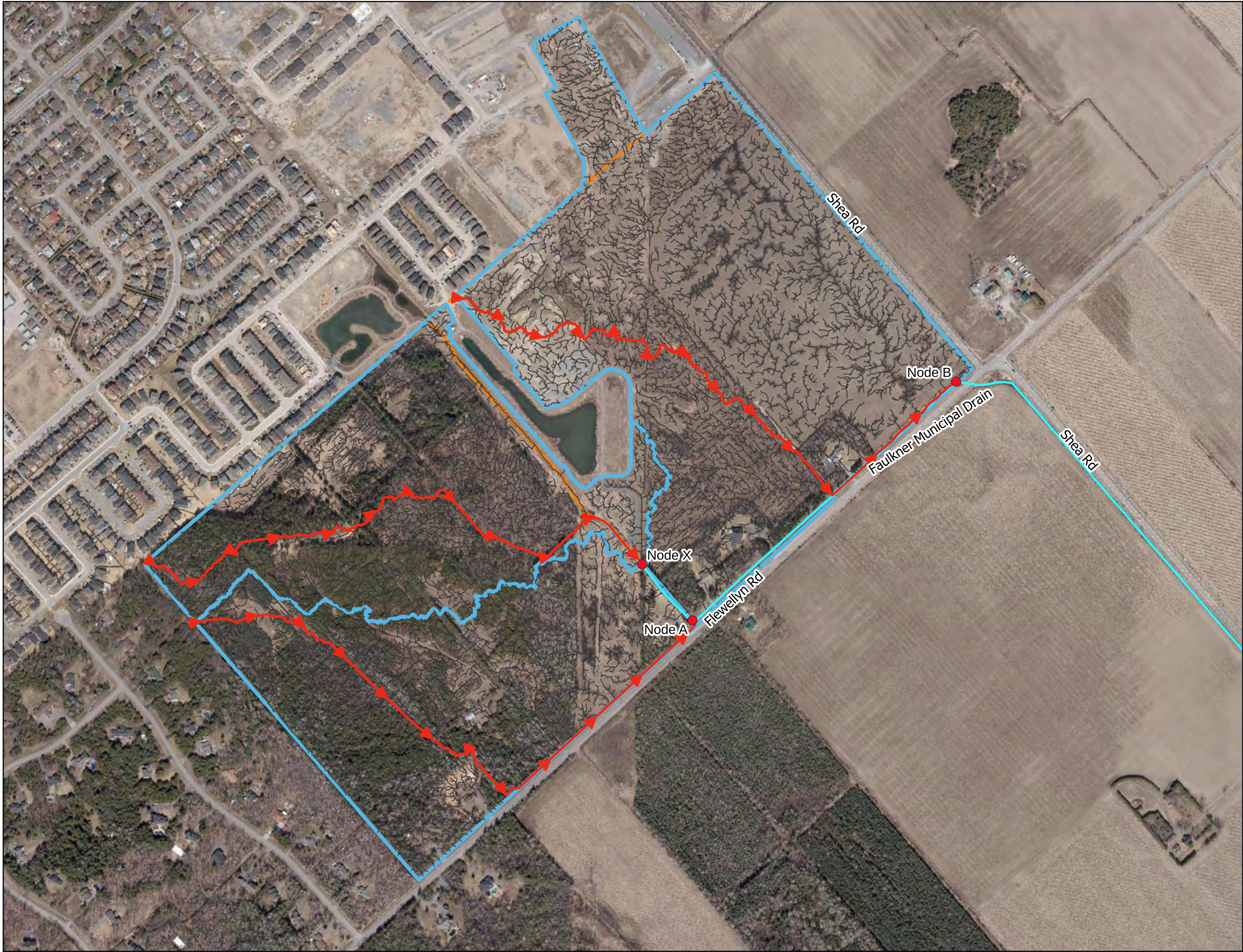


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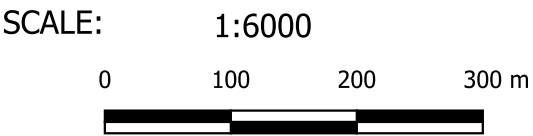
Attachment B

Existing/Pre-Development Conditions Simulations



Legend

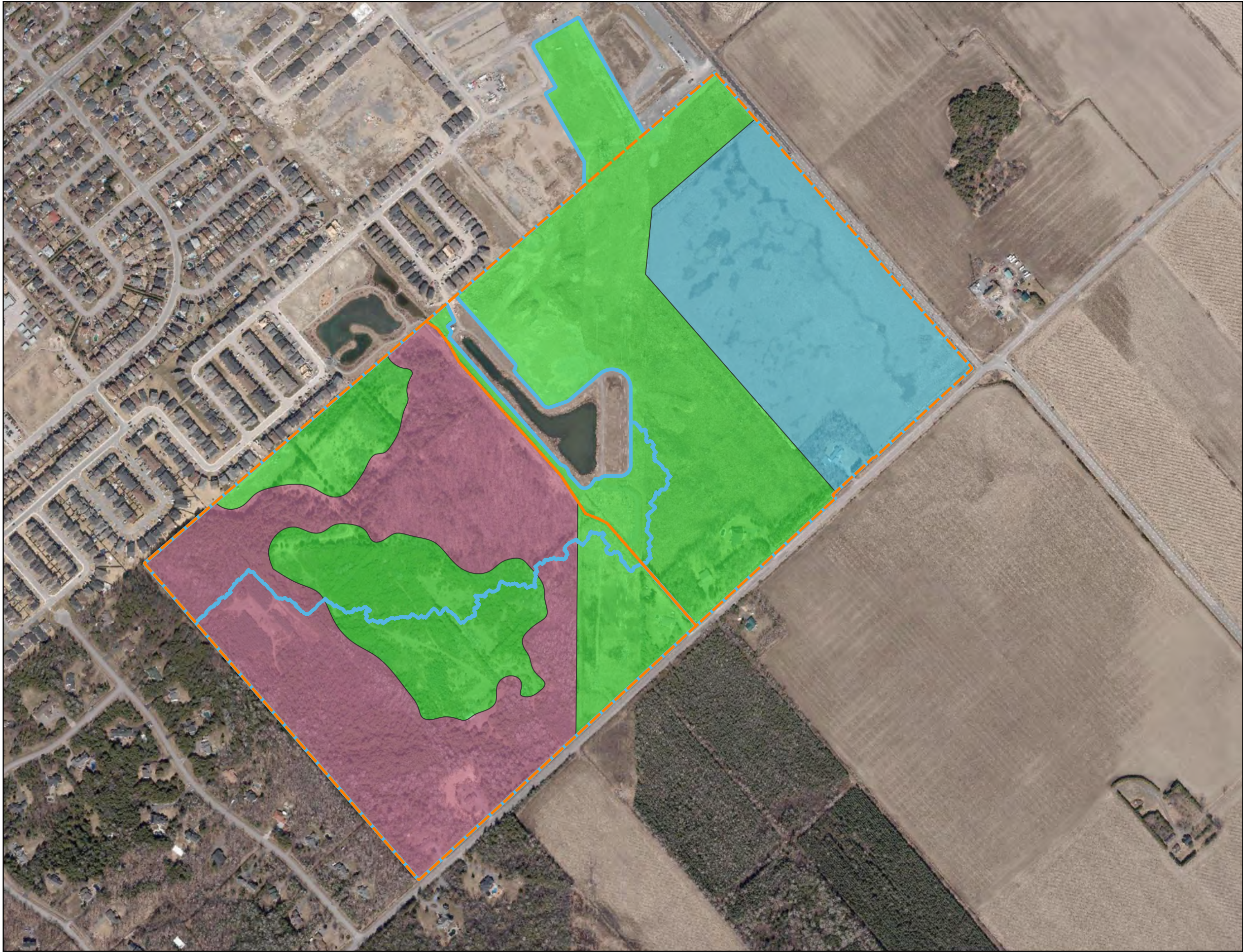
- Drainage Areas
- Development Area
- Pre-Development Nodes
- Flow Paths
- Faulkner Municipal Drain
- Drainage Pattern



Caivan - Stittsville Lands

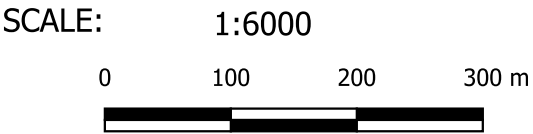
Figure B1: Existing/Pre-Development Drainage Patterns

PROJECT	P2267
DRAWN	PP
DATE	AUG 2024



Legend

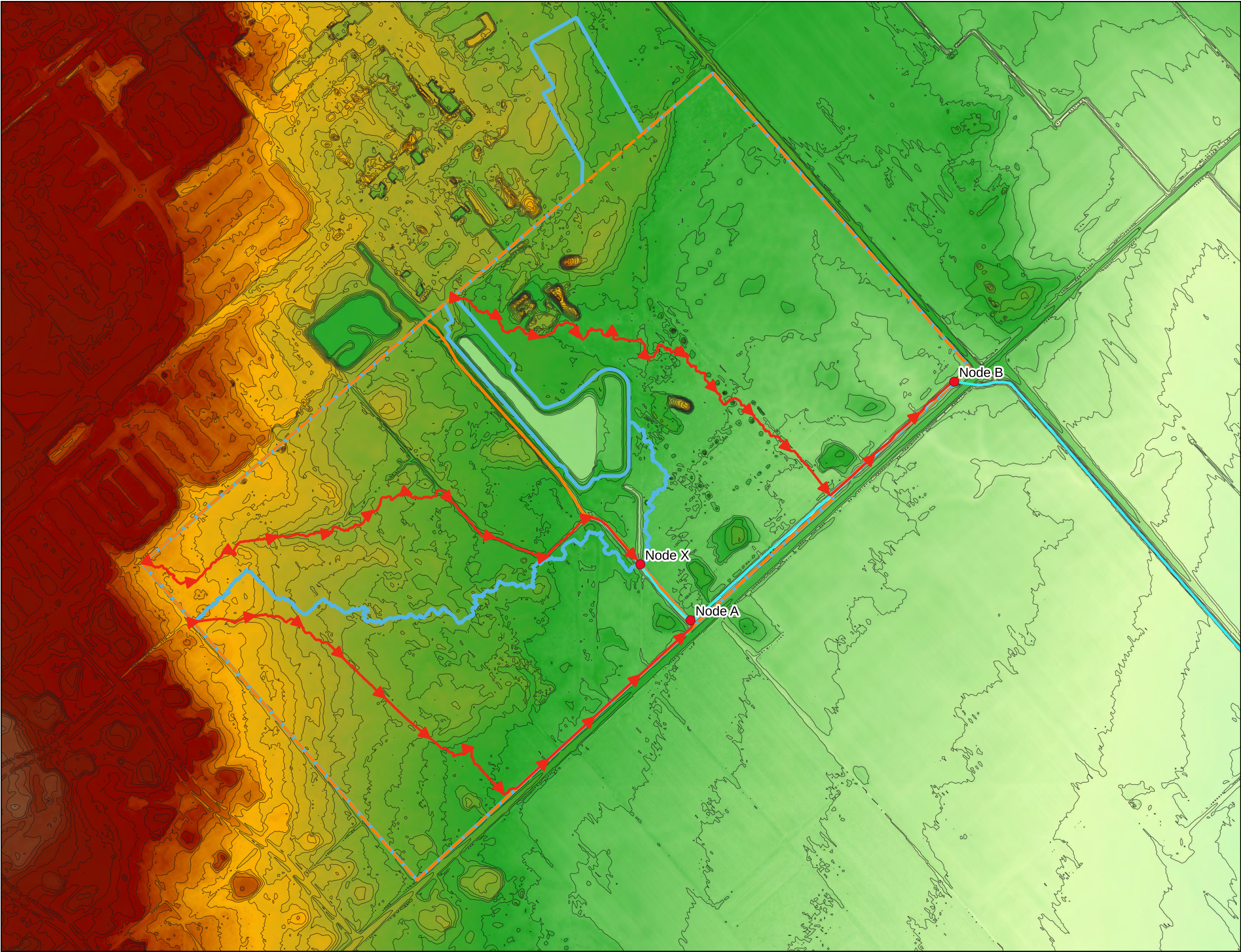
-  Development Area
-  Drainage Areas
-  Mature Forest
-  Pasture and Shrubs
-  Urban Lawn/
Shallow Rooted Crops



Caivan - Stittsville Lands

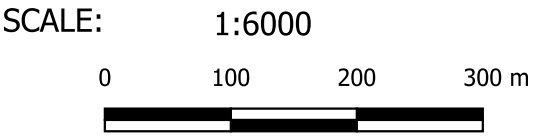
Figure B2: Land Use

PROJECT	P2267
DRAWN	PP
DATE	AUG 2024



Legend

- Development Area
- Drainage Areas
- Pre-Development Nodes
- Flow Lengths
- Faulkner Municipal Drain
- Terrain (m)
 - 98
 - 100
 - 103
 - 106
 - 109
 - 112
 - 115
 - 118
 - 121
 - 124



Caivan - Stittsville Lands

Figure B3: Flow Lengths

PROJECT	P2267
DRAWN	PP
DATE	AUG 2024

Table B1: Calculation of SCS Curve Number (CN) and Modified Curve Number (CN*)

Sb (36.62 ha)							
Area (ha)	Land Type	Soil Name	Soil Condition	Soil Group	CN	% of Catchment	Weighted CN
15.660	Urban Lawn/Shallow Rooted Crops	Fine Sandy Loam	C	Fair	79	42.8%	33.8
20.960	Pasture and Shrubs	Fine Sandy Loam	C	Fair	70	57.2%	40.1
						CN	73.8
						CN*	64

Sx (21.02 ha)							
Area (ha)	Land Type	Soil Name	Soil Condition	Soil Group	CN	% of Catchment	Weighted CN
11.760	Mature Forest	Fine Sandy Loam	C	Fair	73	55.9%	40.8
9.260	Pasture and Shrubs	Fine Sandy Loam	C	Fair	70	44.1%	30.8
						CN	71.7
						CN*	61

Sa (20.87 ha)							
Area (ha)	Land Type	Soil Name	Soil Condition	Soil Group	CN	% of Catchment	Weighted CN
13.230	Mature Forest	Fine Sandy Loam	C	Fair	73	63.4%	46.3
7.640	Pasture and Shrubs	Fine Sandy Loam	C	Fair	70	36.6%	25.6
						CN	71.9
						CN*	61

Table B2: Time to Peak Calculations

Parameter	Units	Sb	Sx	Sa
Area	ha	36.62	21.02	20.87
CN*	-	64	61	61
Ptotal to calc C from CN, use 2 yr 3 hr Chicago stom	P(mm)	33.2	33.2	33.2
	Ia(mm)	4.67	4.67	4.67
	RV(mm)	4.7	4.2	4.3
Ptotal to calc C from CN, use 2 yr 24 hr SCS stom	P(mm)	52.77	52.77	52.77
	RV(mm)	12.0	10.9	11.0
C (From Chicago storm)	-	0.14	0.13	0.13
C (From SCS storm)	-	0.23	0.21	0.21
Length of Channel	m	1285	1119	1127
	ft	4214	3671	3697
Elevation of Head Water	m	104.35	109.56	109.66
	ft	342	359	360
Elevation of Outlet	m	99.68	101.46	100.83
	ft	327	333	331
Average Slope	m/m	0.0036	0.0072	0.0078
	ft/ft	0.36%	0.72%	0.78%
Kirpich				
Time of Concentration	mins	42	29	28
Time to Peak	min	28	19	19
Time to Peak	Hours	0.47	0.32	0.31
FAA (From Chicago storm)				
Time of Concentration	mins	157	118	115
Time to Peak	mins	105	79	77
Time to Peak	Hours	1.74	1.31	1.28
FAA (From SCS storm)				
Time of Concentration	mins	143	109	106
Time to Peak	mins	95	72	71
Time to Peak	Hours	1.59	1.21	1.18
Bransby Williams				
Time of Concentration	mins	63	51	50
Time to Peak	mins	42	34	33
Time to Peak	Hours	0.70	0.56	0.56
SCS				
Time of Concentration	mins	262	180	172
Time to Peak	mins	175	120	115
Time to Peak	Hours	2.91	1.99	1.91
Selected Method				
FAA (From Chicago storm)				
Time to Peak	min	105	79	77
Time to Peak	Hours	1.74	1.31	1.28

Note:

All methods calculated as per Appendix A of the SWMHYMO manual

Time to Peak calculated as 2/3 Time of concentration

Table B3: Pre-Development Peak Flows & Runoff Volumes

Event	Node X		Node A		Node B	
	Peak Flows ⁽¹⁾ (m ³ /s)	Runoff Volume (m ³)	Peak Flows ⁽¹⁾ (m ³ /s)	Runoff Volume (m ³)	Peak Flows ⁽¹⁾ (m ³ /s)	Runoff Volume (m ³)
25mm CHI 3Hr	0.044	475	0.089	947	0.152	1,876
2-Year CHI 3Hr	0.077	820	0.154	1,634	0.266	3,227
5-Year CHI 3Hr	0.142	1,503	0.284	2,995	0.492	5,896
10-Year CHI 3Hr	0.193	2,039	0.387	4,063	0.671	7,984
25-Year CHI 3Hr	0.265	2,791	0.532	5,563	0.920	10,913
50-Year CHI 3Hr	0.325	3,416	0.652	6,807	1.128	13,331
100-Year CHI 3Hr	0.392	4,114	0.787	8,198	1.362	16,032
2-Year SCS 24 Hr	0.121	1,955	0.242	3,896	0.415	7,655
5-Year SCS 24 Hr	0.210	3,346	0.422	6,669	0.726	13,064
10-Year SCS 24 Hr	0.278	4,397	0.558	8,763	0.960	17,131
25-Year SCS 24 Hr	0.370	5,808	0.743	11,574	1.279	22,572
50-Year SCS 24 Hr	0.446	6,977	0.896	13,903	1.543	27,062
100-Year SCS 24 Hr	0.532	8,280	1.069	16,500	1.840	32,071
2-year 12-hr SCS	0.114	1,553	0.228	3,096	0.390	6,092
5-year 12-hr SCS	0.203	2,735	0.407	5,450	0.700	10,693
10-year 12-hr SCS	0.273	3,653	0.548	7,280	0.941	14,250
25-year 12-hr SCS	0.366	4,866	0.734	9,698	1.262	18,937
50-year 12-hr SCS	0.445	5,892	0.893	11,742	1.535	22,894
100-year 12-hr SCS	0.523	6,909	1.051	13,769	1.806	26,811

⁽¹⁾ Target flows based on peak pre-development flows

```
00001: 20 Metric units / ID Numbers OFF
00002: #####
00003: # SWMHYMO Ver:5.500/Feb 2015 / INPUT DATA FILE
00004: #####
00005: # Project Name : [Calvan Brittville West properties]
00006: # Project Number: [2267]
00007: # Date : [2024/08/02]
00008: # Modeller : [JF]
00009: # Company : J.F. Sabourin and Associates
00010: # License # : 254837
00011: #####
00012: # 25 mm Storm based on 3-Year, 3-hour Chicago Storm
00013: START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[001]
00014: # "25MMCH.stm" <--storm filename, one per line for NSTORM time
00015: #####
00016: READ STORM STORM_FILENAME=[storm.001]
00017: #####
00018: DEFAULT VALUES ICAESdef=[1], read and print values
00019: DERVAL_FILENAME=[Ottawa.val]
00020: #####
00021: #####
00022: # Pce Development Condition
00023: #####
00024: # Node X
00025: DESIGN NASHVD NHYD=[*x*], DT=[1]min, AREA=[21.02] (ha),
00026: DWF=[0] (cms), CN/C=[61], TP=[1.31]hrs,
00027: RAINFALL=[ , , , ] (mm/hr), END=-1
00028: #####
00029: #####
00030: # Total Flow at Node X NodeA = B0
00031: #####
00032: ADD HYD NHYDsum=[*NodeA*], NHYDs to add=[*sa*]
00033: #####
00034: #####
00035: # Channel Routing from Node X to Node A
00036: #####
00037: # Faulkner Drain Cross Section 5260 from HEC-RAS model
00038: ROUTE CHANNEL NHYDout=[*NodeA-x*], NHYDin=[*NodeA*],
00039: RDT=[1] (min),
00040: CHLGR=[120] (m), CHSLOPE=[0.38] (%),
00041: SECNUM=[1.0], FFSLOPE=[0.38] (%),
00042: #####
00043: (SEGR008,SEGRDIST(m))=[0.1,347.22 0.035,364.32 0.03,381.27] NSEG times
00044: (DISTANCE (m), ELEVATION (m))=
00045: [168.62 , 102.94]
00046: [344.23 , 102.57]
00047: [347.22 , 102.52]
00048: [350.21 , 102.52]
00049: [351.21 , 102.5]
00050: [352.21 , 102.44]
00051: [355.58 , 101.35]
00052: [357.94 , 101.02]
00053: [360.74 , 101.39]
00054: [363.41 , 102.35]
00055: [364.08 , 102.43]
00056: [364.32 , 102.46]
00057: [365.32 , 102.54]
00058: [368.31 , 102.68]
00059: [376.28 , 102.88]
00060: [381.27 , 102.9]
00061: #####
00062: #####
00063: # Node A
00064: DESIGN NASHVD NHYD=[*sa*], DT=[1]min, AREA=[20.87] (ha),
00065: DWF=[0] (cms), CN/C=[61], TP=[1.28]hrs,
00066: RAINFALL=[ , , , ] (mm/hr), END=-1
00067: #####
00068: #####
00069: # Total Flow at Node A (NodeA = NodeA-r + sa)
00070: #####
00071: ADD HYD NHYDsum=[*NodeA*], NHYDs to add=[*NodeA-r* + *sa*]
00072: #####
00073: #####
00074: # Channel Routing from Node A to Node B
00075: #####
00076: # Faulkner Drain Cross Section 4840 from HEC-RAS model
00077: ROUTE CHANNEL NHYDout=[*NodeA-r*], NHYDin=[*NodeA*],
00078: RDT=[1] (min),
00079: CHLGR=[173] (m), CHSLOPE=[0.20] (%),
00080: #####
00081: SECNUM=[1.0], NSEG=[4]
00082: (SEGR008,SEGRDIST(m))=[0.1,274.44 0.03,279.44 0.035,293.89 0.02,305.08] NSEG times
00083: (DISTANCE (m), ELEVATION (m))=
00084: [4.88 , 102.77]
00085: [274.44 , 102.03]
00086: [274.45 , 102.03]
00087: [279.45 , 101.96]
00088: [279.44 , 101.84]
00089: [279.44 , 101.74]
00090: [282.07 , 103.7]
00091: [283.33 , 101.49]
00092: [284.93 , 100.46]
00093: [286.58 , 100.25]
00094: [288.33 , 99.89]
00095: [291.06 , 100.35]
00096: [293.89 , 101.82]
00097: [296.37 , 101.82]
00098: [297.18 , 102.01]
00099: [301.12 , 102.39]
00100: [302.1 , 102.44]
00101: [305.08 , 102.46]
00102: #####
00103: #####
00104: # Node B
00105: DESIGN NASHVD NHYD=[*sb*], DT=[1]min, AREA=[36.62] (ha),
00106: DWF=[0] (cms), CN/C=[64], TP=[1.74]hrs,
00107: RAINFALL=[ , , , ] (mm/hr), END=-1
00108: #####
00109: #####
00110: # Total Flow at Node B (NodeB = NodeB-r + B0)
00111: #####
00112: ADD HYD NHYDsum=[*NodeB*], NHYDs to add=[*NodeB-r* + *B0*]
00113: #####
00114: #####
00115: # STORM
00116: #####
00117: # 25 mm Storm based on 3-Year, 3-hour Chicago Storm
00118: *START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[001]
00119: # "25MMCH.stm" <--storm filename, one per line for NSTORM time
00120: #####
00121: # 2-Year, 3-Hour Chicago Storm
00122: START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[002]
00123: # "002YCH.stm" <--storm filename, one per line for NSTORM time
00124: #####
00125: # 5-Year, 3-Hour Chicago Storm
00126: START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[005]
00127: # "005YCH.stm" <--storm filename, one per line for NSTORM time
00128: #####
00129: # 10-Year, 3-Hour Chicago Storm
00130: START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[010]
00131: # "010YCH.stm" <--storm filename, one per line for NSTORM time
00132: #####
00133: # 25-Year, 3-Hour Chicago Storm
00134: START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[025]
00135: # "025YCH.stm" <--storm filename, one per line for NSTORM time
00136: #####
00137: # 50-Year, 3-Hour Chicago Storm
00138: START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[050]
00139: # "050YCH.stm" <--storm filename, one per line for NSTORM time
00140: #####
00141: # 100-Year, 3-Hour Chicago Storm
00142: START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[099]
00143: # "100YCH.stm" <--storm filename, one per line for NSTORM time
00144: #####
00145: # 2-Year, 24-Hour SCS Storm
00146: START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[102]
00147: # "SC24002x.stm" <--storm filename, one per line for NSTORM time
00148: #####
00149: # 5-Year, 24-Hour SCS Storm
00150: START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[105]
00151: # "SC24005x.stm" <--storm filename, one per line for NSTORM time
00152: #####
00153: # 10-Year, 24-Hour SCS Storm
00154: START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[110]
00155: # "SC24010x.stm" <--storm filename, one per line for NSTORM time
00156: #####
00157: # 25-Year, 24-Hour SCS Storm
00158: START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[125]
00159: # "SC24025x.stm" <--storm filename, one per line for NSTORM time
00160: #####
00161: # 50-Year, 24-Hour SCS Storm
00162: START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[150]
00163: # "SC24050x.stm" <--storm filename, one per line for NSTORM time
00164: #####
00165: # 100-Year, 24-Hour SCS Storm
00166: START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[199]
00167: # "SC24100x.stm" <--storm filename, one per line for NSTORM time
00168: #####
00169: # 2-Year, 12-Hour SCS Storm (per City of Ottawa Carp River PCNMM model)
00170: START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[202]
00171: # "SC12002c.stm" <--storm filename, one per line for NSTORM time
00172: #####
00173: # 5-Year, 12-Hour SCS Storm (per City of Ottawa Carp River PCNMM model)
00174: START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[205]
00175: # "SC12005c.stm" <--storm filename, one per line for NSTORM time
00176: #####
00177: # 10-Year, 12-Hour SCS Storm (per City of Ottawa Carp River PCNMM model)
00178: START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[210]
00179: # "SC12010c.stm" <--storm filename, one per line for NSTORM time
00180: #####
00181: # 25-Year, 12-Hour SCS Storm (per City of Ottawa Carp River PCNMM model)
00182: START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[225]
00183: # "SC12025c.stm" <--storm filename, one per line for NSTORM time
00184: #####
00185: # 50-Year, 12-Hour SCS Storm (per City of Ottawa Carp River PCNMM model)
00186: START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[250]
00187: # "SC12050c.stm" <--storm filename, one per line for NSTORM time
00188: #####
00189: # 100-Year, 12-Hour SCS Storm (per City of Ottawa Carp River PCNMM model)
00190: START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[299]
00191: # "SC12100c.stm" <--storm filename, one per line for NSTORM time
00192: #####
00193: # July 1st, 1979 Storm - Ottawa International Airport
00194: *START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[979]
00195: # "19790701.stm" <--storm filename, one per line for NSTORM time
00196: #####
00197: # August 4th, 1988 Storm - Ottawa International Airport
00198: *START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[988]
00199: # "19880804.stm" <--storm filename, one per line for NSTORM time
00200: #####
00201: # August 8th, 1996 Storm - Ottawa International Airport
00202: *START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[996]
00203: # "19960808.stm" <--storm filename, one per line for NSTORM time
00204: #####
00205: # 100-Year, 3-Hour Chicago Storm + 20%
00206: *START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[999]
00207: # "100YCH.stm" <--storm filename, one per line for NSTORM time
00208: #####
00209: FINISH
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003611 + 1.0 02:0b 36.62 .223 No_date 3:17 7.92 n/a .000
003621 SWMNO CHICAGO STORM 78.51 .492 No_date 3:12 7.51 n/a .000
003631 #####
003641 # STORMS
003651 #####
003661 ** END OF RUN : 9
003671 #####
003681 #####
003691 #####
003701 #####
003711 #####
003721 #####
003731 #####
003741 RUN# COMMAND#
003751 #####
003761 START
003771 (TZERO = .00 hrs on 0)
003781 (METOUT= 2 (1=imperial, 2=metric output))
003791 (NTRMOUT= 2)
003801 (NRUN = 0010)
003811 #####
003821 # SWMHYMO Ver:5.00/Feb 2015 / INPUT DATA FILE
003831 #####
003841 # Project Name : [Calvan Stittville West properties]
003851 # Project Number: [2267]
003861 # Date : [2024/08/02]
003871 # Modeler : [J.P.]
003881 # Company : J.P. Sabourin and Associates
003891 # License # : 2549237
003901 #####
003911 R0010:C0002-----
003921 READ STORM
003931 File name = storm.001
003941 Comment = CHICAGO STORM 10 Year, 3 Hours
003951 (SDT=10.00:SDRM= 3.00:PTOT= 49.30)
003961 R0010:C0003-----
003971 #####
003981 DEFAULT VALUES
003991 File name = C:\Temp\SWMHYMO\Pre-Dev\Ottawa.val
004001 ICASEDEV = 1 (read and print data)
004011 FileTitle= File comment: [Parameters for City of Ottawa Projects]
004021 THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDARD COM
004031 Horton's infiltration equation parameters:
004041 [F= 76.20 mm/hr] [F=13.20 mm/hr] [DCAV= 4.14 hr] [P= .00 mm]
004051 Parameters for PERVIOUS surfaces in STANDNOYD:
004061 [Iaper= 4.67 mm] [LDP=40.00 m] [MNP= .250]
004071 Parameters for IMPERVIOUS surfaces in STANDNOYD:
004081 [Ialmp= 1.57 mm] [CIS= 1.50] [MNI= .013]
004091 Parameters used in NABSTDY:
004101 [Ia= 4.67 mm] [W= 3.00]
004111 Average monthly Pan Evaporation data in (mm)
004121 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
004131 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
004141 Average monthly Potential Evapotranspiration in (mm)
004151 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
004161 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
004171 # Pre Development Condition
004181 #####
004191 # Node X
004201 R0010:C0004-----
004211 DESIGN NABSTDY 1.0 01:0b 21.02 .193 No_date 2:44 9.70 .196 .000
004221 (CIN= 61.0: B= 3.00: Tps= 1.28)
004231 #####
004241 # Total Flow at Node X (NodeX + B)
004251 #####
004261 R0010:C0005-----
004271 ADD HYD 1.0 02:0b 21.02 .193 No_date 2:44 9.70 n/a .000
004281 SUM= 1.0 01:NodeX 21.02 .193 No_date 2:44 9.70 n/a .000
004291 #####
004301 # Channel Routing from Node X to Node A
004311 #####
004321 # Faulkner Drain Cross Section 5280 from REC-RAS model
004331 R0010:C0006-----
004341 ROUTE CHANNEL > 1.0 02:NodeX 21.02 .193 No_date 2:44 9.70 n/a .000
004351 (RDT= 1.00) out<- 1.0 01:NodeA-r 21.02 .192 No_date 2:48 9.70 n/a .000
004361 (L/S/= 120./ .380/.030)
004371 (Vmax= .424:Dmax= .402)
004381 #####
004391 # Node A
004401 R0010:C0007-----
004411 DESIGN NABSTDY 1.0 01:0b 20.87 .195 No_date 2:42 9.70 .196 .000
004421 (CIN= 61.0: B= 3.00: Tps= 1.28)
004431 #####
004441 # Total Flow at Node A (NodeA + NodeX-r + B)
004451 #####
004461 R0010:C0008-----
004471 ADD HYD 1.0 02:NodeX 21.02 .192 No_date 2:48 9.70 n/a .000
004481 SUM= 1.0 02:NodeX 21.02 .192 No_date 2:48 9.70 n/a .000
004491 #####
004501 # Channel Routing from Node A to Node B
004511 #####
004521 # Faulkner Drain Cross Section 4840 from REC-RAS model
004531 R0010:C0009-----
004541 ROUTE CHANNEL > 1.0 02:NodeA 21.02 .325 No_date 2:42 16.25 n/a .000
004551 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
004561 (L/S/= 573./ .200/.020)
004571 (Vmax= .442:Dmax= .498)
004581 #####
004591 # Node B
004601 R0010:C0010-----
004611 DESIGN NABSTDY 1.0 01:0b 20.87 .325 No_date 2:42 16.25 .251 .000
004621 (CIN= 61.0: B= 3.00: Tps= 1.28)
004631 #####
004641 # Total Flow at Node B (NodeB + NodeA-r + B)
004651 #####
004661 R0010:C0011-----
004671 ADD HYD 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
004681 SUM= 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
004691 #####
004701 # Channel Routing from Node X to Node A
004711 #####
004721 # Faulkner Drain Cross Section 5280 from REC-RAS model
004731 R0010:C0012-----
004741 ROUTE CHANNEL > 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
004751 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
004761 (L/S/= 120./ .380/.030)
004771 (Vmax= .424:Dmax= .402)
004781 #####
004791 # Node A
004801 R0010:C0013-----
004811 DESIGN NABSTDY 1.0 01:0b 20.87 .325 No_date 2:42 16.25 .251 .000
004821 (CIN= 61.0: B= 3.00: Tps= 1.28)
004831 #####
004841 # Total Flow at Node A (NodeA + NodeX-r + B)
004851 #####
004861 R0010:C0014-----
004871 ADD HYD 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
004881 SUM= 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
004891 #####
004901 # Channel Routing from Node A to Node B
004911 #####
004921 # Faulkner Drain Cross Section 4840 from REC-RAS model
004931 R0010:C0015-----
004941 ROUTE CHANNEL > 1.0 02:NodeA 21.02 .325 No_date 2:42 16.25 n/a .000
004951 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
004961 (L/S/= 573./ .200/.020)
004971 (Vmax= .442:Dmax= .498)
004981 #####
004991 # Node B
005001 R0010:C0016-----
005011 DESIGN NABSTDY 1.0 01:0b 20.87 .325 No_date 2:42 16.25 .251 .000
005021 (CIN= 61.0: B= 3.00: Tps= 1.28)
005031 #####
005041 # Total Flow at Node B (NodeB + NodeA-r + B)
005051 #####
005061 R0010:C0017-----
005071 ADD HYD 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
005081 SUM= 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
005091 #####
005101 # Channel Routing from Node X to Node A
005111 #####
005121 # Faulkner Drain Cross Section 5280 from REC-RAS model
005131 R0010:C0018-----
005141 ROUTE CHANNEL > 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
005151 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
005161 (L/S/= 120./ .380/.030)
005171 (Vmax= .424:Dmax= .402)
005181 #####
005191 # Node A
005201 R0010:C0019-----
005211 DESIGN NABSTDY 1.0 01:0b 20.87 .325 No_date 2:42 16.25 .251 .000
005221 (CIN= 61.0: B= 3.00: Tps= 1.28)
005231 #####
005241 # Total Flow at Node A (NodeA + NodeX-r + B)
005251 #####
005261 R0010:C0020-----
005271 ADD HYD 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
005281 SUM= 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
005291 #####
005301 # Channel Routing from Node A to Node B
005311 #####
005321 # Faulkner Drain Cross Section 4840 from REC-RAS model
005331 R0010:C0021-----
005341 ROUTE CHANNEL > 1.0 02:NodeA 21.02 .325 No_date 2:42 16.25 n/a .000
005351 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
005361 (L/S/= 573./ .200/.020)
005371 (Vmax= .442:Dmax= .498)
005381 #####
005391 # Node B
005401 R0010:C0022-----
005411 DESIGN NABSTDY 1.0 01:0b 20.87 .325 No_date 2:42 16.25 .251 .000
005421 (CIN= 61.0: B= 3.00: Tps= 1.28)
005431 #####
005441 # Total Flow at Node B (NodeB + NodeA-r + B)
005451 #####
005461 R0010:C0023-----
005471 ADD HYD 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
005481 SUM= 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
005491 #####
005501 # Channel Routing from Node X to Node A
005511 #####
005521 # Faulkner Drain Cross Section 5280 from REC-RAS model
005531 R0010:C0024-----
005541 ROUTE CHANNEL > 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
005551 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
005561 (L/S/= 120./ .380/.030)
005571 (Vmax= .424:Dmax= .402)
005581 #####
005591 # Node A
005601 R0010:C0025-----
005611 DESIGN NABSTDY 1.0 01:0b 20.87 .325 No_date 2:42 16.25 .251 .000
005621 (CIN= 61.0: B= 3.00: Tps= 1.28)
005631 #####
005641 # Total Flow at Node A (NodeA + NodeX-r + B)
005651 #####
005661 R0010:C0026-----
005671 ADD HYD 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
005681 SUM= 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
005691 #####
005701 # Channel Routing from Node A to Node B
005711 #####
005721 # Faulkner Drain Cross Section 4840 from REC-RAS model
005731 R0010:C0027-----
005741 ROUTE CHANNEL > 1.0 02:NodeA 21.02 .325 No_date 2:42 16.25 n/a .000
005751 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
005761 (L/S/= 573./ .200/.020)
005771 (Vmax= .442:Dmax= .498)
005781 #####
005791 # Node B
005801 R0010:C0028-----
005811 DESIGN NABSTDY 1.0 01:0b 20.87 .325 No_date 2:42 16.25 .251 .000
005821 (CIN= 61.0: B= 3.00: Tps= 1.28)
005831 #####
005841 # Total Flow at Node B (NodeB + NodeA-r + B)
005851 #####
005861 R0010:C0029-----
005871 ADD HYD 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
005881 SUM= 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
005891 #####
005901 # Channel Routing from Node X to Node A
005911 #####
005921 # Faulkner Drain Cross Section 5280 from REC-RAS model
005931 R0010:C0030-----
005941 ROUTE CHANNEL > 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
005951 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
005961 (L/S/= 120./ .380/.030)
005971 (Vmax= .424:Dmax= .402)
005981 #####
005991 # Node A
006001 R0010:C0031-----
006011 DESIGN NABSTDY 1.0 01:0b 20.87 .325 No_date 2:42 16.25 .251 .000
006021 (CIN= 61.0: B= 3.00: Tps= 1.28)
006031 #####
006041 # Total Flow at Node A (NodeA + NodeX-r + B)
006051 #####
006061 R0010:C0032-----
006071 ADD HYD 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
006081 SUM= 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
006091 #####
006101 # Channel Routing from Node A to Node B
006111 #####
006121 # Faulkner Drain Cross Section 4840 from REC-RAS model
006131 R0010:C0033-----
006141 ROUTE CHANNEL > 1.0 02:NodeA 21.02 .325 No_date 2:42 16.25 n/a .000
006151 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
006161 (L/S/= 573./ .200/.020)
006171 (Vmax= .442:Dmax= .498)
006181 #####
006191 # Node B
006201 R0010:C0034-----
006211 DESIGN NABSTDY 1.0 01:0b 20.87 .325 No_date 2:42 16.25 .251 .000
006221 (CIN= 61.0: B= 3.00: Tps= 1.28)
006231 #####
006241 # Total Flow at Node B (NodeB + NodeA-r + B)
006251 #####
006261 R0010:C0035-----
006271 ADD HYD 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
006281 SUM= 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
006291 #####
006301 # Channel Routing from Node X to Node A
006311 #####
006321 # Faulkner Drain Cross Section 5280 from REC-RAS model
006331 R0010:C0036-----
006341 ROUTE CHANNEL > 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
006351 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
006361 (L/S/= 120./ .380/.030)
006371 (Vmax= .424:Dmax= .402)
006381 #####
006391 # Node A
006401 R0010:C0037-----
006411 DESIGN NABSTDY 1.0 01:0b 20.87 .325 No_date 2:42 16.25 .251 .000
006421 (CIN= 61.0: B= 3.00: Tps= 1.28)
006431 #####
006441 # Total Flow at Node A (NodeA + NodeX-r + B)
006451 #####
006461 R0010:C0038-----
006471 ADD HYD 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
006481 SUM= 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
006491 #####
006501 # Channel Routing from Node A to Node B
006511 #####
006521 # Faulkner Drain Cross Section 4840 from REC-RAS model
006531 R0010:C0039-----
006541 ROUTE CHANNEL > 1.0 02:NodeA 21.02 .325 No_date 2:42 16.25 n/a .000
006551 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
006561 (L/S/= 573./ .200/.020)
006571 (Vmax= .442:Dmax= .498)
006581 #####
006591 # Node B
006601 R0010:C0040-----
006611 DESIGN NABSTDY 1.0 01:0b 20.87 .325 No_date 2:42 16.25 .251 .000
006621 (CIN= 61.0: B= 3.00: Tps= 1.28)
006631 #####
006641 # Total Flow at Node B (NodeB + NodeA-r + B)
006651 #####
006661 R0010:C0041-----
006671 ADD HYD 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
006681 SUM= 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
006691 #####
006701 # Channel Routing from Node X to Node A
006711 #####
006721 # Faulkner Drain Cross Section 5280 from REC-RAS model
006731 R0010:C0042-----
006741 ROUTE CHANNEL > 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
006751 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
006761 (L/S/= 120./ .380/.030)
006771 (Vmax= .424:Dmax= .402)
006781 #####
006791 # Node A
006801 R0010:C0043-----
006811 DESIGN NABSTDY 1.0 01:0b 20.87 .325 No_date 2:42 16.25 .251 .000
006821 (CIN= 61.0: B= 3.00: Tps= 1.28)
006831 #####
006841 # Total Flow at Node A (NodeA + NodeX-r + B)
006851 #####
006861 R0010:C0044-----
006871 ADD HYD 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
006881 SUM= 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
006891 #####
006901 # Channel Routing from Node A to Node B
006911 #####
006921 # Faulkner Drain Cross Section 4840 from REC-RAS model
006931 R0010:C0045-----
006941 ROUTE CHANNEL > 1.0 02:NodeA 21.02 .325 No_date 2:42 16.25 n/a .000
006951 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
006961 (L/S/= 573./ .200/.020)
006971 (Vmax= .442:Dmax= .498)
006981 #####
006991 # Node B
007001 R0010:C0046-----
007011 DESIGN NABSTDY 1.0 01:0b 20.87 .325 No_date 2:42 16.25 .251 .000
007021 (CIN= 61.0: B= 3.00: Tps= 1.28)
007031 #####
007041 # Total Flow at Node B (NodeB + NodeA-r + B)
007051 #####
007061 R0010:C0047-----
007071 ADD HYD 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
007081 SUM= 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
007091 #####
007101 # Channel Routing from Node X to Node A
007111 #####
007121 # Faulkner Drain Cross Section 5280 from REC-RAS model
007131 R0010:C0048-----
007141 ROUTE CHANNEL > 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
007151 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
007161 (L/S/= 120./ .380/.030)
007171 (Vmax= .424:Dmax= .402)
007181 #####
007191 # Node A
007201 R0010:C0049-----
007211 DESIGN NABSTDY 1.0 01:0b 20.87 .325 No_date 2:42 16.25 .251 .000
007221 (CIN= 61.0: B= 3.00: Tps= 1.28)
007231 #####
007241 # Total Flow at Node A (NodeA + NodeX-r + B)
007251 #####
007261 R0010:C0050-----
007271 ADD HYD 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
007281 SUM= 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
007291 #####
007301 # Channel Routing from Node A to Node B
007311 #####
007321 # Faulkner Drain Cross Section 4840 from REC-RAS model
007331 R0010:C0051-----
007341 ROUTE CHANNEL > 1.0 02:NodeA 21.02 .325 No_date 2:42 16.25 n/a .000
007351 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
007361 (L/S/= 573./ .200/.020)
007371 (Vmax= .442:Dmax= .498)
007381 #####
007391 # Node B
007401 R0010:C0052-----
007411 DESIGN NABSTDY 1.0 01:0b 20.87 .325 No_date 2:42 16.25 .251 .000
007421 (CIN= 61.0: B= 3.00: Tps= 1.28)
007431 #####
007441 # Total Flow at Node B (NodeB + NodeA-r + B)
007451 #####
007461 R0010:C0053-----
007471 ADD HYD 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
007481 SUM= 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
007491 #####
007501 # Channel Routing from Node X to Node A
007511 #####
007521 # Faulkner Drain Cross Section 5280 from REC-RAS model
007531 R0010:C0054-----
007541 ROUTE CHANNEL > 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
007551 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
007561 (L/S/= 120./ .380/.030)
007571 (Vmax= .424:Dmax= .402)
007581 #####
007591 # Node A
007601 R0010:C0055-----
007611 DESIGN NABSTDY 1.0 01:0b 20.87 .325 No_date 2:42 16.25 .251 .000
007621 (CIN= 61.0: B= 3.00: Tps= 1.28)
007631 #####
007641 # Total Flow at Node A (NodeA + NodeX-r + B)
007651 #####
007661 R0010:C0056-----
007671 ADD HYD 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
007681 SUM= 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
007691 #####
007701 # Channel Routing from Node A to Node B
007711 #####
007721 # Faulkner Drain Cross Section 4840 from REC-RAS model
007731 R0010:C0057-----
007741 ROUTE CHANNEL > 1.0 02:NodeA 21.02 .325 No_date 2:42 16.25 n/a .000
007751 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
007761 (L/S/= 573./ .200/.020)
007771 (Vmax= .442:Dmax= .498)
007781 #####
007791 # Node B
007801 R0010:C0058-----
007811 DESIGN NABSTDY 1.0 01:0b 20.87 .325 No_date 2:42 16.25 .251 .000
007821 (CIN= 61.0: B= 3.00: Tps= 1.28)
007831 #####
007841 # Total Flow at Node B (NodeB + NodeA-r + B)
007851 #####
007861 R0010:C0059-----
007871 ADD HYD 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
007881 SUM= 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
007891 #####
007901 # Channel Routing from Node X to Node A
007911 #####
007921 # Faulkner Drain Cross Section 5280 from REC-RAS model
007931 R0010:C0060-----
007941 ROUTE CHANNEL > 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
007951 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
007961 (L/S/= 120./ .380/.030)
007971 (Vmax= .424:Dmax= .402)
007981 #####
007991 # Node A
008001 R0010:C0061-----
008011 DESIGN NABSTDY 1.0 01:0b 20.87 .325 No_date 2:42 16.25 .251 .000
008021 (CIN= 61.0: B= 3.00: Tps= 1.28)
008031 #####
008041 # Total Flow at Node A (NodeA + NodeX-r + B)
008051 #####
008061 R0010:C0062-----
008071 ADD HYD 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
008081 SUM= 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
008091 #####
008101 # Channel Routing from Node A to Node B
008111 #####
008121 # Faulkner Drain Cross Section 4840 from REC-RAS model
008131 R0010:C0063-----
008141 ROUTE CHANNEL > 1.0 02:NodeA 21.02 .325 No_date 2:42 16.25 n/a .000
008151 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
008161 (L/S/= 573./ .200/.020)
008171 (Vmax= .442:Dmax= .498)
008181 #####
008191 # Node B
008201 R0010:C0064-----
008211 DESIGN NABSTDY 1.0 01:0b 20.87 .325 No_date 2:42 16.25 .251 .000
008221 (CIN= 61.0: B= 3.00: Tps= 1.28)
008231 #####
008241 # Total Flow at Node B (NodeB + NodeA-r + B)
008251 #####
008261 R0010:C0065-----
008271 ADD HYD 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
008281 SUM= 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
008291 #####
008301 # Channel Routing from Node X to Node A
008311 #####
008321 # Faulkner Drain Cross Section 5280 from REC-RAS model
008331 R0010:C0066-----
008341 ROUTE CHANNEL > 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
008351 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
008361 (L/S/= 120./ .380/.030)
008371 (Vmax= .424:Dmax= .402)
008381 #####
008391 # Node A
008401 R0010:C0067-----
008411 DESIGN NABSTDY 1.0 01:0b 20.87 .325 No_date 2:42 16.25 .251 .000
008421 (CIN= 61.0: B= 3.00: Tps= 1.28)
008431 #####
008441 # Total Flow at Node A (NodeA + NodeX-r + B)
008451 #####
008461 R0010:C0068-----
008471 ADD HYD 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
008481 SUM= 1.0 02:NodeX 21.02 .325 No_date 2:42 16.25 n/a .000
008491 #####
008501 # Channel Routing from Node A to Node B
008511 #####
008521 # Faulkner Drain Cross Section 4840 from REC-RAS model
008531 R0010:C0069-----
008541 ROUTE CHANNEL > 1.0 02:NodeA 21.02 .325 No_date 2:42 16.25 n/a .000
008551 (RDT= 1.00) out<- 1.0 01:NodeA-r 41.89 .369 No_date 3:07 9.70 n/a .000
008561 (L/S/= 573./ .200/.020)
008571 (Vmax= .442:Dmax= .498)
0085
```

```
007211 DEFAULT VALUES
007212 Filename = C:\Temp\SWMHYMO\Pre-Dev\Ottawa.val
007223 ICASEDV = 1 (read and print data)
007242 FileTitle: File comment: [Parameters for City of Ottawa Projects]
007243 THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDYMOI COM
007262 Horton's infiltration equation parameters:
007272 [Fw= 16.20 mm/hr] [Fw=1.20 mm/hr] [DCAY= 4.14 /hr] [F= .00 mm]
007273 Parameters for PERVIOUS surfaces in STANDYMOI:
007279 [Iaper= 4.67 mm] [LGP=40.00 m] [MNP= .250]
007302 Parameters for IMPVIOUS surfaces in STANDYMOI:
007312 [Ialmp= 1.57 mm] [CLi= 1.50] [MNI= .013]
007322 Parameters used in NABYMOI:
007332 [Iaw= 4.67 mm] [N= 3.00]
007342 Average monthly Pan Evaporation data in (mm)
007352 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
007362 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
007372 Average monthly Potential Evapotranspiration in (mm)
007382 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
007392 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
007402 #####
007412 # Pre Development Condition
007422 #####
007432 # Node X
007442 R0099:CO0004-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfmc
007452 DESIGN NABYMOI 1.0 01:5a 21.02 .192 No date 2:41 19.57 273 .000
007462 [Cm= 61.0; N= 3.00; Tps= 1.31]
007472 #####
007482 # Total Flow at Node X (NodeX = Sa)
007492 #####
007502 R0099:CO0005-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfmc
007512 ADD HYD SUM= 1.0 02:1a 21.02 .392 No date 2:41 19.57 n/a .000
007522 #####
007532 #####
007542 # Channel Routing from Node X to Node A
007552 #####
007562 # Faulkner Drain Cross Section 5280 from HEC-RAS model
007572 R0099:CO0006-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfmc
007582 ROUTE CHANNEL -> 1.0 02:NodeX 21.02 .392 No date 2:41 19.57 n/a .000
007592 [RDT= 1.00] out<- 1.0 01:NodeX-r 21.02 .392 No date 2:44 19.57 n/a .000
007602 [L/S/n= 120././380./030]
007612 (Vmax= .509;Dmax= .115)
007622 #####
007632 # Node A
007642 R0099:CO0007-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfmc
007652 DESIGN NABYMOI 1.0 01:5a 20.83 .196 No date 2:39 19.57 273 .000
007662 [Cm= 61.0; N= 3.00; Tps= 1.28]
007672 #####
007682 # Total Flow at Node A (NodeA = NodeX-r + Sa)
007692 #####
007702 R0099:CO0008-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfmc
007712 ADD HYD + 1.0 02:NodeA-r 21.02 .392 No date 2:44 19.57 n/a .000
007722 SUM= 1.0 01:NodeA 20.87 .196 No date 2:39 19.57 n/a .000
007732 #####
007742 #####
007752 # Channel Routing from Node A to Node B
007762 #####
007772 # Faulkner Drain Cross Section 4840 from HEC-RAS model
007782 R0099:CO0009-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfmc
007792 ROUTE CHANNEL -> 1.0 02:NodeA 41.89 .787 No date 2:41 19.57 n/a .000
007802 [RDT= 1.00] out<- 1.0 01:NodeA-r 41.89 .787 No date 2:59 19.57 n/a .000
007812 [L/S/n= 573././200./020]
007822 (Vmax= .311;Dmax= .115)
007832 #####
007842 # Node B
007852 R0099:CO0010-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfmc
007862 DESIGN NABYMOI 1.0 01:5b 36.62 .606 No date 3:12 21.39 .298 .000
007872 [Cm= 61.0; N= 3.00; Tps= 1.74]
007882 #####
007892 # Total Flow at Node B (NodeB = NodeA-r + Sb)
007902 #####
007912 R0099:CO0011-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfmc
007922 ADD HYD + 1.0 02:NodeA-r 41.89 .787 No date 2:59 19.57 n/a .000
007932 SUM= 1.0 01:NodeA 41.89 .787 No date 2:59 19.57 n/a .000
007942 #####
007952 #####
007962 # STORMS
007972 #####
007982 ** END OF RUN : 101
007992 #####
008002 #####
008012 #####
008022 #####
008032 #####
008042 #####
008052 #####
008062 NUNM:COMMANDS
008072 R0102:CO0001-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfmc
008082 START (TZERO = .00 hrs on 0)
008092 (NETOUT= 2 (1=Imperial, 2=metric output))
008102 (NETOUT= 1)
008112 (MNP= .250)
008122 [Fw= 16.20 mm/hr] [Fw=1.20 mm/hr] [DCAY= 4.14 /hr] [F= .00 mm]
008132 #####
008142 # SWMHYMO Ver:5.00/Feb 2015 / INPUT DATA FILE
008152 #####
008162 # Project Name : [Calvan Stittville West properties]
008172 # Project Number: [2267]
008182 # Date : [2024/08/02]
008192 # Modeller : [J.F. Sabourin and Associates]
008202 # License # : 2549237
008212 #####
008222 #####
008232 R0102:CO0002-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfmc
008242 READ STORM
008252 File name = storm.001
008262 Comment = 2 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa
008272 [SET=10.00;SDRM= 24.00;PTOT= 74.46]
008282 R0102:CO0003-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfmc
008292 DEFAULT VALUES
008302 File name = C:\Temp\SWMHYMO\Pre-Dev\Ottawa.val
008312 ICASEDV = 1 (read and print data)
008322 FileTitle: File comment: [Parameters for City of Ottawa Projects]
008332 THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDYMOI COM
008352 Horton's infiltration equation parameters:
008362 [Fw= 16.20 mm/hr] [Fw=1.20 mm/hr] [DCAY= 4.14 /hr] [F= .00 mm]
008372 Parameters for PERVIOUS surfaces in STANDYMOI:
008382 [Iaper= 4.67 mm] [LGP=40.00 m] [MNP= .250]
008392 Parameters for IMPVIOUS surfaces in STANDYMOI:
008402 [Ialmp= 1.57 mm] [CLi= 1.50] [MNI= .013]
008412 [Iaw= 4.67 mm] [N= 3.00]
008422 Average monthly Pan Evaporation data in (mm)
008432 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
008442 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
008452 Average monthly Potential Evapotranspiration in (mm)
008462 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
008472 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
008482 #####
008492 # Pre Development Condition
008502 #####
008512 # Node X
008522 R0102:CO0004-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfmc
008532 DESIGN NABYMOI 1.0 01:5a 21.02 .121 No date 13:26 9.30 1.92 .000
008542 [Cm= 61.0; N= 3.00; Tps= 1.31]
008552 #####
008562 # Total Flow at Node X (NodeX = Sa)
008572 #####
008582 R0102:CO0005-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfmc
008592 ADD HYD 1.0 02:1a 21.02 .121 No date 13:26 9.30 n/a .000
008602 SUM= 1.0 01:NodeX 21.02 .121 No date 13:26 9.30 n/a .000
008612 #####
008622 # Channel Routing from Node X to Node A
008632 #####
008642 # Faulkner Drain Cross Section 5280 from HEC-RAS model
008652 R0102:CO0006-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfmc
008662 ROUTE CHANNEL -> 1.0 02:NodeX 21.02 .121 No date 13:26 9.30 n/a .000
008672 [RDT= 1.00] out<- 1.0 01:NodeX-r 21.02 .121 No date 13:31 9.30 n/a .000
008682 [L/S/n= 120././380./030]
008692 (Vmax= .377;Dmax= .103)
008702 #####
008712 # Node A
008722 R0102:CO0007-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfmc
008732 DESIGN NABYMOI 1.0 01:5a 20.87 .122 No date 13:24 9.30 1.92 .000
008742 [Cm= 61.0; N= 3.00; Tps= 1.28]
008752 #####
008762 # Total Flow at Node A (NodeA = NodeX-r + Sa)
008772 #####
008782 R0102:CO0008-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfmc
008792 ADD HYD + 1.0 02:NodeA-r 21.02 .122 No date 13:31 9.30 n/a .000
008802 SUM= 1.0 01:NodeA 20.87 .122 No date 13:24 9.30 n/a .000
008812 #####
008822 #####
008832 # Channel Routing from Node A to Node B
008842 #####
008852 # Faulkner Drain Cross Section 4840 from HEC-RAS model
008862 R0102:CO0009-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfmc
008872 ROUTE CHANNEL -> 1.0 02:NodeA 41.89 .787 No date 13:27 9.20 n/a .000
008882 [RDT= 1.00] out<- 1.0 01:NodeA-r 41.89 .787 No date 13:27 9.20 n/a .000
008892 [L/S/n= 573././200./020]
008902 (Vmax= .371;Dmax= .115)
008912 #####
008922 # Node B
008932 R0102:CO0010-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfmc
008942 DESIGN NABYMOI 1.0 01:5b 36.62 .189 No date 13:58 10.27 212 .000
008952 [Cm= 61.0; N= 3.00; Tps= 1.74]
008962 #####
008972 # Total Flow at Node B (NodeB = NodeA-r + Sb)
008982 #####
008992 R0102:CO0011-----DtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvmm-R.C-----DWfmc
009002 ADD HYD 1.0 02:NodeA-r 41.89 .787 No date 13:51 9.20 n/a .000
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01081> R0110:CO0006-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01082> ROUTE CHANNEL -> 1.0 01:NodeA-r 21.02 .278 Mo_date 13:24 20.92 n/a .000
01083> [R/s= 120./380/030]
01084> (Vmax= .461;Dmax= .380)
01085> #####
01086> #####
01087> # Node A
01088> R0110:CO0007-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01089> DESIGN NASHDY 1.0 01:Sa 20.87 .281 Mo_date 13:22 20.92 .281 .000
01090> [Cm= 61.0; B= 3.00; Tpe= 1.28]
01091> #####
01092> # Total Flow at Node A (NodeA = Sa)
01093> #####
01094> R0110:CO0008-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01095> ADD HYD + 1.0 02:NodeA-r 21.02 .278 Mo_date 13:26 20.92 n/a .000
01096> SUM= 1.0 02:NodeA 20.87 .281 Mo_date 13:22 20.92 n/a .000
01097> #####
01098> #####
01099> # Channel Routing from Node A to Node B
01100> #####
01101> # Faulkner Drain Cross Section 4840 from HEC-RAS model
01102> R0110:CO0009-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01103> ROUTE CHANNEL -> 1.0 02:NodeA 41.89 .532 Mo_date 13:24 20.92 n/a .000
01104> [R/s= 1.00] out<- 1.0 01:NodeA-r 41.89 .532 Mo_date 13:44 20.92 n/a .000
01105> [L/s= 573./200./020]
01106> (Vmax= .461;Dmax= .458)
01107> #####
01108> # Node B
01109> R0110:CO0010-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01110> DESIGN NASHDY 1.0 01:Sa 36.42 .430 Mo_date 13:55 22.44 .307 .000
01111> [Cm= 61.0; B= 3.00; Tpe= 1.74]
01112> #####
01113> # Total Flow at Node B (NodeB = NodeA-r + Sb)
01114> #####
01115> R0110:CO0011-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01116> ADD HYD + 1.0 02:NodeA-r 41.89 .532 Mo_date 13:44 20.92 n/a .000
01117> SUM= 1.0 01:NodeB 78.51 .960 Mo_date 13:48 21.82 n/a .000
01118> #####
01119> #####
01120> # STORMS
01121> #####
01122> ** END OF RUN : 124
01123> #####
01124> #####
01125> #####
01126> #####
01127> #####
01128> #####
01129> #####
01130> RUN#<COMMAND#
01131> R0125:CO0001-----
01132> START
01133> [TZERO = .00 hrs on 0]
01134> [METOPT= 2] ([=Imperial, 2=metric output])
01135> [NFORM= 1]
01136> [NRUN = 0125]
01137> #####
01138> # SWMHYMO Ver:5.00/Feb 2015 / INPUT DATA FILE
01139> #####
01140> # Project Name : [Calvan Stittville West properties]
01141> # Project Number : [2267]
01142> # Date : [2024/08/02]
01143> # Modeller : [PF]
01144> # Company : J.F. Sabourin and Associates
01145> # License # : 2549237
01146> #####
01147> R0125:CO0002-----
01148> READ STORM
01149> Filename = storm.001
01150> Comment = 25 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa
01151> [SDT=10.00;SDUR= 24.00;PTOT= 86.89]
01152> R0125:CO0003-----
01153> DEFAULT VALUES
01154> Filename = C:\Temp\SWMHYMO\Pre-Dev\Ottawa.val
01155> ICASEDY = 1 (read and print data)
01156> FileTitle= File comment: [Parameters for City of Ottawa Projects]
01157> THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDARDY COM
01158> Horton's infiltration equation parameters:
01159> [F= 76.20 mm/hr] [F=13.20 mm/hr] [ICAE= 4.14 /hr] [F= .00 mm]
01160> Parameters for IMPERVIOUS surfaces in STANDYD:
01161> [Iape= 4.67 mm] [LDP=40.00 m] [MNI= .250]
01162> Parameters for IMPERVIOUS surfaces in STANDYD:
01163> [IaIm= 1.57 mm] [CL=1.50] [MNI= .013]
01164> Parameters used in NASHDY:
01165> [Ia= 4.67 mm] [B= 3.00]
01166> Average monthly Pan Evaporation data in (mm)
01167> JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
01168> .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
01169> Average monthly Potential Evapotranspiration in (mm)
01170> JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
01171> .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
01172> #####
01173> # Free Development Condition
01174> #####
01175> # Node X
01176> R0125:CO0004-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01177> DESIGN NASHDY 1.0 01:Sa 21.02 .370 Mo_date 13:23 27.63 .318 .000
01178> [Cm= 61.0; B= 3.00; Tpe= 1.31]
01179> #####
01180> # Total Flow at Node X (NodeX = Sa)
01181> #####
01182> R0125:CO0005-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01183> ADD HYD + 1.0 02:NodeA-r 21.02 .370 Mo_date 13:23 27.63 n/a .000
01184> SUM= 1.0 01:NodeA 21.02 .370 Mo_date 13:23 27.63 n/a .000
01185> #####
01186> # Channel Routing from Node X to Node A
01187> #####
01188> # Faulkner Drain Cross Section 5280 from HEC-RAS model
01189> R0125:CO0006-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01190> ROUTE CHANNEL -> 1.0 02:NodeA-r 21.02 .370 Mo_date 13:23 27.63 n/a .000
01191> [R/s= 1.00] out<- 1.0 01:NodeA-r 21.02 .370 Mo_date 13:26 27.63 n/a .000
01192> [L/s= 573./380./030]
01193> (Vmax= .503;Dmax= .309)
01194> #####
01195> # Node X
01196> R0125:CO0007-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01197> DESIGN NASHDY 1.0 01:Sa 20.87 .374 Mo_date 13:21 27.63 .318 .000
01198> [Cm= 61.0; B= 3.00; Tpe= 1.28]
01199> #####
01200> # Total Flow at Node X (NodeX = Sa)
01201> #####
01202> R0125:CO0008-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01203> ADD HYD + 1.0 02:NodeA-r 21.02 .370 Mo_date 13:26 27.63 n/a .000
01204> SUM= 1.0 02:NodeA 20.87 .374 Mo_date 13:21 27.63 n/a .000
01205> #####
01206> # Channel Routing from Node X to Node A
01207> #####
01208> # Faulkner Drain Cross Section 5280 from HEC-RAS model
01209> R0125:CO0009-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01210> ROUTE CHANNEL -> 1.0 02:NodeA-r 41.89 .743 Mo_date 13:24 27.63 n/a .000
01211> [R/s= 1.00] out<- 1.0 01:NodeA-r 41.89 .715 Mo_date 13:40 27.63 n/a .000
01212> [L/s= 573./200./020]
01213> (Vmax= .505;Dmax= .516)
01214> #####
01215> #####
01216> # Node B
01217> R0125:CO0010-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01218> DESIGN NASHDY 1.0 01:Sa 36.62 .569 Mo_date 13:54 30.03 .346 .000
01219> [Cm= 61.0; B= 3.00; Tpe= 1.74]
01220> #####
01221> # Total Flow at Node B (NodeB = NodeA-r + Sb)
01222> #####
01223> R0125:CO0011-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01224> ADD HYD + 1.0 02:NodeA-r 41.89 .715 Mo_date 13:40 27.63 n/a .000
01225> SUM= 1.0 02:NodeA 36.62 .569 Mo_date 13:54 30.03 n/a .000
01226> #####
01227> # STORMS
01228> #####
01229> #####
01230> ** END OF RUN
```

```
01261> DEFAULT VALUES
01262> Filename = C:\Temp\SWMHYMO\Pre-Dev\Ottawa.val
01263> ICASEDY = 1 (read and print data)
01264> FileTitle= File comment: [Parameters for City of Ottawa Projects]
01265> THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDARDY COM
01266> Horton's infiltration equation parameters:
01267> [F= 76.20 mm/hr] [F=13.20 mm/hr] [ICAE= 4.14 /hr] [F= .00 mm]
01268> Parameters for IMPERVIOUS surfaces in STANDYD:
01269> [Iape= 4.67 mm] [LDP=40.00 m] [MNI= .250]
01270> Parameters for IMPERVIOUS surfaces in STANDYD:
01271> [IaIm= 1.57 mm] [CL=1.50] [MNI= .013]
01272> Parameters used in NASHDY:
01273> [Ia= 4.67 mm] [B= 3.00]
01274> Average monthly Pan Evaporation data in (mm)
01275> JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
01276> .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
01277> Average monthly Potential Evapotranspiration in (mm)
01278> JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
01279> .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
01280> #####
01281> # Free Development Condition
01282> #####
01283> # Node X
01284> R0150:CO0004-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01285> DESIGN NASHDY 1.0 01:Sa 21.02 .446 Mo_date 13:23 33.19 .344 .000
01286> [Cm= 61.0; B= 3.00; Tpe= 1.31]
01287> #####
01288> # Total Flow at Node X (NodeX = Sa)
01289> #####
01290> R0150:CO0005-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01291> ADD HYD + 1.0 02:NodeA-r 21.02 .446 Mo_date 13:23 33.19 n/a .000
01292> SUM= 1.0 01:NodeA 21.02 .446 Mo_date 13:23 33.19 n/a .000
01293> #####
01294> # Channel Routing from Node X to Node A
01295> #####
01296> # Faulkner Drain Cross Section 5280 from HEC-RAS model
01297> R0150:CO0006-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01298> ROUTE CHANNEL -> 1.0 02:NodeA-r 21.02 .446 Mo_date 13:23 33.19 n/a .000
01299> [R/s= 1.00] out<- 1.0 01:NodeA-r 21.02 .446 Mo_date 13:26 33.19 n/a .000
01300> [L/s= 120./380./030]
01301> (Vmax= .526;Dmax= .329)
01302> #####
01303> # Node A
01304> R0150:CO0007-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01305> DESIGN NASHDY 1.0 01:Sa 20.87 .451 Mo_date 13:23 33.19 .344 .000
01306> [Cm= 61.0; B= 3.00; Tpe= 1.28]
01307> #####
01308> # Total Flow at Node A (NodeA = NodeX-r + Sa)
01309> #####
01310> R0150:CO0008-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01311> ADD HYD + 1.0 02:NodeA-r 21.02 .446 Mo_date 13:26 33.19 n/a .000
01312> SUM= 1.0 01:NodeA 20.87 .451 Mo_date 13:23 33.19 n/a .000
01313> #####
01314> #####
01315> # Channel Routing from Node A to Node B
01316> #####
01317> # Faulkner Drain Cross Section 4840 from HEC-RAS model
01318> R0150:CO0009-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01319> ROUTE CHANNEL -> 1.0 02:NodeA-r 41.89 .896 Mo_date 13:23 33.19 n/a .000
01320> [R/s= 1.00] out<- 1.0 01:NodeA-r 41.89 .864 Mo_date 13:40 33.19 n/a .000
01321> [L/s= 573./200./020]
01322> (Vmax= .503;Dmax= .546)
01323> #####
01324> # Node B
01325> R0150:CO0010-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01326> DESIGN NASHDY 1.0 01:Sa 36.62 .684 Mo_date 13:53 35.95 .372 .000
01327> [Cm= 61.0; B= 3.00; Tpe= 1.74]
01328> #####
01329> # Total Flow at Node B (NodeB = NodeA-r + Sb)
01330> #####
01331> R0150:CO0011-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01332> ADD HYD + 1.0 02:NodeA-r 41.89 .864 Mo_date 13:40 33.19 n/a .000
01333> SUM= 1.0 02:Sa 36.62 .684 Mo_date 13:53 35.95 n/a .000
01334> #####
01335> # STORMS
01336> #####
01337> #####
01338> ** END OF RUN : 198
01339> #####
01340> #####
01341> #####
01342> #####
01343> #####
01344> #####
01345> #####
01346> RUN#<COMMAND#
01347> R0199:CO0001-----
01348> START
01349> [TZERO = .00 hrs on 0]
01350> [METOPT= 2] ([=Imperial, 2=metric output])
01351> [NFORM= 1]
01352> [NRUN = 0199]
01353> #####
01354> # SWMHYMO Ver:5.00/Feb 2015 / INPUT DATA FILE
01355> #####
01356> # Project Name : [Calvan Stittville West properties]
01357> # Project Number : [2267]
01358> # Date : [2024/08/02]
01359> # Modeller : [PF]
01360> # Company : J.F. Sabourin and Associates
01361> # License # : 2549237
01362> #####
01363> R0199:CO0002-----
01364> READ STORM
01365> Filename = storm.001
01366> Comment = 100 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa
01367> [SDT=10.00;SDUR= 24.00;PTOT= 166.73]
01368> R0199:CO0003-----
01369> DEFAULT VALUES
01370> Filename = C:\Temp\SWMHYMO\Pre-Dev\Ottawa.val
01371> ICASEDY = 1 (read and print data)
01372> FileTitle= File comment: [Parameters for City of Ottawa Projects]
01373> THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDARDY COM
01374> Horton's infiltration equation parameters:
01375> [F= 76.20 mm/hr] [F=13.20 mm/hr] [ICAE= 4.14 /hr] [F= .00 mm]
01376> Parameters for IMPERVIOUS surfaces in STANDYD:
01377> [Iape= 4.67 mm] [LDP=40.00 m] [MNI= .250]
01378> Parameters for IMPERVIOUS surfaces in STANDYD:
01379> [IaIm= 1.57 mm] [CL=1.50] [MNI= .013]
01380> Parameters used in NASHDY:
01381> [Ia= 4.67 mm] [B= 3.00]
01382> Average monthly Pan Evaporation data in (mm)
01383> JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
01384> .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
01385> Average monthly Potential Evapotranspiration in (mm)
01386> JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
01387> .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
01388> #####
01389> # Free Development Condition
01390> #####
01391> # Node X
01392> R0199:CO0004-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01393> DESIGN NASHDY 1.0 01:Sa 21.02 .532 Mo_date 13:22 39.39 .369 .000
01394> [Cm= 61.0; B= 3.00; Tpe= 1.31]
01395> #####
01396> # Total Flow at Node X (NodeX = Sa)
01397> #####
01398> R0199:CO0005-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01399> ADD HYD + 1.0 02:NodeA-r 21.02 .532 Mo_date 13:22 39.39 n/a .000
01400> SUM= 1.0 01:NodeA 21.02 .532 Mo_date 13:22 39.39 n/a .000
01401> #####
01402> # Channel Routing from Node X to Node A
01403> #####
01404> # Faulkner Drain Cross Section 5280 from HEC-RAS model
01405> R0199:CO0006-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01406> ROUTE CHANNEL -> 1.0 02:NodeA-r 21.02 .532 Mo_date 13:22 39.39 n/a .000
01407> [R/s= 1.00] out<- 1.0 01:NodeA-r 21.02 .532 Mo_date 13:23 39.39 n/a .000
01408> [L/s= 120./380./030]
01409> (Vmax= .555;Dmax= .353)
01410> #####
01411> # Node A
01412> R0199:CO0007-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01413> DESIGN NASHDY 1.0 01:Sa 20.87 .538 Mo_date 13:20 39.39 .369 .000
01414> [Cm= 61.0; B= 3.00; Tpe= 1.28]
01415> #####
01416> # Total Flow at Node A (NodeA = NodeX-r + Sa)
01417> #####
01418> R0199:CO0008-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01419> ADD HYD + 1.0 02:NodeA-r 21.02 .532 Mo_date 13:20 39.39 n/a .000
01420> SUM= 1.0 02:NodeA 20.87 .538 Mo_date 13:20 39.39 n/a .000
01421> #####
01422> # Channel Routing from Node A to Node B
01423> #####
01424> # Channel Routing from Node A to Node B
01425> #####
01426> # Faulkner Drain Cross Section 4840 from HEC-RAS model
01427> R0199:CO0009-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01428> ROUTE CHANNEL -> 1.0 02:NodeA-r 41.89 1.069 Mo_date 13:22 39.39 n/a .000
01429> [R/s= 1.00] out<- 1.0 01:NodeA-r 41.89 1.035 Mo_date 13:38 39.39 n/a .000
01430> [L/s= 573./200./020]
01431> (Vmax= .555;Dmax= .379)
01432> #####
01433> # Node B
01434> R0199:CO0010-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01435> DESIGN NASHDY 1.0 01:Sa 36.62 .813 Mo_date 13:52 42.53 .398 .000
01436> [Cm= 61.0; B= 3.00; Tpe= 1.74]
01437> #####
01438> # Total Flow at Node B (NodeB = NodeA-r + Sb)
01439> #####
01440> R0199:CO0011-----UtnIn-ID:INHYD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvnm-R.C-----DWfms
01441> ADD HYD + 1.0 02:NodeA-r 41.89 1.035 Mo_date 13:38 39.39 n/a .000
```

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Attachment C

Proposed/Post-Development Conditions Simulations

Table C1: Calculation of SCS Curve Number (CN) and Modified Curve Number (CN*)

Area W_Und1 (1.88 ha)							
Area (ha)	Land Type	Soil Name	Soil Condition	Soil Group	CN	% of Catchment	Weighted CN
1.43	Mature Forest	Fine Sandy Loam	C	Fair	73	76.1%	55.5
0.45	Pasture and Shrubs	Fine Sandy Loam	C	Fair	70	23.9%	16.8
						CN	72
						CN*	62

Area W_Und2 (1.77 ha)							
Area (ha)	Land Type	Soil Name	Soil Condition	Soil Group	CN	% of Catchment	Weighted CN
1.77	Pasture and Shrubs	Fine Sandy Loam	C	Fair	70	100.0%	70.0
						CN	70
						CN*	59

Area W_Und3 (0.14 ha)							
Area (ha)	Land Type	Soil Name	Soil Condition	Soil Group	CN	% of Catchment	Weighted CN
0.14	Pasture and Shrubs	Fine Sandy Loam	C	Fair	70	100.0%	70.0
						CN	70
						CN*	59

Area E_Und1 (6.75 ha)							
Area (ha)	Land Type	Soil Name	Soil Condition	Soil Group	CN	% of Catchment	Weighted CN
6.75	Pasture and Shrubs	Fine Sandy Loam	C	Fair	70	100.0%	70.0
						CN	70
						CN*	59

Area E_Und2 (0.88 ha)							
Area (ha)	Land Type	Soil Name	Soil Condition	Soil Group	CN	% of Catchment	Weighted CN
0.88	Pasture and Shrubs	Fine Sandy Loam	C	Fair	70	100.0%	70.0
						CN	70
						CN*	59

Area E_Und3 (0.06 ha)							
Area (ha)	Land Type	Soil Name	Soil Condition	Soil Group	CN	% of Catchment	Weighted CN
0.06	Pasture and Shrubs	Fine Sandy Loam	C	Fair	70	100.0%	70.0
						CN	70
						CN*	59

Area E_Und4 (0.43 ha)							
Area (ha)	Land Type	Soil Name	Soil Condition	Soil Group	CN	% of Catchment	Weighted CN
0.43	Pasture and Shrubs	Fine Sandy Loam	C	Fair	70	100.0%	70.0
						CN	70
						CN*	59

Area E_Und5 (0.44 ha)							
Area (ha)	Land Type	Soil Name	Soil Condition	Soil Group	CN	% of Catchment	Weighted CN
0.44	Urban Lawn/Shallow Rooted Crops	Fine Sandy Loam	C	Fair	79	100.0%	79.0
						CN	79
						CN*	71

Table C2: Time to Peak Calculations

Parameter	Units	Area W_Und1	Area W_Und2	Area W_Und3	Area E_Und1	Area E_Und2	Area E_Und3	Area E_Und4	Area E_Und5
Area	ha	1.88	1.77	0.14	6.75	0.88	0.06	0.43	0.44
CN or CN*	-	62	59	59	59	59	59	59	71
Ptotal to calc C from CN, use 2 yr 3 hr Chicago stom	P(mm)	33.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2
	Ia(mm)	4.67	4.67	4.67	4.67	4.67	4.67	4.67	4.67
	RV(mm)	4.4	3.9	3.9	3.9	3.9	3.9	3.9	6.1
Ptotal to calc C from CN, use 2 yr 24 hr SCS stom	P(mm)	52.77	52.77	52.77	52.77	52.77	52.77	52.77	52.77
	RV(mm)	11.2	10.1	10.1	10.1	10.1	10.1	10.1	15.2
	-	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.19
C (From Chicago storm)	-	0.21	0.19	0.19	0.19	0.19	0.19	0.19	0.29
C (From SCS storm)	-	0.21	0.19	0.19	0.19	0.19	0.19	0.19	0.29
Length of Channel	m	493	339	120	870	486	120	570	270
	ft	1617	1112	394	2854	1594	394	1870	886
Elevation of Head Water	m	103.18	102.98	101.46	104.70	103.18	101.46	100.83	100.22
	ft	339	338	333	344	339	333	331	329
Elevation of Outlet	m	101.46	100.83	100.83	101.46	101.46	100.83	99.68	99.68
	ft	333	331	331	333	333	331	327	327
Average Slope	m/m	0.0035	0.0063	0.0052	0.0037	0.0035	0.0052	0.0020	0.0020
	ft/ft	0.0035	0.0063	0.0052	0.0037	0.0035	0.0052	0.0020	0.0020
Kirpich									
Time of Concentration	mins	20	12	6	31	20	6	28	16
Time to Peak	min	14	8	4	21	13	4	19	11
Time to Peak	Hours	0.23	0.13	0.07	0.34	0.22	0.07	0.31	0.18
FAA (From Chicago storm)									
Time of Concentration	mins	100	69	43	131	100	43	130	84
Time to Peak	mins	66	46	29	88	67	29	87	56
Time to Peak	Hours	1.11	0.76	0.48	1.46	1.11	0.48	1.45	0.93
FAA (From SCS storm)									
Time of Concentration	mins	91	63	40	121	92	40	120	74
Time to Peak	mins	61	42	27	81	62	27	80	50
Time to Peak	Hours	1.01	0.71	0.45	1.35	1.03	0.45	1.34	0.83
Bransby Williams									
Time of Concentration	mins	33	20	10	50	35	10	49	23
Time to Peak	mins	22	13	6	34	23	7	33	16
Time to Peak	Hours	0.37	0.22	0.11	0.56	0.39	0.12	0.55	0.26
SCS									
Time of Concentration	mins	131	78	37	217	139	37	210	84
Time to Peak	mins	88	52	25	144	93	25	140	56
Time to Peak	Hours	1.46	0.87	0.42	2.41	1.55	0.42	2.33	0.93
Selected Method									
FAA (From Chicago storm)									
Time to Peak	min	66	46	29	88	67	29	87	56
Time to Peak	Hours	1.11	0.76	0.48	1.46	1.11	0.48	1.45	0.93

Note:

All methods calculated as per Appendix A of the SWMHYMO manual

Time to Peak calculated as 2/3 Time of concentration

West SWM Pond Preliminary Stage Storage

				Demarcation
Elevation (m)	Volume (m ³)	Volume above PP @ 90% (m ³)	Area (m ²)	
99.80	0.000		3027.68	Pond Bottom
99.85	152.984		3091.69	
99.90	309.180		3156.14	
99.95	468.616		3221.31	
100.00	631.321		3286.87	
100.05	797.318		3353.01	
100.10	966.634		3419.62	
100.15	1139.300		3487.03	
100.20	1315.346		3554.8	
100.25	1494.794		3623.14	
100.30	1677.673		3692.01	
100.35	1864.011		3761.51	
100.40	2053.838		3831.56	
100.45	2247.177		3902.01	
100.50	2444.053		3973.03	
100.55	2644.498		4044.76	
100.60	2848.543		4117.03	
100.65	3056.213		4189.77	
100.70	3267.533		4263.01	
100.75	3482.530		4336.86	
100.80	3701.287		4413.42	
100.85	3965.021		5334.17	
100.90	4234.743		5454.73	
100.95	4510.527		5576.61	
101.00	4792.433		5699.62	
101.05	5080.520		5823.88	
101.10	5374.852		5949.39	
101.15	5675.490		6076.16	
101.20	5982.495		6204.04	
101.25	6295.928		6333.29	
101.30	6615.854		6463.75	
101.35	6942.333		6595.41	
101.40	7275.423		6728.19	
101.45	7615.186		6862.31	
101.50	7961.683		6997.59	
101.55	8314.975		7134.08	
101.60	8675.125		7271.92	
101.65	9042.195		7410.87	
101.70	9416.244		7551.08	
101.75	9797.334		7692.52	

West SWM Pond Preliminary Stage Storage

Elevation (m)	Volume (m ³)	Volume above PP @ 90% (m ³)	Area (m ²)	Demarcation
101.80	10185.695	0.000	7841.94	Permanent Pool
101.85	10581.456	356.185	7988.49	
101.90	10984.578	718.995	8136.37	
101.95	11395.153	1088.512	8286.65	
102.00	11813.299	1464.844	8439.2	
102.05	12239.131	1848.092	8594.09	
102.10	12672.764	2238.362	8751.24	
102.15	13114.314	2635.757	8910.76	
102.20	13563.895	3040.380	9072.49	
102.25	14021.623	3452.335	9236.6	
102.30	14487.613	3871.726	9403.02	
102.35	14961.981	4298.657	9571.67	
102.40	15444.842	4733.232	9742.77	
102.45	15936.316	5175.559	9916.22	
102.50	16436.515	5625.738	10091.74	
102.55	16945.553	6083.872	10269.74	
102.60	17463.547	6550.067	10450.02	
102.65	17990.611	7024.424	10632.56	
102.70	18526.862	7507.050	10817.47	
102.75	19072.416	7998.049	11004.7	
102.80	19650.686	8518.492	12126.11	
102.85	20291.822	9095.514	13519.33	
102.90	20970.528	9706.350	13628.9	
102.95	21654.725	10322.127	13738.97	
103.00	22344.430	10942.861	13849.23	
103.05	23039.656	11568.565	13959.8	
103.10	23740.415	12199.248	14070.58	
103.15	24446.724	12834.926	14181.79	
103.20	25158.598	13475.613	14293.16	
103.25	25876.050	14121.319	14404.93	
103.30	26599.098	14772.063	14516.99	
103.35	27327.756	15427.855	14629.32	
103.40	28062.035	16088.706	14741.83	
103.45	28801.952	16754.631	14854.85	
103.50	29547.523	17425.645	14967.98	
103.55	30298.758	18101.757	15081.46	
103.60	31055.674	18782.981	15195.17	
103.65	31818.284	19469.330	15309.23	
103.70	32586.605	20160.819	15423.6	
103.75	33360.649	20857.459	15538.16	

West SWM Pond Preliminary Stage Storage

Elevation (m)	Volume (m ³)	Volume above PP @ 90% (m ³)	Area (m ²)	Demarcation
103.80	34140.431	21559.262	15653.15	
103.85	34925.970	22266.247	15768.38	
103.90	35717.276	22978.423	15883.89	
103.95	36514.368	23695.806	15999.77	
104.00	37317.258	24418.407	16115.83	
104.05	38125.959	25146.238	16232.22	
104.10	38940.485	25879.311	16348.8	
104.15	39760.849	26617.639	16465.76	
104.20	40587.069	27361.237	16583.06	
104.25	41419.164	28110.122	16700.71	
104.30	42257.197	28864.352	16820.63	
104.35	43132.558	29652.177	18193.78	
104.40	44077.837	30502.928	19617.38	Top of Pond

Table C-1W: West Pond Criteria for Required Storage Volumes

Pond	Area ⁽¹⁾ (ha)	Imperviousness (%)	Storage Volume for Impervious Level ⁽²⁾ (m ³ /ha)
N/A	N/A	55	190
West SWM Pond	35.34	69	223
N/A	N/A	70	225

(1) Refer to Post-Development Figure for drainage areas to the SWM facility.

(2) Protection Level for Wet Pond: Enhanced 80% long-term S.S. removal.

SWM Planning & Design Manual, Table 3.2, p.3-10 (March 2003).

Table C-2W: Required Storage Volumes for West SWM Facility

Pond Component	Required Volume (m ³)	Volume Provided ⁽³⁾ (m ³)	Volume Ratio
Permanent Pool (PP) ⁽¹⁾	6,467	9,167	1.42
Quality Control ⁽²⁾	1,414	1,848	1.31
Forebay (20% PP)	1,293	N/A	N/A
PP - Forebay	5,174	N/A	N/A

(1) Required PP volume based on Table C-1W (223 - 40).

(2) Required quality control volume based on 40 m³/ha; Quality control release rate based on 48 hour drawdown time.

(3) Provided volume based on stage-storage curve.

(4) No erosion control requirement assumed at this time.

**Table C-3W: Summary of West SWM - Pond Operating Characteristics
(Free Downstream Conditions)**

Pond Components	Node X		Node A		SWM Pond		
	Target Flows ⁽¹⁾ (m ³ /s)	Post-Dev Flows (m ³ /s)	Target Flows ⁽¹⁾ (m ³ /s)	Post-Dev Flows (m ³ /s)	Release Rate (m ³ /s)	Volume (m ³)	Preliminary Water Level (m)
Permanent Pool	-	-	-	-	-	9,167	101.80
Quality Control	-	-	-	-	0.017	1,848	102.05
25mm 3-hr Chicago	0.044	0.080	0.089	0.085	0.061	5,084	102.45
2-year 3-hr Chicago	0.077	0.134	0.154	0.142	0.102	6,839	102.65
5-year 3-hr Chicago	0.142	0.212	0.284	0.228	0.153	9,651	102.90
10-year 3-hr Chicago	0.193	0.255	0.387	0.277	0.175	11,660	103.10
25-year 3-hr Chicago	0.265	0.323	0.532	0.350	0.214	14,240	103.30
50-year 3-hr Chicago	0.325	0.430	0.652	0.465	0.294	15,930	103.40
100-year 3-hr Chicago	0.392	0.560	0.787	0.604	0.395	17,640	103.55
2-year 24-hr SCS	0.121	0.190	0.242	0.204	0.140	8,577	102.85
5-year 24-hr SCS	0.210	0.264	0.422	0.288	0.177	11,840	103.10
10-year 24-hr SCS	0.278	0.322	0.558	0.352	0.206	14,020	103.25
25-year 24-hr SCS	0.370	0.477	0.743	0.518	0.321	16,410	103.45
50-year 24-hr SCS	0.446	0.616	0.896	0.668	0.430	18,180	103.60
100-year 24-hr SCS	0.532	0.809	1.069	0.873	0.590	19,940	103.70
2-year 12-hr SCS	0.114	0.181	0.228	0.194	0.135	8,271	102.80
5-year 12-hr SCS	0.203	0.259	0.407	0.282	0.175	11,660	103.10
10-year 12-hr SCS	0.273	0.318	0.548	0.347	0.207	14,030	103.25
25-year 12-hr SCS	0.366	0.478	0.734	0.519	0.325	16,470	103.45
50-year 12-hr SCS	0.445	0.633	0.893	0.685	0.448	18,460	103.60
100-year 12-hr SCS	0.523	0.815	1.051	0.879	0.601	20,160	103.70

* Note: Elevations reported have been rounded up to the nearest 5cm

(1) Target flows based on pre-development flows.

(2) Total post-dev flows/release rates based on SWMHYMO model which takes into account the timing of peak.

(3) No erosion control requirement assumed at this time.

**Table C-4W: Summary of West SWM - Pond Operating Characteristics
(Restrictive Downstream Conditions)**

Pond Components	SWM Pond		Preliminary Water Level (m)
	Release Rate (m ³ /s)	Volume (m ³)	
Permanent Pool	-	9,167	101.80
Quality Control	0.017	1,848	102.05
25mm 3-hr Chicago	0.000	5,545	102.50
2-year 3-hr Chicago	0.000	7,510	102.75
5-year 3-hr Chicago	0.061	10,450	103.00
10-year 3-hr Chicago	0.104	12,310	103.15
25-year 3-hr Chicago	0.169	14,750	103.30
50-year 3-hr Chicago	0.258	16,360	103.45
100-year 3-hr Chicago	0.360	17,990	103.55
2-year 24-hr SCS	0.051	10,130	102.95
5-year 24-hr SCS	0.114	12,950	103.20
10-year 24-hr SCS	0.179	14,950	103.35
25-year 24-hr SCS	0.313	17,250	103.50
50-year 24-hr SCS	0.448	19,020	103.65
100-year 24-hr SCS	0.583	20,870	103.80
2-year 12-hr SCS	0.043	9,828	102.95
5-year 12-hr SCS	0.109	12,660	103.15
10-year 12-hr SCS	0.170	14,760	103.30
25-year 12-hr SCS	0.300	17,040	103.50
50-year 12-hr SCS	0.442	18,980	103.65
100-year 12-hr SCS	0.575	20,700	103.75

* Note: Elevations reported have been rounded up to the nearest 5cm

(1) Target flows based on pre-development flows.

(2) Total post-dev flows/release rates based on SWMHYMO model which takes into account the timing of peak.

(3) No erosion control requirement assumed at this time.

Table C-5W: Extended Detention Parameters for West SWM Facility

Permanent Pool Parameters		Quality Orifice Parameters	
Area (C3)	7057.75 m ²	Diameter 0.135	m
Volume	10185.70 m ³		
PP Elev	101.800 m	Area 0.014	m ²
QC Elev	102.050 m	Invert 101.80	m
h (m)	0.250 m	C _o 0.62	

Notes:

- C3 is the intercept from the area-depth linear regression.
- PP Elev indicates the elevation of the permanent pool.
- QC Elev indicates the elevation of the storage volume required by MOE for quality control.
- h is the maximum water elevation above the orifice (m).

Table C-6W: Extended Detention Drawdown Time for West SWM Facility

Elev. (m)	Active Storage			C2 (m ² /m)	Drawdown Time (h)	Drawdown Time (days)	Flow (m ³ /s)	Demarkation Point
	V (m ³)	A (m ²)	depth (m)					
101.80	0.00	7057.75	0.00				0.000	PP Elev
101.85	356.18	7189.64	0.05	2638	22.41	0.93	0.004	
101.90	718.99	7322.73	0.10	2650	31.89	1.33	0.008	
101.95	1088.51	7457.99	0.15	2668	39.30	1.64	0.011	
102.00	1464.84	7595.28	0.20	2688	45.67	1.90	0.014	
102.05	1848.09	7734.68	0.25	2708	51.38	2.14	0.017	QC Elev
102.10	2238.36	7876.12	0.30	2728	56.65	2.36	0.023	
102.15	2635.76	8019.68	0.35	2748	61.58	2.57	0.033	
102.20	3040.38	8165.24	0.40	2769	66.26	2.76	0.040	
102.25	3452.34	8312.94	0.45	2789	70.74	2.95	0.046	
102.30	3871.73	8462.72	0.50	2810	75.06	3.13	0.050	
102.35	4298.66	8614.50	0.55	2830	79.25	3.30	0.055	
102.40	4733.23	8768.49	0.60	2851	83.33	3.47	0.059	
102.45	5175.56	8924.60	0.65	2872	87.32	3.64	0.062	
102.50	5625.74	9082.57	0.70	2893	89.21	3.72	0.070	
102.55	6083.87	9242.77	0.75	2913	90.91	3.79	0.080	
102.60	6550.07	9405.02	0.80	2934	92.44	3.85	0.090	
102.65	7024.42	9569.30	0.85	2955	93.75	3.91	0.110	
102.70	7507.05	9735.72	0.90	2976	94.91	3.95	0.121	
102.75	7998.05	9904.23	0.95	2996	96.00	4.00	0.130	
102.80	8518.49	10913.50	1.00	3856	97.07	4.04	0.139	
102.85	9095.51	12167.40	1.05	4866	98.19	4.09	0.147	
102.90	9706.35	12266.01	1.10	4735	99.32	4.14	0.154	
102.95	10322.13	12365.07	1.15	4615	100.41	4.18	0.161	
103.00	10942.86	12464.31	1.20	4505	101.46	4.23	0.168	
103.05	11568.56	12563.82	1.25	4405	102.47	4.27	0.174	
103.10	12199.25	12663.52	1.30	4312	103.46	4.31	0.180	

Notes:

- C2 is the slope coefficient from the area-depth linear regression.
- PP Elev indicates the elevation of the permanent pool.
- QC Elev indicates the elevation of the storage volume required by MOE for quality control.
- Drawdown time calculated based on MOE Equation 4.11 up to the Ext Det elevation, then based on incremental volume and average outflow.

Table C-7W: Stage-Storage-Outflow Curve for West SWM Facility (Free Outfall Conditions)

			Quality Control 1		Quantity Control 1		Quantity Control 2		Quantity Control 3		Emergency Overflow			
			Vertical Orifice		Vertical Rect. Orifice		Vertical Rect. Orifice		Vertical Rect. Orifice		Broad Crested Weir			
			Dia (m)	0.135	Width (m)	0.200	Width (m)	0.200	Width (m)	0.600	L (m)	15.000		
			Area (m ²)	0.014	Area (m ²)	0.020	Area (m2)	0.040	Area (m2)	0.240				
			Invert (m)	101.80	Invert (m)	102.05	Invert (m)	102.45	Invert (m)	103.20	C _w	1.580		
			C _o	0.62	C _o	0.62	Co	0.62	Co	0.62	Invert (m)	103.85		
			Q @ D	0.010	C _w	1.800	Cw	1.800	Cw	1.800	n contr.	2		
Elevation	Active Sto.	Demarkation	Depth	Outflow	Depth	Outflow	Depth	Outflow	Depth	Outflow	Depth	Outflow	Outflow	Storage
(m)	(m ³)	Points	(m)	(m ³ /s)	(m)	(m ³ /s)	(m)	(m ³ /s)	(m)	(m ³ /s)	(m)	(m ³ /s)	(m ³ /s)	(ha·m)
101.80	0	PP Elev	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
101.85	356	QC Elev	0.050	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.036
101.90	719		0.100	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.072
101.95	1089		0.150	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.109
102.00	1465		0.200	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.146
102.05	1848		0.250	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.185
102.10	2238		0.300	0.019	0.050	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.023	0.224
102.15	2636		0.350	0.021	0.100	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.033	0.264
102.20	3040		0.400	0.023	0.150	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.040	0.304
102.25	3452		0.450	0.024	0.200	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.046	0.345
102.30	3872		0.500	0.026	0.250	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.387
102.35	4299		0.550	0.027	0.300	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.055	0.430
102.40	4733		0.600	0.029	0.350	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.059	0.473
102.45	5176		0.650	0.030	0.400	0.032	0.000	0.000	0.000	0.000	0.000	0.000	0.062	0.518
102.50	5626		0.700	0.031	0.450	0.035	0.050	0.004	0.000	0.000	0.000	0.000	0.070	0.563
102.55	6084		0.750	0.032	0.500	0.037	0.100	0.010	0.000	0.000	0.000	0.000	0.080	0.608
102.60	6550		0.800	0.034	0.550	0.039	0.150	0.018	0.000	0.000	0.000	0.000	0.090	0.655
102.65	7024		0.850	0.035	0.600	0.041	0.200	0.035	0.000	0.000	0.000	0.000	0.110	0.702
102.70	7507		0.900	0.036	0.650	0.043	0.250	0.043	0.000	0.000	0.000	0.000	0.121	0.751
102.75	7998		0.950	0.037	0.700	0.044	0.300	0.049	0.000	0.000	0.000	0.000	0.130	0.800
102.80	8518		1.000	0.038	0.750	0.046	0.350	0.055	0.000	0.000	0.000	0.000	0.139	0.852
102.85	9096		1.050	0.039	0.800	0.048	0.400	0.060	0.000	0.000	0.000	0.000	0.147	0.910
102.90	9706		1.100	0.040	0.850	0.049	0.450	0.065	0.000	0.000	0.000	0.000	0.154	0.971
102.95	10322		1.150	0.041	0.900	0.051	0.500	0.069	0.000	0.000	0.000	0.000	0.161	1.032
103.00	10943		1.200	0.042	0.950	0.052	0.550	0.074	0.000	0.000	0.000	0.000	0.168	1.094
103.05	11569	Top of Berm	1.250	0.043	1.000	0.054	0.600	0.078	0.000	0.000	0.000	0.000	0.174	1.157
103.10	12199		1.300	0.044	1.050	0.055	0.650	0.081	0.000	0.000	0.000	0.000	0.180	1.220
103.15	12835		1.350	0.045	1.100	0.056	0.700	0.085	0.000	0.000	0.000	0.000	0.186	1.283
103.20	13476		1.400	0.045	1.150	0.058	0.750	0.089	0.000	0.000	0.000	0.000	0.192	1.348
103.25	14121		1.450	0.046	1.200	0.059	0.800	0.092	0.050	0.012	0.000	0.000	0.209	1.412
103.30	14772		1.500	0.047	1.250	0.060	0.850	0.095	0.100	0.033	0.000	0.000	0.235	1.477
103.35	15428		1.550	0.048	1.300	0.061	0.900	0.098	0.150	0.060	0.000	0.000	0.267	1.543
103.40	16089		1.600	0.049	1.350	0.063	0.950	0.101	0.200	0.090	0.000	0.000	0.303	1.609
103.45	16755		1.650	0.049	1.400	0.064	1.000	0.104	0.250	0.124	0.000	0.000	0.341	1.675
103.50	17426		1.700	0.050	1.450	0.065	1.050	0.107	0.300	0.160	0.000	0.000	0.382	1.743
103.55	18102		1.750	0.051	1.500	0.066	1.100	0.110	0.350	0.198	0.000	0.000	0.425	1.810
103.60	18783		1.800	0.052	1.550	0.067	1.150	0.113	0.400	0.237	0.000	0.000	0.468	1.878
103.65	19469		1.850	0.052	1.600	0.068	1.200	0.115	0.450	0.330	0.000	0.000	0.566	1.947
103.70	20161		1.900	0.053	1.650	0.069	1.250	0.118	0.500	0.361	0.000	0.000	0.601	2.016
103.75	20857		1.950	0.054	1.700	0.071	1.300	0.120	0.550	0.390	0.000	0.000	0.635	2.086
103.80	21559		2.000	0.055	1.750	0.072	1.350	0.123	0.600	0.417	0.000	0.000	0.666	2.156
103.85	22266		2.050	0.055	1.800	0.073	1.400	0.125	0.650	0.442	0.000	0.000	0.695	2.227
103.90	22978		2.100	0.056	1.850	0.074	1.450	0.128	0.700	0.466	0.050	0.265	0.988	2.298
103.95	23696		2.150	0.057	1.900	0.075	1.500	0.130	0.750	0.489	0.100	0.748	1.499	2.370
104.00	24418		2.200	0.057	1.950	0.076	1.550	0.132	0.800	0.511	0.150	1.374	2.150	2.442
104.05	25146		2.250	0.058	2.000	0.077	1.600	0.135	0.850	0.531	0.200	2.114	2.915	2.515
104.10	25879		2.300	0.059	2.050	0.078	1.650	0.137	0.900	0.551	0.250	2.953	3.777	2.588
104.15	26618		2.350	0.059	2.100	0.079	1.700	0.139	0.950	0.571	0.300	3.879	4.727	2.662
104.20	27361		2.400	0.060	2.150	0.080	1.750	0.141	1.000	0.590	0.350	4.884	5.755	2.736
104.25	28110		2.450	0.061	2.200	0.081	1.800	0.143	1.050	0.608	0.400	5.964	6.856	2.811
104.30	28864		2.500	0.061	2.250	0.081	1.850	0.145	1.100	0.625	0.450	7.111	8.025	2.886
104.35	29652		2.550	0.062	2.300	0.082	1.900	0.147	1.150	0.642	0.500	8.323	9.257	2.965
104.40	30503	Top of Berm	2.600	0.063	2.350	0.083	1.950	0.149	1.200	0.659	0.550	9.596	10.550	3.050

Table C-8W: Stage-Storage-Outflow Curve for West SWM Facility (Restrictive Outfall Conditions)

			Quality Control 1		Quantity Control 1		Quantity Control 2		Quantity Control 3		Emergency Overflow			
			Vertical Orifice		Vertical Rect. Orifice		Vertical Rect. Orifice		Vertical Rect. Orifice		Broad Crested Weir			
			Dia (m)	0.135	Width (m)	0.200	Width (m)	0.200	Width (m)	0.600	L (m)	15.000		
					Height (m)	0.100	Height (m)	0.200	Height (m)	0.400				
			Area (m ²)	0.014	Area (m ²)	0.020	Area (m2)	0.040	Area (m2)	0.240				
			Invert (m)	102.77	Invert (m)	102.77	Invert (m)	102.77	Invert (m)	103.20	C _w	1.580	Invert (m)	103.85
			C _o	0.62	C _o	0.62	Co	0.62	Co	0.62			n contr.	2
			Q @ D	0.010	C _w	1.800	Cw	1.800	Cw	1.800				
Elevation	Active Sto.	Demarkation	Depth	Outflow	Depth	Outflow	Depth	Outflow	Depth	Outflow	Depth	Outflow	Outflow	Storage
(m)	(m ³)	Points	(m)	(m ³ /s)	(m)	(m ³ /s)	(m)	(m ³ /s)	(m)	(m ³ /s)	(m)	(m ³ /s)	(m ³ /s)	(ha·m)
101.80	0	PP Elev	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
101.85	356	QC Elev	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.036
101.90	719		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.072
101.95	1089		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.109
102.00	1465		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.146
102.05	1848		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.185
102.10	2238		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.224
102.15	2636		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.264
102.20	3040		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.304
102.25	3452		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.345
102.30	3872		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.387
102.35	4299		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.430
102.40	4733		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.473
102.45	5176		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.518
102.50	5626		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.563
102.55	6084		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.608
102.60	6550		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.655
102.65	7024		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.702
102.70	7507		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.751
102.75	7998		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.800
102.80	8518		0.030	0.002	0.030	0.002	0.030	0.002	0.000	0.000	0.000	0.000	0.006	0.852
102.85	9096		0.080	0.006	0.080	0.007	0.080	0.007	0.000	0.000	0.000	0.000	0.021	0.910
102.90	9706		0.130	0.010	0.130	0.016	0.130	0.015	0.000	0.000	0.000	0.000	0.040	0.971
102.95	10322		0.180	0.013	0.180	0.020	0.180	0.023	0.000	0.000	0.000	0.000	0.056	1.032
103.00	10943		0.230	0.016	0.230	0.023	0.230	0.040	0.000	0.000	0.000	0.000	0.079	1.094
103.05	11569		0.280	0.018	0.280	0.026	0.280	0.047	0.000	0.000	0.000	0.000	0.091	1.157
103.10	12199		0.330	0.020	0.330	0.029	0.330	0.053	0.000	0.000	0.000	0.000	0.102	1.220
103.15	12835		0.380	0.022	0.380	0.032	0.380	0.058	0.000	0.000	0.000	0.000	0.112	1.283
103.20	13476		0.430	0.024	0.430	0.034	0.430	0.063	0.000	0.000	0.000	0.000	0.121	1.348
103.25	14121		0.480	0.025	0.480	0.036	0.480	0.068	0.050	0.012	0.000	0.000	0.141	1.412
103.30	14772		0.530	0.027	0.530	0.038	0.530	0.072	0.100	0.033	0.000	0.000	0.170	1.477
103.35	15428		0.580	0.028	0.580	0.040	0.580	0.076	0.150	0.060	0.000	0.000	0.204	1.543
103.40	16089		0.630	0.029	0.630	0.042	0.630	0.080	0.200	0.090	0.000	0.000	0.241	1.609
103.45	16755		0.680	0.031	0.680	0.044	0.680	0.084	0.250	0.124	0.000	0.000	0.282	1.675
103.50	17426		0.730	0.032	0.730	0.045	0.730	0.087	0.300	0.160	0.000	0.000	0.324	1.743
103.55	18102		0.780	0.033	0.780	0.047	0.780	0.091	0.350	0.198	0.000	0.000	0.368	1.810
103.60	18783		0.830	0.034	0.830	0.049	0.830	0.094	0.400	0.237	0.000	0.000	0.413	1.878
103.65	19469		0.880	0.035	0.880	0.050	0.880	0.097	0.450	0.330	0.000	0.000	0.512	1.947
103.70	20161		0.930	0.037	0.930	0.052	0.930	0.100	0.500	0.361	0.000	0.000	0.549	2.016
103.75	20857		0.980	0.038	0.980	0.053	0.980	0.103	0.550	0.390	0.000	0.000	0.583	2.086
103.80	21559		1.030	0.039	1.030	0.054	1.030	0.106	0.600	0.417	0.000	0.000	0.616	2.156
103.85	22266		1.080	0.040	1.080	0.056	1.080	0.109	0.650	0.442	0.000	0.000	0.646	2.227
103.90	22978		1.130	0.041	1.130	0.057	1.130	0.111	0.700	0.466	0.050	0.265	0.940	2.298
103.95	23696		1.180	0.041	1.180	0.058	1.180	0.114	0.750	0.489	0.100	0.748	1.451	2.370
104.00	24418		1.230	0.042	1.230	0.060	1.230	0.117	0.800	0.511	0.150	1.374	2.103	2.442
104.05	25146		1.280	0.043	1.280	0.061	1.280	0.119	0.850	0.531	0.200	2.114	2.869	2.515
104.10	25879		1.330	0.044	1.330	0.062	1.330	0.122	0.900	0.551	0.250	2.953	3.732	2.588
104.15	26618		1.380	0.045	1.380	0.063	1.380	0.124	0.950	0.571	0.300	3.879	4.682	2.662
104.20	27361		1.430	0.046	1.430	0.065	1.430	0.127	1.000	0.590	0.350	4.884	5.711	2.736
104.25	28110		1.480	0.047	1.480	0.066	1.480	0.129	1.050	0.608	0.400	5.964	6.813	2.811
104.30	28864		1.530	0.048	1.530	0.067	1.530	0.131	1.100	0.625	0.450	7.111	7.982	2.886
104.35	29652		1.580	0.048	1.580	0.068	1.580	0.134	1.150	0.642	0.500	8.323	9.216	2.965
104.40	30503	Top of Berm	1.630	0.049	1.630	0.069	1.630	0.136	1.200	0.659	0.550	9.596	10.509	3.050

East SWM Pond Preliminary Stage Storage

Volume above				Demarcation
Elevation (m)	Volume (m ³)	PP @ 90% (m ³)	Area (m ²)	
98.50	0.000		5177.35	Pond Bottom
98.55	260.364		5237.22	
98.60	523.743		5297.95	
98.65	790.170		5359.1	
98.70	1059.663		5420.64	
98.75	1332.246		5482.65	
98.80	1607.938		5545.03	
98.85	1886.759		5607.8	
98.90	2168.731		5671.1	
98.95	2453.875		5734.64	
99.00	2742.208		5798.69	
99.05	3033.757		5863.27	
99.10	3328.540		5928.05	
99.15	3626.576		5993.4	
99.20	3927.889		6059.11	
99.25	4232.497		6125.21	
99.30	4540.420		6191.74	
99.35	4851.682		6258.74	
99.40	5166.303		6326.08	
99.45	5484.302		6393.88	
99.50	5805.757		6464.31	
99.55	6155.033		7032.63	
99.60	6509.062		7128.53	
99.65	6867.905		7225.19	
99.70	7231.606		7322.84	
99.75	7600.209		7421.3	
99.80	7973.758		7520.62	
99.85	8352.292		7620.75	
99.90	8735.856		7721.81	
99.95	9124.494		7823.72	
100.00	9518.252		7926.58	
100.05	9917.170		8030.15	
100.10	10321.294		8134.79	
100.15	10730.668		8240.16	
100.20	11145.334		8346.49	
100.25	11565.336		8453.58	
100.30	11990.715		8561.58	
100.35	12421.517		8670.48	
100.40	12857.784		8780.22	
100.45	13299.560		8890.83	

East SWM Pond Preliminary Stage Storage

Elevation (m)	Volume (m ³)	Volume above PP @ 90% (m ³)	Area (m ²)	Demarcation
100.50	13746.993	0.000	9006.47	Permanent Pool
100.55	14199.992	407.699	9113.5	
100.60	14658.382	820.250	9222.12	
100.65	15122.219	1237.703	9331.34	
100.70	15591.534	1660.087	9441.26	
100.75	16066.362	2087.432	9551.84	
100.80	16546.735	2519.768	9663.12	
100.85	17032.685	2957.123	9774.88	
100.90	17524.243	3399.525	9887.42	
100.95	18021.443	3847.005	10000.6	
101.00	18524.318	4299.592	10114.38	
101.05	19032.898	4757.314	10228.82	
101.10	19547.215	5220.200	10343.9	
101.15	20067.305	5688.281	10459.71	
101.20	20593.201	6161.587	10576.09	
101.25	21124.932	6640.145	10693.17	
101.30	21662.534	7123.987	10810.9	
101.35	22206.038	7613.140	10929.25	
101.40	22755.475	8107.634	11048.24	
101.45	23310.876	8607.495	11167.81	
101.50	23872.388	9112.855	11292.64	
101.55	24449.754	9632.485	11802.03	
101.60	25042.222	10165.706	11896.71	
101.65	25639.429	10703.192	11991.57	
101.70	26241.390	11244.957	12086.85	
101.75	26848.124	11791.018	12182.53	
101.80	27459.649	12341.390	12278.49	
101.85	28075.980	12896.088	12374.76	
101.90	28697.138	13455.131	12471.55	
101.95	29323.140	14018.532	12568.53	
102.00	29954.002	14586.308	12665.95	
102.05	30589.744	15158.476	12763.74	
102.10	31230.384	15735.052	12861.82	
102.15	31875.935	16316.048	12960.24	
102.20	32526.419	16901.483	13059.12	
102.25	33181.855	17491.376	13158.3	
102.30	33842.256	18085.737	13257.76	
102.35	34507.642	18684.584	13357.68	
102.40	35178.031	19287.934	13457.87	
102.45	35853.439	19895.801	13558.45	
102.50	36533.883	20508.201	13659.3	

East SWM Pond Preliminary Stage Storage

Elevation (m)	Volume (m ³)	Volume above PP @ 90% (m ³)	Area (m ²)	Demarcation
102.55	37219.383	21125.151	13760.68	
102.60	37909.957	21746.668	13862.3	
102.65	38605.622	22372.766	13964.32	
102.70	39306.396	23003.463	14066.62	
102.75	40012.294	23638.771	14169.31	
102.80	40723.337	24278.710	14272.38	
102.85	41439.537	24923.290	14375.63	
102.90	42160.916	25572.531	14479.51	
102.95	42887.494	26226.451	14583.63	
103.00	43619.335	26885.108	14690.02	
103.05	44386.289	27575.366	15988.11	
103.08	44878.075	28017.974	16797.66	
				Top of Pond

Table C-1E: East Pond Criteria for Required Storage Volumes

Pond	Area ⁽¹⁾ (ha)	Imperviousness (%)	Storage Volume for Impervious Level ⁽²⁾ (m ³ /ha)
N/A	N/A	55	190
East SWM Pond	26.25	67	218
N/A	N/A	70	225

(1) Refer to Post-Development Figure for drainage areas to the SWM facility.

(2) Protection Level for Wet Pond: Enhanced 80% long-term S.S. removal.

SWM Planning & Design Manual, Table 3.2, p.3-10 (March 2003).

Table C-2E: Required Storage Volumes for West SWM Facility

Pond Component	Required Volume (m ³)	Volume Provided ⁽³⁾ (m ³)	Volume Ratio
Permanent Pool (PP) ⁽¹⁾	4,673	12,372	2.65
Quality Control ⁽²⁾	1,050	1,660	1.58
Forebay (20% PP)	935	N/A	N/A
PP - Forebay	3,738	N/A	N/A

(1) Required PP volume based on Table C-1E (218 - 40).

(2) Required quality control volume based on 40 m³/ha; Quality control release rate based on 48 hour drawdown time.

(3) Provided volume based on stage-storage curve.

(4) No erosion control requirement assumed at this time.

**Table C-3E: Summary of East SWM - Pond Operating Characteristics
(Free Downstream Conditions)**

Pond Components	Node B		SWM Pond		
	Target Flows ⁽¹⁾ (m ³ /s)	Post-Dev Flows (m ³ /s)	Release Rate (m ³ /s)	Volume (m ³)	Preliminary Water Level (m)
Permanent Pool	-	-	-	12,372	100.50
Quality Control	-	-	0.013	1,660	100.70
25mm 3-hr Chicago	0.152	0.143	0.060	3,608	100.95
2-year 3-hr Chicago	0.266	0.221	0.082	4,875	101.10
5-year 3-hr Chicago	0.492	0.398	0.171	6,743	101.30
10-year 3-hr Chicago	0.671	0.543	0.276	7,875	101.40
25-year 3-hr Chicago	0.920	0.728	0.395	9,376	101.55
50-year 3-hr Chicago	1.128	0.923	0.501	10,540	101.65
100-year 3-hr Chicago	1.362	1.173	0.626	11,740	101.75
2-year 24-hr SCS	0.415	0.332	0.131	6,141	101.20
5-year 24-hr SCS	0.726	0.579	0.306	8,084	101.40
10-year 24-hr SCS	0.960	0.733	0.398	9,413	101.55
25-year 24-hr SCS	1.279	1.020	0.553	11,050	101.70
50-year 24-hr SCS	1.543	1.286	0.682	12,260	101.80
100-year 24-hr SCS	1.840	1.620	0.877	13,480	101.95
2-year 12-hr SCS	0.390	0.310	0.117	5,897	101.20
5-year 12-hr SCS	0.700	0.550	0.284	7,926	101.40
10-year 12-hr SCS	0.941	0.723	0.393	9,355	101.55
25-year 12-hr SCS	1.262	1.022	0.556	11,080	101.70
50-year 12-hr SCS	1.535	1.320	0.703	12,440	101.85
100-year 12-hr SCS	1.806	1.655	0.892	13,630	101.95

* Note: Elevations reported have been rounded up to the nearest 5cm

(1) Target flows based on pre-development flows.

(2) Total post-dev flows/release rates based on SWMHYMO model which takes into account the timing of peak.

(3) No erosion control requirement assumed at this time.

**Table C-4E: Summary of East SWM - Pond Operating Characteristics
(Restrictive Downstream Conditions)**

Pond Components	SWM Pond		Preliminary Water Level (m)
	Release Rate (m ³ /s)	Volume (m ³)	
Permanent Pool	-	12,372	100.50
Quality Control	0.013	1,660	100.70
25mm 3-hr Chicago	0.000	4,000	101.00
2-year 3-hr Chicago	0.015	5,393	101.15
5-year 3-hr Chicago	0.142	7,049	101.30
10-year 3-hr Chicago	0.258	8,059	101.40
25-year 3-hr Chicago	0.370	9,538	101.55
50-year 3-hr Chicago	0.480	10,680	101.65
100-year 3-hr Chicago	0.607	11,860	101.80
2-year 24-hr SCS	0.105	6,607	101.25
5-year 24-hr SCS	0.291	8,451	101.45
10-year 24-hr SCS	0.395	9,821	101.60
25-year 24-hr SCS	0.566	11,490	101.75
50-year 24-hr SCS	0.704	12,740	101.85
100-year 24-hr SCS	0.899	13,990	101.95
2-year 12-hr SCS	0.084	6,391	101.25
5-year 12-hr SCS	0.271	8,173	101.45
10-year 12-hr SCS	0.376	9,617	101.55
25-year 12-hr SCS	0.550	11,340	101.75
50-year 12-hr SCS	0.702	12,720	101.85
100-year 12-hr SCS	0.891	13,910	101.95

* Note: Elevations reported have been rounded up to the nearest 5cm

(1) Target flows based on pre-development flows.

(2) Total post-dev flows/release rates based on SWMHYMO model which takes into account the timing of peak.

(3) No erosion control requirement assumed at this time.

Table C-5E: Extended Detention Parameters for East SWM Facility

Permanent Pool Parameters		Quality Orifice Parameters	
Area (C3)	8105.82 m ²	Diameter 0.130	m
Volume	13746.99 m ³		
PP Elev	100.500 m	Area 0.013	m ²
QC Elev	100.700 m	Invert 100.50	m
h (m)	0.200 m	C _o 0.62	

Notes:

- C3 is the intercept from the area-depth linear regression.
- PP Elev indicates the elevation of the permanent pool.
- QC Elev indicates the elevation of the storage volume required by MOE for quality control.
- h is the maximum water elevation above the orifice (m).

Table C-6E: Extended Detention Drawdown Time for East SWM Facility (Free Downstream Conditions)

Elev. (m)	Active Storage			C2 (m ² /m)	Drawdown Time (h)	Drawdown Time (days)	Flow (m ³ /s)	Demarkation Point
	V (m ³)	A (m ²)	depth (m)					
100.50	0.00	8105.82	0.00				0.000	PP Elev
100.55	407.70	8202.15	0.05	1927	27.69	1.15	0.004	
100.60	820.25	8299.91	0.10	1941	39.32	1.64	0.007	
100.65	1237.70	8398.21	0.15	1949	48.35	2.01	0.011	
100.70	1660.09	8497.13	0.20	1957	56.05	2.34	0.013	QC Elev
100.75	2087.43	8596.66	0.25	1963	62.92	2.62	0.020	
100.80	2519.77	8696.81	0.30	1970	69.20	2.88	0.028	
100.85	2957.12	8797.39	0.35	1976	75.04	3.13	0.037	
100.90	3399.52	8898.68	0.40	1982	80.55	3.36	0.056	
100.95	3847.00	9000.54	0.45	1988	85.77	3.57	0.065	
101.00	4299.59	9102.94	0.50	1994	90.78	3.78	0.073	
101.05	4757.31	9205.94	0.55	2000	95.59	3.98	0.080	
101.10	5220.20	9309.51	0.60	2006	100.25	4.18	0.087	
101.15	5688.28	9413.74	0.65	2012	104.76	4.37	0.105	
101.20	6161.59	9518.48	0.70	2018	105.87	4.41	0.132	
101.25	6640.15	9623.85	0.75	2024	106.78	4.45	0.163	
101.30	7123.99	9729.81	0.80	2030	107.52	4.48	0.199	
101.35	7613.14	9836.33	0.85	2036	108.14	4.51	0.238	
101.40	8107.63	9943.42	0.90	2042	108.64	4.53	0.310	
101.45	8607.49	10051.03	0.95	2048	109.07	4.54	0.344	
101.50	9112.86	10163.38	1.00	2058	109.46	4.56	0.374	
101.55	9632.48	10621.83	1.05	2396	109.82	4.58	0.415	
101.60	10165.71	10707.04	1.10	2365	110.16	4.59	0.464	
101.65	10703.19	10792.41	1.15	2336	110.46	4.60	0.517	
101.70	11244.96	10878.17	1.20	2310	110.74	4.61	0.573	
101.75	11791.02	10964.28	1.25	2287	110.99	4.62	0.631	
101.80	12341.39	11050.64	1.30	2265	111.22	4.63	0.691	

Notes:

- C2 is the slope coefficient from the area-depth linear regression.
- PP Elev indicates the elevation of the permanent pool.
- QC Elev indicates the elevation of the storage volume required by MOE for quality control.
- Drawdown time calculated based on MOE Equation 4.11 up to the Ext Det elevation, then based on incremental volume and average outflow.

Table C-7E: Stage-Storage-Outflow Curve for East SWM Facility (Free Outfall Conditions)

			Quality Control 1		Quantity Control 1		Quantity Control 2		Quantity Control 3		Emergency Overflow			
			Vertical Orifice		Vertical Rect. Orifice		Vertical Rect. Orifice		Vertical Rect. Orifice		Broad Crested Weir			
			Dia (m)	0.130	Width (m)	0.200	Width (m)	0.600	Width (m)	0.650	L (m)	15.000		
					Height (m)	0.200	Height (m)	0.300	Height (m)	0.400				
			Area (m ²)	0.013	Area (m ²)	0.040	Area (m2)	0.180	Area (m2)	0.260				
			Invert (m)	100.50	Invert (m)	100.70	Invert (m)	101.10	Invert (m)	101.50	C _w	1.580		
			C _o	0.62	C _o	0.62	Co	0.62	Co	0.62	Invert (m)	102.10		
			Q @ D	0.009	C _w	1.800	Cw	1.800	Cw	1.800	n contr.	2		
Elevation	Active Sto.	Demarkation	Depth	Outflow	Depth	Outflow	Depth	Outflow	Depth	Outflow	Depth	Outflow	Outflow	Storage
(m)	(m ³)	Points	(m)	(m ³ /s)	(m)	(m ³ /s)	(m)	(m ³ /s)	(m)	(m ³ /s)	(m)	(m ³ /s)	(m ³ /s)	(ha·m)
100.50	0	PP Elev	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100.55	408	QC Elev	0.050	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.041
100.60	820		0.100	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.082
100.65	1238		0.150	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.124
100.70	1660		0.200	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.166
100.75	2087		0.250	0.016	0.050	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.209
100.80	2520		0.300	0.018	0.100	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.252
100.85	2957		0.350	0.019	0.150	0.018	0.000	0.000	0.000	0.000	0.000	0.000	0.037	0.296
100.90	3400		0.400	0.021	0.200	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.056	0.340
100.95	3847		0.450	0.023	0.250	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.065	0.385
101.00	4300		0.500	0.024	0.300	0.049	0.000	0.000	0.000	0.000	0.000	0.000	0.073	0.430
101.05	4757		0.550	0.025	0.350	0.055	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.476
101.10	5220		0.600	0.027	0.400	0.060	0.000	0.000	0.000	0.000	0.000	0.000	0.087	0.522
101.15	5688		0.650	0.028	0.450	0.065	0.050	0.012	0.000	0.000	0.000	0.000	0.105	0.569
101.20	6162		0.700	0.029	0.500	0.069	0.100	0.033	0.000	0.000	0.000	0.000	0.132	0.616
101.25	6640		0.750	0.030	0.550	0.074	0.150	0.060	0.000	0.000	0.000	0.000	0.163	0.664
101.30	7124		0.800	0.031	0.600	0.078	0.200	0.090	0.000	0.000	0.000	0.000	0.199	0.712
101.35	7613		0.850	0.032	0.650	0.081	0.250	0.124	0.000	0.000	0.000	0.000	0.238	0.761
101.40	8108		0.900	0.033	0.700	0.085	0.300	0.191	0.000	0.000	0.000	0.000	0.310	0.811
101.45	8607		0.950	0.034	0.750	0.089	0.350	0.221	0.000	0.000	0.000	0.000	0.344	0.861
101.50	9113		1.000	0.035	0.800	0.092	0.400	0.247	0.000	0.000	0.000	0.000	0.374	0.911
101.55	9632		1.050	0.036	0.850	0.095	0.450	0.271	0.050	0.013	0.000	0.000	0.415	0.963
101.60	10166		1.100	0.037	0.900	0.098	0.500	0.292	0.100	0.036	0.000	0.000	0.464	1.017
101.65	10703		1.150	0.038	0.950	0.101	0.550	0.313	0.150	0.065	0.000	0.000	0.517	1.070
101.70	11245		1.200	0.039	1.000	0.104	0.600	0.332	0.200	0.098	0.000	0.000	0.573	1.124
101.75	11791		1.250	0.040	1.050	0.107	0.650	0.350	0.250	0.135	0.000	0.000	0.631	1.179
101.80	12341		1.300	0.041	1.100	0.110	0.700	0.367	0.300	0.175	0.000	0.000	0.691	1.234
101.85	12896		1.350	0.041	1.150	0.113	0.750	0.383	0.350	0.216	0.000	0.000	0.753	1.290
101.90	13455		1.400	0.042	1.200	0.115	0.800	0.399	0.400	0.319	0.000	0.000	0.875	1.346
101.95	14019		1.450	0.043	1.250	0.118	0.850	0.414	0.450	0.357	0.000	0.000	0.931	1.402
102.00	14586		1.500	0.044	1.300	0.120	0.900	0.428	0.500	0.391	0.000	0.000	0.983	1.459
102.05	15158		1.550	0.044	1.350	0.123	0.950	0.442	0.550	0.422	0.000	0.000	1.032	1.516
102.10	15735		1.600	0.045	1.400	0.125	1.000	0.456	0.600	0.452	0.000	0.000	1.078	1.574
102.15	16316		1.650	0.046	1.450	0.128	1.050	0.469	0.650	0.479	0.050	0.265	1.386	1.632
102.20	16901		1.700	0.047	1.500	0.130	1.100	0.482	0.700	0.505	0.100	0.748	1.912	1.690
102.25	17491		1.750	0.047	1.550	0.132	1.150	0.494	0.750	0.530	0.150	1.374	2.578	1.749
102.30	18086		1.800	0.048	1.600	0.135	1.200	0.507	0.800	0.553	0.200	2.114	3.356	1.809
102.35	18685		1.850	0.049	1.650	0.137	1.250	0.518	0.850	0.576	0.250	2.953	4.232	1.868
102.40	19288		1.900	0.049	1.700	0.139	1.300	0.530	0.900	0.597	0.300	3.879	5.195	1.929
102.45	19896		1.950	0.050	1.750	0.141	1.350	0.542	0.950	0.618	0.350	4.884	6.236	1.990
102.50	20508		2.000	0.051	1.800	0.143	1.400	0.553	1.000	0.639	0.400	5.964	7.349	2.051
102.55	21125		2.050	0.051	1.850	0.145	1.450	0.564	1.050	0.658	0.450	7.111	8.530	2.113
102.60	21747		2.100	0.052	1.900	0.147	1.500	0.574	1.100	0.677	0.500	8.323	9.774	2.175
102.65	22373		2.150	0.053	1.950	0.149	1.550	0.585	1.150	0.696	0.550	9.596	11.079	2.237
102.70	23003		2.200	0.053	2.000	0.151	1.600	0.595	1.200	0.714	0.600	10.927	12.441	2.300
102.75	23639		2.250	0.054	2.050	0.153	1.650	0.605	1.250	0.732	0.650	12.312	13.857	2.364
102.80	24279		2.300	0.054	2.100	0.155	1.700	0.615	1.300	0.749	0.700	13.751	15.325	2.428
102.85	24923		2.350	0.055	2.150	0.157	1.750	0.625	1.350	0.766	0.750	15.240	16.843	2.492
102.90	25573		2.400	0.056	2.200	0.159	1.800	0.635	1.400	0.782	0.800	16.777	18.409	2.557
102.95	26226		2.450	0.056	2.250	0.161	1.850	0.645	1.450	0.798	0.850	18.362	20.022	2.623
103.00	26885		2.500	0.057	2.300	0.163	1.900	0.654	1.500	0.814	0.900	19.993	21.680	2.689
103.05	27575		2.550	0.057	2.350	0.165	1.950	0.663	1.550	0.830	0.950	21.667	23.382	2.758
103.08	28018	Top of Berm	2.580	0.058	2.380	0.166	1.980	0.669	1.580	0.839	0.980	22.692	24.423	2.802

Table C-8E: Stage-Storage-Outflow Curve for East SWM Facility (Restrictive Outfall Conditions)

			Quality Control 1		Quantity Control 1		Quantity Control 2		Quantity Control 3		Emergency Overflow			
			Vertical Orifice		Vertical Rect. Orifice		Vertical Rect. Orifice		Vertical Rect. Orifice		Broad Crested Weir			
			Dia (m)	0.130	Width (m)	0.200	Width (m)	0.600	Width (m)	0.650	L (m)	15.000		
			Height (m)		Height (m)	0.200	Height (m)	0.300	Height (m)	0.400				
			Area (m ²)	0.013	Area (m ²)	0.040	Area (m2)	0.180	Area (m2)	0.260				
			Invert (m)	101.05	Invert (m)	101.05	Invert (m)	101.10	Invert (m)	101.50	C _w	1.580	Invert (m)	102.10
			C _o	0.62	C _o	0.62	Co	0.62	Co	0.62	n	contr.	2	
			Q @ D	0.009	C _w	1.800	Cw	1.800	Cw	1.800				
Elevation	Active Sto.	Demarkation	Depth	Outflow	Depth	Outflow	Depth	Outflow	Depth	Outflow	Depth	Outflow	Outflow	Storage
(m)	(m ³)	Points	(m)	(m ³ /s)	(m)	(m ³ /s)	(m)	(m ³ /s)	(m)	(m ³ /s)	(m)	(m ³ /s)	(m ³ /s)	(ha·m)
100.50	0	PP Elev	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100.55	408	QC Elev	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.041
100.60	820		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.082
100.65	1238		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.124
100.70	1660		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.166
100.75	2087		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.209
100.80	2520		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.252
100.85	2957		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.296
100.90	3400		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.340
100.95	3847		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.385
101.00	4300		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.430
101.05	4757	QC Elev	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.476
101.10	5220		0.050	0.004	0.050	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.522
101.15	5688		0.100	0.007	0.100	0.010	0.050	0.012	0.000	0.000	0.000	0.000	0.029	0.569
101.20	6162		0.150	0.011	0.150	0.018	0.100	0.033	0.000	0.000	0.000	0.000	0.061	0.616
101.25	6640		0.200	0.013	0.200	0.035	0.150	0.060	0.000	0.000	0.000	0.000	0.108	0.664
101.30	7124		0.250	0.016	0.250	0.043	0.200	0.090	0.000	0.000	0.000	0.000	0.148	0.712
101.35	7613		0.300	0.018	0.300	0.049	0.250	0.124	0.000	0.000	0.000	0.000	0.191	0.761
101.40	8108		0.350	0.019	0.350	0.055	0.300	0.191	0.000	0.000	0.000	0.000	0.266	0.811
101.45	8607		0.400	0.021	0.400	0.060	0.350	0.221	0.000	0.000	0.000	0.000	0.302	0.861
101.50	9113		0.450	0.023	0.450	0.065	0.400	0.247	0.000	0.000	0.000	0.000	0.335	0.911
101.55	9632	QC Elev	0.500	0.024	0.500	0.069	0.450	0.271	0.050	0.013	0.000	0.000	0.377	0.963
101.60	10166		0.550	0.025	0.550	0.074	0.500	0.292	0.100	0.036	0.000	0.000	0.427	1.017
101.65	10703		0.600	0.027	0.600	0.078	0.550	0.313	0.150	0.065	0.000	0.000	0.482	1.070
101.70	11245		0.650	0.028	0.650	0.081	0.600	0.332	0.200	0.098	0.000	0.000	0.539	1.124
101.75	11791		0.700	0.029	0.700	0.085	0.650	0.350	0.250	0.135	0.000	0.000	0.599	1.179
101.80	12341		0.750	0.030	0.750	0.089	0.700	0.367	0.300	0.175	0.000	0.000	0.660	1.234
101.85	12896		0.800	0.031	0.800	0.092	0.750	0.383	0.350	0.216	0.000	0.000	0.722	1.290
101.90	13455		0.850	0.032	0.850	0.095	0.800	0.399	0.400	0.319	0.000	0.000	0.845	1.346
101.95	14019		0.900	0.033	0.900	0.098	0.850	0.414	0.450	0.357	0.000	0.000	0.902	1.402
102.00	14586		0.950	0.034	0.950	0.101	0.900	0.428	0.500	0.391	0.000	0.000	0.955	1.459
102.05	15158	QC Elev	1.000	0.035	1.000	0.104	0.950	0.442	0.550	0.422	0.000	0.000	1.004	1.516
102.10	15735		1.050	0.036	1.050	0.107	1.000	0.456	0.600	0.452	0.000	0.000	1.051	1.574
102.15	16316		1.100	0.037	1.100	0.110	1.050	0.469	0.650	0.479	0.050	0.265	1.360	1.632
102.20	16901		1.150	0.038	1.150	0.113	1.100	0.482	0.700	0.505	0.100	0.748	1.886	1.690
102.25	17491		1.200	0.039	1.200	0.115	1.150	0.494	0.750	0.530	0.150	1.374	2.552	1.749
102.30	18086		1.250	0.040	1.250	0.118	1.200	0.507	0.800	0.553	0.200	2.114	3.331	1.809
102.35	18685		1.300	0.041	1.300	0.120	1.250	0.518	0.850	0.576	0.250	2.953	4.208	1.868
102.40	19288		1.350	0.041	1.350	0.123	1.300	0.530	0.900	0.597	0.300	3.879	5.170	1.929
102.45	19896		1.400	0.042	1.400	0.125	1.350	0.542	0.950	0.618	0.350	4.884	6.212	1.990
102.50	20508		1.450	0.043	1.450	0.128	1.400	0.553	1.000	0.639	0.400	5.964	7.326	2.051
102.55	21125	QC Elev	1.500	0.044	1.500	0.130	1.450	0.564	1.050	0.658	0.450	7.111	8.507	2.113
102.60	21747		1.550	0.044	1.550	0.132	1.500	0.574	1.100	0.677	0.500	8.323	9.752	2.175
102.65	22373		1.600	0.045	1.600	0.135	1.550	0.585	1.150	0.696	0.550	9.596	11.057	2.237
102.70	23003		1.650	0.046	1.650	0.137	1.600	0.595	1.200	0.714	0.600	10.927	12.419	2.300
102.75	23639		1.700	0.047	1.700	0.139	1.650	0.605	1.250	0.732	0.650	12.312	13.835	2.364
102.80	24279		1.750	0.047	1.750	0.141	1.700	0.615	1.300	0.749	0.700	13.751	15.303	2.428
102.85	24923		1.800	0.048	1.800	0.143	1.750	0.625	1.350	0.766	0.750	15.240	16.822	2.492
102.90	25573		1.850	0.049	1.850	0.145	1.800	0.635	1.400	0.782	0.800	16.777	18.389	2.557
102.95	26226		1.900	0.049	1.900	0.147	1.850	0.645	1.450	0.798	0.850	18.362	20.002	2.623
103.00	26885		1.950	0.050	1.950	0.149	1.900	0.654	1.500	0.814	0.900	19.993	21.660	2.689
103.05	27575	Top of Berm	2.000	0.051	2.000	0.151	1.950	0.663	1.550	0.830	0.950	21.667	23.362	2.758
103.08	28018		2.030	0.051	2.030	0.153	1.980	0.669	1.580	0.839	0.980	22.692	24.403	2.802

```

00001: 20 Metric units / ID Numbers OFF
00002: *
00003: * SWMHYMO Ver:5.500/Feb 2015 / INPUT DATA FILE
00004: *
00005: * Project Name : [Calvan Brittville West properties]
00006: * Project Number: [2267]
00007: * Date : [2/24/08/02]
00008: * Modeller : [JPF]
00009: * Company : J.F. Sabourin and Associates
00010: * License # : 254937
00011: *
00012: * 25 mm Storm based on 3-Year, 4-hour Chicago Storm
00013: START TZERO=[0.0], NETOUT=[2], NETONE=[1], NRUN=[001]
00014: * ["25mmCH.sta"] <-storm filename, one per line for NETONE time
00015: *
00016: READ STORM STORM_FILENAME="storm.001"
00017: *
00018: DEFAULT VALUES ICASEdef=[1], read and print values
00019: DEFVAL_FILENAME="Ottawa.val"
00020: *
00021: *
00022: *
00023: *
00024: * Node X - West SWM Pond Outlet
00025: *
00026: * Post-development drainage area to West SWM Pond
00027: CALIB STATIONID
00028: LOSS=[1] Horton Eqt: Fc=[76.2] (mm/hr), Fc=[13.2] (mm/hr), DCAV=[4.14] (hr), Fc=[0.00] (mm),
00029: Previous areas: IArea=[4.67] (mm), SLPF=[2.0] (4), LGF=[40] (m), MRP=[0.25], SCP=[0] (min),
00030: Impervious areas: IArea=[1.57] (mm), SLPF=[0.5] (4), LGF=[40] (m), MRP=[0.03], SCP=[0] (min),
00031: RAINFALL=[ , , -1] (mm/hr)
00032: *
00033: *
00034: * West SWM Pond Routing (Free Outfall Conditions)
00035: * Quality control and permanent pool requirements based on MOE guidelines
00036: * for enhanced quality control for wet ponds.
00037: *
00038: ROUTE RESERVOIR NRYDout=["W_Fond-Out"], NRYDIn=["W_Fond"], RDT=[1] (min),
00039: TABLE of (OUTFLOW-STORAGE) values
00040: (cms) - (ha-m)
00041: [ 0 , 0 ]
00042: [ 0.004 , 0.036 ]
00043: [ 0.008 , 0.072 ]
00044: [ 0.011 , 0.109 ]
00045: [ 0.014 , 0.146 ]
00046: [ 0.017 , 0.185 ]
00047: [ 0.023 , 0.224 ]
00048: [ 0.033 , 0.264 ]
00049: [ 0.04 , 0.304 ]
00050: [ 0.046 , 0.345 ]
00051: [ 0.05 , 0.387 ]
00052: [ 0.055 , 0.43 ]
00053: [ 0.059 , 0.473 ]
00054: [ 0.062 , 0.518 ]
00055: [ 0.07 , 0.56 ]
00056: [ 0.08 , 0.608 ]
00057: [ 0.09 , 0.652 ]
00058: [ 0.11 , 0.702 ]
00059: [ 0.121 , 0.751 ]
00060: [ 0.13 , 0.8 ]
00061: [ 0.139 , 0.852 ]
00062: [ 0.147 , 0.912 ]
00063: [ 0.154 , 0.971 ]
00064: [ 0.161 , 1.032 ]
00065: [ 0.168 , 1.094 ]
00066: [ 0.174 , 1.157 ]
00067: [ 0.18 , 1.22 ]
00068: [ 0.186 , 1.283 ]
00069: [ 0.192 , 1.348 ]
00070: [ 0.209 , 1.412 ]
00071: [ 0.235 , 1.477 ]
00072: [ 0.267 , 1.543 ]
00073: [ 0.303 , 1.609 ]
00074: [ 0.341 , 1.675 ]
00075: [ 0.382 , 1.743 ]
00076: [ 0.425 , 1.81 ]
00077: [ 0.468 , 1.878 ]
00078: [ 0.566 , 1.947 ]
00079: [ 0.601 , 2.016 ]
00080: [ 0.635 , 2.086 ]
00081: [ 0.666 , 2.156 ]
00082: [ 0.695 , 2.227 ]
00083: [ 0.988 , 2.298 ]
00084: [ 1.499 , 2.37 ]
00085: [ 2.15 , 2.442 ]
00086: [ 2.915 , 2.515 ]
00087: [ 3.777 , 2.588 ]
00088: [ 4.727 , 2.662 ]
00089: [ 5.755 , 2.736 ]
00090: [ 6.854 , 2.811 ]
00091: [ 8.025 , 2.886 ]
00092: [ 9.257 , 2.965 ]
00093: [ 10.55 , 3.05 ]
00094: -1 , -1 (max twenty pts)
00095: NRYDout=["W_Fond-Out"],
00096: *
00097: *
00098: * West SWM Pond Routing (Restrictive Outfall Conditions)
00099: * 100-year Water Level of 102.7m at XS 5+229.82 according to the
00100: * Amendment to the Engineer's Report for the Faulkner Municipal Drain,
00101: * dated December 2020, Prepared by Robinson Consultants Inc.,
00102: * However, the existing Davidson SWM Facility assumes a 100-year Water
00103: * level of 102.7m under restrictive downstream conditions and therefore,
00104: * the latter water level has conservatively been assumed for this study.
00105: *
00106: ROUTE RESERVOIR NRYDout=["W_Fond-Out"], NRYDIn=["W_Fond"], RDT=[1] (min),
00107: TABLE of (OUTFLOW-STORAGE) Values
00108: (cms) - (ha-m)
00109: [ 0 , 0 ]
00110: [ 0.004 , 0.036 ]
00111: [ 0.007 , 0.072 ]
00112: [ 0.01 , 0.109 ]
00113: [ 0.014 , 0.146 ]
00114: [ 0.018 , 0.185 ]
00115: [ 0.024 , 0.224 ]
00116: [ 0.034 , 0.264 ]
00117: [ 0.041 , 0.304 ]
00118: [ 0.048 , 0.345 ]
00119: [ 0.052 , 0.387 ]
00120: [ 0.06 , 0.43 ]
00121: [ 0.067 , 0.473 ]
00122: [ 0.076 , 0.518 ]
00123: [ 0.083 , 0.563 ]
00124: [ 0.09 , 0.608 ]
00125: [ 0.095 , 0.652 ]
00126: [ 0.102 , 0.702 ]
00127: [ 0.11 , 0.751 ]
00128: [ 0.118 , 0.8 ]
00129: [ 0.006 , 0.852 ]
00130: [ 0.021 , 0.91 ]
00131: [ 0.04 , 0.971 ]
00132: [ 0.056 , 1.032 ]
00133: [ 0.079 , 1.094 ]
00134: [ 0.091 , 1.157 ]
00135: [ 0.102 , 1.22 ]
00136: [ 0.112 , 1.283 ]
00137: [ 0.121 , 1.348 ]
00138: [ 0.141 , 1.412 ]
00139: [ 0.17 , 1.477 ]
00140: [ 0.204 , 1.543 ]
00141: [ 0.241 , 1.609 ]
00142: [ 0.282 , 1.675 ]
00143: [ 0.324 , 1.743 ]
00144: [ 0.368 , 1.81 ]
00145: [ 0.413 , 1.878 ]
00146: [ 0.512 , 1.947 ]
00147: [ 0.549 , 2.016 ]
00148: [ 0.583 , 2.086 ]
00149: [ 0.616 , 2.156 ]
00150: [ 0.646 , 2.227 ]
00151: [ 0.94 , 2.298 ]
00152: [ 1.451 , 2.37 ]
00153: [ 2.103 , 2.442 ]
00154: [ 2.869 , 2.515 ]
00155: [ 3.732 , 2.588 ]
00156: [ 4.682 , 2.662 ]
00157: [ 5.711 , 2.736 ]
00158: [ 6.813 , 2.811 ]
00159: [ 7.982 , 2.886 ]
00160: [ 9.216 , 2.965 ]
00161: [ 10.509 , 3.05 ]
00162: -1 , -1 (max twenty pts)
00163: NRYDout=["W_Fond-Out"],
00164: *
00165: *
00166: * Area W Und1 to Node X
00167: DESIGN NASHVD NRYD=["W_Und1"], DT=[1] (min), AREA=[1.88] (ha),
00168: DWF=[0] (cms), CN/C=[62], TF=[1.1] hrs,
00169: RAINFALL=[ , , , ] (mm/hr), END=-1
00170: *
00171: *
00172: * Area E Und1 to Node X
00173: DESIGN NASHVD NRYD=["E_Und1"], DT=[1] (min), AREA=[6.75] (ha),
00174: DWF=[0] (cms), CN/C=[59], TF=[1.46] hrs,
00175: RAINFALL=[ , , , ] (mm/hr), END=-1
00176: *
00177: *
00178: * Area E Und2 to Node X
00179: DESIGN NASHVD NRYD=["E_Und2"], DT=[1] (min), AREA=[0.88] (ha),
00180: DWF=[0] (cms), CN/C=[59], TF=[1.1] hrs,
00181: RAINFALL=[ , , , ] (mm/hr), END=-1
00182: *
00183: *
00184: * Total Flow at Node X (NodeX = W_Fond-Out + W_Fond-Off + W_Und1 + E_Und1 + E_Und2)
00185: ADD HYD NRYD=["NodeX"], NRYD = add["W_Fond-Out" + "W_Fond-Off" + "W_Und1" + "E_Und1" + "E_Und2"]
00186: *
00187: * Channel Routing from Node A to Node B
00188: *
00189: * Faulkner Drain Cross Section 5280 from HEC-RAS model
00190: ROUTE CHANNEL NRYDout=["NodeA-r"], NRYDIn=["NodeA"],
00191: RDT=[1] (min),
00192: CHLTH=[120] (m), CHSLOPE=[0.38] (4),
00193: FFSLOPE=[0.38] (4),
00194: RECHDM=[1.0], NSEGE=[3]
00195: (SEGEBOG, SEGEIST(m))=[0.1, 347.22 0.035, 364.32 0.03, 381.27] NSEGE times
00196: ( DISTANCE (m), ELEVATION (m))=
00197: [168.62 , 102.94]
00198: [344.23 , 102.57]
00199: [347.22 , 102.52]
00200: [350.21 , 102.52]
00201: [351.21 , 102.5]
00202: [352.21 , 102.44]
00203: [355.58 , 101.35]
00204: [357.94 , 101.02]
00205: [360.74 , 101.39]
00206: [363.41 , 102.35]
00207: [364.08 , 102.43]
00208: [364.32 , 102.46]
00209: [365.32 , 102.54]
00210: [366.31 , 102.68]
00211: [371.28 , 102.88]
00212: [381.27 , 102.9]
00213: *
00214: *
00215: * Node A (Sta. 5+229.82 from the December 2020 Amendment to the Engineer's Report
00216: * for the Faulkner Municipal Drain by Robinson Consultants Inc.)
00217: *
00218: * Area W Und2 to Node A
00219: DESIGN NASHVD NRYD=["W_Und2"], DT=[1] (min), AREA=[1.77] (ha),
00220: DWF=[0] (cms), CN/C=[59], TF=[0.76] hrs,
00221: RAINFALL=[ , , , ] (mm/hr), END=-1
00222: *
00223: *
00224: * Area W Und1 to Node A
00225: DESIGN NASHVD NRYD=["W_Und1"], DT=[1] (min), AREA=[0.14] (ha),
00226: DWF=[0] (cms), CN/C=[59], TF=[0.48] hrs,
00227: RAINFALL=[ , , , ] (mm/hr), END=-1
00228: *
00229: *
00230: * Area E Und1 to Node A
00231: DESIGN NASHVD NRYD=["E_Und1"], DT=[1] (min), AREA=[0.04] (ha),
00232: DWF=[0] (cms), CN/C=[59], TF=[0.48] hrs,
00233: RAINFALL=[ , , , ] (mm/hr), END=-1
00234: *
00235: *
00236: * Area W Uncf to Node A
00237: CALIB STATIONID
00238: LOSS=[1] Horton Eqt: Fc=[76.2] (mm/hr), Fc=[13.2] (mm/hr), DCAV=[4.14] (hr), Fc=[0.00] (mm),
00239: Previous areas: IArea=[4.67] (mm), SLPF=[2.0] (4), LGF=[40] (m), MRP=[0.25], SCP=[0] (min),
00240: Impervious areas: IArea=[1.57] (mm), SLPF=[0.5] (4), LGF=[40] (m), MRP=[0.03], SCP=[0] (min),
00241: RAINFALL=[ , , -1] (mm/hr)
00242: *
00243: *
00244: * Total Flow at Node A (NodeA = NodeX-r + W_Und2 + W_Und1 + E_Und1 + W_Uncf)
00245: ADD HYD NRYD=["NodeA"], NRYD = add["NodeX-r" + "W_Und2" + "W_Und1" + "E_Und1" + "W_Uncf"]
00246: *
00247: *
00248: * Channel Routing from Node A to Node B
00249: *
00250: * Faulkner Drain Cross Section 4840 from HEC-RAS model
00251: ROUTE CHANNEL NRYDout=["NodeA-r"], NRYDIn=["NodeA"],
00252: RDT=[1] (min),
00253: CHLTH=[573] (m), CHSLOPE=[0.20] (4),
00254: FFSLOPE=[0.20] (4),
00255: NSEGE=[4]
00256: (SEGEBOG, SEGEIST(m))=[0.1, 274.44 0.03, 279.44 0.035, 293.49 0.02, 305.08] NSEGE times
00257: ( DISTANCE (m), ELEVATION (m))=
00258: [4.99 , 102.77]
00259: [274.44 , 102.03]
00260: [274.45 , 102.03]
00261: [275.45 , 101.96]
00262: [276.44 , 102.64]
00263: [279.44 , 101.74]
00264: [282.07 , 101.7]
00265: [283.33 , 101.49]
00266: [284.93 , 100.46]
00267: [286.58 , 99.25]
00268: [288.33 , 99.89]
00269: [291.06 , 100.35]
00270: [293.89 , 99.82]
00271: [296.37 , 101.92]
00272: [297.28 , 101.01]
00273: [301.12 , 102.39]
00274: [302.1 , 102.44]
00275: [305.68 , 102.46]
00276: *
00277: *
00278: * Node B - East SWM Pond Outlet (Sta. 4+633.10 from the December 2020 Amendment to the
00279: * Engineer's Report for the Faulkner Municipal Drain by Robinson Consultants Inc.)
00280: *
00281: * Post-development drainage area to East SWM Pond
00282: CALIB STATIONID
00283: LOSS=[1] Horton Eqt: Fc=[76.2] (mm/hr), Fc=[13.2] (mm/hr), DCAV=[4.14] (hr), Fc=[0.00] (mm),
00284: Previous areas: IArea=[4.67] (mm), SLPF=[2.0] (4), LGF=[40] (m), MRP=[0.25], SCP=[0] (min),
00285: Impervious areas: IArea=[1.57] (mm), SLPF=[0.5] (4), LGF=[40] (m), MRP=[0.03], SCP=[0] (min),
00286: RAINFALL=[ , , -1] (mm/hr)
00287: *
00288: *
00289: * East SWM Pond Routing (Free Outfall Conditions)
00290: * Quality control and permanent pool requirements based on MOE guidelines
00291: * for enhanced quality control for wet ponds.
00292: *
00293: ROUTE RESERVOIR NRYDout=["E_Fond-Out"], NRYDIn=["E_Fond"], RDT=[1] (min),
00294: TABLE of (OUTFLOW-STORAGE) Values
00295: (cms) - (ha-m)
00296: [ 0 , 0 ]
00297: [ 0.004 , 0.041 ]
00298: [ 0.007 , 0.082 ]
00299: [ 0.011 , 0.124 ]
00300: [ 0.014 , 0.166 ]
00301: [ 0.02 , 0.209 ]
00302: [ 0.028 , 0.252 ]
00303: [ 0.037 , 0.296 ]
00304: [ 0.05 , 0.34 ]
00305: [ 0.06 , 0.385 ]
00306: [ 0.073 , 0.43 ]
00307: [ 0.08 , 0.476 ]
00308: [ 0.087 , 0.522 ]
00309: [ 0.105 , 0.569 ]
00310: [ 0.132 , 0.616 ]
00311: [ 0.163 , 0.664 ]
00312: [ 0.199 , 0.712 ]
00313: [ 0.238 , 0.761 ]
00314: [ 0.31 , 0.81 ]
00315: [ 0.346 , 0.861 ]
00316: [ 0.374 , 0.91 ]
00317: [ 0.415 , 0.963 ]
00318: [ 0.464 , 1.017 ]
00319: [ 0.517 , 1.07 ]
00320: [ 0.573 , 1.124 ]
00321: [ 0.631 , 1.179 ]
00322: [ 0.691 , 1.234 ]
00323: [ 0.753 , 1.29 ]
00324: [ 0.875 , 1.346 ]
00325: [ 1.312 , 1.402 ]
00326: [ 0.983 , 1.459 ]
00327: [ 1.032 , 1.516 ]
00328: [ 1.078 , 1.574 ]
00329: [ 1.386 , 1.632 ]
00330: [ 1.312 , 1.69 ]
00331: [ 2.578 , 1.749 ]
00332: [ 3.356 , 1.809 ]
00333: [ 4.232 , 1.868 ]
00334: [ 5.199 , 1.929 ]
00335: [ 6.236 , 1.99 ]
00336: [ 7.349 , 2.051 ]
00337: [ 8.53 , 2.113 ]
00338: [ 9.774 , 2.175 ]
00339: [ 11.079 , 2.237 ]
00340: [ 12.443 , 2.3 ]
00341: [ 13.857 , 2.364 ]
00342: [ 15.329 , 2.428 ]
00343: [ 16.843 , 2.492 ]
00344: [ 18.409 , 2.557 ]
00345: [ 20.022 , 2.62 ]
00346: [ 21.68 , 2.689 ]
00347: [ 23.382 , 2.758 ]
00348: [ 24.223 , 2.802 ]
00349: -1 , -1 (max twenty pts)
00350: NRYDout=["E_Fond-Out"],
00351: *
00352: *
00353: * East SWM Pond Routing (Restrictive Outfall Conditions)
00354: * 100-year Water Level of 101.05m at XS 4+633.10 according to the
00355: * Amendment to the Engineer's Report for the Faulkner Municipal Drain,
00356: * Dated December 2020, Prepared by Robinson Consultants Inc.,
00357: * However, the existing Davidson SWM Facility assumes a 100-year Water
00358: * level of 101.05m under restrictive downstream conditions and therefore,
00359: * the latter water level has conservatively been assumed for this study.
00360: *
00361: ROUTE RESERVOIR NRYDout=["E_Fond-Out"], NRYDIn=["E_Fond"], RDT=[1] (min),
00362: TABLE of (OUTFLOW-STORAGE) Values
00363: (cms) - (ha-m)

```

```
00361: [ 0.0 ]
00362: [ 0.041 ]
00363: [ 0.0.082 ]
00364: [ 0.0.124 ]
00365: [ 0.0.166 ]
00366: [ 0.0.209 ]
00367: [ 0.0.252 ]
00368: [ 0.0.296 ]
00369: [ 0.0.34 ]
00370: [ 0.0.385 ]
00371: [ 0.0.43 ]
00372: [ 0.0.476 ]
00373: [ 0.007, 0.522 ]
00374: [ 0.029, 0.569 ]
00375: [ 0.061, 0.616 ]
00376: [ 0.108, 0.664 ]
00377: [ 0.148, 0.712 ]
00378: [ 0.191, 0.761 ]
00379: [ 0.266, 0.811 ]
00380: [ 0.302, 0.861 ]
00381: [ 0.335, 0.911 ]
00382: [ 0.377, 0.963 ]
00383: [ 0.427, 1.017 ]
00384: [ 0.482, 1.07 ]
00385: [ 0.538, 1.124 ]
00386: [ 0.599, 1.179 ]
00387: [ 0.66, 1.234 ]
00388: [ 0.722, 1.29 ]
00389: [ 0.845, 1.346 ]
00390: [ 0.902, 1.402 ]
00391: [ 0.955, 1.459 ]
00392: [ 1.004, 1.516 ]
00393: [ 1.051, 1.574 ]
00394: [ 1.136, 1.632 ]
00395: [ 1.486, 1.69 ]
00396: [ 2.552, 1.749 ]
00397: [ 3.331, 1.809 ]
00398: [ 4.208, 1.868 ]
00399: [ 5.17, 1.929 ]
00400: [ 6.212, 1.99 ]
00401: [ 7.326, 2.051 ]
00402: [ 8.507, 2.113 ]
00403: [ 9.752, 2.175 ]
00404: [ 11.057, 2.237 ]
00405: [ 12.419, 2.3 ]
00406: [ 13.835, 2.364 ]
00407: [ 15.303, 2.428 ]
00408: [ 16.822, 2.492 ]
00409: [ 18.389, 2.557 ]
00410: [ 20.002, 2.623 ]
00411: [ 21.66, 2.689 ]
00412: [ 23.362, 2.758 ]
00413: [ 24.403, 2.802 ]
00414: [ -1, -1 ] (max twenty pts)
00415: NYDout["E_Pond-Inv"]
00416: *-----*
00417: *#####*
00418: *# Area E_Und4 to Node B
00419: DESIGN NASHVD NYD="E_Und4", DT=[1]min, AREA=[0.43] (ha),
00420: DWF=[0] (gms), CM/C=[59], TP=[11.43]hrs,
00421: RAINFALL=[ , , , ] (mm/hr), END=-1
00422: *-----*
00423: *#####*
00424: *# Area E_Und5 to Node B
00425: DESIGN NASHVD NYD="E_Und5", DT=[1]min, AREA=[0.44] (ha),
00426: DWF=[0] (gms), CM/C=[71], TP=[10.93]hrs,
00427: RAINFALL=[ , , , ] (mm/hr), END=-1
00428: *-----*
00429: *#####*
00430: *# Total Flow at Node B (NodeB = NodeA + E_Pond-Out + E_Pond-Inv + E_Und4 + E_Und5)
00431: ADD HYD NYDsum=["NodeB"], NYDto add["NodeA-r" + "E_Pond-Out" + "E_Pond-Inv" + "E_Und4" + "E_Und5"]
00432: *-----*
00433: *#####*
00434: *# STORMS
00435: *#####*
00436: *# 25 mm Storm based on 2-Year, 3-Hour Chicago Storm
00437: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[001]
00438: *# ["25MMCH3.stm"] <--storm filename, one per line for NSTORM time
00439: *-----*
00440: *# 2-Year, 3-Hour Chicago Storm
00441: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[002]
00442: *# ["002YCH3.stm"] <--storm filename, one per line for NSTORM time
00443: *-----*
00444: *# 5-Year, 3-Hour Chicago Storm
00445: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[005]
00446: *# ["005YCH3.stm"] <--storm filename, one per line for NSTORM time
00447: *-----*
00448: *# 10-Year, 3-Hour Chicago Storm
00449: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[010]
00450: *# ["010YCH3.stm"] <--storm filename, one per line for NSTORM time
00451: *-----*
00452: *# 25-Year, 3-Hour Chicago Storm
00453: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[025]
00454: *# ["025YCH3.stm"] <--storm filename, one per line for NSTORM time
00455: *-----*
00456: *# 50-Year, 3-Hour Chicago Storm
00457: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[050]
00458: *# ["050YCH3.stm"] <--storm filename, one per line for NSTORM time
00459: *-----*
00460: *# 100-Year, 3-Hour Chicago Storm
00461: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[099]
00462: *# ["100YCH3.stm"] <--storm filename, one per line for NSTORM time
00463: *-----*
00464: *# 2-Year, 24-Hour SCS Storm
00465: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[102]
00466: *# ["SC2402x.stm"] <--storm filename, one per line for NSTORM time
00467: *-----*
00468: *# 5-Year, 24-Hour SCS Storm
00469: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[105]
00470: *# ["SC2405x.stm"] <--storm filename, one per line for NSTORM time
00471: *-----*
00472: *# 10-Year, 24-Hour SCS Storm
00473: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[110]
00474: *# ["SC2410x.stm"] <--storm filename, one per line for NSTORM time
00475: *-----*
00476: *# 25-Year, 24-Hour SCS Storm
00477: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[125]
00478: *# ["SC24025x.stm"] <--storm filename, one per line for NSTORM time
00479: *-----*
00480: *# 50-Year, 24-Hour SCS Storm
00481: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[150]
00482: *# ["SC24050x.stm"] <--storm filename, one per line for NSTORM time
00483: *-----*
00484: *# 100-Year, 24-Hour SCS Storm
00485: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[199]
00486: *# ["SC24100x.stm"] <--storm filename, one per line for NSTORM time
00487: *-----*
00488: *# 2-Year, 12-Hour SCS Storm (per City of Ottawa Carp River FCMNM model)
00489: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[202]
00490: *# ["SC1205c.stm"] <--storm filename, one per line for NSTORM time
00491: *-----*
00492: *# 5-Year, 12-Hour SCS Storm (per City of Ottawa Carp River FCMNM model)
00493: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[205]
00494: *# ["SC1205c.stm"] <--storm filename, one per line for NSTORM time
00495: *-----*
00496: *# 10-Year, 12-Hour SCS Storm (per City of Ottawa Carp River FCMNM model)
00497: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[210]
00498: *# ["SC1205c.stm"] <--storm filename, one per line for NSTORM time
00499: *-----*
00500: *# 25-Year, 12-Hour SCS Storm (per City of Ottawa Carp River FCMNM model)
00501: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[225]
00502: *# ["SC1205c.stm"] <--storm filename, one per line for NSTORM time
00503: *-----*
00504: *# 50-Year, 12-Hour SCS Storm (per City of Ottawa Carp River FCMNM model)
00505: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[250]
00506: *# ["SC1205c.stm"] <--storm filename, one per line for NSTORM time
00507: *-----*
00508: *# 100-Year, 12-Hour SCS Storm (per City of Ottawa Carp River FCMNM model)
00509: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[299]
00510: *# ["SC1205c.stm"] <--storm filename, one per line for NSTORM time
00511: *-----*
00512: *# July 1st, 1979 Storm - Ottawa International Airport
00513: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[979]
00514: *# ["1979071.stm"] <--storm filename, one per line for NSTORM time
00515: *-----*
00516: *# August 4th, 1988 Storm - Ottawa International Airport
00517: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[988]
00518: *# ["19880804.stm"] <--storm filename, one per line for NSTORM time
00519: *-----*
00520: *# August 8th, 1996 Storm - Ottawa International Airport
00521: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[996]
00522: *# ["19960808.stm"] <--storm filename, one per line for NSTORM time
00523: *-----*
00524: *# 100-Year, 3-Hour Chicago Storm + 20x
00525: *START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[999]
00526: *# ["100YCH3.stm"] <--storm filename, one per line for NSTORM time
00527: *-----*
00528: *FINISH
```

```
00001 =====
00002 CALIB STANWHD 1.0 01E Undr 35.34 2.357 No date 1:06 15.69 628 .000
00003 ##### [XINF=64;TIMP=69]
00004 [Horton parameters: Fw=76.20;Fc=13.20;DCAV=4.14; Fw=.00]
00005 [Impervious area: IApex=4.67;ISLP=2.50;LSL=485.0;MNI=.013;ICR=.0]
00006 [Impervious area: IApex=1.97;ISLP=.50;LSL=485.0;MNI=.013;ICR=.0]
00007 #####
00008 # Total Flow at Node A (NodeA = NodeA-r + W Undr + W Undr + E Undr + E Undr)
00009 #####
00010 #####
00011 StormWater Management Hydrologic Model 222 000 11 555 #####
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003611 # Total Flow at Node X (NodeX = W Pond-Out + W Pond-Of + W Und1 + E Und1 + E Und2)
003612 R0002:CO0018-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
003613 ADD HYD + 1.0 02:W_Pond-Out 35.34 .102 No date 3:09 21.25 n/a .000
003614 + 1.0 02:W_Pond-Ofv .00 .000 No date 0:00 .00 n/a .000
003615 + 1.0 02:W_Und1 1.88 .008 No date 2:32 4.04 n/a .000
003616 + 1.0 02:W_Und1 6.75 .021 No date 3:02 6.63 n/a .000
003617 + 1.0 02:W_Und2 44.85 .134 No date 3:06 17.53 n/a .000
003618 SUM= 1.0 01:NodeX 44.85 .134 No date 3:06 17.53 n/a .000
003619 #####
003700 # Channel Routing from Node A to Node B
003701 #####
003710 # Faultline Drains Section 5280 from HEC-RAS model
003711 #####
003720 R0002:CO0011-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
003721 ROUTE CHANNEL -> 1.0 02:NodeX 44.85 .134 No date 3:06 17.53 n/a .000
003722 [1/5/12= 120.7 / 380.0/300]
003723 (Vmax= 331.0max= 273)
003724 #####
003750 # Node A (Sta. 5+229.82 from the December 2020 Amendment to the Engineer's Report
003751 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
003752 #####
003760 R0002:CO0012-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
003761 DESIGN NASHVO 1.0 01:W_Und2 1.77 .009 No date 2:03 3.63 .114 .000
003762 [Cm= 59.0; B= 3.00; Tpe= 1.45]
003763 #####
003770 # Area W Und2 to Node A
003771 #####
003780 R0002:CO0013-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
003781 DESIGN NASHVO 1.0 01:W_Und3 .14 .001 No date 1:39 3.62 .114 .000
003782 [Cm= 59.0; B= 3.00; Tpe= 1.45]
003783 #####
003790 # Area W Und2 to Node A
003791 #####
003800 R0002:CO0014-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
003801 DESIGN NASHVO 1.0 01:W_Und3 .06 .000 No date 1:39 3.61 .113 .000
003802 [Cm= 59.0; B= 3.00; Tpe= 1.45]
003803 #####
003810 # Area W Und2 to Node A
003811 #####
003820 R0002:CO0015-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
003821 CALIS STANHYD 1.0 01:W_UndCF .63 .086 No date 1:00 21.25 .667 .000
003822 [XIMP= 62.1TIMP= 69]
003823 (Horton parameters: Fm= 76.20; Fpc= 13.20; DCAV4= 1.4; Fw= .00)
003824 [Previous area: IApex= 4.67; SLPF2= 0.01; LGS= 40.1MMF= 250; SCF= .0]
003825 #####
003830 # Total Flow at Node A (NodeA = W Pond-Out + W Pond-Of + W Und1 + E Und1 + W Und2)
003831 #####
003840 R0002:CO0016-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
003841 ADD HYD + 1.0 02:W_Pond-Out 35.34 .102 No date 3:09 21.25 n/a .000
003842 + 1.0 02:W_Pond-Ofv .00 .000 No date 0:00 .00 n/a .000
003843 + 1.0 02:W_Und1 1.88 .008 No date 2:32 4.04 n/a .000
003844 + 1.0 02:W_Und1 6.75 .039 No date 2:58 6.68 n/a .000
003845 + 1.0 02:W_Und2 .88 .006 No date 2:29 6.68 n/a .000
003846 SUM= 1.0 01:NodeA 44.85 .212 No date 2:52 25.37 n/a .000
003847 #####
003880 # Channel Routing from Node X to Node B
003881 #####
003890 # Faultline Drains Section 5280 from HEC-RAS model
003891 #####
003900 R0002:CO0017-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
003901 ROUTE CHANNEL -> 1.0 02:NodeX 44.85 .212 No date 2:52 25.37 n/a .000
003902 [1/5/12= 120.7 / 380.0/300]
003903 (Vmax= 331.0max= 249)
003904 #####
003910 # Node A (Sta. 5+229.82 from the December 2020 Amendment to the Engineer's Report
003911 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
003912 #####
003920 R0002:CO0018-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
003921 DESIGN NASHVO 1.0 01:W_Und2 1.77 .016 No date 2:01 6.68 .157 .000
003922 [Cm= 59.0; B= 3.00; Tpe= 1.46]
003923 #####
003930 # Area W Und2 to Node X
003931 #####
003940 R0002:CO0019-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
003941 DESIGN NASHVO 1.0 01:W_Und3 .14 .002 No date 1:38 6.68 .157 .000
003942 [Cm= 59.0; B= 3.00; Tpe= 1.11]
003943 #####
003950 # Area W Und2 to Node X
003951 #####
003960 R0002:CO0020-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
003961 DESIGN NASHVO 1.0 01:W_Und3 .06 .001 No date 1:38 6.66 .157 .000
003962 [Cm= 59.0; B= 3.00; Tpe= 1.47]
003963 #####
003970 # Area W Und2 to Node A
003971 #####
003980 R0002:CO0021-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
003981 CALIS STANHYD 1.0 01:W_UndCF .63 .127 No date 1:00 30.36 .714 .000
003982 [XIMP= 62.1TIMP= 67]
003983 (Horton parameters: Fm= 76.20; Fpc= 13.20; DCAV4= 1.4; Fw= .00)
003984 [Previous area: IApex= 4.67; SLPF2= 0.01; LGS= 40.1MMF= 250; SCF= .0]
003985 #####
003990 # Total Flow at Node A (NodeA = W Pond-Out + W Pond-Of + W Und1 + E Und1 + W Und2)
003991 #####
004000 R0002:CO0022-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004001 ADD HYD + 1.0 02:W_Pond-Out 35.34 .102 No date 3:09 21.25 n/a .000
004002 + 1.0 02:W_Pond-Ofv .00 .000 No date 0:00 .00 n/a .000
004003 + 1.0 02:W_Und1 1.88 .008 No date 2:32 4.04 n/a .000
004004 + 1.0 02:W_Und1 6.75 .039 No date 2:58 6.68 n/a .000
004005 + 1.0 02:W_Und2 .88 .006 No date 2:29 6.68 n/a .000
004006 SUM= 1.0 01:NodeA 44.85 .212 No date 2:52 25.37 n/a .000
004007 #####
004040 # Channel Routing from Node A to Node B
004041 #####
004050 # Faultline Drains Section 4840 from HEC-RAS model
004051 #####
004060 R0002:CO0023-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004061 ROUTE CHANNEL -> 1.0 02:NodeX 47.45 .142 No date 3:00 17.00 n/a .000
004062 [1/5/12= 120.7 / 380.0/300]
004063 (Vmax= 331.0max= 273)
004064 #####
004070 # Node B - East SWM Pond Outlet (Sta. 4+633.10 from the December 2020 Amendment to the
004071 # Engineer's Report for the Faulkner Municipal Drain by Robinson Consultants Inc.)
004072 #####
004080 R0002:CO0024-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004081 DESIGN NASHVO 1.0 01:W_Und3 .14 .002 No date 1:38 6.68 .157 .000
004082 [Cm= 59.0; B= 3.00; Tpe= 1.47]
004083 #####
004090 # Area W Und3 to Node A
004091 #####
004100 R0002:CO0025-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004101 DESIGN NASHVO 1.0 01:W_Und3 .06 .001 No date 1:38 6.66 .157 .000
004102 [Cm= 59.0; B= 3.00; Tpe= 1.47]
004103 #####
004110 # Area W Und3 to Node A
004111 #####
004120 R0002:CO0026-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004121 CALIS STANHYD 1.0 01:W_UndCF .63 .127 No date 1:00 30.36 .714 .000
004122 [XIMP= 62.1TIMP= 69]
004123 (Horton parameters: Fm= 76.20; Fpc= 13.20; DCAV4= 1.4; Fw= .00)
004124 [Previous area: IApex= 4.67; SLPF2= 0.01; LGS= 40.1MMF= 250; SCF= .0]
004125 #####
004130 # Total Flow at Node A (NodeA = W Pond-Out + W Pond-Of + W Und1 + E Und1 + W Und2)
004131 #####
004140 R0002:CO0027-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004141 ADD HYD + 1.0 02:W_Pond-Out 35.34 .102 No date 3:09 21.25 n/a .000
004142 + 1.0 02:W_Pond-Ofv .00 .000 No date 0:00 .00 n/a .000
004143 + 1.0 02:W_Und1 1.88 .008 No date 2:32 4.04 n/a .000
004144 + 1.0 02:W_Und1 6.75 .039 No date 2:58 6.68 n/a .000
004145 + 1.0 02:W_Und2 .88 .006 No date 2:29 6.68 n/a .000
004146 SUM= 1.0 01:NodeA 44.85 .212 No date 2:52 25.37 n/a .000
004147 #####
004180 # Channel Routing from Node A to Node B
004181 #####
004190 # Faultline Drains Section 4840 from HEC-RAS model
004191 #####
004200 R0002:CO0028-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004201 ROUTE CHANNEL -> 1.0 02:NodeX 47.45 .142 No date 3:00 17.00 n/a .000
004202 [1/5/12= 120.7 / 380.0/300]
004203 (Vmax= 331.0max= 273)
004204 #####
004210 # Node B - East SWM Pond Outlet (Sta. 4+633.10 from the December 2020 Amendment to the
004211 # Engineer's Report for the Faulkner Municipal Drain by Robinson Consultants Inc.)
004212 #####
004220 R0002:CO0029-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004221 DESIGN NASHVO 1.0 01:W_Und3 .14 .002 No date 1:38 6.68 .157 .000
004222 [Cm= 59.0; B= 3.00; Tpe= 1.47]
004223 #####
004230 # Area W Und3 to Node A
004231 #####
004240 R0002:CO0030-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004241 DESIGN NASHVO 1.0 01:W_Und3 .06 .001 No date 1:38 6.66 .157 .000
004242 [Cm= 59.0; B= 3.00; Tpe= 1.47]
004243 #####
004250 # Area W Und3 to Node A
004251 #####
004260 R0002:CO0031-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004261 CALIS STANHYD 1.0 01:W_UndCF .63 .127 No date 1:00 30.36 .714 .000
004262 [XIMP= 62.1TIMP= 69]
004263 (Horton parameters: Fm= 76.20; Fpc= 13.20; DCAV4= 1.4; Fw= .00)
004264 [Previous area: IApex= 4.67; SLPF2= 0.01; LGS= 40.1MMF= 250; SCF= .0]
004265 #####
004270 # Total Flow at Node A (NodeA = W Pond-Out + W Pond-Of + W Und1 + E Und1 + W Und2)
004271 #####
004280 R0002:CO0032-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004281 ADD HYD + 1.0 02:W_Pond-Out 35.34 .102 No date 3:09 21.25 n/a .000
004282 + 1.0 02:W_Pond-Ofv .00 .000 No date 0:00 .00 n/a .000
004283 + 1.0 02:W_Und1 1.88 .008 No date 2:32 4.04 n/a .000
004284 + 1.0 02:W_Und1 6.75 .039 No date 2:58 6.68 n/a .000
004285 + 1.0 02:W_Und2 .88 .006 No date 2:29 6.68 n/a .000
004286 SUM= 1.0 01:NodeA 44.85 .212 No date 2:52 25.37 n/a .000
004287 #####
004320 # Channel Routing from Node A to Node B
004321 #####
004330 # Faultline Drains Section 4840 from HEC-RAS model
004331 #####
004340 R0002:CO0033-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004341 ROUTE CHANNEL -> 1.0 02:NodeX 47.45 .142 No date 3:00 17.00 n/a .000
004342 [1/5/12= 120.7 / 380.0/300]
004343 (Vmax= 331.0max= 273)
004344 #####
004350 # Node B - East SWM Pond Outlet (Sta. 4+633.10 from the December 2020 Amendment to the
004351 # Engineer's Report for the Faulkner Municipal Drain by Robinson Consultants Inc.)
004352 #####
004360 R0002:CO0034-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004361 DESIGN NASHVO 1.0 01:W_Und3 .14 .002 No date 1:38 6.68 .157 .000
004362 [Cm= 59.0; B= 3.00; Tpe= 1.47]
004363 #####
004370 # Area W Und3 to Node A
004371 #####
004380 R0002:CO0035-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004381 DESIGN NASHVO 1.0 01:W_Und3 .06 .001 No date 1:38 6.66 .157 .000
004382 [Cm= 59.0; B= 3.00; Tpe= 1.47]
004383 #####
004390 # Area W Und3 to Node A
004391 #####
004400 R0002:CO0036-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004401 CALIS STANHYD 1.0 01:W_UndCF .63 .127 No date 1:00 30.36 .714 .000
004402 [XIMP= 62.1TIMP= 69]
004403 (Horton parameters: Fm= 76.20; Fpc= 13.20; DCAV4= 1.4; Fw= .00)
004404 [Previous area: IApex= 4.67; SLPF2= 0.01; LGS= 40.1MMF= 250; SCF= .0]
004405 #####
004410 # Total Flow at Node A (NodeA = W Pond-Out + W Pond-Of + W Und1 + E Und1 + W Und2)
004411 #####
004420 R0002:CO0037-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004421 ADD HYD + 1.0 02:W_Pond-Out 35.34 .102 No date 3:09 21.25 n/a .000
004422 + 1.0 02:W_Pond-Ofv .00 .000 No date 0:00 .00 n/a .000
004423 + 1.0 02:W_Und1 1.88 .008 No date 2:32 4.04 n/a .000
004424 + 1.0 02:W_Und1 6.75 .039 No date 2:58 6.68 n/a .000
004425 + 1.0 02:W_Und2 .88 .006 No date 2:29 6.68 n/a .000
004426 SUM= 1.0 01:NodeA 44.85 .212 No date 2:52 25.37 n/a .000
004427 #####
004460 # Channel Routing from Node A to Node B
004461 #####
004470 # Faultline Drains Section 4840 from HEC-RAS model
004471 #####
004480 R0002:CO0038-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004481 ROUTE CHANNEL -> 1.0 02:NodeX 47.45 .142 No date 3:00 17.00 n/a .000
004482 [1/5/12= 120.7 / 380.0/300]
004483 (Vmax= 331.0max= 273)
004484 #####
004490 # Node B - East SWM Pond Outlet (Sta. 4+633.10 from the December 2020 Amendment to the
004491 # Engineer's Report for the Faulkner Municipal Drain by Robinson Consultants Inc.)
004492 #####
004500 R0002:CO0039-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004501 DESIGN NASHVO 1.0 01:W_Und3 .14 .002 No date 1:38 6.68 .157 .000
004502 [Cm= 59.0; B= 3.00; Tpe= 1.47]
004503 #####
004510 # Area W Und3 to Node A
004511 #####
004520 R0002:CO0040-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004521 DESIGN NASHVO 1.0 01:W_Und3 .06 .001 No date 1:38 6.66 .157 .000
004522 [Cm= 59.0; B= 3.00; Tpe= 1.47]
004523 #####
004530 # Area W Und3 to Node A
004531 #####
004540 R0002:CO0041-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004541 CALIS STANHYD 1.0 01:W_UndCF .63 .127 No date 1:00 30.36 .714 .000
004542 [XIMP= 62.1TIMP= 69]
004543 (Horton parameters: Fm= 76.20; Fpc= 13.20; DCAV4= 1.4; Fw= .00)
004544 [Previous area: IApex= 4.67; SLPF2= 0.01; LGS= 40.1MMF= 250; SCF= .0]
004545 #####
004550 # Total Flow at Node A (NodeA = W Pond-Out + W Pond-Of + W Und1 + E Und1 + W Und2)
004551 #####
004560 R0002:CO0042-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004561 ADD HYD + 1.0 02:W_Pond-Out 35.34 .102 No date 3:09 21.25 n/a .000
004562 + 1.0 02:W_Pond-Ofv .00 .000 No date 0:00 .00 n/a .000
004563 + 1.0 02:W_Und1 1.88 .008 No date 2:32 4.04 n/a .000
004564 + 1.0 02:W_Und1 6.75 .039 No date 2:58 6.68 n/a .000
004565 + 1.0 02:W_Und2 .88 .006 No date 2:29 6.68 n/a .000
004566 SUM= 1.0 01:NodeA 44.85 .212 No date 2:52 25.37 n/a .000
004567 #####
004600 # Channel Routing from Node A to Node B
004601 #####
004610 # Faultline Drains Section 4840 from HEC-RAS model
004611 #####
004620 R0002:CO0043-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004621 ROUTE CHANNEL -> 1.0 02:NodeX 47.45 .142 No date 3:00 17.00 n/a .000
004622 [1/5/12= 120.7 / 380.0/300]
004623 (Vmax= 331.0max= 273)
004624 #####
004630 # Node B - East SWM Pond Outlet (Sta. 4+633.10 from the December 2020 Amendment to the
004631 # Engineer's Report for the Faulkner Municipal Drain by Robinson Consultants Inc.)
004632 #####
004640 R0002:CO0044-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004641 DESIGN NASHVO 1.0 01:W_Und3 .14 .002 No date 1:38 6.68 .157 .000
004642 [Cm= 59.0; B= 3.00; Tpe= 1.47]
004643 #####
004650 # Area W Und3 to Node A
004651 #####
004660 R0002:CO0045-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004661 DESIGN NASHVO 1.0 01:W_Und3 .06 .001 No date 1:38 6.66 .157 .000
004662 [Cm= 59.0; B= 3.00; Tpe= 1.47]
004663 #####
004670 # Area W Und3 to Node A
004671 #####
004680 R0002:CO0046-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004681 CALIS STANHYD 1.0 01:W_UndCF .63 .127 No date 1:00 30.36 .714 .000
004682 [XIMP= 62.1TIMP= 69]
004683 (Horton parameters: Fm= 76.20; Fpc= 13.20; DCAV4= 1.4; Fw= .00)
004684 [Previous area: IApex= 4.67; SLPF2= 0.01; LGS= 40.1MMF= 250; SCF= .0]
004685 #####
004690 # Total Flow at Node A (NodeA = W Pond-Out + W Pond-Of + W Und1 + E Und1 + W Und2)
004691 #####
004700 R0002:CO0047-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
004701 ADD HYD + 1.0 02:W_Pond-Out 35.34 .102 No date 3:09 21.25 n/a .000
004702 + 1.0 02:W_Pond-Ofv .00 .000 No date 0:00 .00 n/a .000
004703 + 1.0 02:W_Und1 1.88 .008 No date 2:32 4.04 n/a .000
004704 + 1.0 02:W_Und1 6.75 .039 No date 2:58 6.68 n/a .000
004705 + 1.0 02:W_Und2 .88 .006 No date 2:29 6.68 n/a .000
004706 SUM= 1.0 01:NodeA 44.85 .212 No date 2:52 25.37 n/a .000
004707 #####
004740 # STORMS
004741 #####
004750 ** END OF RUN : 4
004751 #####
004760 #####
004770 #####
004780 #####
004790 #####
004800 #####
004810 #####
004820 #####
004830 #####
004840 #####
004850 #####
004860 #####
004870 #####
004880 #####
004890 #####
004900 #####
004910 #####
004920 #####
004930 #####
004940 #####
004950 #####
004960 #####
004970 #####
004980 #####
004990 #####
005000 #####
005010 R0005:CO0002-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
005011 READ STORM
005012 #####
005020 # File Name = storm.001
005021 #####
005030 # Comment = c:\IAGG\STORM 5 Year, 3 Hours
005031 [SFP1=0.00 STORM= 3.00/PROT= 42.51]
005032 #####
005040 # Default Values
005041 #####
005050 # File Name = C:\Temp\SWMHYMO\Post-Dev\Ottawa.val
005051 #####
005060 # IAGGSD = 1 (read and print data)
005061 #####
005070 # File Name = C:\Temp\SWMHYMO\Post-Dev\Ottawa.val
005071 #####
005080 # The FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDARDY COM
005081 #####
005090 # Horton's infiltration equation parameters:
005091 [Fm= 76.20 mm/hr] [DCAV4= 4.14 /hr] [Fw= .00 mm]
005092 #####
005100 # Parameters for PERVIOUS surfaces in STANHYD:
005101 [IApex= 4.67 mm] [SLPF2= 0.01] [LGS= 40.1] [MMF= 250] [SCF= .0]
005102 #####
005110 # Parameters for IMPERVIOUS surfaces in STANHYD:
005111 [IAlpex= 1.57 mm] [CLF= 1.50] [DNF= .013]
005112 #####
005120 # Parameters used in NASHVO:
005121 [Ia= 4.67 mm] [B= 3.00]
005122 #####
005130 # Average monthly Pan Evaporation data in (mm)
005131 #####
005140 # Average monthly Potential Evapotranspiration in (mm)
005141 #####
005150 # JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
005151 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
005152 #####
005160 # JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
005161 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
005162 #####
005170 # Post Development Conditions
005171 #####
005180 #####
005190 # Node X - West SWM Pond Outlet
005191 #####
005200 R0005:CO0003-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
005201 # Post-development drainage area to West SWM Pond
005202 #####
005210 R0005:CO0004-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
005211 CALIS STANHYD 1.0 01:W_UndCF 35.34 4.937 No date 1:04 30.36 .714 .000
005212 [XIMP= 64.1TIMP= 69]
005213 (Horton parameters: Fm= 76.20; Fpc= 13.20; DCAV4= 1.4; Fw= .00)
005214 [Previous area: IApex= 4.67; SLPF2= 0.01; LGS= 40.1MMF= 250; SCF= .0]
005215 [Impervious area: IAlpex= 1.57; SLPF1= 50.10; LGS= 418.1MMF= 0.13; SCF= .0]
005216 #####
005220 # West SWM Pond Routing (Free Outfall Conditions)
005221 #####
005230 # Quality control and permanent pool requirements based on MCK guidelines
005231 #####
005240 # for enhanced quality control for wet ponds.
005241 #####
005250 R0005:CO0005-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
005251 ROUTE RESERVOIR -> 1.0 02:W_Pond-Out 35.34 4.937 No date 1:04 30.36 n/a .000
005252 [Previous area: IApex= 4.67; SLPF2= 0.01; LGS= 40.1MMF= 250; SCF= .0]
005253 #####
005240 # 100-year Water Level of 102.7m at XS 5+229.82 according to the
005241 # Amendment to the Engineer's Report for the Faulkner Municipal Drain,
005242 # Dated December 2020, Prepared by Robinson Consultants Inc.
005243 #####
005250 # However, the existing Davidson SWM Facility assumes a 100-year Water
005251 # Level of 102.7m under restrictive downstream conditions and therefore,
005252 # the latter water level has conservatively been assumed for this study.
005253 #####
005260 R0005:CO0006-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
005261 ROUTE RESERVOIR -> 1.0 02:W_Pond-Out 35.34 4.937 No date 1:04 30.36 n/a .000
005262 [Previous area: IApex= 4.67; SLPF2= 0.01; LGS= 40.1MMF= 250; SCF= .0]
005263 #####
005270 # 100-year Water Level of 102.7m at XS 5+229.82 according to the
005271 # Amendment to the Engineer's Report for the Faulkner Municipal Drain,
005272 # Dated December 2020, Prepared by Robinson Consultants Inc.
005273 #####
005280 # However, the existing Davidson SWM Facility assumes a 100-year Water
005281 # Level of 102.7m under restrictive downstream conditions and therefore,
005282 # the latter water level has conservatively been assumed for this study.
005283 #####
005290 R0005:CO0007-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
005291 ROUTE RESERVOIR -> 1.0 02:W_Pond-Out 35.34 4.937 No date 1:04 30.36 n/a .000
005292 [Previous area: IApex= 4.67; SLPF2= 0.01; LGS= 40.1MMF= 250; SCF= .0]
005293 #####
005300 # 100-year Water Level of 102.7m at XS 5+229.82 according to the
005301 # Amendment to the Engineer's Report for the Faulkner Municipal Drain,
005302 # Dated December 2020, Prepared by Robinson Consultants Inc.
005303 #####
005310 # However, the existing Davidson SWM Facility assumes a 100-year Water
005311 # Level of 102.7m under restrictive downstream conditions and therefore,
005312 # the latter water level has conservatively been assumed for this study.
005313 #####
005320 R0005:CO0008-----Dtlain-ID:HNVD-----AREAhA-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DNFcms
005321 ROUTE RESERVOIR -> 1.0 02:W_Pond-Out 35.34 4.937 No date 1:04 30.36 n/a .000
005322 [Previous area: IApex= 4.67; SLPF2= 0.01; LGS= 40.1MMF= 250; SCF= .0]
005323 #####
005330 # 100-year Water Level of 102.7m at XS 5+229.82 according to the
005331 # Amendment to the Engineer's Report for the Faulkner Municipal Drain,
005332 # Dated December 2020, Prepared by Robinson
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01081 [Horton parameters: Fw=76.20;Fw=13.20;DCAY=4.14; Fw=.00]
01082 [Previous area: IApex=4.67;ISLP=2.00;LGP= 40.0;MW=.250;SCF=.0]
01083 [Impervious area: IApex=1.57;ISLP=.50;LGP= 418.0;MW=.013;SCF=.0]
01084 #####
01085 # East SWM Pond Routing (Free Outfall Conditions)
01086 # Quality control and permanent pool requirements based on MOE guidelines
01087 # for enhanced quality control for wet ponds.
01088 #####
01089 ROUTE RESERVOIR -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01090 out <= 1.0 01E-Pond-Out 26.25 .592 No date 1.03 43.76 n/a .000
01091 over <= 1.0 01E-Pond-Out 26.25 .395 No date 2.04 43.76 n/a .000
01092 over <= 1.0 01E-Pond-Out 26.25 .000 No date 0.00 .00 n/a .000
01093 [MetStoSeed=.936E+00 m3, TotDvVol=.0000E+00 m3, N-Over= 0, TotDvOver= 0.hrs]
01094 #####
01095 # East SWM Pond Routing (Restrictive Outfall Conditions)
01096 # 100-year Water Level of 101.05m at XS +4633.10 according to the
01097 # Amendment to the Engineer's Report for the Faulkner Municipal Drain,
01098 # Dated December 2020, Prepared by Robinson Consultants Inc.
01099 #####
01100 ROUTE RESERVOIR -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01101 out <= 1.0 02E-Pond 26.25 .592 No date 1.03 43.76 n/a .000
01102 over <= 1.0 02E-Pond-Out 26.25 .000 No date 0.00 .00 n/a .000
01103 over <= 1.0 03E-Pond-ROV 0.00 .000 No date 0.00 .00 n/a .000
01104 [MetStoSeed=.936E+00 m3, TotDvVol=.0000E+00 m3, N-Over= 0, TotDvOver= 0.hrs]
01105 #####
01106 # Area E Und4 to Node B
01107 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01108 [RDT=1.00] out<= 1.0 01E-Und4 .43 .005 No date 2.154 12.47 .214 .000
01109 [L/S= 120.7 / 389.030]
01110 #####
01111 # Area E Und5 to Node B
01112 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01113 [RDT=1.00] out<= 1.0 01E-Und5 .44 .010 No date 2.111 18.23 .313 .000
01114 [L/S= 71.0 / 300.7 Tpe=.93]
01115 #####
01116 # Total Flow at Node B (NodeB = F_Pond-Out + F_Pond-Over + E_Und4 + E_Und5)
01117 ADD HYD + 1.0 02E-Node-r 47.45 .344 No date 3.01 36.81 n/a .000
01118 + 1.0 02E-Pond-Out 26.25 .395 No date 2.04 43.76 n/a .000
01119 + 1.0 02E-Pond-Over 0.00 .000 No date 0.00 .00 n/a .000
01120 + 1.0 02E-Und4 .43 .005 No date 2.154 12.47 n/a .000
01121 + 1.0 02E-Und5 .44 .010 No date 2.111 18.23 n/a .000
01122 SUM= 1.0 01E-NodeB 74.57 .728 No date 2.138 39.00 n/a .000
01123 #####
01124 STORM
01125 #####
01126 ** END OF RUN : 49
01127 #####
01128 #####
01129 #####
01130 #####
01131 #####
01132 #####
01133 #####
01134 #####
01135 #####
01136 #####
01137 #####
01138 [TZERO = .00 hrs on 0]
01139 [METOUT= 2 (1=Imperial, 2=metric output)]
01140 [METUNIT= 1]
01141 [NRUN = 0050]
01142 #####
01143 # SWMHYMO Ver:5.00/Feb 2015 / INPUT DATA FILE
01144 # Project Name (Calvan Stittville West properties)
01145 # Project Number: (2267)
01146 # Date (2024/08/02)
01147 # Modeler (J.P.)
01148 # Company (J.P. Sabourin and Associates)
01149 # License # 254927
01150 #####
01151 #####
01152 #####
01153 READ STORM
01154 Filename = storm.001
01155 Comment = CHICAGO STORM 50 Year, 3 Hours
01156 [SPT=10.0;SDUR= 3.00;PTOT= 64.81]
01157 #####
01158 DEFAULT VALUES
01159 Filename = C:\Temp\SWMHYMO\Post-Dev\Ottawa_val
01160 [CONSDIR = 1 (read and print data)]
01161 [FileTitle: File comment: (Parameters for City of Ottawa Projects)]
01162 THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDARD COM
01163 Horton's infiltration equation parameters:
01164 [Fw=76.20 mm/hr] [Fw=13.20 mm/hr] [DCAY= 4.14 /hr] [Fw=.00 mm]
01165 Parameters for PERVIOUS surfaces in STANDWYD:
01166 [IApex= 4.67 mm] [LGP=40.00 m] [MW=.250]
01167 Parameters used in INASDIT:
01168 [IApex= 1.57 mm] [CLZ=1.50] [MW=.013]
01169 Parameters used in NASDIT:
01170 [Iap= 4.67 mm] [R= 3.00]
01171 Average monthly Pan Evaporation data in (mm)
01172 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
01173 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
01174 Average monthly Potential Evapotranspiration in (mm)
01175 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
01176 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
01177 #####
01178 # Post Development Conditions
01179 #####
01180 # Node X - West SWM Pond Outlet
01181 #####
01182 # Post-development drainage area to West SWM Pond
01183 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01184 [CALIB STANWYD 1.0 01E-Pond 35.34 9.090 No date 1.04 50.52 .780 .000]
01185 [XIMP=.64;TZERO=.69]
01186 [Horton parameters: Fw=76.20;Fw=13.20;DCAY=4.14; Fw=.00]
01187 [Previous area: IApex=4.67;ISLP=2.00;LGP= 40.0;MW=.250;SCF=.0]
01188 [Impervious area: IApex=1.57;ISLP=.50;LGP= 418.0;MW=.013;SCF=.0]
01189 #####
01190 # West SWM Pond Routing (Free Outfall Conditions)
01191 # Quality control and permanent pool requirements based on MOE guidelines
01192 # for enhanced quality control for wet ponds.
01193 #####
01194 ROUTE RESERVOIR -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01195 out <= 1.0 01E-Pond-Out 35.34 .294 No date 2.158 50.52 n/a .000
01196 over <= 1.0 01E-Pond-Out 35.34 .000 No date 0.00 .00 n/a .000
01197 [MetStoSeed=.193E+01 m3, TotDvVol=.0000E+00 m3, N-Over= 0, TotDvOver= 0.hrs]
01198 #####
01199 # East SWM Pond Routing (Restrictive Outfall Conditions)
01200 # 100-year Water Level of 102.74m at XS +5229.82 according to the
01201 # Amendment to the Engineer's Report for the Faulkner Municipal Drain,
01202 # Dated December 2020, Prepared by Robinson Consultants Inc.
01203 # However, the existing Davidson SWM Facility assumes a 100-year Water
01204 # Level of 102.74m under restrictive downstream conditions and therefore,
01205 # the latter water level has conservatively been assumed for this study.
01206 #####
01207 ROUTE RESERVOIR -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01208 out <= 1.0 02E-Pond 35.34 9.090 No date 1.04 50.52 n/a .000
01209 over <= 1.0 02E-Pond-Out 35.34 .000 No date 0.00 .00 n/a .000
01210 over <= 1.0 03E-Pond-ROV 0.00 .000 No date 0.00 .00 n/a .000
01211 [MetStoSeed=.193E+01 m3, TotDvVol=.0000E+00 m3, N-Over= 0, TotDvOver= 0.hrs]
01212 #####
01213 # Area W Und1 to Node X
01214 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01215 [RDT=1.00] out<= 1.0 01E-Und1 1.88 .034 No date 2.126 16.76 .259 .000
01216 [L/S= 62.0 / 111.7]
01217 #####
01218 # Area E Und1 to Node X
01219 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01220 [RDT=1.00] out<= 1.0 01E-Und1 6.75 .091 No date 2.154 15.28 .236 .000
01221 [L/S= 59.0 / 300.7 Tpe=.48]
01222 #####
01223 # Area E Und2 to Node X
01224 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01225 [RDT=1.00] out<= 1.0 01E-Und2 .88 .014 No date 2.126 15.28 .236 .000
01226 [L/S= 59.0 / 300.7 Tpe=.48]
01227 #####
01228 # Total Flow at Node X (NodeX = F_Pond-Out + F_Pond-Over + W_Und1 + E_Und1 + E_Und2)
01229 ADD HYD + 1.0 02E-Pond-Out 35.34 .294 No date 2.158 50.52 n/a .000
01230 + 1.0 02E-Pond-Over 0.00 .000 No date 0.00 .00 n/a .000
01231 + 1.0 02E-Und1 1.88 .034 No date 2.126 16.76 n/a .000
01232 + 1.0 02E-Und2 6.75 .091 No date 2.154 15.28 n/a .000
01233 + 1.0 02E-Und3 .14 .004 No date 1.136 15.28 .236 .000
01234 SUM= 1.0 01E-NodeX 44.85 .430 No date 2.147 43.11 n/a .000
01235 #####
01236 # Channel Routing from Node X to Node A
01237 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01238 [RDT=1.00] out<= 1.0 01E-Node-r 44.85 .430 No date 2.150 43.11 n/a .000
01239 [L/S= 120.7 / 389.030]
01240 #####
01241 # Faulkner Drain Cross Section 5285 from HEC-RAS model
01242 DATED December 2020, Prepared by Robinson Consultants Inc.
01243 # However, the existing Davidson SWM Facility assumes a 100-year Water
01244 # Level of 102.74m under restrictive downstream conditions and therefore,
01245 # the latter water level has conservatively been assumed for this study.
01246 #####
01247 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01248 [RDT=1.00] out<= 1.0 01E-Node-r 44.85 .430 No date 2.150 43.11 n/a .000
01249 [L/S= 120.7 / 389.030]
01250 #####
01251 # Node A (Sta. 5229.82 from the December 2020 Amendment to the Engineer's Report
01252 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
01253 # Area W Und1 to Node X
01254 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01255 [RDT=1.00] out<= 1.0 01E-Und1 6.75 .091 No date 2.154 15.28 .236 .000
01256 [L/S= 59.0 / 300.7 Tpe=.48]
01257 #####
01258 # Area W Und2 to Node X
01259 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01260 [RDT=1.00] out<= 1.0 01E-Und2 .88 .014 No date 2.126 15.28 .236 .000
01261 [L/S= 59.0 / 300.7 Tpe=.48]
01262 #####
01263 # Total Flow at Node X (NodeX = F_Pond-Out + F_Pond-Over + W_Und1 + E_Und1 + E_Und2)
01264 ADD HYD + 1.0 02E-Pond-Out 35.34 .294 No date 2.158 50.52 n/a .000
01265 + 1.0 02E-Pond-Over 0.00 .000 No date 0.00 .00 n/a .000
01266 + 1.0 02E-Und1 1.88 .034 No date 2.126 16.76 n/a .000
01267 + 1.0 02E-Und2 6.75 .091 No date 2.154 15.28 n/a .000
01268 + 1.0 02E-Und3 .14 .004 No date 1.136 15.28 .236 .000
01269 SUM= 1.0 01E-NodeX 44.85 .430 No date 2.147 43.11 n/a .000
01270 #####
01271 # Channel Routing from Node X to Node A
01272 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01273 [RDT=1.00] out<= 1.0 01E-Node-r 44.85 .430 No date 2.150 43.11 n/a .000
01274 [L/S= 120.7 / 389.030]
01275 #####
01276 # Faulkner Drain Cross Section 5285 from HEC-RAS model
01277 DATED December 2020, Prepared by Robinson Consultants Inc.
01278 # However, the existing Davidson SWM Facility assumes a 100-year Water
01279 # Level of 102.74m under restrictive downstream conditions and therefore,
01280 # the latter water level has conservatively been assumed for this study.
01281 #####
01282 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01283 [RDT=1.00] out<= 1.0 01E-Node-r 44.85 .430 No date 2.150 43.11 n/a .000
01284 [L/S= 120.7 / 389.030]
01285 #####
01286 # Node A (Sta. 5229.82 from the December 2020 Amendment to the Engineer's Report
01287 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
01288 # Area W Und1 to Node X
01289 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01290 [RDT=1.00] out<= 1.0 01E-Und1 6.75 .091 No date 2.154 15.28 .236 .000
01291 [L/S= 59.0 / 300.7 Tpe=.48]
01292 #####
01293 # Area W Und2 to Node X
01294 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01295 [RDT=1.00] out<= 1.0 01E-Und2 .88 .014 No date 2.126 15.28 .236 .000
01296 [L/S= 59.0 / 300.7 Tpe=.48]
01297 #####
01298 # Total Flow at Node X (NodeX = F_Pond-Out + F_Pond-Over + W_Und1 + E_Und1 + E_Und2)
01299 ADD HYD + 1.0 02E-Pond-Out 35.34 .294 No date 2.158 50.52 n/a .000
01300 + 1.0 02E-Pond-Over 0.00 .000 No date 0.00 .00 n/a .000
01301 + 1.0 02E-Und1 1.88 .034 No date 2.126 16.76 n/a .000
01302 + 1.0 02E-Und2 6.75 .091 No date 2.154 15.28 n/a .000
01303 + 1.0 02E-Und3 .14 .004 No date 1.136 15.28 .236 .000
01304 SUM= 1.0 01E-NodeX 44.85 .430 No date 2.147 43.11 n/a .000
01305 #####
01306 # Channel Routing from Node X to Node A
01307 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01308 [RDT=1.00] out<= 1.0 01E-Node-r 44.85 .430 No date 2.150 43.11 n/a .000
01309 [L/S= 120.7 / 389.030]
01310 #####
01311 # Faulkner Drain Cross Section 5285 from HEC-RAS model
01312 DATED December 2020, Prepared by Robinson Consultants Inc.
01313 # However, the existing Davidson SWM Facility assumes a 100-year Water
01314 # Level of 102.74m under restrictive downstream conditions and therefore,
01315 # the latter water level has conservatively been assumed for this study.
01316 #####
01317 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01318 [RDT=1.00] out<= 1.0 01E-Node-r 44.85 .430 No date 2.150 43.11 n/a .000
01319 [L/S= 120.7 / 389.030]
01320 #####
01321 # Node A (Sta. 5229.82 from the December 2020 Amendment to the Engineer's Report
01322 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
01323 # Area W Und1 to Node X
01324 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01325 [RDT=1.00] out<= 1.0 01E-Und1 6.75 .091 No date 2.154 15.28 .236 .000
01326 [L/S= 59.0 / 300.7 Tpe=.48]
01327 #####
01328 # Area W Und2 to Node X
01329 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01330 [RDT=1.00] out<= 1.0 01E-Und2 .88 .014 No date 2.126 15.28 .236 .000
01331 [L/S= 59.0 / 300.7 Tpe=.48]
01332 #####
01333 # Total Flow at Node X (NodeX = F_Pond-Out + F_Pond-Over + W_Und1 + E_Und1 + E_Und2)
01334 ADD HYD + 1.0 02E-Pond-Out 35.34 .294 No date 2.158 50.52 n/a .000
01335 + 1.0 02E-Pond-Over 0.00 .000 No date 0.00 .00 n/a .000
01336 + 1.0 02E-Und1 1.88 .034 No date 2.126 16.76 n/a .000
01337 + 1.0 02E-Und2 6.75 .091 No date 2.154 15.28 n/a .000
01338 + 1.0 02E-Und3 .14 .004 No date 1.136 15.28 .236 .000
01339 SUM= 1.0 01E-NodeX 44.85 .430 No date 2.147 43.11 n/a .000
01340 #####
01341 # Channel Routing from Node X to Node A
01342 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01343 [RDT=1.00] out<= 1.0 01E-Node-r 44.85 .430 No date 2.150 43.11 n/a .000
01344 [L/S= 120.7 / 389.030]
01345 #####
01346 # Faulkner Drain Cross Section 5285 from HEC-RAS model
01347 DATED December 2020, Prepared by Robinson Consultants Inc.
01348 # However, the existing Davidson SWM Facility assumes a 100-year Water
01349 # Level of 102.74m under restrictive downstream conditions and therefore,
01350 # the latter water level has conservatively been assumed for this study.
01351 #####
01352 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01353 [RDT=1.00] out<= 1.0 01E-Node-r 44.85 .430 No date 2.150 43.11 n/a .000
01354 [L/S= 120.7 / 389.030]
01355 #####
01356 # Node A (Sta. 5229.82 from the December 2020 Amendment to the Engineer's Report
01357 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
01358 # Area W Und1 to Node X
01359 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01360 [RDT=1.00] out<= 1.0 01E-Und1 6.75 .091 No date 2.154 15.28 .236 .000
01361 [L/S= 59.0 / 300.7 Tpe=.48]
01362 #####
01363 # Area W Und2 to Node X
01364 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01365 [RDT=1.00] out<= 1.0 01E-Und2 .88 .014 No date 2.126 15.28 .236 .000
01366 [L/S= 59.0 / 300.7 Tpe=.48]
01367 #####
01368 # Total Flow at Node X (NodeX = F_Pond-Out + F_Pond-Over + W_Und1 + E_Und1 + E_Und2)
01369 ADD HYD + 1.0 02E-Pond-Out 35.34 .294 No date 2.158 50.52 n/a .000
01370 + 1.0 02E-Pond-Over 0.00 .000 No date 0.00 .00 n/a .000
01371 + 1.0 02E-Und1 1.88 .034 No date 2.126 16.76 n/a .000
01372 + 1.0 02E-Und2 6.75 .091 No date 2.154 15.28 n/a .000
01373 + 1.0 02E-Und3 .14 .004 No date 1.136 15.28 .236 .000
01374 SUM= 1.0 01E-NodeX 44.85 .430 No date 2.147 43.11 n/a .000
01375 #####
01376 # Channel Routing from Node X to Node A
01377 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01378 [RDT=1.00] out<= 1.0 01E-Node-r 44.85 .430 No date 2.150 43.11 n/a .000
01379 [L/S= 120.7 / 389.030]
01380 #####
01381 # Faulkner Drain Cross Section 5285 from HEC-RAS model
01382 DATED December 2020, Prepared by Robinson Consultants Inc.
01383 # However, the existing Davidson SWM Facility assumes a 100-year Water
01384 # Level of 102.74m under restrictive downstream conditions and therefore,
01385 # the latter water level has conservatively been assumed for this study.
01386 #####
01387 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01388 [RDT=1.00] out<= 1.0 01E-Node-r 44.85 .430 No date 2.150 43.11 n/a .000
01389 [L/S= 120.7 / 389.030]
01390 #####
01391 # Node A (Sta. 5229.82 from the December 2020 Amendment to the Engineer's Report
01392 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
01393 # Area W Und1 to Node X
01394 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01395 [RDT=1.00] out<= 1.0 01E-Und1 6.75 .091 No date 2.154 15.28 .236 .000
01396 [L/S= 59.0 / 300.7 Tpe=.48]
01397 #####
01398 # Area W Und2 to Node X
01399 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01400 [RDT=1.00] out<= 1.0 01E-Und2 .88 .014 No date 2.126 15.28 .236 .000
01401 [L/S= 59.0 / 300.7 Tpe=.48]
01402 #####
01403 # Total Flow at Node X (NodeX = F_Pond-Out + F_Pond-Over + W_Und1 + E_Und1 + E_Und2)
01404 ADD HYD + 1.0 02E-Pond-Out 35.34 .294 No date 2.158 50.52 n/a .000
01405 + 1.0 02E-Pond-Over 0.00 .000 No date 0.00 .00 n/a .000
01406 + 1.0 02E-Und1 1.88 .034 No date 2.126 16.76 n/a .000
01407 + 1.0 02E-Und2 6.75 .091 No date 2.154 15.28 n/a .000
01408 + 1.0 02E-Und3 .14 .004 No date 1.136 15.28 .236 .000
01409 SUM= 1.0 01E-NodeX 44.85 .430 No date 2.147 43.11 n/a .000
01410 #####
01411 # Channel Routing from Node X to Node A
01412 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01413 [RDT=1.00] out<= 1.0 01E-Node-r 44.85 .430 No date 2.150 43.11 n/a .000
01414 [L/S= 120.7 / 389.030]
01415 #####
01416 # Faulkner Drain Cross Section 5285 from HEC-RAS model
01417 DATED December 2020, Prepared by Robinson Consultants Inc.
01418 # However, the existing Davidson SWM Facility assumes a 100-year Water
01419 # Level of 102.74m under restrictive downstream conditions and therefore,
01420 # the latter water level has conservatively been assumed for this study.
01421 #####
01422 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01423 [RDT=1.00] out<= 1.0 01E-Node-r 44.85 .430 No date 2.150 43.11 n/a .000
01424 [L/S= 120.7 / 389.030]
01425 #####
01426 # Node A (Sta. 5229.82 from the December 2020 Amendment to the Engineer's Report
01427 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
01428 # Area W Und1 to Node X
01429 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01430 [RDT=1.00] out<= 1.0 01E-Und1 6.75 .091 No date 2.154 15.28 .236 .000
01431 [L/S= 59.0 / 300.7 Tpe=.48]
01432 #####
01433 # Area W Und2 to Node X
01434 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01435 [RDT=1.00] out<= 1.0 01E-Und2 .88 .014 No date 2.126 15.28 .236 .000
01436 [L/S= 59.0 / 300.7 Tpe=.48]
01437 #####
01438 # Total Flow at Node X (NodeX = F_Pond-Out + F_Pond-Over + W_Und1 + E_Und1 + E_Und2)
01439 ADD HYD + 1.0 02E-Pond-Out 35.34 .294 No date 2.158 50.52 n/a .000
01440 + 1.0 02E-Pond-Over 0.00 .000 No date 0.00 .00 n/a .000
01441 + 1.0 02E-Und1 1.88 .034 No date 2.126 16.76 n/a .000
01442 + 1.0 02E-Und2 6.75 .091 No date 2.154 15.28 n/a .000
01443 + 1.0 02E-Und3 .14 .004 No date 1.136 15.28 .236 .000
01444 SUM= 1.0 01E-NodeX 44.85 .430 No date 2.147 43.11 n/a .000
01445 #####
01446 # Channel Routing from Node X to Node A
01447 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01448 [RDT=1.00] out<= 1.0 01E-Node-r 44.85 .430 No date 2.150 43.11 n/a .000
01449 [L/S= 120.7 / 389.030]
01450 #####
01451 # Faulkner Drain Cross Section 5285 from HEC-RAS model
01452 DATED December 2020, Prepared by Robinson Consultants Inc.
01453 # However, the existing Davidson SWM Facility assumes a 100-year Water
01454 # Level of 102.74m under restrictive downstream conditions and therefore,
01455 # the latter water level has conservatively been assumed for this study.
01456 #####
01457 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01458 [RDT=1.00] out<= 1.0 01E-Node-r 44.85 .430 No date 2.150 43.11 n/a .000
01459 [L/S= 120.7 / 389.030]
01460 #####
01461 # Node A (Sta. 5229.82 from the December 2020 Amendment to the Engineer's Report
01462 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
01463 # Area W Und1 to Node X
01464 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01465 [RDT=1.00] out<= 1.0 01E-Und1 6.75 .091 No date 2.154 15.28 .236 .000
01466 [L/S= 59.0 / 300.7 Tpe=.48]
01467 #####
01468 # Area W Und2 to Node X
01469 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01470 [RDT=1.00] out<= 1.0 01E-Und2 .88 .014 No date 2.126 15.28 .236 .000
01471 [L/S= 59.0 / 300.7 Tpe=.48]
01472 #####
01473 # Total Flow at Node X (NodeX = F_Pond-Out + F_Pond-Over + W_Und1 + E_Und1 + E_Und2)
01474 ADD HYD + 1.0 02E-Pond-Out 35.34 .294 No date 2.158 50.52 n/a .000
01475 + 1.0 02E-Pond-Over 0.00 .000 No date 0.00 .00 n/a .000
01476 + 1.0 02E-Und1 1.88 .034 No date 2.126 16.76 n/a .000
01477 + 1.0 02E-Und2 6.75 .091 No date 2.154 15.28 n/a .000
01478 + 1.0 02E-Und3 .14 .004 No date 1.136 15.28 .236 .000
01479 SUM= 1.0 01E-NodeX 44.85 .430 No date 2.147 43.11 n/a .000
01480 #####
01481 # Channel Routing from Node X to Node A
01482 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01483 [RDT=1.00] out<= 1.0 01E-Node-r 44.85 .430 No date 2.150 43.11 n/a .000
01484 [L/S= 120.7 / 389.030]
01485 #####
01486 # Faulkner Drain Cross Section 5285 from HEC-RAS model
01487 DATED December 2020, Prepared by Robinson Consultants Inc.
01488 # However, the existing Davidson SWM Facility assumes a 100-year Water
01489 # Level of 102.74m under restrictive downstream conditions and therefore,
01490 # the latter water level has conservatively been assumed for this study.
01491 #####
01492 ROUTE CHANNEL -> -----DtnIn-ID:HYND-----AREAAh-QFEARcns-TpeakDate_hh:mm-----Rvwm-R.C-----DWfms
01493 [RDT=1.00] out<= 1.0 01E-Node-r 44.85 .430 No date 2.15
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01801# # License # : 2549237
01802# *****
01803# R0105:CO000-----
01804# READ STORM
01805# Filename = storm.001
01806# Comment = 5 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa
01807# (SOT=10.00;SDOM= 24.00;PTOT= 64.11)
01808# R0105:CO003-----
01809# DEFAULT VALUES
01810# Filename = C:\Temp\SWM\HYMO\Post-Dev\Ottawa.val
01811# ICASEVR = 1 (read and print data)
01812# FileTitle= File comment: (Parameters for City of Ottawa Projects)
01813# *****
01814# THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDYD COM
01815# Horton's infiltration equation parameters:
01816# [Fw 76.20 mm/hr] [Fw1:20 mm/hr] [ICAWY 4.14 /hr] [Fw .00 mm]
01817# Parameters for PERVIOUS surfaces in STANDYD:
01818# [Iapex= 4.67 mm] [LDP=40.00 m] [MHW =.250]
01819# Parameters for IMPERVIOUS surfaces in STANDYD:
01820# [Iapex= 1.57 mm] [CLIR=1.50] [MNI= .013]
01821# Parameters used in HSDYD:
01822# [Ia= 4.67 mm] [W= 3.00]
01823# Average monthly Pan Evaporation data in (mm)
01824# JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
01825# .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
01826# Average monthly Potential Evaporation in (mm)
01827# JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
01828# .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
01829# # Post Development Conditions
01830# *****
01831# # Node X - West SWM Pond Outlet
01832# *****
01833# # Post-development drainage area to East SWM Pond
01834# R0105:CO0004-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01835# CALIS STANDYD 1.0 0.01W Pond 35.34 4.489 No date 12:04 45.95 717 .000
01836# [XIMP= 64.71MP= 69]
01837# [Horton parameters: Fw 76.20;Fw1: 13.20;ICAWY 4.14; Fw .00]
01838# [Previous area: Iapex= 4.67;SLPF2: 20.0;LGR= 40.0;MHW= 250;SCF= .0]
01839# [Impervious area: Iapex= 1.57;SLPF= .50;LGR= 485.0;MNI= .013;SCF= .0]
01840# *****
01841# # East SWM Pond Routing (Free Outfall Conditions)
01842# # Quality control and permanent pool requirements based on MCE guidelines
01843# # for enhanced quality control for wet ponds.
01844# *****
01845# R0105:CO0005-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01846# ROUTE RESERVOIR -> 1.0 0.02W Pond 35.34 4.489 No date 12:04 45.95 n/a .000
01847# out <= 1.0 0.01W Pond-Out 35.34 4.489 No date 12:04 45.95 n/a .000
01848# overflow <= 1.0 0.01W Pond-Overf .00 .000 No date 0:00 .00 n/a .000
01849# [Mottosed= 1.184E+01 m3, TotDvVol= 0.000E+00 m3, Nv-ovf= 0, TotDvOvf= 0 hrs]
01850# *****
01851# # East SWM Pond Routing (Restrictive Outfall Conditions)
01852# # 100-year Water Level of 102.7m at XS 5+229.82 according to the
01853# # Amendment to the Engineer's Report for the Faulkner Municipal Drain,
01854# # dated December 2020, Prepared by Robinson Consultants Inc.,
01855# # However, the existing Davidson SWM Facility assumes a 100-year Water
01856# # level of 102.7m under restrictive downstream conditions and therefore,
01857# # the latter water level has conservatively been assumed for this study.
01858# *****
01859# R0105:CO0006-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01860# ROUTE RESERVOIR -> 1.0 0.02W Pond 35.34 4.489 No date 12:04 45.95 n/a .000
01861# out <= 1.0 0.01W Pond-Out 35.34 4.489 No date 16:05 23.31 n/a .000
01862# overflow <= 1.0 0.01W Pond-Overf .00 .000 No date 0:00 .00 n/a .000
01863# [Mottosed= 1.295E+01 m3, TotDvVol= 0.000E+00 m3, Nv-ovf= 0, TotDvOvf= 0 hrs]
01864# *****
01865# # Area W Und2 to Node X
01866# R0105:CO0007-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01867# DESIGN NASHVD 1.0 0.01W Und2 1.88 .022 No date 13:10 16.42 256 .000
01868# [CN= 62.0; W= 3.00; Typ= 1.1]
01869# *****
01870# # Area E Und3 to Node B
01871# R0105:CO0008-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01872# DESIGN NASHVD 1.0 0.01W Und3 6.75 .058 No date 13:36 14.97 234 .000
01873# [CN= 59.0; W= 3.00; Typ= 1.46]
01874# *****
01875# # Area E Und3 to Node X
01876# R0105:CO0009-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01877# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
01878# [CN= 59.0; W= 3.00; Typ= 1.1]
01879# *****
01880# # Total Flow from Node X through Node B - E Und2
01881# R0105:CO0010-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01882# ADD HYD 1.0 0.01W Pond-Out 35.34 4.489 No date 12:04 45.95 n/a .000
01883# + 1.0 0.02W Pond-Overf .00 .000 No date 0:00 .00 n/a .000
01884# + 1.0 0.02W Und2 1.88 .022 No date 13:10 16.42 n/a .000
01885# + 1.0 0.01W Pond-Out 35.34 4.489 No date 13:36 14.97 n/a .000
01886# + 1.0 0.02W Und2 1.88 .009 No date 13:10 14.97 n/a .000
01887# [Mottosed= 1.402E+01 m3, TotDvVol= 0.000E+00 m3, Nv-ovf= 0, TotDvOvf= 0 hrs]
01888# *****
01889# # Channel Routing from Node X to Node A
01890# *****
01891# # Faulkner Drain Cross Section 5280 from HEC-RAS model
01892# R0105:CO0011-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01893# ROUTE CHANNEL -> 1.0 0.02NodeA 44.85 .264 No date 13:28 39.44 n/a .000
01894# [RDT= 1.00] out<= 1.0 0.01NodeA-r 44.85 .264 No date 13:30 39.44 n/a .000
01895# [L/S= 122.7 / 380.0; W= 3.00; Typ= 1.46]
01896# [Vmax= 489;Dmax= .296]
01897# *****
01898# # Node A (Sta. 5+229.82 from the December 2020 Amendment to the Engineer's Report
01899# # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
01900# *****
01901# # Area W Und2 to Node A
01902# R0105:CO0012-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01903# DESIGN NASHVD 1.0 0.01W Und2 1.77 .025 No date 12:45 14.97 234 .000
01904# [CN= 59.0; W= 3.00; Typ= .76]
01905# *****
01906# # Area W Und3 to Node A
01907# R0105:CO0013-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01908# DESIGN NASHVD 1.0 0.01W Und3 1.4 .003 No date 12:25 14.96 233 .000
01909# [CN= 59.0; W= 3.00; Typ= .48]
01910# *****
01911# # Area E Und3 to Node A
01912# R0105:CO0014-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01913# DESIGN NASHVD 1.0 0.01W Und3 .06 .001 No date 12:25 14.95 233 .000
01914# [CN= 59.0; W= 3.00; Typ= .48]
01915# *****
01916# # Area W UndF to Node A
01917# R0105:CO0015-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01918# CALIS STANDYD 1.0 0.01W UndF .63 .108 No date 12:00 45.95 717 .000
01919# [XIMP= 64.71MP= 69]
01920# [Horton parameters: Fw 76.20;Fw1: 13.20;ICAWY 4.14; Fw .00]
01921# [Previous area: Iapex= 4.67;SLPF2: 20.0;LGR= 40.0;MHW= 250;SCF= .0]
01922# [Impervious area: Iapex= 1.57;SLPF= .50;LGR= 485.0;MNI= .013;SCF= .0]
01923# *****
01924# # Total Flow at Node A (NodeA = NodeB-r + W Und2 + W Und3 + W UndF)
01925# R0105:CO0016-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01926# ADD HYD 1.0 0.02NodeA 44.85 .264 No date 13:30 39.44 n/a .000
01927# + 1.0 0.01W Und2 1.77 .025 No date 12:45 14.97 n/a .000
01928# + 1.0 0.02W Und3 1.4 .003 No date 12:25 14.96 n/a .000
01929# + 1.0 0.02W UndF .06 .001 No date 12:25 14.95 n/a .000
01930# + 1.0 0.02W UndF .63 .108 No date 12:00 45.95 n/a .000
01931# [Mottosed= 8.084E+00 m3, TotDvVol= 0.000E+00 m3, Nv-ovf= 0, TotDvOvf= 0 hrs]
01932# *****
01933# # Channel Routing from Node A to Node B
01934# *****
01935# # Faulkner Drain Cross Section 4860 from HEC-RAS model
01936# R0105:CO0017-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01937# ROUTE CHANNEL -> 1.0 0.02NodeA 47.45 .288 No date 13:17 38.51 n/a .000
01938# [RDT= 1.00] out<= 1.0 0.01NodeA-r 47.45 .288 No date 13:41 38.51 n/a .000
01939# [L/S= 573.7 / 200.0; W= 3.00; Typ= 1.46]
01940# [Vmax= 392;Dmax= .198]
01941# *****
01942# # Node B - East SWM Pond Outlet (Sta. 4+633.10 from the December 2020 Amendment to the
01943# # Engineer's Report for the Faulkner Municipal Drain by Robinson Consultants Inc.)
01944# *****
01945# # Post-development drainage area to East SWM Pond
01946# R0105:CO0018-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01947# CALIS STANDYD 1.0 0.01W Pond 26.25 3.407 No date 12:03 44.98 702 .000
01948# [XIMP= 62.71MP= 67]
01949# [Horton parameters: Fw 76.20;Fw1: 13.20;ICAWY 4.14; Fw .00]
01950# [Previous area: Iapex= 4.67;SLPF2: 20.0;LGR= 40.0;MHW= 250;SCF= .0]
01951# [Impervious area: Iapex= 1.57;SLPF= .50;LGR= 485.0;MNI= .013;SCF= .0]
01952# *****
01953# # East SWM Pond Routing (Free Outfall Conditions)
01954# # Quality control and permanent pool requirements based on MCE guidelines
01955# # for enhanced quality control for wet ponds.
01956# *****
01957# R0105:CO0019-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01958# ROUTE RESERVOIR -> 1.0 0.02W Pond 26.25 3.407 No date 12:03 44.98 n/a .000
01959# out <= 1.0 0.01W Pond-Out 26.25 .308 No date 12:55 44.98 n/a .000
01960# overflow <= 1.0 0.01W Pond-Overf .00 .000 No date 0:00 .00 n/a .000
01961# [Mottosed= 8.084E+00 m3, TotDvVol= 0.000E+00 m3, Nv-ovf= 0, TotDvOvf= 0 hrs]
01962# *****
01963# # East SWM Pond Routing (Restrictive Outfall Conditions)
01964# # 100-year Water Level of 101.9m at XS 4+633.10 according to the
01965# # Amendment to the Engineer's Report for the Faulkner Municipal Drain,
01966# # dated December 2020, Prepared by Robinson Consultants Inc.,
01967# # However, the existing Davidson SWM Facility assumes a 100-year Water
01968# # level of 102.7m under restrictive downstream conditions and therefore,
01969# # the latter water level has conservatively been assumed for this study.
01970# *****
01971# R0105:CO0020-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01972# ROUTE RESERVOIR -> 1.0 0.02W Pond 26.25 3.407 No date 12:03 44.98 n/a .000
01973# out <= 1.0 0.01W Pond-Out 26.25 3.407 No date 12:03 44.98 n/a .000
01974# overflow <= 1.0 0.01W Pond-Overf .00 .000 No date 0:00 .00 n/a .000
01975# [Mottosed= 8.084E+00 m3, TotDvVol= 0.000E+00 m3, Nv-ovf= 0, TotDvOvf= 0 hrs]
01976# *****
01977# # Area E Und3 to Node B
01978# R0105:CO0021-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01979# DESIGN NASHVD 1.0 0.01W Und3 .43 .004 No date 13:35 14.97 233 .000
01980# [CN= 59.0; W= 3.00; Typ= 1.46]
01981# *****
01982# # Area E Und3 to Node B
01983# R0105:CO0022-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01984# DESIGN NASHVD 1.0 0.01W Und3 .43 .004 No date 13:35 14.97 233 .000
01985# [CN= 59.0; W= 3.00; Typ= 1.46]
01986# *****
01987# # Area E Und3 to Node X
01988# R0105:CO0023-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01989# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 16.42 256 .000
01990# [CN= 62.0; W= 3.00; Typ= 1.1]
01991# *****
01992# # Area E Und3 to Node X
01993# R0105:CO0024-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01994# DESIGN NASHVD 1.0 0.01W Und3 6.75 .058 No date 13:36 14.97 234 .000
01995# [CN= 59.0; W= 3.00; Typ= 1.46]
01996# *****
01997# # Area E Und3 to Node X
01998# R0105:CO0025-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
01999# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02000# [CN= 59.0; W= 3.00; Typ= 1.1]
02001# *****
02002# # Area E Und3 to Node X
02003# R0105:CO0026-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02004# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02005# [CN= 59.0; W= 3.00; Typ= 1.1]
02006# *****
02007# # Area E Und3 to Node X
02008# R0105:CO0027-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02009# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02010# [CN= 59.0; W= 3.00; Typ= 1.1]
02011# *****
02012# # Area E Und3 to Node X
02013# R0105:CO0028-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02014# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02015# [CN= 59.0; W= 3.00; Typ= 1.1]
02016# *****
02017# # Area E Und3 to Node X
02018# R0105:CO0029-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02019# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02020# [CN= 59.0; W= 3.00; Typ= 1.1]
02021# *****
02022# # Area E Und3 to Node X
02023# R0105:CO0030-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02024# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02025# [CN= 59.0; W= 3.00; Typ= 1.1]
02026# *****
02027# # Area E Und3 to Node X
02028# R0105:CO0031-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02029# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02030# [CN= 59.0; W= 3.00; Typ= 1.1]
02031# *****
02032# # Area E Und3 to Node X
02033# R0105:CO0032-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02034# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02035# [CN= 59.0; W= 3.00; Typ= 1.1]
02036# *****
02037# # Area E Und3 to Node X
02038# R0105:CO0033-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02039# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02040# [CN= 59.0; W= 3.00; Typ= 1.1]
02041# *****
02042# # Area E Und3 to Node X
02043# R0105:CO0034-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02044# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02045# [CN= 59.0; W= 3.00; Typ= 1.1]
02046# *****
02047# # Area E Und3 to Node X
02048# R0105:CO0035-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02049# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02050# [CN= 59.0; W= 3.00; Typ= 1.1]
02051# *****
02052# # Area E Und3 to Node X
02053# R0105:CO0036-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02054# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02055# [CN= 59.0; W= 3.00; Typ= 1.1]
02056# *****
02057# # Area E Und3 to Node X
02058# R0105:CO0037-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02059# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02060# [CN= 59.0; W= 3.00; Typ= 1.1]
02061# *****
02062# # Area E Und3 to Node X
02063# R0105:CO0038-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02064# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02065# [CN= 59.0; W= 3.00; Typ= 1.1]
02066# *****
02067# # Area E Und3 to Node X
02068# R0105:CO0039-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02069# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02070# [CN= 59.0; W= 3.00; Typ= 1.1]
02071# *****
02072# # Area E Und3 to Node X
02073# R0105:CO0040-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02074# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02075# [CN= 59.0; W= 3.00; Typ= 1.1]
02076# *****
02077# # Area E Und3 to Node X
02078# R0105:CO0041-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02079# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02080# [CN= 59.0; W= 3.00; Typ= 1.1]
02081# *****
02082# # Area E Und3 to Node X
02083# R0105:CO0042-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02084# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02085# [CN= 59.0; W= 3.00; Typ= 1.1]
02086# *****
02087# # Area E Und3 to Node X
02088# R0105:CO0043-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02089# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02090# [CN= 59.0; W= 3.00; Typ= 1.1]
02091# *****
02092# # Area E Und3 to Node X
02093# R0105:CO0044-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02094# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02095# [CN= 59.0; W= 3.00; Typ= 1.1]
02096# *****
02097# # Area E Und3 to Node X
02098# R0105:CO0045-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02099# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02100# [CN= 59.0; W= 3.00; Typ= 1.1]
02101# *****
02102# # Area E Und3 to Node X
02103# R0105:CO0046-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02104# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02105# [CN= 59.0; W= 3.00; Typ= 1.1]
02106# *****
02107# # Area E Und3 to Node X
02108# R0105:CO0047-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02109# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02110# [CN= 59.0; W= 3.00; Typ= 1.1]
02111# *****
02112# # Area E Und3 to Node X
02113# R0105:CO0048-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02114# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02115# [CN= 59.0; W= 3.00; Typ= 1.1]
02116# *****
02117# # Area E Und3 to Node X
02118# R0105:CO0049-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02119# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02120# [CN= 59.0; W= 3.00; Typ= 1.1]
02121# *****
02122# # Area E Und3 to Node X
02123# R0105:CO0050-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02124# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02125# [CN= 59.0; W= 3.00; Typ= 1.1]
02126# *****
02127# # Area E Und3 to Node X
02128# R0105:CO0051-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02129# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02130# [CN= 59.0; W= 3.00; Typ= 1.1]
02131# *****
02132# # Area E Und3 to Node X
02133# R0105:CO0052-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02134# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02135# [CN= 59.0; W= 3.00; Typ= 1.1]
02136# *****
02137# # Area E Und3 to Node X
02138# R0105:CO0053-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02139# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02140# [CN= 59.0; W= 3.00; Typ= 1.1]
02141# *****
02142# # Area E Und3 to Node X
02143# R0105:CO0054-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02144# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02145# [CN= 59.0; W= 3.00; Typ= 1.1]
02146# *****
02147# # Area E Und3 to Node X
02148# R0105:CO0055-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02149# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02150# [CN= 59.0; W= 3.00; Typ= 1.1]
02151# *****
02152# # Area E Und3 to Node X
02153# R0105:CO0056-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02154# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02155# [CN= 59.0; W= 3.00; Typ= 1.1]
02156# *****
02157# # Area E Und3 to Node X
02158# R0105:CO0057-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02159# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02160# [CN= 59.0; W= 3.00; Typ= 1.1]
02161# *****
02162# # Area E Und3 to Node X
02163# R0105:CO0058-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02164# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02165# [CN= 59.0; W= 3.00; Typ= 1.1]
02166# *****
02167# # Area E Und3 to Node X
02168# R0105:CO0059-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02169# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02170# [CN= 59.0; W= 3.00; Typ= 1.1]
02171# *****
02172# # Area E Und3 to Node X
02173# R0105:CO0060-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02174# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02175# [CN= 59.0; W= 3.00; Typ= 1.1]
02176# *****
02177# # Area E Und3 to Node X
02178# R0105:CO0061-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02179# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02180# [CN= 59.0; W= 3.00; Typ= 1.1]
02181# *****
02182# # Area E Und3 to Node X
02183# R0105:CO0062-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02184# DESIGN NASHVD 1.0 0.01W Und3 1.88 .022 No date 13:10 14.97 234 .000
02185# [CN= 59.0; W= 3.00; Typ= 1.1]
02186# *****
02187# # Area E Und3 to Node X
02188# R0105:CO0063-----DtnIn-ID:INVD-----AREAA-QFEARCS-TpeakDate hh:mm-----Rvmm-R.C-----DWfms
02189# DESIGN NASHVD 1.0 0.01W Und3 1.88
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02161) #####
02162) # Post-development drainage area to East SSM Pond
02163) R0105-C00018-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02164) CALIB STANDVND 1.0 01E-Pond 26.25 4.156 No date 12:03 53.12 714 .000
02165) [XMPF=64;TMEF=69]
02166) [Horton parameters: Fw=76.20;Fw=13.20;DCAV=4.14; P= .00]
02167) [Previous area: IApgr=4.67;ISLFP=2.00;LGP= 40.0MFP=250;ISCP= .0]
02168) [Impervious area: IAlmp=1.57;ISLFP= .50;LGP= 485.0MFP=103;ISCP= .0]
02169) #####
02170) # East SSM Pond Routing (Free Outfall Conditions)
02171) # Quality control and permanent pool requirements based on MOE guidelines
02172) # for enhanced quality control for wet ponds.
02173) #####
02174) R0105-C00019-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02175) ROUTE RESERVOIR -> 1.0 02E-Pond 26.25 4.156 No date 12:03 53.12 n/a .000
02176) out <= 1.0 01E-Pond-Out 26.25 .398 No date 12:49 53.12 n/a .000
02177) overflow <= 1.0 03E-Pond-Overflow .00 .000 No date 0:00 .00 n/a .000
02178) (Mottosed=1.941E+00 m3, TotDrVVol=0.000E+00 m3, N-DrV= 0, TotDrVDrV= 0.hrs)
02179) #####
02180) # East SSM Pond Routing (Restrictive Outfall Conditions)
02181) # 100-year Water Level of 101.05m at XS +4633.10 according to the
02182) # Amendment to the Engineer's Report for the Faulkner Municipal Drain,
02183) # Dated December 2020, Prepared by Robinson Consultants Inc.
02184) #####
02185) R0105-C00020-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02186) ROUTE RESERVOIR -> 1.0 02E-Pond 26.25 4.156 No date 12:03 53.12 n/a .000
02187) out <= 1.0 02E-Pond-Out 26.25 .398 No date 12:49 54.99 n/a .000
02188) overflow <= 1.0 03E-Pond-Overflow .00 .000 No date 0:00 .00 n/a .000
02189) (Mottosed=1.941E+00 m3, TotDrVVol=0.000E+00 m3, N-DrV= 0, TotDrVDrV= 0.hrs)
02190) #####
02191) # Area E Und4 to Node B
02192) R0105-C00021-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02193) DESIGN NASHVD 1.0 01E-Und4 .43 .005 No date 13:34 19.72 265 .000
02194) [Cm=59.0; N= 3.00; Tpe= 1.45]
02195) #####
02196) # Area E Und5 to Node B
02197) R0105-C00022-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02198) DESIGN NASHVD 1.0 01E-Und5 .44 .010 No date 12:56 27.99 377 .000
02199) [Cm=71.0; N= 3.00; Tpe= .93]
02200) #####
02201) # Total Flow at Node B (NodeB = NodeB-r + E-Pond-Out + E-Pond-Orv + E_Und4 + E_Und5)
02202) R0105-C00023-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02203) ADD HYD 1.0 02E-Node-B 47.45 .344 No date 13:42 45.92 n/a .000
02204) + 1.0 02E-Pond-Out 26.25 .398 No date 12:49 53.12 n/a .000
02205) + 1.0 02E-Pond-Orv .00 .000 No date 0:00 .00 n/a .000
02206) + 1.0 02E-Und4 .43 .005 No date 13:34 19.72 n/a .000
02207) + 1.0 02E-Und5 .44 .010 No date 12:56 27.99 n/a .000
02208) SUM= 1.0 02E-NodeB 74.57 .733 No date 13:19 48.19 n/a .000
02209) #####
02210) # STORM
02211) ** END OF RUN : 124
02212) #####
02213) #####
02214) #####
02215) #####
02216) #####
02217) #####
02218) #####
02219) #####
02220) RUN/COMMANDS
02221) R0105-C00001
02222) START
02223) [TZERO = .00 hrs on 0]
02224) [METOPTS = 2 (1=imperial, 2=metric output)]
02225) [METUNIT = 1]
02226) [NRUN = 0150]
02227) #####
02228) # SMWHYMO Ver:5.500/Feb 2015 / INPUT DATA FILE
02229) #####
02230) # Project Name : [Calvin Stittville West properties]
02231) # Project Number : [2267]
02232) # Date : [2024/08/02]
02233) # Modeller : [JP]
02234) # Company : J.P. Sabourin and Associates
02235) # License # : 254927
02236) #####
02237) R0105-C00002
02238) READ STORM
02239) Filename = storm.001
02240) Comment = 25 years SCS Type 2 Storm 24 hours step 10 min, City of Ottawa
02241) [SPT=10.0;SDUR= 24.00;PTOT= 86.89]
02242) R0105-C00003
02243) DEFAULT VALUES
02244) Filename = C:\Temp\SMWHYMO\Post-Dev\Ottawa.val
02245) [CNAME = 1 (read and print data)]
02246) [FileTitle= File comment: [Parameters for City of Ottawa Projects]]
02247) #####
02248) THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDVND COM
02249) #####
02250) Horton's infiltration equation parameters:
02251) [Fw=76.20 mm/hr] [Fw=13.20 mm/hr] [DCAV= 4.14 /hr] [P= .00 mm]
02252) [IApgr= 4.67 mm] [LGP=40.00 mm] [MFP= 250]
02253) Parameters for IMPERVIOUS surfaces in STANDVND:
02254) [IAlmp= 1.57 mm] [Cm=1.50] [MFP= .03]
02255) Parameters used in NASHVD:
02256) [Ia= 4.67 mm] [P= 3.00]
02257) Average monthly Pan Evaporation data in (mm)
02258) JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
02259) .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
02260) Average monthly Potential Evapotranspiration in (mm)
02261) JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
02262) .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
02263) # Post Development Conditions
02264) #####
02265) # Node X - West SSM Pond Outlet
02266) R0105-C00004-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02267) # Post-development drainage area to West SSM Pond
02268) CALIB STANDVND 1.0 01E-Pond 35.34 6.789 No date 12:03 64.40 741 .000
02269) [XMPF=64;TMEF=69]
02270) [Horton parameters: Fw=76.20;Fw=13.20;DCAV=4.14; P= .00]
02271) [Previous area: IApgr=4.67;ISLFP=2.00;LGP= 40.0MFP=250;ISCP= .0]
02272) [Impervious area: IAlmp=1.57;ISLFP= .50;LGP= 485.0MFP=103;ISCP= .0]
02273) #####
02274) # East SSM Pond Routing (Free Outfall Conditions)
02275) # Quality control and permanent pool requirements based on MOE guidelines
02276) # for enhanced quality control for wet ponds.
02277) #####
02278) R0105-C00005-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02279) ROUTE RESERVOIR -> 1.0 02E-Pond 35.34 6.789 No date 12:03 64.40 n/a .000
02280) out <= 1.0 01E-Pond-Out 35.34 .321 No date 13:24 64.40 n/a .000
02281) overflow <= 1.0 03E-Pond-Overflow .00 .000 No date 0:00 .00 n/a .000
02282) (Mottosed=1.641E+01 m3, TotDrVVol=0.000E+00 m3, N-DrV= 0, TotDrVDrV= 0.hrs)
02283) #####
02284) # East SSM Pond Routing (Restrictive Outfall Conditions)
02285) # 100-year Water Level of 102.74m at XS +5229.82 according to the
02286) # Amendment to the Engineer's Report for the Faulkner Municipal Drain,
02287) # Dated December 2020, Prepared by Robinson Consultants Inc.,
02288) # However, the existing Davidson SSM Facility assumes a 100-year Water
02289) # Level of 102.7m under restrictive downstream conditions and therefore,
02290) # the latter water level has conservatively been assumed for this study.
02291) #####
02292) R0105-C00006-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02293) ROUTE RESERVOIR -> 1.0 02E-Pond 35.34 6.789 No date 12:03 64.40 n/a .000
02294) out <= 1.0 01E-Pond-Out 35.34 .313 No date 13:28 41.76 n/a .000
02295) overflow <= 1.0 03E-Pond-Overflow .00 .000 No date 0:00 .00 n/a .000
02296) (Mottosed=1.728E+01 m3, TotDrVVol=0.000E+00 m3, N-DrV= 0, TotDrVDrV= 0.hrs)
02297) #####
02298) # Area W Und1 to Node X
02299) R0105-C00007-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02300) DESIGN NASHVD 1.0 01E-Und1 1.88 .039 No date 13:09 28.41 327 .000
02301) [Cm= 62.0; N= 3.00; Tpe= 1.13]
02302) #####
02303) # Area E Und1 to Node X
02304) R0105-C00008-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02305) DESIGN NASHVD 1.0 01E-Und1 6.75 .103 No date 13:34 26.13 301 .000
02306) [Cm= 59.0; N= 3.00; Tpe= 1.45]
02307) #####
02308) # Area E Und2 to Node X
02309) R0105-C00009-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02310) DESIGN NASHVD 1.0 01E-Und2 .88 .017 No date 13:09 26.12 301 .000
02311) [Cm= 59.0; N= 3.00; Tpe= 1.13]
02312) #####
02313) #####
02314) # Total Flow at Node X (NodeX = W-Pond-Out + W-Pond-Orv + W_Und1 + E_Und1 + E_Und2)
02315) R0105-C00010-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02316) ADD HYD 1.0 02E-Pond-Out 35.34 .321 No date 13:24 64.40 n/a .000
02317) + 1.0 02E-Pond-Orv .00 .000 No date 0:00 .00 n/a .000
02318) + 1.0 02E-Und1 1.88 .039 No date 13:09 28.41 n/a .000
02319) + 1.0 02E-Und2 6.75 .103 No date 13:34 26.13 n/a .000
02320) + 1.0 02E-Und3 .88 .017 No date 13:04 26.12 n/a .000
02321) SUM= 1.0 02E-NodeX 44.85 .477 No date 13:24 56.38 n/a .000
02322) #####
02323) # Channel Routing from Node X to Node A
02324) #####
02325) # Faulkner Drain Cross Section 5880 from HEC-RAS 0005
02326) R0105-C00011-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02327) ROUTE CHANNEL -> 1.0 01E-NodeX 44.85 .477 No date 13:27 56.38 n/a .000
02328) [RDT=1.00] out<= 1.0 01E-NodeX-r 44.85 .477 No date 13:27 56.38 n/a .000
02329) [L/S= 120.7 /389.030]
02330) [Vmax= 0.36;Wmax= 0.36]
02331) #####
02332) # Node A (Sta. 5229.82 from the December 2020 Amendment to the Engineer's Report
02333) # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
02334) #####
02335) # Area W Und2 to Node A
02336) R0105-C00012-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02337) DESIGN NASHVD 1.0 01E-Und2 1.77 .044 No date 12:44 26.13 301 .000
02338) [Cm= 59.0; N= 3.00; Tpe= .76]
02339) #####
02340) # Area W Und3 to Node A
02341) R0105-C00013-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02342) DESIGN NASHVD 1.0 01E-Und3 .14 .005 No date 12:24 26.12 301 .000
02343) [Cm= 59.0; N= 3.00; Tpe= .48]
02344) #####
02345) # Area E Und3 to Node A
02346) R0105-C00014-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02347) [Previous area: IApgr=4.67;ISLFP=2.00;LGP= 40.0MFP=250;ISCP= .0]
02348) [Impervious area: IAlmp=1.57;ISLFP= .50;LGP= 485.0MFP=103;ISCP= .0]
02349) #####
02350) # East SSM Pond Routing (Free Outfall Conditions)
02351) # Quality control and permanent pool requirements based on MOE guidelines
02352) # for enhanced quality control for wet ponds.
02353) #####
02354) R0105-C00015-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02355) CALIB STANDVND 1.0 01E-Pond 35.34 6.789 No date 12:03 64.40 741 .000
02356) [XMPF=64;TMEF=69]
02357) [Horton parameters: Fw=76.20;Fw=13.20;DCAV=4.14; P= .00]
02358) [Previous area: IApgr=4.67;ISLFP=2.00;LGP= 40.0MFP=250;ISCP= .0]
02359) [Impervious area: IAlmp=1.57;ISLFP= .50;LGP= 485.0MFP=103;ISCP= .0]
02360) #####
02361) # East SSM Pond Routing (Restrictive Outfall Conditions)
02362) # 100-year Water Level of 102.74m at XS +5229.82 according to the
02363) # Amendment to the Engineer's Report for the Faulkner Municipal Drain,
02364) # Dated December 2020, Prepared by Robinson Consultants Inc.
02365) # However, the existing Davidson SSM Facility assumes a 100-year Water
02366) # Level of 102.7m under restrictive downstream conditions and therefore,
02367) # the latter water level has conservatively been assumed for this study.
02368) #####
02369) R0105-C00016-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02370) ADD HYD 1.0 02E-Pond 35.34 6.789 No date 12:03 64.40 n/a .000
02371) out <= 1.0 02E-Pond-Out 35.34 .321 No date 12:44 26.13 n/a .000
02372) overflow <= 1.0 03E-Pond-Overflow .00 .000 No date 0:00 .00 n/a .000
02373) (Mottosed=1.105E+01 m3, TotDrVVol=0.000E+00 m3, N-DrV= 0, TotDrVDrV= 0.hrs)
02374) #####
02375) # Channel Routing from Node A to Node B
02376) R0105-C00017-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02377) [RDT=1.00] out<= 1.0 01E-NodeA-r 47.45 .503 No date 13:40 55.23 n/a .000
02378) [L/S= 573.7 /200.020]
02379) [Vmax= 0.45;Wmax= 0.45]
02380) #####
02381) # Node B - East SSM Pond Outlet (Sta. 4633.10 from the December 2020 Amendment to the
02382) # Engineer's Report for the Faulkner Municipal Drain by Robinson Consultants Inc.)
02383) #####
02384) # Post-development drainage area to East SSM Pond
02385) CALIB STANDVND 1.0 01E-Pond 26.25 5.167 No date 12:02 63.20 727 .000
02386) [XMPF=64;TMEF=67]
02387) [Horton parameters: Fw=76.20;Fw=13.20;DCAV=4.14; P= .00]
02388) [Previous area: IApgr=4.67;ISLFP=2.00;LGP= 40.0MFP=250;ISCP= .0]
02389) [Impervious area: IAlmp=1.57;ISLFP= .50;LGP= 485.0MFP=103;ISCP= .0]
02390) #####
02391) # East SSM Pond Routing (Free Outfall Conditions)
02392) # Quality control and permanent pool requirements based on MOE guidelines
02393) # for enhanced quality control for wet ponds.
02394) #####
02395) R0105-C00018-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02396) ROUTE RESERVOIR -> 1.0 02E-Pond 26.25 5.167 No date 12:02 63.20 n/a .000
02397) out <= 1.0 01E-Pond-Out 26.25 .553 No date 12:43 63.19 n/a .000
02398) overflow <= 1.0 03E-Pond-Overflow .00 .000 No date 0:00 .00 n/a .000
02399) (Mottosed=1.105E+01 m3, TotDrVVol=0.000E+00 m3, N-DrV= 0, TotDrVDrV= 0.hrs)
02400) #####
02401) # East SSM Pond Routing (Restrictive Outfall Conditions)
02402) # 100-year Water Level of 101.05m at XS +4633.10 according to the
02403) # Amendment to the Engineer's Report for the Faulkner Municipal Drain,
02404) # Dated December 2020, Prepared by Robinson Consultants Inc.
02405) #####
02406) R0105-C00019-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02407) ROUTE RESERVOIR -> 1.0 02E-Pond 26.25 5.167 No date 12:02 63.20 n/a .000
02408) out <= 1.0 01E-Pond-Out 26.25 .566 No date 12:42 45.06 n/a .000
02409) overflow <= 1.0 03E-Pond-Overflow .00 .000 No date 0:00 .00 n/a .000
02410) (Mottosed=1.148E+01 m3, TotDrVVol=0.000E+00 m3, N-DrV= 0, TotDrVDrV= 0.hrs)
02411) #####
02412) # Area E Und4 to Node B
02413) R0105-C00020-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02414) DESIGN NASHVD 1.0 01E-Und4 .43 .005 No date 13:34 19.72 265 .000
02415) [Cm= 59.0; N= 3.00; Tpe= 1.45]
02416) #####
02417) # Area E Und5 to Node B
02418) R0105-C00021-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02419) DESIGN NASHVD 1.0 01E-Und5 .44 .010 No date 12:56 27.99 377 .000
02420) [Cm= 71.0; N= 3.00; Tpe= .93]
02421) #####
02422) # Total Flow at Node B (NodeB = NodeB-r + E-Pond-Out + E-Pond-Orv + E_Und4 + E_Und5)
02423) R0105-C00022-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02424) ADD HYD 1.0 02E-Node-B 47.45 .344 No date 13:42 45.92 n/a .000
02425) + 1.0 02E-Pond-Out 26.25 .553 No date 12:43 63.19 n/a .000
02426) + 1.0 02E-Pond-Orv .00 .000 No date 0:00 .00 n/a .000
02427) + 1.0 02E-Und4 .43 .005 No date 13:34 19.72 n/a .000
02428) + 1.0 02E-Und5 .44 .010 No date 12:56 27.99 n/a .000
02429) SUM= 1.0 02E-NodeB 74.57 .733 No date 13:19 48.19 n/a .000
02430) #####
02431) # STORM
02432) ** END OF RUN : 149
02433) #####
02434) #####
02435) #####
02436) #####
02437) RUN/COMMANDS
02438) R0105-C00001
02439) START
02440) [TZERO = .00 hrs on 0]
02441) [METOPTS = 2 (1=imperial, 2=metric output)]
02442) [METUNIT = 1]
02443) [NRUN = 0150]
02444) #####
02445) # SMWHYMO Ver:5.500/Feb 2015 / INPUT DATA FILE
02446) #####
02447) # Project Name : [Calvin Stittville West properties]
02448) # Project Number : [2267]
02449) # Date : [2024/08/02]
02450) # Modeller : [JP]
02451) # Company : J.P. Sabourin and Associates
02452) # License # : 254927
02453) #####
02454) R0105-C00002
02455) READ STORM
02456) Filename = storm.001
02457) Comment = 50 years SCS Type 2 Storm 24 hours step 10 min, City of Ottawa
02458) [SPT=10.0;SDUR= 24.00;PTOT= 96.53]
02459) R0105-C00003
02460) DEFAULT VALUES
02461) Filename = C:\Temp\SMWHYMO\Post-Dev\Ottawa.val
02462) [CNAME = 1 (read and print data)]
02463) [FileTitle= File comment: [Parameters for City of Ottawa Projects]]
02464) #####
02465) THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDVND COM
02466) #####
02467) Horton's infiltration equation parameters:
02468) [Fw=76.20 mm/hr] [Fw=13.20 mm/hr] [DCAV= 4.14 /hr] [P= .00 mm]
02469) [IApgr= 4.67 mm] [LGP=40.00 mm] [MFP= 250]
02470) Parameters for IMPERVIOUS surfaces in STANDVND:
02471) [IAlmp= 1.57 mm] [Cm=1.50] [MFP= .03]
02472) Parameters used in NASHVD:
02473) [Ia= 4.67 mm] [P= 3.00]
02474) Average monthly Pan Evaporation data in (mm)
02475) JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
02476) .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
02477) Average monthly Potential Evapotranspiration in (mm)
02478) JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
02479) .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
02480) # Post Development Conditions
02481) #####
02482) # Node X - West SSM Pond Outlet
02483) R0105-C00004-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02484) # Post-development drainage area to West SSM Pond
02485) CALIB STANDVND 1.0 01E-Pond 35.34 6.789 No date 12:03 72.27 749 .000
02486) [XMPF=64;TMEF=69]
02487) [Horton parameters: Fw=76.20;Fw=13.20;DCAV=4.14; P= .00]
02488) [Previous area: IApgr=4.67;ISLFP=2.00;LGP= 40.0MFP=250;ISCP= .0]
02489) [Impervious area: IAlmp=1.57;ISLFP= .50;LGP= 485.0MFP=103;ISCP= .0]
02490) #####
02491) # East SSM Pond Routing (Free Outfall Conditions)
02492) # Quality control and permanent pool requirements based on MOE guidelines
02493) # for enhanced quality control for wet ponds.
02494) #####
02495) R0105-C00005-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02496) ROUTE RESERVOIR -> 1.0 02E-Pond 35.34 6.789 No date 12:03 72.27 n/a .000
02497) out <= 1.0 01E-Pond-Out 35.34 .321 No date 13:09 28.41 n/a .000
02498) overflow <= 1.0 03E-Pond-Overflow .00 .000 No date 0:00 .00 n/a .000
02499) (Mottosed=1.902E+01 m3, TotDrVVol=0.000E+00 m3, N-DrV= 0, TotDrVDrV= 0.hrs)
02500) #####
02501) # East SSM Pond Routing (Restrictive Outfall Conditions)
02502) # 100-year Water Level of 102.74m at XS +5229.82 according to the
02503) # Amendment to the Engineer's Report for the Faulkner Municipal Drain,
02504) # Dated December 2020, Prepared by Robinson Consultants Inc.
02505) # However, the existing Davidson SSM Facility assumes a 100-year Water
02506) # Level of 102.7m under restrictive downstream conditions and therefore,
02507) # the latter water level has conservatively been assumed for this study.
02508) #####
02509) R0105-C00006-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02510) ROUTE RESERVOIR -> 1.0 02E-Pond 35.34 6.789 No date 12:03 72.27 n/a .000
02511) out <= 1.0 01E-Pond-Out 35.34 .321 No date 13:09 28.41 n/a .000
02512) overflow <= 1.0 03E-Pond-Overflow .00 .000 No date 0:00 .00 n/a .000
02513) (Mottosed=1.902E+01 m3, TotDrVVol=0.000E+00 m3, N-DrV= 0, TotDrVDrV= 0.hrs)
02514) #####
02515) # Area W Und2 to Node X
02516) R0105-C00007-----DtmIn-ID:HYND-----AREAA-QFEARms-TpeakDate hh:mm-----Rvwm-R.C-----DWfms
02517) DESIGN NASHVD 1.0 01E-Und2 1.77 .044 No date 12:44 26.13 301 .000
02518) [Cm= 62.0; N= 3.00; Tpe= 1.13]
02519) #####
02520) # Area W Und3 to Node A

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02881# # Project Name : [Calvin Stittville West Properties]
02882# # Project Number : [2427]
02883# # Date : [2024/08/02]
02884# # Modeler : [JF]
02885# # Company : [J.F. Sabourin and Associates]
02886# # License # : [2549237]
02887# *****
02888# R20202:CO0002-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
02889# READ STORM
02890# Filename = storm.001
02891# Comment = 5 years SCS Type 2 Storm 12 hours step 15 min, as per Carp River UI
02892# [RDT=15.0;IDR=12.00;PTD= 57.60]
02893# *****
02894# R20202:CO0003-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
02895# DEFAULT VALUES
02896# Filename = C:\Temp\SWMHYMO\Post-Dev\Ottawa.val
02897# ICASEdv = 1 (read and print data)
02898# FileTitle = File comment: [Parameters for City of Ottawa Projects]
02899# THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDARD COM
02900# Horton's infiltration equation parameters:
02901# [For 76.20 mm/hr] [FC=11.20 mm/hr] [CC=4.14 1/hr] [F= .00 mm]
02902# Parameters for Pervious surfaces in STANDARD:
02903# [Iapex= 4.67 mm] [LSP=40.00 mm] [MNF= .250]
02904# Parameters for IMPERVIOUS surfaces in STANDARD:
02905# [Ialmp= 1.57 mm] [CLF=1.50] [MNF= .013]
02906# Parameters used INHYD:
02907# [Ia= 4.67 mm] [M= 3.00]
02908# Average monthly Pan Evaporation data in (mm)
02909# JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
02910# .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
02911# Average monthly Potential Evaporation in (mm)
02912# JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
02913# .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
02914# # Post Development Conditions
02915# *****
02916# # Node X - West SWM Pond Outlet
02917# *****
02918# # Post-development drainage area to West SWM Pond
02919# R20202:CO0004-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
02920# CALIS STANHYD
02921# [XIMP= 64.71IMP= 69]
02922# [Horton parameters: For 76.20(F= 13.20;CC=4.14; F= .00]
02923# [Previous area: Iapex= 4.67;LSP=2.00;LSP= 40.0;MNF= 250;ICPF= .0]
02924# [Impervious area: Ialmp= 1.57;LSP= .50;LSP= 485.0;MNF= .013;ICPF= .0]
02925# *****
02926# # West SWM Pond Routing (Free Outfall Conditions)
02927# # For enhanced quality control and permanent pool requirements based on MCK guidelines
02928# # for enhanced quality control for wet ponds.
02929# *****
02930# R20202:CO0005-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
02931# ROUTE RESERVOIR -> 1.0 02:W-Pond-Out 35.34 2.998 No date 6:04 29.62 n/a .000
02932# overflow out < 1.0 03:W-Pond-Out 0.00 .000 No date 0:00 .00 n/a .000
02933# Mettosedex.9827E+00 m3, TotVol=Vol.0000E+00 m3, N-Over= 0, TotDur=Dur 0 hrs)
02934# *****
02935# # East SWM Pond Routing (Restrictive Outfall Conditions)
02936# # 100-year Water Level of 102.7m at XS 5+229.82 according to the
02937# # Amendment to the Engineer's Report for the Faulkner Municipal Drain,
02938# # Dated December 2020, Prepared by Robinson Consultants Inc.,
02939# # However, the existing Davidson SWM Facility assumes a 100-year Water
02940# # Level of 102.7m under restrictive downstream conditions and therefore,
02941# # the latter level has conservatively been assumed for this study.
02942# *****
02943# # Node A (Sta. 5+229.82 from the December 2020 Amendment to the Engineer's Report
02944# # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
02945# *****
02946# # Area E Und3 to Node X
02947# *****
02948# R20202:CO0007-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
02949# DESIGN STANHYD
02950# [CN= 62.0; M= 3.00; Tpe= 1.11]
02951# # Node E Und3 to Node X
02952# *****
02953# R20202:CO0008-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
02954# DESIGN STANHYD
02955# [CN= 59.0; M= 3.00; Tpe= 1.46]
02956# # Area E Und3 to Node X
02957# *****
02958# R20202:CO0009-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
02959# DESIGN STANHYD
02960# [CN= 59.0; M= 3.00; Tpe= 1.11]
02961# # Total Flow at Node X (Node A + W Und3 + E Und3 + W Und3)
02962# *****
02963# R20202:CO0010-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
02964# ADD HYD
02965# + 1.0 02:W-Pond-Out 35.34 2.998 No date 6:04 29.62 n/a .000
02966# + 1.0 02:W-Pond-Out 0.00 .000 No date 0:00 .00 n/a .000
02967# + 1.0 02:W-Pond-Out 1.88 .002 No date 7:13 7.64 n/a .000
02968# + 1.0 02:W-Pond-Out 6.75 .031 No date 7:39 6.90 n/a .000
02969# + 1.0 02:W-Pond-Out 44.88 .181 No date 7:38 24.84 n/a .000
02970# + 1.0 02:W-Pond-Out 44.88 .181 No date 7:38 24.84 n/a .000
02971# + 1.0 02:W-Pond-Out 44.88 .181 No date 7:38 24.84 n/a .000
02972# + 1.0 02:W-Pond-Out 44.88 .181 No date 7:38 24.84 n/a .000
02973# *****
02974# # Channel Routing from Node X to Node A
02975# *****
02976# # Faulkner Drain Cross Section 5280 from HEC-RAS model
02977# *****
02978# R20202:CO0011-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
02979# ROUTE CHANNEL -> 1.0 02:NodeX-r 44.88 .181 No date 7:38 24.84 n/a .000
02980# [RDT= 1.00] out< 1.0 01:NodeX-r 44.88 .181 No date 7:38 24.84 n/a .000
02981# [L/F= 120 / 380 / 330]
02982# [Vmax= 407;Imax= .23]
02983# # Node A (Sta. 5+229.82 from the December 2020 Amendment to the Engineer's Report
02984# # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
02985# *****
02986# # Area W Und3 to Node A
02987# *****
02988# R20202:CO0012-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
02989# DESIGN STANHYD
02990# [CN= 59.0; M= 3.00; Tpe= .76]
02991# # Area W Und3 to Node A
02992# *****
02993# R20202:CO0013-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
02994# DESIGN STANHYD
02995# [CN= 59.0; M= 3.00; Tpe= .48]
02996# # Area E Und3 to Node A
02997# *****
02998# R20202:CO0014-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
02999# DESIGN STANHYD
03000# [CN= 59.0; M= 3.00; Tpe= .48]
03001# # Area W Und3 to Node A
03002# *****
03003# R20202:CO0015-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03004# CALIS STANHYD
03005# [XIMP= 64.71IMP= 69]
03006# [Horton parameters: For 76.20(F= 13.20;CC=4.14; F= .00]
03007# [Previous area: Iapex= 4.67;LSP=2.00;LSP= 40.0;MNF= 250;ICPF= .0]
03008# [Impervious area: Ialmp= 1.57;LSP= .50;LSP= 485.0;MNF= .013;ICPF= .0]
03009# *****
03010# # East SWM Pond Routing (Free Outfall Conditions)
03011# # For enhanced quality control and permanent pool requirements based on MCK guidelines
03012# # for enhanced quality control for wet ponds.
03013# *****
03014# R20202:CO0016-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03015# ROUTE RESERVOIR -> 1.0 02:W-Pond-Out 35.34 2.998 No date 6:04 29.62 n/a .000
03016# overflow out < 1.0 03:W-Pond-Out 0.00 .000 No date 0:00 .00 n/a .000
03017# Mettosedex.9827E+00 m3, TotVol=Vol.0000E+00 m3, N-Over= 0, TotDur=Dur 0 hrs)
03018# *****
03019# # East SWM Pond Routing (Restrictive Outfall Conditions)
03020# # 100-year Water Level of 102.7m at XS 5+229.82 according to the
03021# # Amendment to the Engineer's Report for the Faulkner Municipal Drain,
03022# # Dated December 2020, Prepared by Robinson Consultants Inc.,
03023# # However, the existing Davidson SWM Facility assumes a 100-year Water
03024# # Level of 102.7m under restrictive downstream conditions and therefore,
03025# # the latter level has conservatively been assumed for this study.
03026# *****
03027# # Node B - East SWM Pond Outlet (Sta. 4+633.10 from the December 2020 Amendment to the Engineer's Report
03028# # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
03029# *****
03030# # Post-development drainage area to East SWM Pond
03031# *****
03032# R20202:CO0017-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03033# CALIS STANHYD
03034# [XIMP= 64.71IMP= 69]
03035# [Horton parameters: For 76.20(F= 13.20;CC=4.14; F= .00]
03036# [Previous area: Iapex= 4.67;LSP=2.00;LSP= 40.0;MNF= 250;ICPF= .0]
03037# [Impervious area: Ialmp= 1.57;LSP= .50;LSP= 485.0;MNF= .013;ICPF= .0]
03038# *****
03039# # East SWM Pond Routing (Free Outfall Conditions)
03040# # For enhanced quality control and permanent pool requirements based on MCK guidelines
03041# # for enhanced quality control for wet ponds.
03042# *****
03043# R20202:CO0018-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03044# ROUTE RESERVOIR -> 1.0 02:W-Pond-Out 35.34 2.998 No date 6:04 29.62 n/a .000
03045# overflow out < 1.0 03:W-Pond-Out 0.00 .000 No date 0:00 .00 n/a .000
03046# Mettosedex.9827E+00 m3, TotVol=Vol.0000E+00 m3, N-Over= 0, TotDur=Dur 0 hrs)
03047# *****
03048# # East SWM Pond Routing (Restrictive Outfall Conditions)
03049# # 100-year Water Level of 102.7m at XS 5+229.82 according to the
03050# # Amendment to the Engineer's Report for the Faulkner Municipal Drain,
03051# # Dated December 2020, Prepared by Robinson Consultants Inc.,
03052# # However, the existing Davidson SWM Facility assumes a 100-year Water
03053# # Level of 102.7m under restrictive downstream conditions and therefore,
03054# # the latter level has conservatively been assumed for this study.
03055# *****
03056# # Node B - East SWM Pond Outlet (Sta. 4+633.10 from the December 2020 Amendment to the Engineer's Report
03057# # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
03058# *****
03059# # Area E Und3 to Node B
03060# *****
03061# R20202:CO0019-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03062# CALIS STANHYD
03063# [XIMP= 64.71IMP= 69]
03064# [Horton parameters: For 76.20(F= 13.20;CC=4.14; F= .00]
03065# [Previous area: Iapex= 4.67;LSP=2.00;LSP= 40.0;MNF= 250;ICPF= .0]
03066# [Impervious area: Ialmp= 1.57;LSP= .50;LSP= 485.0;MNF= .013;ICPF= .0]
03067# *****
03068# # East SWM Pond Routing (Free Outfall Conditions)
03069# # For enhanced quality control and permanent pool requirements based on MCK guidelines
03070# # for enhanced quality control for wet ponds.
03071# *****
03072# R20202:CO0020-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03073# ROUTE RESERVOIR -> 1.0 02:W-Pond-Out 35.34 2.998 No date 6:04 29.62 n/a .000
03074# overflow out < 1.0 03:W-Pond-Out 0.00 .000 No date 0:00 .00 n/a .000
03075# Mettosedex.9827E+00 m3, TotVol=Vol.0000E+00 m3, N-Over= 0, TotDur=Dur 0 hrs)
03076# *****
03077# # East SWM Pond Routing (Restrictive Outfall Conditions)
03078# # 100-year Water Level of 102.7m at XS 5+229.82 according to the
03079# # Amendment to the Engineer's Report for the Faulkner Municipal Drain,
03080# # Dated December 2020, Prepared by Robinson Consultants Inc.,
03081# # However, the existing Davidson SWM Facility assumes a 100-year Water
03082# # Level of 102.7m under restrictive downstream conditions and therefore,
03083# # the latter level has conservatively been assumed for this study.
03084# *****
03085# # Node B - East SWM Pond Outlet (Sta. 4+633.10 from the December 2020 Amendment to the Engineer's Report
03086# # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
03087# *****
03088# # Area W Und3 to Node B
03089# *****
03089# R20202:CO0021-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03090# DESIGN STANHYD
03091# [CN= 59.0; M= 3.00; Tpe= .76]
03092# # Area W Und3 to Node B
03093# *****
03094# R20202:CO0022-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03095# DESIGN STANHYD
03096# [CN= 59.0; M= 3.00; Tpe= .48]
03097# # Area E Und3 to Node B
03098# *****
03099# R20202:CO0023-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03100# DESIGN STANHYD
03101# [CN= 59.0; M= 3.00; Tpe= .48]
03102# # Area W Und3 to Node B
03103# *****
03104# R20202:CO0024-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03105# DESIGN STANHYD
03106# [CN= 59.0; M= 3.00; Tpe= .48]
03107# # Area E Und3 to Node B
03108# *****
03109# R20202:CO0025-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03110# DESIGN STANHYD
03111# [CN= 59.0; M= 3.00; Tpe= .48]
03112# # Area W Und3 to Node B
03113# *****
03114# R20202:CO0026-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03115# DESIGN STANHYD
03116# [CN= 59.0; M= 3.00; Tpe= .48]
03117# # Area E Und3 to Node B
03118# *****
03119# R20202:CO0027-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03120# DESIGN STANHYD
03121# [CN= 59.0; M= 3.00; Tpe= .48]
03122# # Area W Und3 to Node B
03123# *****
03124# R20202:CO0028-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03125# DESIGN STANHYD
03126# [CN= 59.0; M= 3.00; Tpe= .48]
03127# # Area E Und3 to Node B
03128# *****
03129# R20202:CO0029-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03130# DESIGN STANHYD
03131# [CN= 59.0; M= 3.00; Tpe= .48]
03132# # Area W Und3 to Node B
03133# *****
03134# R20202:CO0030-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03135# DESIGN STANHYD
03136# [CN= 59.0; M= 3.00; Tpe= .48]
03137# # Area E Und3 to Node B
03138# *****
03139# R20202:CO0031-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03140# DESIGN STANHYD
03141# [CN= 59.0; M= 3.00; Tpe= .48]
03142# # Area W Und3 to Node B
03143# *****
03144# R20202:CO0032-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03145# DESIGN STANHYD
03146# [CN= 59.0; M= 3.00; Tpe= .48]
03147# # Area E Und3 to Node B
03148# *****
03149# R20202:CO0033-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03150# DESIGN STANHYD
03151# [CN= 59.0; M= 3.00; Tpe= .48]
03152# # Area W Und3 to Node B
03153# *****
03154# R20202:CO0034-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03155# DESIGN STANHYD
03156# [CN= 59.0; M= 3.00; Tpe= .48]
03157# # Area E Und3 to Node B
03158# *****
03159# R20202:CO0035-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03160# DESIGN STANHYD
03161# [CN= 59.0; M= 3.00; Tpe= .48]
03162# # Area W Und3 to Node B
03163# *****
03164# R20202:CO0036-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03165# DESIGN STANHYD
03166# [CN= 59.0; M= 3.00; Tpe= .48]
03167# # Area E Und3 to Node B
03168# *****
03169# R20202:CO0037-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03170# DESIGN STANHYD
03171# [CN= 59.0; M= 3.00; Tpe= .48]
03172# # Area W Und3 to Node B
03173# *****
03174# R20202:CO0038-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03175# DESIGN STANHYD
03176# [CN= 59.0; M= 3.00; Tpe= .48]
03177# # Area E Und3 to Node B
03178# *****
03179# R20202:CO0039-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03180# DESIGN STANHYD
03181# [CN= 59.0; M= 3.00; Tpe= .48]
03182# # Area W Und3 to Node B
03183# *****
03184# R20202:CO0040-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03185# DESIGN STANHYD
03186# [CN= 59.0; M= 3.00; Tpe= .48]
03187# # Area E Und3 to Node B
03188# *****
03189# R20202:CO0041-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03190# DESIGN STANHYD
03191# [CN= 59.0; M= 3.00; Tpe= .48]
03192# # Area W Und3 to Node B
03193# *****
03194# R20202:CO0042-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03195# DESIGN STANHYD
03196# [CN= 59.0; M= 3.00; Tpe= .48]
03197# # Area E Und3 to Node B
03198# *****
03199# R20202:CO0043-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03200# DESIGN STANHYD
03201# [CN= 59.0; M= 3.00; Tpe= .48]
03202# # Area W Und3 to Node B
03203# *****
03204# R20202:CO0044-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03205# DESIGN STANHYD
03206# [CN= 59.0; M= 3.00; Tpe= .48]
03207# # Area E Und3 to Node B
03208# *****
03209# R20202:CO0045-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03210# DESIGN STANHYD
03211# [CN= 59.0; M= 3.00; Tpe= .48]
03212# # Area W Und3 to Node B
03213# *****
03214# R20202:CO0046-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03215# DESIGN STANHYD
03216# [CN= 59.0; M= 3.00; Tpe= .48]
03217# # Area E Und3 to Node B
03218# *****
03219# R20202:CO0047-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03220# DESIGN STANHYD
03221# [CN= 59.0; M= 3.00; Tpe= .48]
03222# # Area W Und3 to Node B
03223# *****
03224# R20202:CO0048-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03225# DESIGN STANHYD
03226# [CN= 59.0; M= 3.00; Tpe= .48]
03227# # Area E Und3 to Node B
03228# *****
03229# R20202:CO0049-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03230# DESIGN STANHYD
03231# [CN= 59.0; M= 3.00; Tpe= .48]
03232# # Area W Und3 to Node B
03233# *****
03234# R20202:CO0050-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03235# DESIGN STANHYD
03236# [CN= 59.0; M= 3.00; Tpe= .48]
03237# # Area E Und3 to Node B
03238# *****
03239# R20202:CO0051-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03240# DESIGN STANHYD
03241# [CN= 59.0; M= 3.00; Tpe= .48]
03242# # Area W Und3 to Node B
03243# *****
03244# R20202:CO0052-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03245# DESIGN STANHYD
03246# [CN= 59.0; M= 3.00; Tpe= .48]
03247# # Area E Und3 to Node B
03248# *****
03249# R20202:CO0053-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03250# DESIGN STANHYD
03251# [CN= 59.0; M= 3.00; Tpe= .48]
03252# # Area W Und3 to Node B
03253# *****
03254# R20202:CO0054-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03255# DESIGN STANHYD
03256# [CN= 59.0; M= 3.00; Tpe= .48]
03257# # Area E Und3 to Node B
03258# *****
03259# R20202:CO0055-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03260# DESIGN STANHYD
03261# [CN= 59.0; M= 3.00; Tpe= .48]
03262# # Area W Und3 to Node B
03263# *****
03264# R20202:CO0056-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03265# DESIGN STANHYD
03266# [CN= 59.0; M= 3.00; Tpe= .48]
03267# # Area E Und3 to Node B
03268# *****
03269# R20202:CO0057-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03270# DESIGN STANHYD
03271# [CN= 59.0; M= 3.00; Tpe= .48]
03272# # Area W Und3 to Node B
03273# *****
03274# R20202:CO0058-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03275# DESIGN STANHYD
03276# [CN= 59.0; M= 3.00; Tpe= .48]
03277# # Area E Und3 to Node B
03278# *****
03279# R20202:CO0059-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03280# DESIGN STANHYD
03281# [CN= 59.0; M= 3.00; Tpe= .48]
03282# # Area W Und3 to Node B
03283# *****
03284# R20202:CO0060-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03285# DESIGN STANHYD
03286# [CN= 59.0; M= 3.00; Tpe= .48]
03287# # Area E Und3 to Node B
03288# *****
03289# R20202:CO0061-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03290# DESIGN STANHYD
03291# [CN= 59.0; M= 3.00; Tpe= .48]
03292# # Area W Und3 to Node B
03293# *****
03294# R20202:CO0062-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03295# DESIGN STANHYD
03296# [CN= 59.0; M= 3.00; Tpe= .48]
03297# # Area E Und3 to Node B
03298# *****
03299# R20202:CO0063-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03300# DESIGN STANHYD
03301# [CN= 59.0; M= 3.00; Tpe= .48]
03302# # Area W Und3 to Node B
03303# *****
03304# R20202:CO0064-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03305# DESIGN STANHYD
03306# [CN= 59.0; M= 3.00; Tpe= .48]
03307# # Area E Und3 to Node B
03308# *****
03309# R20202:CO0065-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03310# DESIGN STANHYD
03311# [CN= 59.0; M= 3.00; Tpe= .48]
03312# # Area W Und3 to Node B
03313# *****
03314# R20202:CO0066-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03315# DESIGN STANHYD
03316# [CN= 59.0; M= 3.00; Tpe= .48]
03317# # Area E Und3 to Node B
03318# *****
03319# R20202:CO0067-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03320# DESIGN STANHYD
03321# [CN= 59.0; M= 3.00; Tpe= .48]
03322# # Area W Und3 to Node B
03323# *****
03324# R20202:CO0068-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03325# DESIGN STANHYD
03326# [CN= 59.0; M= 3.00; Tpe= .48]
03327# # Area E Und3 to Node B
03328# *****
03329# R20202:CO0069-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03330# DESIGN STANHYD
03331# [CN= 59.0; M= 3.00; Tpe= .48]
03332# # Area W Und3 to Node B
03333# *****
03334# R20202:CO0070-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03335# DESIGN STANHYD
03336# [CN= 59.0; M= 3.00; Tpe= .48]
03337# # Area E Und3 to Node B
03338# *****
03339# R20202:CO0071-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03340# DESIGN STANHYD
03341# [CN= 59.0; M= 3.00; Tpe= .48]
03342# # Area W Und3 to Node B
03343# *****
03344# R20202:CO0072-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03345# DESIGN STANHYD
03346# [CN= 59.0; M= 3.00; Tpe= .48]
03347# # Area E Und3 to Node B
03348# *****
03349# R20202:CO0073-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03350# DESIGN STANHYD
03351# [CN= 59.0; M= 3.00; Tpe= .48]
03352# # Area W Und3 to Node B
03353# *****
03354# R20202:CO0074-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03355# DESIGN STANHYD
03356# [CN= 59.0; M= 3.00; Tpe= .48]
03357# # Area E Und3 to Node B
03358# *****
03359# R20202:CO0075-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03360# DESIGN STANHYD
03361# [CN= 59.0; M= 3.00; Tpe= .48]
03362# # Area W Und3 to Node B
03363# *****
03364# R20202:CO0076-----Dtlain-ID:INHYD-----AREAhA-QFEARcsm-TpeakDate h:hm-----Rvwm-R.C-----DWfms
03365# DESIGN STANHYD
03366# [CN= 59.0; M= 3.00; Tpe= .48]
03367# # Area E Und3 to Node B
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032411 [L/S= 573.0 /200.0/200]
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032599 *****
032600 *****
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039611 [INFO]-----
03962 [INFO]-----
03963 *****
03964 # SWMMHYMO Ver:3.500/Feb 2015 / INPUT DATA FILE
03965 # *****
03966 # Project Name : [Calvin Shittsville West properties]
03967 # Project Number : [2247]
03968 # Date : [2024/08/02]
03969 # Modeler : [JF]
03970 # Company : J.F. Sabourin and Associates
03971 # License # : 2549237
03972 *****
03973 R0299:C00002-----
03974 HEAD STORM
03975 Filename = storm.001
03976 Comment = 100 years IBC Type 2 Storm 12 hours steep 15 min, as per Carp River
03977 [SFT=15.00 No date 12.50/F 56.00]
03978 R0299:C00003-----
03979 DEFAULT VALUES
03980 Filename = C:\Temp\SWMMHYMO\Post-Dev\Ottawa.val
03981 ICASEV = 1 (read and print data)
03982 FileTitle: File comment: [Parameters for City of Ottawa Projects]
03983 *****
03984 THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDARD COM
03985 Horton's infiltration equation parameters:
03986 [For 76.20 mm/hr] [F=11.20 mm/hr] [C=4.14 /hr] [F= .00 mm]
03987 Parameters for PERVIOUS surfaces in STANDARD:
03988 [Iapex= 4.67 mm] [Iapex=40.00 n] [IMP= .250]
03989 Parameters for IMPERVIOUS surfaces in STANDARD:
03990 [Ialmp= 1.57 mm] [CLIV=1.50] [IMH= .013]
03991 Parameters used in NASVD:
03992 [Iaw= 4.67 mm] [H= 3.00]
03993 *****
03994 Average monthly Pan Evaporation data in (mm)
03995 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
03996 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
03997 *****
03998 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
03999 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
04000 *****
04001 # Node X - West SWM Pond Outlet
04002 *****
04003 # Post-development drainage area to West SWM Pond
04004 R0299:C00004-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04005 [Horton Parameters: Fw= 76.20/F= 13.20/ICAC=4.14; F= .00]
04006 [Previous area: Iapex= 4.67/SLPF=2.00/IDP= .40/IMP= .250/BCF= .0]
04007 [Impervious area: Ialmp= 1.57/SLPF= .50/IDP= .48/IMP= .013/BCI= .0]
04008 *****
04009 # East SWM Pond Routing (Restrictive Outfall Conditions)
04010 *****
04011 # East SWM Pond Routing (Free Outfall Conditions)
04012 *****
04013 # Quality control and permanent pool requirements based on MCE guidelines
04014 *****
04015 # for enhanced quality control for wet ponds.
04016 *****
04017 R0299:C00005-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04018 ROUTE RESERVOIR -> 1.0 0.01:Fond 35.34 9.147 No date 6:02 74.69 n/a .000
04019 *****
04020 *****
04021 # West SWM Pond Routing (Restrictive Outfall Conditions)
04022 *****
04023 # 100-year Water Level of 102.74m at XS S+229.82 according to the
04024 # Amendment to the Engineer's Report for the Faulkner Municipal Drain,
04025 # Dated December 2020, Prepared by Robinson Consultants Inc.,
04026 # However, the existing Davidson SWM Facility assumes a 100-year Water
04027 # Level of 102.77m under restrictive downstream conditions and therefore,
04028 # the latter water level has conservatively been adopted for this study.
04029 *****
04030 *****
04031 # Area W Und3 to Node X
04032 *****
04033 R0299:C00007-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04034 [C= 62.0; No 3.00; Tpe 1.11]
04035 *****
04036 # Area E Und3 to Node X
04037 *****
04038 R0299:C00008-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04039 [C= 59.0; No 3.00; Tpe 1.46]
04040 *****
04041 # Area E Und3 to Node X
04042 *****
04043 R0299:C00009-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04044 [C= 59.0; No 3.00; Tpe 1.11]
04045 *****
04046 # Area E Und3 to Node X
04047 *****
04048 R0299:C00010-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04049 [C= 59.0; No 3.00; Tpe 1.11]
04050 *****
04051 # Total Flow at Node X (NodeA = W Pond + E Und3 + E Und2)
04052 *****
04053 ADD HYD
04054 + 1.0 0.01:Fond-Und 35.34 9.147 No date 6:02 74.69 n/a .000
04055 + 1.0 0.02:Fond-Und 0.00 .000 No date 0:00 .00 n/a .000
04056 + 1.0 0.02:Und1 1.88 .055 No date 7:09 33.77 n/a .000
04057 + 1.0 0.02:Und2 6.75 .146 No date 7:34 31.14 .324 .000
04058 + 1.0 0.02:Und3 0.88 .023 No date 7:09 31.14 n/a .000
04059 *****
04060 *****
04061 # Channel Routing from Node X to Node A
04062 *****
04063 R0299:C00011-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04064 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04065 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04066 [Vmax= .636/Imax= .141]
04067 *****
04068 # Node A (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04069 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04070 *****
04071 # Area W Und3 to Node A
04072 *****
04073 R0299:C00012-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04074 [C= 59.0; No 3.00; Tpe .76]
04075 *****
04076 # Area W Und3 to Node A
04077 *****
04078 R0299:C00013-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04079 [C= 59.0; No 3.00; Tpe .48]
04080 *****
04081 # Area E Und3 to Node A
04082 *****
04083 R0299:C00014-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04084 [C= 59.0; No 3.00; Tpe .48]
04085 *****
04086 # Area W Und3 to Node A
04087 *****
04088 R0299:C00015-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04089 [C= 59.0; No 3.00; Tpe .48]
04090 *****
04091 # Channel Routing from Node A to Node B
04092 *****
04093 R0299:C00016-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04094 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04095 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04096 [Vmax= .636/Imax= .141]
04097 *****
04098 # Node B (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04099 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04100 *****
04101 # Area W Und3 to Node B
04102 *****
04103 R0299:C00017-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04104 [C= 59.0; No 3.00; Tpe .48]
04105 *****
04106 # Channel Routing from Node B to Node C
04107 *****
04108 R0299:C00018-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04109 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04110 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04111 [Vmax= .636/Imax= .141]
04112 *****
04113 # Node C (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04114 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04115 *****
04116 # Post-development drainage area to East SWM Pond
04117 *****
04118 R0299:C00019-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04119 [C= 59.0; No 3.00; Tpe .48]
04120 *****
04121 # Channel Routing from Node C to Node D
04122 *****
04123 R0299:C00020-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04124 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04125 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04126 [Vmax= .636/Imax= .141]
04127 *****
04128 # Node D (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04129 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04130 *****
04131 # Area W Und3 to Node D
04132 *****
04133 R0299:C00021-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04134 [C= 59.0; No 3.00; Tpe .48]
04135 *****
04136 # Channel Routing from Node D to Node E
04137 *****
04138 R0299:C00022-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04139 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04140 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04141 [Vmax= .636/Imax= .141]
04142 *****
04143 # Node E (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04144 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04145 *****
04146 # Post-development drainage area to East SWM Pond
04147 *****
04148 R0299:C00023-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04149 [C= 59.0; No 3.00; Tpe .48]
04150 *****
04151 # Channel Routing from Node E to Node F
04152 *****
04153 R0299:C00024-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04154 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04155 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04156 [Vmax= .636/Imax= .141]
04157 *****
04158 # Node F (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04159 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04160 *****
04161 # Area W Und3 to Node F
04162 *****
04163 R0299:C00025-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04164 [C= 59.0; No 3.00; Tpe .48]
04165 *****
04166 # Channel Routing from Node F to Node G
04167 *****
04168 R0299:C00026-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04169 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04170 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04171 [Vmax= .636/Imax= .141]
04172 *****
04173 # Node G (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04174 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04175 *****
04176 # Post-development drainage area to East SWM Pond
04177 *****
04178 R0299:C00027-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04179 [C= 59.0; No 3.00; Tpe .48]
04180 *****
04181 # Channel Routing from Node G to Node H
04182 *****
04183 R0299:C00028-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04184 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04185 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04186 [Vmax= .636/Imax= .141]
04187 *****
04188 # Node H (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04189 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04190 *****
04191 # Area W Und3 to Node H
04192 *****
04193 R0299:C00029-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04194 [C= 59.0; No 3.00; Tpe .48]
04195 *****
04196 # Channel Routing from Node H to Node I
04197 *****
04198 R0299:C00030-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04199 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04200 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04201 [Vmax= .636/Imax= .141]
04202 *****
04203 # Node I (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04204 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04205 *****
04206 # Post-development drainage area to East SWM Pond
04207 *****
04208 R0299:C00031-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04209 [C= 59.0; No 3.00; Tpe .48]
04210 *****
04211 # Channel Routing from Node I to Node J
04212 *****
04213 R0299:C00032-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04214 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04215 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04216 [Vmax= .636/Imax= .141]
04217 *****
04218 # Node J (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04219 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04220 *****
04221 # Area W Und3 to Node J
04222 *****
04223 R0299:C00033-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04224 [C= 59.0; No 3.00; Tpe .48]
04225 *****
04226 # Channel Routing from Node J to Node K
04227 *****
04228 R0299:C00034-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04229 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04230 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04231 [Vmax= .636/Imax= .141]
04232 *****
04233 # Node K (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04234 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04235 *****
04236 # Post-development drainage area to East SWM Pond
04237 *****
04238 R0299:C00035-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04239 [C= 59.0; No 3.00; Tpe .48]
04240 *****
04241 # Channel Routing from Node K to Node L
04242 *****
04243 R0299:C00036-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04244 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04245 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04246 [Vmax= .636/Imax= .141]
04247 *****
04248 # Node L (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04249 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04250 *****
04251 # Area W Und3 to Node L
04252 *****
04253 R0299:C00037-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04254 [C= 59.0; No 3.00; Tpe .48]
04255 *****
04256 # Channel Routing from Node L to Node M
04257 *****
04258 R0299:C00038-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04259 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04260 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04261 [Vmax= .636/Imax= .141]
04262 *****
04263 # Node M (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04264 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04265 *****
04266 # Post-development drainage area to East SWM Pond
04267 *****
04268 R0299:C00039-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04269 [C= 59.0; No 3.00; Tpe .48]
04270 *****
04271 # Channel Routing from Node M to Node N
04272 *****
04273 R0299:C00040-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04274 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04275 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04276 [Vmax= .636/Imax= .141]
04277 *****
04278 # Node N (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04279 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04280 *****
04281 # Area W Und3 to Node N
04282 *****
04283 R0299:C00041-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04284 [C= 59.0; No 3.00; Tpe .48]
04285 *****
04286 # Channel Routing from Node N to Node O
04287 *****
04288 R0299:C00042-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04289 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04290 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04291 [Vmax= .636/Imax= .141]
04292 *****
04293 # Node O (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04294 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04295 *****
04296 # Post-development drainage area to East SWM Pond
04297 *****
04298 R0299:C00043-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04299 [C= 59.0; No 3.00; Tpe .48]
04300 *****
04301 # Channel Routing from Node O to Node P
04302 *****
04303 R0299:C00044-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04304 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04305 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04306 [Vmax= .636/Imax= .141]
04307 *****
04308 # Node P (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04309 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04310 *****
04311 # Area W Und3 to Node P
04312 *****
04313 R0299:C00045-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04314 [C= 59.0; No 3.00; Tpe .48]
04315 *****
04316 # Channel Routing from Node P to Node Q
04317 *****
04318 R0299:C00046-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04319 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04320 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04321 [Vmax= .636/Imax= .141]
04322 *****
04323 # Node Q (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04324 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04325 *****
04326 # Post-development drainage area to East SWM Pond
04327 *****
04328 R0299:C00047-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04329 [C= 59.0; No 3.00; Tpe .48]
04330 *****
04331 # Channel Routing from Node Q to Node R
04332 *****
04333 R0299:C00048-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04334 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04335 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04336 [Vmax= .636/Imax= .141]
04337 *****
04338 # Node R (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04339 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04340 *****
04341 # Area W Und3 to Node R
04342 *****
04343 R0299:C00049-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04344 [C= 59.0; No 3.00; Tpe .48]
04345 *****
04346 # Channel Routing from Node R to Node S
04347 *****
04348 R0299:C00050-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04349 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04350 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04351 [Vmax= .636/Imax= .141]
04352 *****
04353 # Node S (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04354 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04355 *****
04356 # Post-development drainage area to East SWM Pond
04357 *****
04358 R0299:C00051-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04359 [C= 59.0; No 3.00; Tpe .48]
04360 *****
04361 # Channel Routing from Node S to Node T
04362 *****
04363 R0299:C00052-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04364 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04365 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04366 [Vmax= .636/Imax= .141]
04367 *****
04368 # Node T (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04369 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04370 *****
04371 # Area W Und3 to Node T
04372 *****
04373 R0299:C00053-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04374 [C= 59.0; No 3.00; Tpe .48]
04375 *****
04376 # Channel Routing from Node T to Node U
04377 *****
04378 R0299:C00054-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04379 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04380 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04381 [Vmax= .636/Imax= .141]
04382 *****
04383 # Node U (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04384 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04385 *****
04386 # Post-development drainage area to East SWM Pond
04387 *****
04388 R0299:C00055-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04389 [C= 59.0; No 3.00; Tpe .48]
04390 *****
04391 # Channel Routing from Node U to Node V
04392 *****
04393 R0299:C00056-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04394 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04395 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04396 [Vmax= .636/Imax= .141]
04397 *****
04398 # Node V (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04399 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04400 *****
04401 # Area W Und3 to Node V
04402 *****
04403 R0299:C00057-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04404 [C= 59.0; No 3.00; Tpe .48]
04405 *****
04406 # Channel Routing from Node V to Node W
04407 *****
04408 R0299:C00058-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04409 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04410 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04411 [Vmax= .636/Imax= .141]
04412 *****
04413 # Node W (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04414 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04415 *****
04416 # Post-development drainage area to East SWM Pond
04417 *****
04418 R0299:C00059-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04419 [C= 59.0; No 3.00; Tpe .48]
04420 *****
04421 # Channel Routing from Node W to Node X
04422 *****
04423 R0299:C00060-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04424 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04425 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04426 [Vmax= .636/Imax= .141]
04427 *****
04428 # Node X (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04429 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04430 *****
04431 # Area W Und3 to Node X
04432 *****
04433 R0299:C00061-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04434 [C= 59.0; No 3.00; Tpe .48]
04435 *****
04436 # Channel Routing from Node X to Node Y
04437 *****
04438 R0299:C00062-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04439 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04440 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
04441 [Vmax= .636/Imax= .141]
04442 *****
04443 # Node Y (Sta. S+229.82 from the December 2020 Amendment to the Engineer's Report
04444 # for the Faulkner Municipal Drain by Robinson Consultants Inc.)
04445 *****
04446 # Post-development drainage area to East SWM Pond
04447 *****
04448 R0299:C00063-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04449 [C= 59.0; No 3.00; Tpe .48]
04450 *****
04451 # Channel Routing from Node Y to Node Z
04452 *****
04453 R0299:C00064-----DRAIN-DI-HYD-----AREHA-QFEARCS-TpeakDate hh:mm-----RVm-R-C-----DWfms
04454 [RDF= 1.00] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:16 65.57 n/a .000
04455 [L/S= 120 / 380] out<= 1.0 0.01:Node-X 44.85 .815 No date 7:14 65.57 n/a .000
0445
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Attachment D

Preliminary Storm Hydraulic Grade Line Analysis

Table D-1: Caivan Stittsville Lands - MSS
Preliminary 100 Year HGL Analysis

SWM Pond	MH-ID	Invert Elevation (m)	Top of MH (m)	Max HGL (m)	Top of MH Freeboard (m)
Trunk 1 West SWM Pond	MH-112	103.58	106.93	104.49	2.44
	MH-116	103.26	106.79	104.35	2.44
	MH-120	102.88	106.64	104.27	2.38
	MH-124	102.70	106.49	104.21	2.28
	MH-139	102.32	106.33	104.14	2.19
	MH-140	102.08	106.18	104.07	2.11
	MH-143	101.96	106.00	103.97	2.03
	MH-1002	101.83	104.35	103.83	0.52
	West SWM Pond	-	-	103.80	-
Trunk 2 West SWM Pond	MH-231	102.84	106.68	104.09	2.59
	MH-232	102.65	106.42	104.03	2.39
	MH-235	102.57	106.38	104.00	2.38
	MH-236	102.52	106.34	103.98	2.36
	MH-237	102.37	106.18	103.90	2.28
	MH-240	101.95	106.01	103.84	2.18
	West SWM Pond	-	-	103.80	-
Trunk 3 Davidson SWM Pond	MH-306	102.78	106.04	103.59	2.46
	MH-307	102.63	105.88	103.51	2.37
	MH-308	102.39	105.76	103.39	2.37
	MH-313	101.69	105.82	103.38	2.44
	MH-314	101.54	103.89	103.30	0.59
	Davidson SWM Pond	-	-	103.28	-
Trunk 4 East SWM Pond	MH-405	101.94	105.43	102.70	2.73
	MH-406	101.84	105.63	102.64	2.99
	MH-412	101.42	105.68	102.47	3.21
	MH-413	101.29	105.51	102.44	3.07
	MH-414	101.12	105.37	102.40	2.97
	MH-415	101.05	105.34	102.39	2.95
	MH-430	100.83	105.25	102.32	2.94
	MH-434	100.67	104.94	102.15	2.79
	MH-435	100.54	104.85	101.98	2.87
	East SWM Pond	-	-	101.95	-

**Table D-1: Caivan Stittsville Lands - MSS
Preliminary 100 Year HGL Analysis**

SWM Pond	MH-ID	Invert Elevation (m)	Top of MH (m)	Max HGL (m)	Top of MH Freeboard (m)
Trunk 5 East SWM Pond	MH-519	102.03	105.49	102.38	3.11
	MH-522	101.53	105.36	102.30	3.06
	MH-524	101.42	105.24	102.27	2.97
	MH-528	101.31	105.12	102.25	2.88
	MH-532	100.79	104.99	102.04	2.95
	MH-5320	101.15	105.00	102.14	2.86
	MH-533	100.54	104.86	101.96	2.90
	East SWM Pond	-	-	101.95	-
				Min⁽¹⁾	2.03
				Max⁽¹⁾	3.21
				Average⁽¹⁾	2.63

Notes:

(1) Freeboard excluding MH-1002 and MH-314 within the SWM pond blocks.

(2) Analysis assumes the use of ICDs throughout the development (s), therefore the Rational Method flows as per DSEL's storm design sheets were increased by 14% to account for additional head on the ICDs during the 100-year event.

(3) Analysis assumes the following preliminary 100-year water level in the West and East SWM Ponds:

West SWM Pond: 103.80m

East SWM Pond: 101.95m

(4) Analysis assumes a preliminary 100-year water level of 103.28m in the Davidson SWM Pond as per recent analysis prepared by JFSA with the inclusion of the total proposed drainage area of 4.10 ha (~63% imperviousness) of Caivan Stittsville lands that is proposed to drain to the Davidson SWM Pond.

(5) Model Name: STIT-STM-MSS_v03.0.inp.



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Attachment E

Preliminary Sanitary Hydraulic Grade Line Analysis

Table E-1: Caivan Stittsville Lands - MSS
Preliminary Sanitary HGL Analysis
Rare Flows
(Pumping station capacity of 71.5 L/s)

Location	MH-ID	Invert Elevation (m)	Top of MH (m)	Max HGL (m)	Top of MH Freeboard (m)
Trunk 1 West Development	MH-120A	100.80	106.18	100.91	5.28
	MH-135A	100.64	106.33	100.79	5.54
	MH-139A	100.50	106.48	100.66	5.82
	MH-143A	100.36	106.63	100.52	6.11
	MH-159A	100.22	106.78	100.41	6.37
	MH-166A	100.08	106.93	100.28	6.65
	MH-169A	99.94	107.36	100.18	7.18
	MH-172A	99.74	108.64	99.92	8.72
	MH-173A	99.60	107.87	99.79	8.08
	MH-174A	99.44	107.65	99.62	8.03
	MH-175A	99.28	107.47	99.47	8.00
	MH-176A	99.13	107.36	99.31	8.05
	MH-177A	99.08	107.36	99.27	8.09
	MH-178A	98.93	107.36	99.11	8.25
	MH-179A	98.85	107.36	99.04	8.32
	MH-180A	98.76	107.36	98.97	8.40
Trunk 2 East Development	MH-203A	101.73	104.94	101.76	3.18
	MH-205A	101.49	105.25	101.54	3.71
	MH-206A	101.20	105.39	101.26	4.13
	MH-217A	100.86	105.56	100.95	4.61
	MH-226A	100.68	105.68	100.80	4.88
	MH-228A	100.51	105.42	100.63	4.79
	MH-229A	100.26	105.56	100.38	5.19
	MH-230A	100.09	105.70	100.23	5.47
	MH-231A	100.03	105.73	100.22	5.51
	MH-265A	99.89	105.81	100.07	5.74
	MH-266A	99.79	105.88	99.98	5.90
	MH-267A	99.60	106.75	99.78	6.97
	MH-268A	99.53	106.69	99.74	6.95
	MH-269A	99.31	106.71	99.51	7.20
	MH-270A	99.05	105.73	99.23	6.50
	MH-280A	98.99	105.70	99.18	6.52
	MH-281A	98.89	105.70	99.06	6.64
	MH-282A	98.72	105.74	98.81	6.93
	MH-283A	98.66	105.74	98.78	6.96

Table E-1: Caivan Stittsville Lands - MSS
Preliminary Sanitary HGL Analysis
Rare Flows
(Pumping station capacity of 71.5 L/s)

Location	MH-ID	Invert Elevation (m)	Top of MH (m)	Max HGL (m)	Top of MH Freeboard (m)
	MH-284A_PS	98.60	105.74	98.72	7.02
	SANMH97	103.01	105.34	103.01	2.33
	Davidson_Pond_Ovf	102.97	103.57	103.28	-
	MH-6002A	102.27	104.96	102.27	2.69
	MH-6003A	102.07	105.01	102.07	2.94
	MH-6004A-East_Pond_Ovf	102.02	105.01	102.02	-
				Min⁽¹⁾	3.18
				Max⁽¹⁾	8.72
				Average⁽¹⁾	6.42

Notes:

- (1) Freeboard excluding MH-284A_PS, SANMH97, MH-6002A and MH-6003A.
- (2) Analysis assumes rare event parameters/flows as per DSEL's sanitary design sheets.
- (3) Analysis assumes pumping station operating at a maximum capacity of 71.5 L/s.
- (4) Emergency sanitary overflows that discharge to the SWM ponds are assumed to be flapped.
- (5) Assumed emergency sanitary overflows (above the 25-year water level in the SWM ponds):
 - West: Existing emergency overflow to Davidson SWM Pond; 900 x 500mm sharp crested weir in SANMH97; Invert elevation = 103.05m (modified weir dimensions and invert).
 - East: Proposed emergency overflow to East SWM Pond; Reversed 375mm dia. sanitary pipe between MH-203A and MH-6002A; Invert elevation = 102.344m.
- (6) Assumed 100-year water level in the SWM Ponds:
 - Davidson SWM Pond = 103.28m
 - East SWM Pond: 101.95m
- (7) Model Name: STIT-SAN-MSS-Rare_v03.0.inp.

Table E-2: Caivan Stittsville Lands - MSS
Preliminary Sanitary HGL Analysis
Annual Flows
(Pumping Station Failure)

Location	MH-ID	Invert Elevation (m)	Top of MH (m)	Max HGL (m)	Top of MH Freeboard (m)
Trunk 1 West Development	MH-120A	100.80	106.18	103.64	2.55
	MH-135A	100.64	106.33	103.62	2.71
	MH-139A	100.50	106.48	103.61	2.87
	MH-143A	100.36	106.63	103.58	3.05
	MH-159A	100.22	106.78	103.56	3.22
	MH-166A	100.08	106.93	103.52	3.41
	MH-169A	99.94	107.36	103.47	3.89
	MH-172A	99.74	108.64	103.41	5.23
	MH-173A	99.60	107.87	103.39	4.48
	MH-174A	99.44	107.65	103.37	4.28
	MH-175A	99.28	107.47	103.36	4.11
	MH-176A	99.13	107.36	103.34	4.02
	MH-177A	99.08	107.36	103.33	4.03
	MH-178A	98.93	107.36	103.32	4.04
	MH-179A	98.85	107.36	103.31	4.05
	MH-180A	98.76	107.36	103.30	4.07
Trunk 2 East Development	MH-203A	101.73	104.94	102.49	2.45
	MH-205A	101.49	105.25	102.71	2.54
	MH-206A	101.20	105.39	102.96	2.43
	MH-217A	100.86	105.56	103.21	2.35
	MH-226A	100.68	105.68	103.24	2.44
	MH-228A	100.51	105.42	103.26	2.16
	MH-229A	100.26	105.56	103.29	2.28
	MH-230A	100.09	105.70	103.29	2.41
	MH-231A	100.03	105.73	103.29	2.44
	MH-265A	99.89	105.81	103.29	2.52
	MH-266A	99.79	105.88	103.29	2.59
	MH-267A	99.60	106.75	103.29	3.46
	MH-268A	99.53	106.69	103.29	3.40
	MH-269A	99.31	106.71	103.29	3.42
	MH-270A	99.05	105.73	103.29	2.44
	MH-280A	98.99	105.70	103.29	2.41
	MH-281A	98.89	105.70	103.29	2.41
	MH-282A	98.72	105.74	103.29	2.45
	MH-283A	98.66	105.74	103.29	2.45

**Table E-2: Caivan Stittsville Lands - MSS
Preliminary Sanitary HGL Analysis
Annual Flows
(Pumping Station Failure)**

Location	MH-ID	Invert Elevation (m)	Top of MH (m)	Max HGL (m)	Top of MH Freeboard (m)
	MH-284A_PS	98.60	105.74	103.29	2.45
	SANMH97	103.01	105.34	103.28	2.06
	Davidson_Pond_Ovf	102.97	103.57	103.28	-
	MH-6002A	102.27	104.96	102.40	2.56
	MH-6003A	102.07	105.01	102.18	2.83
	MH-6004A-East_Pond_Ovf	102.02	105.01	102.12	-
				Min⁽¹⁾	2.16
				Max⁽¹⁾	5.23
				Average⁽¹⁾	3.12

Notes:

- (1) Freeboard excluding MH-284A_PS, SANMH97, MH-6002A and MH-6003A.
- (2) Analysis assumes annual event parameters/flows as per DSEL's sanitary design sheets.
- (3) Analysis assumes complete pumping station failure (0 L/s).
- (4) Emergency sanitary overflows that discharge to the SWM ponds are assumed to be flapped.
- (5) Assumed emergency sanitary overflows (above the 25-year water level in the SWM ponds):
 - West: Existing emergency overflow to Davidson SWM Pond; 900 x 500mm sharp crested weir in SANMH97; Invert elevation = 103.05m (modified weir dimensions and invert).
 - East: Proposed emergency overflow to East SWM Pond; Reversed 375mm dia. sanitary pipe between MH-203A and MH-6002A; Invert elevation = 102.344m.
- (6) Assumed 100-year water level in the SWM Ponds:
 - Davidson SWM Pond = 103.28m
 - East SWM Pond: 101.95m
- (7) Model Name: STIT-SAN-MSS-Annual_v03.0.inp.



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Attachment F

Existing Davidson SWM Pond Preliminary Analysis

Table F-1: Criteria for Required Storage Volumes

Pond	Area ⁽¹⁾ (ha)	Imperviousness (%)	Storage Volume for Impervious Level ⁽²⁾ (m ³ /ha)
N/A	N/A	55	190
Davidson Co-Tenancy	44.721	57	194.67
N/A	N/A	70	225

(1) Includes the additional 4.1 ha to the SWM facility.

(2) Protection Level for Wet Pond: Enhanced 80% long-term S.S. removal.

SWM Planning & Design Manual, Table 3.2, p.3-10 (March 2003).

Table F-2: Required Storage Volumes for SWM Facility

Pond Component	Required Volume (m ³)	Provided Volume ⁽⁴⁾ (m ³)	Volume Ratio
Permanent Pool (PP) ⁽¹⁾	6917	9054	1.31
Quality Control ⁽²⁾	1789	1789	1.00
Extended Detention ⁽³⁾	6605	7058	1.07
Forebay (20% PP)	1383	N/A	N/A
PP - Forebay	5533	N/A	N/A

(1) Required PP volume based on Table F-1 (194.67 - 40 = 154.67 m³/ha).

(2) Required quality control volume based on 40 m³/ha.

(3) Required extended detention volume based on the detention of the 25 mm storm for a 72 hour drawdown time.

(4) Provided volume based on stage-storage curve and extended detention

(5) Based on grading plan provided by DSEL.

(6) As per MOE, Maximum Forebay Area: 33% of Total Permanent Pool.

**Table F-3: Davidson SWM Pond Level and Storage Summary
(Restrictive Downstream Conditions)**

Event	Pond Level (m)	Max Storage Used ⁽¹⁾ (m ³)
100yr/24hr Chicago	103.10	22,240
100yr/24hr SCS Type II	103.21	24,280
100yr/12hr SCS Type II	103.28	25,770

⁽¹⁾ Active storage volume only.

```
00001 20 Metric units / ID Numbers OFF
00002 #*****
00003 # SWMHYMO Ver.5.02(Jan 2001 <BETA> / INPUT DATA FILE
00004 #*****
00005 # Project Name : [Stittsville - Davidson Co-Tenancy]
00006 # Project Number: [1123-13]
00007 # Date : 2015/05/06
00008 # Modeller : Laura Pipkins, F.Eng.
00009 # Updated : 2016/08/24 [IP]
00010 # Updated : 2017/02/13 [IP]
00011 # Updated : 2017/03/22 [IP]
00012 # Updated : 2017/09/13 [IP]
00013 # Updated : 2017/09/18 [IP]
00014 # Updated : 2023/07/04 [IP]
00015 # Updated : 2023/07/15 [IP]
00016 # Updated : 2023/09/25 [IP]
00017 # Updated : 2024/08/02 [IP]
00018 # Company : J.F. Sabourin and Associates
00019 # License # : 2582434
00020 #*****
00021 % 25 mm Storm based on 2-Year, 3-Hour Chicago Storm
00022 START TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[001]
00023 % ["25MWC3E.stm"] <-storm filename, one per line for NSTORM time
00024 % STORM FILENAME=[storm.001]
00025 READ STORM
00026 % ICASH=[1], read and print values
00027 DEFAULT VALUES DEFVAL_FILENAME=[Ottawa.val]
00028 %
00029 %
00030 #
00031 #*****
00032 # PROPOSED OUTFLOW - FREE OUTFALL HYDROGRAPH
00033 #*****
00034 # Minor system hydrograph provided September 2017 by IBI Group
00035 READ HYD HYD_FILENAME=[Min]
00036 %
00037 %
00038 # Major system hydrograph provided September 2017 by IBI Group
00039 READ HYD HYD_FILENAME=[Maj]
00040 %
00041 %
00042 #*****
00043 # PROPOSED POND BLOCK
00044 #*****
00045 # Drainage area characteristics as per base plan provided by OSE
00046 DESIGN STANDHYD NRUN=[Pond], DT=[1](min), AREA=[3.071](ha),
00047 XCHY=[0.45], TCHY=[0](cms), LCHY=[1],
00048 SLOPE=[0.5](%), RAINFALL=[. . . , 1(mm/hr), END=1]
00049 #
00050 # Proposed Additional Area Requested by DSRL July 2024
00051 DESIGN STANDHYD NRUN=[Add], DT=[1](min), AREA=[4.1](ha),
00052 XCHY=[0.58], TCHY=[0.63], DCHY=[0](cms), LCHY=[1],
00053 SLOPE=[0.5](%), RAINFALL=[. . . , 1(mm/hr), END=1]
00054 #
00055 #*****
00056 # TOTAL INFLOWS TO SWM FACILITY
00057 #*****
00058 ADD HYD NRUN=[Pin], NRUNs to add["Min","Maj","Pond","Add"]
00059 #
00060 #*****
00061 # SWM FACILITY
00062 #*****
00063 # Quality control and permanent pool requirements based on MGS guidelines
00064 # for enhanced quality control for wet ponds. Extended detention of the 25 mm
00065 # runoff volume for 12 hours estimated for uniform erosion control requirements.
00066 # 2-, 5- and 100-year target release rates as per Table 3 of the April 2016
00067 # "Sustainable Drain Hydrotechnical Update" by Novatus
00068 #*****
00069 # Free Outfall Conditions
00070 ROUTE RESERVOIR NRUNOUT=[Pout], NRUNdine=[Pin] ,
00071 ROT=[1](min),
00072 % TABLE of ( OUTFLOW-STORAGE ) values
00073 (cms) - (ha-m)
00074 [ 0 , 0 ]
00075 [ 0.01 , 0.102 ]
00076 [ 0.021 , 0.206 ]
00077 [ 0.029 , 0.313 ]
00078 [ 0.035 , 0.422 ]
00079 [ 0.04 , 0.534 ]
00080 [ 0.045 , 0.648 ]
00081 [ 0.047 , 0.706 ]
00082 [ 0.05 , 0.824 ]
00083 [ 0.059 , 0.946 ]
00084 [ 0.062 , 1.009 ]
00085 [ 0.064 , 1.075 ]
00086 [ 0.074 , 1.143 ]
00087 [ 0.109 , 1.269 ]
00088 [ 0.153 , 1.474 ]
00089 [ 0.201 , 1.653 ]
00090 [ 0.25 , 1.836 ]
00091 [ 0.298 , 2.024 ]
00092 [ 0.343 , 2.216 ]
00093 [ 0.545 , 2.313 ]
00094 [ 0.609 , 2.512 ]
00095 [ 0.666 , 2.714 ]
00096 [ 0.693 , 2.818 ]
00097 [ 0.625 , 2.927 ]
00098 [ 1.318 , 3.133 ]
00099 [ 1.998 , 3.348 ]
00100 [ 3.366 , 3.568 ]
00101 [ 6.429 , 3.912 ]
00102 [ -1 , -1 ] (max twenty pts)
00103 #
00104 # NRUNDO=[Pout] ,
00105 # Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
00106 ROUTE RESERVOIR NRUNOUT=[Pout], NRUNdine=[Pin] ,
00107 ROT=[1](min),
00108 % TABLE of ( OUTFLOW-STORAGE ) values
00109 (cms) - (ha-m)
00110 [ 0 , 0 ]
00111 [ 0 , 1.563 ]
00112 [ 0.037 , 1.653 ]
00113 [ 0.058 , 1.836 ]
00114 [ 0.106 , 2.024 ]
00115 [ 0.137 , 2.216 ]
00116 [ 0.52 , 2.313 ]
00117 [ 0.584 , 2.512 ]
00118 [ 0.642 , 2.714 ]
00119 [ 0.669 , 2.818 ]
00120 [ 0.801 , 2.922 ]
00121 [ 1.296 , 3.133 ]
00122 [ 1.976 , 3.348 ]
00123 [ 3.344 , 3.568 ]
00124 [ 6.408 , 3.912 ]
00125 [ -1 , -1 ] (max twenty pts)
00126 #
00127 # NRUNDO=[Pout] ,
00128 # Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
00129 # 100% Blockage of Drop Inlet Structure
00130 ROUTE RESERVOIR NRUNOUT=[Pout], NRUNdine=[Pin] ,
00131 ROT=[1](min),
00132 % TABLE of ( OUTFLOW-STORAGE ) values
00133 (cms) - (ha-m)
00134 [ 0 , 0 ]
00135 [ 0.000 , 2.818 ]
00136 [ 0.106 , 2.922 ]
00137 [ 0.551 , 3.133 ]
00138 [ 1.185 , 3.348 ]
00139 [ 1.963 , 3.568 ]
00140 [ 3.352 , 3.912 ]
00141 [ -1 , -1 ] (max twenty pts)
00142 #
00143 # NRUNDO=[Pout] ,
00144 #*****
00145 # SAVE STOR
00146 #*****
00147 # Save Pond Inflow Hydrograph For Use In Preparing Pond Stage-Time Curves
00148 # For Use in IBI Group's HGL Analysis of the Upstream Subdivision
00149 # SAVE HYD NRUN=[Pin], # OF FCURVES=[1], ICASH=[1]
00150 # HYD COMMENT=[Pond Inflow]
00151 #
00152 # Save Pond Outflow Hydrograph For Use in Calculating Average Velocity in the
00153 # Forebay during the 10-Year Storm
00154 # SAVE HYD NRUN=[Pout], # OF FCURVES=[1], ICASH=[1]
00155 # HYD COMMENT=[Pond Outflow - Free Outfall Conditions]
00156 #
00157 # Save Pond Outflow Hydrograph For Use in Preparing Pond Stage-Time Curves
00158 # For Use in IBI Group's HGL Analysis of the Upstream Subdivision
00159 # SAVE HYD NRUN=[Pout], # OF FCURVES=[1], ICASH=[1]
00160 # HYD COMMENT=[Pond Outflow - Restrictive D/S Conditions]
00161 #
00162 #*****
00163 # CHECK CAPACITIES OF OVERLAND FLOW ROUTE INTO POND AND OUTLET CHANNEL FROM POND
00164 #*****
00165 # Overland Flow Route Capacity
00166 ROUTE CHANNEL NRUNDO=[OVL FR], NRUNdine=[Maj], ROT=[1](min),
00167 CHLDR=[10](m), CHLDRS=[0.7](%), FFLDR=[0.7](%),
00168 SEGNUM=[1.0], NSEG=[1]
00169 ( SEGNUM, SEGDIST (m)=[0.03 9.2] NSEG times
00170 ( DISTANCE (m), ELEVATION (m)=
00171 [-15.8 , 105.60 ]
00172 [-15.8 , 105.45 ]
00173 [-6.0 , 105.35 ]
00174 [-0.0 , 105.16 ]
00175 [-4.20 , 105.65 ]
00176 [-9.20 , 106.23 ]
00177 %
00178 # Outlet Channel Capacity
00179 ROUTE CHANNEL NRUNDO=[FCHAN], NRUNdine=[Pout], ROT=[1](min),
00180 CHLDR=[10](m), CHLDRS=[0.10](%), FFLDR=[0.10](%),
```

```
00181> SEGNUM=[1.0], NSEG=[3]
00182 ( SEGNUM, SEGDIST (m)=[0.08 -0.25, -0.035 0.25, 0.08 2.80] NSEG times
00183 ( DISTANCE (m), ELEVATION (m)=
00184 [-2.80 , 102.23 ]
00185 [-0.25 , 101.38 ]
00186 [ 0.00 , 101.38 ]
00187 [ 0.25 , 101.38 ]
00188 [ 2.80 , 102.23 ]
00189 #*****
00190 # STORMS
00191 #*****
00192 #*****
00193 % 25 mm Storm based on 2-Year, 3-Hour Chicago Storm
00194 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[001]
00195 % ["25MWC3E.stm"] <-storm filename, one per line for NSTORM time
00196 %
00197 % 3-Year, 3-Hour Chicago Storm
00198 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[002]
00199 % ["002Y3CH.stm"] <-storm filename, one per line for NSTORM time
00200 %
00201 % 5-Year, 3-Hour Chicago Storm
00202 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[005]
00203 % ["005Y3CH.stm"] <-storm filename, one per line for NSTORM time
00204 %
00205 % 10-Year, 3-Hour Chicago Storm
00206 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[010]
00207 % ["010Y3CH.stm"] <-storm filename, one per line for NSTORM time
00208 %
00209 % 25-Year, 3-Hour Chicago Storm
00210 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[025]
00211 % ["025Y3CH.stm"] <-storm filename, one per line for NSTORM time
00212 %
00213 % 50-Year, 3-Hour Chicago Storm
00214 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[050]
00215 % ["050Y3CH.stm"] <-storm filename, one per line for NSTORM time
00216 %
00217 % 100-Year, 3-Hour Chicago Storm
00218 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[099]
00219 % ["100Y3CH.stm"] <-storm filename, one per line for NSTORM time
00220 %
00221 % 2-Year, 24-Hour SCS Storm
00222 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[102]
00223 % ["SC24002x.stm"] <-storm filename, one per line for NSTORM time
00224 %
00225 % 5-Year, 24-Hour SCS Storm
00226 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[105]
00227 % ["SC24005x.stm"] <-storm filename, one per line for NSTORM time
00228 %
00229 % 10-Year, 24-Hour SCS Storm
00230 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[110]
00231 % ["SC24010x.stm"] <-storm filename, one per line for NSTORM time
00232 %
00233 % 25-Year, 24-Hour SCS Storm
00234 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[125]
00235 % ["SC24025x.stm"] <-storm filename, one per line for NSTORM time
00236 %
00237 % 50-Year, 24-Hour SCS Storm
00238 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[150]
00239 % ["SC24050x.stm"] <-storm filename, one per line for NSTORM time
00240 %
00241 % 100-Year, 24-Hour SCS Storm
00242 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[199]
00243 % ["SC24100x.stm"] <-storm filename, one per line for NSTORM time
00244 %
00245 % 2-Year, 12-Hour SCS Storm (per City of Ottawa Carp River FCBMM model)
00246 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[202]
00247 % ["SC12002x.stm"] <-storm filename, one per line for NSTORM time
00248 %
00249 % 5-Year, 12-Hour SCS Storm (per City of Ottawa Carp River FCBMM model)
00250 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[205]
00251 % ["SC12005x.stm"] <-storm filename, one per line for NSTORM time
00252 %
00253 % 10-Year, 12-Hour SCS Storm (per City of Ottawa Carp River FCBMM model)
00254 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[210]
00255 % ["SC12010x.stm"] <-storm filename, one per line for NSTORM time
00256 %
00257 % 25-Year, 12-Hour SCS Storm (per City of Ottawa Carp River FCBMM model)
00258 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[225]
00259 % ["SC12025x.stm"] <-storm filename, one per line for NSTORM time
00260 %
00261 % 50-Year, 12-Hour SCS Storm (per City of Ottawa Carp River FCBMM model)
00262 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[250]
00263 % ["SC12050x.stm"] <-storm filename, one per line for NSTORM time
00264 %
00265 % 100-Year, 12-Hour SCS Storm (per City of Ottawa Carp River FCBMM model)
00266 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[299]
00267 % ["SC12100x.stm"] <-storm filename, one per line for NSTORM time
00268 %
00269 % July 1st, 1979 Storm - Ottawa International Airport
00270 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[979]
00271 % ["19790701.stm"] <-storm filename, one per line for NSTORM time
00272 %
00273 % August 4th, 1988 Storm - Ottawa International Airport
00274 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[988]
00275 % ["19880804.stm"] <-storm filename, one per line for NSTORM time
00276 %
00277 % August 8th, 1996 Storm - Ottawa International Airport
00278 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[996]
00279 % ["19960808.stm"] <-storm filename, one per line for NSTORM time
00280 %
00281 % 100-Year, 3-Hour Chicago Storm + 20%
00282 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[998]
00283 % ["100Y3CH+20.stm"] <-storm filename, one per line for NSTORM time
00284 %
00285 % 100-Year, 24-Hour SCS Storm + 20%
00286 TIER0=[0.0], METOUT=[2], NSTORM=[1], NRUN=[999]
00287 % ["SC24100+20.stm"] <-storm filename, one per line for NSTORM time
00288 %
00289 %
00290 FINISH
```

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```
00361#
00362#
00363#
00364# RUN#COMMAND#
00365# R0005:C0001-----
00366# START
00367# (TZERO = .00 hrs on 0)
00368# (METOUT= 2 (1=imperial, 2=metric output))
00369# (NFORM= 1)
00370# (NRUN = 0003)
00371# *****
00372# SWMHYMO Ver:5.02/Jan 2001 <SWET> / INPUT DATA FILE
00373#
00374# Project Name : [Stittville South - Davidson Co-Tenancy]
00375# Project Number : [1123-1]
00376# Date : 2015/05/06
00377# Modeler : Laura Pipkins, P.Eng.
00378# Updated : 2016/08/24 [LF]
00379# Updated : 2017/02/13 [LF]
00380# Updated : 2017/03/12 [LF]
00381# Updated : 2017/09/13 [LF]
00382# Updated : 2017/09/18 [LF]
00383# Updated : 2023/07/12 [LF]
00384# Updated : 2023/09/25 [LF]
00385# Updated : 2024/08/02 [JF]
00386# Updated : 2024/08/02 [JF]
00387# Company : J.F. Sabourin and Associates
00388# License # : 2582634
00389# *****
00390# R0005:C0002-----
00391# READ STORM
00392#
00393# File name = storm.001
00394# Comment = CHICAGO STORM 5 Year, 3 Hours
00395# (SDT=10.00;SDUR= 3.00;PTOT= 42.51)
00396# R0005:C0003-----
00397# DEFAULT VALUES
00398# File name = C:\Temp\SWMHYMO\Davidson Post-Dev\Ottawa.val
00399# ICASDev = 1 (read and print data)
00400# FileTitle= File comment: [Parameters for City of Ottawa Projects]
00401# THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDARD COM
00402# [For 76.20 mm/hr] [For 12.20 mm/hr] [ICAX= 4.14 /hr] [F= .00 mm]
00403# Parameters for PERVIOUS surfaces in STANDBY:
00404# [Iaper= 4.67 mm] [LGP=40.00 mm] [MNP= .250]
00405# Parameters for IMPERVIOUS surfaces in STANDBY:
00406# [Ialmp= 1.57 mm] [CLi= 1.50] [MNI= .013]
00407# Parameters used in NASTB:
00408# [Iaw= 4.67 mm] [B= 3.00]
00409# Average monthly Pan Evaporation data in (mm)
00410# JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
00411# .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
00412# Average monthly Potential Evapotranspiration in (mm)
00413# JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
00414# .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
00415# *****
00416# PROPOSED DEVELOPMENT - FREE OUTFALL HYDROGRAPH
00417# *****
00418# MINOR SYSTEM HYDROGRAPH PROVIDED SEPTEMBER 2017 BY IBI Group
00419# R0005:C0004-----
00420# READ HYD 1.0 01:Min 37.55 4.623 No date 1:10 26.67 n/a .000
00421# File name = C:\Temp\SWMHYMO\Davidson Post-Dev\H10.val
00422# Comment = MINOR SYSTEM FLOW FROM DAVIDSON CO-TENANCY (SEPTEMBER 2017,
00423# Major system hydrograph provided September 2017 by IBI Group)
00424# R0005:C0005-----
00425# READ HYD 10.0 01:Min .00 .000 No date 0:00 .00 n/a .000
00426# File name = C:\Temp\SWMHYMO\Davidson Post-Dev\H10.val
00427# Comment = MAJOR SYSTEM FLOW FROM DAVIDSON CO-TENANCY (SEPTEMBER 2017,
00428# Major system hydrograph provided September 2017 by IBI Group)
00429# PROPOSED BLOCK
00430# PROPOSED ADDITIONAL AREA REQUESTED BY DESL, JULY 2024
00431# R0005:C0006-----
00432# DESIGN STANDBY 1.0 01: Pond 3.07 .379 No date 1:01 23.46 .552 .000
00433# [XIMP= .58;TIMP= .63]
00434# [SLF= .50;DT= 1.00]
00435# [LOSS= 1; HORTONS]
00436# Proposed Additional Area Requested by DESL, July 2024
00437# R0005:C0007-----
00438# DESIGN STANDBY .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
00439# [XIMP= .58;TIMP= .63]
00440# [SLF= .50;DT= 1.00]
00441# [LOSS= 1; HORTONS]
00442# *****
00443# TOTAL INFLOW TO SWM FACILITY
00444# R0005:C0008-----
00445# ADD HYD 1.0 02:Min 37.55 4.623 No date 1:10 26.67 n/a .000
00446# + 10.0 02:Min .00 .000 No date 0:00 .00 n/a .000
00447# + 1.0 02: Pond 3.07 .379 No date 1:00 23.46 n/a .000
00448# + 1.0 02:Add1 4.10 .460 No date 1:01 28.44 n/a .000
00449# + 1.0 01: Pin 1.077 No date 1:09 26.61 n/a .000
00450# *****
00451# SWM FACILITY
00452# *****
00453# Quality control and permanent pool requirements based on MGE guidelines
00454# For enhanced quality control for wet ponds. Extended detention of the 25 mm
00455# runoff volume for 72 hours estimated for unknown erosion control requirements.
00456# 2-, 5- and 100-year target release rates as per Table 3 of the April 2016
00457# "Faulkner Drain Hydrotechnical Update" by Novotek.
00458# Free Outfall Conditions
00459# R0005:C0009-----
00460# ROUTE RESERVOIR -> 1.0 02:Pin 44.72 5.177 No date 1:09 26.61 n/a .000
00461# out <= 1.0 01:PFout 44.72 .072 No date 3:25 26.61 n/a .000
00462# over <= 1.0 03:PFover .00 .000 No date 0:00 .00 n/a .000
00463# (MstToDes=1128E+01 m3, TotOutVol=.000E+00 m3, N-Over= 0, TotOutVol= 0.hrs)
00464# R0005:C0010-----
00465# ADD HYD 1.0 02:Min 37.55 4.623 No date 1:10 26.67 n/a .000
00466# + 10.0 02:Min .00 .000 No date 0:00 .00 n/a .000
00467# + 1.0 02: Pond 3.07 .379 No date 1:00 23.46 n/a .000
00468# + 1.0 02:Add1 4.10 .460 No date 1:01 28.44 n/a .000
00469# + 1.0 01: Pin 1.077 No date 1:09 26.61 n/a .000
00470# *****
00471# Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
00472# R0005:C0011-----
00473# ROUTE RESERVOIR -> 1.0 02:Pin 44.72 5.177 No date 1:09 26.61 n/a .000
00474# over <= 1.0 03:PFover .00 .000 No date 0:00 .00 n/a .000
00475# (MstToDes=1190E+01 m3, TotOutVol=.000E+00 m3, N-Over= 0, TotOutVol= 0.hrs)
00476# R0005:C0012-----
00477# ADD HYD 1.0 02:Min 37.55 4.623 No date 1:10 26.67 n/a .000
00478# + 10.0 02:Min .00 .000 No date 0:00 .00 n/a .000
00479# + 1.0 02: Pond 3.07 .379 No date 1:00 23.46 n/a .000
00480# + 1.0 02:Add1 4.10 .460 No date 1:01 28.44 n/a .000
00481# + 1.0 01: Pin 1.077 No date 1:09 26.61 n/a .000
00482# *****
00483# Save Pond Inflow Hydrograph For Use In Preparing Pond Stage-Time Curves
00484# For Use in IBI Group's HGL Analysis of the Upstream Subdivision
00485# HAVD HYD [Pin] , # OF PCVCL= [1], ICAS= [1]
00486# HYD COMMENT="Pond Inflow"
00487# Save Pond Outflow Hydrograph For Use In Calculating Average Velocity in the
00488# Forebay During the 10-Year Storm
00489# HAVD HYD HYD["PFout"], # OF PCVCL= [1], ICAS= [1]
00490# HYD COMMENT="Free Outfall Conditions"
00491# Save Pond Outflow Hydrograph For Use In Preparing Pond Stage-Time Curves
00492# For Use in IBI Group's HGL Analysis of the Upstream Subdivision
00493# HAVD HYD HYD["PFout"], # OF PCVCL= [1], ICAS= [1]
00494# HYD COMMENT="Pond Outflow - Restrictive D/S Conditions"
00495# *****
00496# CHECK CAPACITIES OF OVERLAND FLOW ROUTE INTO POND AND OUTLET CHANNEL FROM POND
00497# R0005:C0013-----
00498# OVERLAND FLOW ROUTE CAPACITY
00499# R0005:C0014-----
00500# ROUTE CHANNEL -> 1.0 02:Min 44.72 .072 No date 3:25 26.61 n/a .000
00501# (RDT= 1.00) out<= 1.0 01:OV FR .00 .000 No date 0:00 .00 n/a .000
00502# (L/S= 10. / 100 / 0.35)
00503# (Vmax= .000;Dmax= .000)
00504# Outlet Channel Capacity
00505# R0005:C0015-----
00506# ROUTE CHANNEL -> 1.0 02:Pin 44.72 .072 No date 3:25 26.61 n/a .000
00507# (L/S= 10. / 100 / 0.35)
00508# (Vmax= .206;Dmax= .268)
00509# *****
00510# STORMS
00511# *****
00512# ** END OF RUN : 98
00513# *****
00514#
00515#
00516#
00517#
00518#
00519#
00520#
00521# RUN#COMMAND#
00522# R0009:C0001-----
00523# START
00524# (TZERO = .00 hrs on 0)
00525# (METOUT= 2 (1=imperial, 2=metric output))
00526# (NFORM= 1)
00527# (NRUN = 0099)
00528# *****
00529# SWMHYMO Ver:5.02/Jan 2001 <SWET> / INPUT DATA FILE
00530#
00531# Project Name : [Stittville South - Davidson Co-Tenancy]
00532# Project Number : [1123-1]
00533# Date : 2015/05/06
00534# Modeler : Laura Pipkins, P.Eng.
00535# Updated : 2016/08/24 [LF]
00536# Updated : 2017/02/13 [LF]
00537# Updated : 2017/03/12 [LF]
00538# Updated : 2017/09/13 [LF]
00539# Updated : 2017/09/18 [LF]
00540# Updated : 2023/07/12 [LF]
00541# Updated : 2023/09/25 [LF]
00542# Updated : 2024/08/02 [JF]
00543# Company : J.F. Sabourin and Associates
00544# License # : 2582634
00545# *****
00546# R0009:C0002-----
00547# READ STORM
00548#
00549# File name = storm.001
00550# Comment = CHICAGO STORM 100 Year, 3 Hours
00551# (SDT=10.00;SDUR= 3.00;PTOT= 71.66)
00552# R0009:C0003-----
00553# DEFAULT VALUES
00554# File name = C:\Temp\SWMHYMO\Davidson Post-Dev\Ottawa.val
00555# ICASDev = 1 (read and print data)
00556# FileTitle= File comment: [Parameters for City of Ottawa Projects]
00557# THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDARD COM
00558# Horton's infiltration equation parameters:
00559# [P= 76.20 mm/hr] [For 12.20 mm/hr] [ICAX= 4.14 /hr] [F= .00 mm]
00560# Parameters for PERVIOUS surfaces in STANDBY:
00561# [Iaper= 4.67 mm] [LGP=40.00 mm] [MNP= .250]
00562# Parameters for IMPERVIOUS surfaces in STANDBY:
00563# [Ialmp= 1.57 mm] [CLi= 1.50] [MNI= .013]
00564# Parameters used in NASTB:
00565# [Iaw= 4.67 mm] [B= 3.00]
00566# Average monthly Pan Evaporation data in (mm)
00567# JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
00568# .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
00569# Average monthly Potential Evapotranspiration in (mm)
00570# JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
00571# .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
00572# *****
00573# PROPOSED DEVELOPMENT - FREE OUTFALL HYDROGRAPH
00574# *****
00575# MINOR SYSTEM HYDROGRAPH PROVIDED SEPTEMBER 2017 BY IBI Group
00576# R0009:C0004-----
00577# READ HYD 1.0 01:Min 37.55 7.326 No date 1:14 51.70 n/a .000
00578# File name = C:\Temp\SWMHYMO\Davidson Post-Dev\H10.val
00579# Comment = MINOR SYSTEM FLOW FROM DAVIDSON CO-TENANCY (SEPTEMBER 2017,
00580# Major system hydrograph provided September 2017 by IBI Group)
00581# R0009:C0005-----
00582# READ HYD 10.0 01:Min .00 .141 No date 1:10 .000 n/a .000
00583# File name = C:\Temp\SWMHYMO\Davidson Post-Dev\H10.val
00584# Comment = MAJOR SYSTEM FLOW FROM DAVIDSON CO-TENANCY (SEPTEMBER 2017,
00585# Major system hydrograph provided September 2017 by IBI Group)
00586# PROPOSED BLOCK
00587# PROPOSED ADDITIONAL AREA REQUESTED BY DESL, JULY 2024
00588# R0009:C0006-----
00589# DESIGN STANDBY 1.0 01: Pond 3.07 .379 No date 1:01 23.46 .552 .000
00590# [XIMP= .58;TIMP= .63]
00591# [SLF= .50;DT= 1.00]
00592# [LOSS= 1; HORTONS]
00593# Proposed Additional Area Requested by DESL, July 2024
00594# R0009:C0007-----
00595# DESIGN STANDBY .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
00596# [XIMP= .58;TIMP= .63]
00597# [SLF= .50;DT= 1.00]
00598# [LOSS= 1; HORTONS]
00599# *****
00600# TOTAL INFLOW TO SWM FACILITY
00601# R0009:C0008-----
00602# ADD HYD 37.55 7.326 No date 1:14 51.70 n/a .000
00603# + 10.0 02:Min .00 .141 No date 1:10 .000 n/a .000
00604# + 1.0 02: Pond 3.07 .379 No date 1:00 23.46 n/a .000
00605# + 1.0 02:Add1 4.10 1.265 No date 1:00 54.47 n/a .000
00606# + 1.0 01: Pin 1.077 No date 1:09 26.61 n/a .000
00607# *****
00608# SWM FACILITY
00609# *****
00610# Quality control and permanent pool requirements based on MGE guidelines
00611# For enhanced quality control for wet ponds. Extended detention of the 25 mm
00612# runoff volume for 72 hours estimated for unknown erosion control requirements.
00613# 2-, 5- and 100-year target release rates as per Table 3 of the April 2016
00614# "Faulkner Drain Hydrotechnical Update" by Novotek.
00615# Free Outfall Conditions
00616# R0009:C0009-----
00617# ROUTE RESERVOIR -> 1.0 02:Pin 44.72 8.507 No date 1:10 51.90 n/a .000
00618# out <= 1.0 01:PFout 44.72 .322 No date 2:38 51.90 n/a .000
00619# over <= 1.0 03:PFover .00 .000 No date 0:00 .00 n/a .000
00620# (MstToDes=.2128E+01 m3, TotOutVol=.000E+00 m3, N-Over= 0, TotOutVol= 0.hrs)
00621# R0009:C0010-----
00622# ADD HYD 37.55 7.326 No date 1:14 51.70 n/a .000
00623# + 10.0 02:Min .00 .141 No date 1:10 .000 n/a .000
00624# + 1.0 02: Pond 3.07 .379 No date 1:00 23.46 n/a .000
00625# + 1.0 02:Add1 4.10 1.265 No date 1:00 54.47 n/a .000
00626# + 1.0 01: Pin 1.077 No date 1:09 26.61 n/a .000
00627# *****
00628# Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
00629# R0009:C0011-----
00630# ROUTE RESERVOIR -> 1.0 02:Pin 44.72 8.507 No date 1:10 51.90 n/a .000
00631# over <= 1.0 03:PFover .00 .000 No date 0:00 .00 n/a .000
00632# (MstToDes=.2224E+01 m3, TotOutVol=.000E+00 m3, N-Over= 0, TotOutVol= 0.hrs)
00633# R0009:C0012-----
00634# ADD HYD 37.55 7.326 No date 1:14 51.70 n/a .000
00635# + 10.0 02:Min .00 .141 No date 1:10 .000 n/a .000
00636# + 1.0 02: Pond 3.07 .379 No date 1:00 23.46 n/a .000
00637# + 1.0 02:Add1 4.10 1.265 No date 1:00 54.47 n/a .000
00638# + 1.0 01: Pin 1.077 No date 1:09 26.61 n/a .000
00639# *****
00640# Save Pond Inflow Hydrograph For Use In Preparing Pond Stage-Time Curves
00641# For Use in IBI Group's HGL Analysis of the Upstream Subdivision
00642# HAVD HYD [Pin] , # OF PCVCL= [1], ICAS= [1]
00643# HYD COMMENT="Pond Inflow"
00644# Save Pond Outflow Hydrograph For Use In Calculating Average Velocity in the
00645# Forebay During the 10-Year Storm
00646# HAVD HYD HYD["PFout"], # OF PCVCL= [1], ICAS= [1]
00647# HYD COMMENT="Free Outfall Conditions"
00648# Save Pond Outflow Hydrograph For Use In Preparing Pond Stage-Time Curves
00649# For Use in IBI Group's HGL Analysis of the Upstream Subdivision
00650# HAVD HYD HYD["PFout"], # OF PCVCL= [1], ICAS= [1]
00651# HYD COMMENT="Pond Outflow - Restrictive D/S Conditions"
00652# *****
00653# CHECK CAPACITIES OF OVERLAND FLOW ROUTE INTO POND AND OUTLET CHANNEL FROM POND
00654# R0009:C0013-----
00655# OVERLAND FLOW ROUTE CAPACITY
00656# R0009:C0014-----
00657# ROUTE CHANNEL -> 1.0 02:Min 44.72 .141 No date 3:25 26.61 n/a .000
00658# (RDT= 1.00) out<= 1.0 01:OV FR .00 .139 No date 0:00 54.47 n/a .000
00659# (L/S= 10. / 100 / 0.35)
00660# (Vmax= .437;Dmax= .125)
00661# Outlet Channel Capacity
00662# R0009:C0015-----
00663# ROUTE CHANNEL -> 1.0 02:Pin 44.72 .322 No date 2:38 51.90 n/a .000
00664# (L/S= 10. / 100 / 0.35)
00665# (Vmax= .266;Dmax= .257)
00666# *****
00667# STORMS
00668# *****
00669# ** END OF RUN : 100
00670# *****
00671#
00672#
00673#
00674#
00675#
00676#
00677#
00678# RUN#COMMAND#
00679# R0102:C0001-----
00680# START
00681# (TZERO = .00 hrs on 0)
00682# (METOUT= 2 (1=imperial, 2=metric output))
00683# (NFORM= 1)
00684# (NRUN = 0102)
00685# *****
00686# SWMHYMO Ver:5.02/Jan 2001 <SWET> / INPUT DATA FILE
00687#
00688# Project Name : [Stittville South - Davidson Co-Tenancy]
00689# Project Number : [1123-1]
00690# Date : 2015/05/06
00691# Modeler : Laura Pipkins, P.Eng.
00692# Updated : 2016/08/24 [LF]
00693# Updated : 2017/02/13 [LF]
00694# Updated : 2017/03/12 [LF]
00695# Updated : 2017/09/13 [LF]
00696# Updated : 2017/09/18 [LF]
00697# Updated : 2023/07/12 [LF]
00698# Updated : 2023/09/25 [LF]
00699# Updated : 2024/08/02 [JF]
00700# Company : J.F. Sabourin and Associates
00701# License # : 2582634
00702# *****
00703# R0102:C0002-----
00704# READ STORM
00705#
00706# File name = storm.001
00707# Comment = 3 Year SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa
00708# (SDT=10.00;SDUR= 24.00;PTOT= 48.46)
00709# R0102:C0003-----
00710# DEFAULT VALUES
00711# File name = C:\Temp\SWMHYMO\Davidson Post-Dev\Ottawa.val
00712# ICASDev = 1 (read and print data)
00713# FileTitle= File comment: [Parameters for City of Ottawa Projects]
00714# THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDARD COM
00715# Horton's infiltration equation parameters:
00716# [P= 76.20 mm/hr] [For 12.20 mm/hr] [ICAX= 4.14 /hr] [F= .00 mm]
00717# Parameters for PERVIOUS surfaces in STANDBY:
00718# [Iaper= 4.67 mm] [LGP=40.00 mm] [MNP= .250]
00719# Parameters for IMPERVIOUS surfaces in STANDBY:
00720# [Ialmp= .57 mm] [CLi= 1.50] [MNI= .013]
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01081) #####
01082) # SWM FACILITY
01083) #####
01084) # Quality control and permanent pool requirements based on MCE guidelines
01085) # For enhanced quality control for wet ponds, Extended detention of the 25 mm
01086) # runoff volume for 72 hours estimated for unknown erosion control requirements.
01087) # 2-, 5- and 100-year target release rates as per Table 3 of the April 2016
01088) # "Faulkner Drain Hydrotechnical Update" by Novatech.
01089) # Free Outfall Conditions
01090) R0199:CO0100-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01091) ROUTE RESERVOIR -> 1.0 02:Pin 44.72 8.776 No date 12:00 63.87 n/a .000
01092) out <= 1.0 01:PFout 44.72 .554 No date 12:53 63.87 n/a .000
01093) overlow <= 1.0 03:PFovf .00 .000 No date 0:00 .00 n/a .000
01094) (MstUsed=.2140E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01095) # Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
01096) R0199:CO0101-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01097) ROUTE RESERVOIR -> 1.0 02:Pin 44.72 8.776 No date 12:00 63.87 n/a .000
01098) out <= 1.0 01:PFout 44.72 .557 No date 12:53 29.09 n/a .000
01099) overlow <= 1.0 03:PFovf .00 .000 No date 0:00 .00 n/a .000
01100) (MstUsed=.2140E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01101) # Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
01102) # 100% Blockage of Drop Inlet Structure
01103) R0199:CO0111-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01104) ROUTE RESERVOIR -> 1.0 02:Pin 44.72 8.776 No date 12:00 63.87 n/a .000
01105) out <= 1.0 01:PFout 44.72 .021 No date 24:10 1.23 n/a .000
01106) overlow <= 1.0 03:PFovf .00 .000 No date 0:00 .00 n/a .000
01107) (MstUsed=.2140E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01108) #####
01109) # SAVE HYDS
01110) #####
01111) # Save Pond Inflow Hydrograph For Use In Preparing Pond Stage-Time Curves
01112) # For Use In IBI Group's HGL Analysis of the Upstream Subdivision
01113) # Save Pond Outflow Hydrograph For Use In Calculating Average Velocity in the
01114) # Forebay During the 10-Year Storm
01115) # Save Pond Outflow Hydrograph For Use In Calculating Average Velocity in the
01116) # Forebay During the 10-Year Storm
01117) # Save Pond Outflow Hydrograph For Use In Calculating Average Velocity in the
01118) # Forebay During the 10-Year Storm
01119) # Save Pond Outflow Hydrograph For Use In Preparing Pond Stage-Time Curves
01120) # For Use In IBI Group's HGL Analysis of the Upstream Subdivision
01121) # Save Pond Outflow Hydrograph For Use In Calculating Average Velocity in the
01122) # Forebay During the 10-Year Storm
01123) #####
01124) # CHECK CAPACITIES OF OVERLAND FLOW ROUTE INTO POND AND OUTLET CHANNEL FROM POND
01125) #####
01126) # Overland Flow Route Capacity
01127) R0205:CO0101-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01128) ROUTE CHANNEL -> 10.0 02:Inj .00 1.014 No date 11:50 ***** n/a .000
01129) * (RDT=.100) out<= 1.0 01:OVLF_FR .00 .994 No date 11:50 ***** n/a .000
01130) (L/S/n= 10.0 / .700 / .035)
01131) (Vmax=.68E+00msec .166)
01132) # Outlet Channel Capacity
01133) R0199:CO0111-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01134) ROUTE CHANNEL -> 1.0 02:Pin 44.72 .554 No date 12:53 63.86 n/a .000
01135) * (RDT=.100) out<= 1.0 01:PFout 44.72 .554 No date 12:54 63.86 n/a .000
01136) (L/S/n= 10.0 / .100 / .035)
01137) (Vmax=.29E+00msec .166)
01138) #####
01139) # STORMS
01140) #####
01141) ** END OF RUN : 201
01142) #####
01143) #####
01144) #####
01145) #####
01146) #####
01147) #####
01148) #####
01149) #####
01150) #####
01151) START
01152) (TZERO = .00 hrs on 0)
01153) (MTCOUT= 2 (1=imperial, 2=metric output))
01154) (NFORM= 0)
01155) #####
01156) #####
01157) # SWMNOV Ver.02/Jan 2001 INPUT DATA FILE
01158) #####
01159) # Project Name : [Stittville South - Davidson Co-Tenancy]
01160) # Project Number : [1122-13]
01161) # Date : 2015/05/06
01162) # Modeler : Laura Pipkins, P.Eng.
01163) # Updated : 2016/08/24 [LP]
01164) # Updated : 2017/02/13 [LP]
01165) # Updated : 2017/02/13 [LP]
01166) # Updated : 2017/09/18 [LP]
01167) # Updated : 2023/07/04 [LP]
01168) # Updated : 2023/07/12 [LP]
01169) # Updated : 2023/09/25 [LP]
01170) # Updated : 2023/09/25 [LP]
01171) # Updated : 2024/08/02 [PF]
01172) # Company : J.F. Babourin and Associates
01173) # License # : 2562634
01174) #####
01175) R0202:CO0102-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01176) READ STORM
01177) File name = storm.001
01178) Comment = 2 years SCS Type 2 Storm 12 Hours step 15 min, as per Carp River UL
01179) (SRT=15.00;SDUR= 12.00;PTOT= 43.20)
01180) R0202:CO0103-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01181) DEFAULT VALUES
01182) File name = C:\Temp\SWMHYMO\Davidson Post-Dev\Ottawa.val
01183) ICASEDV = 1 (read and print data)
01184) FileTitle= File comment: [Parameters for City of Ottawa Projects]
01185) THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDARD COM
01186) Horton's infiltration equation parameters:
01187) [For 76.20 mm/hr] [For 1.20 mm/hr] [ICAE= 4.14 /hr] [Fr=.00 mm]
01188) Parameters for PERVIOUS surfaces in STANDBY:
01189) [Iaper= 4.67 mm] [LDR=40.00 m] [MNR=.250]
01190) Parameters for IMPERVIOUS surfaces in STANDBY:
01191) [Iaimp= 1.57 mm] [CLIS=1.50] [MNR=.013]
01192) Parameters used in NAWDST:
01193) [Iae= 4.67 mm] [N=3.00]
01194) Average monthly Pan Evaporation data in (mm)
01195) JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
01196) .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
01197) Average monthly Potential Evapotranspiration in (mm)
01198) JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
01199) .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
01200) #
01201) #####
01202) # PROPOSED POND BLOCK
01203) #####
01204) # Minor system hydrograph provided September 2017 by IBI Group
01205) R0205:CO0104-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01206) READ HYD 1.0 01:Min 37.55 2.778 No date 5:53 25.64 n/a .000
01207) Comment = MINOR SYSTEM FLOW FROM DAVIDSON CO-TENANCY (SEPTEMBER 2017,
01208) # Major system hydrograph provided September 2017 by IBI Group
01209) R0205:CO0105-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01210) READ HYD 15.0 01:Min .00 .000 No date 0:00 .00 n/a .000
01211) Comment = MAJOR SYSTEM FLOW FROM DAVIDSON CO-TENANCY (SEPTEMBER 2017,
01212) # Proposed Additional Area Requested by DREL, July 2024
01213) R0205:CO0106-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01214) DESIGN STANDARD 1.0 01:Pond 3.07 .219 No date 6:00 22.33 .517 .000
01215) (XIMP=.45;TIMP=.45)
01216) (SLF=.50;DT=.100)
01217) (LOS= 1 : HORTONS)
01218) #####
01219) # Proposed Additional Area Requested by DREL, July 2024
01220) R0205:CO0107-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01221) DESIGN STANDARD 1.0 01:Adsl 4.10 .372 No date 6:00 27.49 .636 .000
01222) (XIMP=.58;TIMP=.63)
01223) (SLF=.50;DT=.100)
01224) (LOS= 1 : HORTONS)
01225) #####
01226) # TOTAL INFLOW TO SWM FACILITY
01227) #####
01228) # Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
01229) R0205:CO0108-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01230) ADD HYD 1.0 02:Min 37.55 2.778 No date 5:53 25.64 n/a .000
01231) + 15.0 02:Inj .00 .000 No date 0:00 .00 n/a .000
01232) + 3.07 02:Pond 3.07 .219 No date 6:00 22.33 n/a .000
01233) + 1.0 01:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01234) + 1.0 02:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01235) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01236) # SWM FACILITY
01237) #####
01238) # Quality control and permanent pool requirements based on MCE guidelines
01239) # For enhanced quality control for wet ponds, Extended detention of the 25 mm
01240) # runoff volume for 72 hours estimated for unknown erosion control requirements.
01241) # 2-, 5- and 100-year target release rates as per Table 3 of the April 2016
01242) # "Faulkner Drain Hydrotechnical Update" by Novatech.
01243) # Free Outfall Conditions
01244) R0205:CO0109-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01245) ROUTE RESERVOIR -> 1.0 02:Pin 44.72 3.268 No date 5:54 25.58 n/a .000
01246) out <= 1.0 01:PFout 44.72 .061 No date 11:10 25.58 n/a .000
01247) overlow <= 1.0 03:PFovf .00 .000 No date 0:00 .00 n/a .000
01248) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01249) # Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
01250) R0205:CO0110-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01251) ADD HYD 1.0 02:Min 37.55 2.778 No date 5:53 25.64 n/a .000
01252) + 15.0 02:Inj .00 .000 No date 0:00 .00 n/a .000
01253) + 3.07 02:Pond 3.07 .219 No date 6:00 22.33 n/a .000
01254) + 1.0 01:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01255) + 1.0 02:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01256) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01257) # SWM FACILITY
01258) #####
01259) # Quality control and permanent pool requirements based on MCE guidelines
01260) # For enhanced quality control for wet ponds, Extended detention of the 25 mm
01261) # runoff volume for 72 hours estimated for unknown erosion control requirements.
01262) # 2-, 5- and 100-year target release rates as per Table 3 of the April 2016
01263) # "Faulkner Drain Hydrotechnical Update" by Novatech.
01264) # Free Outfall Conditions
01265) R0205:CO0111-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01266) ROUTE RESERVOIR -> 1.0 02:Pin 44.72 3.268 No date 5:54 25.58 n/a .000
01267) out <= 1.0 01:PFout 44.72 .061 No date 11:10 25.58 n/a .000
01268) overlow <= 1.0 03:PFovf .00 .000 No date 0:00 .00 n/a .000
01269) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01270) # Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
01271) R0205:CO0112-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01272) ADD HYD 1.0 02:Min 37.55 2.778 No date 5:53 25.64 n/a .000
01273) + 15.0 02:Inj .00 .000 No date 0:00 .00 n/a .000
01274) + 3.07 02:Pond 3.07 .219 No date 6:00 22.33 n/a .000
01275) + 1.0 01:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01276) + 1.0 02:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01277) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01278) # SWM FACILITY
01279) #####
01280) # Quality control and permanent pool requirements based on MCE guidelines
01281) # For enhanced quality control for wet ponds, Extended detention of the 25 mm
01282) # runoff volume for 72 hours estimated for unknown erosion control requirements.
01283) # 2-, 5- and 100-year target release rates as per Table 3 of the April 2016
01284) # "Faulkner Drain Hydrotechnical Update" by Novatech.
01285) # Free Outfall Conditions
01286) R0205:CO0113-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01287) ROUTE RESERVOIR -> 1.0 02:Pin 44.72 3.268 No date 5:54 25.58 n/a .000
01288) out <= 1.0 01:PFout 44.72 .061 No date 11:10 25.58 n/a .000
01289) overlow <= 1.0 03:PFovf .00 .000 No date 0:00 .00 n/a .000
01290) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01291) # Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
01292) R0205:CO0114-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01293) ADD HYD 1.0 02:Min 37.55 2.778 No date 5:53 25.64 n/a .000
01294) + 15.0 02:Inj .00 .000 No date 0:00 .00 n/a .000
01295) + 3.07 02:Pond 3.07 .219 No date 6:00 22.33 n/a .000
01296) + 1.0 01:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01297) + 1.0 02:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01298) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01299) # SWM FACILITY
01300) #####
01301) # Quality control and permanent pool requirements based on MCE guidelines
01302) # For enhanced quality control for wet ponds, Extended detention of the 25 mm
01303) # runoff volume for 72 hours estimated for unknown erosion control requirements.
01304) # 2-, 5- and 100-year target release rates as per Table 3 of the April 2016
01305) # "Faulkner Drain Hydrotechnical Update" by Novatech.
01306) # Free Outfall Conditions
01307) R0205:CO0115-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01308) ROUTE RESERVOIR -> 1.0 02:Pin 44.72 3.268 No date 5:54 25.58 n/a .000
01309) out <= 1.0 01:PFout 44.72 .061 No date 11:10 25.58 n/a .000
01310) overlow <= 1.0 03:PFovf .00 .000 No date 0:00 .00 n/a .000
01311) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01312) # Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
01313) R0205:CO0116-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01314) ADD HYD 1.0 02:Min 37.55 2.778 No date 5:53 25.64 n/a .000
01315) + 15.0 02:Inj .00 .000 No date 0:00 .00 n/a .000
01316) + 3.07 02:Pond 3.07 .219 No date 6:00 22.33 n/a .000
01317) + 1.0 01:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01318) + 1.0 02:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01319) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01320) # SWM FACILITY
01321) #####
01322) # Quality control and permanent pool requirements based on MCE guidelines
01323) # For enhanced quality control for wet ponds, Extended detention of the 25 mm
01324) # runoff volume for 72 hours estimated for unknown erosion control requirements.
01325) # 2-, 5- and 100-year target release rates as per Table 3 of the April 2016
01326) # "Faulkner Drain Hydrotechnical Update" by Novatech.
01327) # Free Outfall Conditions
01328) R0205:CO0117-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01329) ROUTE RESERVOIR -> 1.0 02:Pin 44.72 3.268 No date 5:54 25.58 n/a .000
01330) out <= 1.0 01:PFout 44.72 .061 No date 11:10 25.58 n/a .000
01331) overlow <= 1.0 03:PFovf .00 .000 No date 0:00 .00 n/a .000
01332) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01333) # Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
01334) R0205:CO0118-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01335) ADD HYD 1.0 02:Min 37.55 2.778 No date 5:53 25.64 n/a .000
01336) + 15.0 02:Inj .00 .000 No date 0:00 .00 n/a .000
01337) + 3.07 02:Pond 3.07 .219 No date 6:00 22.33 n/a .000
01338) + 1.0 01:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01339) + 1.0 02:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01340) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01341) # SWM FACILITY
01342) #####
01343) # Quality control and permanent pool requirements based on MCE guidelines
01344) # For enhanced quality control for wet ponds, Extended detention of the 25 mm
01345) # runoff volume for 72 hours estimated for unknown erosion control requirements.
01346) # 2-, 5- and 100-year target release rates as per Table 3 of the April 2016
01347) # "Faulkner Drain Hydrotechnical Update" by Novatech.
01348) # Free Outfall Conditions
01349) R0205:CO0119-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01350) ROUTE RESERVOIR -> 1.0 02:Pin 44.72 3.268 No date 5:54 25.58 n/a .000
01351) out <= 1.0 01:PFout 44.72 .061 No date 11:10 25.58 n/a .000
01352) overlow <= 1.0 03:PFovf .00 .000 No date 0:00 .00 n/a .000
01353) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01354) # Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
01355) R0205:CO0120-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01356) ADD HYD 1.0 02:Min 37.55 2.778 No date 5:53 25.64 n/a .000
01357) + 15.0 02:Inj .00 .000 No date 0:00 .00 n/a .000
01358) + 3.07 02:Pond 3.07 .219 No date 6:00 22.33 n/a .000
01359) + 1.0 01:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01360) + 1.0 02:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01361) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01362) # SWM FACILITY
01363) #####
01364) # Quality control and permanent pool requirements based on MCE guidelines
01365) # For enhanced quality control for wet ponds, Extended detention of the 25 mm
01366) # runoff volume for 72 hours estimated for unknown erosion control requirements.
01367) # 2-, 5- and 100-year target release rates as per Table 3 of the April 2016
01368) # "Faulkner Drain Hydrotechnical Update" by Novatech.
01369) # Free Outfall Conditions
01370) R0205:CO0121-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01371) ROUTE RESERVOIR -> 1.0 02:Pin 44.72 3.268 No date 5:54 25.58 n/a .000
01372) out <= 1.0 01:PFout 44.72 .061 No date 11:10 25.58 n/a .000
01373) overlow <= 1.0 03:PFovf .00 .000 No date 0:00 .00 n/a .000
01374) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01375) # Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
01376) R0205:CO0122-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01377) ADD HYD 1.0 02:Min 37.55 2.778 No date 5:53 25.64 n/a .000
01378) + 15.0 02:Inj .00 .000 No date 0:00 .00 n/a .000
01379) + 3.07 02:Pond 3.07 .219 No date 6:00 22.33 n/a .000
01380) + 1.0 01:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01381) + 1.0 02:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01382) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01383) # SWM FACILITY
01384) #####
01385) # Quality control and permanent pool requirements based on MCE guidelines
01386) # For enhanced quality control for wet ponds, Extended detention of the 25 mm
01387) # runoff volume for 72 hours estimated for unknown erosion control requirements.
01388) # 2-, 5- and 100-year target release rates as per Table 3 of the April 2016
01389) # "Faulkner Drain Hydrotechnical Update" by Novatech.
01390) # Free Outfall Conditions
01391) R0205:CO0123-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01392) ROUTE RESERVOIR -> 1.0 02:Pin 44.72 3.268 No date 5:54 25.58 n/a .000
01393) out <= 1.0 01:PFout 44.72 .061 No date 11:10 25.58 n/a .000
01394) overlow <= 1.0 03:PFovf .00 .000 No date 0:00 .00 n/a .000
01395) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01396) # Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
01397) R0205:CO0124-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01398) ADD HYD 1.0 02:Min 37.55 2.778 No date 5:53 25.64 n/a .000
01399) + 15.0 02:Inj .00 .000 No date 0:00 .00 n/a .000
01400) + 3.07 02:Pond 3.07 .219 No date 6:00 22.33 n/a .000
01401) + 1.0 01:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01402) + 1.0 02:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01403) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01404) # SWM FACILITY
01405) #####
01406) # Quality control and permanent pool requirements based on MCE guidelines
01407) # For enhanced quality control for wet ponds, Extended detention of the 25 mm
01408) # runoff volume for 72 hours estimated for unknown erosion control requirements.
01409) # 2-, 5- and 100-year target release rates as per Table 3 of the April 2016
01410) # "Faulkner Drain Hydrotechnical Update" by Novatech.
01411) # Free Outfall Conditions
01412) R0205:CO0125-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01413) ROUTE RESERVOIR -> 1.0 02:Pin 44.72 3.268 No date 5:54 25.58 n/a .000
01414) out <= 1.0 01:PFout 44.72 .061 No date 11:10 25.58 n/a .000
01415) overlow <= 1.0 03:PFovf .00 .000 No date 0:00 .00 n/a .000
01416) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01417) # Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
01418) R0205:CO0126-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01419) ADD HYD 1.0 02:Min 37.55 2.778 No date 5:53 25.64 n/a .000
01420) + 15.0 02:Inj .00 .000 No date 0:00 .00 n/a .000
01421) + 3.07 02:Pond 3.07 .219 No date 6:00 22.33 n/a .000
01422) + 1.0 01:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01423) + 1.0 02:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01424) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01425) # SWM FACILITY
01426) #####
01427) # Quality control and permanent pool requirements based on MCE guidelines
01428) # For enhanced quality control for wet ponds, Extended detention of the 25 mm
01429) # runoff volume for 72 hours estimated for unknown erosion control requirements.
01430) # 2-, 5- and 100-year target release rates as per Table 3 of the April 2016
01431) # "Faulkner Drain Hydrotechnical Update" by Novatech.
01432) # Free Outfall Conditions
01433) R0205:CO0127-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01434) ROUTE RESERVOIR -> 1.0 02:Pin 44.72 3.268 No date 5:54 25.58 n/a .000
01435) out <= 1.0 01:PFout 44.72 .061 No date 11:10 25.58 n/a .000
01436) overlow <= 1.0 03:PFovf .00 .000 No date 0:00 .00 n/a .000
01437) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01438) # Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
01439) R0205:CO0128-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01440) ADD HYD 1.0 02:Min 37.55 2.778 No date 5:53 25.64 n/a .000
01441) + 15.0 02:Inj .00 .000 No date 0:00 .00 n/a .000
01442) + 3.07 02:Pond 3.07 .219 No date 6:00 22.33 n/a .000
01443) + 1.0 01:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01444) + 1.0 02:Adsl 4.10 .372 No date 6:00 27.49 n/a .000
01445) (MstUsed=.1636E+01 m3, TotOfVol=.000E+00 m3, N-Ovrf= 0, TotOfDur=0.0 hrs)
01446) # SWM FACILITY
01447) #####
01448) # Quality control and permanent pool requirements based on MCE guidelines
01449) # For enhanced quality control for wet ponds, Extended detention of the 25 mm
01450) # runoff volume for 72 hours estimated for unknown erosion control requirements.
01451) # 2-, 5- and 100-year target release rates as per Table 3 of the April 2016
01452) # "Faulkner Drain Hydrotechnical Update" by Novatech.
01453) # Free Outfall Conditions
01454) R0205:CO0129-----DRAIN-TO-HYD-----AREAAh-QPEARCs-TpeakDate_hh:mm-----Rvmm-R.C-----DWfms
01455) ROUTE RESERVOIR -> 1.0 02:Pin 44.72 3.268 No date 5:54 25.58 n/a .000
01456) out <= 1.0 01:PFout 44.72 .061 No date 11:10 
```

```
01441# R0205:C0001-----DtnIn:ID:HYND-----AREHA-QFEARCS=TpeakDate hh:mm-----RvM=R-C-----DWfms
01442# ROUTE CHNL --> 1.0 0.01Fout 44.72 .126 No.date 10:06 36.59 n/a .000
01443# * [RDT=1.00] out<= 1.0 0.01Fout 44.72 .126 No.date 0:00 .00 n/a .000
01444# [L/S/= 10./ 700./030]
01445# (Vmax= .243Dmax= .433)
01446# # Outlet Channel Capacity
01447# R0205:C0001-----DtnIn:ID:HYND-----AREHA-QFEARCS=TpeakDate hh:mm-----RvM=R-C-----DWfms
01448# ROUTE CHANNEL --> 1.0 0.01Fout 44.72 .126 No.date 10:06 36.59 n/a .000
01449# * [RDT=1.00] out<= 1.0 0.01Fout 44.72 .126 No.date 10:06 36.59 n/a .000
01450# [L/S/= 10./ 700./030]
01451# (Vmax= .227Dmax= .134)
01452# *****
01453# # STORMS
01454# *****
01455# ** END OF RUN : 249
01456# *****
01457# *****
01458# *****
01459# *****
01460# *****
01461# *****
01462# *****
01463# RUN#:COMMAND#
01464# R0210:C0001-----DtnIn:ID:HYND-----AREHA-QFEARCS=TpeakDate hh:mm-----RvM=R-C-----DWfms
01465# START
01466# [TZERO = .00 hrs on 0]
01467# [NETOUT= 2 (Imperial, 2metric output)]
01468# [NETIN= 1]
01469# [NRUN = 0210]
01470# *****
01471# # SWMHYMO Ver5.02/Jan 2001 <BETA> / INPUT DATA FILE
01472# *****
01473# # Project Name : [Brittville South - Davidson Co-Tenancy]
01474# # Project Number : [1123-13]
01475# # Date : 2015/05/06
01476# # Modeler : Laura Phipps, P.Eng.
01477# # Updated : 2014/08/24 [IP]
01478# # Updated : 2017/02/13 [IP]
01479# # Updated : 2017/03/22 [IP]
01480# # Updated : 2017/09/13 [IP]
01481# # Updated : 2017/09/18 [IP]
01482# # Updated : 2023/07/12 [IP]
01483# # Updated : 2023/07/12 [IP]
01484# # Updated : 2023/09/25 [IP]
01485# # Updated : 2024/08/02 [IP]
01486# # Company : J.F. Sabourin and Associates
01487# # License # : 2582434
01488# *****
01489# R0210:C0002-----DtnIn:ID:HYND-----AREHA-QFEARCS=TpeakDate hh:mm-----RvM=R-C-----DWfms
01490# HEAD STORM
01491# File name = storm.001
01492# Comment = 10 years RCS Type 2 Storm 12 Hours step 15 min, as per Carp River U
01493# [SDT=15.00;SDRM= 12.00;POT= 67.20]
01494# R0210:C0003-----DtnIn:ID:HYND-----AREHA-QFEARCS=TpeakDate hh:mm-----RvM=R-C-----DWfms
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01801) # License # : 2582634
01802) #####
01803) R0250:C00002-----
01804) READ STORM
01805) File name = storm.001
01806) Comment = 50 years SCS Type 2 Storm 12 hours step 15 min, as per Carp River
01807) (SRT=15.00:SDUR= 12.00:PTOT= 87.60)
01808) R0250:C00003-----
01809) DEFAULT VALUES
01810) File name = C:\Temp\SWMHYMO\Davidson Post-Dev\Ottawa.val
01811) ICAServ = 1 (read and print data)
01812) FileTitle= File comment: (Parameters for City of Ottawa Projects)
01813) THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDARD COM
01814) Horton's infiltration equation parameters:
01815) [P= 76.20 mm/hr] [Pci=1.20 mm/hr] [ICAX= 4.14 /hr] [P= .00 mm]
01816) Parameters for Pervious surfaces in STANBYD:
01817) [Iapex= 4.67 mm] [Iap=40.00 mm] [MNP= .250]
01818) Parameters for IMPervious surfaces in STANBYD:
01819) [Ialpe= 1.57 mm] [Clic= 1.50] [MNI= .013]
01820) Parameters used in NASTBYD:
01821) [Ia= 4.67 mm] [N= 3.00]
01822) Average monthly Pan Evaporation data in (mm)
01823) JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
01824) .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
01825) Average monthly Potential Evapotranspiration in (mm)
01826) JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
01827) .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
01828) #
01829) #####
01830) # PROPOSED DEVELOPMENT - FREE OUTFALL HYDROGRAPH
01831) #####
01832) # Minor system hydrograph provided September 2017 by IBI Group
01833) R0250:C00004-----
01834) READ HYD
01835) File name = C:\Temp\SWMHYMO\Davidson Post-Dev\Val.0250
01836) Comment = MINOR SYSTEM FLOW FROM DAVIDSON CO-TENANCY (SEPTEMBER 2017,
01837) # Major system hydrograph provided September 2017 by IBI Group
01838) R0250:C00005-----
01839) READ HYD
01840) File name = C:\Temp\SWMHYMO\Davidson Post-Dev\Val.0250
01841) Comment = MAJOR SYSTEM FLOW FROM DAVIDSON CO-TENANCY (SEPTEMBER 2017,
01842) #####
01843) # PROPOSED FOND BLOCK
01844) #####
01845) # Drainage area characteristics as per base plan provided by DSRL
01846) R0250:C00006-----
01847) DESIGN STANDARD 1.0 01:Adsl 4.10 .654 No.date 6:01 55.42 .633 .000
01848) [XIMP= 45:TIMP= 45]
01849) [SLP= 50:DT= 1.00]
01850) [LOGS= 1 : HORTON]
01851) # Proposed Additional Area Requested by DSRL, July 2024
01852) R0250:C00007-----
01853) DESIGN STANDARD 1.0 01:Adsl 4.10 .987 No.date 6:00 63.95 .730 .000
01854) [XIMP= 58:TIMP= 63]
01855) [SLP= 50:DT= 1.00]
01856) [LOGS= 1 : HORTON]
01857) #####
01858) # TOTAL INFLOWS TO SWM FACILITY
01859) #####
01860) R0250:C00008-----
01861) ADD HYD
01862) + 1.0 02:Min 37.55 6.523 No.date 5:54 56.80 n/a .000
01863) + 1.0 02:Fond 3.07 .654 No.date 6:01 55.42 n/a .000
01864) + 1.0 02:Adsl 4.10 .987 No.date 6:00 63.95 n/a .000
01865) SUM 44.72 7.979 No.date 5:58 57.50 n/a .000
01866) #####
01867) # SWM FACILITY
01868) #####
01869) # Quality control and permanent pool requirements based on MCE guidelines
01870) # For enhanced quality control for wet ponds. Extended detention of the 25 mm
01871) # runoff volume for 72 hours estimated for unknown erosion control requirements.
01872) # 2-, 5- and 100-year target release rates as per Table 3 of the April 2016
01873) # "Faulkner Drain Hydrotechnical Update" by Novatech.
01874) # Free Outfall Conditions
01875) R0250:C00009-----
01876) ROUTE RESERVOIR -> 1.0 02:Pin 44.72 7.979 No.date 5:58 57.50 n/a .000
01877) overflow < 1.0 03:PFout 44.72 7.979 No.date 5:58 57.50 n/a .000
01878) overflow < 1.0 03:PFout .00 .00 No.date 0:00 .00 n/a .000
01879) [MstOutSec= 2.198E+01 m3, TotOutVol= 0.000E+00 m3, N-ov= 0, TotOutDur= 0.hrs]
01880) # Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
01881) R0250:C00010-----
01882) ROUTE RESERVOIR -> 1.0 02:Pin 44.72 7.979 No.date 5:58 57.50 n/a .000
01883) overflow < 1.0 03:PFout 44.72 .371 No.date 7:00 22.73 n/a .000
01884) overflow < 1.0 03:PFout .00 .00 No.date 0:00 .00 n/a .000
01885) [MstOutSec= 2.178E+01 m3, TotOutVol= 0.000E+00 m3, N-ov= 0, TotOutDur= 0.hrs]
01886) # Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
01887) # 100% Blockage of Drop Inlet Structure
01888) R0250:C00011-----
01889) ROUTE RESERVOIR -> 1.0 02:Pin 44.72 7.979 No.date 5:58 57.50 n/a .000
01890) overflow < 1.0 03:PFout 44.72 .000 No.date 0:00 .00 n/a .000
01891) overflow < 1.0 03:PFout .00 .00 No.date 0:00 .00 n/a .000
01892) [MstOutSec= 2.172E+01 m3, TotOutVol= 0.000E+00 m3, N-ov= 0, TotOutDur= 0.hrs]
01893) #####
01894) # SAVE HYD
01895) #####
01896) # Save Pond Inflow Hydrograph For Use In Preparing Pond Stage-Time Curves
01897) # For Use in IBI Group's HGL Analysis of the Upstream Subdivision
01898) # SAVE HYD
01899) # HYD COMMENT="Fond Inflow"
01900) # Save Pond Outflow Hydrograph For Use In Calculating Average Velocity in the
01901) # Forebay During the 10-Year Storm
01902) # SAVE HYD
01903) # HYD COMMENT="Fond Outflow - Free Outfall Conditions"
01904) # Save Pond Outflow Hydrograph For Use In Preparing Pond Stage-Time Curves
01905) # For Use in IBI Group's HGL Analysis of the Upstream Subdivision
01906) # SAVE HYD
01907) # HYD COMMENT="Fond Outflow - Restrictive D/S Conditions"
01908) #
01909) # CHECK CAPACITIES OF OVERLAND FLOW ROUTE INTO FOND AND OUTLET CHANNEL FROM FOND
01910) #####
01911) # Overland Flow Route Capacity
01912) R0250:C00012-----
01913) ROUTE CHANNEL -> 15.0 02:Max .00 .070 No.date 5:45E5699.26 n/a .000
01914) [RFS= 1.00] out< 1.0 01:OVLF 44.72 .068 No.date 5:45E4439.27 n/a .000
01915) [L/S= 10 / 100 / 035]
01916) [Vmax= .367:Imax= .096]
01917) # Outlet Channel Capacity
01918) R0250:C00013-----
01919) ROUTE CHANNEL -> 1.0 02:Pin 44.72 .339 No.date 7:07 57.50 n/a .000
01920) overflow < 1.0 03:PFout 44.72 .339 No.date 7:09 57.50 n/a .000
01921) [L/S= 10 / 100 / 035]
01922) [Vmax= 2.68:Imax= .298]
01923) #####
01924) # STORMS
01925) #####
01926) ** END OF RUN : 298
01927)
01928)
01929)
01930)
01931)
01932)
01933)
01934) RUN# COMMANDS
01935) R0250:C00014-----
01936) START
01937) [TZERO = .00 hrs on 0]
01938) [METOUT= 2 (1=imperial, 2=metric output)]
01939) [NFORM= 0]
01940) [NRUN = 029]
01941) #####
01942) # SWMHYMO Ver.02/Jan 2001 -CHETA / INPUT DATA FILE
01943) #####
01944) # Project Name : [Stittville South - Davidson Co-Tenancy]
01945) # Project Number : [1125-1]
01946) # Date : 2015/05/06
01947) # Modeler : Laura Pipkins, P.Eng.
01948) # Updated : 2016/09/24 [P]
01949) # Updated : 2017/02/13 [P]
01950) # Updated : 2017/03/22 [P]
01951) # Updated : 2017/09/13 [P]
01952) # Updated : 2017/09/18 [P]
01953) # Updated : 2023/07/04 [P]
01954) # Updated : 2023/07/12 [P]
01955) # Updated : 2023/09/25 [P]
01956) # Updated : 2024/08/02 [P]
01957) # Company : J.F. Sabourin and Associates
01958) # License # : 2582634
01959) #####
01960) R0250:C00015-----
01961) READ STORM
01962) File name = storm.001
01963) Comment = 100 years SCS Type 2 Storm 12 hours step 15 min, as per Carp River
01964) (SRT=15.00:SDUR= 12.00:PTOT= 96.00)
01965) R0250:C00016-----
01966) DEFAULT VALUES
01967) File name = C:\Temp\SWMHYMO\Davidson Post-Dev\Ottawa.val
01968) ICAServ = 1 (read and print data)
01969) FileTitle= File comment: (Parameters for City of Ottawa Projects)
01970) THE FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDARD COM
01971) Horton's infiltration equation parameters:
01972) [P= 76.20 mm/hr] [Pci=1.20 mm/hr] [ICAX= 4.14 /hr] [P= .00 mm]
01973) Parameters for Pervious surfaces in STANBYD:
01974) [Iapex= 4.67 mm] [Iap=40.00 mm] [MNP= .250]
01975) Parameters for IMPervious surfaces in STANBYD:
01976) [Ialpe= 1.57 mm] [Clic= 1.50] [MNI= .013]
01977) Parameters used in NASTBYD:
01978) [Ia= 4.67 mm] [N= 3.00]
01979) Average monthly Pan Evaporation data in (mm)
01980) JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
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02161# DESIGN STANDARD 1.0 0.01Pond 3.07 .572 No date 1.132 60.35 .719 .000
02162# [XIMP=45;TIMP=63]
02163# [SLF= 50.0T=1.00]
02164# [LOSS= 1 : HORTONS]
02165# Proposed Additional Area Requested by DEEL, July 2024
02166# R0989:C00007-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02167# DESIGN STANDARD 1.0 0.01Addl 4.10 .876 No date 1.131 67.19 .800 .000
02168# [XIMP=58;TIMP=63]
02169# [SLF= 50.0T=1.00]
02170# [LOSS= 1 : HORTONS]
02171# #####
02172# TOTAL INFLOWS TO SWM FACILITY
02173# #####
02174# R0979:C00008-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02175# ADD HYD 1.1 0.01Min 37.55 7.092 No date 1.138 67.13 n/a .000
02176# + 5.0 0.02Max .00 .112 No date 1.130***** n/a .000
02177# + 1.0 0.02Addl 3.07 .572 No date 1.132 60.35 n/a .000
02178# + 1.0 0.02Addl 4.10 .876 No date 1.131 67.19 n/a .000
02179# SUM 1.0 0.01Pin 44.72 8.483 No date 1.133 67.07 n/a .000
02180# #####
02181# SWM FACILITY
02182# #####
02183# Quality control and permanent pool requirements based on MCE guidelines
02184# For enhanced quality control for wet ponds. Extended detention of the 25 mm
02185# runoff volume for 72 hours estimated for unknown erosion control requirements.
02186# 2-, 5- and 100-year target release rates as per Table 3 of the April 2016
02187# "Faulkner Drain Hydrotechnical Update" by Novatech.
02188# Free Outfall Conditions
02189# R0979:C00009-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02190# ROUTE RESERVOIR -> 1.0 0.02Pin 44.72 8.483 No date 1.133 67.07 n/a .000
02191# out <= 1.0 0.01Pfout 44.72 .669 No date 2.123 67.06 n/a .000
02192# overflow <= 1.0 0.03Pfovt 0.00 .000 No date 0.000 .00 n/a .000
02193# (MstToUsed=.272E+01 m3, TotOfVol=.000E+00 m3, N-OvF= 0, TotOfDurF= 0.hrs)
02194# Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
02195# R0979:C00010-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02196# ROUTE RESERVOIR -> 1.0 0.02Pin 44.72 8.483 No date 1.133 67.07 n/a .000
02197# out <= 1.0 0.01Pfout 44.72 .669 No date 2.123 67.11 n/a .000
02198# overflow <= 1.0 0.03Pfovt 0.00 .000 No date 0.000 .00 n/a .000
02199# (MstToUsed=.273E+01 m3, TotOfVol=.000E+00 m3, N-OvF= 0, TotOfDurF= 0.hrs)
02200# Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
02201# 100% Blockage of Drop Inlet Structure
02202# R0979:C00011-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02203# ROUTE RESERVOIR -> 1.0 0.02Pin 44.72 8.483 No date 1.133 67.07 n/a .000
02204# out <= 1.0 0.01Pfout 44.72 .119 No date 3.02 4.44 n/a .000
02205# overflow <= 1.0 0.03Pfovt 0.00 .000 No date 0.000 .00 n/a .000
02206# (MstToUsed=.293E+01 m3, TotOfVol=.000E+00 m3, N-OvF= 0, TotOfDurF= 0.hrs)
02207# #####
02208# SAVE HYD
02209# #####
02210# Save Pond Inflow Hydrograph For Use In Calculating Average Velocity in the
02211# For Use in IRI Group's HGL Analysis of the Upstream Subdivision
02212# SAVE HYD HYD COMMENT="Fond Inflow", # OF FCYCLBS=[-1], ICAESAB=[1]
02213# #####
02214# Save Pond Outflow Hydrograph For Use In Calculating Average Velocity in the
02215# For Use in IRI Group's HGL Analysis of the Upstream Subdivision
02216# SAVE HYD HYD COMMENT="Fond Outflow", # OF FCYCLBS=[-1], ICAESAB=[1]
02217# #####
02218# Save Pond Outflow Hydrograph For Use In Preparing Pond Stage-Time Curves
02219# For Use in IRI Group's HGL Analysis of the Upstream Subdivision
02220# SAVE HYD HYD COMMENT="Fond Outflow - Free Outfall Conditions", # OF FCYCLBS=[-1], ICAESAB=[1]
02221# #####
02222# HYD COMMENT="Fond Outflow - Restrictive D/S Conditions"
02223# #####
02224# CHECK CAPACITIES OF OVERLAND FLOW ROUTE INTO POND AND OUTLET CHANNEL FROM POND
02225# #####
02226# R0979:C00012-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02227# ROUTE CHANNEL -> 1.0 0.02Pin 44.72 8.483 No date 1.133 67.07 n/a .000
02228# (RDF= 1.00) out<= 1.0 0.01OvF_FR .00 .112 No date 1.126***** n/a .000
02229# (L/S/m= 10././700./030)
02230# (Vmax= .431Dmax= 1.14)
02231# Outlet Channel Capacity
02232# R0979:C00013-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02233# ROUTE CHANNEL -> 1.0 0.02Pout 44.72 .669 No date 2.123 67.06 n/a .000
02234# (RDF= 1.00) out<= 1.0 0.01Pchan 44.72 .669 No date 2.125 67.06 n/a .000
02235# (L/S/m= 10././100./030)
02236# (Vmax= .302Dmax= .779)
02237# #####
02238# STORMS
02239# #####
02240# *** END OF RUN : 995
02241# #####
02242# #####
02243# #####
02244# #####
02245# #####
02246# #####
02247# #####
02248# #####
02249# R0988:C0001
02250# START
02251# (TZERO = .00 hrs on 0)
02252# (METOUT= 2 ([-imperial, 2=metric output])
02253# (NFORMS= 1)
02254# (NRUN = 0996)
02255# #####
02256# SWMHYMO Ver:5.02(Jan 2001 <BETA> / INPUT DATA FILE
02257# #####
02258# Project Name : [Stittville South - Davidson Co-Tenancy]
02259# Project Number: [1123-13]
02260# Date : 2015/03/06
02261# Modeller : Laura Pipkins, P.Eng.
02262# Updated : 2016/09/14 [IP]
02263# Updated : 2017/02/13 [IP]
02264# Updated : 2017/03/22 [IP]
02265# Updated : 2017/09/13 [IP]
02266# Updated : 2017/09/18 [IP]
02267# Updated : 2023/07/14 [IP]
02268# Updated : 2023/07/12 [IP]
02269# Updated : 2023/09/25 [IP]
02270# Updated : 2024/08/02 [IP]
02271# Company : J.F. Sabourin and Associates
02272# License # : 2582634
02273# #####
02274# R0988:C00002
02275# READ STORM
02276# Filename = storm.001
02277# Comment = August 6th, 1988 Storm (5th) - Ottawa International Airport step 5
02278# (SDT= 5.00;SDUR= 5.98;POT= 80.59)
02279# R0988:C00003
02280# DEFAULT VALUES
02281# Filename = C:\Temp\SWMHYMO\Davidson Post-Dev\Ottawa.val
02282# ICAESAB = 1 (read and print data)
02283# FileTitle File comment: [Parameters for City of Ottawa Projects]
02284# The FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDARD COM
02285# Norton's infiltration equation parameters:
02286# [Fw= 76.20 mm/hr] [Fw(1-20 mm/hr)] [DCAV= 4.14 hr] [Fr= .00 mm]
02287# Parameters for IMPERVIOUS surfaces in STANDARD:
02288# [Iperm= 4.67 mm] [LSP=40.00 m] [IMPV=.250]
02289# Parameters for IMPERVIOUS surfaces in STANDARD:
02290# [Iimp= 1.57 mm] [CIP= 1.50] [NHI= .031]
02291# Parameters used in NASHBUT:
02292# [Ia= 4.67 mm] [W= 3.00]
02293# Average monthly Pan Evaporation data in (mm)
02294# JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
02295# .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
02296# Average monthly Potential Evapotranspiration in (mm)
02297# JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
02298# .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
02299# #####
02300# #####
02301# PROPOSED DEVELOPMENT - FREE OUTFALL HYDROGRAPHS
02302# #####
02303# Minor system hydrograph provided September 2017 by IRI Group
02304# R0988:C00004-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02305# READ HYD 1.1 0.01Min 37.55 6.469 No date 2.102 66.49 n/a .000
02306# Filename = C:\Temp\SWMHYMO\Davidson Post-Dev\Min.0988
02307# Comment = MINOR SYSTEM FLOW FROM DIVISION CO-TENANCY (SEPTEMBER 2017,
02308# Major system hydrograph provided September 2017 by IRI Group
02309# R0988:C00005-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02310# READ HYD 1.1 0.01Min 37.55 6.469 No date 2.102 66.49 n/a .000
02311# Filename = C:\Temp\SWMHYMO\Davidson Post-Dev\Maj.0988
02312# Comment = MAJOR SYSTEM FLOW FROM DIVISION CO-TENANCY (SEPTEMBER 2017,
02313# #####
02314# PROPOSED POND BLOCK
02315# #####
02316# Drainage area characteristics as per base plan provided by DEEL
02317# R0988:C00006-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02318# DESIGN STANDARD 1.0 0.01Pond 3.07 .686 No date 2.100 56.24 .698 .000
02319# [XIMP=45;TIMP=63]
02320# [SLF= 50.0T=1.00]
02321# [LOSS= 1 : HORTONS]
02322# Proposed Additional Area Requested by DEEL, July 2024
02323# R0988:C00007-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02324# DESIGN STANDARD 1.0 0.01Addl 4.10 1.033 No date 2.011 63.25 .785 .000
02325# [XIMP=45;TIMP=63]
02326# [SLF= 50.0T=1.00]
02327# [LOSS= 1 : HORTONS]
02328# #####
02329# TOTAL INFLOWS TO SWM FACILITY
02330# #####
02331# R0988:C00008-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02332# ADD HYD 1.1 0.01Min 37.55 6.469 No date 2.102 66.49 n/a .000
02333# + 5.0 0.02Max .00 .118 No date 1.156E+09 n/a .000
02334# + 1.0 0.02Pond 3.07 .686 No date 2.100 56.24 n/a .000
02335# + 1.0 0.02Addl 4.10 1.033 No date 2.011 63.25 n/a .000
02336# SUM 1.0 0.01Pin 44.72 8.538 No date 2.011 57.37 n/a .000
02337# #####
02338# SWM FACILITY
02339# #####
02340# Quality control and permanent pool requirements based on MCE guidelines
02341# For enhanced quality control for wet ponds. Extended detention of the 25 mm
02342# runoff volume for 72 hours estimated for unknown erosion control requirements.
02343# 2-, 5- and 100-year target release rates as per Table 3 of the April 2016
02344# "Faulkner Drain Hydrotechnical Update" by Novatech.
02345# Free Outfall Conditions
02346# R0988:C00009-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02347# ROUTE RESERVOIR -> 1.0 0.02Pin 44.72 8.538 No date 2.011 57.37 n/a .000
02348# out <= 1.0 0.01Pfout 44.72 .486 No date 2.139 57.37 n/a .000
02349# overflow <= 1.0 0.03Pfovt 0.00 .000 No date 0.000 .00 n/a .000
02350# (MstToUsed=.238E+01 m3, TotOfVol=.000E+00 m3, N-OvF= 0, TotOfDurF= 0.hrs)
02351# Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
02352# R0988:C00010-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02353# ROUTE RESERVOIR -> 1.0 0.02Pin 44.72 8.538 No date 2.011 57.37 n/a .000
02354# out <= 1.0 0.01Pfout 44.72 .524 No date 2.137 57.37 n/a .000
02355# overflow <= 1.0 0.03Pfovt 0.00 .000 No date 0.000 .00 n/a .000
02356# (MstToUsed=.232E+01 m3, TotOfVol=.000E+00 m3, N-OvF= 0, TotOfDurF= 0.hrs)
02357# Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
02358# 100% Blockage of Drop Inlet Structure
02359# R0988:C00011-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02360# ROUTE RESERVOIR -> 1.0 0.02Pin 44.72 8.538 No date 2.011 57.37 n/a .000
02361# out <= 1.0 0.01Pfout 44.72 .000 No date 0.000 .00 n/a .000
02362# overflow <= 1.0 0.03Pfovt 0.00 .000 No date 0.000 .00 n/a .000
02363# (MstToUsed=.256E+01 m3, TotOfVol=.000E+00 m3, N-OvF= 0, TotOfDurF= 0.hrs)
02364# #####
02365# SAVE HYD
02366# #####
02367# For Use in IRI Group's HGL Analysis of the Upstream Subdivision
02368# SAVE HYD HYD COMMENT="Fond Inflow", # OF FCYCLBS=[-1], ICAESAB=[1]
02369# #####
02370# Save Pond Outflow Hydrograph For Use In Calculating Average Velocity in the
02371# For Use in IRI Group's HGL Analysis of the Upstream Subdivision
02372# SAVE HYD HYD COMMENT="Fond Outflow", # OF FCYCLBS=[-1], ICAESAB=[1]
02373# #####
02374# Save Pond Outflow Hydrograph For Use In Preparing Pond Stage-Time Curves
02375# For Use in IRI Group's HGL Analysis of the Upstream Subdivision
02376# SAVE HYD HYD COMMENT="Fond Outflow - Free Outfall Conditions", # OF FCYCLBS=[-1], ICAESAB=[1]
02377# #####
02378# HYD COMMENT="Fond Outflow - Restrictive D/S Conditions"
02379# #####
02380# CHECK CAPACITIES OF OVERLAND FLOW ROUTE INTO POND AND OUTLET CHANNEL FROM POND
02381# #####
02382# R0988:C00012-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02383# ROUTE CHANNEL -> 1.0 0.02Pin 44.72 .118 No date 1.155E+09 n/a .000
02384# (RDF= 1.00) out<= 1.0 0.01OvF_FR .00 .114 No date 1.154E+06 n/a .000
02385# (L/S/m= 10././700./030)
02386# (Vmax= .421Dmax= 1.18)
02387# Outlet Channel Capacity
02388# R0988:C00013-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02389# ROUTE CHANNEL -> 1.0 0.02Pin 44.72 8.486 No date 2.139 57.37 n/a .000
02390# (RDF= 1.00) out<= 1.0 0.01Pchan 44.72 .486 No date 2.140 57.37 n/a .000
02391# (L/S/m= 10././100./030)
02392# (Vmax= .286Dmax= .674)
02393# #####
02394# STORMS
02395# #####
02396# #####
02397# *** END OF RUN : 995
02398# #####
02399# #####
02400# #####
02401# #####
02402# #####
02403# #####
02404# #####
02405# RUN/COMMANDS
02406# R0986:C00001
02407# START
02408# (TZERO = .00 hrs on 0)
02409# (METOUT= 2 ([-imperial, 2=metric output])
02410# (NFORMS= 1)
02411# (NRUN = 0996)
02412# #####
02413# SWMHYMO Ver:5.02(Jan 2001 <BETA> / INPUT DATA FILE
02414# #####
02415# Project Name : [Stittville South - Davidson Co-Tenancy]
02416# Project Number: [1123-13]
02417# Date : 2015/03/06
02418# Modeller : Laura Pipkins, P.Eng.
02419# Updated : 2016/09/14 [IP]
02420# Updated : 2017/02/13 [IP]
02421# Updated : 2017/03/22 [IP]
02422# Updated : 2017/09/13 [IP]
02423# Updated : 2017/09/18 [IP]
02424# Updated : 2023/07/14 [IP]
02425# Updated : 2023/07/12 [IP]
02426# Updated : 2023/09/25 [IP]
02427# Updated : 2024/08/02 [IP]
02428# Company : J.F. Sabourin and Associates
02429# License # : 2582634
02430# #####
02431# R0986:C00002
02432# READ STORM
02433# Filename = storm.001
02434# Comment = August 6th, 1988 Storm (5th) - Ottawa International Airport step 5
02435# (SDT= 5.00;SDUR= 5.98;POT= 73.30)
02436# R0986:C00003
02437# DEFAULT VALUES
02438# Filename = C:\Temp\SWMHYMO\Davidson Post-Dev\Ottawa.val
02439# ICAESAB = 1 (read and print data)
02440# FileTitle File comment: [Parameters for City of Ottawa Projects]
02441# The FOLLOWING PARAMETERS ARE USED IN THE DESIGN STANDARD COM
02442# Norton's infiltration equation parameters:
02443# [Fw= 76.20 mm/hr] [Fw(1-20 mm/hr)] [DCAV= 4.14 hr] [Fr= .00 mm]
02444# Parameters for IMPERVIOUS surfaces in STANDARD:
02445# [Iperm= 4.67 mm] [LSP=40.00 m] [IMPV=.250]
02446# Parameters for IMPERVIOUS surfaces in STANDARD:
02447# [Iimp= 1.57 mm] [CIP= 1.50] [NHI= .031]
02448# Parameters used in NASHBUT:
02449# [Ia= 4.67 mm] [W= 3.00]
02450# Average monthly Pan Evaporation data in (mm)
02451# JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
02452# .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
02453# Average monthly Potential Evapotranspiration in (mm)
02454# JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
02455# .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
02456# #####
02457# #####
02458# PROPOSED DEVELOPMENT - FREE OUTFALL HYDROGRAPHS
02459# #####
02460# Minor system hydrograph provided September 2017 by IRI Group
02461# R0986:C00004-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02462# READ HYD 1.1 0.01Min 37.55 5.931 No date 1.130 37.83 n/a .000
02463# Filename = C:\Temp\SWMHYMO\Davidson Post-Dev\Min.0996
02464# Comment = MINOR SYSTEM FLOW FROM DIVISION CO-TENANCY (SEPTEMBER 2017,
02465# Major system hydrograph provided September 2017 by IRI Group
02466# R0986:C00005-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02467# READ HYD 1.1 0.01Min 37.55 5.931 No date 1.130 37.83 n/a .000
02468# Filename = C:\Temp\SWMHYMO\Davidson Post-Dev\Maj.0996
02469# Comment = MAJOR SYSTEM FLOW FROM DIVISION CO-TENANCY (SEPTEMBER 2017,
02470# #####
02471# PROPOSED POND BLOCK
02472# #####
02473# Drainage area characteristics as per base plan provided by DEEL
02474# R0986:C00006-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02475# DESIGN STANDARD 1.0 0.01Pond 3.07 .446 No date 1.128 51.12 .692 .000
02476# [XIMP=45;TIMP=63]
02477# [SLF= 50.0T=1.00]
02478# [LOSS= 1 : HORTONS]
02479# Proposed Additional Area Requested by DEEL, July 2024
02480# R0986:C00007-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02481# DESIGN STANDARD 1.0 0.01Addl 4.10 .740 No date 1.128 57.56 .779 .000
02482# [XIMP=58;TIMP=63]
02483# [SLF= 50.0T=1.00]
02484# [LOSS= 1 : HORTONS]
02485# #####
02486# TOTAL INFLOWS TO SWM FACILITY
02487# #####
02488# R0986:C00008-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02489# ADD HYD 1.1 0.02Min 37.55 5.931 No date 1.130 40.59 n/a .000
02490# + 1.0 0.02Max .00 .118 No date 1.155E+09 n/a .000
02491# + 1.0 0.02Pond 3.07 .446 No date 1.128 51.12 n/a .000
02492# + 1.0 0.02Addl 4.10 .740 No date 1.128 57.56 n/a .000
02493# SUM 1.0 0.01Pin 44.72 7.109 No date 1.130 40.59 n/a .000
02494# #####
02495# SWM FACILITY
02496# #####
02497# #####
02498# #####
02499# #####
02500# #####
02501# #####
02502# #####
02503# R0986:C00009-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02504# ROUTE RESERVOIR -> 1.0 0.02Pin 44.72 7.109 No date 1.130 40.59 n/a .000
02505# out <= 1.0 0.01Pfout 44.72 .446 No date 2.100 40.59 n/a .000
02506# overflow <= 1.0 0.03Pfovt 0.00 .000 No date 0.000 .00 n/a .000
02507# (MstToUsed=.164E+01 m3, TotOfVol=.000E+00 m3, N-OvF= 0, TotOfDurF= 0.hrs)
02508# Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
02509# R0986:C00010-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02510# ROUTE RESERVOIR -> 1.0 0.02Pin 44.72 7.109 No date 1.130 40.59 n/a .000
02511# out <= 1.0 0.01Pfout 44.72 .045 No date 5.10 58.2 n/a .000
02512# overflow <= 1.0 0.03Pfovt 0.00 .000 No date 0.000 .00 n/a .000
02513# (MstToUsed=.177E+01 m3, TotOfVol=.000E+00 m3, N-OvF= 0, TotOfDurF= 0.hrs)
02514# Restrictive Downstream Conditions (100-Year D/S Water Level = 102.77 m)
02515# 100% Blockage of Drop Inlet Structure
02516# R0986:C00011-----DtnIn-ID:HYND-----AREAbA-QFEARcMs-TPeakDate_hh:mm-----RvMm-R.C-----DWfms
02517# ROUTE RESERVOIR -> 1.0 0.02Pin 44.72 7.109 No date 1.130 40.59 n/a .000
02518# out <= 1.0 0.01Pfout 44.72 .000 No date 0.000 .00 n/a .000
02519# overflow <= 1.0 0.03Pfovt 0.00 .000 No date 0.000 .00 n/a .000
02520# (MstToUsed=.181E+01 m3, TotOfVol=.000E+00 m3, N-OvF= 0, TotOfDurF= 0.hrs)
```

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02881i *** WARNING: Inflow hydrograph is dry! Routing not done!
02882i R0202:C00005 READ HYD
02883i *** NOTE: The hydrograph which was read is dry.
02884i R0202:C00010 ROUTE RESERVOIR
02885i *** WARNING: Outflow volume is less than inflow volume.
02886i R0202:C00011 ROUTE RESERVOIR
02887i *** WARNING: Outflow volume is less than inflow volume.
02888i R0202:C00012 ROUTE CHANNEL ->
02889i *** WARNING: Inflow hydrograph is dry! Routing not done!
02890i R0205:C00005 READ HYD
02891i *** NOTE: The hydrograph which was read is dry.
02892i R0205:C00010 ROUTE RESERVOIR
02893i *** WARNING: Outflow volume is less than inflow volume.
02894i R0205:C00011 ROUTE RESERVOIR
02895i *** WARNING: Outflow volume is less than inflow volume.
02896i R0205:C00012 ROUTE CHANNEL ->
02897i *** WARNING: Inflow hydrograph is dry! Routing not done!
02898i R0209:C00010 ROUTE RESERVOIR
02899i *** WARNING: Outflow volume is less than inflow volume.
02900i R0209:C00011 ROUTE RESERVOIR
02901i *** WARNING: Outflow volume is less than inflow volume.
02902i R0202:C00005 READ HYD
02903i *** NOTE: The hydrograph which was read is dry.
02904i R0202:C00010 ROUTE RESERVOIR
02905i *** WARNING: Outflow volume is less than inflow volume.
02906i R0202:C00011 ROUTE RESERVOIR
02907i *** WARNING: Outflow volume is less than inflow volume.
02908i R0202:C00012 ROUTE CHANNEL ->
02909i *** WARNING: Inflow hydrograph is dry! Routing not done!
02910i R0205:C00005 READ HYD
02911i *** NOTE: The hydrograph which was read is dry.
02912i R0205:C00010 ROUTE RESERVOIR
02913i *** WARNING: Outflow volume is less than inflow volume.
02914i R0205:C00011 ROUTE RESERVOIR
02915i *** WARNING: Outflow volume is less than inflow volume.
02916i R0205:C00012 ROUTE CHANNEL ->
02917i *** WARNING: Inflow hydrograph is dry! Routing not done!
02918i R0219:C00010 ROUTE RESERVOIR
02919i *** WARNING: Outflow volume is less than inflow volume.
02920i R0219:C00011 ROUTE RESERVOIR
02921i *** WARNING: Outflow volume is less than inflow volume.
02922i R0202:C00005 READ HYD
02923i *** NOTE: The hydrograph which was read is dry.
02924i R0202:C00010 ROUTE RESERVOIR
02925i *** WARNING: Outflow volume is less than inflow volume.
02926i R0202:C00011 ROUTE RESERVOIR
02927i *** WARNING: Outflow volume is less than inflow volume.
02928i R0202:C00012 ROUTE CHANNEL ->
02929i *** WARNING: Inflow hydrograph is dry! Routing not done!
02930i R0205:C00005 READ HYD
02931i *** NOTE: The hydrograph which was read is dry.
02932i R0205:C00010 ROUTE RESERVOIR
02933i *** WARNING: Outflow volume is less than inflow volume.
02934i R0205:C00011 ROUTE RESERVOIR
02935i *** WARNING: Outflow volume is less than inflow volume.
02936i R0205:C00012 ROUTE CHANNEL ->
02937i *** WARNING: Inflow hydrograph is dry! Routing not done!
02938i R0210:C00005 READ HYD
02939i *** NOTE: The hydrograph which was read is dry.
02940i R0210:C00010 ROUTE RESERVOIR
02941i *** WARNING: Outflow volume is less than inflow volume.
02942i R0210:C00011 ROUTE RESERVOIR
02943i *** WARNING: Outflow volume is less than inflow volume.
02944i R0210:C00012 ROUTE CHANNEL ->
02945i *** WARNING: Inflow hydrograph is dry! Routing not done!
02946i R0225:C00010 ROUTE RESERVOIR
02947i *** WARNING: Outflow volume is less than inflow volume.
02948i R0225:C00011 ROUTE RESERVOIR
02949i *** WARNING: Outflow volume is less than inflow volume.
02950i R0250:C00010 ROUTE RESERVOIR
02951i *** WARNING: Outflow volume is less than inflow volume.
02952i R0250:C00011 ROUTE RESERVOIR
02953i *** WARNING: Outflow volume is less than inflow volume.
02954i R0299:C00010 ROUTE RESERVOIR
02955i *** WARNING: Outflow volume is less than inflow volume.
02956i R0299:C00011 ROUTE RESERVOIR
02957i *** WARNING: Outflow volume is less than inflow volume.
02958i R0979:C00010 ROUTE RESERVOIR
02959i *** WARNING: Outflow volume is less than inflow volume.
02960i R0979:C00011 ROUTE RESERVOIR
02961i *** WARNING: Outflow volume is less than inflow volume.
02962i R0988:C00010 ROUTE RESERVOIR
02963i *** WARNING: Outflow volume is less than inflow volume.
02964i R0988:C00011 ROUTE RESERVOIR
02965i *** WARNING: Outflow volume is less than inflow volume.
02966i R0996:C00010 ROUTE RESERVOIR
02967i *** WARNING: Outflow volume is less than inflow volume.
02968i R0996:C00011 ROUTE RESERVOIR
02969i *** WARNING: Outflow volume is less than inflow volume.
02970i R0998:C00010 ROUTE RESERVOIR
02971i *** WARNING: Outflow volume is less than inflow volume.
02972i R0998:C00011 ROUTE RESERVOIR
02973i *** WARNING: Outflow volume is less than inflow volume.
02974i R0999:C00010 ROUTE RESERVOIR
02975i *** WARNING: Outflow volume is less than inflow volume.
02976i R0999:C00011 ROUTE RESERVOIR
02977i *** WARNING: Outflow volume is less than inflow volume.
02978i Simulation ended on 2024-08-07 at 20:56:39
02979i =====
02980i
```

Table 5-9: Functioning of the Dry Pond

PARAMETER	2 YEAR CHICAGO	5 YEAR CHICAGO	100 YEAR CHICAGO	100 YEAR CHICAGO + 20%	100 YEAR 12 HOUR SCS TYPE II	100 YEAR 24 HOUR SCS TYPE II	100 YEAR 24 HOUR SCS TYPE II + 20%
Storage Utilised (cu. m)	0	0	576	1940	425	456	1138
Outflow (l/s)	58	100	492	545	484	487	515
Water Level (m)	103.46	103.54	104.55	104.73	104.52	104.52	104.63
Drawdown Time (hr)	n/a	n/a	<3	<4	<4	<4	<5

The dry pond has a freeboard of 0.45 m during the 100 year Chicago design storm and 0.27m during the stress test.

The cumulative downstream major flow hydrograph to the SWM facility was provided to the SWM facility design engineer to incorporate into the facility's design.

5.4.3 Hydraulic Evaluation

An XPSWMM hydraulic model was created for the subject site. Minor system hydrographs generated from the DDSWMM model were exported to the XPSWMM model. Minor system losses were accounted for in accordance with Appendix 6-B of the City of Ottawa Sewer Design Guidelines (October 2012).

Simulations were performed for various storms to confirm the performance of the proposed SWM facility and the hydraulic grade line (HGL) through the Davidson Lands development.

IBI Group provided SWM facility design engineer the cumulative downstream minor system hydrograph to include in the pond design. The boundary condition at the downstream MH of the Davidson Lands development (XPSWMM MH900) is a tailwater developed based on maximum water elevations for various storm events provided by SWM facility design engineer. For reference, the maximum water levels in the pond are summarized within Table 3B of the Design Brief for the Stormwater Management Pond, a copy is provided within Appendix D of this report. The below table provides summary of the tailwater elevation used for the respective design storms.

Table 5-10 Summary of Tailwater elevation at SWM facility (based on restrictive downstream conditions at pond Outlet)

DESIGN STORM	TAILWATER SURFACE ELEVATION(M)
100 year, 3 hour Chicago	103.00
100 year, 3 hour Chicago +20%	103.
100 year, 12 hour SCS	103.17
100 year, 24 hour SCS	103.12
100 year, 24 hour SCS +20%	103.24
July 1 st , 1979 (Historical)	103.25
August 4 th , 1988 (Historical)	103.08
August 8 th , 1996 (Historical)	102.76

Note: All WSEL as per DSEL Design Brief for the Stormwater Management Pond for the Davidson Lands, November 2017. See reference provided within Appendix D of this report

5.4.4 Results of Hydraulic Evaluation

The hydraulic grade line (HGL) was analyzed using the XPSWMM dynamic model for the 100 year 3 hour Chicago storm, the governing storm event for the subdivision. The corresponding stress test (100 year 3 hour Chicago storm + 20% increase in intensity) was also simulated, as were three historical storms. Both the 100 year 12 h and 24 h SCS storms were simulated for the receiving SWM facility, so they were also simulated for the subdivision. Of the two, the 100 year 24 h SCS is the more conservative within the subdivision, so the corresponding stress test was also simulated.

The HGL elevations are presented in the following **Table 5.9**, along with a comparison of under-side of footing (USF) elevations. Results for all storm events, including a simulation accounting for the emergency sanitary overflow (as discussed in **Section 6**), as well as XPSWMM model output files are provided in **Appendix D**.

Table 5-11 Storm HGL Elevations – Phase 2

POND XPSWMM NODE ⁽⁴⁾	USF ELEV. (M)	STORM EVENTS						HYDROGRAPHS CONTRIBUTING TO XPSWMM NODE
		100 YEAR 3 HOUR CHICAGO ⁽¹⁾		100 YEAR 3 HOUR CHICAGO + 20% ⁽²⁾		JULY 1, 1979 HISTORICAL ⁽³⁾		
		HGL (M)	USF [OR PG] - HGL (M)	HGL (M)	USF [OR PG] - HGL (M)	HGL (M)	USF [OR PG] - HGL (M)	
MH900 (5)	N/A	103.00	N/A	103.24	N/A	103.25	N/A	
MH115	104.30	103.00	1.30	103.24	1.06	103.26	1.04	R115A, R115B
MH114	104.45	103.00	1.45	103.25	1.20	103.28	1.17	R114
MH113	104.40	103.08	1.32	103.25	1.15	103.30	1.10	R113
MH112	104.40	103.21	1.19	103.28	1.12	103.39	1.01	S112,R112
MH111	104.55	103.41	1.14	103.49	1.06	103.56	0.99	S111
MH176	105.40	104.55	0.85	104.56	0.84	104.55	0.85	R176A,S176, R176B,S176A
MH110	104.70	103.71	0.99	103.80	0.90	103.81	0.89	R110
MH216	104.90	103.93	0.97	104.04	0.86	104.06	0.84	R216, S216
MH215	105.10	104.22	0.88	104.25	0.85	104.26	0.84	R215,S215
MH226	104.90	104.18	0.72	104.29	0.61	104.30	0.60	S226
MH225	104.90	104.30	0.60	104.41	0.49	104.41	0.49	R225
MH224	105.10	104.50	0.60	104.62	0.48	104.61	0.49	
MH234	105.36	104.84	0.52	104.96	0.40	104.95	0.41	S234
MH233	105.50	105.11	0.39	105.23	0.27	105.21	0.29	
MH232	105.70	105.12	0.58	105.24	0.46	105.21	0.49	R233, S233
MH231	106.10	105.17	0.93	105.27	0.83	105.24	0.86	S231
MH223	105.20	104.66	0.54	104.78	0.42	104.76	0.44	S223, R223
MH222	105.30	104.66	0.64	104.78	0.52	104.76	0.54	
MH221	105.79	104.68	1.11	104.79	1.00	104.77	1.02	S221
MH220	106.10	104.84	1.26	104.84	1.26	104.84	1.26	
MH109	104.95	103.89	1.06	103.99	0.96	103.97	0.98	S109
MH195	N/A	103.93	N/A	104.03	N/A	104.01	N/A	P109
MH211	105.10	104.07	1.03	104.11	0.99	104.10	1.00	S211A, S211B
MH108	104.83	104.07	0.76	104.19	0.64	104.12	0.71	S108, R108A, R108B
MH189	104.85	104.08	0.77	104.20	0.65	104.14	0.71	S189
MH188	104.85	104.12	0.73	104.26	0.59	104.18	0.67	R188A, S188B, S188A, R188B
MH187	N/A	104.15	N/A	104.31	N/A	104.21	N/A	S187A,S187B
MH186	N/A	104.19	N/A	104.36	N/A	104.25	N/A	S186
MH320	N/A	104.20	N/A	104.38	N/A	104.26	N/A	FP320

POND XPSWMM NODE ⁽⁴⁾	USF ELEV. (M)	STORM EVENTS						HYDROGRAPHS CONTRIBUTING TO XPSWMM NODE
		100 YEAR 3 HOUR CHICAGO ⁽¹⁾		100 YEAR 3 HOUR CHICAGO + 20% ⁽²⁾		JULY 1, 1979 HISTORICAL ⁽³⁾		
		HGL (M)	USF [OR PG] - HGL (M)	HGL (M)	USF [OR PG] -HGL (M)	HGL (M)	USF [OR PG] - HGL (M)	
MH185	N/A	104.25	N/A	104.44	N/A	104.31	N/A	S185,R185A,R 185B
MH305	N/A	104.26	N/A	104.43	N/A	104.31	N/A	S305
MH308	104.92	104.32	0.60	104.50	0.42	104.37	0.55	S308
MH307	105.07	104.36	0.71	104.54	0.53	104.40	0.67	
MH306	104.97	104.37	0.60	104.56	0.41	104.41	0.56	S306
MH300	105.07	104.46	0.61	104.68	0.39	104.50	0.57	S300A,S300B, R300
MH304	104.82	104.28	0.54	104.46	0.36	104.34	0.48	
MH303	104.82	104.32	0.50	104.50	0.32	104.38	0.44	S303,R303
MH302	104.87	104.34	0.53	104.52	0.35	104.39	0.48	
MH301	105.02	104.45	0.57	104.66	0.36	104.50	0.52	S301,R301A,R 301B
MH107	105.53	104.18	1.35	104.32	1.21	104.23	1.30	S107
MH205	105.50	104.25	1.25	104.38	1.12	104.28	1.22	S205
MH204	105.30	104.38	0.92	104.52	0.78	104.40	0.90	
MH203	105.00	104.55	0.45	104.70	0.30	104.57	0.43	S203A,S203B, R203
MH106	105.35	104.30	1.05	104.43	0.92	104.32	1.03	S106, R106
MH202	105.35	104.64	0.71	104.79	0.56	104.37	0.98	S202
MH201	105.25	104.70	0.55	104.85	0.40	104.43	0.82	
MH200	105.20	104.76	0.44	104.91	0.29	104.49	0.71	S200
MH105	105.49	104.32	1.17	104.46	1.03	104.34	1.15	
MH104	105.48	104.39	1.09	104.52	0.96	104.41	1.07	S104, R104
MH103	105.68	104.63	1.05	104.77	0.91	104.64	1.04	S103
MH156	107.63	105.17	2.46	105.34	2.29	105.17	2.46	R156A,R156B
MH155	106.75	105.57	1.18	105.78	0.97	105.56	1.19	S154,S155
MH145	107.28	106.39	0.89	106.42	0.86	106.39	0.89	R145
MH144	107.83	106.75	1.08	106.75	1.08	106.75	1.08	
MH143	109.15	108.77	0.38	108.77	0.38	108.77	0.38	S143
MH142	111.10	110.42	0.68	110.42	0.68	110.42	0.68	S142
MH146	110.75	110.18	0.57	110.18	0.57	110.18	0.57	S146, R146
MH141	109.52	108.61	0.91	108.62	0.90	108.61	0.91	S141A, S141B,R141
MH140	109.72	108.64	1.08	108.64	1.08	108.64	1.08	
MH139	110.75	109.88	0.87	109.88	0.87	109.88	0.87	

(1) Model file: STM_0909-100CH_2020-06-04.OUT

(2) Model file: STM_0909-120CH_2020-06-04.OUT

(3) Model file: STM_0909-19790701_2020-06-04.OUT

(4) Highlighted nodes indicate where hydrographs are imported into the XPSWMM model

(5) Boundary conditions as per approved DSEL report Table 2A in Design Brief for the Stormwater Management Pond for the Davidson Lands, November 2017.

The above tables indicate that minimum 0.3 m clearance between the USF and HGL is maintained across the subject site during the 100 year 3 hour Chicago storm event. It should be noted that the above results also indicate that there would be no severe flooding to properties during the 100 year 3 hour Chicago storm with a 20% increase in intensity, nor during the July 1 1979 historical storms. The results of the remainder of the storm events are presented in **Appendix D**.

An evaluation of the hydraulic grade line in Phase 2 was undertaken assuming that those storm sewer pipes that are partially permanently submerged have 25% accumulation of sediment. The results of the hydraulic evaluation are presented in **Appendix D**.

5.4.5 Design Criteria for Future Development Areas

The design criteria for future development areas FP135, FP320 and P109 was determined and evaluated with the 3 hour, 100 year Chicago design storm. The major flow for FP135 is contained onsite up to the 100 year Chicago, 327cu.m. of on site storage is estimated but will be confirmed at the detailed design stage. The maximum allowable minor system flow is set to the 5 year Chicago Storm and corresponds to 622 l/s. The storm HGL within the receiving MH135 during the 100 year Chicago event would be 104.95 m. The major flow for FP320 includes 10.4 cu.m. of onsite storage and outflows 344 l/s of major flow during the 100 year Chicago design storm event. The maximum allowable minor system flow is set to the 5 year Chicago Storm and corresponds to 395 l/s. The storm HGL within the receiving MH 320 during the 100 year Chicago event would be 104.20 m. The major flow for P109 is contained onsite up to the 100 year Chicago using 130 cu.m. of on site storage. The maximum allowable minor system flow is set to the 5 year Rational Method flow with an inlet time of 10 minutes as per request by the City of Ottawa and corresponds to 173 l/s. The storm HGL within the receiving MH195 would be 103.89m.

5.5 Summary of Model Output Files

The following is a reference list of the model output files including file names and storm event evaluated. The files are included on the CD enclosed in **Appendix D**.

DDSWMM:

- 5 year 3 hour Chicago: 37533-5CH.OUT, EXT37533-5CH.OUT
- 100 year 3 hour Chicago: 37533-100CH.OUT, EXT37533-100CH.OUT
- 100 year 3 hour Chicago + 20%: 37533-120CH.OUT, EXT37533-120CH.OUT
- 100 year 12 hour SCS Type II: 37533-SC12100c.OUT, EXT37533-SC12100c.OUT
- 100 year 24 hour SCS Type II: 37533-SC24100X.OUT, EXT37533-SC24100x.OUT
- 100 year 24 hour SCS Type II + 20%: 37533-SC24120x.OUT, EXT37533-SC24120x.OUT
- July 1979: 37533-19790701.OUT, EXT37533-19790701.OUT
- August 1988: 37533-19880804.OUT, EXT37533-19880804.OUT
- August 1996: 37533-19960808.OUT, EXT37533-19960808.OUT

SWMHYMO:

- 37533VXD.OUT

XPSWMM:

- 2 year 3 hour Chicago: STM_0909-2CH_2020-06-04.out
- 5 year 3 hour Chicago: STM_0909-5CH_2020-06-04.out
- 100 year 3 hour Chicago: STM_0909-100CH_2020-06-04.OUT
- 100 year 3 hour Chicago + 20%: STM_0909-120CH_2020-06-04.OUT
- 100 year 12 hour SCS Type II: STM_0912-SC12100C_2020-06-04. OUT