FUNCTIONAL SERVICING & STORMWATER MANAGEMENT REPORT

INDIGO2
452 RAGLAN STREET
TOWN OF COLLINGWOOD

PREPARED FOR:
EDEN OAK (RAGLAN) INC.

PREPARED BY:

C.F. CROZIER & ASSOCIATES INC.

ADMIRAL BUILDING

1 FIRST STREET, SUITE 200

COLLINGWOOD, ONTARIO

L9Y 1A1

DECEMBER 2021

CFCA FILE NO. 0218-5833

CROZIER
CONSULTING ENGINEERS

Revision Number	Date	Comments
Rev. 0	December 2021	Issued for 1st Submission Draft Plan Approval

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1.0 INTRODUCTION

C.F. Crozier & Associates Inc. (Crozier) was retained by Eden Oak (Raglan) Inc. to complete a Functional Servicing and Stormwater Management Report in support for Zoning By-Law Amendment and Draft Plan of Subdivision Application for the development located at 452 Raglan, within the Town of Collingwood.

The subject property is approximately 8.99 hectares (22.31 acres) in size and is located at 452 Raglan Street in the Town of Collingwood. Approximately 6.12 hectares of the site is proposed to be developed. Refer to **FIG.1** for the site location. The proposed Concept Plan consists of 21 single detached homes, 107 townhomes, 0.49 hectares of parkland, a 0.15 ha Stormwater Management Area, 2.87 hectares of environmental protection area, and an internal road network consisting of public roads (Street 'A', 'B', 'C' and 'D'). Access to the site will be provided by extensions from the existing Williams Street and Peel Street, north of the site, as well as Kirby Avenue, a ROW connecting the site to the Eden Oak Indigo Estates subdivision at the southwest corner of the site. Refer to **FIG. 2** for Draft plan.

The purpose of this report is to outline the proposed internal servicing and stormwater management strategies for the subject lands.

2.0 SITE DESCRIPTION AND BACKGROUND

The subject site is located at 452 Raglan Street and has historically been referred to as the "King Property". The site is bounded by the existing "Riverside" Residential Subdivision (formerly referred to as the Hughes Subdivision) to the north, Pretty River and open fields to the east, a treed area to the south and a public walking trail to the west. The lands west of the walking trail consist of the Eden Oak Indigo Estates subdivision at the south end of the site, and Admiral Collingwood Elementary School toward the north end of the site.

The current land use across the site consists of farmland, an existing residential dwelling at the northwest corner of the property and a laneway extending over Pretty River to Raglan Street. There are small treed areas in the north portion of the property as well as the east side of the property towards the river. The south and west property extents consist of a tree line, approximately 15m wide. The site is relatively flat, with an elevation change of approximately 3m across the site. The site generally falls from the southwest corner to the northeast corner, draining to the Pretty River, with a small portion draining to the Riverside Subdivision. On-site soils are classified as Sargent gravelly sandy loam. This soil type is considered Hydrologic Soil Group A. Refer to **Appendix B** for soil classification.

A 2.87-hectare section of the site along the east property line is zoned as Environmental Protection presumably due to the presence of the Pretty River. The remainder of the site is currently zoned as Deferred Residential Development per the Town of Collingwood Zoning By-Law and will therefore also require a Zoning By-Law Amendment to support the proposed development.

External documents/plans were reviewed in the course of completing this engineering assessment. As such, the servicing and design considerations contained herein have utilized the following:

- Hughes/Riverside Subdivision Reports and Drawings – March 2006
- Environmental Impact Study by Azimuth – December 2021
- Meander Belt Width Assessment Pretty River by Geomorphix – October 2021
- Groundwater Level Monitoring Program by Toronto Inspection - September 2021
- Geotechnical Investigation report by Toronto Inspection – December 2021

- Slope Stability Study by Toronto Inspection – December 2021

Relevant report excerpts from the Hughes/Riverside Subdivision Reports and documentation have been included for reference in **Appendix C**. All other reports have been submitted under a separate cover.

3.0 ROADWAY AND GRADING

Access to the site will be provided by connections to the public 20m wide ROW at Williams Street and Peel Street to the north, and the future Kirby Avenue to the west. The internal public road design consists of a 20 m urban road standard with the following parameters (consistent with the Town of Collingwood Typical Urban Local Residential Street Section Standard):

- 20 m road allowance;
- 1.5 m sidewalk(s);
- 4.25 m asphalt lanes at 2% cross fall;
- 600.040 OPSD standard curb and gutter;
- 4.85 m boulevard at 2% cross fall and,
- Major storm event to be conveyed within the right of way and discharge directly to designated overland flow route

Preliminary road grades have been prepared to demonstrate that the site can be developed in accordance with the Town Standards. Centerline road grades of 0.5% minimum and 5.5% maximum have been used along Public streets. The preliminary road design and grading provides positive drainage for minor and major storm events as per Town Standards. Preliminary grading is provided in **FIG. 6**. Overall, the site grading is governed by the storm sewer system, allowing the site to drain along the public ROW towards Williams Street and the Stormwater Facility towards Peel Street.

The internal road network and sidewalks will be constructed to geotechnical recommendations, Town of Collingwood standards and in compliance with Accessibility for Ontarians with Disabilities Act (AODA).

The existing laneway entrance to the site from Raglan Street and associated crossing of the Pretty River will be decommissioned.

4.0 PROPOSED SERVICING STRATEGY

The following subsections provide an analysis of the servicing strategy for the proposed sanitary sewage system, potable water supply, and utilities for the IndigO2 subdivision development.

4.1 Sanitary Sewage System

The existing sewage infrastructure at or near the proposed development include the following:

- 250mm diameter sanitary sewer stub at the south terminus of Williams Street (north of the site)
- 250mm diameter sanitary sewer stub at the south terminus of Peel Street (north of the site)
- 200mm diameter sanitary sewer at the east terminus of Kirby Avenue (west of the site)

The proposed routing of the internal sanitary sewers will follow the alignment of the internal roadway per Town standards. Sanitary flows from the site will be conveyed by gravity and directed north to the existing 250mm diameter sanitary sewers along Williams Street and Peel Street via connections to the

existing stubs.

The site proposes 128 residential units across 8.99 ha. Preliminary sanitary flows for the site were estimated using the following values, per the Town of Collingwood Standards:

- Average Flow Rate - 450 L/cap/day
- Infiltration – 0.23 L/s/ha
- Peaking Factor – 4.08 (Harmon)
- Population Density Townhomes – 2.4 Persons/Unit (Town of Collingwood standards from master servicing plan)
- Population Density Single Detached Homes – 2.9 Persons/Unit (Town of Collingwood standards from master servicing plan)

Based on these values it is estimated that peak sanitary flow from the site will be **8.80 L/s**. The Municipality has prepared a Town wide Sanitary Sewer Model. The proposed flows from the subject site will added to this model to confirm downstream capacity or any system upgrade requirements. Refer to **Appendix A** for sanitary servicing demand calculations and to **FIG.3** for the Preliminary Site Servicing Plan and **FIG.4** for Preliminary Sanitary Servicing Plan.

4.2 Potable Water Supply

The existing water distribution infrastructure at or near the proposed development include the following:

- 250mm diameter watermain at the south terminus of Williams Street (north of the site)
- 200mm diameter watermain stub at the south terminus of Peel Street (north of the site)
- 200mm diameter watermain at the east terminus of Kirby Avenue (west of the site)

The site will be serviced via connections to the watermain stubs listed above to satisfy the requirements for a looped water distribution system. The connection of the 200mm diameter and 250mm diameter watermains at Peel Street and Williams Street, respectively in addition to the proposed 200mm diameter watermain at Kirby Avenue is anticipated to provide a looped water distribution system. Local watermain with individual service connections for each unit within the development will follow the alignment of internal roadways per Municipal standards. Fire flows for the development will be provided by hydrants installed throughout the development. The sizing of the internal watermain will be confirmed through Town updates to the Municipal water system model at the detailed design stage. Available pressures and any sizing of Pressure Reducing Valves to regulate pressure between zones will be confirmed through the model in detailed design stage. Fire hydrants and valve spacing will be provided per the applicable Town Standards.

Domestic water demands for the site were estimated using the following criteria as specified in the Town of Collingwood Standards:

- Average Flow Rate - 450 L/cap/day
- Peak Factors: Peak Day/Peak Hour – 2.75/4.50
- Population Density Townhomes – 2.4 Persons/Unit (Town of Collingwood standards from master servicing plan)
- Population Density Single Detached Homes – 2.9 Persons/Unit (Town of Collingwood standards from master servicing plan)

Based on these values it is estimated that water demands for the site are as follows:

- Average Day – 1.5 L/s
- Max Day – 4.2 L/s
- Peak Hour – 6.9 L/s

Preliminary fire flows required to service the site were determined to be 167 L/s per the Fire Underwriter's Survey. The total design flow (peak residential + fire flow) for the water distribution system is 172 L/s. This figure will be refined as the proposed development and building Architectural concepts advance and will be updated at the detailed design stage. Refer to **Appendix A** for potable water servicing demand and fire flow calculations and to **FIG.3** for the Preliminary Site Servicing Plan and **FIG.5** for Preliminary Water Distribution Plan.

5.0 STORMWATER MANAGEMENT AND URBAN DRAINAGE

Stormwater management (SWM) for the proposed development must comply with the policies and standards of various agencies including the Town of Collingwood, Nottawasaga Valley Conservation Authority (NVCA) and the Ministry of the Environment Conservation and Parks (MECP).

The recommended stormwater management strategy for the proposed development to address these concerns has been included below:

- Water Quantity Control
  - Control of the post development minor storm flow rates up to the 5-year storm to the capacity of the downstream storm sewers
  - Control of the post development peak flow rates up to the 100-year storm to the pre-development peak flow rates

- Water Quality Control
  - Provide an Enhanced Level of Protection (80% TSS removal for 90% of the annual runoff)

- LID's
  - Examination of potential conveyance and lot level LID's for incorporation into the proposed design

5.1 Existing Site Drainage Conditions

The soil type identified on the site is Sargent gravelly sandy loam (Soil Map of Simcoe County, North Sheet, Soil Survey Report No. 29), which is classified as Hydrologic Soil Group A (Design Chart H2-6A, MTO Drainage Manual, 1985). This soil type has been generally confirmed by the Geotechnical Report by Toronto Inspection, which identified onsite soils as predominantly silty sand and sandy silt. Drainage from the subject site is predominately sheet flow from the southwest to the northeast. Flows from the site are conveyed to Pretty River and eventually discharge to Georgian Bay. A small portion of the site drains north towards Williams Street and Peel Street. At the northern extent of the site, the Pretty River transforms from a natural channel to a channelized dyke system to convey flows safely through Collingwood to Georgian Bay. Refer to **FIG.7** for Pre-Development Drainage Areas and **Appendix B** for Soil Survey Complex.

The proposed development aims to tie into the existing servicing systems on William Street and Peel Street. The Peel Street and Williams Street storm sewers ultimately discharges to the Riverside Pond. To ensure that the proposed development does not surcharge the existing system, a capacity analysis is presented in the subsequent section.

5.1.1 Existing System Evaluation

Riverside Pond Capacity

The subject property is located south of the Riverside Development which constructed a SWM facility to provide the required stormwater quantity and quality control for the development, referred to herein as the 'Riverside Pond'. The Riverside Pond accounted for a total of 1.40 ha at 55% impervious of the subject property contributing to the SWM facility.

The Greenland SWM Report determined the required quantity and quality control volumes required to meet the SWM criteria for the original subdivision. The volumes provided in the SWM facility have been determined based on the approved for construction drawings dated September 7, 2006 and SWM Memo Update. The required permanent pool and extended detention volumes previously determined in the Greenland SWM Report were modified to reflect the additional flows from the Riverside Townhomes development and are presented in **Table 1**. Refer to **Appendix C** for excerpts from the Greenland SWM Report and the Riverside Townhome SWM Report regarding pond volumes.

Table 1: Required and Provided Volumes of Existing SWM Pond

Criteria	Required Volume (m^3)	Provided Volume (m^3)
Maximum 100yr Storage Volume	10,000	12,420
Permanent Pool	3,400	4,340
Extended Detention	1,090	7,000

As shown in **Table 1** the existing SWM facility has residual quantity and quality volume.

Due to grading and road alignment constraints, areas from the subject property contributing to the Riverside SWM facility will be increased in the proposed development. In total, 5.59 ha of the subject property at 55% impervious will drain to the proposed internal storm sewer network, which translates to an increase of 4.19 ha contributing to the SWM facility over the original design. This additional area represents a 14% increase in total area directed to the Riverside SWM facility. The additional area contributing to the pond would increase the required permanent pool and extended detention volumes to 4,030 m^3 and 1,260 m^3 respectively. Refer to **Appendix B** for a summary of Water Quality Requirements for Riverside Pond.

As such, the existing SWM facility has the residual volume available within the permanent pool and extended detention to accommodate the additional area from the subject Property.

The pond has a residual 2,420m^3 of active storage to handle major flows directed to the facility. Detailed analysis of the capacity and stage storage discharge for major flows directed to the pond will be confirmed in the detailed design stage. However, given the restrictions in the existing Storm Sewer capacities directing flow to the Riverside SWM Pond, additional active storage has been provided in a new proposed dry pond on the Subject IndigO2 Site as discussed in the subsequent sections.

Available Sewer Capacity

The following are potential locations to connect the internal storm sewer system to the storm sewer network that directs flows to the Riverside Pond:

- 300mm diameter storm sewer at the south terminus of Peel Street
    - Invert elevation: 188.35
    - Connection point: Manhole #96
- 450mm diameter storm sewer at the south terminus of Williams Street
    - Invert elevation: 188.59
    - Connection point: Manhole #73

A capacity analysis was undertaken to determine available capacity, if any, within each of the existing sewers on Peet Street and Williams Street between the connection points and the Riverside Pond inlet location. Through this analysis, it was determined that the site discharge would be divided between the two sewers, with on-site storage provided prior to discharge into the Peel Street storm sewer to attenuate peak flows.

The Peel Street storm sewer has approximately 42 L/s residual capacity to capture flows up to the 5-year storm event. The capacity is limited by the 300mm diameter sewer directly downstream of Manhole #96. Beyond this leg of storm sewer, there is approximately 93 L/s residual capacity within the remaining Peel Street storm sewer system between the subject Development and the Riverside SWM Pond. While there is capacity available, discharging stormwater from the site to this sewer will require both up sizing the last leg of the existing Peel Street storm sewer from a 300mm diameter sewer to a 375mm diameter sewer and providing onsite stormwater detention complete with controlled outflow to restrict the discharge from the subject property to a flow rate that can be accepted by the sewer.

The Williams Street storm sewer has approximately 270 L/s residual capacity to capture flows up to the 5-year storm event. The capacity is limited by the 450mm diameter sewer directly downstream of Manhole #73.

Refer to **Appendix B** for the storm sewer design sheets for Williams Street and Peel Street, and **Appendix C** for the as-constructed drawings of the storm sewer network north of the site.

5.2 Proposed Drainage Solution

The proposed development will incorporate a dual drainage system consisting of a storm sewer system and catch basins (minor system) and the use of the roadway and overland flow routes (major system). Minor system drainage will be conveyed via gutters above ground and intercepted by catchbasins and storm sewers, which have been designed to convey flows up to the 5-year storm event.

The majority of the minor system flows from the proposed development will be directed to the proposed onsite SWM Facility which outlets to the Peel Street Sewer at Manhole #96, ultimately discharging into the Riverside Pond. The Peel Street storm sewer will require a pipe upgrade from Manhole #96 to Manhole #95 for an approximate 54 m from an existing 300mm dia. to 375mm dia. sewer to accommodate flows from the subject site. The proposed on-site SWM Facility will convey up to 5 years storm events into the sewer and direct higher events into the Pretty River through a controlled Weir and Emergency overflow. Flows generated in rear lots of the single detached homes will be directed into the Pretty River as they are considered clean. The discharge into the Pretty River

will be controlled to pre-development flow rates prior to discharge.

A portion of the proposed internal storm sewer network will also connect to the existing network at Manhole #73, located at the south terminus of Williams Street. The existing storm sewer along Williams Street directs flows to the Riverside Stormwater Management Pond located approximately 320m north of the site. This stormwater management facility will provide quantity and quality control for the water.

Events exceeding the 5-year storm event for this drainage area will be conveyed overland via the public ROW to Williams Street, continuing towards the existing stormwater management pond.

The proposed drainage system is reflected in **FIG.6** and **FIG. 8** which illustrates preliminary site grading, storm sewer alignment, overland flow routes and the proposed stormwater management (SWM) facilities. Note that final grading will be updated at the detailed design stage to refine considerations for cut / fill levels and proposed building designs as required.

5.3 Post Development Drainage Conditions

There are seven main drainage areas on the site, refer to **FIG.8** for the post-development drainage plan. Refer to **Table 2** for a summary of the hydrologic parameters for each Drainage Area. Approximately 2.87 ha of the site located along the east property line is zoned as Environmental Protection due to the presence of the Pretty River. Stormwater generated in this undeveloped area is considered clean and will sheet into to Pretty River. Stormwater volumes and peak flows from this area were not analyzed as the area will remain unchanged through the development process.

Drainage Area 200 consist of single detached homes, a townhouse block, part of the public road connecting to Peel Street and the SWM Facility. The SWM Facility is designed to convey minor design storm, up to a 5-year event towards the Peel Street storm sewer and spill higher storm events into the Pretty river at a controlled rate through a discharge weir and an emergency spillway to ensure that pre-development flows are not exceeded. Refer to **FIG.9** for Preliminary SWM Facility Plan.

Drainage Area 201 – 203 are designated to drain into the on-site SWM Facility that outlets into the Peel Street sewer, ultimately discharging into the Riverside Pond. The drainage areas generally consist of a mixture of townhomes and single detached homes, the front yards and driveways, and 20 m ROW Public Street. The backyard areas from all the townhouse blocks to the East side of the site have been excluded as stormwater from this area is considered clean and will sheet east towards the Pretty River. Lot level controls will be implemented at the detailed design stage to ensure post-development flows do not exceed pre-development flows. The on-site SWM facility will accommodate minor flows into the Peel Street sewer and continue to the Riverside Pond for quality control before discharging. Major flows will be controlled via an orifice and will discharge into the pretty river east of the site. Sizing of the storage system and lot level controls will be finalized in the detailed design stage. Refer to **Appendix B** for a preliminary pond sizing summary.

Drainage Area 204 consists of townhouse blocks, the front yards and driveways, and 20 m ROW Public Street. Runoff generated from this area will be conveyed through a catchbasin manhole towards the internal sewers that outlet to the William Street Sewer system, ultimately discharging into the Riverside Pond where quality and quantity control will be provided.

Drainage Area 205 consists of the rear yards of the Townhomes and Park on the West, adjacent to the existing trail and rear yards of the Townhomes on the North of the site. Runoff generated from this area which will be captured through a catchbasin in the walkway block, discharging to the internal sewers that outlet to the William Street Sewer system, ultimately discharging into the Riverside Pond where

quality and quantity control will be provided.

Drainage Area 206 generally consist of the back yard areas from the detached units on the East of the site. Stormwater from the backyard area is considered clean and will sheet east into the Pretty River. A rear yard swale will convey flows from the units towards the east into the Pretty River. Lot level controls will be implemented at the detailed design stage to ensure post-development flows do not exceed pre-development flows.

An emergency overland flow route has been provided via the internal road network. In the event of a major storm or if the catchbasins significantly clog, stormwater will be safely conveyed along the internal road network toward Williams Street and Peel Street to be directed to the existing stormwater pond, or the Pretty River.

5.4 Stormwater Quantity Control

A hydrologic stormwater model was created using SWMHYMO to analyze and compare pre- and post-development conditions for flows draining to the Pretty River. The model was also used to determine preliminary detention storage volumes required on-site to ensure peak 5-year flows to the Peel Street sewer do not exceed the available capacity. The 4-hour Chicago and 24-hour SCS Type II rainfall distributions were used in the model, as well as the Regional Storm (Timmins) rainfall distribution.

5.4.1 Model Parameters for the Subject Lands

Both the NASHYD command and STANDHYD command were used in the model to simulate hydrographs for the catchment areas depicted in **FIG.8**, depending on impervious level. The NASHYD command was used for catchments with less than 20% imperviousness (pre-development drainage area), whereas the STANDHYD command was used for catchments greater than 20% imperviousness (post-development drainage areas). Drainage Areas 201-205 represent areas within the subdivision draining into the internal storm sewer network. Drainage Area 200 outlets in the Peel Street Sewer system that ultimately drains into the Riverside Pond. Drainage Area 206 represents the area that sheets directly into the Pretty River. Table 2 below summarizes the Drainage Area hydrologic parameters. Detailed hydrologic parameter calculations and SWMHYMO input and output can be found in **Appendix B**.

Table 2: Summary of Hydrologic Parameters

Drainage Areas	Sub - Drainage Area ID	SWMHYMO Command	Area (ha)	Curve Number	Percent Impervious (%)	Outlet
Pre-Development	100	NASHYD	6.12	63	3	Pretty River
Post-Development	200	STANDHYD	0.52	69	59	Peel Street Sewer to Riverside Pond and major storms (i.e., above 5-year) into Pretty River
	201	STANDHYD	0.99	69	58	Internal Storm Sewer to SWM Pond
	202	STANDHYD	0.75	69	61	Internal Storm Sewer to SWM Pond
	203	STANDHYD	1.26	69	64	Internal Storm Sewer to SWM Pond

	204	STANDHYD	0.89	69	59	Internal Storm Sewer William Street Sewer
	205	NASHYD	1.18	69	10	Internal Storm Sewer to William Street Sewer
	206	NASHYD	0.53	69	0	Pretty River

5.4.2 Modelling Results

To ensure that the minor storms conveyed through the storm sewer system do not exceed the available capacity, the 5-year event peak flows were compared with the capacity of the storm sewers on William and Peel Street through the capacity analysis above. Drainage Area 204 & 205 has been modelled based on the available capacity of the William Street Sewer. The outlet controls of the SWM facility have been designed considering the Peel Street capacity. Refer to **Table 3** for resulting peak flows into existing sewers and Storm Sewer Design sheet in **Appendix B.**

Table 3: Peak flows into William Street and Peel Street Storm Sewer

Return Period (Years)	William Street		Peel Street	
	Available capacity (L/s)	Post-development Peak Flow (L/s)[1]	Available capacity (L/s)	Post-development Peak Flow (L/s)[2]
5	272	256	93	66

[1] William Street peak flows based on outflow from Storm Sewer Design Sheet (Rational Method)
[2] Peel Street peak flow based on outflow from SWMHYMO model

As per **Table 3**, it was determined that the proposed development does not exceed the downstream capacity of the existing storm sewers. It should be noted that the analysis was carried out assuming that the Peel Street sewer will be upsized to a 375mm dia. Flows up to the 5-year event from Drainage Area 204 & 205 will be conveyed without stormwater attenuation to Manhole #73 at the existing south terminus of Williams Street.

In pre-development conditions, the majority of the site is directed to the Pretty River. Under proposed conditions, Drainage Area 206, consisting of rear yards with lot level control and the SWM facility discharging major storm events at a controlled rate will be directed into the pretty river. Refer to **Table 4** for a summary of the pre- and post-development peak flow rates to the Pretty River.

Table 4: Peak Flows into Pretty River

Return Period (Years)	SCS (24-hour Type II)		Chicago (4-hour)	
	Pre-development (L/s)	Post-development (L/s)	Pre-development (L/s)	Post-development (L/s)
2	53	9	37	6
5	101	16	69	11
10	133	51	94	37
25	187	133	130	94
50	227	197	162	150
100	279	286	193	207
Regional (Timmins)	364	316	364	316

Per **Table 4**, it was determined that the post-development peak flows are lower than the pre-development peak flows for all events up to the 50-year storm. The 100-year post-development peak flow to the Pretty River shows a minor exceedance of approximately 10 L/s. This exceedance can be

conveyed safely through the outlet of the storm pond into the Pretty River and is negligible when compared to the 100 year peak flow of Pretty River and channelized nature downstream to Georgian Bay.

5.5 Stormwater Quality Control & Erosion Control

Water quality and erosion and sediment control for the development will be provided by the existing end-of-pipe stormwater management pond located in Riverside Pond. Additional quality control will also be provided by the on site dry pond SWM facility prior to discharge into the Peel Street sewer. Lot level controls will be further considered in the detailed design stage, subject to detailed grading design and soil/water table considerations.

Since Georgian Bay is the ultimate receiver of drainage from the subject lands, stormwater management facilities must be designed to meet the "enhanced protection" level. Enhanced protection provides an 80% long term suspended solids removal rate.

Crozier has confirmed that the existing stormwater management pond has the capacity to provide water quality and erosion control for the proposed development and can provide the required 80% long term suspended solids removal rate.

5.6 Water Balance

Per the NVCA comments, every effort to maintain pre-development annual infiltration rates should be applied. A water balance analysis was performed to determine the post-development changes in the water balance. It was determined that under post-development conditions, there is an infiltration deficit compared to pre-development conditions. As a "best effort" approach, the water balance can be achieved through enhanced landscaping and implementation of riverstone beds and planters on the lots. Additionally, it is recommended that increased topsoil depths be provided in all landscaped areas and potential for individual rain barrels to be provided. A total storage volume to be provided in the riverstone beds through the site is recommended to accommodate the 10mm rain event from impervious lot areas to meet pre-development water balance requirements. The water balance analysis is summarized in **Table 5** below. Refer to **Appendix D** for detailed calculations.

Table 5: Water Balance Summary

Characteristic	Site			
	Pre-Development	Post-Development	Post-Development *with Mitigation*	Change (Pre to Post) *with Mititgation*
Inputs (Volumes)				
Precipitation (m^3/yr)	89181	89181	89181	0%
Run-On (m^3/yr)	0	0	0	0%
Other inputs (m^3/yr)	0	0	0	0%
Total Inputs (m^3/yr)	**89181**	**89181**	**89181**	**0**
Outputs (Volumes)				
Precipitation Surplus (m^3/yr)	37606	50285	50285	34%
Net Surplus (m^3/yr)	37606	50285	50285	34%
Evapotranspiration (m^3/yr)	51574	38896	38896	-25%
Infiltration (m^3/yr)	22126	14502	14502	-34%
Mitigation (m^3/yr)	0	0	**8125**	**8125 m3/yr**

Total Infiltration & Mitigation (m^3/yr)	**22126**	14502	**22626**	2%
Runoff Pervious Areas (m^3/yr)	14750	8517	8517	-42%
Runoff Impervious Areas (m^3/yr)	730	27267	19142	-
Total Runoff (m^3/yr)	15481	35783	27659	79%
Total Outputs (m^3/yr)	**89181**	**89181**	**89181**	0%

5.7 Phosphorus Loading

A Phosphorus Budget was completed using values from the Nottawasaga Valley Conservation Authority Phosphorus Tool which is consistent with the Hutchinson Environmental Sciences Ltd. Phosphorus Report. Per the NVCA's comments "best efforts" are required to achieve pre-development loading rates. The mitigation for the site consists of a treatment train approach using lot level controls, an on-site dry pond and the downstream Riverside Pond. **Table 6** summarizes the pre- and post-development, and post-development with mitigation phosphorus outputs from the site. Refer to **Appendix E** for phosphorus budget calculations.

Table 6: Phosphorus Budget Summary

	Land Use	Area (ha)	Phosphorus Coefficient (kg/ha/yr)	Phosphorus Load (kg/yr)
Pre-Development	Cultivated	6.12	0.51	3.12
Post-Development	Residential	6.12	0.91	5.59
Post-Development (with mitigation)	Residential	6.12	1.59	1.93

6.0 FLOODPLAIN MAPPING AND ANALYSIS

6.1 Existing Floodplain Conditions

A Flood study for the subject property was completed as part of a previous Draft Plan of Subdivision application in January 2018. The 2018 flood Study was completed as a desktop exercise which delineated the flood elevations stated within the 'Pretty River Flood Hazard Delineation Study' prepared by Stantec, dated March 1999. Comments were provided on this application by both Town and NVCA staff, both of which acknowledged that updates had been made to the Pretty River Hydraulic and Hydrologic Analysis by other consultants in support of adjacent developments. When the project became active again in 2020, Crozier requested the current hydraulic and hydrologic information for the Pretty River from the Town and NVCA. In acknowledgment of the extensive work that has been completed to date as it relates to the Pretty River and the pending timing of it's approval, the Town shared a copy of the 'Pretty River Hydrology Update' prepared by Tatham dated September 28, 2018 as prepared on behalf of 1579669 Ontario Inc to establish a floodplain management strategy for Pretty River Phase II Development Parcel. Additionally, the NVCA provided Crozier with a copy of the 'HEC-RAS – NVCA Preliminary Pretty River model' in August 2020. It should be noted that the flow within this HEC-RAS model was consistent with the hydrology summary prepared by Tatham.

6.2 Proposed Floodplain Conditions

The floodline shown within the MHBC concept plan was determined by Crozier through the process of taking the flood elevations for the cross-sections within the subject property from the NVCA HEC-RAS model and delineating them on the subject property based on site specific Topographic survey. In an effort to help tie the site specific topographic survey into the overall Pretty River HEC-RAS model, the upstream bridge was surveyed as well as the top and toe of the Pretty River banks throughout the site. Through this review, it was determined that the site topographic survey aligned with the overall geometry that was included in the Preliminary HEC-RAS file as provided by the NVCA. The results are shown on **FIG.10**, which includes the overlay of the site Topographic Survey.

7.0 UTILITIES

The subject site is proposed to be serviced with natural gas, telephone, cable TV and hydro. It is understood that all utilities exist in the adjacent Riverside Subdivision and are proposed to be extended through the adjacent Eden Oak Indigo Estates Subdivision. Utility providers will be contacted to extend the utilities and to determine any upgrades required.

8.0 EROSION & SEDIMENT CONTROLS DURING CONSTRUCTION

Erosion and Sediment controls will be installed prior to the commencement of any construction activities and will be maintained until the site is stabilized or as directed by the site Engineer and/or the Town of Collingwood. Controls will be inspected after each significant rainfall event and maintained in proper working condition. Further details on the specified controls are provided below.

- Silt Fencing

Silt fence will be installed where required to intercept sheet flow. Silt fence will be located around the downstream side of the work zone limits, adjacent to the Pretty River and sensitive offsite areas to be preserved (ie. trees, woodlands etc.). It should be noted that additional silt fencing may be added based on field decisions by the site Engineer prior to, during and following construction.

- Silt Sacks on Catchbasins

The existing catchbasins located adjacent to the site along Williams Street, Peel Street and the future Kirby Avenue shall be equipped with silt sacks during construction.

- Rock Mud Mat

A rock mud mat will be installed at the entrance to the construction zone in order to prevent mud tracking from the site onto the surrounding lands and perimeter roadway network.

- Dust Suppression

During construction activities, the Contractor is responsible to ensure that measures for dust suppression are provided as required, such as the application of water or lime.

- Flow Check Dams

Temporary straw bale and rock check dams will be utilized on-site and between the property line and Pretty River in order to prevent any silt mitigation off site during and after construction

activities. These dams will promote settling of suspended solids and will reduce flow velocities. Sediment accumulation will be monitored and removed as necessary. The temporary rock check dams will be constructed in accordance with NVCA's Typical Rock Check Dam Erosion Control Device (BSD-24 Draft). The need for additional flow check dams will be based on the field condition at the discretion of the Engineer and Developer and implemented as necessary.

9.0 CONCLUSIONS & RECOMMENDATIONS

It is concluded that the proposed development can readily meet the servicing and stormwater management objectives of the Town of Collingwood and NVCA with the proposed servicing, grading and stormwater management scheme as outlined in this report. As such, we support the Draft Plan Approval for the subject lands. Based on the information offered in this report, we offer the following conclusions:

1. A 20 m ROW is proposed for the public roadways within the site. The typical section will consist of an urban cross section consisting of curb and gutter and storm sewer system.
2. The existing 250mm dia. sanitary stubs will be extended from William Street and Peel Street into the site.
3. There are existing watermains on Kirby Avenue, William Street and Peel Street that the proposed 200 mm watermain can connect to. Internal watermain will feature a looped network which will also interconnect a number of dead-end mains within the municipal distribution system. The sizing of the internal watermain, available pressure, requirements of any Pressure Reducing Valves will be confirmed through Town updates to the Municipal water system model at the detailed design stage.
4. Preliminary grading has indicated that a majority of the development will drain towards the internal roadway/storm sewer network and stormwater will be conveyed to the proposed SWM Facilities. The remaining areas will maintain existing drainage patterns as much as possible. Final grading will be refined during detailed design.
5. The onsite Dry Pond SWM Facility is designed to convey minor storms (upto 5-year event) into the Peel Street sewer system, ultimately discharging into the Riverside Pond. Higher storm events will be controlled via a weir and emergency outflow into the Pretty River, ensuring that the flows respect pre-development flows. Quality and Erosion control will be undertaken in the Riverside Pond.
6. The Peak flows into Pretty River were assessed from the SWM Pond and the rear yards of the Townhouses to the East. This exercise illustrates that pre- to post development control is generally provided.
7. Minor (up to and including 5-year) storm events from the site draining to William Street and Peel Street conveyed by storm sewer do not exceed existing capacity
8. Major storms (>5 year) will be conveyed through overland flow into William Street and Peel Street, ultimately discharging into Riverside Pond.
9. Phosphorous removal is provided using a treatment train approach using the on-site dry pond and the downstream Riverside Pond.
10. A "best efforts" approach for onsite water balance and erosion control have been implemented.

Should you have any questions regarding the enclosed material, please call the undersigned.

Respectfully submitted,

C.F. CROZIER & ASSOCIATES INC.

Rebecca Alexander, P.Eng.
Project Manager

C.F. CROZIER & ASSOCIATES INC.

Abhinav Chatterjee,
Engineering Intern

C.F. CROZIER & ASSOCIATES INC.

Jon Proctor, P.Eng.
Associate

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APPENDIX A

Sanitary and Potable Water Design Calculations

Sanitary Demand Calculations

Fire Flow Calculations

Watermain Demand Calculations

CROZIER
CONSULTING ENGINEERS

Project: 452 Raglan Street
Project No.: 0218-5833
Date: 2021.06.17
Prepared By: AC
Check By: RA

IndigO2 - 452 Raglan Street - Sanitary Design Criteria

Site Area	8.99	ha
Number of Residential Units	128	
Person Per Residential Townhome Unit	2.40	persons/unit
Person Per Residential Single Family Detached Unit	2.90	persons/unit
Residential Population	318	persons
Sanitary Design Flows		
Average Daily Domestic Flow per Capita (per Town of Collingwood Standards)	450	L/C/day
Average Daily Domestic Flow	1.65	L/s
Harmon Peaking Factor	4.07	
Maximum Peak Flow	6.73	L/s
Inflow and Infiltration		
Unit Infiltration Allowance (per Town of Collingwood Standards)	0.23	L/s/ha
Total Infiltration Allowance	2.07	L/s
Total Sanitary Design Flow	**8.80**	**L/s**

Water Supply for Public Fire Protection - 1999
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

1. An estimate of fire flow required for a given area may be determined by the formula:

$$F = 220 * C * \sqrt{A}$$

where

F = the required fire flow in litres per minute
C = coefficient related to the type of construction
= 1.5 for wood frame construction (structure essentially all combustible)
= 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)
= 0.8 for non-combustible construction (unprotected metal structural components)
= 0.6 for fire-resistive construction (fully protected frame, floors, roof)
A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building considered.

Proposed Buildings		Ordinary construction
1440	sq.m. total floor area	1.0 C

Therefore F= 8,000 L/min (rounded to nearest 1000 L/min)

Fire flow determined above shall not exceed:
30,000 L/min for wood frame construction
30,000 L/min for ordinary construction
25,000 L/min for non-combustible construction
25,000 L/min for fire-resistive construction

2. Values obtained in No. 1 may be reduced by as much as 25% for occupancies having low contents fire hazard or may be increased by up to 25% surcharge for occupancies having a high fire hazard.

Non-Combustible	-25%	Free Burning	15%
Limited Combustible	-15%	Rapid Buring	25%
Combustible	No Charge		

Low fire Hazard occupancy for dwellings	15% reduction

2,000 L/min reduction

Note: Flow determined shall not be less than 2,000 L/min

3. Sprinklers - The value obtained in No. 2 above maybe reduce by up to 50% for complete automatic sprinkler protection.

Buildings will have automatic sprinklers (typical 30% reduction)
0 L/min reduction

Water Supply for Public Fire Protection - 1999
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

4. Exposure - To the value obtained in No. 2, a percentage should be added for structures exposed within 45 metres by the fire area under consideration. The percentage shall depend upon the height, area, and construction of the building(s) being exposed, the separation, openings in the exposed building(s), the length and height of exposure, the provision of automatic sprinklers and/or outside sprinklers in the building(s) esposed, the occupancy of the exposed building(s) and the effect of hillside locations on the possible spread of fire.

Separation	Charge	Separation	Charge
0 to 3 m	25%	20.1 to 30 m	10%
3.1 to 10 m	20%	30.1 to 45 m	5%
10.1 to 20 m	15%		

Exposed buildings

Name		**Distance**		
North	Adjacent Dwelling	26	10%	600
East	Adjacent Dwelling	6	20%	1200
South	Adjacent Dwelling	6	20%	1200
West	Adjacent Dwelling	6	20%	1200
				4,200 L/min Surcharge

Determine Required Fire Flow

No.1	8,000	
No. 2	2,000	reduction
No. 3	0	reduction
No. 4	4,200	surcharge
Required Flow:	**10,200**	**L/min**
Rounded to nearest 1000L/min:	**10,000**	**L/min** or **166.7** L/s, 2,642 USGPM

Determine Required Fire Storage Volume

Flow from above 10,000 L/min

Required duration 2.50 hours

Therefore: 1,500,000 Litres or
1,500 cu.m. is the required fire storage volume.

Required Duration of Fire Flow

Flow Required L/min	Duration (hours)
2,000 or less	1.0
3,000	1.25
4,000	1.5
5,000	1.75
6,000	2.0
8,000	2.0
10,000	2.0
12,000	2.5
14,000	3.0
16,000	3.5
18,000	4.0
20,000	4.5
22,000	5.0
24,000	5.5
26,000	6.0
28,000	6.5
30,000	7.0
32,000	7.5
34,000	8.0
36,000	8.5
38,000	9.0
40,000 and over	9.5

Fire Protection Water Supply Guideline
Part 3 of the Ontario Building Code (2006)

$$Q = KVS_{TOT}$$

Q = minimum supply of water in litres (L)
K = water supply coefficient
V = total building volume in cubic metres
S_{TOT} = total of spatial coefficient values from property line exposures on all sides

K =	23.0	Group C building with combustible construction (Table 1)
V =	8640	Total building volume in cubic metres
S_{TOT} =	2	S_{TOT} Need Not Exceed 2.0

Q = 397,440.00 L

Based on ranges listed in Table 2, the required minimum water supply flow rate is **9000 L/min**

150 L/s

CROZIER
CONSULTING ENGINEERS

Project: 452 Raglan Street
Project No.: 0218-5833
Date: 2021.06.17
Prepared By: AC
Check By: RA

IndigO2 - 452 Raglan Street Water Design Criteria

Site Area	8.99	ha
Number of Residential Units	128	
Person Per Residential Townhome Unit	2.40	persons/unit
Person Per Residential Single Family Detached Unit	2.90	persons/unit
Residential Population	318	persons
Domestic Water Design Flows		
Residential (per Town of Collingwood Standards)	450	L/C/day
Total Domestic Water Design Flows		
Average Residential Daily Flow (per MOE Design of Water Works 3.4.2)	1.7	L/s
Max Day Peak Factor (per MOE Design of Water Works 3.4.2)	2.75	
Max Day Demand Flow (per MOE Design of Water Works 3.4.2)	4.6	L/s
Peak Hour Factor (per MOE Design of Water Works 3.4.2/Town Standards)	4.50	
Peak Hour Flow (per MOE Design of Water Works 3.4.2)	7.4	L/s
Fire Flow (per Fire Underwriters Survey, Building 2)	167	L/s
(note minimum fire flow per Town Standard is 57 L/sec)		
Total (Peak + Fire Flow)	**171.6**	**L/s**

APPENDIX B

Stormwater Management Calculations

Soil Survey Complex

Water Quality Requirements – Riverside Pond

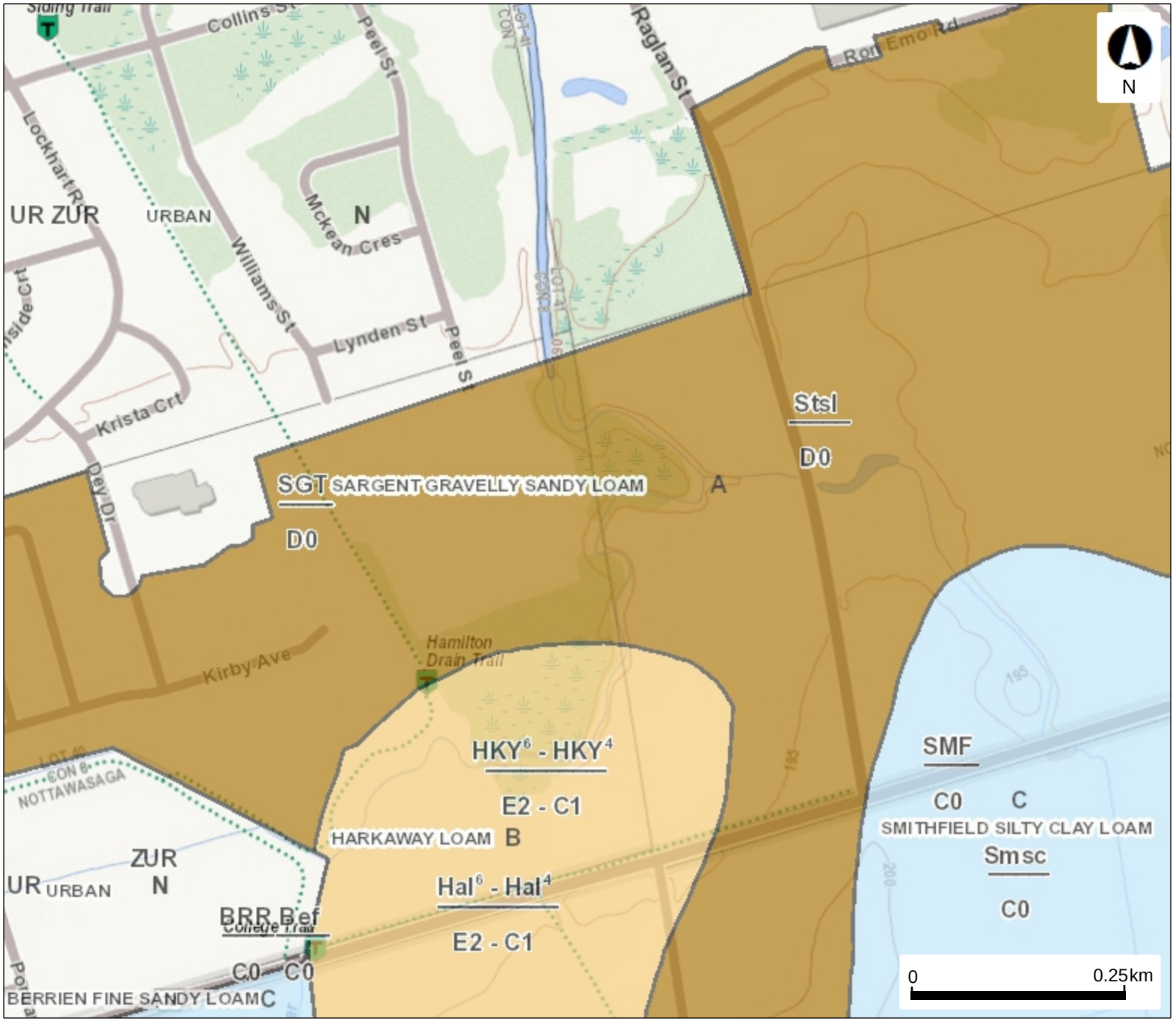
Storm Sewer Design Sheet (Existing and Proposed)

On-site Pond Stage Storage Discharge

Hydrologic Input Parameters

SWMHYMO Model Input and Output

452 Raglan Street



Legend

- @language-layer-soil-name
- @language-layer-soil-code
- @language-layer-soil-symbol
- @language-layer-hydrologic-soil-group
  - A - High
  - B - Moderate
  - C - Slow
  - D - Very Slow

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) shall not be liable in any way for the use or any information on this map. of, or reliance upon, this map.

Map Created: 10/22/2021
Map Center: 44.48615 N, -80.19645 W

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CONSULTING ENGINEERS

Water Quality Requirements
Project #: 218-5833
Project: 452 Raglan St
Date: 22.12.2021
By: AC
Check By: JP

Water Quality Requirements for Riverside Pond

Quality Calculations		
Parameter	**Impervious Areas**	**Units**
Area Statistics		
Contributing Areas	Post dev	-
Area	4.19	ha
% Impervious	55	%
MOE Volumes (per Table 3.2)		
MOE Total Water Quality (WQ) Volume	190	m^3/ha
MOE Extended Detention (ED) Volume	40	m^3/ha
Extended Detention (ED)		
MOE ED Volume	168	m^3
Permanent Pool (PP)		
MOE PP Volume	629	m^3

CROZIER CONSULTING ENGINEERS

PROJECT: 452 Raglan Street
PROJECT No.: 1432-4701
FILE: Storm Sewer Design

IndigO2 - 452 Raglan Street

5 YEAR - STORM SEWER DESIGN MODEL

PROJECT No.: 0218-5833
DESIGN: AC
CHECK: RA/JP
DATE: December 23, 2021

FREQUENCY		5 YEARS - Collingwood IDF			100 YEARS - Collingwood IDF		
5 YEARS	Coef. A=	27.7	Coef. B=	-0.699	Coef. A=	46.2	Coef. B= -0.699

TIME OF CONCENTRATION 10.00 MANNINGS "n" 0.013

CATCHMENT AREA I.D.	FR MH NO	TO MH NO	AREA (A) (Ha)	RUN-OFF COEFF (C_5)	A x C	Cummul. A x C	TIME OF CONC. (min.)	I (mm/hr)	Q (l/sec)	SLOPE (%)	PIPE DIA. (mm)	VEL. (m/sec)	LENGTH (m)	TIME OF FLOW (min)	CAPACITY (l/sec)	% Capacity	FALL (m)	PIPE INV ELEV. UPPER END	PIPE INV ELEV. LOWER END
	MH107	MH106	1.26	0.7	0.882	0.882	10.00	96.92	**237.64**	1.00	525	2.0	46.5	0.39	**430.06**	**55%**	0.47	192.972	192.507
	MH106	MH105		0.7	0.000	0.882	10.39	94.36	**231.37**	0.50	525	1.4	16.45	0.20	**304.10**	**76%**	0.08	192.457	192.375
Street D (203)	MH105	MH104		0.7	0.000	0.882	10.59	93.14	**228.38**	0.50	525	1.4	63.31	0.75	**304.10**	**75%**	0.32	192.325	192.008
	MH104	MH103		0.7	0.000	0.882	11.34	88.78	**217.69**	0.50	525	1.4	59.02	0.70	**304.10**	**72%**	0.30	191.978	191.683
	MH103	MH102		0.7	0.000	0.882	12.04	85.14	**208.76**	0.50	525	1.4	18.5	0.22	**304.10**	**69%**	0.09	191.653	191.561
Street B	MH102	MH101		0.65	0.000	0.882	12.26	84.07	**206.14**	0.50	525	1.4	14.05	0.17	**304.10**	**68%**	0.07	191.511	191.440
Street C (202)	MH109	MH108	0.75	0.65	0.488	0.488	10.00	96.92	**131.35**	1.00	450	1.8	56.2	0.52	**285.11**	**46%**	0.56	192.812	192.250
Street B	MH108	MH100		0.65	0.000	0.488	10.52	93.53	**126.76**	0.50	450	1.3	73	0.96	**201.60**	**63%**	0.37	192.220	191.855
Street B (201)	MH101A	MH100	0.99	0.65	0.644	0.644	11.48	87.99	**157.41**	0.50	525	1.4	33	0.39	**304.10**	**52%**		192.415	192.250
Street B (201)	MH100	MH101		0.65	0.000	1.131	11.87	85.95	**270.26**	0.50	525	1.4	57	0.68	**304.10**	**89%**	0.28	191.775	191.490
STM Easement	MH101	MH98		0.65	0.000	1.131	12.55	82.69	**259.99**	0.50	525	1.4	80.5	0.96	**304.10**	**85%**	0.40	191.410	191.008
	MH98A	MH98		0.65	0.000	1.131	10.00	96.92	**304.73**	1.00	525	2.0	14.95	0.13	**430.06**	**71%**	0.15	191.107	190.958
Street A (200)	MH98	MH97	0.52	0.65	0.338	1.469	13.51	78.56	**320.81**	1.00	525	2.0	38.79	0.33	**430.06**	**75%**	0.39	190.928	190.540
	MH97	HEADWALL		0.65	0.000	1.469	13.83	77.26	**315.52**	1.00	525	2.0	11	0.09	**430.06**	**73%**	0.11	190.510	190.400
Street A (200)*	POND	MH96A		0.65	0.000	1.469	10.00	96.92	**66.00**	1.00	375	1.6	5	0.05	**175.33**	**38%**	0.00 0.05	188.600	188.550
	MH96A	MH96		0.65	0.000	0.000	10.05	96.56	**66.00**	0.50	375	1.1	8	0.12	**123.98**	**53%**	0.04	188.470	188.430
Site to Williams																			
Street B (201)	MH70	MH71		0.65	0.000	0.000	10.00	96.92	**0.00**	1.00	450	1.8	66.02	0.61	**285.11**	**0%**	0.66	189.730	189.070
Park (205)	MH71A	MH71	1.18	0.35	0.413	0.413	10.00	96.92	**111.28**	1.00	450	1.8	48	0.45	**285.11**	**39%**	0.48	189.570	189.090
Street A(204)	MH99A	MH99		0.65	0.000	0.000	10.00	96.92	**0.00**	1.00	450	1.8	92.77	0.86	**285.11**	**0%**	0.93	191.288	190.360
Street A (204)	MH99	MH71	0.89	0.65	0.579	0.579	10.00	96.92	**155.87**	1.00	450	1.8	39	0.36	**285.11**	**55%**	0.39	189.510	189.120
Street B to William	MH71	MH73		0.65	0.000	0.992	10.61	92.97	**256.25**	1.00	450	1.8	40	0.37	**285.11**	**90%**	0.40	189.040	188.640

CROZIER CONSULTING ENGINEERS

PROJECT: 452 Raglan Street
PROJECT No.: 1432-4701
FILE: Storm Sewer Design

IndigO2 - 452 Raglan Street

5 YEAR - STORM SEWER DESIGN MODEL

PROJECT No.: 0218-5833
DESIGN: AC
CHECK: RA/JP
DATE: December 23, 2021

FREQUENCY		5 YEARS - Collingwood IDF			100 YEARS - Collingwood IDF		
5 YEARS	Coef. A=	27.7	Coef. B=	-0.699	Coef. A=	46.2	Coef. B= -0.699

TIME OF CONCENTRATION 10.00 MANNINGS "n" 0.013

CATCHMENT AREA I.D.	FR MH NO	TO MH NO	AREA (A) (Ha)	RUN-OFF COEFF (C_5)	A x C	Cummul. A x C	TIME OF CONC. (min.)	I (mm/hr)	Q (l/sec)	SLOPE (%)	PIPE DIA. (mm)	VEL. (m/sec)	LENGTH (m)	TIME OF FLOW (min)	CAPACITY (l/sec)	% Capacity	FALL (m)	PIPE INV ELEV. UPPER END	PIPE INV ELEV. LOWER END
PEEL STREET									*Replace exising 300mm sewer with a 375mm sewer										
101	MH96	MH95	0.21	0.45	0.095	0.095	10.17	95.77	**91.16**	0.50	375	1.1	54	0.80	**123.98**	**74%**	0.27	188.363	188.093
102	MH72	MH95	0.56	0.45	0.252	0.252	10.00	96.92	**67.90**	0.50	375	1.1	86.35	1.28	**123.73**	**55%**	0.43	188.430	188.000
-	MH95	MH94	0	0.45	0.000	0.347	11.28	89.07	**151.80**	0.40	450	1.1	55.5	0.82	**180.32**	**84%**	0.22	187.943	187.721
103 & 104	MH94	MH93	0.47	0.45	0.212	0.558	12.10	84.83	**197.58**	0.80	450	1.6	44.45	0.46	**255.15**	**77%**	0.36	187.691	187.335
108	MH92	MH93	1.00	0.45	0.450	0.450	10.00	96.92	**121.25**	0.44	450	1.2	94.76	1.32	**189.81**	**64%**	0.42	187.750	187.330
109	STUB	MH93	0.26	0.45	0.117	0.117	10.00	96.92	**31.52**	4.67	375	3.4	9	0.04	**378.76**	**8%**	0.42	187.750	187.330
-	MH93	MH64	0	0.45	0.000	1.125	12.56	82.63	**324.44**	0.45	600	1.4	64.00	0.74	**409.74**	**79%**	0.28	187.185	186.900
105	MH64	MH63	0.87	0.45	0.392	1.517	13.30	79.41	**400.78**	0.45	675	1.6	38.17	0.41	**560.98**	**71%**	0.17	186.830	186.660
106	MH63	MH62	0.5	0.45	0.225	1.742	13.70	77.76	**442.46**	0.34	675	1.4	50.36	0.61	**488.39**	**91%**	0.17	186.630	186.460
107	MH62	MH61	0.18	0.45	0.081	1.823	14.32	75.41	**448.06**	0.45	675	1.6	38.06	0.40	**561.79**	**80%**	0.17	186.430	186.260
110	STUB	MH61	0.94	0.45	0.423	0.423	10.00	96.92	**113.97**	0.40	450	1.1	10	0.15	**180.32**	**63%**	0.05	186.530	186.480
111	MH61	Outlet	0.44	0.45	0.198	2.444	14.72	73.96	**568.38**	1.15	675	2.5	37.48	0.25	**900.36**	**63%**	0.43	186.230	185.800
WILLIAMS STREET																			
202	MH73	MH74	0.35	0.45	0.158	1.149	10.99	90.75	**289.89**	1.20	450	2.0	47.5	0.40	**312.32**	**93%**	0.57	188.585	188.015
201	MH72	MH74	0.56	0.45	0.252	0.252	10.00	96.92	**67.90**	0.42	375	1.0	78	1.26	**114.04**	**60%**	0.33	188.420	188.090
203	MH74	MH75	0.78	0.45	0.351	1.752	11.39	88.50	**431.03**	0.60	600	1.7	90.48	0.89	**476.54**	**90%**	0.55	187.865	187.320
204	MH75	MH76	0.71	0.45	0.320	2.072	12.28	83.94	**483.39**	0.60	675	1.8	91.34	0.84	**651.09**	**74%**	0.55	187.247	186.699
205	MH76	MH77	0.85	0.45	0.383	2.454	13.12	80.16	**546.87**	0.55	675	1.7	86.05	0.82	**623.22**	**88%**	0.47	186.669	186.196
-	MH77	MH78	0	0.45	0.000	2.454	13.94	76.82	**524.09**	0.30	750	1.4	18.37	0.22	**609.16**	**86%**	0.06	186.121	186.066

CROZIER
CONSULTING ENGINEERS

PROJECT: 452 Raglan Street
PROJECT No.: 1432-4701
FILE: Storm Sewer Design

IndigO2 - 452 Raglan Street

5 YEAR - STORM SEWER DESIGN MODEL

PROJECT No.: 0218-5833
DESIGN: AC
CHECK: RA/JP
DATE: December 23, 2021

FREQUENCY		5 YEARS - Collingwood IDF			100 YEARS - Collingwood IDF		
5 YEARS	Coef. A=	27.7	Coef. B=	-0.699	Coef. A= 46.2	Coef. B=	-0.699

TIME OF CONCENTRATION 10.00 MANNINGS "n" 0.013

CATCHMENT AREA I.D.	FR MH NO	TO MH NO	RUN-OFF AREA (A) (Ha)	RUN-OFF COEFF (C_5)	A x C	Cummul. A x C	TIME OF CONC. (min.)	I (mm/hr)	Q (l/sec)	SLOPE (%)	PIPE DIA. (mm)	VEL. (m/sec)	LENGTH (m)	TIME OF FLOW (min)	CAPACITY (l/sec)	% Capacity	FALL (m)	PIPE INV ELEV. UPPER END	PIPE INV ELEV. LOWER END
206	CB	MH78	0.52	0.45	0.234	0.234	10.00	96.92	**63.05**	2.47	300	2.1	15	0.12	**151.87**	**42%**	0.37	186.670	186.300
207	MH78	Outlet	1.42	0.25	0.355	3.043	14.17	75.98	**642.74**	0.25	825	1.3	76.25	0.95	**718.42**	**89%**	0.19	185.991	185.800

NOTE: Outflow from Pond set to flow equivalent to discharge from the control manhole of the pond.

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Project: 452 Raglan Street
Project No.: 0218-5833
File: Pond SSD
Design by: AC
Date: August 31, 2021

SWM Facility Pond Stage Storage Outflow Calculations

Outlet Structure Dimensions

E.D. Orifice Diameter:	0.15 m
Sewer Control Orifice Invert Elevation:	188.64 m
V- Notch Weir Angle (degrees)	
V-Notch Weir Constant	
V-Notch Weir Invert	
Rectangular Weir Length	0.3 m
Rectangular Weir Invert Elevation	190.5 m
Spillway Elev.	191.20 m
Spillway Bot. Width	1 m
Trap Side Slopes	10%

Pond Dimensions				Outlet Structure Discharge						
Elev. (m)	Depth Above Orifice (m)	Area (sqm)	Cumulative Storage Volume (cu.m)	ED Orifice Discharge (cu.m/s)	V-Notch Weir Discharge (cu.m/s)	Rectangular Weir Discharge (cu.m/s)	Spillway Width (m)	Spillway Discharge (cu.m/s)	Total Discharge (cu.m/s)	Storage (ha-m)
189.3	0.66	228.73	0	0.038	0.00	0.00	0.00	0.00	**0.0383**	**0.000**
189.5	0.86	277.73	51	0.044	0.00	0.00	0.00	0.00	0.0444	0.005
189.7	1.06	330.51	111	0.050	0.00	0.00	0.00	0.00	**0.0497**	**0.011**
189.9	1.26	387.53	183	0.055	0.00	0.00	0.00	0.00	0.0545	0.018
190.1	1.46	449.04	267	0.059	0.00	0.00	0.00	0.00	**0.0590**	**0.027**
190.3	1.66	514.96	363	0.063	0.00	0.00	0.00	0.00	0.0631	0.036
190.5	1.86	584.33	473	0.067	0.00	0.00	0.00	0.00	**0.0669**	**0.047**
190.7	2.06	656.96	597	0.071	0.00	0.05	0.00	0.00	**0.1200**	**0.060**
190.9	2.26	732.91	736	0.074	0.00	0.14	0.00	0.00	**0.2137**	**0.074**
191.1	2.46	812.23	891	0.077	0.000	0.26	0.00	0.00	0.3339	0.089
191.3	2.66	894.98	1062	0.081	0.000	0.39	1.00	0.06	**0.5337**	**0.106**
191.5	2.86	981.23	1249	0.084	0.000	0.55	1.00	0.30	**0.9379**	**0.125**

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Project Name:	452 Raglan St	**D.A. NAME**	**100**
Project Number:	218-5833	**D.A. AREA**	**6.12**
Date:	19-Oct-21		
By:	AC/RA		

Hydrologic Parameters: CALIB NASHYD Command
Pre Development Drainage Area: Catchment 100

Curve Number Calculation

Soil Types Present:					Impervious Landuses Present			Subtotals	
Type	ID	Hydrologic Group	% Area	Area	Area	CN		Area	A*CN
Sargent	Stsl	A	100	6.12	0.18	98		0.18	17.64
				0				0	0
				0				0	0
				0				0	0
Total Area				6.12					

Pervious Landuses Present:												
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area	A*CN
Stsl	0.00		0.00		0.00		0.00		5.94	62	5.94	368.28
0	0.00		0.00		0.00		0.00		0.00		0.00	0.00
0	0.00		0.00		0.00		0.00		0.00		0.00	0.00
0	0.00		0.00		0.00		0.00		0.00		0.00	0.00
Subtotal Area	0.00		0.00		0.00		0.00		5.94			

Composite Area Calculations	Total Pervious Area	5.94	
	Total Impervious Area	0.18	
	% Impervious	2.9	
	Composite Curve Number	**63.1**	
	Total Area Check	6.12	

Initial Abstraction and Tp Calculations

Initial Abstraction				Composite Runoff Coefficient								
Landuse	IA (mm)	Area (ha)	A * IA	Sargent		0		0		0		
				RC	Area	RC	Area	RC	Area	RC	Area	A*RC
Woodland	10	0	0		0		0		0		0	0
Meadow	8	0	0		0		0		0		0	0
Wetland	16	0	0		0		0		0		0	0
Lawn	5	0	0		0		0		0		0	0
Cultivated	7	5.94	41.58	0.22	5.94		0		0		0	1.31
Impervious	2	0.18	0.36	0.90	0.18		0		0		0	0.16
Composite IA		6.12	6.85294	Composite Runoff Coefficient								0.24

Time to Peak Inputs						Uplands			Bransby Williams		Airport	
Flow Path Description	Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
Sheet	100	1.05	1.05%	2.7	0.28	0.10	0.07	0.07	0.32	0.22	0.96	0.64
Ditch	300	2.62	0.87%	4.6	0.43	0.19	0.13	0.13				

Appropriate calculated time to peak:	**0.64**	Appropriate Method:	Airport

Project Name:	452 Raglan St	**D.A. NAME**	**200**
Project Number:	218-5833	**D.A. AREA (ha)**	**0.52**
Date:	19-Oct-21		
By:	AC/RA		

Hydrologic Parameters: CALIB STANDHYD Command
Post Development Drainage Area: Catchment 200

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Sargent Gravelly Sandy Lo	SGSL	A	100	0.52
				0
				0
				0
Total Area Check				0.52

Impervious Landuses Present:												
	Roadway		Sidewalk		Driveway		Building		SWMF		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area	A*CN
SGSL	0.083358	98	0.03	98	0.02	98	0.14	98	0.042	98	0.31	30.316
0		98		98		98		98		98	0	0
0		98		98		98		98		98	0	0
0		98		98		98		98		98	0	0
Subtotal Area	0.08		0.027786		0.02		0.14		0.042			

Pervious Landuses Present:												
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area	A*CN
SGSL	0		0		0		0.21	69	0		0.21	14.535
0	0		0		0		0		0		0	0
0	0		0		0		0		0		0	0
0	0		0		0		0		0		0	0
Subtotal Area	0		0		0		0.21		0			

	Pervious Area Calculations	Total Pervious Area	0.2107
		Composite Pervious Curve Number	69
	Impervious Area Calculations	Total Directly Connected Area	0.17
		Total Indirectly Connected Area	0.14
		Total Impervious Area	0.31
		% X imp	**32.6**
		% T imp	**59.5**
		Total Area Check	0.52

Initial Abstraction and Tp Calculations

Landuse	IA (mm)	Area (ha)	A * IA
Woodland	10	0	0
Meadow	8	0	0
Wetland	16	0	0
Lawn	5	0.21	1.05
Cultivated	7	0	0

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	**5.0**	**2**	30	**0.25**
Impervious	**2.0**	**2**	30	**0.013**

Project Name:	452 Raglan St	**D.A. NAME**	**201**
Project Number:	218-5833	**D.A. AREA (ha)**	**0.99**
Date:	19-Oct-21		
By:	AC/RA		

Hydrologic Parameters: CALIB STANDHYD Command
Post Development Drainage Area: Catchment 201

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Sargent Gravelly Sandy Lo	SGSL	A	100	0.99
				0
				0
				0
Total Area Check				0.99

Impervious Landuses Present:												
	Roadway		Sidewalk		Driveway		Building		SWMF		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area	A*CN
SGSL	0.16	98	0.05	98	0.05	98	0.32	98		98	0.58	56.644
0		98		98		98		98		98	0	0
0		98		98		98		98		98	0	0
0		98		98		98		98		98	0	0
Subtotal Area	0.16		0.0519		0.05		0.32		0			

Pervious Landuses Present:												
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area	A*CN
SGSL	0		0		0		0.41	69	0		0.41	28.428
0	0		0		0		0		0		0	0
0	0		0		0		0		0		0	0
0	0		0		0		0		0		0	0
Subtotal Area	0		0		0		0.41		0			

Pervious Area Calculations	Total Pervious Area	0.412	
	Composite Pervious Curve Number	69	
Impervious Area Calculations	Total Directly Connected Area	0.26	
	Total Indirectly Connected Area	0.32	
	Total Impervious Area	0.58	
	% X imp	**26.1**	
	% T imp	**58.4**	
	Total Area Check	0.99	

Initial Abstraction and Tp Calculations

Landuse	IA (mm)	Area (ha)	A * IA
Woodland	10	0	0
Meadow	8	0	0
Wetland	16	0	0
Lawn	5	0.41	2.06
Cultivated	7	0	0

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	**5.0**	**2**	31	**0.25**
Impervious	**2.0**	**2**	31	**0.013**

Project Name:	452 Raglan St	**D.A. NAME**	**202**
Project Number:	218-5833	**D.A. AREA (ha)**	**0.75**
Date:	19-Oct-21		
By:	AC/RA		

Hydrologic Parameters: CALIB STANDHYD Command
Post Development Drainage Area: Catchment 202

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Sargent Gravelly Sandy Lo	SGSL	A	100	0.75
				0
				0
				0
Total Area Check				0.75

Impervious Landuses Present:												
	Roadway		Sidewalk		Driveway		Building		SWMF		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha	CN	Area	A*CN
SGSL	0.11	98	0.04	98	0.05	98	0.27	98		98	0.46	45.178
0		98		98		98		98		98	0	0
0		98		98		98		98		98	0	0
0		98		98		98		98		98	0	0
Subtotal Area	0.11		0.036		0.05		0.27		0			

Pervious Landuses Present:												
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha	CN	Area	A*CN
SGSL	0		0		0		0.29	69	0		0.29	19.941
0	0		0		0		0		0		0	0
0	0		0		0		0		0		0	0
0	0		0		0		0		0		0	0
Subtotal Area	0		0		0		0.29		0			

	Pervious Area Calculations	Total Pervious Area	0.289
		Composite Pervious Curve Number	69
	Impervious Area Calculations	Total Directly Connected Area	0.19
		Total Indirectly Connected Area	0.27
		Total Impervious Area	0.46
		% X imp	**25.2**
		% T imp	**61.5**
		Total Area Check	0.75

Initial Abstraction and Tp Calculations

Landuse	IA (mm)	Area (ha)	A * IA
Woodland	10	0	0
Meadow	8	0	0
Wetland	16	0	0
Lawn	5	0.29	1.45
Cultivated	7	0	0

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	**5.0**	**2**	30	**0.25**
Impervious	**2.0**	**2**	30	**0.013**

Project Name:	452 Raglan St	**D.A. NAME**	**203**
Project Number:	218-5833	**D.A. AREA (ha)**	**1.26**
Date:	19-Oct-21		
By:	AC/RA		

Hydrologic Parameters: CALIB STANDHYD Command
Post Development Drainage Area: Catchment 203

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Sargent Gravelly Sandy Lo	SGSL	A	100	1.26
				0
				0
				0
Total Area Check				1.26

Impervious Landuses Present:												
	Roadway		Sidewalk		Driveway		Building		SWMF		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area	A*CN
SGSL	0.25	98	0.08	98	0.05	98	0.43	98		98	0.80	78.792
0		98		98		98		98		98	0	0
0		98		98		98		98		98	0	0
0		98		98		98		98		98	0	0
Subtotal Area	0.25		0.0819		0.05		0.43		0			

Pervious Landuses Present:												
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area	A*CN
SGSL	0		0		0		0.46	69	0		0.46	31.464
0	0		0		0		0		0		0	0
0	0		0		0		0		0		0	0
0	0		0		0		0		0		0	0
Subtotal Area	0		0		0		0.46		0			

Pervious Area Calculations	Total Pervious Area	0.456	
	Composite Pervious Curve Number	69	
Impervious Area Calculations	Total Directly Connected Area	0.38	
	Total Indirectly Connected Area	0.43	
	Total Impervious Area	0.80	
	% X imp	30.0	
	% T imp	63.8	
	Total Area Check	1.26	

Initial Abstraction and Tp Calculations

Landuse	IA (mm)	Area (ha)	A * IA
Woodland	10	0	0
Meadow	8	0	0
Wetland	16	0	0
Lawn	5	0.46	2.28
Cultivated	7	0	0

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	2	30	0.25
Impervious	2.0	2	30	0.013

Project Name:	452 Raglan St	**D.A. NAME**	**204**
Project Number:	218-5833	**D.A. AREA (ha)**	**0.89**
Date:	19-Oct-21		
By:	AC/RA		

Hydrologic Parameters: CALIB STANDHYD Command
Post Development Drainage Area: Catchment 204

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Sargent Gravelly Sandy Lo	SGSL	A	100	0.89
				0
				0
				0
Total Area Check				0.89

Impervious Landuses Present:												
	Roadway		Sidewalk		Driveway		Building		SWMF		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area	A*CN
SGSL	0.125721	98	0.04	98	0.06	98	0.296	98		98	0.52	51.433
0		98		98		98		98		98	0	0
0		98		98		98		98		98	0	0
0		98		98		98		98		98	0	0
Subtotal Area	0.13		0.041907		0.06		0.30		0			

Pervious Landuses Present:												
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area	A*CN
SGSL	0		0		0		0.37	69	0		0.37	25.197
0	0		0		0		0		0		0	0
0	0		0		0		0		0		0	0
0	0		0		0		0		0		0	0
Subtotal Area	0		0		0		0.37		0			

Pervious Area Calculations	Total Pervious Area	0.3652	
	Composite Pervious Curve Number	**69**	
Impervious Area Calculations	Total Directly Connected Area	0.23	
	Total Indirectly Connected Area	0.30	
	Total Impervious Area	0.52	
	% X imp	**25.7**	
	% T imp	**59.0**	
	Total Area Check	0.89	

Initial Abstraction and Tp Calculations

Landuse	IA (mm)	Area (ha)	A * IA
Woodland	10	0	0
Meadow	8	0	0
Wetland	16	0	0
Lawn	5	0.37	1.83
Cultivated	7	0	0

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	**5.0**	**2**	30	**0.25**
Impervious	**2.0**	**2**	30	**0.013**

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Project Name:	452 Raglan Street	**D.A. NAME**	**205**
Project Number:	218-5833	**D.A. AREA (ha)**	**1.18**
Date:	19-Oct-21		
By:	AC/RA		

Hydrologic Parameters: CALIB NASHYD Command
Pre Development Drainage Area: Catchment 205

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Sargent Gravelly Sandy Loam	SGSL	A	100	1.18
				0
				0
				0
Total Area Check				1.18

Impervious Landuses Present:												
	Roadway		Sidewalk		Driveway		Building		SWMF		Subtotals	
Soils	Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area	CN	Area	A*CN
SGSL	0	98		98		98	0.12	98		98	0.12	11.76
0		98		98		98		98		98	0	0
0		98		98		98		98		98	0	0
0		98		98		98		98		98	0	0
Subtotal Area	0		0		0		0.12		0			

Pervious Landuses Present:												
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotals	
Soils	Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area	CN	Area	A*CN
SGSL	0.00	73	0.00		0.00		1.06	69	0.00		1.06	73.14
0	0.00		0.00		0.00		0.00		0.00		0.00	0.00
0	0.00		0.00		0.00		0.00		0.00		0.00	0.00
0	0.00		0.00		0.00		0.00		0.00		0.00	0.00
Subtotal Area	0.00		0.00		0.00		1.06		0.00			

Composite Area Calculations	Total Pervious Area	1.06	
	Total Impervious Area	0.12	
	% Impervious	10.17	
	Composite Curve Number	**71.9**	
	Total Area Check	1.18	

Initial Abstraction and Tp Calculations

Initial Abstraction				Composite Runoff Coefficient								
				Sargent Gravelly		0		0		0		
Landuse	IA (mm)	Area (ha)	A * IA	RC	Area	RC	Area	RC	Area	RC	Area	A*RC
Woodland	10	0	0		0		0		0		0	0.00
Meadow	8	0	0		0		0		0		0	0
Wetland	16	0	0		0		0		0		0	0
Lawn	5	1.06	5.3	0.15	1.06		0		0		0	0.16
Cultivated	7	0	0		**0**		0		0		0	0
Impervious	2	0.12	0.24	0.90	0.12		0		0		0	0.11
Composite IA		1.18	**4.69**	Composite Runoff Coefficient								0.23

Time to Peak Inputs						Uplands			Bransby Williams		Airport	
Flow Path Description	Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
SHEET	70	0.5	0.71%	2.3	0.19	0.10	0.07	0.07	0.07	0.05	0.44	0.30
CHANNEL	0	0	#DIV/0!	4.6	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!				

Appropriate calculated time to peak:	**0.30**	Appropriate Method:	Airport

CROZIER CONSULTING ENGINEERS

Project Name:	452 Raglan Street
Project Number:	218-5833
Date:	19-Oct-21
By:	AC/RA

D.A. NAME	**206**
D.A. AREA (ha)	**0.53**

Hydrologic Parameters: CALIB NASHYD Command
Pre Development Drainage Area: Catchment 206

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Sargent Gravelly Sandy Loam	SGSL	A	100	0.53
				0
				0
				0
Total Area Check				0.53

Impervious Landuses Present:												
	Roadway		Sidewalk		Driveway		Building		SWMF		Subtotals	
Soils	Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area	CN	Area	A*CN
SGSL	0	98		98		98		98		98	0	0
0		98		98		98		98		98	0	0
0		98		98		98		98		98	0	0
0		98		98		98		98		98	0	0
Subtotal Area	0		0		0		0		0			

Pervious Landuses Present:												
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotals	
Soils	Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area	CN	Area	A*CN
SGSL	0.00	73	0.00		0.00		0.53	69	0.00		0.53	36.57
0	0.00		0.00		0.00		0.00		0.00		0.00	0.00
0	0.00		0.00		0.00		0.00		0.00		0.00	0.00
0	0.00		0.00		0.00		0.00		0.00		0.00	0.00
Subtotal Area	0.00		0.00		0.00		0.53		0.00			

Composite Area Calculations	Total Pervious Area	0.53
	Total Impervious Area	0.00
	% Impervious	0.00
	Composite Curve Number	**69.0**
	Total Area Check	0.53

Initial Abstraction and Tp Calculations

Initial Abstraction				Composite Runoff Coefficient								
				Sargent Gravelly		0		0		0		
Landuse	IA (mm)	Area (ha)	A * IA	RC	Area	RC	Area	RC	Area	RC	Area	A*RC
Woodland	10	0	0		0		0		0		0	0.00
Meadow	8	0	0		0		0		0		0	0
Wetland	16	0	0		0		0		0		0	0
Lawn	5	0.53	2.65	0.15	0.53		0		0		0	0.08
Cultivated	7	0	0		**0**		0		0		0	0
Impervious	2	0	0	0.90	0.00		0		0		0	0.00
Composite IA		0.53	**5.00**	Composite Runoff Coefficient								0.15

Time to Peak Inputs						Uplands			Bransby Williams		Airport	
Flow Path Description	Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
SHEET	100	1.9	5.00%	2.3	0.51	0.05	0.04	0.04	0.15	0.10	0.57	0.38
CHANNEL	60	0.5	1%	4.6	0.41992	0.03969	0.0265923	0.06				

Appropriate calculated time to peak:	**0.38**	Appropriate Method:	Airport

```
00001> 2     Metric units
00002> *#************************************************************************
00003> *#  Project Name: [452 Raglan]    Project Number: [1432-4701]
00004> *#  Date         : October 27, 2021
00005> *#  Modeller     : [AC/RA]
00006> *#  Company      : C.F. Crozier & Associates Inc.
00007> *#  License #    :  3737016
00008> *#************************************************************************
00009> *#  Filename     :  Post_CHI
00010> *#  452 Raglan - Post Development - CHI Storms
00011> *#************************************************************************
00012>
00013> *#************************************************************************
00014> START              TZERO=[0.0],  METOUT=[2],  NSTORM=[0],  NRUN=[0]
00015> *%                  [  ] <--storm filename, one per line for NSTORM time
00016> *#************************************************************************
00017> *%-----------------|---------------------------------------------------|
00018> *#-----------------|---------------- RAGLAN DRAINAGE MODEL ----------------|
00019> *#************************************************************************
00020>
00021> *#************************************************************************
00022> *#                          25mm Event (4-hour Chicago)
00023> *#************************************************************************
00024> *%-----------------|---------------------------------------------------|
00025> CHICAGO STORM      IUNITS=[2],  TD=[4](hrs), TPRAT=[0.333],  CSDT=[5](min),
00026>                    ICASEcs=[1],
00027>                     A=[568.700],  B=[6.662], and C=[0.819],
00028> *#************************************************************************
00029> *#-----------------|---------------------------------------------------|
00030> *#-----------------|-------------Pre-development to Pretty River---------------|
00031> CALIB NASHYD       ID=[1], NHYD=["PRE"], DT=[1]min, AREA=[6.12](ha),
00032>                    DWF=[0](cms),  CN/C=[63.1], IA=[6.12](mm),
00033>                    N=[3], TP=[0.64]hrs,
00034>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00035> *#-----------------|---------------------------------------------------|
00036> *#-----------------|----------------POST DEVELOPMENT----------------------|
00037> *#-----------------|-----------------To Pond-----------------------|
00038> CALIB STANDHYD     ID=[2], NHYD=["202"], DT=[1](min), AREA=[0.75](ha),
00039>                    XIMP=[0.252], TIMP=[0.615], DWF=[0](cms), LOSS=[2],
00040>                    SCS curve number CN=[69],
00041>                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00042>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
00043>                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00044>                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
00045>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00046> *#-----------------|---------------------------------------------------|
00047> CALIB STANDHYD     ID=[3], NHYD=["203"], DT=[1](min), AREA=[1.26](ha),
00048>                    XIMP=[0.30], TIMP=[0.638], DWF=[0](cms), LOSS=[2],
00049>                    SCS curve number CN=[69],
00050>                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00051>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
00052>                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00053>                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
00054>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00055> *#-----------------|---------------------------------------------------|
00056> CALIB STANDHYD     ID=[5], NHYD=["201"], DT=[1](min), AREA=[0.99](ha),
00057>                    XIMP=[0.261], TIMP=[0.584], DWF=[0](cms), LOSS=[2],
00058>                    SCS curve number CN=[69],
00059>                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00060>                                         LGP=[31](m), MNP=[0.25], SCP=[0](min),
00061>                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00062>                                         LGI=[31](m), MNI=[0.013], SCI=[0](min),
00063>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00064> *#-----------------|---------------------Total to Overland Flow Channel------|
00065> ADD HYD            IDsum=[4], NHYD=["Total Ovl-Flow"], IDs to add=[2,3,5](maxim
00066> *#-----------------|---------------------------------------------------|
00067> CALIB STANDHYD     ID=[6], NHYD=["200"], DT=[1](min), AREA=[0.52](ha),
00068>                    XIMP=[0.326], TIMP=[0.595], DWF=[0](cms), LOSS=[2],
00069>                    SCS curve number CN=[69],
00070>                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00071>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
00072>                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00073>                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
00074>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00075> *#-----------------|---------------------Total to Pond-----------------------|
00076> ADD HYD            IDsum=[7], NHYD=["Total"], IDs to add=[4,6](maximum ten)
00077> *#-----------------|---------------------------------------------------|
00078> *#-----------------|-----------------------SWM-------------------------|
00079> ROUTE RESERVOIR     IDout=[2],   NHYD=["Dry Pond"],  IDin=[7],
00080>                    RDT=[1](min),
00081>                          TABLE of ( OUTFLOW-STORAGE ) values
00082>                                     (cms) - (ha-m)
00083>                                   [   0.0 ,  0.0 ]
00084>                                   [ 0.0383, 0.000]
00085>                                   [ 0.0444, 0.005]
00086>                                   [ 0.0497, 0.011]
00087>                                   [ 0.0545, 0.018]
00088>                                   [ 0.0590, 0.027]
00089>                                   [ 0.0631, 0.036]
00090>                                   [ 0.0669, 0.047]
00091>                                   [ 0.1200, 0.060]
00092>                                   [ 0.2137, 0.074]
00093>                                   [ 0.3339, 0.089]
00094>                                   [ 0.5337, 0.106]
00095>                                   [ 0.9379, 0.125]
00096>                                   [   -1  ,  -1  ]  (max twenty pts)
00097>                          IDovf=[3], NHYDovf=["Dry Pond Ovf"]
00098> *#-----------------|---------------------------------------------------|
00099>
00100> *#-----------------|-------------------To Williams Sewer-------------------|
00101> CALIB NASHYD       ID=[4], NHYD=["205"], DT=[1]min, AREA=[1.18](ha),
00102>                    DWF=[0](cms),  CN/C=[71.9], IA=[4.69](mm),
00103>                    N=[3], TP=[0.30]hrs,
00104>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00105> *#-----------------|---------------------------------------------------|
00106> CALIB STANDHYD     ID=[5], NHYD=["204"], DT=[1](min), AREA=[0.89](ha),
00107>                    XIMP=[0.257], TIMP=[0.59], DWF=[0](cms), LOSS=[2],
00108>                    SCS curve number CN=[69],
00109>                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00110>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
00111>                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00112>                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
00113>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00114> *#-----------------|---------------------Total to William St Sewer-------------
00115> ADD HYD            IDsum=[8], NHYD=["Total"], IDs to add=[4,5](maximum ten)
00116> *#-----------------|---------------------------------------------------
00117> *#-----------------|-------------------Backlots to Pretty River---------------
00118> CALIB NASHYD       ID=[9], NHYD=["206"], DT=[1]min, AREA=[0.53](ha),
00119>                    DWF=[0](cms),  CN/C=[69], IA=[5.00](mm),
00120>                    N=[3], TP=[0.38]hrs,
00121>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00122>
00123> *#-----------------|---------------------Total flows into Pretty River---------
00124> ADD HYD            IDsum=[10], NHYD=["Total"], IDs to add=[9,3](maximum ten)
00125>
00126>
00127> *#************************************************************************
00128> *#************************************************************************
00129> *#                            2 Year Event (4-hour Chicago)
00130> *#************************************************************************
00131> *%-----------------|---------------------------------------------------|
00132> CHICAGO STORM      IUNITS=[2],  TD=[4](hrs), TPRAT=[0.333],  CSDT=[5](min),
00133>                    ICASEcs=[1],
00134>                     A=[807.44],  B=[6.75], and C=[0.828],
00135> *#************************************************************************
00136> *#-----------------|---------------------------------------------------|
00137> *#-----------------|-------------Pre-development to Pretty River---------------|
00138> CALIB NASHYD       ID=[1], NHYD=["PRE"], DT=[1]min, AREA=[6.12](ha),
00139>                    DWF=[0](cms),  CN/C=[63.1], IA=[6.12](mm),
00140>                    N=[3], TP=[0.64]hrs,
00141>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00142> *#-----------------|---------------------------------------------------|
00143> *#-----------------|----------------------POST DEVELOPMENT-----------------------|
00144> *#-----------------|----------------------To Pond-----------------------|
00145> CALIB STANDHYD     ID=[2], NHYD=["202"], DT=[1](min), AREA=[0.75](ha),
00146>                    XIMP=[0.252], TIMP=[0.615], DWF=[0](cms), LOSS=[2],
00147>                    SCS curve number CN=[69],
00148>                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00149>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
00150>                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00151>                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
00152>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00153> *#-----------------|---------------------------------------------------|
00154> CALIB STANDHYD     ID=[3], NHYD=["203"], DT=[1](min), AREA=[1.26](ha),
00155>                    XIMP=[0.30], TIMP=[0.638], DWF=[0](cms), LOSS=[2],
00156>                    SCS curve number CN=[69],
00157>                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00158>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
00159>                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00160>                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
00161>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00162> *#-----------------|---------------------------------------------------|
00163> CALIB STANDHYD     ID=[5], NHYD=["201"], DT=[1](min), AREA=[0.99](ha),
00164>                    XIMP=[0.261], TIMP=[0.584], DWF=[0](cms), LOSS=[2],
00165>                    SCS curve number CN=[69],
00166>                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00167>                                         LGP=[31](m), MNP=[0.25], SCP=[0](min),
00168>                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00169>                                         LGI=[31](m), MNI=[0.013], SCI=[0](min),
00170>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00171> *#-----------------|---------------------Total to Overland Flow Channel------|
00172> ADD HYD            IDsum=[4], NHYD=["Total Ovl-Flow"], IDs to add=[2,3,5](maxim
00173> *#-----------------|---------------------------------------------------|
00174> CALIB STANDHYD     ID=[6], NHYD=["200"], DT=[1](min), AREA=[0.52](ha),
00175>                    XIMP=[0.326], TIMP=[0.595], DWF=[0](cms), LOSS=[2],
00176>                    SCS curve number CN=[69],
00177>                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00178>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
00179>                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00180>                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
00181>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00182> *#-----------------|---------------------Total to Pond-----------------------|
00183> ADD HYD            IDsum=[7], NHYD=["Total"], IDs to add=[4,6](maximum ten)
00184> *#-----------------|---------------------------------------------------|
00185> *#-----------------|-----------------------SWM-------------------------|
00186> ROUTE RESERVOIR     IDout=[2],   NHYD=["Dry Pond"],  IDin=[7],
00187>                    RDT=[1](min),
00188>                          TABLE of ( OUTFLOW-STORAGE ) values
00189>                                     (cms) - (ha-m)
00190>                                   [   0.0 ,  0.0 ]
00191>                                   [ 0.0383, 0.000]
00192>                                   [ 0.0444, 0.005]
00193>                                   [ 0.0497, 0.011]
00194>                                   [ 0.0545, 0.018]
00195>                                   [ 0.0590, 0.027]
00196>                                   [ 0.0631, 0.036]
00197>                                   [ 0.0669, 0.047]
00198>                                   [ 0.1200, 0.060]
00199>                                   [ 0.2137, 0.074]
00200>                                   [ 0.3339, 0.089]
00201>                                   [ 0.5337, 0.106]
00202>                                   [ 0.9379, 0.125]
00203>                                   [   -1  ,  -1  ]  (max twenty pts)
00204>                          IDovf=[3], NHYDovf=["Dry Pond Ovf"]
00205> *#-----------------|---------------------------------------------------|
00206>
00207> *#-----------------|-------------------To Williams Sewer-------------------|
00208> CALIB NASHYD       ID=[4], NHYD=["205"], DT=[1]min, AREA=[1.18](ha),
00209>                    DWF=[0](cms),  CN/C=[71.9], IA=[4.69](mm),
00210>                    N=[3], TP=[0.30]hrs,
00211>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00212> *#-----------------|---------------------------------------------------|
00213> CALIB STANDHYD     ID=[5], NHYD=["204"], DT=[1](min), AREA=[0.89](ha),
00214>                    XIMP=[0.257], TIMP=[0.59], DWF=[0](cms), LOSS=[2],
00215>                    SCS curve number CN=[69],
00216>                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00217>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
00218>                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00219>                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
00220>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00221> *#-----------------|---------------------Total to William St Sewer-------------
00222> ADD HYD            IDsum=[8], NHYD=["Total"], IDs to add=[4,5](maximum ten)
00223> *#-----------------|---------------------------------------------------
00224> *#-----------------|-------------------Backlots to Pretty River---------------
00225> CALIB NASHYD       ID=[9], NHYD=["206"], DT=[1]min, AREA=[0.53](ha),
00226>                    DWF=[0](cms),  CN/C=[69], IA=[5.00](mm),
00227>                    N=[3], TP=[0.38]hrs,
00228>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00229>
00230> *#-----------------|---------------------Total flows into Pretty River---------
00231> ADD HYD            IDsum=[10], NHYD=["Total"], IDs to add=[9,3](maximum ten)
00232> *#************************************************************************
00233> *#                          5 Year Event (4-hour Chicago)
00234> *#************************************************************************
00235> *%-----------------|---------------------------------------------------|
00236> CHICAGO STORM      IUNITS=[2],  TD=[4](hrs), TPRAT=[0.333],  CSDT=[5](min),
00237>                    ICASEcs=[1],
00238>                     A=[1135.4],  B=[7.50], and C=[0.841],
00239> *#************************************************************************
00240> *#-----------------|---------------------------------------------------|
00241> *#-----------------|-------------Pre-development to Pretty River---------------|
00242> CALIB NASHYD       ID=[1], NHYD=["PRE"], DT=[1]min, AREA=[6.12](ha),
00243>                    DWF=[0](cms),  CN/C=[63.1], IA=[6.12](mm),
00244>                    N=[3], TP=[0.64]hrs,
00245>                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00246> *#-----------------|---------------------------------------------------|
00247> *#-----------------|----------------------POST DEVELOPMENT-----------------------|
00248> *#-----------------|----------------------To Pond-----------------------|
00249> CALIB STANDHYD     ID=[2], NHYD=["202"], DT=[1](min), AREA=[0.75](ha),
00250>                    XIMP=[0.252], TIMP=[0.615], DWF=[0](cms), LOSS=[2],
00251>                    SCS curve number CN=[69],
00252>                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00253>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
00254>                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00255>                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
00256>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00257> *#-----------------|---------------------------------------------------|
00258> CALIB STANDHYD     ID=[3], NHYD=["203"], DT=[1](min), AREA=[1.26](ha),
00259>                    XIMP=[0.30], TIMP=[0.638], DWF=[0](cms), LOSS=[2],
00260>                    SCS curve number CN=[69],
00261>                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00262>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
00263>                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00264>                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
00265>                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00266> *#-----------------|---------------------------------------------------|
00267> CALIB STANDHYD     ID=[5], NHYD=["201"], DT=[1](min), AREA=[0.99](ha),
00268>                    XIMP=[0.261], TIMP=[0.584], DWF=[0](cms), LOSS=[2],
00269>                    SCS curve number CN=[69],
00270>                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
```

```
00271>                                    LGP=[31](m), MNP=[0.25], SCP=[0](min),
00272>                  Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00273>                                    LGI=[31](m), MNI=[0.013], SCI=[0](min),
00274>                  RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00275> *#-----------------|---------------------Total to Overland Flow Channel------|
00276> ADD HYD            IDsum=[4], NHYD=["Total Ovl-Flow"], IDs to add=[2,3,5](maxim
00277> *#-----------------|-------------------------------------------------------|
00278> CALIB STANDHYD     ID=[6], NHYD=["200"], DT=[1](min), AREA=[0.52](ha),
00279>                  XIMP=[0.326], TIMP=[0.595], DWF=[0](cms), LOSS=[2],
00280>                  SCS curve number CN=[69],
00281>                  Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00282>                                    LGP=[30](m), MNP=[0.25], SCP=[0](min),
00283>                  Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00284>                                    LGI=[30](m), MNI=[0.013], SCI=[0](min),
00285>                  RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00286> *#-----------------|---------------------Total to Pond-----------------------|
00287> ADD HYD            IDsum=[7], NHYD=["Total"], IDs to add=[4,6](maximum ten)
00288> *#-----------------|-------------------------------------------------------|
00289> *#-----------------|----------------------SWM--------------------------|
00290> ROUTE RESERVOIR    IDout=[2],   NHYD=["Dry Pond"],  IDin=[7],
00291>                  RDT=[1](min),
00292>                        TABLE of ( OUTFLOW-STORAGE ) values
00293>                                   (cms) - (ha-m)
00294>                                 [   0.0 ,  0.0 ]
00295>                                 [ 0.0383, 0.000]
00296>                                 [ 0.0444, 0.005]
00297>                                 [ 0.0497, 0.011]
00298>                                 [ 0.0545, 0.018]
00299>                                 [ 0.0590, 0.027]
00300>                                 [ 0.0631, 0.036]
00301>                                 [ 0.0669, 0.047]
00302>                                 [ 0.1200, 0.060]
00303>                                 [ 0.2137, 0.074]
00304>                                 [ 0.3339, 0.089]
00305>                                 [ 0.5337, 0.106]
00306>                                 [ 0.9379, 0.125]
00307>                                 [   -1  ,  -1  ]    (max twenty pts)
00308>                  IDovf=[3], NHYDovf=["Dry Pond Ovf"]
00309> *#-----------------|-------------------------------------------------------|
00310>
00311> *#-----------------|-------------------To Williams Sewer--------------------|
00312> CALIB NASHYD       ID=[4], NHYD=["205"], DT=[1]min, AREA=[1.18](ha),
00313>                  DWF=[0](cms),  CN/C=[71.9], IA=[4.69](mm),
00314>                  N=[3], TP=[0.30]hrs,
00315>                  RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00316> *#-----------------|-------------------------------------------------------|
00317> CALIB STANDHYD     ID=[5], NHYD=["204"], DT=[1](min), AREA=[0.89](ha),
00318>                  XIMP=[0.257], TIMP=[0.59], DWF=[0](cms), LOSS=[2],
00319>                  SCS curve number CN=[69],
00320>                  Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00321>                                    LGP=[30](m), MNP=[0.25], SCP=[0](min),
00322>                  Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00323>                                    LGI=[30](m), MNI=[0.013], SCI=[0](min),
00324>                  RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00325> *#-----------------|---------------------Total to William St Sewer-------------
00326> ADD HYD            IDsum=[8], NHYD=["Total"], IDs to add=[4,5](maximum ten)
00327> *#-----------------|-------------------------------------------------------
00328> *#-----------------|-----------------Backlots to Pretty River------------------
00329> CALIB NASHYD       ID=[9], NHYD=["206"], DT=[1]min, AREA=[0.53](ha),
00330>                  DWF=[0](cms),  CN/C=[69], IA=[5.00](mm),
00331>                  N=[3], TP=[0.38]hrs,
00332>                  RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00333>
00334> *#-----------------|---------------------Total flows into Pretty River---------
00335> ADD HYD            IDsum=[10], NHYD=["Total"], IDs to add=[9,3](maximum ten)
00336> *#*************************************************************************
00337> *#*************************************************************************
00338> *#                        10 Year Event (4-hour Chicago)
00339> *#*************************************************************************
00340> *%-----------------|-------------------------------------------------------|
00341> CHICAGO STORM      IUNITS=[2],  TD=[4](hrs), TPRAT=[0.333],  CSDT=[5](min),
00342>                  ICASEcs=[1],
00343>                   A=[1387],  B=[7.97], and C=[0.852],
00344> *%-----------------|-------------------------------------------------------|
00345> *#*************************************************************************
00346> *#-----------------|-------------------------------------------------------|
00347> *#-----------------|-------------Pre-development to Pretty River---------------|
00348> CALIB NASHYD       ID=[1], NHYD=["PRE"], DT=[1]min, AREA=[6.12](ha),
00349>                  DWF=[0](cms),  CN/C=[63.1], IA=[6.12](mm),
00350>                  N=[3], TP=[0.64]hrs,
00351>                  RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00352> *#-----------------|-------------------------------------------------------|
00353> *#-----------------|---------------------POST DEVELOPMENT--------------------|
00354> *#-----------------|---------------------To Pond-----------------------|
00355> CALIB STANDHYD     ID=[2], NHYD=["202"], DT=[1](min), AREA=[0.75](ha),
00356>                  XIMP=[0.252], TIMP=[0.615], DWF=[0](cms), LOSS=[2],
00357>                  SCS curve number CN=[69],
00358>                  Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00359>                                    LGP=[30](m), MNP=[0.25], SCP=[0](min),
00360>                  Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00361>                                    LGI=[30](m), MNI=[0.013], SCI=[0](min),
00362>                  RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00363> *#-----------------|-------------------------------------------------------|
00364> CALIB STANDHYD     ID=[3], NHYD=["203"], DT=[1](min), AREA=[1.26](ha),
00365>                  XIMP=[0.30], TIMP=[0.638], DWF=[0](cms), LOSS=[2],
00366>                  SCS curve number CN=[69],
00367>                  Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00368>                                    LGP=[30](m), MNP=[0.25], SCP=[0](min),
00369>                  Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00370>                                    LGI=[30](m), MNI=[0.013], SCI=[0](min),
00371>                  RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00372> *#-----------------|-------------------------------------------------------|
00373> CALIB STANDHYD     ID=[5], NHYD=["201"], DT=[1](min), AREA=[0.99](ha),
00374>                  XIMP=[0.261], TIMP=[0.584], DWF=[0](cms), LOSS=[2],
00375>                  SCS curve number CN=[69],
00376>                  Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00377>                                    LGP=[31](m), MNP=[0.25], SCP=[0](min),
00378>                  Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00379>                                    LGI=[31](m), MNI=[0.013], SCI=[0](min),
00380>                  RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00381> *#-----------------|---------------------Total to Overland Flow Channel------|
00382> ADD HYD            IDsum=[4], NHYD=["Total Ovl-Flow"], IDs to add=[2,3,5](maxim
00383> *#-----------------|-------------------------------------------------------|
00384> CALIB STANDHYD     ID=[6], NHYD=["200"], DT=[1](min), AREA=[0.52](ha),
00385>                  XIMP=[0.326], TIMP=[0.595], DWF=[0](cms), LOSS=[2],
00386>                  SCS curve number CN=[69],
00387>                  Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00388>                                    LGP=[30](m), MNP=[0.25], SCP=[0](min),
00389>                  Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00390>                                    LGI=[30](m), MNI=[0.013], SCI=[0](min),
00391>                  RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00392> *#-----------------|---------------------Total to Pond-----------------------|
00393> ADD HYD            IDsum=[7], NHYD=["Total"], IDs to add=[4,6](maximum ten)
00394> *#-----------------|-------------------------------------------------------|
00395> *#-----------------|----------------------SWM--------------------------|
00396> ROUTE RESERVOIR    IDout=[2],   NHYD=["Dry Pond"],  IDin=[7],
00397>                  RDT=[1](min),
00398>                        TABLE of ( OUTFLOW-STORAGE ) values
00399>                                   (cms) - (ha-m)
00400>                                 [   0.0 ,  0.0 ]
00401>                                 [ 0.0383, 0.000]
00402>                                 [ 0.0444, 0.005]
00403>                                 [ 0.0497, 0.011]
00404>                                 [ 0.0545, 0.018]
00405>                                 [ 0.0590, 0.027]
00406>                                 [ 0.0631, 0.036]
00407>                                 [ 0.0669, 0.047]
00408>                                 [ 0.1200, 0.060]
00409>                                 [ 0.2137, 0.074]
00410>                                 [ 0.3339, 0.089]
00411>                                 [ 0.5337, 0.106]
00412>                                 [ 0.9379, 0.125]
00413>                                 [   -1  ,  -1  ]    (max twenty pts)
00414>                  IDovf=[3], NHYDovf=["Dry Pond Ovf"]
00415> *#-----------------|-------------------------------------------------------|
00416>
00417> *#-----------------|-------------------To Williams Sewer--------------------|
00418> CALIB NASHYD       ID=[4], NHYD=["205"], DT=[1]min, AREA=[1.18](ha),
00419>                  DWF=[0](cms),  CN/C=[71.9], IA=[4.69](mm),
00420>                  N=[3], TP=[0.30]hrs,
00421>                  RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00422> *#-----------------|-------------------------------------------------------|
00423> CALIB STANDHYD     ID=[5], NHYD=["204"], DT=[1](min), AREA=[0.89](ha),
00424>                  XIMP=[0.257], TIMP=[0.59], DWF=[0](cms), LOSS=[2],
00425>                  SCS curve number CN=[69],
00426>                  Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00427>                                    LGP=[30](m), MNP=[0.25], SCP=[0](min),
00428>                  Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00429>                                    LGI=[30](m), MNI=[0.013], SCI=[0](min),
00430>                  RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00431> *#-----------------|---------------------Total to William St Sewer-------------
00432> ADD HYD            IDsum=[8], NHYD=["Total"], IDs to add=[4,5](maximum ten)
00433> *#-----------------|-------------------------------------------------------
00434> *#-----------------|-----------------Backlots to Pretty River------------------
00435> CALIB NASHYD       ID=[9], NHYD=["206"], DT=[1]min, AREA=[0.53](ha),
00436>                  DWF=[0](cms),  CN/C=[69], IA=[5.00](mm),
00437>                  N=[3], TP=[0.38]hrs,
00438>                  RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00439>
00440> *#-----------------|---------------------Total flows into Pretty River---------
00441> ADD HYD            IDsum=[10], NHYD=["Total"], IDs to add=[9,3](maximum ten)
00442> *#*************************************************************************
00443> *#*************************************************************************
00444> *#*************************************************************************
00445> *#                          25 Year Event (4-hour Chicago)
00446> *#*************************************************************************
00447> *%-----------------|-------------------------------------------------------|
00448> CHICAGO STORM      IUNITS=[2],  TD=[4](hrs), TPRAT=[0.333],  CSDT=[5](min),
00449>                  ICASEcs=[1],
00450>                   A=[1676.2],  B=[8.30], and C=[0.858],
00451> *%-----------------|-------------------------------------------------------|
00452> *#*************************************************************************
00453> *#-----------------|-------------------------------------------------------|
00454> *#-----------------|-------------Pre-development to Pretty River---------------|
00455> CALIB NASHYD       ID=[1], NHYD=["PRE"], DT=[1]min, AREA=[6.12](ha),
00456>                  DWF=[0](cms),  CN/C=[63.1], IA=[6.12](mm),
00457>                  N=[3], TP=[0.64]hrs,
00458>                  RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00459> *#-----------------|-------------------------------------------------------|
00460> *#-----------------|---------------------POST DEVELOPMENT--------------------|
00461> *#-----------------|---------------------To Pond-----------------------|
00462> CALIB STANDHYD     ID=[2], NHYD=["202"], DT=[1](min), AREA=[0.75](ha),
00463>                  XIMP=[0.252], TIMP=[0.615], DWF=[0](cms), LOSS=[2],
00464>                  SCS curve number CN=[69],
00465>                  Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00466>                                    LGP=[30](m), MNP=[0.25], SCP=[0](min),
00467>                  Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00468>                                    LGI=[30](m), MNI=[0.013], SCI=[0](min),
00469>                  RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00470> *#-----------------|-------------------------------------------------------|
00471> CALIB STANDHYD     ID=[3], NHYD=["203"], DT=[1](min), AREA=[1.26](ha),
00472>                  XIMP=[0.30], TIMP=[0.638], DWF=[0](cms), LOSS=[2],
00473>                  SCS curve number CN=[69],
00474>                  Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00475>                                    LGP=[30](m), MNP=[0.25], SCP=[0](min),
00476>                  Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00477>                                    LGI=[30](m), MNI=[0.013], SCI=[0](min),
00478>                  RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00479> *#-----------------|-------------------------------------------------------|
00480> CALIB STANDHYD     ID=[5], NHYD=["201"], DT=[1](min), AREA=[0.99](ha),
00481>                  XIMP=[0.261], TIMP=[0.584], DWF=[0](cms), LOSS=[2],
00482>                  SCS curve number CN=[69],
00483>                  Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00484>                                    LGP=[31](m), MNP=[0.25], SCP=[0](min),
00485>                  Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00486>                                    LGI=[31](m), MNI=[0.013], SCI=[0](min),
00487>                  RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00488> *#-----------------|---------------------Total to Overland Flow Channel------|
00489> ADD HYD            IDsum=[4], NHYD=["Total Ovl-Flow"], IDs to add=[2,3,5](maxim
00490> *#-----------------|-------------------------------------------------------|
00491> CALIB STANDHYD     ID=[6], NHYD=["200"], DT=[1](min), AREA=[0.52](ha),
00492>                  XIMP=[0.326], TIMP=[0.595], DWF=[0](cms), LOSS=[2],
00493>                  SCS curve number CN=[69],
00494>                  Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00495>                                    LGP=[30](m), MNP=[0.25], SCP=[0](min),
00496>                  Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00497>                                    LGI=[30](m), MNI=[0.013], SCI=[0](min),
00498>                  RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00499> *#-----------------|---------------------Total to Pond-----------------------|
00500> ADD HYD            IDsum=[7], NHYD=["Total"], IDs to add=[4,6](maximum ten)
00501> *#-----------------|-------------------------------------------------------|
00502> *#-----------------|----------------------SWM--------------------------|
00503> ROUTE RESERVOIR    IDout=[2],   NHYD=["Dry Pond"],  IDin=[7],
00504>                  RDT=[1](min),
00505>                        TABLE of ( OUTFLOW-STORAGE ) values
00506>                                   (cms) - (ha-m)
00507>                                 [   0.0 ,  0.0 ]
00508>                                 [ 0.0383, 0.000]
00509>                                 [ 0.0444, 0.005]
00510>                                 [ 0.0497, 0.011]
00511>                                 [ 0.0545, 0.018]
00512>                                 [ 0.0590, 0.027]
00513>                                 [ 0.0631, 0.036]
00514>                                 [ 0.0669, 0.047]
00515>                                 [ 0.1200, 0.060]
00516>                                 [ 0.2137, 0.074]
00517>                                 [ 0.3339, 0.089]
00518>                                 [ 0.5337, 0.106]
00519>                                 [ 0.9379, 0.125]
00520>                                 [   -1  ,  -1  ]    (max twenty pts)
00521>                  IDovf=[3], NHYDovf=["Dry Pond Ovf"]
00522> *#-----------------|-------------------------------------------------------|
00523>
00524> *#-----------------|-------------------To Williams Sewer--------------------|
00525> CALIB NASHYD       ID=[4], NHYD=["205"], DT=[1]min, AREA=[1.18](ha),
00526>                  DWF=[0](cms),  CN/C=[71.9], IA=[4.69](mm),
00527>                  N=[3], TP=[0.30]hrs,
00528>                  RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00529> *#-----------------|-------------------------------------------------------|
00530> CALIB STANDHYD     ID=[5], NHYD=["204"], DT=[1](min), AREA=[0.89](ha),
00531>                  XIMP=[0.257], TIMP=[0.59], DWF=[0](cms), LOSS=[2],
00532>                  SCS curve number CN=[69],
00533>                  Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00534>                                    LGP=[30](m), MNP=[0.25], SCP=[0](min),
00535>                  Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00536>                                    LGI=[30](m), MNI=[0.013], SCI=[0](min),
00537>                  RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00538> *#-----------------|---------------------Total to William St Sewer-------------
00539> ADD HYD            IDsum=[8], NHYD=["Total"], IDs to add=[4,5](maximum ten)
00540> *#-----------------|-------------------------------------------------------
```

```
*#-----------------|-------------------Backlots to Pretty River-----------------
CALIB NASHYD        ID=[9], NHYD=["206"], DT=[1]min, AREA=[0.53](ha),
                    DWF=[0](cms),  CN/C=[69], IA=[5.00](mm),
                    N=[3], TP=[0.38]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1

*#-----------------|---------------------Total flows into Pretty River---------
ADD HYD             IDsum=[10], NHYD=["Total"], IDs to add=[9,3](maximum ten)
*#**************************************************************************
*#**************************************************************************
*#                              50 Year Event (4-hour Chicago)
*#**************************************************************************
*%-----------------|--------------------------------------------------------------|
CHICAGO STORM       IUNITS=[2],  TD=[4](hrs), TPRAT=[0.333],  CSDT=[5](min),
                    ICASEcs=[1],
                     A=[1973.1],  B=[9.00], and C=[0.868],
*%-----------------|--------------------------------------------------------------|
*#**************************************************************************
*#-----------------|--------------------------------------------------------------|
*#-----------------|-------------Pre-development to Pretty River----------------|
CALIB NASHYD        ID=[1], NHYD=["PRE"], DT=[1]min, AREA=[6.12](ha),
                    DWF=[0](cms),  CN/C=[63.1], IA=[6.12](mm),
                    N=[3], TP=[0.64]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1

*#-----------------|---------------------POST DEVELOPMENT----------------------|
*#-----------------|-----------------------To Pond------------------------------|
CALIB STANDHYD      ID=[2], NHYD=["202"], DT=[1](min), AREA=[0.75](ha),
                    XIMP=[0.252], TIMP=[0.615], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1

*#-----------------|--------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["203"], DT=[1](min), AREA=[1.26](ha),
                    XIMP=[0.30], TIMP=[0.638], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1

*#-----------------|--------------------------------------------------------------|
CALIB STANDHYD      ID=[5], NHYD=["201"], DT=[1](min), AREA=[0.99](ha),
                    XIMP=[0.261], TIMP=[0.584], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[31](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[31](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1

*#-----------------|----------------------Total to Overland Flow Channel------|
ADD HYD             IDsum=[4], NHYD=["Total Ovl-Flow"], IDs to add=[2,3,5](maxim
*#-----------------|--------------------------------------------------------------|
CALIB STANDHYD      ID=[6], NHYD=["200"], DT=[1](min), AREA=[0.52](ha),
                    XIMP=[0.326], TIMP=[0.595], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1

*#-----------------|----------------------Total to Pond-----------------------|
ADD HYD             IDsum=[7], NHYD=["Total"], IDs to add=[4,6](maximum ten)
*#-----------------|--------------------------------------------------------------|
*#-----------------|-----------------------SWM--------------------------------|
ROUTE RESERVOIR     IDout=[2],   NHYD=["Dry Pond"],  IDin=[7],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                     (cms) - (ha-m)
                                  [   0.0 ,  0.0 ]
                                  [ 0.0383, 0.000]
                                  [ 0.0444, 0.005]
                                  [ 0.0497, 0.011]
                                  [ 0.0545, 0.018]
                                  [ 0.0590, 0.027]
                                  [ 0.0631, 0.036]
                                  [ 0.0669, 0.047]
                                  [ 0.1200, 0.060]
                                  [ 0.2137, 0.074]
                                  [ 0.3339, 0.089]
                                  [ 0.5337, 0.106]
                                  [ 0.9379, 0.125]
                                  [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[3], NHYDovf=["Dry Pond Ovf"]
*#-----------------|--------------------------------------------------------------|

*#-----------------|-------------------To Williams Sewer-----------------------|
CALIB NASHYD        ID=[4], NHYD=["205"], DT=[1]min, AREA=[1.18](ha),
                    DWF=[0](cms),  CN/C=[71.9], IA=[4.69](mm),
                    N=[3], TP=[0.30]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1

*#-----------------|--------------------------------------------------------------|
CALIB STANDHYD      ID=[5], NHYD=["204"], DT=[1](min), AREA=[0.89](ha),
                    XIMP=[0.257], TIMP=[0.59], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1

*#-----------------|----------------------Total to William St Sewer-------------
ADD HYD             IDsum=[8], NHYD=["Total"], IDs to add=[4,5](maximum ten)
*#-----------------|--------------------------------------------------------------
*#-----------------|-------------------Backlots to Pretty River-----------------
CALIB NASHYD        ID=[9], NHYD=["206"], DT=[1]min, AREA=[0.53](ha),
                    DWF=[0](cms),  CN/C=[69], IA=[5.00](mm),
                    N=[3], TP=[0.38]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1

*#-----------------|---------------------Total flows into Pretty River---------
ADD HYD             IDsum=[10], NHYD=["Total"], IDs to add=[9,3](maximum ten)
*#**************************************************************************
*#**************************************************************************
*#                             100 Year Event (4-hour Chicago)
*#**************************************************************************
*%-----------------|--------------------------------------------------------------|
CHICAGO STORM       IUNITS=[2],  TD=[4](hrs), TPRAT=[0.333],  CSDT=[5](min),
                    ICASEcs=[1],
                     A=[2193.1],  B=[9.04], and C=[0.871],
*%-----------------|--------------------------------------------------------------|
*#**************************************************************************
*#-----------------|--------------------------------------------------------------|
*#-----------------|-------------Pre-development to Pretty River----------------|
CALIB NASHYD        ID=[1], NHYD=["PRE"], DT=[1]min, AREA=[6.12](ha),
                    DWF=[0](cms),  CN/C=[63.1], IA=[6.12](mm),
                    N=[3], TP=[0.64]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1

*#-----------------|---------------------POST DEVELOPMENT----------------------|
*#-----------------|-----------------------To Pond------------------------------|
CALIB STANDHYD      ID=[2], NHYD=["202"], DT=[1](min), AREA=[0.75](ha),
                    XIMP=[0.252], TIMP=[0.615], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1

*#-----------------|--------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["203"], DT=[1](min), AREA=[1.26](ha),
                    XIMP=[0.30], TIMP=[0.638], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1

*#-----------------|--------------------------------------------------------------|
CALIB STANDHYD      ID=[5], NHYD=["201"], DT=[1](min), AREA=[0.99](ha),
                    XIMP=[0.261], TIMP=[0.584], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[31](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[31](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1

*#-----------------|----------------------Total to Overland Flow Channel------|
ADD HYD             IDsum=[4], NHYD=["Total Ovl-Flow"], IDs to add=[2,3,5](maxim
*#-----------------|--------------------------------------------------------------|
CALIB STANDHYD      ID=[6], NHYD=["200"], DT=[1](min), AREA=[0.52](ha),
                    XIMP=[0.326], TIMP=[0.595], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1

*#-----------------|----------------------Total to Pond-----------------------|
ADD HYD             IDsum=[7], NHYD=["Total"], IDs to add=[4,6](maximum ten)
*#-----------------|--------------------------------------------------------------|
*#-----------------|-----------------------SWM--------------------------------|
ROUTE RESERVOIR     IDout=[2],   NHYD=["Dry Pond"],  IDin=[7],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                     (cms) - (ha-m)
                                  [   0.0 ,  0.0 ]
                                  [ 0.0383, 0.000]
                                  [ 0.0444, 0.005]
                                  [ 0.0497, 0.011]
                                  [ 0.0545, 0.018]
                                  [ 0.0590, 0.027]
                                  [ 0.0631, 0.036]
                                  [ 0.0669, 0.047]
                                  [ 0.1200, 0.060]
                                  [ 0.2137, 0.074]
                                  [ 0.3339, 0.089]
                                  [ 0.5337, 0.106]
                                  [ 0.9379, 0.125]
                                  [   -1  ,  -1  ]  (max twenty pts)
                          IDovf=[3], NHYDovf=["Dry Pond Ovf"]
*#-----------------|--------------------------------------------------------------|

*#-----------------|-------------------To Williams Sewer-----------------------|
CALIB NASHYD        ID=[4], NHYD=["205"], DT=[1]min, AREA=[1.18](ha),
                    DWF=[0](cms),  CN/C=[71.9], IA=[4.69](mm),
                    N=[3], TP=[0.30]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1

*#-----------------|--------------------------------------------------------------|
CALIB STANDHYD      ID=[5], NHYD=["204"], DT=[1](min), AREA=[0.89](ha),
                    XIMP=[0.257], TIMP=[0.59], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1

*#-----------------|----------------------Total to William St Sewer-------------
ADD HYD             IDsum=[8], NHYD=["Total"], IDs to add=[4,5](maximum ten)
*#-----------------|--------------------------------------------------------------
*#-----------------|-------------------Backlots to Pretty River-----------------
CALIB NASHYD        ID=[9], NHYD=["206"], DT=[1]min, AREA=[0.53](ha),
                    DWF=[0](cms),  CN/C=[69], IA=[5.00](mm),
                    N=[3], TP=[0.38]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1

*#-----------------|---------------------Total flows into Pretty River---------
ADD HYD             IDsum=[10], NHYD=["Total"], IDs to add=[9,3](maximum ten)
*#**************************************************************************
*#**************************************************************************
*#                              Timmins Event (Regional)
*#**************************************************************************
*%-----------------|--------------------------------------------------------------|
READ STORM          STORM_FILENAME=["tim.stm"]
*#**************************************************************************
*#**************************************************************************
*#-----------------|--------------------------------------------------------------|
*#-----------------|-------------Pre-development to Pretty River----------------|
CALIB NASHYD        ID=[1], NHYD=["PRE"], DT=[1]min, AREA=[6.12](ha),
                    DWF=[0](cms),  CN/C=[63.1], IA=[6.12](mm),
                    N=[3], TP=[0.64]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1

*#-----------------|--------------------------------------------------------------|
*#-----------------|---------------------POST DEVELOPMENT----------------------|
*#-----------------|-----------------------To Pond------------------------------|
CALIB STANDHYD      ID=[2], NHYD=["202"], DT=[1](min), AREA=[0.75](ha),
                    XIMP=[0.252], TIMP=[0.615], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1

*#-----------------|--------------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["203"], DT=[1](min), AREA=[1.26](ha),
                    XIMP=[0.30], TIMP=[0.638], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1

*#-----------------|--------------------------------------------------------------|
CALIB STANDHYD      ID=[5], NHYD=["201"], DT=[1](min), AREA=[0.99](ha),
                    XIMP=[0.261], TIMP=[0.584], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[31](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[31](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1

*#-----------------|----------------------Total to Overland Flow Channel------|
ADD HYD             IDsum=[4], NHYD=["Total Ovl-Flow"], IDs to add=[2,3,5](maxim
*#-----------------|--------------------------------------------------------------|
CALIB STANDHYD      ID=[6], NHYD=["200"], DT=[1](min), AREA=[0.52](ha),
                    XIMP=[0.326], TIMP=[0.595], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
```

```
00811>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00812>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00813>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00814>                                          LGI=[30](m), MNI=[0.013], SCI=[0](min),
00815>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00816> *#-----------------|----------------------Total to Pond-------------------------|
00817> ADD HYD             IDsum=[7], NHYD=["Total"], IDs to add=[4,6](maximum ten)
00818> *#-----------------|-----------------------------------------------------------|
00819> *#-----------------|---------------------SWM-------------------------|
00820> ROUTE RESERVOIR     IDout=[2],   NHYD=["Dry Pond"],  IDin=[7],
00821>                     RDT=[1](min),
00822>                           TABLE of ( OUTFLOW-STORAGE ) values
00823>                                      (cms) - (ha-m)
00824>                                 [   0.0 ,  0.0 ]
00825>                                 [ 0.0383, 0.000]
00826>                                 [ 0.0444, 0.005]
00827>                                 [ 0.0497, 0.011]
00828>                                 [ 0.0545, 0.018]
00829>                                 [ 0.0590, 0.027]
00830>                                 [ 0.0631, 0.036]
00831>                                 [ 0.0669, 0.047]
00832>                                 [ 0.1200, 0.060]
00833>                                 [ 0.2137, 0.074]
00834>                                 [ 0.3339, 0.089]
00835>                                 [ 0.5337, 0.106]
00836>                                 [ 0.9379, 0.125]
00837>                                 [   -1  ,  -1  ] (max twenty pts)
00838>                           IDovf=[3], NHYDovf=["Dry Pond Ovf"]
00839> *#-----------------|-----------------------------------------------------------|
00840>
00841> *#-----------------|--------------------To Williams Sewer-----------------------|
00842> CALIB NASHYD        ID=[4], NHYD=["205"], DT=[1]min, AREA=[1.18](ha),
00843>                     DWF=[0](cms),  CN/C=[71.9], IA=[4.69](mm),
00844>                     N=[3], TP=[0.30]hrs,
00845>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00846> *#-----------------|-----------------------------------------------------------|
00847> CALIB STANDHYD      ID=[5], NHYD=["204"], DT=[1](min), AREA=[0.89](ha),
00848>                     XIMP=[0.257], TIMP=[0.59], DWF=[0](cms), LOSS=[2],
00849>                     SCS curve number CN=[69],
00850>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00851>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00852>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00853>                                          LGI=[30](m), MNI=[0.013], SCI=[0](min),
00854>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00855> *#-----------------|----------------------Total to William St Sewer--------------
00856> ADD HYD             IDsum=[8], NHYD=["Total"], IDs to add=[4,5](maximum ten)
00857> *#-----------------|-----------------------------------------------------------
00858> *#-----------------|--------------------Backlots to Pretty River-----------------
00859> CALIB NASHYD        ID=[9], NHYD=["206"], DT=[1]min, AREA=[0.53](ha),
00860>                     DWF=[0](cms),  CN/C=[69], IA=[5.00](mm),
00861>                     N=[3], TP=[0.38]hrs,
00862>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00863>
00864> *#-----------------|----------------------Total flows into Pretty River---------
00865> ADD HYD             IDsum=[10], NHYD=["Total"], IDs to add=[9,3](maximum ten)
00866>
00867> FINISH
00868>
00869>
00870>
```

```
00001>  ================================================================================
00002>
00003>  SSSSS   W   W   M   M   H   H   Y   Y   M   M    OOO          222     000    11
00004>  S       W W W   MM MM   H   H    Y Y    MM MM   O   O          2     0   0   11
00005>  SSSSS   W W W   M M M   HHHHH     Y     M M M   O   O          2     0   0   11
00006>      S    W W    M   M   H   H     Y     M   M   O   O        222     0   0   11
00007>  SSSSS    W W    M   M   H   H     Y     M   M    OOO         2       0   0   11
00008>                                                               2       0   0   11
00009>          StormWater Management HYdrologic Model                222     000    11
00010>
00011>  ********************************************************************************
00012>  ************************************ SWMHYMO Ver4.05.0  ************************
00013>  ******************  A single event and continuous hydrologic simulation model
00014>  ******************     based on the principles of HYMO and its successors
00015>  ******************                 OTTHYMO-83 and OTTHYMO-89.
00016>  ********************************************************************************
00017>  ****************** Distributed by:  J.F. Sabourin and Associates Inc.
00018>  ******************                  Ottawa,  Ontario: (613) 836-3884
00019>  ******************                  Gatineau, Quebec: (819) 243-6858
00020>  ******************                  E-Mail: swmhymo@jfsa.com
00021>  ********************************************************************************
00022>
00023>  ********************************************************************************
00024>  ****************** Licensed user: C.F. Crozier & Associates Inc.
00025>  ******************                Collingwood          SERIAL#:3737016
00026>  ********************************************************************************
00027>
00028>  ********************************************************************************
00029>  ******************           ++++++ PROGRAM ARRAY DIMENSIONS ++++++
00030>  ******************           Maximum value for ID numbers  :     11
00031>  ******************           Max. number of rainfall points: 105408
00032>  ******************           Max. number of flow points    : 105408
00033>  ********************************************************************************
00034>
00035>
00036>  ****************************   S U M M A R Y   O U T P U T   *******************
00037>  ********************************************************************************
00038>  *                RUN DATE: 2021-10-27     TIME: 16:12:05     RUN COUNTER: 0000
00039>  ********************************************************************************
00040>  * Input   file: C:\Users\achatterjee\OneDrive - CF Crozier & Associates\Desktop
00041>  *               gn - AC_Updated\2021.10.21 Post_CHI.dat
00042>  * Output  file: C:\Users\achatterjee\OneDrive - CF Crozier & Associates\Desktop
00043>  *               gn - AC_Updated\2021.10.21 Post_CHI.out
00044>  * Summary file: C:\Users\achatterjee\OneDrive - CF Crozier & Associates\Desktop
00045>  *               gn - AC_Updated\2021.10.21 Post_CHI.sum
00046>  * User comments:
00047>  * 1: _____________________________________________________________________________
00048>  * 2: _____________________________________________________________________________
00049>  * 3: _____________________________________________________________________________
00050>  ********************************************************************************
00051>
00052>
00053> #*******************************************************************************
00054> #  Project Name: [452 Raglan]    Project Number: [1432-4701]
00055> #  Date        : October 27, 2021
00056> #  Modeller    : [AC/RA]
00057> #  Company     : C.F. Crozier & Associates Inc.
00058> #  License #   :  3737016
00059> #*******************************************************************************
00060> #  Filename    :  Post_CHI
00061> #  452 Raglan - Post Development - CHI Storms
00062> #*******************************************************************************
00063> #*******************************************************************************
00064>  RUN#:COMMAND#
00065> R0001:C00001------------------------------------------------------------------
00066>      START
00067>        [TZERO =    .00 hrs on       0]
00068>        [METOUT=   2    (1=imperial, 2=metric output)]
00069>        [NSTORM=   0 ]
00070>        [NRUN  = 0001 ]
00071> #*******************************************************************************
00072> #------------------|---------------- RAGLAN DRAINAGE MODEL ---------------------|
00073> #*******************************************************************************
00074> #*******************************************************************************
00075> #                              25mm Event (4-hour Chicago)
00076> #*******************************************************************************
00077> R0001:C00002------------------------------------------------------------------
00078>      CHICAGO STORM
00079>        [SDT= 5.00:SDUR=   4.00:PTOT=  24.99]
00080>        [A/B/C= 568.700/   6.662/     .819]
00081> #*******************************************************************************
00082> #------------------|-------------------------------------------------------------|
00083> #------------------|-------------Pre-development to Pretty River---------------|
00084> R0001:C00003------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00085>      CALIB NASHYD          1.0 01:PRE            6.12     .017 No_date    2:19
00086>        [CN= 63.1: N= 3.00: Tp=  .64]
00087> #------------------|-------------------------------------------------------------|
00088> #------------------|---------------------POST DEVELOPMENT-----------------------|
00089> #------------------|----------------------To Pond-----------------------|
00090> R0001:C00004------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00091>      CALIB STANDHYD        1.0 02:202            .75     .042 No_date    1:20
00092>        [XIMP=.25:TIMP=.62]
00093>        [LOSS= 2 :CN= 69.0]
00094>        [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00095>        [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00096> #------------------|-------------------------------------------------------------|
00097> R0001:C00005------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00098>      CALIB STANDHYD        1.0 03:203            1.26     .083 No_date    1:20
00099>        [XIMP=.30:TIMP=.64]
00100>        [LOSS= 2 :CN= 69.0]
00101>        [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00102>        [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00103> #------------------|-------------------------------------------------------------|
00104> R0001:C00006------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00105>      CALIB STANDHYD        1.0 05:201             .99     .056 No_date    1:20
00106>        [XIMP=.26:TIMP=.58]
00107>        [LOSS= 2 :CN= 69.0]
00108>        [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  31.:MNP=.250:SCP=   .0]
00109>        [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  31.:MNI=.013:SCI=   .0]
00110> #------------------|---------------------Total to Overland Flow Channel------|
00111> R0001:C00007------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00112>      ADD HYD               1.0 02:202             .75     .042 No_date    1:20
00113>                       +     1.0 03:203            1.26     .083 No_date    1:20
00114>                       +     1.0 05:201             .99     .056 No_date    1:20
00115>                     SUM=    1.0 04:Total Ovl-     3.00     .181 No_date    1:20
00116> #------------------|-------------------------------------------------------------|
00117> R0001:C00008------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00118>      CALIB STANDHYD        1.0 06:200             .52     .036 No_date    1:20
00119>        [XIMP=.33:TIMP=.60]
00120>        [LOSS= 2 :CN= 69.0]
00121>        [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00122>        [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00123> #------------------|---------------------Total to Pond-----------------------|
00124> R0001:C00009------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00125>      ADD HYD               1.0 04:Total Ovl-     3.00     .181 No_date    1:20
00126>                       +     1.0 06:200             .52     .036 No_date    1:20
00127>                     SUM=    1.0 07:Total          3.52     .217 No_date    1:20
00128> #------------------|-------------------------------------------------------------|
00129> #------------------|----------------------SWM----------------------|
00130> R0001:C00010------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00131>      ROUTE RESERVOIR ->    1.0 07:Total          3.52     .217 No_date    1:20
00132>                      out <=    1.0 02:Dry Pond       3.52     .050 No_date    1:49
00133>             overflow <=    1.0 03:Dry Pond O      .00     .000 No_date    0:00
00134>       {MxStoUsed=.1117E-01  m3, TotOvfVol=.0000E+00  m3, N-Ovf=    0, TotDurOvf=
00135> #------------------|-------------------------------------------------------------|
00136> #------------------|------------------To Williams Sewer----------------------|
00137> R0001:C00011------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00138>      CALIB NASHYD          1.0 04:205            1.18     .009 No_date    1:47
00139>        [CN= 71.9: N= 3.00: Tp=  .30]
00140> #------------------|-------------------------------------------------------------|
00141> R0001:C00012------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00142>      CALIB STANDHYD        1.0 05:204             .89     .050 No_date    1:20
00143>        [XIMP=.26:TIMP=.59]
00144>        [LOSS= 2 :CN= 69.0]
00145>        [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00146>        [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00147> #------------------|---------------------Total to William St Sewer-------------
00148> R0001:C00013------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00149>      ADD HYD               1.0 04:205            1.18     .009 No_date    1:47
00150>                       +     1.0 05:204             .89     .050 No_date    1:20
00151>                     SUM=    1.0 08:Total          2.07     .050 No_date    1:20
00152> #------------------|-------------------------------------------------------------
00153> #------------------|-------------------Backlots to Pretty River------------------
00154> R0001:C00014------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00155>      CALIB NASHYD          1.0 09:206             .53     .003 No_date    1:54
00156>        [CN= 69.0: N= 3.00: Tp=  .38]
00157> #------------------|---------------------Total flows into Pretty River----------
00158> R0001:C00015------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00159>      ADD HYD               1.0 09:206             .53     .003 No_date    1:54
00160>                       +     1.0 03:Dry Pond O      .00     .000 No_date    0:00
00161>                     SUM=    1.0 10:Total           .53     .003 No_date    1:54
00162> #*******************************************************************************
00163> #*******************************************************************************
00164> #                              2 Year Event (4-hour Chicago)
00165> #*******************************************************************************
00166> R0001:C00016------------------------------------------------------------------
00167>      CHICAGO STORM
00168>        [SDT= 5.00:SDUR=   4.00:PTOT=  33.76]
00169>        [A/B/C= 807.440/   6.750/     .828]
00170> #*******************************************************************************
00171> #------------------|-------------------------------------------------------------|
00172> #------------------|-------------Pre-development to Pretty River---------------|
00173> R0001:C00017------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00174>      CALIB NASHYD          1.0 01:PRE            6.12     .037 No_date    2:16
00175>        [CN= 63.1: N= 3.00: Tp=  .64]
00176> #------------------|-------------------------------------------------------------|
00177> #------------------|---------------------POST DEVELOPMENT-----------------------|
00178> #------------------|----------------------To Pond-----------------------|
00179> R0001:C00018------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00180>      CALIB STANDHYD        1.0 02:202             .75     .062 No_date    1:20
00181>        [XIMP=.25:TIMP=.62]
00182>        [LOSS= 2 :CN= 69.0]
00183>        [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00184>        [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00185> #------------------|-------------------------------------------------------------|
00186> R0001:C00019------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00187>      CALIB STANDHYD        1.0 03:203            1.26     .121 No_date    1:20
00188>        [XIMP=.30:TIMP=.64]
00189>        [LOSS= 2 :CN= 69.0]
00190>        [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00191>        [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00192> #------------------|-------------------------------------------------------------|
00193> R0001:C00020------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00194>      CALIB STANDHYD        1.0 05:201             .99     .082 No_date    1:20
00195>        [XIMP=.26:TIMP=.58]
00196>        [LOSS= 2 :CN= 69.0]
00197>        [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  31.:MNP=.250:SCP=   .0]
00198>        [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  31.:MNI=.013:SCI=   .0]
00199> #------------------|---------------------Total to Overland Flow Channel------|
00200> R0001:C00021------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00201>      ADD HYD               1.0 02:202             .75     .062 No_date    1:20
00202>                       +     1.0 03:203            1.26     .121 No_date    1:20
00203>                       +     1.0 05:201             .99     .082 No_date    1:20
00204>                     SUM=    1.0 04:Total Ovl-     3.00     .266 No_date    1:20
00205> #------------------|-------------------------------------------------------------|
00206> R0001:C00022------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00207>      CALIB STANDHYD        1.0 06:200             .52     .052 No_date    1:20
00208>        [XIMP=.33:TIMP=.60]
00209>        [LOSS= 2 :CN= 69.0]
00210>        [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00211>        [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00212> #------------------|---------------------Total to Pond-----------------------|
00213> R0001:C00023------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00214>      ADD HYD               1.0 04:Total Ovl-     3.00     .266 No_date    1:20
00215>                       +     1.0 06:200             .52     .052 No_date    1:20
00216>                     SUM=    1.0 07:Total          3.52     .319 No_date    1:20
00217> #------------------|-------------------------------------------------------------|
00218> #------------------|----------------------SWM----------------------|
00219> R0001:C00024------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00220>      ROUTE RESERVOIR ->    1.0 07:Total          3.52     .319 No_date    1:20
00221>                      out <=    1.0 02:Dry Pond       3.52     .057 No_date    1:56
00222>             overflow <=    1.0 03:Dry Pond O      .00     .000 No_date    0:00
00223>       {MxStoUsed=.2349E-01  m3, TotOvfVol=.0000E+00  m3, N-Ovf=    0, TotDurOvf=
00224> #------------------|-------------------------------------------------------------|
00225> #------------------|------------------To Williams Sewer----------------------|
00226> R0001:C00025------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00227>      CALIB NASHYD          1.0 04:205            1.18     .018 No_date    1:45
00228>        [CN= 71.9: N= 3.00: Tp=  .30]
00229> #------------------|-------------------------------------------------------------|
00230> R0001:C00026------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00231>      CALIB STANDHYD        1.0 05:204             .89     .073 No_date    1:20
00232>        [XIMP=.26:TIMP=.59]
00233>        [LOSS= 2 :CN= 69.0]
00234>        [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00235>        [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00236> #------------------|---------------------Total to William St Sewer-------------
00237> R0001:C00027------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00238>      ADD HYD               1.0 04:205            1.18     .018 No_date    1:45
00239>                       +     1.0 05:204             .89     .073 No_date    1:20
00240>                     SUM=    1.0 08:Total          2.07     .075 No_date    1:20
00241> #------------------|-------------------------------------------------------------
00242> #------------------|-------------------Backlots to Pretty River------------------
00243> R0001:C00028------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00244>      CALIB NASHYD          1.0 09:206             .53     .006 No_date    1:52
00245>        [CN= 69.0: N= 3.00: Tp=  .38]
00246> #------------------|---------------------Total flows into Pretty River----------
00247> R0001:C00029------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00248>      ADD HYD               1.0 09:206             .53     .006 No_date    1:52
00249>                       +     1.0 03:Dry Pond O      .00     .000 No_date    0:00
00250>                     SUM=    1.0 10:Total           .53     .006 No_date    1:52
00251> #*******************************************************************************
00252> #                              5 Year Event (4-hour Chicago)
00253> #*******************************************************************************
00254> R0001:C00030------------------------------------------------------------------
00255>      CHICAGO STORM
00256>        [SDT= 5.00:SDUR=   4.00:PTOT=  44.07]
00257>        [A/B/C=1135.400/   7.500/     .841]
00258> #*******************************************************************************
00259> #------------------|-------------------------------------------------------------|
00260> #------------------|-------------Pre-development to Pretty River---------------|
00261> R0001:C00031------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00262>      CALIB NASHYD          1.0 01:PRE            6.12     .069 No_date    2:14
00263>        [CN= 63.1: N= 3.00: Tp=  .64]
00264> #------------------|-------------------------------------------------------------|
00265> #------------------|---------------------POST DEVELOPMENT-----------------------|
00266> #------------------|----------------------To Pond-----------------------|
00267> R0001:C00032------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00268>      CALIB STANDHYD        1.0 02:202             .75     .090 No_date    1:20
00269>        [XIMP=.25:TIMP=.62]
00270>        [LOSS= 2 :CN= 69.0]
```

```
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|---------------------------------------------------------|
R0001:C00033------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD       1.0 03:203            1.26     .172 No_date    1:20
      [XIMP=.30:TIMP=.64]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|---------------------------------------------------------|
R0001:C00034------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD       1.0 05:201            .99     .116 No_date    1:20
      [XIMP=.26:TIMP=.58]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  31.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  31.:MNI=.013:SCI=   .0]
#-----------------|---------------------Total to Overland Flow Channel------|
R0001:C00035------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD              1.0 02:202            .75     .090 No_date    1:20
                    +    1.0 03:203           1.26     .172 No_date    1:20
                    +    1.0 05:201            .99     .116 No_date    1:20
                SUM=     1.0 04:Total Ovl-    3.00     .379 No_date    1:20
#-----------------|---------------------------------------------------------|
R0001:C00036------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD       1.0 06:200            .52     .072 No_date    1:20
      [XIMP=.33:TIMP=.60]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|---------------------Total to Pond-----------------------|
R0001:C00037------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD              1.0 04:Total Ovl-    3.00     .379 No_date    1:20
                    +    1.0 06:200            .52     .072 No_date    1:20
                SUM=     1.0 07:Total         3.52     .451 No_date    1:20
#-----------------|---------------------------------------------------------|
#-----------------|-------------SWM-------------|
R0001:C00038------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ROUTE RESERVOIR ->   1.0 07:Total         3.52     .451 No_date    1:20
                  out <=    1.0 02:Dry Pond       3.52     .065 No_date    2:02
              overflow <=   1.0 03:Dry Pond O     .00      .000 No_date    0:00
     (MxStoUsed=.4111E-01  m3, TotOvfVol=.0000E+00  m3, N-Ovf=    0, TotDurOvf=
#-----------------|---------------------------------------------------------|
#-----------------|---------------------To Williams Sewer---------------------|
R0001:C00039------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB NASHYD         1.0 04:205            1.18     .033 No_date    1:45
      [CN= 71.9: N= 3.00: Tp=  .30]
#-----------------|---------------------------------------------------------|
R0001:C00040------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD       1.0 05:204            .89     .104 No_date    1:20
      [XIMP=.26:TIMP=.59]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|---------------------Total to William St Sewer--------------
R0001:C00041------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD              1.0 04:205            1.18     .033 No_date    1:45
                    +    1.0 05:204            .89      .104 No_date    1:20
                SUM=     1.0 08:Total          2.07     .107 No_date    1:20
#-----------------|---------------------------------------------------------|
#-----------------|-----------------Backlots to Pretty River----------------|
R0001:C00042------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB NASHYD         1.0 09:206            .53     .011 No_date    1:51
      [CN= 69.0: N= 3.00: Tp=  .38]
#-----------------|---------------------Total flows into Pretty River----------
R0001:C00043------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD              1.0 09:206            .53     .011 No_date    1:51
                    +    1.0 03:Dry Pond O     .00     .000 No_date    0:00
                SUM=     1.0 10:Total          .53     .011 No_date    1:51
#*********************************************************************
#*********************************************************************
#                          10 Year Event (4-hour Chicago)
#*********************************************************************
R0001:C00044------------------------------------------------------------------
     CHICAGO STORM
      [SDT= 5.00:SDUR=   4.00:PTOT=  50.59]
      [A/B/C=1387.000/   7.970/    .852]
#*********************************************************************
#-----------------|---------------------------------------------------------|
#-----------------|-------------Pre-development to Pretty River---------------|
R0001:C00045------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB NASHYD         1.0 01:PRE            6.12     .094 No_date    2:13
      [CN= 63.1: N= 3.00: Tp=  .64]
#-----------------|---------------------------------------------------------|
#-----------------|---------------------POST DEVELOPMENT---------------------|
#-----------------|---------------------To Pond-----------------------|
R0001:C00046------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD       1.0 02:202            .75     .109 No_date    1:20
      [XIMP=.25:TIMP=.62]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|---------------------------------------------------------|
R0001:C00047------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD       1.0 03:203            1.26     .206 No_date    1:20
      [XIMP=.30:TIMP=.64]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|---------------------------------------------------------|
R0001:C00048------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD       1.0 05:201            .99     .143 No_date    1:20
      [XIMP=.26:TIMP=.58]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  31.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  31.:MNI=.013:SCI=   .0]
#-----------------|---------------------Total to Overland Flow Channel------|
R0001:C00049------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD              1.0 02:202            .75     .109 No_date    1:20
                    +    1.0 03:203           1.26     .206 No_date    1:20
                    +    1.0 05:201            .99     .143 No_date    1:20
                SUM=     1.0 04:Total Ovl-    3.00     .457 No_date    1:20
#-----------------|---------------------------------------------------------|
R0001:C00050------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD       1.0 06:200            .52     .087 No_date    1:20
      [XIMP=.33:TIMP=.60]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|---------------------Total to Pond-----------------------|
R0001:C00051------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD              1.0 04:Total Ovl-    3.00     .457 No_date    1:20
                    +    1.0 06:200            .52     .087 No_date    1:20
                SUM=     1.0 07:Total         3.52     .544 No_date    1:20
#-----------------|---------------------------------------------------------|
#-----------------|-------------SWM-------------|
R0001:C00052------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ROUTE RESERVOIR ->   1.0 07:Total         3.52     .544 No_date    1:20
                  out <=    1.0 02:Dry Pond       3.52     .088 No_date    1:57
              overflow <=   1.0 03:Dry Pond O     .00      .000 No_date    0:00
     (MxStoUsed=.5207E-01  m3, TotOvfVol=.0000E+00  m3, N-Ovf=    0, TotDurOvf=
#-----------------|---------------------------------------------------------|
#-----------------|---------------------To Williams Sewer---------------------|
R0001:C00053------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB NASHYD         1.0 04:205            1.18     .044 No_date    1:44
      [CN= 71.9: N= 3.00: Tp=  .30]
#-----------------|---------------------------------------------------------|
#-----------------|-----------------Backlots to Pretty River----------------|
R0001:C00054------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD       1.0 05:204            .89     .128 No_date    1:20
      [XIMP=.26:TIMP=.59]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|---------------------Total to William St Sewer--------------
R0001:C00055------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD              1.0 04:205            1.18     .044 No_date    1:44
                    +    1.0 05:204            .89      .128 No_date    1:20
                SUM=     1.0 08:Total          2.07     .132 No_date    1:20
#-----------------|---------------------------------------------------------|
#-----------------|-----------------Backlots to Pretty River----------------|
R0001:C00056------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB NASHYD         1.0 09:206            .53     .015 No_date    1:51
      [CN= 69.0: N= 3.00: Tp=  .38]
#-----------------|---------------------Total flows into Pretty River----------
R0001:C00057------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD              1.0 09:206            .53     .015 No_date    1:51
                    +    1.0 03:Dry Pond O     .00     .000 No_date    0:00
                SUM=     1.0 10:Total          .53     .015 No_date    1:51
#*********************************************************************
#*********************************************************************
#                          25 Year Event (4-hour Chicago)
#*********************************************************************
R0001:C00058------------------------------------------------------------------
     CHICAGO STORM
      [SDT= 5.00:SDUR=   4.00:PTOT=  59.08]
      [A/B/C=1676.200/   8.300/    .858]
#*********************************************************************
#-----------------|---------------------------------------------------------|
#-----------------|-------------Pre-development to Pretty River---------------|
R0001:C00059------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB NASHYD         1.0 01:PRE            6.12     .130 No_date    2:12
      [CN= 63.1: N= 3.00: Tp=  .64]
#-----------------|---------------------------------------------------------|
#-----------------|---------------------POST DEVELOPMENT---------------------|
#-----------------|---------------------To Pond-----------------------|
R0001:C00060------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD       1.0 02:202            .75     .140 No_date    1:20
      [XIMP=.25:TIMP=.62]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|---------------------------------------------------------|
R0001:C00061------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD       1.0 03:203            1.26     .260 No_date    1:20
      [XIMP=.30:TIMP=.64]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|---------------------------------------------------------|
R0001:C00062------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD       1.0 05:201            .99     .182 No_date    1:20
      [XIMP=.26:TIMP=.58]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  31.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  31.:MNI=.013:SCI=   .0]
#-----------------|---------------------Total to Overland Flow Channel------|
R0001:C00063------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD              1.0 02:202            .75     .140 No_date    1:20
                    +    1.0 03:203           1.26     .260 No_date    1:20
                    +    1.0 05:201            .99     .182 No_date    1:20
                SUM=     1.0 04:Total Ovl-    3.00     .581 No_date    1:20
#-----------------|---------------------------------------------------------|
R0001:C00064------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD       1.0 06:200            .52     .105 No_date    1:20
      [XIMP=.33:TIMP=.60]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|---------------------Total to Pond-----------------------|
R0001:C00065------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD              1.0 04:Total Ovl-    3.00     .581 No_date    1:20
                    +    1.0 06:200            .52     .105 No_date    1:20
                SUM=     1.0 07:Total         3.52     .686 No_date    1:20
#-----------------|---------------------------------------------------------|
#-----------------|-------------SWM-------------|
R0001:C00066------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ROUTE RESERVOIR ->   1.0 07:Total         3.52     .686 No_date    1:20
                  out <=    1.0 02:Dry Pond       3.52     .140 No_date    1:50
              overflow <=   1.0 03:Dry Pond O     .00      .000 No_date    0:00
     (MxStoUsed=.6294E-01  m3, TotOvfVol=.0000E+00  m3, N-Ovf=    0, TotDurOvf=
#-----------------|---------------------------------------------------------|
#-----------------|---------------------To Williams Sewer---------------------|
R0001:C00067------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB NASHYD         1.0 04:205            1.18     .059 No_date    1:44
      [CN= 71.9: N= 3.00: Tp=  .30]
#-----------------|---------------------------------------------------------|
R0001:C00068------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD       1.0 05:204            .89     .163 No_date    1:20
      [XIMP=.26:TIMP=.59]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|---------------------Total to William St Sewer--------------
R0001:C00069------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD              1.0 04:205            1.18     .059 No_date    1:44
                    +    1.0 05:204            .89      .163 No_date    1:20
                SUM=     1.0 08:Total          2.07     .170 No_date    1:20
#-----------------|---------------------------------------------------------|
#-----------------|-----------------Backlots to Pretty River----------------|
R0001:C00070------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB NASHYD         1.0 09:206            .53     .020 No_date    1:50
      [CN= 69.0: N= 3.00: Tp=  .38]
#-----------------|---------------------Total flows into Pretty River----------
R0001:C00071------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD              1.0 09:206            .53     .020 No_date    1:50
                    +    1.0 03:Dry Pond O     .00     .000 No_date    0:00
                SUM=     1.0 10:Total          .53     .020 No_date    1:50
#*********************************************************************
#*********************************************************************
#                          50 Year Event (4-hour Chicago)
#*********************************************************************
R0001:C00072------------------------------------------------------------------
     CHICAGO STORM
      [SDT= 5.00:SDUR=   4.00:PTOT=  65.66]
      [A/B/C=1973.100/   9.000/    .868]
#*********************************************************************
#-----------------|---------------------------------------------------------|
#-----------------|-------------Pre-development to Pretty River---------------|
R0001:C00073------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB NASHYD         1.0 01:PRE            6.12     .162 No_date    2:11
      [CN= 63.1: N= 3.00: Tp=  .64]
#-----------------|---------------------------------------------------------|
#-----------------|---------------------POST DEVELOPMENT---------------------|
#-----------------|---------------------To Pond-----------------------|
R0001:C00074------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD       1.0 02:202            .75     .160 No_date    1:20
      [XIMP=.25:TIMP=.62]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
```

```
00541> #------------------|---------------------------------------------------------|
00542> R0001:C00075------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00543>     CALIB STANDHYD         1.0 03:203            1.26     .296 No_date    1:20
00544>       [XIMP=.30:TIMP=.64]
00545>       [LOSS= 2 :CN= 69.0]
00546>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00547>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00548> #------------------|---------------------------------------------------------|
00549> R0001:C00076------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00550>     CALIB STANDHYD         1.0 05:201            .99     .207 No_date    1:20
00551>       [XIMP=.26:TIMP=.58]
00552>       [LOSS= 2 :CN= 69.0]
00553>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  31.:MNP=.250:SCP=   .0]
00554>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  31.:MNI=.013:SCI=   .0]
00555> #------------------|----------------------Total to Overland Flow Channel------|
00556> R0001:C00077------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00557>     ADD HYD                1.0 02:202            .75     .160 No_date    1:20
00558>                      +     1.0 03:203            1.26     .296 No_date    1:20
00559>                      +     1.0 05:201            .99     .207 No_date    1:20
00560>                    SUM=    1.0 04:Total Ovl-     3.00     .663 No_date    1:20
00561> #------------------|---------------------------------------------------------|
00562> R0001:C00078------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00563>     CALIB STANDHYD         1.0 06:200            .52     .123 No_date    1:20
00564>       [XIMP=.33:TIMP=.60]
00565>       [LOSS= 2 :CN= 69.0]
00566>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00567>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00568> #------------------|----------------------Total to Pond----------------------|
00569> R0001:C00079------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00570>     ADD HYD                1.0 04:Total Ovl-     3.00     .663 No_date    1:20
00571>                      +     1.0 06:200            .52     .123 No_date    1:20
00572>                    SUM=    1.0 07:Total          3.52     .786 No_date    1:20
00573> #------------------|---------------------------------------------------------|
00574> #------------------|-----------------------SWM-------------------------------|
00575> R0001:C00080------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00576>     ROUTE RESERVOIR ->     1.0 07:Total          3.52     .786 No_date    1:20
00577>                    out <=  1.0 02:Dry Pond       3.52     .191 No_date    1:46
00578>              overflow <=   1.0 03:Dry Pond O      .00     .000 No_date    0:00
00579>      (MxStoUsed=.7059E-01  m3, TotOvfVol=.0000E+00  m3, N-Ovf=    0, TotDurOvf=
00580> #------------------|---------------------------------------------------------|
00581> #------------------|-------------------To Williams Sewer----------------------|
00582> R0001:C00081------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00583>     CALIB NASHYD           1.0 04:205            1.18     .073 No_date    1:44
00584>       [CN= 71.9: N= 3.00: Tp=  .30]
00585> #------------------|---------------------------------------------------------|
00586> R0001:C00082------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00587>     CALIB STANDHYD         1.0 05:204            .89     .187 No_date    1:20
00588>       [XIMP=.26:TIMP=.59]
00589>       [LOSS= 2 :CN= 69.0]
00590>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00591>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00592> #------------------|----------------------Total to William St Sewer--------------
00593> R0001:C00083------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00594>     ADD HYD                1.0 04:205            1.18     .073 No_date    1:44
00595>                      +     1.0 05:204            .89     .187 No_date    1:20
00596>                    SUM=    1.0 08:Total          2.07     .196 No_date    1:20
00597> #------------------|---------------------------------------------------------|
00598> #------------------|-----------------Backlots to Pretty River-----------------|
00599> R0001:C00084------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00600>     CALIB NASHYD           1.0 09:206            .53     .025 No_date    1:50
00601>       [CN= 69.0: N= 3.00: Tp=  .38]
00602> #------------------|----------------------Total flows into Pretty River----------
00603> R0001:C00085------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00604>     ADD HYD                1.0 09:206            .53     .025 No_date    1:50
00605>                      +     1.0 03:Dry Pond O      .00     .000 No_date    0:00
00606>                    SUM=    1.0 10:Total          .53     .025 No_date    1:50
00607> #*************************************************************************
00608> #*************************************************************************
00609> #                        100 Year Event (4-hour Chicago)
00610> #*************************************************************************
00611> R0001:C00086------------------------------------------------------------------
00612>      CHICAGO STORM
00613>       [SDT= 5.00:SDUR=   4.00:PTOT=  71.77]
00614>       [A/B/C=2193.100/   9.040/    .871]
00615> #*************************************************************************
00616> #------------------|---------------------------------------------------------|
00617> #------------------|-------------Pre-development to Pretty River---------------|
00618> R0001:C00087------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00619>     CALIB NASHYD           1.0 01:PRE            6.12     .193 No_date    2:11
00620>       [CN= 63.1: N= 3.00: Tp=  .64]
00621> #------------------|---------------------------------------------------------|
00622> #------------------|--------------------POST DEVELOPMENT----------------------|
00623> #------------------|----------------------To Pond----------------------------|
00624> R0001:C00088------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00625>     CALIB STANDHYD         1.0 02:202            .75     .194 No_date    1:20
00626>       [XIMP=.25:TIMP=.62]
00627>       [LOSS= 2 :CN= 69.0]
00628>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00629>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00630> #------------------|---------------------------------------------------------|
00631> R0001:C00089------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00632>     CALIB STANDHYD         1.0 03:203            1.26     .354 No_date    1:20
00633>       [XIMP=.30:TIMP=.64]
00634>       [LOSS= 2 :CN= 69.0]
00635>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00636>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00637> #------------------|---------------------------------------------------------|
00638> R0001:C00090------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00639>     CALIB STANDHYD         1.0 05:201            .99     .236 No_date    1:20
00640>       [XIMP=.26:TIMP=.58]
00641>       [LOSS= 2 :CN= 69.0]
00642>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  31.:MNP=.250:SCP=   .0]
00643>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  31.:MNI=.013:SCI=   .0]
00644> #------------------|----------------------Total to Overland Flow Channel------|
00645> R0001:C00091------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00646>     ADD HYD                1.0 02:202            .75     .194 No_date    1:20
00647>                      +     1.0 03:203            1.26     .354 No_date    1:20
00648>                      +     1.0 05:201            .99     .236 No_date    1:20
00649>                    SUM=    1.0 04:Total Ovl-     3.00     .784 No_date    1:20
00650> #------------------|---------------------------------------------------------|
00651> R0001:C00092------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00652>     CALIB STANDHYD         1.0 06:200            .52     .139 No_date    1:20
00653>       [XIMP=.33:TIMP=.60]
00654>       [LOSS= 2 :CN= 69.0]
00655>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00656>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00657> #------------------|----------------------Total to Pond----------------------|
00658> R0001:C00093------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00659>     ADD HYD                1.0 04:Total Ovl-     3.00     .784 No_date    1:20
00660>                      +     1.0 06:200            .52     .139 No_date    1:20
00661>                    SUM=    1.0 07:Total          3.52     .923 No_date    1:20
00662> #------------------|---------------------------------------------------------|
00663> #------------------|-----------------------SWM-------------------------------|
00664> R0001:C00094------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00665>     ROUTE RESERVOIR ->     1.0 07:Total          3.52     .923 No_date    1:20
00666>                    out <=  1.0 02:Dry Pond       3.52     .243 No_date    1:43
00667>              overflow <=   1.0 03:Dry Pond O      .00     .000 No_date    0:00
00668>      (MxStoUsed=.7761E-01  m3, TotOvfVol=.0000E+00  m3, N-Ovf=    0, TotDurOvf=
00669> #------------------|---------------------------------------------------------|
00670> #------------------|-------------------To Williams Sewer----------------------|
00671> R0001:C00095------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00672>     CALIB NASHYD           1.0 04:205            1.18     .086 No_date    1:43
00673>       [CN= 71.9: N= 3.00: Tp=  .30]
00674> #------------------|---------------------------------------------------------|
00675> R0001:C00096------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00676>     CALIB STANDHYD         1.0 05:204            .89     .226 No_date    1:20
00677>       [XIMP=.26:TIMP=.59]
00678>       [LOSS= 2 :CN= 69.0]
00679>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00680>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00681> #------------------|----------------------Total to William St Sewer--------------
00682> R0001:C00097------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00683>     ADD HYD                1.0 04:205            1.18     .086 No_date    1:43
00684>                      +     1.0 05:204            .89     .226 No_date    1:20
00685>                    SUM=    1.0 08:Total          2.07     .237 No_date    1:20
00686> #------------------|---------------------------------------------------------|
00687> #------------------|-----------------Backlots to Pretty River-----------------|
00688> R0001:C00098------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00689>     CALIB NASHYD           1.0 09:206            .53     .030 No_date    1:50
00690>       [CN= 69.0: N= 3.00: Tp=  .38]
00691> #------------------|----------------------Total flows into Pretty River----------
00692> R0001:C00099------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00693>     ADD HYD                1.0 09:206            .53     .030 No_date    1:50
00694>                      +     1.0 03:Dry Pond O      .00     .000 No_date    0:00
00695>                    SUM=    1.0 10:Total          .53     .030 No_date    1:50
00696> #*************************************************************************
00697> #*************************************************************************
00698> #                        Timmins Event (Regional)
00699> #*************************************************************************
00700> R0001:C00100------------------------------------------------------------------
00701>      READ STORM
00702>       Filename = tim.stm
00703>       Comment  = Timmins Storm Event
00704>       [SDT=60.00:SDUR=  12.00:PTOT= 193.00]
00705> #*************************************************************************
00706> #*************************************************************************
00707> #------------------|---------------------------------------------------------|
00708> #------------------|-------------Pre-development to Pretty River---------------|
00709> R0001:C00101------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00710>     CALIB NASHYD           1.0 01:PRE            6.12     .364 No_date    7:21  1
00711>       [CN= 63.1: N= 3.00: Tp=  .64]
00712> #------------------|---------------------------------------------------------|
00713> #------------------|--------------------POST DEVELOPMENT----------------------|
00714> #------------------|----------------------To Pond----------------------------|
00715> R0001:C00102------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00716>     CALIB STANDHYD         1.0 02:202            .75     .081 No_date    7:00  1
00717>       [XIMP=.25:TIMP=.62]
00718>       [LOSS= 2 :CN= 69.0]
00719>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00720>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00721> #------------------|---------------------------------------------------------|
00722> R0001:C00103------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00723>     CALIB STANDHYD         1.0 03:203            1.26     .137 No_date    7:00  1
00724>       [XIMP=.30:TIMP=.64]
00725>       [LOSS= 2 :CN= 69.0]
00726>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00727>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00728> #------------------|---------------------------------------------------------|
00729> R0001:C00104------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00730>     CALIB STANDHYD         1.0 05:201            .99     .105 No_date    7:00  1
00731>       [XIMP=.26:TIMP=.58]
00732>       [LOSS= 2 :CN= 69.0]
00733>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  31.:MNP=.250:SCP=   .0]
00734>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  31.:MNI=.013:SCI=   .0]
00735> #------------------|----------------------Total to Overland Flow Channel------|
00736> R0001:C00105------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00737>     ADD HYD                1.0 02:202            .75     .081 No_date    7:00  1
00738>                      +     1.0 03:203            1.26     .137 No_date    7:00  1
00739>                      +     1.0 05:201            .99     .105 No_date    7:00  1
00740>                    SUM=    1.0 04:Total Ovl-     3.00     .323 No_date    7:00  1
00741> #------------------|---------------------------------------------------------|
00742> R0001:C00106------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00743>     CALIB STANDHYD         1.0 06:200            .52     .055 No_date    7:00  1
00744>       [XIMP=.33:TIMP=.60]
00745>       [LOSS= 2 :CN= 69.0]
00746>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00747>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00748> #------------------|----------------------Total to Pond----------------------|
00749> R0001:C00107------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00750>     ADD HYD                1.0 04:Total Ovl-     3.00     .323 No_date    7:00  1
00751>                      +     1.0 06:200            .52     .055 No_date    7:00  1
00752>                    SUM=    1.0 07:Total          3.52     .378 No_date    7:00  1
00753> #------------------|---------------------------------------------------------|
00754> #------------------|-----------------------SWM-------------------------------|
00755> R0001:C00108------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00756>     ROUTE RESERVOIR ->     1.0 07:Total          3.52     .378 No_date    7:00  1
00757>                    out <=  1.0 02:Dry Pond       3.52     .340 No_date    7:01  1
00758>              overflow <=   1.0 03:Dry Pond O      .00     .000 No_date    0:00
00759>      (MxStoUsed=.8956E-01  m3, TotOvfVol=.0000E+00  m3, N-Ovf=    0, TotDurOvf=
00760> #------------------|---------------------------------------------------------|
00761> #------------------|-------------------To Williams Sewer----------------------|
00762> R0001:C00109------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00763>     CALIB NASHYD           1.0 04:205            1.18     .102 No_date    7:03  1
00764>       [CN= 71.9: N= 3.00: Tp=  .30]
00765> #------------------|---------------------------------------------------------|
00766> R0001:C00110------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00767>     CALIB STANDHYD         1.0 05:204            .89     .095 No_date    7:00  1
00768>       [XIMP=.26:TIMP=.59]
00769>       [LOSS= 2 :CN= 69.0]
00770>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00771>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00772> #------------------|----------------------Total to William St Sewer--------------
00773> R0001:C00111------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00774>     ADD HYD                1.0 04:205            1.18     .102 No_date    7:03  1
00775>                      +     1.0 05:204            .89     .095 No_date    7:00  1
00776>                    SUM=    1.0 08:Total          2.07     .196 No_date    7:00  1
00777> #------------------|---------------------------------------------------------|
00778> #------------------|-----------------Backlots to Pretty River-----------------|
00779> R0001:C00112------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00780>     CALIB NASHYD           1.0 09:206            .53     .042 No_date    7:06  1
00781>       [CN= 69.0: N= 3.00: Tp=  .38]
00782> #------------------|----------------------Total flows into Pretty River----------
00783> R0001:C00113------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00784>     ADD HYD                1.0 09:206            .53     .042 No_date    7:06  1
00785>                      +     1.0 03:Dry Pond O      .00     .000 No_date    0:00
00786>                    SUM=    1.0 10:Total          .53     .042 No_date    7:06  1
00787> R0001:C00114------------------------------------------------------------------
00788>     FINISH
00789> ------------------------------------------------------------------------------
00790> ******************************************************************************
00791>      WARNINGS / ERRORS / NOTES
00792>      -------------------------
00793>    Simulation ended on 2021-10-27     at 16:12:06
00794> ==============================================================================
00795>
00796>
```

```
2     Metric units
*#**************************************************************************
*#  Project Name: [452 Raglan]    Project Number: [1432-4701]
*#  Date        : October 27, 2021
*#  Modeller    : [AC/RA]
*#  Company     : C.F. Crozier & Associates Inc.
*#  License #   :  3737016
*#**************************************************************************
*#  Filename    :  Post_SCS
*#  452 Raglan - Post Development - SCS Storms
*#**************************************************************************

*#**************************************************************************
START               TZERO=[0.0],  METOUT=[2],  NSTORM=[0],  NRUN=[0]
*%                   [  ] <--storm filename, one per line for NSTORM time
*#**************************************************************************
*%------------------|-------------------------------------------------------|
*#------------------|--------------- RAGLAN DRAINAGE MODEL ------------------|
*%------------------|-------------------------------------------------------|
*#**************************************************************************

*#**************************************************************************
*#                          2yr SCS Storm (24hr)
*#**************************************************************************
*#**************************************************************************

MASS STORM          PTOTAL=[45.60](mm), CSDT=[1](min),
                    CURVE_FILENAME=["SCS24HII.mst"]
*#**************************************************************************
*#------------------|-------------------------------------------------------|
*#------------------|----------------POST DEVELOPMENT----------------------|
*#------------------|--------------------To Pond------------------------|
CALIB NASHYD        ID=[2], NHYD=["202"], DT=[1](min), AREA=[0.75](ha),
                    XIMP=[0.252], TIMP=[0.615], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#------------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["203"], DT=[1](min), AREA=[1.26](ha),
                    XIMP=[0.30], TIMP=[0.638], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#------------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[5], NHYD=["201"], DT=[1](min), AREA=[0.99](ha),
                    XIMP=[0.261], TIMP=[0.584], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[31](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[31](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#------------------|---------------------Total to Overland Flow Channel------|
ADD HYD             IDsum=[4], NHYD=["Total Ovl-Flow"], IDs to add=[2,3,5](maxim
*#------------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[6], NHYD=["200"], DT=[1](min), AREA=[0.52](ha),
                    XIMP=[0.326], TIMP=[0.595], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#------------------|---------------------Total to Pond----------------------|
ADD HYD             IDsum=[7], NHYD=["Total"], IDs to add=[4,6](maximum ten)
*#------------------|-------------------------------------------------------|
*#------------------|-----------------------SWM-------------------------|
ROUTE RESERVOIR     IDout=[2],   NHYD=["Dry Pond"],  IDin=[7],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                       (cms) - (ha-m)
                                    [   0.0 ,   0.0 ]
                                    [ 0.0383, 0.000]
                                    [ 0.0444, 0.005]
                                    [ 0.0497, 0.011]
                                    [ 0.0545, 0.018]
                                    [ 0.0590, 0.027]
                                    [ 0.0631, 0.036]
                                    [ 0.0669, 0.047]
                                    [ 0.1200, 0.060]
                                    [ 0.2137, 0.074]
                                    [ 0.3339, 0.089]
                                    [ 0.5337, 0.106]
                                    [ 0.9379, 0.125]
                                    [   -1  ,  -1  ] (max twenty pts)
                          IDovf=[3], NHYDovf=["Dry Pond Ovf"]
*#------------------|-------------------------------------------------------|

*#------------------|-------------------To Williams Sewer-------------------|
CALIB NASHYD        ID=[4], NHYD=["205"], DT=[1]min, AREA=[1.18](ha),
                    DWF=[0](cms),  CN/C=[71.9], IA=[4.69](mm),
                    N=[3], TP=[0.30]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#------------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[5], NHYD=["204"], DT=[1](min), AREA=[0.89](ha),
                    XIMP=[0.257], TIMP=[0.59], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#------------------|---------------------Total to William St Sewer-------------
ADD HYD             IDsum=[8], NHYD=["Total"], IDs to add=[4,5](maximum ten)
*#------------------|-------------------------------------------------------
*#------------------|-------------------Backlots to Pretty River-----------------
CALIB NASHYD        ID=[9], NHYD=["206"], DT=[1]min, AREA=[0.53](ha),
                    DWF=[0](cms),  CN/C=[69], IA=[5.00](mm),
                    N=[3], TP=[0.38]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#------------------|---------------------Total flows into Pretty River---------
ADD HYD             IDsum=[10], NHYD=["Total"], IDs to add=[9,3](maximum ten)
*#**************************************************************************
*#**************************************************************************
*#                          5yr SCS Storm (24hr)
*#**************************************************************************
*#**************************************************************************

MASS STORM          PTOTAL=[62.4](mm), CSDT=[1](min),
                    CURVE_FILENAME=["SCS24HII.mst"]
*#**************************************************************************
*#------------------|-------------------------------------------------------|
*#------------------|-------------Pre-development to Pretty River---------------|
CALIB NASHYD        ID=[1], NHYD=["PRE"], DT=[1]min, AREA=[6.12](ha),
                    DWF=[0](cms),  CN/C=[63.1], IA=[6.12](mm),
                    N=[3], TP=[0.64]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#------------------|-------------------------------------------------------|
*#------------------|----------------POST DEVELOPMENT----------------------|
*#------------------|--------------------To Pond------------------------|
CALIB STANDHYD      ID=[2], NHYD=["202"], DT=[1](min), AREA=[0.75](ha),
                    XIMP=[0.252], TIMP=[0.615], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#------------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["203"], DT=[1](min), AREA=[1.26](ha),
                    XIMP=[0.30], TIMP=[0.638], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#------------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[5], NHYD=["201"], DT=[1](min), AREA=[0.99](ha),
                    XIMP=[0.261], TIMP=[0.584], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[31](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[31](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#------------------|---------------------Total to Overland Flow Channel------|
ADD HYD             IDsum=[4], NHYD=["Total Ovl-Flow"], IDs to add=[2,3,5](maxim
*#------------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[6], NHYD=["200"], DT=[1](min), AREA=[0.52](ha),
                    XIMP=[0.326], TIMP=[0.595], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#------------------|---------------------Total to Pond----------------------|
ADD HYD             IDsum=[7], NHYD=["Total"], IDs to add=[4,6](maximum ten)
*#------------------|-------------------------------------------------------|
*#------------------|-----------------------SWM-------------------------|
ROUTE RESERVOIR     IDout=[2],   NHYD=["Dry Pond"],  IDin=[7],
                    RDT=[1](min),
                          TABLE of ( OUTFLOW-STORAGE ) values
                                       (cms) - (ha-m)
                                    [   0.0 ,   0.0 ]
                                    [ 0.0383, 0.000]
                                    [ 0.0444, 0.005]
                                    [ 0.0497, 0.011]
                                    [ 0.0545, 0.018]
                                    [ 0.0590, 0.027]
                                    [ 0.0631, 0.036]
                                    [ 0.0669, 0.047]
                                    [ 0.1200, 0.060]
                                    [ 0.2137, 0.074]
                                    [ 0.3339, 0.089]
                                    [ 0.5337, 0.106]
                                    [ 0.9379, 0.125]
                                    [   -1  ,  -1  ] (max twenty pts)
                          IDovf=[3], NHYDovf=["Dry Pond Ovf"]
*#------------------|-------------------------------------------------------|

*#------------------|-------------------To Williams Sewer-------------------|
CALIB NASHYD        ID=[4], NHYD=["205"], DT=[1]min, AREA=[1.18](ha),
                    DWF=[0](cms),  CN/C=[71.9], IA=[4.69](mm),
                    N=[3], TP=[0.30]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#------------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[5], NHYD=["204"], DT=[1](min), AREA=[0.89](ha),
                    XIMP=[0.257], TIMP=[0.59], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#------------------|---------------------Total to William St Sewer-------------
ADD HYD             IDsum=[8], NHYD=["Total"], IDs to add=[4,5](maximum ten)
*#------------------|-------------------------------------------------------
*#------------------|-------------------Backlots to Pretty River-----------------
CALIB NASHYD        ID=[9], NHYD=["206"], DT=[1]min, AREA=[0.53](ha),
                    DWF=[0](cms),  CN/C=[69], IA=[5.00](mm),
                    N=[3], TP=[0.38]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1

*#------------------|---------------------Total flows into Pretty River---------
ADD HYD             IDsum=[10], NHYD=["Total"], IDs to add=[9,3](maximum ten)
*#**************************************************************************
*#                          10yr SCS Storm (24hr)
*#**************************************************************************
*#**************************************************************************

MASS STORM          PTOTAL=[72.0](mm), CSDT=[1](min),
                    CURVE_FILENAME=["SCS24HII.mst"]
*#**************************************************************************
*#------------------|-------------------------------------------------------|
*#------------------|-------------Pre-development to Pretty River---------------|
CALIB NASHYD        ID=[1], NHYD=["PRE"], DT=[1]min, AREA=[6.12](ha),
                    DWF=[0](cms),  CN/C=[63.1], IA=[6.12](mm),
                    N=[3], TP=[0.64]hrs,
                    RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
*#------------------|-------------------------------------------------------|
*#------------------|----------------POST DEVELOPMENT----------------------|
*#------------------|--------------------To Pond------------------------|
CALIB STANDHYD      ID=[2], NHYD=["202"], DT=[1](min), AREA=[0.75](ha),
                    XIMP=[0.252], TIMP=[0.615], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#------------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[3], NHYD=["203"], DT=[1](min), AREA=[1.26](ha),
                    XIMP=[0.30], TIMP=[0.638], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[30](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
*#------------------|-------------------------------------------------------|
CALIB STANDHYD      ID=[5], NHYD=["201"], DT=[1](min), AREA=[0.99](ha),
                    XIMP=[0.261], TIMP=[0.584], DWF=[0](cms), LOSS=[2],
                    SCS curve number CN=[69],
                    Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
                                         LGP=[31](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
                                         LGI=[31](m), MNI=[0.013], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
```

```
00271> *#-----------------|---------------------Total to Overland Flow Channel------|
00272> ADD HYD             IDsum=[4], NHYD=["Total Ovl-Flow"], IDs to add=[2,3,5](maxim
00273> *#-----------------|-----------------------------------------------------------|
00274> CALIB STANDHYD      ID=[6], NHYD=["200"], DT=[1](min), AREA=[0.52](ha),
00275>                     XIMP=[0.326], TIMP=[0.595], DWF=[0](cms), LOSS=[2],
00276>                     SCS curve number CN=[69],
00277>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00278>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00279>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00280>                                          LGI=[30](m), MNI=[0.013], SCI=[0](min),
00281>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00282> *#-----------------|---------------------Total to Pond-----------------------|
00283> ADD HYD             IDsum=[7], NHYD=["Total"], IDs to add=[4,6](maximum ten)
00284> *#-----------------|-----------------------------------------------------------|
00285> *#-----------------|-----------------------SWM-------------------------|
00286> ROUTE RESERVOIR     IDout=[2],   NHYD=["Dry Pond"],  IDin=[7],
00287>                     RDT=[1](min),
00288>                           TABLE of ( OUTFLOW-STORAGE ) values
00289>                                      (cms) - (ha-m)
00290>                                    [   0.0 ,  0.0 ]
00291>                                    [ 0.0383, 0.000]
00292>                                    [ 0.0444, 0.005]
00293>                                    [ 0.0497, 0.011]
00294>                                    [ 0.0545, 0.018]
00295>                                    [ 0.0590, 0.027]
00296>                                    [ 0.0631, 0.036]
00297>                                    [ 0.0669, 0.047]
00298>                                    [ 0.1200, 0.060]
00299>                                    [ 0.2137, 0.074]
00300>                                    [ 0.3339, 0.089]
00301>                                    [ 0.5337, 0.106]
00302>                                    [ 0.9379, 0.125]
00303>                                    [   -1  ,   -1  ] (max twenty pts)
00304>                           IDovf=[3], NHYDovf=["Dry Pond Ovf"]
00305> *#-----------------|-----------------------------------------------------------|
00306>
00307> *#-----------------|-------------------To Williams Sewer-----------------------|
00308> CALIB NASHYD        ID=[4], NHYD=["205"], DT=[1]min, AREA=[1.18](ha),
00309>                     DWF=[0](cms),  CN/C=[71.9], IA=[4.69](mm),
00310>                     N=[3], TP=[0.30]hrs,
00311>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00312> *#-----------------|-----------------------------------------------------------|
00313> CALIB STANDHYD      ID=[5], NHYD=["204"], DT=[1](min), AREA=[0.89](ha),
00314>                     XIMP=[0.257], TIMP=[0.59], DWF=[0](cms), LOSS=[2],
00315>                     SCS curve number CN=[69],
00316>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00317>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00318>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00319>                                          LGI=[30](m), MNI=[0.013], SCI=[0](min),
00320>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00321> *#-----------------|---------------------Total to William St Sewer-------------
00322> ADD HYD             IDsum=[8], NHYD=["Total"], IDs to add=[4,5](maximum ten)
00323> *#-----------------|-----------------------------------------------------------
00324> *#-----------------|-------------------Backlots to Pretty River-----------------
00325> CALIB NASHYD        ID=[9], NHYD=["206"], DT=[1]min, AREA=[0.53](ha),
00326>                     DWF=[0](cms),  CN/C=[69], IA=[5.00](mm),
00327>                     N=[3], TP=[0.38]hrs,
00328>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00329>
00330> *#-----------------|---------------------Total flows into Pretty River---------
00331> ADD HYD             IDsum=[10], NHYD=["Total"], IDs to add=[9,3](maximum ten)
00332> *#**************************************************************************
00333> *#**************************************************************************
00334> *#                          25yr SCS Storm (24hr)
00335> *#**************************************************************************
00336> *#**************************************************************************
00337> MASS STORM           PTOTAL=[86.4](mm), CSDT=[1](min),
00338>                     CURVE_FILENAME=["SCS24HII.mst"]
00339> *#**************************************************************************
00340> **#*************************************************************************
00341> *#-----------------|-----------------------------------------------------------|
00342> *#-----------------|-------------Pre-development to Pretty River---------------|
00343> CALIB NASHYD        ID=[1], NHYD=["PRE"], DT=[1]min, AREA=[6.12](ha),
00344>                     DWF=[0](cms),  CN/C=[63.1], IA=[6.12](mm),
00345>                     N=[3], TP=[0.64]hrs,
00346>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00347> *#-----------------|-----------------------------------------------------------|
00348> *#-----------------|---------------------POST DEVELOPMENT----------------------|
00349> *#-----------------|-----------------------To Pond-----------------------|
00350> CALIB STANDHYD      ID=[2], NHYD=["202"], DT=[1](min), AREA=[0.75](ha),
00351>                     XIMP=[0.252], TIMP=[0.615], DWF=[0](cms), LOSS=[2],
00352>                     SCS curve number CN=[69],
00353>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00354>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00355>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00356>                                          LGI=[30](m), MNI=[0.013], SCI=[0](min),
00357>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00358> *#-----------------|-----------------------------------------------------------|
00359> CALIB STANDHYD      ID=[3], NHYD=["203"], DT=[1](min), AREA=[1.26](ha),
00360>                     XIMP=[0.30], TIMP=[0.638], DWF=[0](cms), LOSS=[2],
00361>                     SCS curve number CN=[69],
00362>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00363>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00364>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00365>                                          LGI=[30](m), MNI=[0.013], SCI=[0](min),
00366>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00367> *#-----------------|-----------------------------------------------------------|
00368> CALIB STANDHYD      ID=[5], NHYD=["201"], DT=[1](min), AREA=[0.99](ha),
00369>                     XIMP=[0.261], TIMP=[0.584], DWF=[0](cms), LOSS=[2],
00370>                     SCS curve number CN=[69],
00371>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00372>                                          LGP=[31](m), MNP=[0.25], SCP=[0](min),
00373>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00374>                                          LGI=[31](m), MNI=[0.013], SCI=[0](min),
00375>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00376> *#-----------------|---------------------Total to Overland Flow Channel------|
00377> ADD HYD             IDsum=[4], NHYD=["Total Ovl-Flow"], IDs to add=[2,3,5](maxim
00378> *#-----------------|-----------------------------------------------------------|
00379> CALIB STANDHYD      ID=[6], NHYD=["200"], DT=[1](min), AREA=[0.52](ha),
00380>                     XIMP=[0.326], TIMP=[0.595], DWF=[0](cms), LOSS=[2],
00381>                     SCS curve number CN=[69],
00382>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00383>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00384>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00385>                                          LGI=[30](m), MNI=[0.013], SCI=[0](min),
00386>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00387> *#-----------------|---------------------Total to Pond-----------------------|
00388> ADD HYD             IDsum=[7], NHYD=["Total"], IDs to add=[4,6](maximum ten)
00389> *#-----------------|-----------------------------------------------------------|
00390> *#-----------------|-----------------------SWM-------------------------|
00391> ROUTE RESERVOIR     IDout=[2],   NHYD=["Dry Pond"],  IDin=[7],
00392>                     RDT=[1](min),
00393>                           TABLE of ( OUTFLOW-STORAGE ) values
00394>                                      (cms) - (ha-m)
00395>                                    [   0.0 ,  0.0 ]
00396>                                    [ 0.0383, 0.000]
00397>                                    [ 0.0444, 0.005]
00398>                                    [ 0.0497, 0.011]
00399>                                    [ 0.0545, 0.018]
00400>                                    [ 0.0590, 0.027]
00401>                                    [ 0.0631, 0.036]
00402>                                    [ 0.0669, 0.047]
00403>                                    [ 0.1200, 0.060]
00404>                                    [ 0.2137, 0.074]
00405>                                    [ 0.3339, 0.089]
00406>                                    [ 0.5337, 0.106]
00407>                                    [ 0.9379, 0.125]
00408>                                    [   -1  ,   -1  ] (max twenty pts)
00409>                           IDovf=[3], NHYDovf=["Dry Pond Ovf"]
00410> *#-----------------|-----------------------------------------------------------|
00411>
00412> *#-----------------|-------------------To Williams Sewer-----------------------|
00413> CALIB NASHYD        ID=[4], NHYD=["205"], DT=[1]min, AREA=[1.18](ha),
00414>                     DWF=[0](cms),  CN/C=[71.9], IA=[4.69](mm),
00415>                     N=[3], TP=[0.30]hrs,
00416>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00417> *#-----------------|-----------------------------------------------------------|
00418> CALIB STANDHYD      ID=[5], NHYD=["204"], DT=[1](min), AREA=[0.89](ha),
00419>                     XIMP=[0.257], TIMP=[0.59], DWF=[0](cms), LOSS=[2],
00420>                     SCS curve number CN=[69],
00421>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00422>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00423>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00424>                                          LGI=[30](m), MNI=[0.013], SCI=[0](min),
00425>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00426> *#-----------------|---------------------Total to William St Sewer-------------
00427> ADD HYD             IDsum=[8], NHYD=["Total"], IDs to add=[4,5](maximum ten)
00428> *#-----------------|-----------------------------------------------------------
00429> *#-----------------|-------------------Backlots to Pretty River-----------------
00430> CALIB NASHYD        ID=[9], NHYD=["206"], DT=[1]min, AREA=[0.53](ha),
00431>                     DWF=[0](cms),  CN/C=[69], IA=[5.00](mm),
00432>                     N=[3], TP=[0.38]hrs,
00433>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00434>
00435> *#-----------------|---------------------Total flows into Pretty River---------
00436> ADD HYD             IDsum=[10], NHYD=["Total"], IDs to add=[9,3](maximum ten)
00437> *#**************************************************************************
00438> *#**************************************************************************
00439> *#                          50yr SCS Storm (24hr)
00440> *#**************************************************************************
00441> *#**************************************************************************
00442> MASS STORM           PTOTAL=[96.0](mm), CSDT=[1](min),
00443>                     CURVE_FILENAME=["SCS24HII.mst"]
00444> *#**************************************************************************
00445> *#-----------------|-----------------------------------------------------------|
00446> *#-----------------|-------------Pre-development to Pretty River---------------|
00447> CALIB NASHYD        ID=[1], NHYD=["PRE"], DT=[1]min, AREA=[6.12](ha),
00448>                     DWF=[0](cms),  CN/C=[63.1], IA=[6.12](mm),
00449>                     N=[3], TP=[0.64]hrs,
00450>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00451> *#-----------------|-----------------------------------------------------------|
00452> *#-----------------|---------------------POST DEVELOPMENT----------------------|
00453> *#-----------------|-----------------------To Pond-----------------------|
00454> CALIB STANDHYD      ID=[2], NHYD=["202"], DT=[1](min), AREA=[0.75](ha),
00455>                     XIMP=[0.252], TIMP=[0.615], DWF=[0](cms), LOSS=[2],
00456>                     SCS curve number CN=[69],
00457>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00458>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00459>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00460>                                          LGI=[30](m), MNI=[0.013], SCI=[0](min),
00461>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00462> *#-----------------|-----------------------------------------------------------|
00463> CALIB STANDHYD      ID=[3], NHYD=["203"], DT=[1](min), AREA=[1.26](ha),
00464>                     XIMP=[0.30], TIMP=[0.638], DWF=[0](cms), LOSS=[2],
00465>                     SCS curve number CN=[69],
00466>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00467>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00468>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00469>                                          LGI=[30](m), MNI=[0.013], SCI=[0](min),
00470>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00471> *#-----------------|-----------------------------------------------------------|
00472> CALIB STANDHYD      ID=[5], NHYD=["201"], DT=[1](min), AREA=[0.99](ha),
00473>                     XIMP=[0.261], TIMP=[0.584], DWF=[0](cms), LOSS=[2],
00474>                     SCS curve number CN=[69],
00475>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00476>                                          LGP=[31](m), MNP=[0.25], SCP=[0](min),
00477>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00478>                                          LGI=[31](m), MNI=[0.013], SCI=[0](min),
00479>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00480> *#-----------------|---------------------Total to Overland Flow Channel------|
00481> ADD HYD             IDsum=[4], NHYD=["Total Ovl-Flow"], IDs to add=[2,3,5](maxim
00482> *#-----------------|-----------------------------------------------------------|
00483> CALIB STANDHYD      ID=[6], NHYD=["200"], DT=[1](min), AREA=[0.52](ha),
00484>                     XIMP=[0.326], TIMP=[0.595], DWF=[0](cms), LOSS=[2],
00485>                     SCS curve number CN=[69],
00486>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00487>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00488>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00489>                                          LGI=[30](m), MNI=[0.013], SCI=[0](min),
00490>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00491> *#-----------------|---------------------Total to Pond-----------------------|
00492> ADD HYD             IDsum=[7], NHYD=["Total"], IDs to add=[4,6](maximum ten)
00493> *#-----------------|-----------------------------------------------------------|
00494> *#-----------------|-----------------------SWM-------------------------|
00495> ROUTE RESERVOIR     IDout=[2],   NHYD=["Dry Pond"],  IDin=[7],
00496>                     RDT=[1](min),
00497>                           TABLE of ( OUTFLOW-STORAGE ) values
00498>                                      (cms) - (ha-m)
00499>                                    [   0.0 ,  0.0 ]
00500>                                    [ 0.0383, 0.000]
00501>                                    [ 0.0444, 0.005]
00502>                                    [ 0.0497, 0.011]
00503>                                    [ 0.0545, 0.018]
00504>                                    [ 0.0590, 0.027]
00505>                                    [ 0.0631, 0.036]
00506>                                    [ 0.0669, 0.047]
00507>                                    [ 0.1200, 0.060]
00508>                                    [ 0.2137, 0.074]
00509>                                    [ 0.3339, 0.089]
00510>                                    [ 0.5337, 0.106]
00511>                                    [ 0.9379, 0.125]
00512>                                    [   -1  ,   -1  ] (max twenty pts)
00513>                           IDovf=[3], NHYDovf=["Dry Pond Ovf"]
00514> *#-----------------|-----------------------------------------------------------|
00515>
00516> *#-----------------|-------------------To Williams Sewer-----------------------|
00517> CALIB NASHYD        ID=[4], NHYD=["205"], DT=[1]min, AREA=[1.18](ha),
00518>                     DWF=[0](cms),  CN/C=[71.9], IA=[4.69](mm),
00519>                     N=[3], TP=[0.30]hrs,
00520>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00521> *#-----------------|-----------------------------------------------------------|
00522> CALIB STANDHYD      ID=[5], NHYD=["204"], DT=[1](min), AREA=[0.89](ha),
00523>                     XIMP=[0.257], TIMP=[0.59], DWF=[0](cms), LOSS=[2],
00524>                     SCS curve number CN=[69],
00525>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00526>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00527>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00528>                                          LGI=[30](m), MNI=[0.013], SCI=[0](min),
00529>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00530> *#-----------------|---------------------Total to William St Sewer-------------
00531> ADD HYD             IDsum=[8], NHYD=["Total"], IDs to add=[4,5](maximum ten)
00532> *#-----------------|-----------------------------------------------------------
00533> *#-----------------|-------------------Backlots to Pretty River-----------------
00534> CALIB NASHYD        ID=[9], NHYD=["206"], DT=[1]min, AREA=[0.53](ha),
00535>                     DWF=[0](cms),  CN/C=[69], IA=[5.00](mm),
00536>                     N=[3], TP=[0.38]hrs,
00537>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00538>
00539> *#-----------------|---------------------Total flows into Pretty River---------
00540> ADD HYD             IDsum=[10], NHYD=["Total"], IDs to add=[9,3](maximum ten)
```

```
00541> *#*****************************************************************************
00542> *#*****************************************************************************
00543> *#                          100yr SCS Storm (24hr)
00544> *#*****************************************************************************
00545> *#*****************************************************************************
00546> MASS STORM          PTOTAL=[108.0](mm), CSDT=[1](min),
00547>                     CURVE_FILENAME=["SCS24HII.mst"]
00548> *#*****************************************************************************
00549> *#-----------------|---------------------------------------------------------|
00550> *#-----------------|-------------Pre-development to Pretty River---------------|
00551> CALIB NASHYD       ID=[1], NHYD=["PRE"], DT=[1]min, AREA=[6.12](ha),
00552>                     DWF=[0](cms),  CN/C=[63.1], IA=[6.12](mm),
00553>                     N=[3], TP=[0.64]hrs,
00554>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00555> *#-----------------|---------------------------------------------------------|
00556> *#-----------------|--------------------POST DEVELOPMENT----------------------|
00557> *#-----------------|-----------------To Pond------------------------|
00558> CALIB STANDHYD      ID=[2], NHYD=["202"], DT=[1](min), AREA=[0.75](ha),
00559>                     XIMP=[0.252], TIMP=[0.615], DWF=[0](cms), LOSS=[2],
00560>                     SCS curve number CN=[69],
00561>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00562>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00563>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00564>                                          LGI=[30](m), MNI=[0.013], SCI=[0](min),
00565>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00566> *#-----------------|---------------------------------------------------------|
00567> CALIB STANDHYD      ID=[3], NHYD=["203"], DT=[1](min), AREA=[1.26](ha),
00568>                     XIMP=[0.30], TIMP=[0.638], DWF=[0](cms), LOSS=[2],
00569>                     SCS curve number CN=[69],
00570>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00571>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00572>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00573>                                          LGI=[30](m), MNI=[0.013], SCI=[0](min),
00574>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00575> *#-----------------|---------------------------------------------------------|
00576> CALIB STANDHYD      ID=[5], NHYD=["201"], DT=[1](min), AREA=[0.99](ha),
00577>                     XIMP=[0.261], TIMP=[0.584], DWF=[0](cms), LOSS=[2],
00578>                     SCS curve number CN=[69],
00579>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00580>                                          LGP=[31](m), MNP=[0.25], SCP=[0](min),
00581>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00582>                                          LGI=[31](m), MNI=[0.013], SCI=[0](min),
00583>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00584> *#-----------------|---------------------Total to Overland Flow Channel------|
00585> ADD HYD            IDsum=[4], NHYD=["Total Ovl-Flow"], IDs to add=[2,3,5](maxim
00586> *#-----------------|---------------------------------------------------------|
00587> CALIB STANDHYD      ID=[6], NHYD=["200"], DT=[1](min), AREA=[0.52](ha),
00588>                     XIMP=[0.326], TIMP=[0.595], DWF=[0](cms), LOSS=[2],
00589>                     SCS curve number CN=[69],
00590>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00591>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00592>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00593>                                          LGI=[30](m), MNI=[0.013], SCI=[0](min),
00594>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00595> *#-----------------|---------------------Total to Pond-----------------------|
00596> ADD HYD            IDsum=[7], NHYD=["Total"], IDs to add=[4,6](maximum ten)
00597> *#-----------------|---------------------------------------------------------|
00598> *#-----------------|-----------------SWM-------------------------|
00599> ROUTE RESERVOIR    IDout=[2],   NHYD=["Dry Pond"],  IDin=[7],
00600>                     RDT=[1](min),
00601>                          TABLE of ( OUTFLOW-STORAGE ) values
00602>                                     (cms) - (ha-m)
00603>                                   [   0.0 ,  0.0 ]
00604>                                   [ 0.0383, 0.000]
00605>                                   [ 0.0444, 0.005]
00606>                                   [ 0.0497, 0.011]
00607>                                   [ 0.0545, 0.018]
00608>                                   [ 0.0590, 0.027]
00609>                                   [ 0.0631, 0.036]
00610>                                   [ 0.0669, 0.047]
00611>                                   [ 0.1200, 0.060]
00612>                                   [ 0.2137, 0.074]
00613>                                   [ 0.3339, 0.089]
00614>                                   [ 0.5337, 0.106]
00615>                                   [ 0.9379, 0.125]
00616>                                   [   -1  ,  -1  ] (max twenty pts)
00617>                              IDovf=[3], NHYDovf=["Dry Pond Ovf"]
00618> *#-----------------|---------------------------------------------------------|
00619>
00620> *#-----------------|------------------To Williams Sewer-----------------------|
00621> CALIB NASHYD       ID=[4], NHYD=["205"], DT=[1]min, AREA=[1.18](ha),
00622>                     DWF=[0](cms),  CN/C=[71.9], IA=[4.69](mm),
00623>                     N=[3], TP=[0.30]hrs,
00624>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00625> *#-----------------|---------------------------------------------------------|
00626> CALIB STANDHYD      ID=[5], NHYD=["204"], DT=[1](min), AREA=[0.89](ha),
00627>                     XIMP=[0.257], TIMP=[0.59], DWF=[0](cms), LOSS=[2],
00628>                     SCS curve number CN=[69],
00629>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00630>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00631>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00632>                                          LGI=[30](m), MNI=[0.013], SCI=[0](min),
00633>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00634> *#-----------------|---------------------Total to William St Sewer-------------
00635> ADD HYD            IDsum=[8], NHYD=["Total"], IDs to add=[4,5](maximum ten)
00636> *#-----------------|-------------------------------------------------------
00637> *#-----------------|-------------------Backlots to Pretty River-----------------
00638> CALIB NASHYD       ID=[9], NHYD=["206"], DT=[1]min, AREA=[0.53](ha),
00639>                     DWF=[0](cms),  CN/C=[69], IA=[5.00](mm),
00640>                     N=[3], TP=[0.38]hrs,
00641>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00642>
00643> *#-----------------|---------------------Total flows into Pretty River---------
00644> ADD HYD            IDsum=[10], NHYD=["Total"], IDs to add=[9,3](maximum ten)
00645> *#*****************************************************************************
00646> *#*****************************************************************************
00647> *#                           Timmins Event (Regional)
00648> *#*****************************************************************************
00649> *%-----------------|---------------------------------------------------------|
00650> READ STORM          STORM_FILENAME=["tim.stm"]
00651> **#****************************************************************************
00652> *#-----------------|---------------------------------------------------------|
00653> *#-----------------|-------------Pre-development to Pretty River---------------|
00654> CALIB NASHYD       ID=[1], NHYD=["PRE"], DT=[1]min, AREA=[6.12](ha),
00655>                     DWF=[0](cms),  CN/C=[63.1], IA=[6.12](mm),
00656>                     N=[3], TP=[0.64]hrs,
00657>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00658> *#-----------------|---------------------------------------------------------|
00659> *#-----------------|--------------------POST DEVELOPMENT----------------------|
00660> *#-----------------|-----------------To Pond------------------------|
00661> CALIB STANDHYD      ID=[2], NHYD=["202"], DT=[1](min), AREA=[0.75](ha),
00662>                     XIMP=[0.252], TIMP=[0.615], DWF=[0](cms), LOSS=[2],
00663>                     SCS curve number CN=[69],
00664>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00665>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00666>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00667>                                          LGI=[30](m), MNI=[0.013], SCI=[0](min),
00668>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00669> *#-----------------|---------------------------------------------------------|
00670> CALIB STANDHYD      ID=[3], NHYD=["203"], DT=[1](min), AREA=[1.26](ha),
00671>                     XIMP=[0.30], TIMP=[0.638], DWF=[0](cms), LOSS=[2],
00672>                     SCS curve number CN=[69],
00673>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00674>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00675>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00676>                                          LGI=[30](m), MNI=[0.013], SCI=[0](min),
00677>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00678> *#-----------------|---------------------------------------------------------|
00679> CALIB STANDHYD      ID=[5], NHYD=["201"], DT=[1](min), AREA=[0.99](ha),
00680>                     XIMP=[0.261], TIMP=[0.584], DWF=[0](cms), LOSS=[2],
00681>                     SCS curve number CN=[69],
00682>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00683>                                          LGP=[31](m), MNP=[0.25], SCP=[0](min),
00684>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00685>                                          LGI=[31](m), MNI=[0.013], SCI=[0](min),
00686>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00687> *#-----------------|---------------------Total to Overland Flow Channel------|
00688> ADD HYD            IDsum=[4], NHYD=["Total Ovl-Flow"], IDs to add=[2,3,5](maxim
00689> *#-----------------|---------------------------------------------------------|
00690> CALIB STANDHYD      ID=[6], NHYD=["200"], DT=[1](min), AREA=[0.52](ha),
00691>                     XIMP=[0.326], TIMP=[0.595], DWF=[0](cms), LOSS=[2],
00692>                     SCS curve number CN=[69],
00693>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00694>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00695>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00696>                                          LGI=[30](m), MNI=[0.013], SCI=[0](min),
00697>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00698> *#-----------------|---------------------Total to Pond-----------------------|
00699> ADD HYD            IDsum=[7], NHYD=["Total"], IDs to add=[4,6](maximum ten)
00700> *#-----------------|---------------------------------------------------------|
00701> *#-----------------|-----------------SWM-------------------------|
00702> ROUTE RESERVOIR    IDout=[2],   NHYD=["Dry Pond"],  IDin=[7],
00703>                     RDT=[1](min),
00704>                           TABLE of ( OUTFLOW-STORAGE ) values
00705>                                      (cms) - (ha-m)
00706>                                    [   0.0 ,  0.0 ]
00707>                                    [ 0.0383, 0.000]
00708>                                    [ 0.0444, 0.005]
00709>                                    [ 0.0497, 0.011]
00710>                                    [ 0.0545, 0.018]
00711>                                    [ 0.0590, 0.027]
00712>                                    [ 0.0631, 0.036]
00713>                                    [ 0.0669, 0.047]
00714>                                    [ 0.1200, 0.060]
00715>                                    [ 0.2137, 0.074]
00716>                                    [ 0.3339, 0.089]
00717>                                    [ 0.5337, 0.106]
00718>                                    [ 0.9379, 0.125]
00719>                                    [   -1  ,  -1  ] (max twenty pts)
00720>                               IDovf=[3], NHYDovf=["Dry Pond Ovf"]
00721> *#-----------------|---------------------------------------------------------|
00722>
00723> *#-----------------|------------------To Williams Sewer-----------------------|
00724> CALIB NASHYD       ID=[4], NHYD=["205"], DT=[1]min, AREA=[1.18](ha),
00725>                     DWF=[0](cms),  CN/C=[71.9], IA=[4.69](mm),
00726>                     N=[3], TP=[0.30]hrs,
00727>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00728> *#-----------------|---------------------------------------------------------|
00729> CALIB STANDHYD      ID=[5], NHYD=["204"], DT=[1](min), AREA=[0.89](ha),
00730>                     XIMP=[0.257], TIMP=[0.59], DWF=[0](cms), LOSS=[2],
00731>                     SCS curve number CN=[69],
00732>                     Pervious   surfaces: IAper=[5](mm), SLPP=[2](%),
00733>                                          LGP=[30](m), MNP=[0.25], SCP=[0](min),
00734>                     Impervious surfaces: IAimp=[2](mm), SLPI=[2](%),
00735>                                          LGI=[30](m), MNI=[0.013], SCI=[0](min),
00736>                     RAINFALL=[ ,  ,  ,  , ](mm/hr) ,  END=-1
00737> *#-----------------|---------------------Total to William St Sewer-------------
00738> ADD HYD            IDsum=[8], NHYD=["Total"], IDs to add=[4,5](maximum ten)
00739> *#-----------------|-------------------------------------------------------
00740> *#-----------------|-------------------Backlots to Pretty River-----------------
00741> CALIB NASHYD       ID=[9], NHYD=["206"], DT=[1]min, AREA=[0.53](ha),
00742>                     DWF=[0](cms),  CN/C=[69], IA=[5.00](mm),
00743>                     N=[3], TP=[0.38]hrs,
00744>                     RAINFALL=[ ,  ,  ,  , ](mm/hr),  END=-1
00745>
00746> *#-----------------|---------------------Total flows into Pretty River---------
00747> ADD HYD            IDsum=[10], NHYD=["Total"], IDs to add=[9,3](maximum ten)
00748> FINISH
00749>
00750>
```

```
00001>  ================================================================================
00002>
00003>  SSSSS   W   W   M   M   H   H   Y   Y   M   M     OOO          222     000    11
00004>  S       W W W   MM MM   H   H    Y Y    MM MM    O   O          2     0   0   11
00005>  SSSSS   W W W   M M M   HHHHH     Y     M M M    O   O          2     0   0   11
00006>      S    W W    M   M   H   H     Y     M   M    O   O        222     0   0   11
00007>  SSSSS    W W    M   M   H   H     Y     M   M     OOO         2       0   0   11
00008>                                                                 2       0   0   11
00009>         StormWater Management HYdrologic Model                  222     000    11
00010>
00011>  ********************************************************************************
00012>  ************************************ SWMHYMO Ver4.05.0  ************************
00013>  ******************  A single event and continuous hydrologic simulation model
00014>  ******************     based on the principles of HYMO and its successors
00015>  ******************                 OTTHYMO-83 and OTTHYMO-89.
00016>  ********************************************************************************
00017>  ****************** Distributed by:  J.F. Sabourin and Associates Inc.
00018>  ******************                  Ottawa,  Ontario: (613) 836-3884
00019>  ******************                  Gatineau, Quebec: (819) 243-6858
00020>  ******************                  E-Mail: swmhymo@jfsa.com
00021>  ********************************************************************************
00022>
00023>  ********************************************************************************
00024>  ****************** Licensed user: C.F. Crozier & Associates Inc.
00025>  ******************                 Collingwood          SERIAL#:3737016
00026>  ********************************************************************************
00027>
00028>  ********************************************************************************
00029>  ******************           ++++++ PROGRAM ARRAY DIMENSIONS ++++++
00030>  ******************           Maximum value for ID numbers  :     11
00031>  ******************           Max. number of rainfall points: 105408
00032>  ******************           Max. number of flow points    : 105408
00033>  ********************************************************************************
00034>
00035>
00036>  ****************************   S U M M A R Y   O U T P U T   **************
00037>  ********************************************************************************
00038>  *               RUN DATE: 2021-10-27     TIME: 16:19:30     RUN COUNTER: 0000
00039>  ********************************************************************************
00040>  * Input   file: C:\Users\achatterjee\OneDrive - CF Crozier & Associates\Desktop
00041>  *              gn - AC_Updated\2021.10.21_SCS.dat
00042>  * Output  file: C:\Users\achatterjee\OneDrive - CF Crozier & Associates\Desktop
00043>  *              gn - AC_Updated\2021.10.21_SCS.out
00044>  * Summary file: C:\Users\achatterjee\OneDrive - CF Crozier & Associates\Desktop
00045>  *              gn - AC_Updated\2021.10.21_SCS.sum
00046>  * User comments:
00047>  * 1: ____________________________________________________________________________
00048>  * 2: ____________________________________________________________________________
00049>  * 3: ____________________________________________________________________________
00050>  ********************************************************************************
00051>
00052>
00053> #*******************************************************************************
00054> #  Project Name: [452 Raglan]    Project Number: [1432-4701]
00055> #  Date         : October 27, 2021
00056> #  Modeller     : [AC/RA]
00057> #  Company      : C.F. Crozier & Associates Inc.
00058> #  License #    :  3737016
00059> #*******************************************************************************
00060> #  Filename     :  Post_SCS
00061> #  452 Raglan - Post Development - SCS Storms
00062> #*******************************************************************************
00063> #*******************************************************************************
00064>  RUN#:COMMAND#
00065> R0001:C00001------------------------------------------------------------------
00066>      START
00067>       [TZERO =    .00 hrs on       0]
00068>       [METOUT=   2    (1=imperial, 2=metric output)]
00069>       [NSTORM=   0 ]
00070>       [NRUN  = 0001 ]
00071> #*******************************************************************************
00072> #-----------------|--------------- RAGLAN DRAINAGE MODEL ----------------------|
00073> #*******************************************************************************
00074> #*******************************************************************************
00075> #                              2yr SCS Storm (24hr)
00076> #*******************************************************************************
00077> #*******************************************************************************
00078> R0001:C00002------------------------------------------------------------------
00079>      MASS STORM
00080>       Filename = C:\Users\achatterjee\OneDrive - CF Crozier & Associates\Desktop
00081>       Comment  = 24 hour SCS II storm mass curve
00082>       [SDT= 1.00:SDUR=  24.00:PTOT=   45.60]
00083> #*******************************************************************************
00084> #-----------------|---------------------------------------------------------|
00085> #-----------------|-------------Pre-development to Pretty River--------------|
00086> R0001:C00003-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00087>     CALIB NASHYD          1.0 01:PRE            6.12     .053 No_date   12:49
00088>       [CN= 63.1: N= 3.00: Tp=  .64]
00089> #-----------------|---------------------------------------------------------|
00090> #-----------------|---------------------POST DEVELOPMENT---------------------|
00091> #-----------------|----------------------To Pond----------------------------|
00092> R0001:C00004-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00093>     CALIB STANDHYD        1.0 02:202            .75     .052 No_date   12:12
00094>       [XIMP=.25:TIMP=.62]
00095>       [LOSS= 2 :CN= 69.0]
00096>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00097>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00098> #-----------------|---------------------------------------------------------|
00099> R0001:C00005-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00100>     CALIB STANDHYD        1.0 03:203            1.26     .093 No_date   12:12
00101>       [XIMP=.30:TIMP=.64]
00102>       [LOSS= 2 :CN= 69.0]
00103>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00104>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00105> #-----------------|---------------------------------------------------------|
00106> R0001:C00006-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00107>     CALIB STANDHYD        1.0 05:201            .99     .066 No_date   12:12
00108>       [XIMP=.26:TIMP=.58]
00109>       [LOSS= 2 :CN= 69.0]
00110>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  31.:MNP=.250:SCP=   .0]
00111>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  31.:MNI=.013:SCI=   .0]
00112> #-----------------|---------------------Total to Overland Flow Channel------|
00113> R0001:C00007-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00114>     ADD HYD               1.0 02:202            .75     .052 No_date   12:12
00115>                     +     1.0 03:203           1.26     .093 No_date   12:12
00116>                     +     1.0 05:201            .99     .066 No_date   12:12
00117>                   SUM=    1.0 04:Total Ovl-     3.00     .211 No_date   12:12
00118> #-----------------|---------------------------------------------------------|
00119> R0001:C00008-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00120>     CALIB STANDHYD        1.0 06:200            .52     .037 No_date   12:12
00121>       [XIMP=.33:TIMP=.60]
00122>       [LOSS= 2 :CN= 69.0]
00123>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00124>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00125> #-----------------|---------------------Total to Pond----------------------|
00126> R0001:C00009-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00127>     ADD HYD               1.0 04:Total Ovl-     3.00     .211 No_date   12:12
00128>                     +     1.0 06:200            .52     .037 No_date   12:12
00129>                   SUM=    1.0 07:Total          3.52     .248 No_date   12:12
00130> #-----------------|---------------------------------------------------------|
00131> #-----------------|----------------------SWM--------------------------------|
00132> R0001:C00010-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00133>     ROUTE RESERVOIR ->    1.0 07:Total          3.52     .248 No_date   12:12
00134>                     out <=    1.0 02:Dry Pond       3.52     .057 No_date   12:36
00135>               overflow <=    1.0 03:Dry Pond O      .00     .000 No_date    0:00
00136>       {MxStoUsed=.2309E-01  m3, TotOvfVol=.0000E+00  m3, N-Ovf=    0, TotDurOvf=
00137> #-----------------|---------------------------------------------------------|
00138> #-----------------|-------------------To Williams Sewer----------------------|
00139> R0001:C00011-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00140>     CALIB NASHYD          1.0 04:205            1.18     .026 No_date   12:25
00141>       [CN= 71.9: N= 3.00: Tp=  .30]
00142> #-----------------|---------------------------------------------------------|
00143> R0001:C00012-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00144>     CALIB STANDHYD        1.0 05:204            .89     .059 No_date   12:12
00145>       [XIMP=.26:TIMP=.59]
00146>       [LOSS= 2 :CN= 69.0]
00147>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00148>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00149> #-----------------|---------------------Total to William St Sewer-----------
00150> R0001:C00013-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00151>     ADD HYD               1.0 04:205            1.18     .026 No_date   12:25
00152>                     +     1.0 05:204            .89     .059 No_date   12:12
00153>                   SUM=    1.0 08:Total          2.07     .075 No_date   12:12
00154> #-----------------|---------------------------------------------------------
00155> #-----------------|---------------------Backlots to Pretty River-------------
00156> R0001:C00014-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00157>     CALIB NASHYD          1.0 09:206            .53     .009 No_date   12:30
00158>       [CN= 69.0: N= 3.00: Tp=  .38]
00159> #-----------------|---------------------Total flows into Pretty River--------
00160> R0001:C00015-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00161>     ADD HYD               1.0 09:206            .53     .009 No_date   12:30
00162>                     +     1.0 03:Dry Pond O      .00     .000 No_date    0:00
00163>                   SUM=    1.0 10:Total          .53     .009 No_date   12:30
00164> #*******************************************************************************
00165> #*******************************************************************************
00166> #                              5yr SCS Storm (24hr)
00167> #*******************************************************************************
00168> #*******************************************************************************
00169> R0001:C00016------------------------------------------------------------------
00170>      MASS STORM
00171>       Filename = C:\Users\achatterjee\OneDrive - CF Crozier & Associates\Desktop
00172>       Comment  = 24 hour SCS II storm mass curve
00173>       [SDT= 1.00:SDUR=  24.00:PTOT=  62.40]
00174> #*******************************************************************************
00175> #-----------------|---------------------------------------------------------|
00176> #-----------------|-------------Pre-development to Pretty River--------------|
00177> R0001:C00017-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00178>     CALIB NASHYD          1.0 01:PRE            6.12     .101 No_date   12:48
00179>       [CN= 63.1: N= 3.00: Tp=  .64]
00180> #-----------------|---------------------------------------------------------|
00181> #-----------------|---------------------POST DEVELOPMENT---------------------|
00182> #-----------------|----------------------To Pond----------------------------|
00183> R0001:C00018-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00184>     CALIB STANDHYD        1.0 02:202            .75     .084 No_date   12:12
00185>       [XIMP=.25:TIMP=.62]
00186>       [LOSS= 2 :CN= 69.0]
00187>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00188>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00189> #-----------------|---------------------------------------------------------|
00190> R0001:C00019-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00191>     CALIB STANDHYD        1.0 03:203            1.26     .148 No_date   12:12
00192>       [XIMP=.30:TIMP=.64]
00193>       [LOSS= 2 :CN= 69.0]
00194>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00195>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00196> #-----------------|---------------------------------------------------------|
00197> R0001:C00020-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00198>     CALIB STANDHYD        1.0 05:201            .99     .107 No_date   12:12
00199>       [XIMP=.26:TIMP=.58]
00200>       [LOSS= 2 :CN= 69.0]
00201>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  31.:MNP=.250:SCP=   .0]
00202>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  31.:MNI=.013:SCI=   .0]
00203> #-----------------|---------------------Total to Overland Flow Channel------|
00204> R0001:C00021-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00205>     ADD HYD               1.0 02:202            .75     .084 No_date   12:12
00206>                     +     1.0 03:203           1.26     .148 No_date   12:12
00207>                     +     1.0 05:201            .99     .107 No_date   12:12
00208>                   SUM=    1.0 04:Total Ovl-     3.00     .339 No_date   12:12
00209> #-----------------|---------------------------------------------------------|
00210> R0001:C00022-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00211>     CALIB STANDHYD        1.0 06:200            .52     .059 No_date   12:12
00212>       [XIMP=.33:TIMP=.60]
00213>       [LOSS= 2 :CN= 69.0]
00214>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00215>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00216> #-----------------|---------------------Total to Pond----------------------|
00217> R0001:C00023-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00218>     ADD HYD               1.0 04:Total Ovl-     3.00     .339 No_date   12:12
00219>                     +     1.0 06:200            .52     .059 No_date   12:12
00220>                   SUM=    1.0 07:Total          3.52     .398 No_date   12:12
00221> #-----------------|---------------------------------------------------------|
00222> #-----------------|----------------------SWM--------------------------------|
00223> R0001:C00024-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00224>     ROUTE RESERVOIR ->    1.0 07:Total          3.52     .398 No_date   12:12
00225>                     out <=    1.0 02:Dry Pond       3.52     .066 No_date   12:39
00226>               overflow <=    1.0 03:Dry Pond O      .00     .000 No_date    0:00
00227>       {MxStoUsed=.4370E-01  m3, TotOvfVol=.0000E+00  m3, N-Ovf=    0, TotDurOvf=
00228> #-----------------|---------------------------------------------------------|
00229> #-----------------|-------------------To Williams Sewer----------------------|
00230> R0001:C00025-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00231>     CALIB NASHYD          1.0 04:205            1.18     .046 No_date   12:25
00232>       [CN= 71.9: N= 3.00: Tp=  .30]
00233> #-----------------|---------------------------------------------------------|
00234> R0001:C00026-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00235>     CALIB STANDHYD        1.0 05:204            .89     .097 No_date   12:12
00236>       [XIMP=.26:TIMP=.59]
00237>       [LOSS= 2 :CN= 69.0]
00238>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00239>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00240> #-----------------|---------------------Total to William St Sewer-----------
00241> R0001:C00027-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00242>     ADD HYD               1.0 04:205            1.18     .046 No_date   12:25
00243>                     +     1.0 05:204            .89     .097 No_date   12:12
00244>                   SUM=    1.0 08:Total          2.07     .127 No_date   12:12
00245> #-----------------|---------------------------------------------------------
00246> #-----------------|---------------------Backlots to Pretty River-------------
00247> R0001:C00028-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00248>     CALIB NASHYD          1.0 09:206            .53     .016 No_date   12:30
00249>       [CN= 69.0: N= 3.00: Tp=  .38]
00250> #-----------------|---------------------Total flows into Pretty River--------
00251> R0001:C00029-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00252>     ADD HYD               1.0 09:206            .53     .016 No_date   12:30
00253>                     +     1.0 03:Dry Pond O      .00     .000 No_date    0:00
00254>                   SUM=    1.0 10:Total          .53     .016 No_date   12:30
00255> #*******************************************************************************
00256> #                              10yr SCS Storm (24hr)
00257> #*******************************************************************************
00258> #*******************************************************************************
00259> R0001:C00030------------------------------------------------------------------
00260>      MASS STORM
00261>       Filename = C:\Users\achatterjee\OneDrive - CF Crozier & Associates\Desktop
00262>       Comment  = 24 hour SCS II storm mass curve
00263>       [SDT= 1.00:SDUR=  24.00:PTOT=  72.00]
00264> #*******************************************************************************
00265> #-----------------|---------------------------------------------------------|
00266> #-----------------|-------------Pre-development to Pretty River--------------|
00267> R0001:C00031-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00268>     CALIB NASHYD          1.0 01:PRE            6.12     .133 No_date   12:48
00269>       [CN= 63.1: N= 3.00: Tp=  .64]
00270> #-----------------|---------------------------------------------------------|
```

```
#-----------------|---------------------POST DEVELOPMENT----------------------|
#-----------------|-----------------------To Pond------------------------|
R0001:C00032-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD        1.0 02:202             .75     .105 No_date   12:12
      [XIMP=.25:TIMP=.62]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|-----------------------------------------------------------|
R0001:C00033-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD        1.0 03:203            1.26     .183 No_date   12:12
      [XIMP=.30:TIMP=.64]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|-----------------------------------------------------------|
R0001:C00034-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD        1.0 05:201             .99     .134 No_date   12:12
      [XIMP=.26:TIMP=.58]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  31.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  31.:MNI=.013:SCI=   .0]
#-----------------|-----------------Total to Overland Flow Channel------|
R0001:C00035-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD               1.0 02:202             .75     .105 No_date   12:12
                    +     1.0 03:203            1.26     .183 No_date   12:12
                    +     1.0 05:201             .99     .134 No_date   12:12
                SUM=      1.0 04:Total Ovl-     3.00     .422 No_date   12:12
#-----------------|-----------------------------------------------------------|
R0001:C00036-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD        1.0 06:200             .52     .072 No_date   12:12
      [XIMP=.33:TIMP=.60]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|-----------------Total to Pond------------------------|
R0001:C00037-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD               1.0 04:Total Ovl-     3.00     .422 No_date   12:12
                    +     1.0 06:200             .52     .072 No_date   12:12
                SUM=      1.0 07:Total          3.52     .494 No_date   12:12
#-----------------|-----------------------------------------------------------|
#-----------------|---------------------SWM-----------------------|
R0001:C00038-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ROUTE RESERVOIR ->    1.0 07:Total          3.52     .494 No_date   12:12
                 out <=   1.0 02:Dry Pond       3.52     .096 No_date   12:34
           overflow <=    1.0 03:Dry Pond O      .00     .000 No_date    0:00
     {MxStoUsed=.5424E-01  m3, TotOvfVol=.0000E+00  m3, N-Ovf=    0, TotDurOvf=
#-----------------|-----------------------------------------------------------|
#-----------------|-----------------To Williams Sewer----------------------|
R0001:C00039-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB NASHYD          1.0 04:205             1.18     .060 No_date   12:24
      [CN= 71.9: N= 3.00: Tp=  .30]
#-----------------|-----------------------------------------------------------|
R0001:C00040-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD        1.0 05:204             .89     .122 No_date   12:12
      [XIMP=.26:TIMP=.59]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|-----------------Total to William St Sewer--------------
R0001:C00041-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD               1.0 04:205             1.18     .060 No_date   12:24
                    +     1.0 05:204             .89     .122 No_date   12:12
                SUM=      1.0 08:Total          2.07     .161 No_date   12:12
#-----------------|-----------------------------------------------------------
#-----------------|-------------------Backlots to Pretty River-----------------
R0001:C00042-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB NASHYD          1.0 09:206             .53     .021 No_date   12:30
      [CN= 69.0: N= 3.00: Tp=  .38]
#-----------------|-----------------------Total flows into Pretty River----------
R0001:C00043-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD               1.0 09:206             .53     .021 No_date   12:30
                    +     1.0 03:Dry Pond O      .00     .000 No_date    0:00
                SUM=      1.0 10:Total           .53     .021 No_date   12:30
#*************************************************************************
#*************************************************************************
#                          25yr SCS Storm (24hr)
#*************************************************************************
#*************************************************************************
R0001:C00044-----------------------------------------------------------------
     MASS STORM
       Filename = C:\Users\achatterjee\OneDrive - CF Crozier & Associates\Desktop
       Comment  = 24 hour SCS II storm mass curve
      [SDT= 1.00:SDUR=  24.00:PTOT=  86.40]
#*************************************************************************
#-----------------|-----------------------------------------------------------|
#-----------------|-------------Pre-development to Pretty River---------------|
R0001:C00045-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB NASHYD          1.0 01:PRE             6.12     .187 No_date   12:47
      [CN= 63.1: N= 3.00: Tp=  .64]
#-----------------|-----------------------------------------------------------|
#-----------------|---------------------POST DEVELOPMENT----------------------|
#-----------------|-----------------------To Pond------------------------|
R0001:C00046-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD        1.0 02:202             .75     .138 No_date   12:12
      [XIMP=.25:TIMP=.62]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|-----------------------------------------------------------|
R0001:C00047-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD        1.0 03:203            1.26     .238 No_date   12:12
      [XIMP=.30:TIMP=.64]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|-----------------------------------------------------------|
R0001:C00048-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD        1.0 05:201             .99     .174 No_date   12:12
      [XIMP=.26:TIMP=.58]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  31.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  31.:MNI=.013:SCI=   .0]
#-----------------|-----------------Total to Overland Flow Channel------|
R0001:C00049-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD               1.0 02:202             .75     .138 No_date   12:12
                    +     1.0 03:203            1.26     .238 No_date   12:12
                    +     1.0 05:201             .99     .174 No_date   12:12
                SUM=      1.0 04:Total Ovl-     3.00     .549 No_date   12:12
#-----------------|-----------------------------------------------------------|
R0001:C00050-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD        1.0 06:200             .52     .094 No_date   12:12
      [XIMP=.33:TIMP=.60]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|-----------------Total to Pond------------------------|
R0001:C00051-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD               1.0 04:Total Ovl-     3.00     .549 No_date   12:12
                    +     1.0 06:200             .52     .094 No_date   12:12
                SUM=      1.0 07:Total          3.52     .643 No_date   12:12
#-----------------|-----------------------------------------------------------|
#-----------------|---------------------SWM-----------------------|
R0001:C00052-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ROUTE RESERVOIR ->    1.0 07:Total          3.52     .643 No_date   12:12
                 out <=   1.0 02:Dry Pond       3.52     .170 No_date   12:27
           overflow <=    1.0 03:Dry Pond O      .00     .000 No_date    0:00
     {MxStoUsed=.6750E-01  m3, TotOvfVol=.0000E+00  m3, N-Ovf=    0, TotDurOvf=
#-----------------|-----------------------------------------------------------|
#-----------------|-----------------To Williams Sewer----------------------|
R0001:C00053-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB NASHYD          1.0 04:205             1.18     .082 No_date   12:24
      [CN= 71.9: N= 3.00: Tp=  .30]
#-----------------|-----------------------------------------------------------|
R0001:C00054-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD        1.0 05:204             .89     .157 No_date   12:12
      [XIMP=.26:TIMP=.59]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|-----------------Total to William St Sewer--------------
R0001:C00055-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD               1.0 04:205             1.18     .082 No_date   12:24
                    +     1.0 05:204             .89     .157 No_date   12:12
                SUM=      1.0 08:Total          2.07     .212 No_date   12:12
#-----------------|-----------------------------------------------------------
#-----------------|-------------------Backlots to Pretty River-----------------
R0001:C00056-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB NASHYD          1.0 09:206             .53     .029 No_date   12:29
      [CN= 69.0: N= 3.00: Tp=  .38]
#-----------------|-----------------------Total flows into Pretty River----------
R0001:C00057-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD               1.0 09:206             .53     .029 No_date   12:29
                    +     1.0 03:Dry Pond O      .00     .000 No_date    0:00
                SUM=      1.0 10:Total           .53     .029 No_date   12:29
#*************************************************************************
#*************************************************************************
#                          50yr SCS Storm (24hr)
#*************************************************************************
#*************************************************************************
R0001:C00058-----------------------------------------------------------------
     MASS STORM
       Filename = C:\Users\achatterjee\OneDrive - CF Crozier & Associates\Desktop
       Comment  = 24 hour SCS II storm mass curve
      [SDT= 1.00:SDUR=  24.00:PTOT=  96.00]
#*************************************************************************
#-----------------|-----------------------------------------------------------|
#-----------------|-------------Pre-development to Pretty River---------------|
R0001:C00059-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB NASHYD          1.0 01:PRE             6.12     .227 No_date   12:47
      [CN= 63.1: N= 3.00: Tp=  .64]
#-----------------|-----------------------------------------------------------|
#-----------------|---------------------POST DEVELOPMENT----------------------|
#-----------------|-----------------------To Pond------------------------|
R0001:C00060-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD        1.0 02:202             .75     .159 No_date   12:12
      [XIMP=.25:TIMP=.62]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|-----------------------------------------------------------|
R0001:C00061-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD        1.0 03:203            1.26     .274 No_date   12:12
      [XIMP=.30:TIMP=.64]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|-----------------------------------------------------------|
R0001:C00062-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD        1.0 05:201             .99     .204 No_date   12:12
      [XIMP=.26:TIMP=.58]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  31.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  31.:MNI=.013:SCI=   .0]
#-----------------|-----------------Total to Overland Flow Channel------|
R0001:C00063-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD               1.0 02:202             .75     .159 No_date   12:12
                    +     1.0 03:203            1.26     .274 No_date   12:12
                    +     1.0 05:201             .99     .204 No_date   12:12
                SUM=      1.0 04:Total Ovl-     3.00     .637 No_date   12:12
#-----------------|-----------------------------------------------------------|
R0001:C00064-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD        1.0 06:200             .52     .109 No_date   12:12
      [XIMP=.33:TIMP=.60]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|-----------------Total to Pond------------------------|
R0001:C00065-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD               1.0 04:Total Ovl-     3.00     .637 No_date   12:12
                    +     1.0 06:200             .52     .109 No_date   12:12
                SUM=      1.0 07:Total          3.52     .747 No_date   12:12
#-----------------|-----------------------------------------------------------|
#-----------------|---------------------SWM-----------------------|
R0001:C00066-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ROUTE RESERVOIR ->    1.0 07:Total          3.52     .747 No_date   12:12
                 out <=   1.0 02:Dry Pond       3.52     .229 No_date   12:25
           overflow <=    1.0 03:Dry Pond O      .00     .000 No_date    0:00
     {MxStoUsed=.7591E-01  m3, TotOvfVol=.0000E+00  m3, N-Ovf=    0, TotDurOvf=
#-----------------|-----------------------------------------------------------|
#-----------------|-----------------To Williams Sewer----------------------|
R0001:C00067-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB NASHYD          1.0 04:205             1.18     .097 No_date   12:24
      [CN= 71.9: N= 3.00: Tp=  .30]
#-----------------|-----------------------------------------------------------|
R0001:C00068-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB STANDHYD        1.0 05:204             .89     .185 No_date   12:12
      [XIMP=.26:TIMP=.59]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
#-----------------|-----------------Total to William St Sewer--------------
R0001:C00069-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD               1.0 04:205             1.18     .097 No_date   12:24
                    +     1.0 05:204             .89     .185 No_date   12:12
                SUM=      1.0 08:Total          2.07     .250 No_date   12:12
#-----------------|-----------------------------------------------------------
#-----------------|-------------------Backlots to Pretty River-----------------
R0001:C00070-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    CALIB NASHYD          1.0 09:206             .53     .034 No_date   12:29
      [CN= 69.0: N= 3.00: Tp=  .38]
#-----------------|-----------------------Total flows into Pretty River----------
R0001:C00071-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
    ADD HYD               1.0 09:206             .53     .034 No_date   12:29
                    +     1.0 03:Dry Pond O      .00     .000 No_date    0:00
                SUM=      1.0 10:Total           .53     .034 No_date   12:29
#*************************************************************************
#*************************************************************************
#                         100yr SCS Storm (24hr)
#*************************************************************************
#*************************************************************************
R0001:C00072-----------------------------------------------------------------
     MASS STORM
       Filename = C:\Users\achatterjee\OneDrive - CF Crozier & Associates\Desktop
       Comment  = 24 hour SCS II storm mass curve
      [SDT= 1.00:SDUR=  24.00:PTOT= 108.00]
#*************************************************************************
#-----------------|-----------------------------------------------------------|
#-----------------|-------------Pre-development to Pretty River---------------|
R0001:C00073-----------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
```

```
00541>     CALIB NASHYD          1.0 01:PRE            6.12     .279 No_date   12:47
00542>       [CN= 63.1: N= 3.00: Tp=  .64]
00543> #------------------|---------------------------------------------------------|
00544> #------------------|---------------------POST DEVELOPMENT---------------------|
00545> #------------------|--------------------To Pond--------------------|
00546> R0001:C00074------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00547>     CALIB STANDHYD        1.0 02:202            .75     .186 No_date   12:12
00548>       [XIMP=.25:TIMP=.62]
00549>       [LOSS= 2 :CN= 69.0]
00550>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00551>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00552> #------------------|---------------------------------------------------------|
00553> R0001:C00075------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00554>     CALIB STANDHYD        1.0 03:203           1.26     .320 No_date   12:12
00555>       [XIMP=.30:TIMP=.64]
00556>       [LOSS= 2 :CN= 69.0]
00557>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00558>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00559> #------------------|---------------------------------------------------------|
00560> R0001:C00076------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00561>     CALIB STANDHYD        1.0 05:201            .99     .239 No_date   12:12
00562>       [XIMP=.26:TIMP=.58]
00563>       [LOSS= 2 :CN= 69.0]
00564>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  31.:MNP=.250:SCP=   .0]
00565>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  31.:MNI=.013:SCI=   .0]
00566> #------------------|---------------------Total to Overland Flow Channel------|
00567> R0001:C00077------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00568>     ADD HYD               1.0 02:202            .75     .186 No_date   12:12
00569>                     +     1.0 03:203           1.26     .320 No_date   12:12
00570>                     +     1.0 05:201            .99     .239 No_date   12:12
00571>                   SUM=    1.0 04:Total Ovl-     3.00     .745 No_date   12:12
00572> #------------------|---------------------------------------------------------|
00573> R0001:C00078------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00574>     CALIB STANDHYD        1.0 06:200            .52     .128 No_date   12:12
00575>       [XIMP=.33:TIMP=.60]
00576>       [LOSS= 2 :CN= 69.0]
00577>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00578>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00579> #------------------|---------------------Total to Pond----------------------|
00580> R0001:C00079------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00581>     ADD HYD               1.0 04:Total Ovl-     3.00     .745 No_date   12:12
00582>                     +     1.0 06:200            .52     .128 No_date   12:12
00583>                   SUM=    1.0 07:Total          3.52     .873 No_date   12:12
00584> #------------------|---------------------------------------------------------|
00585> #------------------|---------------------SWM-----------------------|
00586> R0001:C00080------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00587>     ROUTE RESERVOIR ->    1.0 07:Total          3.52     .873 No_date   12:12
00588>                  out <=   1.0 02:Dry Pond       3.52     .310 No_date   12:22
00589>           overflow <=    1.0 03:Dry Pond O      .00     .000 No_date    0:00
00590>      {MxStoUsed=.8601E-01  m3, TotOvfVol=.0000E+00  m3, N-Ovf=    0, TotDurOvf=
00591> #------------------|---------------------------------------------------------|
00592> #------------------|--------------------To Williams Sewer--------------------|
00593> R0001:C00081------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00594>     CALIB NASHYD          1.0 04:205           1.18     .117 No_date   12:24
00595>       [CN= 71.9: N= 3.00: Tp=  .30]
00596> #------------------|---------------------------------------------------------|
00597> R0001:C00082------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00598>     CALIB STANDHYD        1.0 05:204            .89     .217 No_date   12:12
00599>       [XIMP=.26:TIMP=.59]
00600>       [LOSS= 2 :CN= 69.0]
00601>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00602>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00603> #------------------|---------------------Total to William St Sewer---------------
00604> R0001:C00083------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00605>     ADD HYD               1.0 04:205           1.18     .117 No_date   12:24
00606>                     +     1.0 05:204            .89     .217 No_date   12:12
00607>                   SUM=    1.0 08:Total         2.07     .296 No_date   12:12
00608> #------------------|---------------------------------------------------------
00609> #------------------|-----------------Backlots to Pretty River-----------------
00610> R0001:C00084------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00611>     CALIB NASHYD          1.0 09:206            .53     .042 No_date   12:29
00612>       [CN= 69.0: N= 3.00: Tp=  .38]
00613> #------------------|---------------------Total flows into Pretty River----------
00614> R0001:C00085------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00615>     ADD HYD               1.0 09:206            .53     .042 No_date   12:29
00616>                     +     1.0 03:Dry Pond O      .00     .000 No_date    0:00
00617>                   SUM=    1.0 10:Total          .53     .042 No_date   12:29
00618> ##############################################################################
00619> ##############################################################################
00620> #                          Timmins Event (Regional)
00621> ##############################################################################
00622> R0001:C00086------------------------------------------------------------------------
00623>      READ STORM
00624>       Filename = tim.stm
00625>       Comment  = Timmins Storm Event
00626>       [SDT=60.00:SDUR=  12.00:PTOT= 193.00]
00627> #------------------|---------------------------------------------------------|
00628> #------------------|-------------Pre-development to Pretty River-------------|
00629> R0001:C00087------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00630>     CALIB NASHYD          1.0 01:PRE            6.12     .364 No_date    7:21  1
00631>       [CN= 63.1: N= 3.00: Tp=  .64]
00632> #------------------|---------------------------------------------------------|
00633> #------------------|---------------------POST DEVELOPMENT---------------------|
00634> #------------------|--------------------To Pond----------------------|
00635> R0001:C00088------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00636>     CALIB STANDHYD        1.0 02:202            .75     .081 No_date    7:00  1
00637>       [XIMP=.25:TIMP=.62]
00638>       [LOSS= 2 :CN= 69.0]
00639>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00640>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00641> #------------------|---------------------------------------------------------|
00642> R0001:C00089------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00643>     CALIB STANDHYD        1.0 03:203           1.26     .137 No_date    7:00  1
00644>       [XIMP=.30:TIMP=.64]
00645>       [LOSS= 2 :CN= 69.0]
00646>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00647>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00648> #------------------|---------------------------------------------------------|
00649> R0001:C00090------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00650>     CALIB STANDHYD        1.0 05:201            .99     .105 No_date    7:00  1
00651>       [XIMP=.26:TIMP=.58]
00652>       [LOSS= 2 :CN= 69.0]
00653>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  31.:MNP=.250:SCP=   .0]
00654>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  31.:MNI=.013:SCI=   .0]
00655> #------------------|---------------------Total to Overland Flow Channel------|
00656> R0001:C00091------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00657>     ADD HYD               1.0 02:202            .75     .081 No_date    7:00  1
00658>                     +     1.0 03:203           1.26     .137 No_date    7:00  1
00659>                     +     1.0 05:201            .99     .105 No_date    7:00  1
00660>                   SUM=    1.0 04:Total Ovl-     3.00     .323 No_date    7:00  1
00661> #------------------|---------------------------------------------------------|
00662> R0001:C00092------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00663>     CALIB STANDHYD        1.0 06:200            .52     .055 No_date    7:00  1
00664>       [XIMP=.33:TIMP=.60]
00665>       [LOSS= 2 :CN= 69.0]
00666>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00667>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00668> #------------------|---------------------Total to Pond----------------------|
00669> R0001:C00093------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00670>     ADD HYD               1.0 04:Total Ovl-     3.00     .323 No_date    7:00  1
00671>                     +     1.0 06:200            .52     .055 No_date    7:00  1
00672>                   SUM=    1.0 07:Total          3.52     .378 No_date    7:00  1
00673> #------------------|---------------------------------------------------------|
00674> #------------------|---------------------SWM-----------------------|
00675> R0001:C00094------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00676>     ROUTE RESERVOIR ->    1.0 07:Total          3.52     .378 No_date    7:00  1
00677>                  out <=   1.0 02:Dry Pond       3.52     .340 No_date    7:01  1
00678>           overflow <=    1.0 03:Dry Pond O      .00     .000 No_date    0:00
00679>      {MxStoUsed=.8956E-01  m3, TotOvfVol=.0000E+00  m3, N-Ovf=    0, TotDurOvf=
00680> #------------------|---------------------------------------------------------|
00681> #------------------|--------------------To Williams Sewer--------------------|
00682> R0001:C00095------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00683>     CALIB NASHYD          1.0 04:205           1.18     .102 No_date    7:03  1
00684>       [CN= 71.9: N= 3.00: Tp=  .30]
00685> #------------------|---------------------------------------------------------|
00686> R0001:C00096------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00687>     CALIB STANDHYD        1.0 05:204            .89     .095 No_date    7:00  1
00688>       [XIMP=.26:TIMP=.59]
00689>       [LOSS= 2 :CN= 69.0]
00690>       [Pervious     area: IAper= 5.00:SLPP=2.00:LGP=  30.:MNP=.250:SCP=   .0]
00691>       [Impervious   area: IAimp= 2.00:SLPI=2.00:LGI=  30.:MNI=.013:SCI=   .0]
00692> #------------------|---------------------Total to William St Sewer--------------
00693> R0001:C00097------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00694>     ADD HYD               1.0 04:205           1.18     .102 No_date    7:03  1
00695>                     +     1.0 05:204            .89     .095 No_date    7:00  1
00696>                   SUM=    1.0 08:Total         2.07     .196 No_date    7:00  1
00697> #------------------|---------------------------------------------------------
00698> #------------------|-----------------Backlots to Pretty River-----------------
00699> R0001:C00098------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00700>     CALIB NASHYD          1.0 09:206            .53     .042 No_date    7:06  1
00701>       [CN= 69.0: N= 3.00: Tp=  .38]
00702> #------------------|---------------------Total flows into Pretty River----------
00703> R0001:C00099------------DTmin-ID:NHYD---------AREAha-QPEAKcms-TpeakDate_hh:mm---
00704>     ADD HYD               1.0 09:206            .53     .042 No_date    7:06  1
00705>                     +     1.0 03:Dry Pond O      .00     .000 No_date    0:00
00706>                   SUM=    1.0 10:Total          .53     .042 No_date    7:06  1
00707> R0001:C00100------------------------------------------------------------------------
00708>     FINISH
00709> ------------------------------------------------------------------------------
00710> ******************************************************************************
00711>      WARNINGS / ERRORS / NOTES
00712>      -------------------------
00713>    Simulation ended on 2021-10-27     at 16:19:30
00714> ==============================================================================
00715>
```

APPENDIX C

Relevant Report Excerpts & As-Built Drawings

Riverside Townhomes FSR&SWM Report – Modified Pond Volume Values

Greenland SWM Report – Pond Volume Summary

As-Built Drawings

Review of the overland flow route for emergency discharge of the Riverside SWM facility through the subject lands was completed. It was determined that the emergency outflow could be contained in a trapezoidal swale with a 6 metre base width, 3:1 side slopes and a maximum depth of 0.34m. Rear lots of units backing onto the overland flow route will be graded such that flows are contained within the public lands. Calculations supporting the SWM pond overflow route sizing are included in Appendix B.

8.3 Existing Pond Evaluation

As previously stated, the Subject Property was originally part of the Riverside development which constructed a SWM facility to provide the required stormwater quantity and quality control for the development. The Riverside development SWM facility, as presented in the Greenland SWM Report, accounted for a total of 1.24 ha at 65% impervious of the Subject Property contributing to the SWM facility. The Greenland SWM Report also accounted for 0.52 ha at 65% impervious as well as 1.10 ha of undeveloped lands draining uncontrolled to the BCRY culvert.

The Greenland SWM Report determined the required quantity and quality control volumes required to meet the required SWM criteria and are presented in Table 1. The volumes provided in existing SWM facility have been determined based on the approved for construction drawings dated September 7, 2006 and are presented in Table 1.

Table 1: Required and Provided Volumes of Existing SWM Pond

Criteria	Required Volume (m^3)	Provided Volume (m^3)
Maximum 100yr Storage Volume	10,000	12,420
Permanent Pool	3,325	4,340
Extended Detention	1,064	7,000

As evidenced by Table 1 the existing SWM facility has residual quantity and quality volume.

Due to grading and road alignment constraints areas contributing to the SWM facility will be increased in the proposed development. In total, 1.80 ha of the Subject Property will drain to the SWM facility which translates to an increase of 0.57 ha contributing to the SWM facility over the original design. This additional area represents a 2.1% increase in total area directed to the SWM facility. This increase in area also represents a decrease in uncontrolled area draining to the BCRY culvert, which would offset any increase in outflow from the SWM facility. The additional area would increase the required permanent pool and extended detention volumes to 3400 m^3 and 1090 m^3 respectively.

As such, the existing SWM facility has the residual quantity and quality volume available to accommodate the additional area from the Subject Property.

9.0 PRETTY RIVER SPILL CONVEYANCE

The main branch of the Pretty River is located approximately 170m east of Peel Street. The *Pretty River Flood Hazard Delineation Study (Stantec Consulting Ltd, 1999)* identified a 12m^3/s spill flow upstream of the BCRY Bridge. This spill flow is conveyed along Riverside Midrise development and the Subject Property and overtopping the BCRY at the north end of the Subject Property, eventually combining with the Pretty River Spill located at Manning Avenue.

Table 3: SWMF Details

Criteria	Data
Contributing Drainage Area	24.7.0 ha
Average Drainage Imperviousness	40%
Pre-Development 100-Yr Storm Event Runoff Level (Discharge Target) [1.]	0.17 m^3/s
Required Quantity Control Volume [1.]	10,000 m^3
Enhanced Level (80% TSS Removal) MOE Area-Storage Volume Requirement (Wetpond) [2.]	165 m^3/ha
Required Water Quality Volume	4,075 m^3
Required Water Quality Extended Detention Volume	990 m^3
Required Water Quality Permanent Pool Volume	3085 m^3
Maximum Water Quality Permanent Pool Depth	1.0 m
Required Permanent Pool Footprint [3.]	4,900 m^2
Maximum Extended Detention Depth (Water Quality and Water Quantity)	1.0 m
Total Required Footprint [3.]	12,000 m^2
NOTES: 1. Preliminary Visual OTTHYMO™ V.2 (or "VO2") Hydrologic Model. 2. MOE SWM Guidelines, 2003 3. Assumes 5:1 (H:V) Side Slopes	

As such the expected SWMF foot print based on **Table 3** data has been estimated at 1.2ha. It should be noted that a storm sewer connection between the proposed SWMF outlet and the site drainage outlet at the BCRY will be required. An easement through Block E may be required to facilitate this connection.

2.3.3 Floodplain Management

Based on discussions with the NVCA, the following floodplain management criteria have been established proposed subdivision to address the potential for a Regional storm event spill of 12 m^3/s from the Pretty River to the property:

- Ensure all buildings in the proposed subdivision are floodproofed to above the spill flood elevation.
- Ensure the maximum depth on roads does not exceed 0.3 m.
- Ensure the depth (0.8 m), velocity (1.7 m/s) and depth-velocity (0.4 m^2/s) product OMNR "Threat to Life" criteria are not exceeded in any area of flooding on the property.
- Ensure that flooding upstream and downstream of the subject property is not increased due to the development of the property over existing conditions.

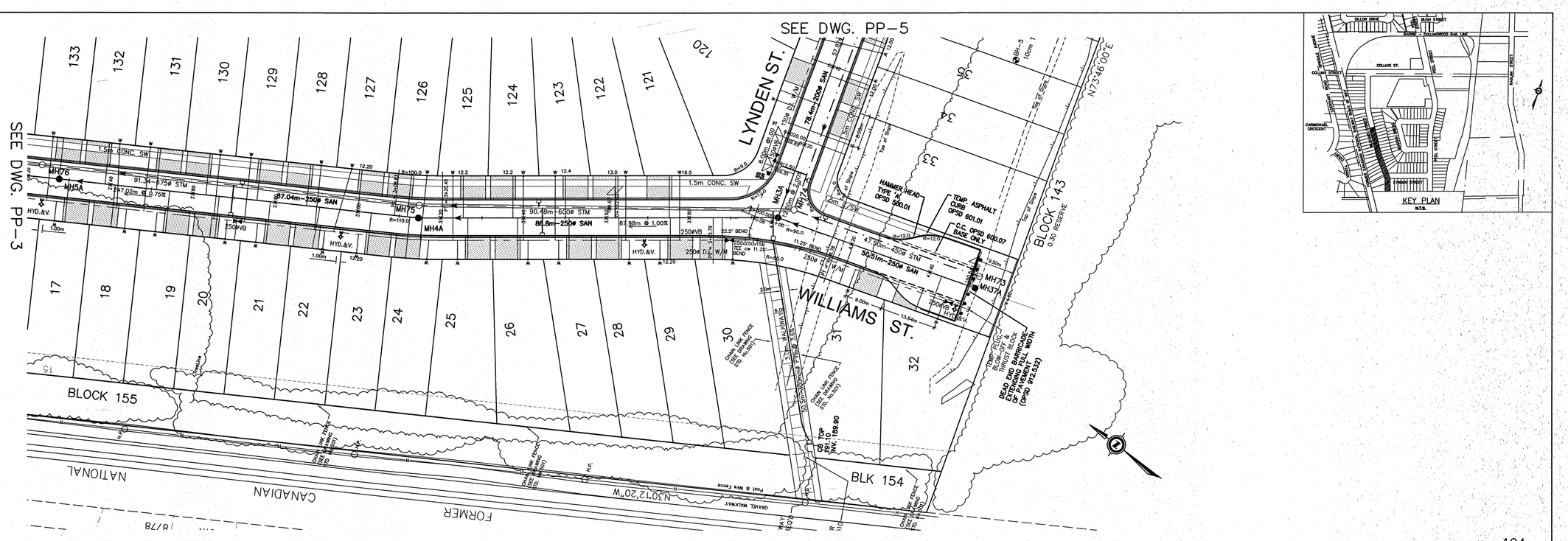
Greenland has completed a preliminary hydraulic assessment of the 12 m^3/s spill from the Pretty River to the property. Based on this assessment, the following subdivision design requirements are provided:

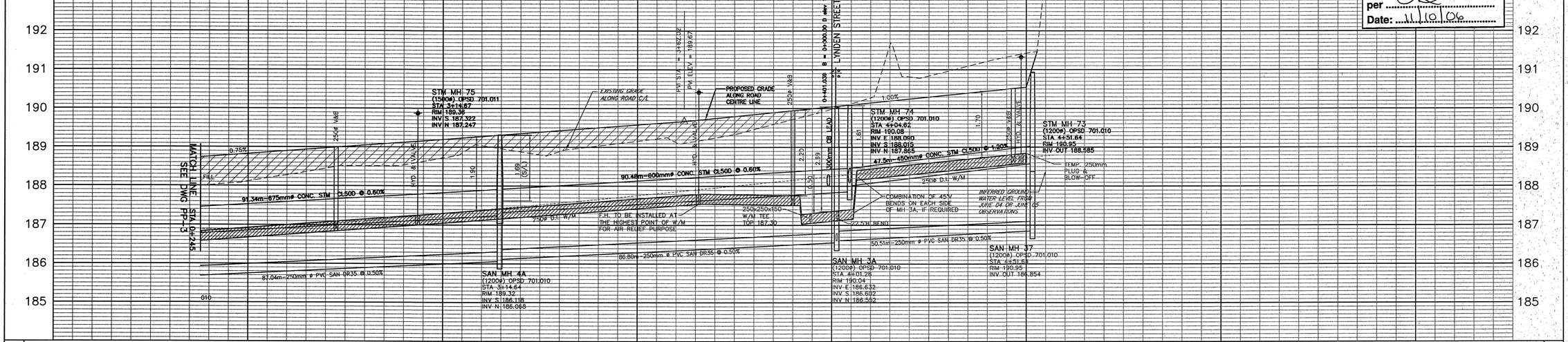
- A 30 m no-fill zone between the BCRY centerline of rail and rear of the lots in the north portion of the property.
- Ensure the lowest opening elevation in all homes on the subject site are greater than floodproofing elevation which ranges from 187.60 in north east to 187.30 in north west.

2.3.4 Storm Drainage Summary

The following is a summary of the conclusions regarding storm drainage of the subject property:

- *A SWMF is proposed to provide control of post development runoff from all storm events up to and including the 100-Year event to pre-development levels. The wetpond SWMF*





CHAINAGE	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480
EXISTING ELEV ℄	188.01	188.12	188.28	188.45	188.52	188.54	188.72	189.04	188.88	188.89	189.04	189.16	189.13
	189.25	189.46	189.72	189.98	190.27	190.81	190.96	191.22	191.42	195.09			
PROPOSED ELEV ℄	188.75	188.82	188.90	188.97	189.05	189.12	189.20	189.27	189.35	189.42	189.50	189.57	189.65
	189.74	189.84	189.94	190.04	190.14	190.24	190.34	190.44	190.54				

BENCHMARK

ELEVATIONS HEREON ARE GEODETIC AND ARE REFERRED TO THE SPIKE IN SOUTH FACE OF HYDRO POLE ON THE NORTHEAST CORNER OF COLLINS STREET HAVING AN ELEVATION OF 188.948m

NOTES

1. THE PUBLIC WORKS DEPARTMENT, LEISURE SERVICES DEPARTMENT AND COLLUS WILL REQUIRE 48 HOURS NOTICE PRIOR TO COMMENCING THE SEWER AND WATERMAIN CROSSING WORK

NO.	REVISION	DATE	INIT.
5	FINAL SUBMISSION	SEPT 7/06	J.H.
4	STEEL LINERS ADDED (ST 'A') & SAN PROFILE REVISED ST 'A' & 'B'	AUG 1/06	J.H.
3	3rd SUBMISSION	JUNE 28/06	J.H.
2	2nd SUBMISSION	MARCH 24/06	J.H.
1	1st SUBMISSION	JAN 11/06	J.H.

APPROVED

LICENSED PROFESSIONAL ENGINEER
J.D. HARTMAN
10 OCT. 06
PROVINCE OF ONTARIO

ACCEPTED FOR CONSTRUCTION
Town of Collingwood
per .....
Date: 11/10/06

RIVERSIDE - Hughes Development

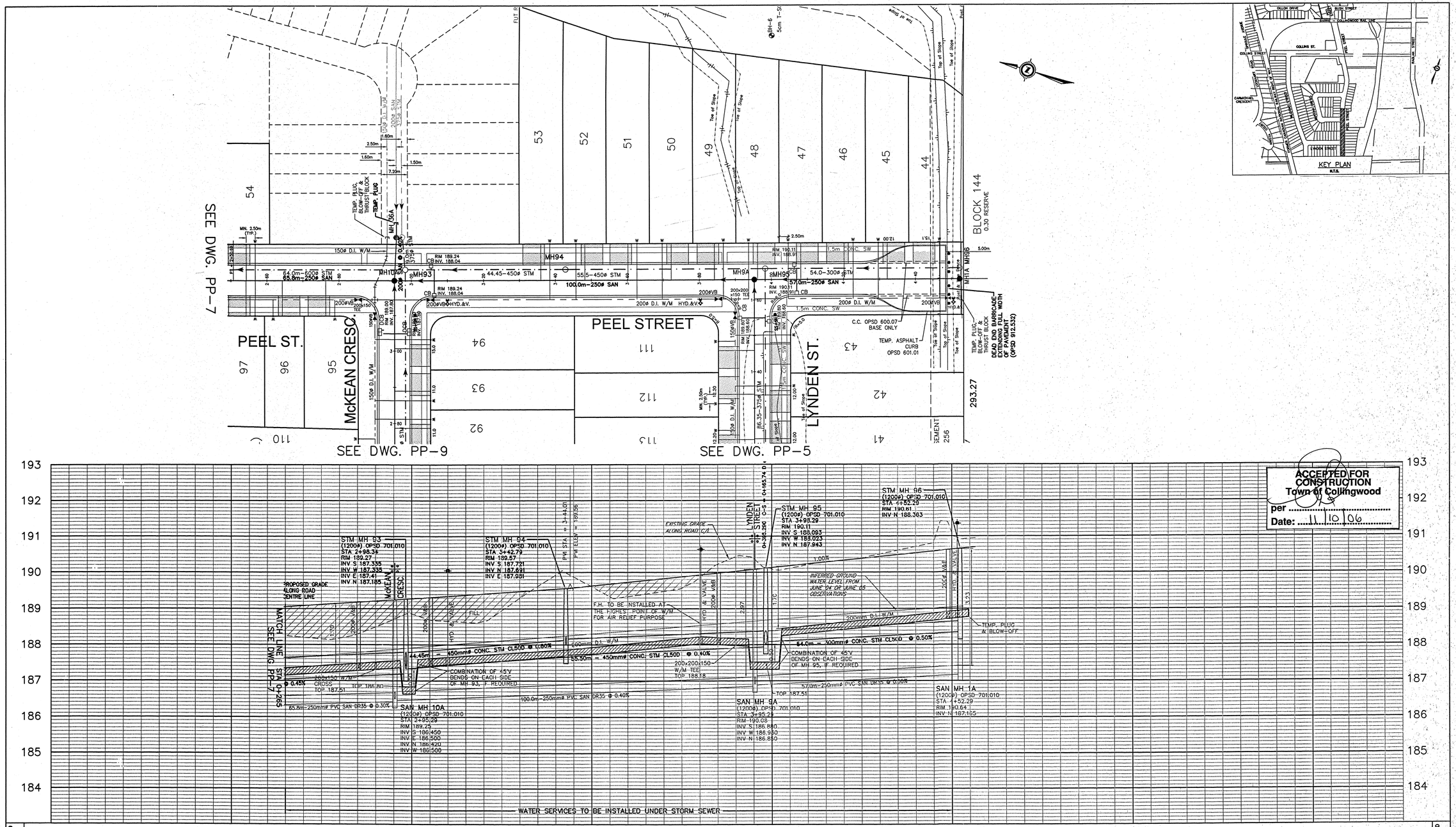
Phase 1

Town of Collingwood

PLAN + PROFILE WILLIAMS STREET STA 0+245.00 TO 0+458.82

GREENLAND® Consulting Engineers
243 St. Marie Street
Collingwood, Ontario, L3Y 3K6
Tel: (705) 444-8805
Fax: (705) 444-5482
E-mail: greenland@grnland.com
Website: www.grnland.com

SCALES:	HOR. 1:500 / VER. 1:50	PROJECT No.:	01-G-1665
DESIGN: J.H.	CHECKED: M.P.	DWG.	PP-4
DRAWN: CAD	DATE: JAN. 11, 2006		



	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460
PROPOSED ℄ ELEV	189.08	189.15	189.21	189.28	189.34	189.41	189.47	189.54	189.62	189.72	189.82	189.92	190.02	190.12	190.22	190.32	190.42	190.52	190.62	190.69
EXISTING ℄ ELEV	188.20	188.18	188.50	188.86	188.66	188.65	189.30	189.92	189.60	189.34	189.48	189.86	190.43	190.08	190.20	190.33	190.49	190.70	191.08	190.94
CHAINAGE		0+280		0+300		0+320		0+340		0+360		0+380		0+400		0+420		0+440		0+460

BENCHMARK

ELEVATIONS HEREON ARE GEODETIC AND ARE REFERRED TO THE SPIKE IN SOUTH FACE OF HYDRO POLE ON THE NORTHEAST CORNER OF COLLINS STREET HAVING AN ELEVATION OF 188.948m

NOTES

1. THE PUBLIC WORKS DEPARTMENT, LEISURE SERVICES DEPARTMENT AND COLLUS WILL REQUIRE 48 HOURS NOTICE PRIOR TO COMMENCING THE SEWER AND WATERMAIN CROSSING WORK

NO.	REVISION	DATE	INIT.
5	FINAL SUBMISSION	SEPT 7/06	J.H.
4	STEEL LINERS ADDED (ST 'A') & SAN PROFILE REVISED ST 'A' & 'B'	AUG 1/06	J.H.
3	3rd SUBMISSION	JUNE 28/06	J.H.
2	2nd SUBMISSION	MARCH 24/06	J.H.
1	1st SUBMISSION	JAN 11/06	J.H.

APPROVED

J. HARTMAN
20 OCT. 06
LICENSED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

ACCEPTED FOR CONSTRUCTION
Town of Collingwood
per .....
Date: 11/10/06

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Phase 1

Town of Collingwood

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DESIGN: J.H.	CHECKED: M.P.	DWG.	PP-8
DRAWN: CAD	DATE: JAN. 11, 2006		

APPENDIX D

Water Balance Calculations

Project: 452 Raglan
Project No: 218-5833
Modelled By: AC
Date: 2021/10/15

IndigO2 - 452 Raglan - Water Balance
Water Balance/Water Budget Assessment

Overview

Climate Normals 1981-2010 Station Data

Metadata including Station Name, Province, Latitude, Longitude, Elevation, Climate ID, WMO ID, TC ID

STATION_NAME	PROVINCE	LATITUDE	LONGITUD	ELEVATIO	CLIMATE_I	WMO_ID	TC_ID
THORNBURY SLAMA	ON	44°34'25.(	80°29'07.(	213.4 m	611HBEC		

Legend

A = WMO "3 and 5 rule" (i.e. no more than 3 consecutive and no more than 5 total missing for either temperature or precipitation)
B = At least 25 years
C = At least 20 years
D = At least 15 years

1981 to 2010 Canadian Climate Normals station data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Temperature														
Daily Average (°C)	-6.3	-5.4	-1.5	5.5	11.5	16.7	19.8	19.2	15.5	9.1	3.1	-2.7	7	C
Standard Deviation	2.8	2.5	1.9	1.6	1.8	1.4	1.4	1.3	1.4	1.3	1.7	2.6	1.6	C
Daily Maximum (°C)	-2.6	-1.5	2.9	10.2	16.6	22	24.8	24	20.1	13.2	6.5	0.6	11.4	C
Daily Minimum (°C)	-9.9	-9.3	-5.8	0.9	6.2	11.4	14.8	14.3	10.8	4.9	-0.3	-5.9	2.7	C
Extreme Maximum (°C	15	18	24	30.5	32.8	34	35.5	36	33.5	28.9	22.5	20		
Date (yyyy/dd)	1995/14	2000/26	1990/14	2002/16	1977/21	1994/15	Aug-88	Apr-88	Oct-83	Jan-71	May-78	Mar-82		
Extreme Minimum (°C)	-30.6	-31.5	-28	-13.3	-3.3	0.6	5	3.9	-2	-5	-16.5	-26		
Date (yyyy/dd)	1977/18	1979/18	Feb-80	Jul-72	Feb-74	Jan-71	Apr-72	1977/19	1991/30	1975/31	1995/29	1980/25		
Precipitation														
Rainfall (mm)	20.9	19.4	36.7	57.4	82.7	79.1	72.1	78.2	95.9	84	70.4	28.5	725.3	C
Snowfall (cm)	79.1	49	27.4	7.9	0	0	0	0	0	3.3	29.2	70.8	266.6	C
Precipitation (mm)	100	68.4	64	65.3	82.7	79.1	72.1	78.2	95.9	87.3	99.6	99.4	991.9	C
Average Snow Depth (cm)				0	0	0	0	0	0	0	0			
Median Snow Depth (cm)				0	0	0	0	0	0	0	0			
Extreme Daily Rainfall (	26.6	46	39	63.2	67.8	60	67.4	89.4	68	37.2	54.6	30.2		
Date (yyyy/dd)	May-98	1997/21	Nov-90	2000/20	2004/23	2001/21	1980/20	1968/19	May-85	2003/14	Dec-92	1979/24		
Extreme Daily Snowfall	32	23	22	17	1	0	0	0	0	17	31	32		
Date (yyyy/dd)	1979/13	Oct-95	1989/17	Oct-92	Jun-74	Jan-68	Jan-68	Jan-68	Jan-68	1997/22	1987/25	Oct-88		
Extreme Daily Precipita	32	50	39	63.2	67.8	60	67.4	89.4	68	37.2	54.6	32		
Date (yyyy/dd)	1979/13	1997/21	Nov-90	2000/20	2004/23	2001/21	1980/20	1968/19	May-85	2003/14	Dec-92	Oct-88		
Extreme Snow Depth (	50	47	28	1	0	0	0	0	0	0	0	19		
Date (yyyy/dd)	2004/31	Jan-04	Jan-04	Jan-92	1983/23	Jan-83	Jan-83	Jan-83	Jan-83	Jan-83	Jan-91	1993/31		
Days with Maximum Temperature														
<= 0 °C	21.1	16.9	10.7	1.1	0	0	0	0	0	0.05	3.6	13.7	67.1	C
> 0 °C	9.9	11.4	20.3	28.9	31	30	31	31	30	31	26.4	17.3	298.1	C
> 10 °C	0.33	0.64	4.3	12.8	26.5	29.9	31	31	29.4	21.1	6.9	1.2	195.1	C
> 20 °C	0	0	0.48	2.5	8.4	18.9	27.3	25.9	14.4	3.3	0.09	0	101.2	C
> 30 °C	0	0	0	0.04	0.22	1.7	2.9	1.8	0.46	0	0	0	7.1	C
> 35 °C	0	0	0	0	0	0	0.09	0.09	0	0	0	0	0.18	C
Days with Minimum Temperature														
> 0 °C	1.5	1.9	4.5	14.7	28.7	30	31	31	29.8	26.9	12.6	3.7	216.3	C
<= 2 °C	30.5	27.5	28.9	20.2	6.2	0.09	0	0	0.67	10.1	22.8	29.6	176.6	C
<= 0 °C	29.5	26.3	26.5	15.3	2.3	0	0	0	0.21	4.1	17.4	27.3	148.9	C
< -2 °C	27.3	23.8	21.5	7.3	0.09	0	0	0	0	0.64	9.3	21.5	111.2	C
< -10 °C	15	12.1	7	0.28	0	0	0	0	0	0	0.61	7.4	42.4	C
< -20 °C	2.2	1.5	0.46	0	0	0	0	0	0	0	0	0.36	4.6	C
< - 30 °C	0.04	0	0	0	0	0	0	0	0	0	0	0	0.04	C
Days with Rainfall														
>= 0.2 mm	4.2	3.8	6.9	11.5	12	10.6	9.5	10.8	13.2	15.5	12.5	6.4	116.9	C
>= 5 mm	1.4	1.2	2.1	3.6	5.3	4.3	4	4.2	5.7	5.9	4.5	1.7	43.9	C
>= 10 mm	0.64	0.56	1.1	1.6	2.9	3	2.2	2.5	3	2.5	1.9	0.79	22.6	C
>= 25 mm	0.08	0.04	0.16	0.2	0.4	0.58	0.67	0.71	0.75	0.25	0.29	0.04	4.2	C
Days With Snowfall														
>= 0.2 cm	15.9	10.6	7	2.2	0	0	0	0	0	0.67	5	12.3	53.6	C
>= 5 cm	5.5	3.7	1.8	0.52	0	0	0	0	0	0.29	2	5.7	19.6	C
>= 10 cm	1.8	1.2	0.52	0.24	0	0	0	0	0	0.08	0.75	1.8	6.3	C
>= 25 cm	0.04	0	0	0	0	0	0	0	0	0	0.04	0.17	0.25	C
Days with Precipitation														
>= 0.2 mm	18.9	13.3	12.5	12.6	12	10.6	9.5	10.8	13.2	15.8	16.3	17.6	163	C
>= 5 mm	7.2	5.1	4.1	4.3	5.3	4.3	4	4.2	5.7	6.1	6.8	7.8	65	C
>= 10 mm	2.6	1.8	1.8	1.9	2.9	3	2.2	2.5	3	2.6	2.8	2.6	29.7	C
>= 25 mm	0.12	0.08	0.16	0.24	0.4	0.58	0.67	0.71	0.75	0.25	0.38	0.21	4.6	C
Days with Snow Depth														
>= 1 cm					0	0	0	0	0	0	0			
>= 5 cm					0	0	0	0	0	0	0			
>= 10 cm					0	0	0	0	0	0	0			
>= 20 cm					0	0	0	0	0	0	0			
Degree Days														
Above 24 °C	0	0	0	0	0.1	2.1	7.1	4.7	0.7	0	0	0	14.8	C
Above 18 °C	0	0	0	0.1	2.1	8.2	35	77.9	61.5	21.6	1.6	0	207.8	C
Above 15 °C	0	0	0	0.5	5.5	23.3	79.9	154.6	135	57.6	6.8	0	0.1	463.2	C
Above 10 °C	0	0	0	3.9	21.2	82.5	204.8	307.9	287.2	168.3	41.2	4.4	0.8	1122.4	C
Above 5 °C	0.7	1.9	15.9	67.4	202.7	353.3	462.9	442.2	313.6	133.4	30.9	5.3	2030	C
Above 0 °C	10.6	14.5	53.5	172.1	354.9	503.3	617.9	597.2	463.5	278.9	109.7	30	3206	C
Below 0 °C	208.7	166.8	99.2	8	0	0	0	0	0	0.1	18.3	110.2	611.4	C
Below 5 °C	353.8	295.3	216.6	53.2	2.8	0	0	0	0.1	9.6	89.6	240.6	1261.6	C
Below 10 °C	508.1	434.7	359.6	157.1	37.6	1.5	0	0.1	4.8	72.5	213.1	391.1	2180.2	C
Below 15 °C	663.1	575.9	511.2	291.3	133.4	26.6	1.7	2.8	44.1	193.1	358.7	545.4	3347.2	C
Below 18 °C	756.1	660.6	603.8	378	211.3	71.7	17.9	22.4	98.1	280.8	448.7	638.3	4187.5	C

1981 to 2010 Canadian Climate Normals station data (Frost-Free)

	Frost-Free:	Code
Average Date of Last Sp	11-May	D
Average Date of First F	11-Oct	D
Average Length of Fros	152 Days	D

Probability of last temp	10%	25%	33%	50%	66%	75%	90%
Date	24-May	18-May	14-May	09-May	05-May	03-May	29-Apr
Probability of first tem	10%	25%	33%	50%	66%	75%	90%
Date	28-Sep	04-Oct	08-Oct	12-Oct	16-Oct	18-Oct	01-Nov
Probability of frost-free	10%	25%	33%	50%	66%	75%	90%
Days	133	147	149	155	158	161	176

Project Name: 452 Raglan
Project No: 218-5833
Modelled By: AC
Checked By: RA
Date: 2021/10/15

CROZIER CONSULTING ENGINEERS

Climatic Water Budget - Thornthwaite Method
IndigO2 - 452 Raglan - Water Balance
THORNBURY SLAMA - Climate Normals 1981-2010 Station Data

	Degrees	Minutes	Seconds	
Insert Latitude:	**44**	**30**	**45.1**	***Only Applicable Between Latitudes 40° - 50°**

Month	Mean Temperature (◦C)	Heat index	" a "	PET - Potential Evapotranspiration (mm)	Daily Correction Value	Adjusted PET - Potential Evapotranspiration (mm)	Total Precipitation (mm)	Surplus (mm)	Deficit (mm)
January	-6.3	0.0	0.49	0.0	0.76	0.0	100.0	100.0	0.0
February	-5.4	0.0	0.49	0.0	0.87	0.0	68.4	68.4	0.0
March	-1.5	0.0	0.49	0.0	0.99	0.0	64.0	64.0	0.0
April	5.5	1.2	0.51	25.7	1.12	28.7	65.3	36.6	0.0
May	11.5	3.5	0.55	56.0	1.24	69.2	82.7	13.5	0.0
June	16.7	6.2	0.60	83.0	1.30	107.9	79.1	0.0	28.8
July	19.8	8.0	0.63	99.4	1.28	126.7	72.1	0.0	54.6
August	19.2	7.7	0.63	96.2	1.18	113.2	78.2	0.0	35.0
September	15.5	5.5	0.59	76.7	1.05	80.5	95.9	15.4	0.0
October	9.1	2.5	0.54	43.7	0.92	40.1	87.3	47.2	0.0
November	3.1	0.5	0.50	14.0	0.80	11.2	99.6	88.4	0.0
December	-2.7	0.0	0.49	0.0	0.73	0.0	99.4	99.4	0.0
Totals		**35.1**	**1.06**			**577.6**	**992.0**	**532.9**	**118.4**

TOTAL WATER DEFICIT = **118.4 mm**
TOTAL WATER SURPLUS (SURPLUS - DEFICIT) = **414.4 mm**
Precipitation Adjustment Factor : **none**

NOTES:
1. Water budget adjusted for latitude and daylight.
2. (◦C) - Represents calculated mean of daily temperatures for the month.
3. Precipitation and Temperature data from the THORNBURY SLAMA (Station No.611HBEC) Environment Canada Station Data
4. Total Water Surplus (Thornthwaite, 1948) is calculated as total precipitation minus adjusted potential evapostranspiration.

CROZIER CONSULTING ENGINEERS

Project Name: 452 Raglan
Project No: 218-5833
Modelled By: AC
Checked By: RA
Date: 2021/10/15

Water Budget - Pre-Development
IndigO2 - 452 Raglan - Water Balance
Water Balance/Water Budget Assessment

Catchment Designation	Site - Pre-Development		
	Pervious	Impervious	Totals
Area (m^2)	88980	920	89900
Pervious Area (m^2)	88980	0	88980
Impervious Area (m^2)	0	920	920
Infiltration Factors			
Topography Infiltration Factor	0.30	0.30	
[1]Soil Infiltration Factor	0.20	0.20	
Land Cover Infiltration Factor	0.10	0.10	
MOE Infiltration Factor	0.60	0	
Actual Infiltration Factor	0.6	0	
Run-off Coefficient	0.25	0.90	
Runoff from Impervious Surfaces *	0	0.8	
Inputs (per Unit Area)			
Precipitation (mm/yr)	992	992	992
Run-On (mm/yr)	0	0	0
Other Inputs (mm/yr)	0	0	0
Total Inputs (mm/yr)	**992**	**992**	**992**
Outputs (per Unit Area)			
Precipitation Surplus (mm/yr)	414	794	418
Net Surplus (mm/yr)	414	794	418
Evapotranspiration (mm/yr) *	578	198	574
Infiltration (mm/yr)	249	0	246
Soakaway Infiltration (mm/yr)	0	0	0
Total Infiltration (mm/yr)	249	0	246
Runoff Pervious Areas (mm/yr)	166	0	164
Runoff Impervious Areas (mm/yr)	0	794	8
Total Runoff (mm/yr)	166	794	172
Total Outputs (mm/yr)	**992**	**992**	**992**
Difference (Inputs- Outputs)	**0**	**0**	**0**
Inputs (Volumes)			
Precipitation (m^3/yr)	88268	913	89181
Run-On (m^3/yr)	0	0	0
Other Inputs (m^3/yr)	0	0	0
Total Inputs (m^3/yr)	**88268**	**913**	**89181**
Outputs (Volumes)			
Precipitation Surplus (m^3/yr)	36876	730	37606
Net Surplus (m^3/yr)	36876	730	37606
Evapotranspiration (m^3/yr) *	51392	183	51574
Infiltration (m^3/yr)	22126	0	22126
Soakaway Infiltration (m^3/yr)	0	0	0
Total Infiltration (m^3/yr)	22126	0	22126
Runoff Pervious Areas (m^3/yr)	14750	0	14750
Runoff Impervious Areas (m^3/yr)	0	730	730
Total Runoff (m^3/yr)	14750	730	15481
Total Outputs (m^3/yr)	**88268**	**913**	**89181**
Difference (Inputs- Outputs)	**0**	**0**	**0**

NOTES:

* Evaporation from impervious areas was assumed to be 20% of precipitation.

CROZIER CONSULTING ENGINEERS

Project Name: 452 Raglan
Project No: 218-5833
Modelled By: AC
Checked By: RA
Date: 2021/10/15

Water Budget - Post-Development *without Mitigation*
IndigO2 - 452 Raglan - Water Balance
Water Balance/Water Budget Assessment

Note: site land use areas consistent with the Site Plan

Catchment Designation	Site - Post-Development			
	Pervious	Impervious - roofs	Imp Area - road/driveway	Totals
Area (m^2)	55542	24620	9738.13	89900
Pervious Area (m^2)	55542	0	0	55541.87
Impervious Area (m^2)	0	24620	9738.13	34358.13
Infiltration Factors				
Topography Infiltration Factor	0.18	0.18	0.15	
Soil Infiltration Factor	0.30	0.30	0.30	
Land Cover Infiltration Factor	0.15	0.15	0.20	
MOE Infiltration Factor	0.63	0	0	
Actual Infiltration Factor	0.63	0	0	
Run-off Coefficient	0.25	0.90	0.90	
Runoff from Impervious Surfaces *	0	0.80	0.80	
Inputs (per Unit Area)				
Precipitation (mm/yr)	992	992	992	992
Run-On (mm/yr)	0	0	0	0
Other Inputs (mm/yr)	0	0	0	0
Total Inputs (mm/yr)	**992**	**992**	**992**	**992**
Outputs (per Unit Area)				
Precipitation Surplus (mm/yr)	414	794	794	559
Net Surplus (mm/yr)	414	794	794	559
Evapotranspiration (mm/yr) *	578	198	198	433
Infiltration (mm/yr)	261	0	0	161
Soakaway Infiltration (mm/yr)	0	0	0	0
Total Infiltration (mm/yr)	261	0	0	161
Runoff Pervious Areas (mm/yr)	153	0	0	95
Runoff Impervious Areas (mm/yr)	0	794	794	303
Total Runoff (mm/yr)	153	794	794	398
Total Outputs (mm/yr)	**992**	**992**	**992**	**992**
Difference (Inputs- Outputs)	**0**	**0**	**0**	**0**
Inputs (Volumes)				
Precipitation (m^3/yr)	55098	24423	9660	89181
Run-On (m^3/yr)	0	0	0	0
Other Inputs (m^3/yr)	0	0	0	0
Total Inputs (m^3/yr)	**55098**	**24423**	**9660**	**89181**
Outputs (Volumes)				
Precipitation Surplus (m^3/yr)	23018	19538	7728	50285
Net Surplus (m^3/yr)	23018	19538	7728	50285
Evapotranspiration (m^3/yr) *	32079	4885	1932	38896
Infiltration (m^3/yr)	14502	0	0	14502
Soakaway Infiltration (m^3/yr)	0	0	0	0
Total Infiltration (m^3/yr)	14502	0	0	14502
Runoff Pervious Areas (m^3/yr)	8517	0	0	8517
Runoff Impervious Areas (m^3/yr)	0	19538	7728	27267
Total Runoff (m^3/yr)	8517	19538	7728	35783
Total Outputs (m^3/yr)	**55098**	**24423**	**9660**	**89181**
Difference (Inputs- Outputs)	**0**	**0**	**0**	**0**

Pre-Development Total Infiltration:
22126 m3/yr

NOTES:
* Evaporation from impervious areas was assumed to be 20% of precipitation.

CROZIER CONSULTING ENGINEERS

Project Name: 452 Raglan
Project No: 218-5833
Modelled By: AC
Checked By: RA
Date: 2021/10/15

Water Budget - Post-Development *with Mitigation*
IndigO2 - 452 Raglan - Water Balance
Water Balance/Water Budget Assessment

Catchment Designation	Site - Post-Development			
	Pervious	Impervious - roofs	Imp Area - road/driveway	Totals
Area (m^2)	55542	24620	9738.13	89900
Pervious Area (m^2)	55542	0	0	55541.87
Impervious Area (m^2)	0	24620	9738.13	34358.13
Infiltration Factors				
Topography Infiltration Factor	0.18	0.20	0.20	
Soil Infiltration Factor	0.30	0.30	0.10	
Land Cover Infiltration Factor	0.15	0.10	0.10	
MOE Infiltration Factor	0.63	0	0	
Actual Infiltration Factor	0.63	0	0	
Run-off Coefficient	0.25	0.90	0.90	
Runoff from Impervious Surfaces *	0	0.8	0.8	
Inputs (per Unit Area)				
Precipitation (mm/yr)	992	992	992	992
Run-On (mm/yr)	0	0	0	0
Other Inputs (mm/yr)	0	0	0	0
Total Inputs (mm/yr)	**992**	**992**	**992**	**992**
Outputs (per Unit Area)				
Precipitation Surplus (mm/yr)	414	794	794	559
Net Surplus (mm/yr)	414	794	794	559
Evapotranspiration (mm/yr) *	578	198	198	433
Infiltration (mm/yr)	261	0	0	161
Mitigation (mm/yr)	0	330	0	90
Total Infiltration (mm/yr)	261	330	0	252
Runoff Pervious Areas (mm/yr)	153	0	0	95
Runoff Impervious Areas (mm/yr)	0	464	794	213
Total Runoff (mm/yr)	153	464	794	308
Total Outputs (mm/yr)	**992**	**992**	**992**	**992**
Difference (Inputs- Outputs)	**0**	**0**	**0**	**0**
Inputs (Volumes)				
Precipitation (m^3/yr)	55098	24423	9660	89181
Run-On (m^3/yr)	0	0	0	0
Other Inputs (m^3/yr)	0	0	0	0
Total Inputs (m^3/yr)	**55098**	**24423**	**9660**	**89181**
Outputs (Volumes)				
Precipitation Surplus (m^3/yr)	23018	19538	7728	50285
Net Surplus (m^3/yr)	23018	19538	7728	50285
Evapotranspiration (m^3/yr) *	32079	4885	1932	38896
Infiltration (m^3/yr)	14502	0	0	14502
Mitigation (m^3/yr)	0	8125	0	8125
Total Infiltration & Mitigation (m^3/yr)	14502	8125	0	**22626**
Runoff Pervious Areas (m^3/yr)	8517	0	0	8517
Runoff Impervious Areas (m^3/yr)	0	11414	7728	19142
Total Runoff (m^3/yr)	8517	11414	7728	27659
Total Outputs (m^3/yr)	**55098**	**24423**	**9660**	**89181**
Difference (Inputs- Outputs)	**0**	**0**	**0**	**0**

Proposed Infiltration via Mitigation

Pre-Development Total Infiltration:
246 mm/yr

Pre-Development Total Infiltration:
22126 m^3/yr

NOTES:
* Evaporation from impervious areas was assumed to be 20% of precipitation.

Project: 452 Raglan
Project No: 218-5833
Modelled By: AC
Date: 2021/10/15

Design Storm Determination & Mitigation Sizing
IndigO2 - 452 Raglan - Water Balance
Water Balance/Water Budget Assessment

Design Storm Determination

Days with Precipitation (From Climate Data)

	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
>= 0.2 mm	12.6	12	10.6	9.5	10.8	13.2	15.8	85
>= 5 mm	4.3	5.3	4.3	4	4.2	5.7	6.1	34
>= 10 mm	1.9	2.9	3	2.2	2.5	3	2.6	18
>= 25 mm	0.24	0.4	0.58	0.67	0.71	0.75	0.25	4

Available Precipitation

Storm Event (mm)	Total Days Per Year	Incremental Precipitation (mm/yr)	Cummulative Precipitation (mm/yr)
0.2	85	16.9	16.9
5	34	169.5	186.4
10	18	181.0	367.4
25	4	90.0	457.4
Total	**140**	**457.4**	

10mm storm event from roof areas is directed to planters for infiltration & evapotranspiration.

10mm storm event	367.4 mm/year
Total Roof Area	2.46 ha
Runoff Coefficient	0.9
Total Annual Infiltration & Evapotranspiration	8134 m^3/year

CROZIER
CONSULTING ENGINEERS

452 Raglan
218-5833
AC
RA
2021/10/15

Water Budget Summary
IndigO2 - 452 Raglan - Water Balance
Water Balance/Water Budget Assessment

Characteristic	Site			
	Pre-Development	Post-Development	Post-Development *with Mitigation*	Change (Pre to Post) *with Mititgation*
Inputs (Volumes)				
Precipitation (m^3/yr)	89181	89181	89181	0%
Run-On (m^3/yr)	0	0	0	0%
Other inputs (m^3/yr)	0	0	0	0%
Total Inputs (m^3/yr)	**89181**	**89181**	**89181**	**0**
Outputs (Volumes)				
Precipitation Surplus (m^3/yr)	37606	50285	50285	34%
Net Surplus (m^3/yr)	37606	50285	50285	34%
Evapotranspiration (m^3/yr)	51574	38896	38896	-25%
Infiltration (m^3/yr)	22126	14502	14502	-34%
Mitigation (m^3/yr)	0	0	**8125**	**8125 m3/yr**
Total Infiltration & Mitigation (m^3/yr)	**22126**	14502	**22626**	2%
Runoff Pervious Areas (m^3/yr)	14750	8517	8517	-42%
Runoff Impervious Areas (m^3/yr)	730	27267	19142	-
Total Runoff (m^3/yr)	15481	35783	27659	79%
Total Outputs (m^3/yr)	**89181**	**89181**	**89181**	0%

APPENDIX E

Phosphorus Loading Calculations

CROZIER
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Project: IndigO2-452 Raglan
Project No.: 218-5833
Created By: AC
Checked By: RA
Date: 2021-12-22

Pre-Development Phosphorus Loading

Pre - Development Conditions						
Catchment	**Land Use**	**Area** (ha)	**Area** (m^2)	**P coeff** (kg/ha/yr)	**P Load** (kg/yr)	**P Load Total (kg/yr)**
Pre-Development Site	Cultivated	6.12	61,200	0.51	3.12	3.12
Total		**6.12**	**61,200**		**3.12**	**3.12**

Note:
1. Phosphorus Coefficient for Transition Area identified in NVCA Phosphorus Loading Tool & Hutchinson Report.

Project: IndigO2-452 Raglan
Project No.: 218-5833
Created By: AC
Checked By: RA
Date: 2021-12-22

Post-Development Phosphorus Loading

Parameter	Area	Unit	
Total Phosphorus Concentration	0.41	kg/yr	(Per Hutchinson Report Table 8, residential)
Total Annual Precipitation	992	mm/yr	Water Balance Calculation
Total Precipitation Runoff	398	mm/yr	Water Balance Calculation
Fraction Runoff	0.40		
% Impervious	55%		
Runoff Coefficient (Rv)	0.56		
Phosphorus Coefficient	**0.91**	kg/ha/yr	

$$TP\ export\ coef\ \left(\frac{\frac{kg}{ha}}{yr}\right) = TP \times Precip \times P_j \times R_V \times 10^{-2}$$

Post - Development Conditions					
Catchment	**Land Use**	**Area** (ha)	**Area** (m^2)	**P coeff (kg/ha/yr)**	**P Load (kg/yr)**
Post Site-Developed	Residential	6.12	61,200	0.91	5.59
Total		**6.12**	**61,200**	**0.91**	**5.59**

Note:
1. Phosphorus Coefficient for Residential Development calculated per Equation 3 of the Hutchinson Phosphorus Report for the NVCA Phosphorus Tool.
2. Untreated Area consists primarily of untouched land or pervious grass with a portion of rooftop area

CROZIER
CONSULTING ENGINEERS

Project: IndigO2-452 Raglan
Project No.: 218-5833
Created By: AC
Checked By: RA
Date: 2021-12-22

Post-Development Phosphorus Loading with Mitigation

Parameter	North Area	Unit	
Total Phosphorus Concentration	0.41	kg/yr	(Per Hutchinson Report Table 8, residential)
Total Annual Precipitation	992	mm/yr	Water Balance Calculation
Total Precipitation Runoff	398	mm/yr	Water Balance Calculation
Fraction Runoff	0.40		
% Impervious	55%		
Runoff Coefficient (Rv)	0.56		
Phosphorus Coefficient	**0.91**	kg/ha/yr	

Post - Development Conditions With Mitigation								
Catchment	**Land Use**		**Area** (ha)	**P coeff (kg/ha/yr)**	**P Load (kg/yr)**	**Mitigation Applied**	**Reduction Factor**	**P Load With BMPs (kg/yr)**
Treatment Train #1: Dry Pond located on site. Flows continue to Riverside Wet Pond								
Post Site-Developed (William Street)	Residential		4.02	0.91	3.67	Dry Pond	0.10	3.31
Post Site-Developed (Peel Street)					3.31	Wet Pond	0.63	1.22
Treatment Train #2: Flows directed to Riverside Wet Pond								
Post Site-Developed (Riverside Pond)			2.10	0.91	1.92	Wet Pond	0.63	0.71
Total - Site			**6.12**		**5.59**			**1.93**

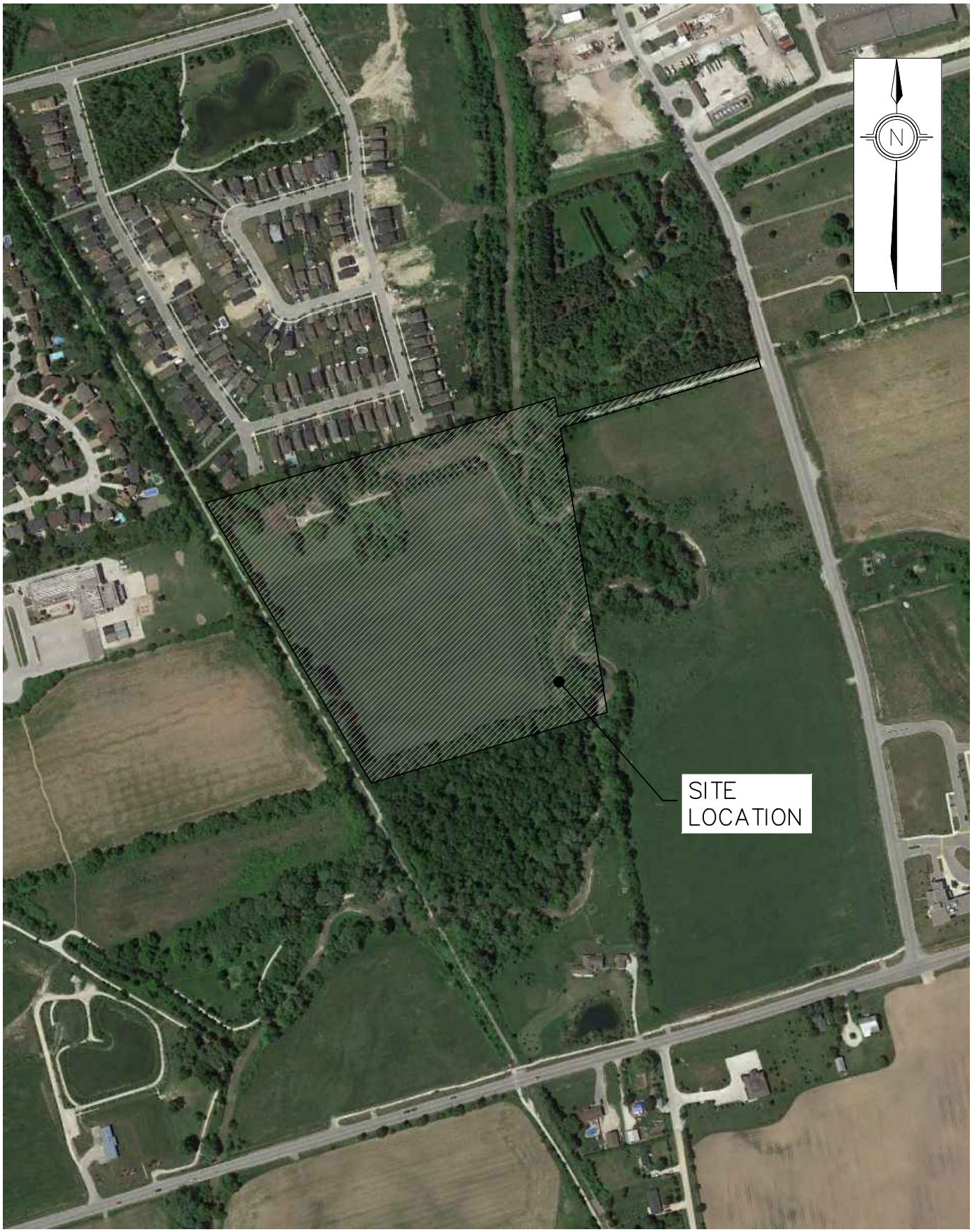
Total Post-Development Load Without BMPs **5.59 kg/yr**

Total Post-Development Load With BMPs **1.93 kg/yr**

Notes:

1. Phosphorus Coefficient for Residential Development calculated per Equation 3 of the Hutchinson Phosphorus Report for the NVCA Phosphorus Tool.
2. Phosphorus Coefficient for Low Intensity Residential identified in NVCA Phosphorus Loading Tool & Hutchinson Report. Used as the contributing area consists of rooftops and landscape areas.
3. Precipitaion values per water balance calculations.
4. Reduction factors identified in NVCA Phosphorus Loading Tool

FIGURES & DRAWINGS



Legend

= SUBJECT LANDS

Project

INDIGO2
TOWN OF COLLINGWOOD

Drawing

SITE LOCATION

CROZIER CONSULTING ENGINEERS
ADMIRAL BUILDING
1 FIRST STREET, SUITE 200
COLLINGWOOD, ON, L9Y 1A1
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D.T	A.C	218-5833

Scale	Date	Check By	Drawing
N.T.S.	AUG/XX/2021	R.A	FIG. 1

WILLIAMS STREET

PEEL STREET

ELEMENTARY SCHOOL

STORMWATER POND

CLEARVIEW COLLINGWOOD RAIL TRAIL

10m TRAIL SETBACK

KIRBY AVENUE

RESIDENTIAL

CROPLAND

WETLAND

PRETTY RIVER

PRETTY RIVER

6m EROSION ACCESS ALLOWABLE

BLOCK 30

BLOCK 31

BLOCK 32

BLOCK 33

BLOCK 34

BLOCK 35

BLOCK 36

BLOCK 37

BLOCK 47
PARK
4,852m²

BLOCK 48
WALKWAY

BLOCK 49
WALKWAY

BLOCK 50
WALKWAY / OVERLAND FLOW

BLOCK 46
SWM AREA
1,491m²

BLOCK 51
OPEN SPACE
28,726m²

STREET A

STREET B

STREET C

STREET D

BLOCK 29

BLOCK 28

BLOCK 27

BLOCK 26

BLOCK 24

BLOCK 25

BLOCK 23

BLOCK 22

BLOCK 41

BLOCK 42

BLOCK 40

BLOCK 43

BLOCK 39

BLOCK 44

BLOCK 38

BLOCK 45

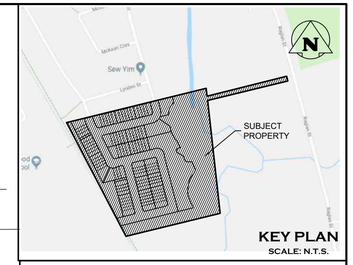
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21

DEVELOPMENT LIMIT

DEVELOPMENT LIMIT

FLOODLINE PLUS ALLOWANCE

N



LEGEND

- DEVELOPMENT AREA
- REGIONAL FLOODLINE NVCA
- PROPOSED LOT LINE
- PROPERTY BOUNDARY
- EROSION ACCESS ALLOWANCE

15 0m 15 30 45 60

SCALE: 1:750

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TEMPORARY BENCHMARKS

TBM#1 ELEV 191.37m
TOP NUT OF FIRE HYDRANT LOCATED AT THE SOUTH END OF PEEL STREET

TOPOGRAPHIC SURVEY COMPLETED BY JoeTOPO SURVEYS AND CADD INC., DATED AUG. 2017 AND NOV. 2017.

Town

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INDIGO2
TOWN OF COLLINGWOOD

Drawing
SITE DRAFT PLAN

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ADMIRAL BUILDING
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705 446-3520 F
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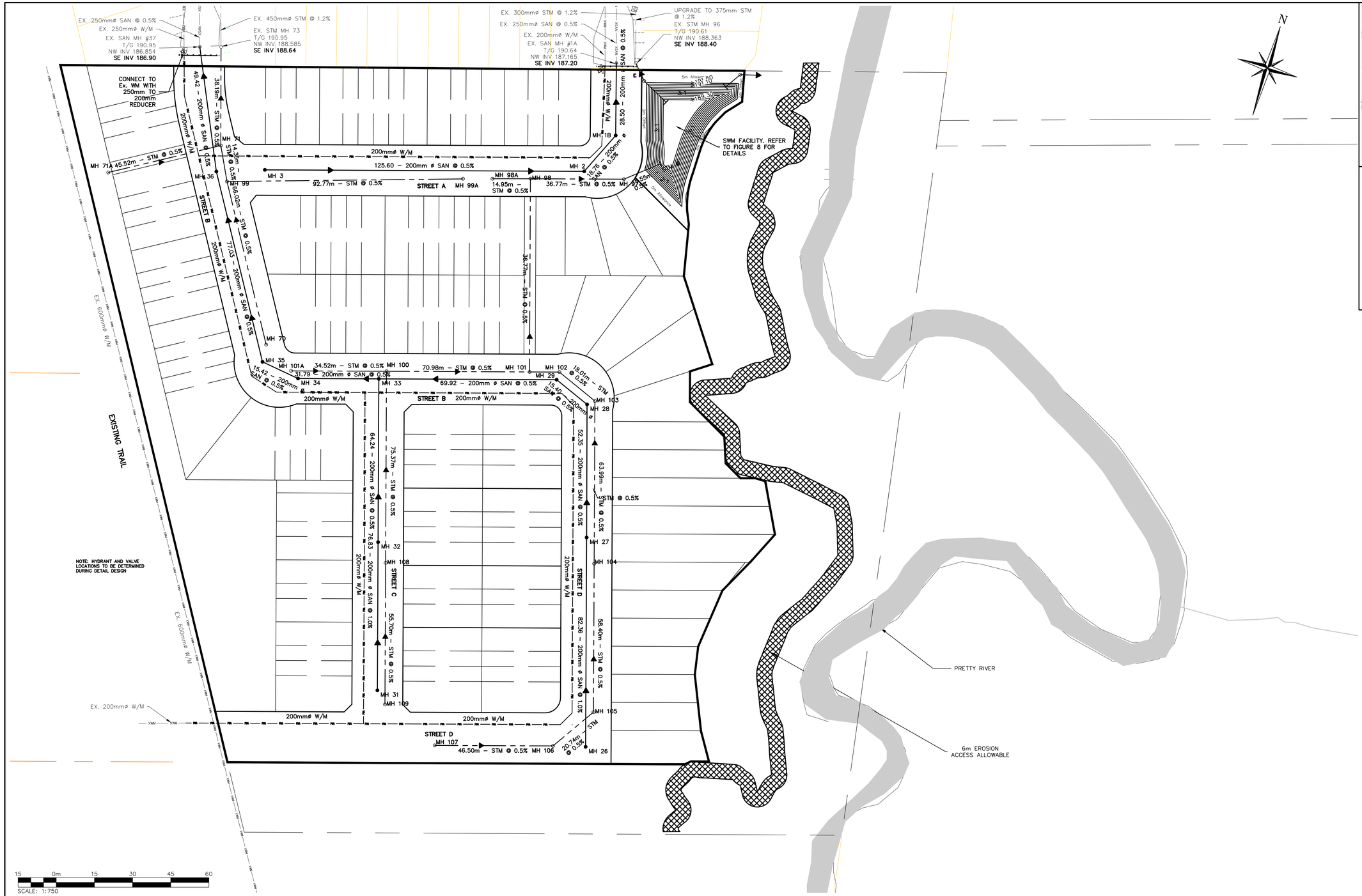

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TOWN OF COLLINGWOOD

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SITE SERVICING PLAN

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XX	R.A	1: 750	FIG. 3

EX. 250mmø SAN @ 0.5%

EX. SAN MH #37
T/G 190.95
NW INV 186.854
SE INV 186.90

EX. 250mmø SAN @ 0.5%

EX. SAN MH #1A
T/G 190.64
NW INV 187.165
SE INV 187.20

49.42 – 200mm ø SAN @ 0.5%

MH 36

STREET B

77.03 – 200mm ø SAN @ 0.5%

MH 35

15.42 – 200mm ø SAN @ 0.5%

MH 34

31.79 – 200mm ø SAN @ 0.5%

MH 33

69.92 – 200mm ø SAN @ 0.5%

MH 29

15.40 – 200mm ø SAN @ 0.5%

MH 28

52.35 – 200mm ø SAN @ 0.5%

MH 27

82.36 – 200mm ø SAN @ 1.0%

MH 26

64.24 – 200mm ø SAN @ 0.5%

MH 32

76.83 – 200mm ø SAN @ 1.0%

MH 31

28.50 – 200mm ø SAN @ 0.5%

MH 1B

125.60 – 200mm ø SAN @ 0.5%

MH 3

MH 2

18.76 – 200mm ø SAN @ 0.5%

STREET A

STREET B

STREET C

STREET D

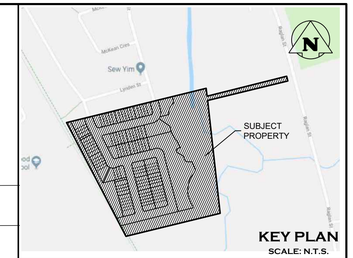
STREET D

EXISTING TRAIL

PRETTY RIVER

6m EROSION ACCESS ALLOWABLE

N



LEGEND

- DEVELOPMENT AREA
- PROPOSED LOT LINE
- SANITARY SEWER AND MANHOLE
- PROPERTY BOUNDARY
- EROSION ACCESS ALLOWANCE

15 0m 15 30 45 60

SCALE: 1:750

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TEMPORARY BENCHMARKS

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TOP NUT OF FIRE HYDRANT LOCATED AT THE SOUTH END OF PEEL STREET

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TOWN OF COLLINGWOOD

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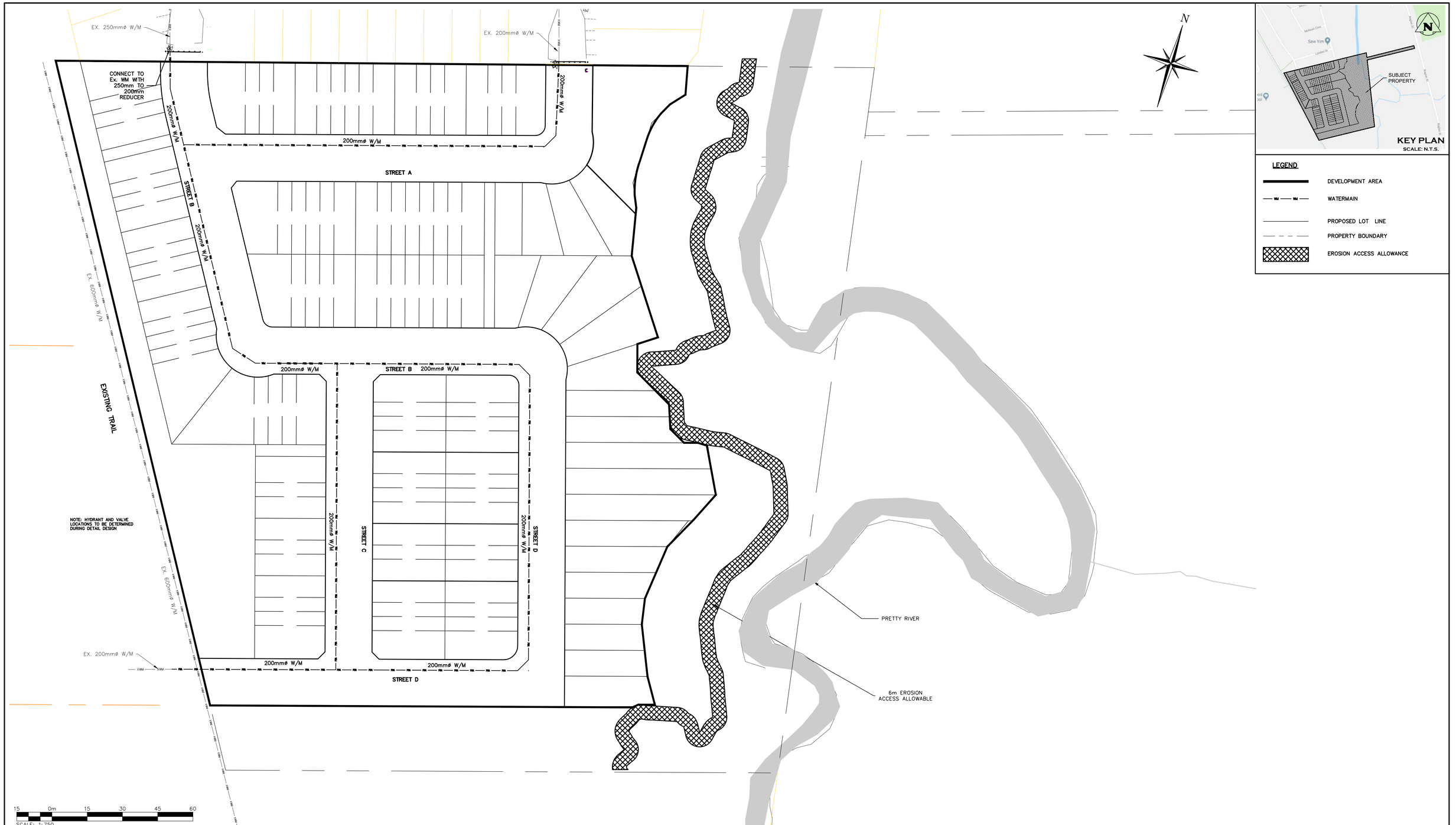
XX	R.A	1: 750	FIG. 4



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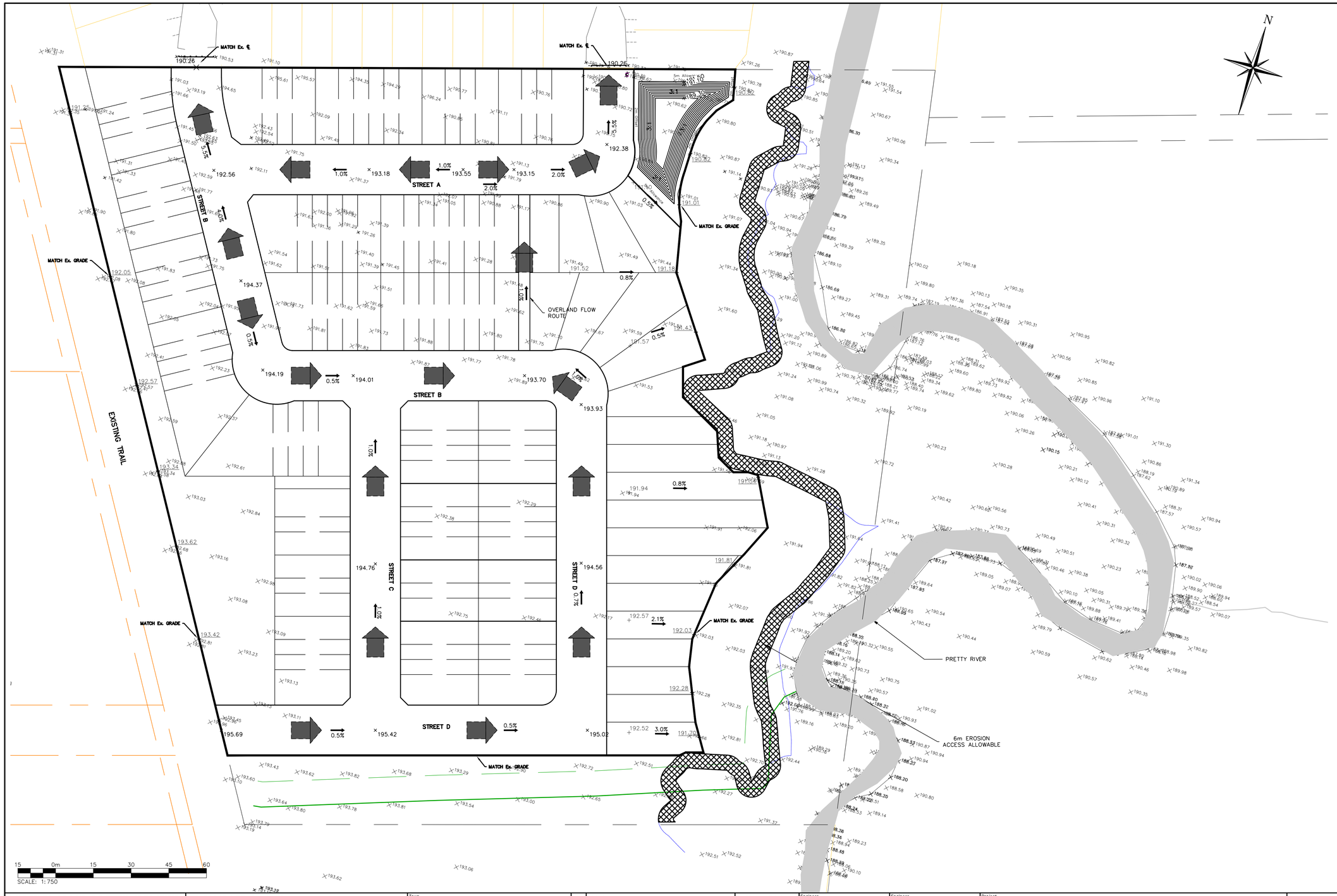

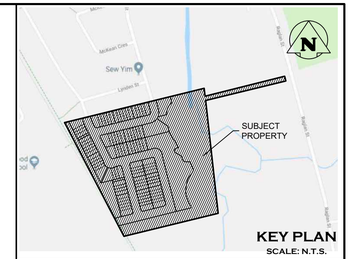

LEGEND

- PROPOSED LOT LINE
- PRE DEVELOPMENT AREA
- 191.02 — PROPOSED GRADE
- 190.82 — MATCH EXISTING GRADE
- 0.5% — PROPOSED SLOPE AND DIRECTION
- PROPOSED OVERLAND FLOW ROUTE
- PROPERTY BOUNDARY
- EROSION ACCESS ALLOWANCE

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TEMPORARY BENCHMARKS

TBM#1 ELEV 191.37m
TOP NUT OF FIRE HYDRANT LOCATED AT THE SOUTH END OF PEEL STREET

TOPOGRAPHIC SURVEY COMPLETED BY JoeTOPO SURVEYS AND CADD INC., DATED AUG. 2017 AND NOV. 2017.

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Drawing
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SITE GRADING PLAN

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Check By	Check By	Scale / Drawing
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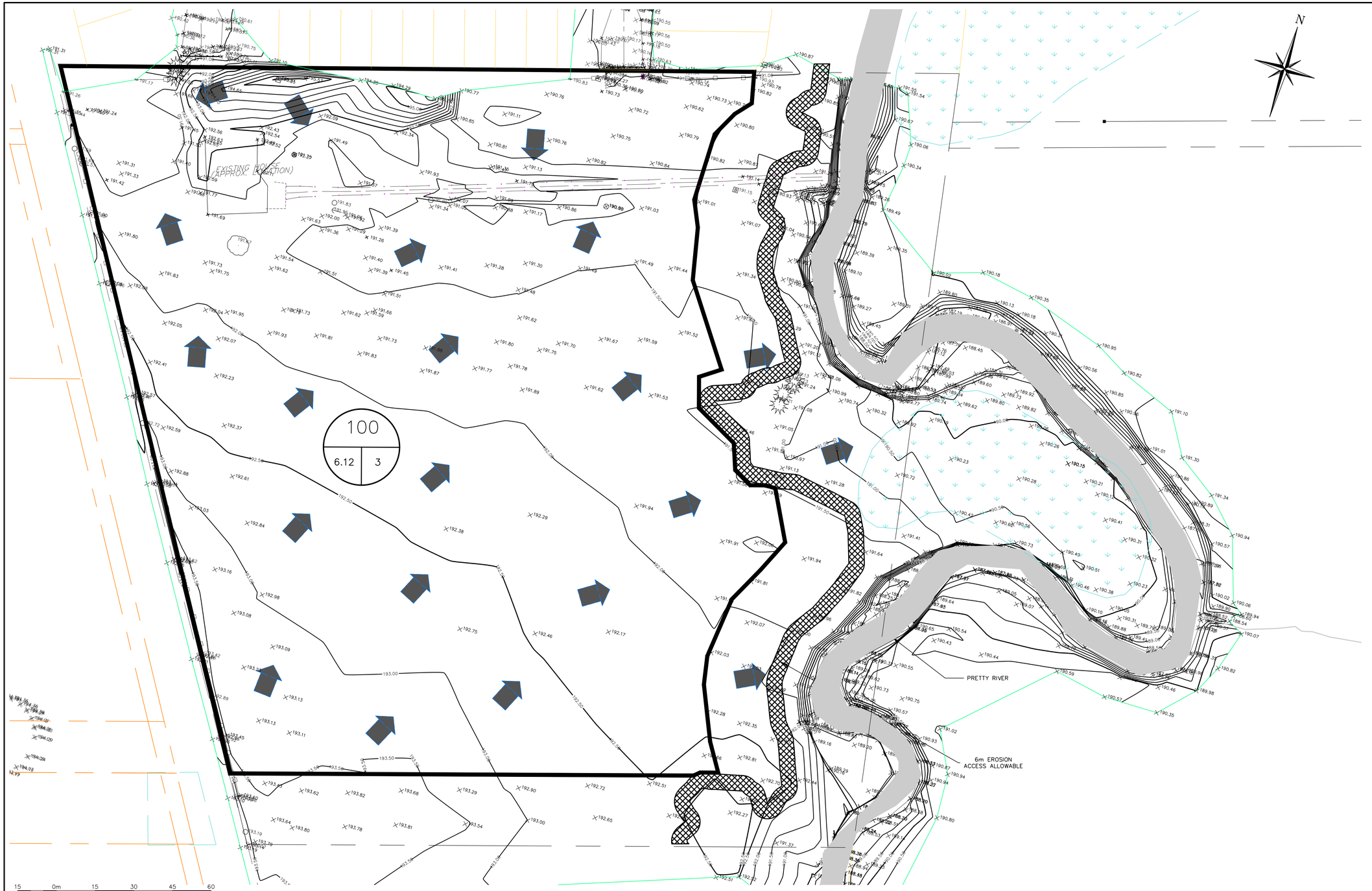

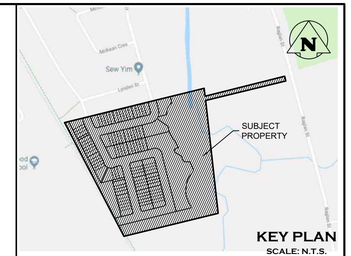

LEGEND

- PRE DEVELOPMENT DRAINAGE AREA 100 (AREA = 6.12 ha)
- Ex. DWELLINGS & PROPERTY DETAIL
- XXX — DRAINAGE AREA ID
- 0.00 — % IMPERVIOUS
- 0 — AREA (ha)
- PROPERTY BOUNDARY
- EROSION ACCESS ALLOWANCE

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TEMPORARY BENCHMARKS

TBM#1 ELEV 191.37m
TOP NUT OF FIRE HYDRANT LOCATED AT THE SOUTH END OF PEEL STREET

TOPOGRAPHIC SURVEY COMPLETED BY JoeTOPO SURVEYS AND CADD INC., DATED AUG. 2017 AND NOV. 2017.

Town

No.	ISSUE	DATE: MM/DD/YYYY
0	ISSUED FOR 1st SUBMISSION	01/15/2018
1	ISSUED FOR 2nd SUBMISSION	08/XX/2021

Engineer

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Engineer

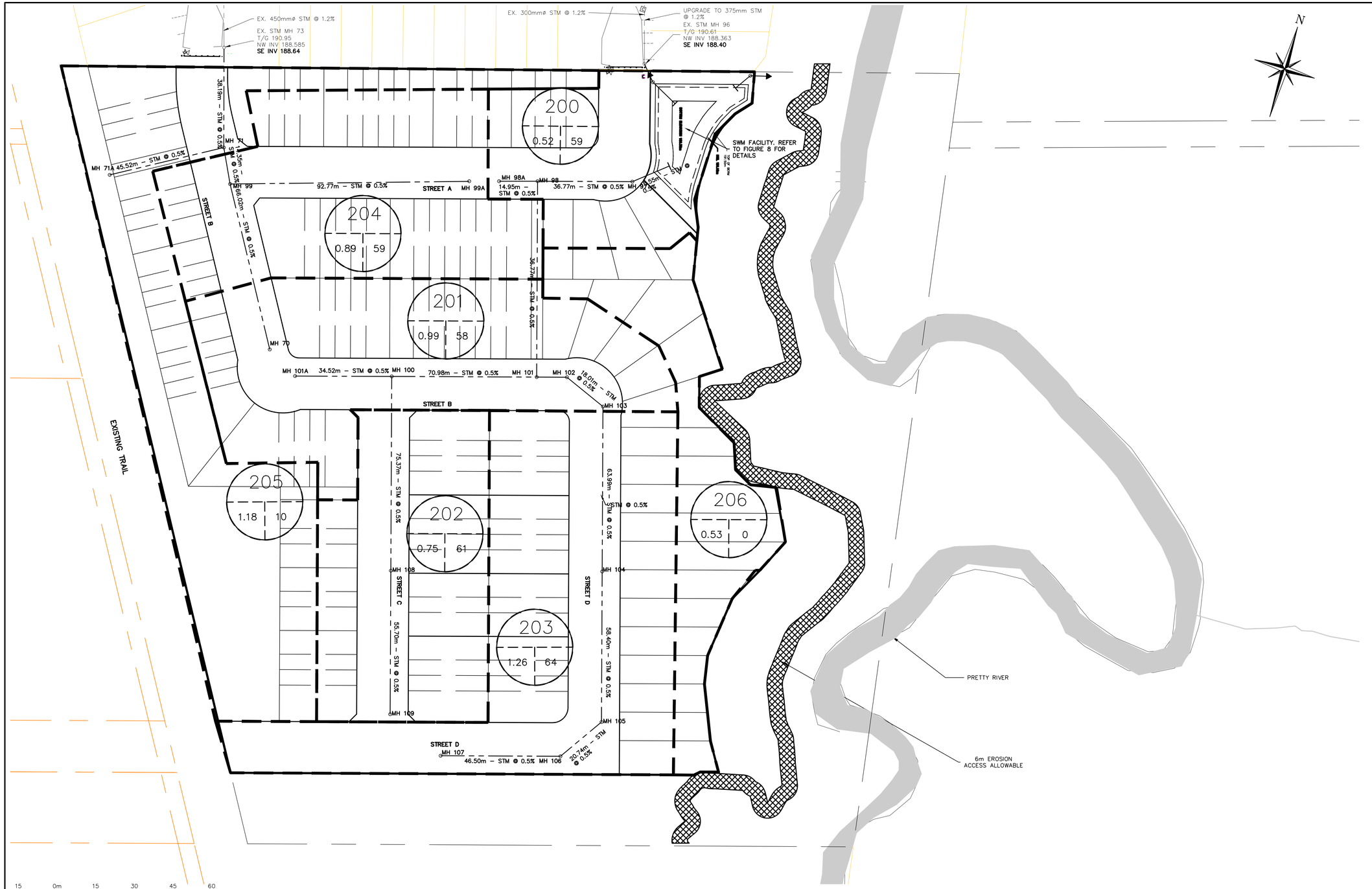
PROFESSIONAL ENGINEER PROVINCE OF ONTARIO

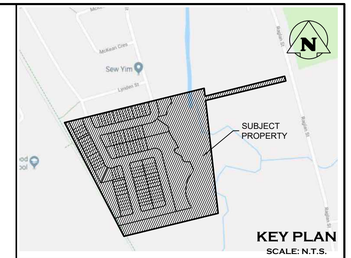
Project
INDIGO2
TOWN OF COLLINGWOOD

Drawing
PRE DEVELOPMENT DRAINAGE AREAS

CROZIER CONSULTING ENGINEERS
ADMIRAL BUILDING
1 FIRST STREET, SUITE 200
COLLINGWOOD, ON, L9Y 1A1
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn By	D.T	Design By	A.C	Project	218–5833
Check By	XX	Check By	R.A	Scale	1: 750
				Drawing	FIG. 7





LEGEND

- PROPOSED LOT LINE
- POST DEVELOPMENT AREA
- POST DEVELOPMENT DRAINAGE AREAS
- XXX — DRAINAGE AREA ID
- 0.00 — % IMPERVIOUS
- 0 — AREA (ha)
- PROPERTY BOUNDARY
- EROSION ACCESS ALLOWANCE

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INDIGO2
TOWN OF COLLINGWOOD

Drawing
POST DEVELOPMENT DRAINAGE AREAS

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Drawn By	Design By	Project	
D.T	A.C		218–5833
Check By	Check By	Scale	Drawing
XX	R.A	1: 750	FIG. 8

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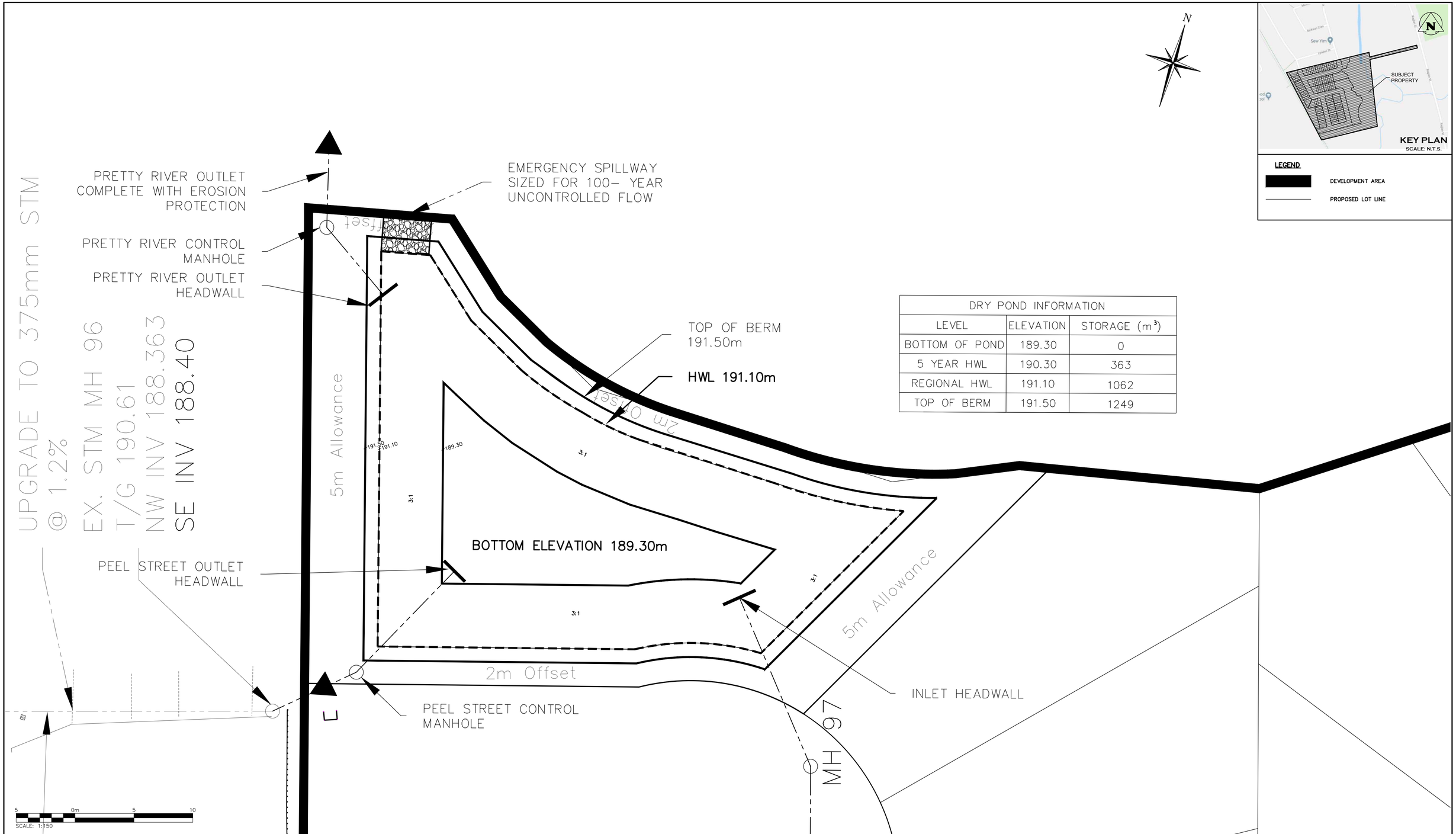

DRY POND INFORMATION		
LEVEL	ELEVATION	STORAGE (m^3)
BOTTOM OF POND	189.30	0
5 YEAR HWL	190.30	363
REGIONAL HWL	191.10	1062
TOP OF BERM	191.50	1249

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TOWN OF COLLINGWOOD

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PRELIMINARY
SWM FACILITY PLAN

CROZIER CONSULTING ENGINEERS
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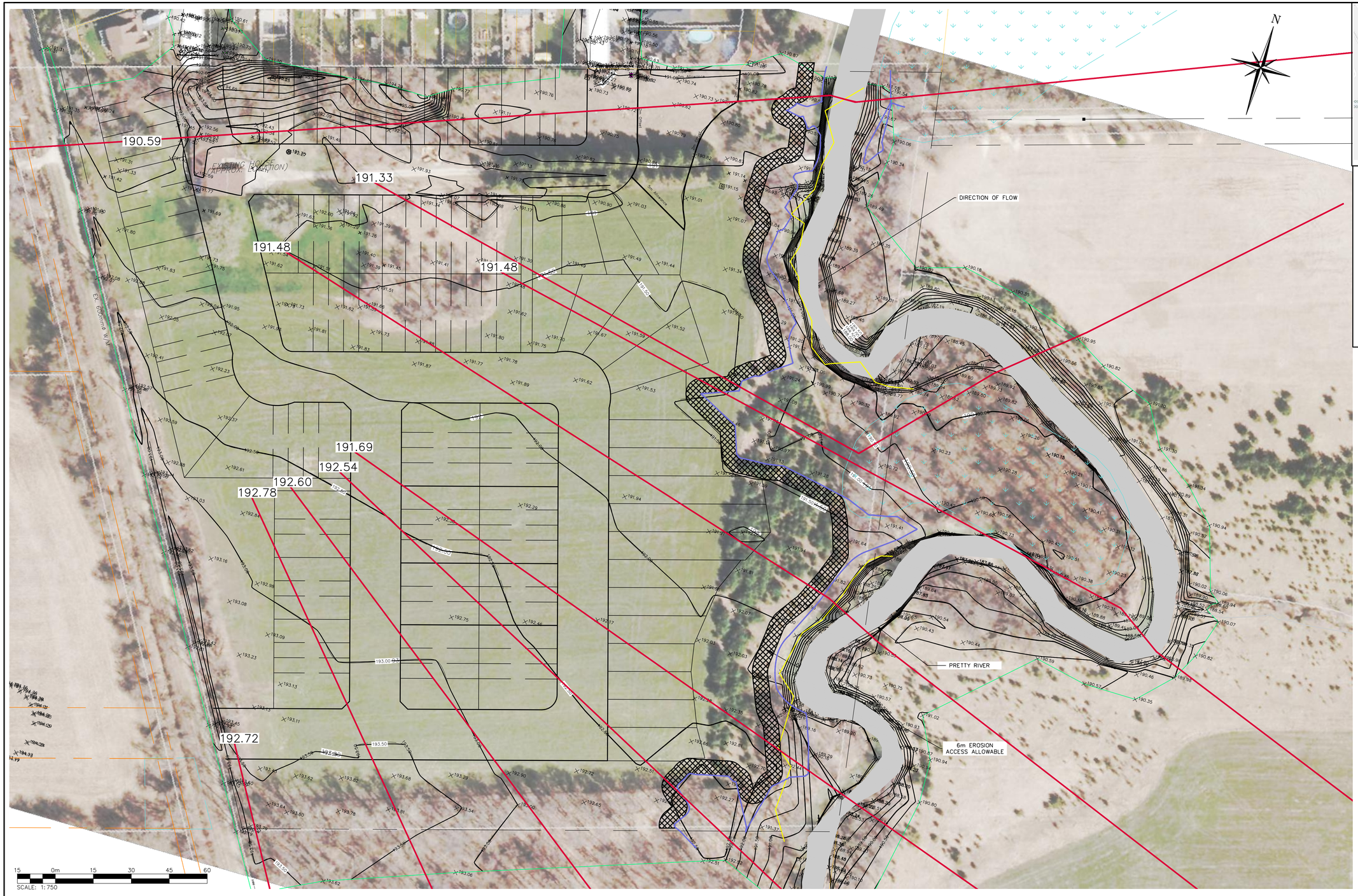
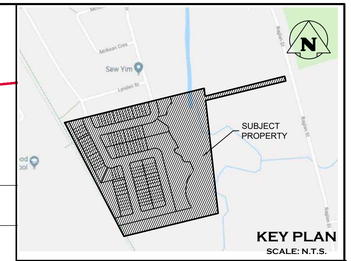
COLLINGWOOD, ON. L9Y 1A1
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn By	Design By	Project	
D.T	A.C		218–5833
Check By	Check By	Scale	Drawing
XX	R.A	1:150	FIG. 9





KEY PLAN
SCALE: N.T.S.

LEGEND

- 192.72 — HEC-RAS CROSS SECTION LOCATION
- REGIONAL WATER SURFACE ELEVATION
- REGIONAL FLOODLINE
- 193.50 — EXISTING CONTOUR AND ELEVATION
- x 193.50 — EXISTING ELEVATION POINT
- PROPOSED LOT LINE
- DEVELOPMENT AREA
- PROPERTY BOUNDARY
- EROSION ACCESS ALLOWANCE

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Check By	Check By	Scale	Drawing
XX	R.A	1:750	FIG. 10