

**FUNCTIONAL SERVICING &
STORMWATER MANAGEMENT REPORT**

HUNTINGWOOD TRAILS (COLLINGWOOD) LTD.

HUNTINGWOOD TRAILS

TOWN OF COLLINGWOOD

PREPARED BY:

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1.0 Introduction

CF Crozier & Associates Inc. (Crozier) was retained by Huntingwood Trails (Collingwood) Ltd. to complete a Functional Servicing and Stormwater Management Report in support of the Huntingwood Trails Development. The proposed development is located on a 49 ha property legally described as part of Lots 47, 48 & 49 Concession 12, Town of Collingwood. The subject lands are bounded by Highway 26 and Silver Creek Drive to the north, the Silver Glen Preserve Subdivision to the east, the Forest Drive Subdivision to the west and the Georgian Trail to the south. Figure 1 shows the location of the proposed development.

Silver Creek bisects the site dividing the proposed land into two development areas. To the west of Silver Creek, the plan is comprised of 60 single family lots, 12 semi detached dwellings, 30 townhouse units, approximately 1,050 m of public roads and a stormwater management facility. To the east of Silver Creek the plan is comprised of approximately 1250 m of public roads, 71 single family lots, 119 townhouse units, 144 walk up apartment units, a retirement home, community center, commercial area, stormwater management facility and internal roadways and parking. A series of trails bisect the residential areas as well as the Environmental Protection areas. The subject concept plan reflecting a total unit count of 436 units is presented as Figure 2.

In support of the application for an Official Plan Amendment, Zoning By-Law Amendment and Draft Plan of Subdivision, three reports have been prepared by Crozier:

- Functional Servicing & Stormwater Management Report,
- Natural Hazards Study and,
- Traffic Impact Study

The purpose of this report, "Functional Servicing & Stormwater Management Report, Huntingwood Trails Development", is to outline the proposed internal servicing and stormwater management strategy for the subject lands.

2.0 Background

As the Consulting Engineers representing the neighbouring "Silver Glen Preserve" and "The Preserve at Georgian Bay" developments, our firm is well versed in the engineering requirements for this area.

In addition to the requirements of the Town of Collingwood, the following agencies will also provide input during the planning and approval process for this project:

- Nottawasaga Valley Conservation Authority
- County of Simcoe

3.0 Site Description

Historic use of the subject property has been primarily for agricultural purposes. A farm house and barn that are set back approximately 350 m from Silver Creek Drive remain onsite. Much of the property is currently utilized as pasture lands for cattle.

The main branch of Silver Creek enters the subject site along the southern property line after passing beneath the Georgian Trail via a former railway bridge. Silver Creek exhibits a riffle – pool sequence throughout the site with an average stream width of approximately 5 metres and average bankfull depth

of approximately 1.5 metres. Downstream of the site, Silver Creek passes beneath Highway 26 via a 7.5m x 1.5m concrete box culvert en route to its eventual outlet at Georgian Bay approximately 1 kilometer north of the site.

Vegetation west of Silver Creek is primarily pasture with clumps of sparse trees. In some instances tree cover has been cleared right up to the creek edge, while in other areas a small buffer of tree cover has been maintained.

East of Silver Creek vegetation is more varied. A strip of pasture land has been established running alongside the creek edge and the Highway 26 right of way. The remaining lands abutting the Georgian Trail and adjacent Silver Glen Preserve subdivision are a mixture of forest and meadow areas. During the spring time, a number of closed depressions in the forested areas contain standing water.

Across the site, soils are classified as sandy loams, loamy sands and loams of Hydrologic Soil Groups 'A' to 'BC' per the Soil Survey of Simcoe County, 1962. To the west of Silver Creek soils are of the Alliston and Tioga origin. To the east of Silver Creek soils are of the Alliston, Warton, Granby and Parkhill origins. Although formal geotechnical work has yet to be performed for the proposed development our experience with the adjacent Silver Glen Preserve property indicates that bedrock contact for the subject lands is expected within 2 metres of the existing ground surface.

A portion of the northeast corner of the property is part of a Ministry of Natural Resources (MNR) Provincially Significant Wetland (PSW). A number of closed depressions in the southeast quadrant of the site have also been identified as wetlands and have been maintained. These environmental areas are identified on Figure 2, Concept Plan. Refer to the Environmental Impact Statement (EIS) prepared by Hensel Design Group for further details.

4.0 Road Standard

Access to the site will be provided from the existing surrounding municipal roadway network. Access to the western development area will be provided off of Silver Creek Drive. The proposed access roadway from Silver Creek Drive and internal roadways within the western development area will be Town of Collingwood standard 20 m urban section complete with curb and gutter and 8.5m width asphalt platform.

Access to the eastern development area will be provided via an extension of Silver Glen Boulevard, an existing dual carriage roadway within the adjacent Silver Glen Preserve subdivision, into the subject lands. The proposed access will consist of an 8.5 m asphalt platform complete with curb and gutter contained within a 30 m ROW. This oversized ROW will allow for the upgrade of the standard roadway to a dual carriage platform should an arterial roadway connection be established in the future.

The proposed 30 m municipal ROW will pass through the center of the eastern development area and terminate north of the Georgian Trail. Public and private roadways will extend off the 30m municipal ROW. Public roadways will meet the Town of Collingwood standard 20 m urban section complete with curb and gutter and 8.5m width asphalt platform. Private internal roadways will feature a 7.2 m platform width complete with curb and gutter. Future maintenance on any of the private internal roadway will ultimately be the responsibility of the condominium corporations.

The pavement structure for all roads will be constructed as per municipal standards and the recommendations of any future geotechnical reports completed for the subject lands.

5.0 Sanitary Servicing

The sanitary servicing strategy for the Huntingwood development is reflected on Figure 3 and discussed below. Sanitary design flow calculations have been included in Appendix A.

Existing Services

Sanitary services are available to the proposed development. To the immediate east is located an existing sewage pumping station associated with the Silver Glen Preserve residential subdivision. Twin forcemains convey wastewater from the pumping station to an existing 750 mmØ gravity sanitary sewer, approximately 850 m to the east. The Silver Glen pumping station is presently a private facility; the station will revert to public ownership upon full build-out of the Silver Glen Preserve subdivision (approximately 180 units).

The Silver Glen pumping station is also considered a "temporary" facility. It will be replaced at some point in time by a regional pumping station proposed on the north side of Highway 26 on "The Preserve at Georgian Bay" development site by Consulate Development Inc.

Future External Servicing

The Silver Glen pumping station represents an interim servicing alternative to the Huntingwood Trails development. With relatively minor modification, the existing pumping station can be retrofitted to accommodate approximately 100 units of the Huntingwood site (ie. First phase). Subsequent phases of the Huntingwood development will require the implementation of the regional pumping station on the Consulate Development property. Consequently, agreements will be required between affected parties concerning the future implementation of the regional pumping station and the overall service area.

Internal Sanitary Services

The east and west development portions of the subject lands will be entirely serviced by gravity sewers. In addition, gravity sewer from the western development area can be extended to Silver Creek Drive if desired by the municipality, thus providing a sanitary outlet to existing homes currently on individual onsite septic systems within the Forest Drive Subdivision and Silver Creek Drive. This would be a public benefit by providing opportunities to provide full services to existing partially serviced lots.

Oversizing of the sanitary sewer within the Huntingwood development to accommodate approximately 85 existing homes on Silver Creek Drive and the Forest Drive Subdivision can be completed subject to satisfactory agreements between the Developer and the Town of Collingwood.

The proposed routing of the internal sanitary sewer will follow the alignment of the internal roadway network per municipal standards. One exception to this routing is the connection between the east and west development areas, which requires the sanitary sewer to cross the Silver Creek floodplain.

Crossing of the Silver Creek floodplain with the sanitary sewer was preferred over a routing along Highway 26 and Silver Glen Boulevard. The installation of sewer along Highway 26 would be much more

demanding from a construction standpoint due to the proximity to existing roads and traffic, narrow servicing corridor, multiple culvert crossings and works along Provincially Significant Wetland for almost the entire installation.

Plant Treatment Capacity

Allocation within the Collingwood wastewater treatment plant for the subject lands has yet to be reserved with the Town of Collingwood. Experience within the service area suggests there exists capacity within the municipal systems to accommodate the proposed development. Allocation of capacity within the Town of Collingwood is typically issued on a "first come first served" basis and should be confirmed with the Town of Collingwood as development approvals proceed.

6.0 Potable Water Supply

Potable water for the development will be supplied by the Town of Collingwood municipal water distribution system. Pre-consultation with the Town of Collingwood confirmed sufficient pressures and flows exist within the Collingwood system to service development in west Collingwood including the subject lands. The Town of Collingwood water distribution model will be updated with the subject development to confirm available fire flows during the detailed design stage of the project.

The proposed water distribution supply network is presented in Figure 4. Water system design flow calculations have been included in Appendix A.

Existing Services

Connections to the existing Collingwood water distribution system will be straightforward and feasible. An existing 300 mm diameter watermain is located in the south shoulder of Silver Creek Drive; 200 mm diameter watermain exists in the west shoulder of Forest Drive; and 150 mm diameter watermain is located in the south shoulder of Craigleith Court. As frontage for the west development area is restricted to the Silver Creek Drive ROW, a live tap connection to the existing 300 mm diameter watermain is the preferred servicing alternative.

Similarly, review of existing infrastructure in the vicinity of the eastern development area of the subject site reveals a 300 mm diameter watermain in the north shoulder of Highway 26 and a 150 mm diameter watermain in the west shoulder of Silver Glen Boulevard. The east development area will be connected to the existing 150 mm diameter watermain on Silver Glen Boulevard as illustrated on Figure 4.

Internal Water Distribution

Local watermain with individual service connections for each unit will follow the alignment of internal roadways per municipal standards. The size of the watermain required in order to provide fire protection will be confirmed with the Town of Collingwood in the detailed design process. Fire hydrant and valving spacing will also be determined during detailed design, subject to applicable municipal standards.

Based on the current practices in the Town of Collingwood, the municipality may wish to assume ownership of the watermain distribution network located in the privately held portions of the development as well as municipally assumed ROW's. This typically includes all mains, hydrants, valves and services up

to and including curb stops. In that event, an easement in the name of the municipality along the alignment of the watermain through the condominium portion of the development will be necessary.

An interconnection between the water systems for the east and west development areas is proposed across Silver Creek. The proposed Silver Creek crossing will be completed in conjunction with the proposed sanitary sewer crossing. This interconnection of watermain between the east and west development areas will provide redundancy to the existing Collingwood water distribution network. Residents of the service area would be provided the benefit of an alternate watermain feed should service be interrupted in the trunk main along Highway 26 between Silver Glen Preserve and Silver Creek Drive as has occurred in the past.

7.0 Utilities

The Huntingwood Trails Development will be serviced with natural gas, telephone, cable TV and hydro. All such utilities are available along Highway 26 and the surrounding public streets.

8.0 Stormwater Management & Site Drainage

The management of stormwater and site drainage for the proposed development must comply with the policies and standards of the various agencies including the Town of Collingwood, NVCA, and Ministry of the Environment.

The stormwater management criteria that will be met with the development of Huntingwood Trails are as follows:

- Water Quality Control
 - "Enhanced Protection" given Georgian Bay as ultimate receiver.
- Water Quantity Control
 - "Post to Pre" control for storms up to and including the 100 year event.
- Water Balance
 - "Post to Pre" water balance to identified onsite wetland areas.
- Erosion Control
 - Use of source control and extended detention.
- Development Standard
 - Urban cross section complete with curb & gutter;
 - Lot grading at 2% optimum; and,
 - Minor and major drainage system to convey frequent and infrequent rainfall/runoff events, respectively.

A Natural Hazards Study outlining constraints associated with the Silver Creek floodplain and erosion limits has been completed as an adjunct to this report and is submitted under separate cover.

8.1 Existing Drainage Conditions

In order to accurately determine onsite drainage flow routes and pre-development drainage conditions, high resolution air photography contours were obtained for subject lands from First Base Solutions (2008). Review of these contours illustrates the site generally slopes from the southwest to the northeast with an average slope of less than 1%.

West of Silver Creek (Catchment 101) the site drains primarily by overland sheet flow. A number of existing residences along Silver Creek Drive, Forest Drive and Craigleith Court contribute drainage along the perimeter of the site. Drainage enters the site through a broad drainage draw behind existing residences on Silver Creek Drive. A series of small drainage draws onsite, collect sheet flow and direct drainage towards Silver Creek Drive. At Silver Creek Drive, a shallow ditch located on the subject property collects and directs drainage eastward beneath a culvert in the site access driveway. Flow from the shallow ditch is discharged into Silver Creek approximately 60 m upstream of Highway 26. All drainage from the western portion of the site ultimately outlets upstream of Highway 26 to the main branch of Silver Creek.

East of Silver Creek (Catchment 102) drainage patterns are significantly different. Overbank areas east of Silver Creek slope away from the creek, directing surface drainage out of the Silver Creek watershed in a north easterly direction. In essence, the east bank of the creek acts as a drainage divide. Land east of this divide falls to the northeast eventually draining toward Highway 26 and Silver Glen Boulevard referred to as the Northeast Outlet for the remainder of this report. All drainage through the Northeast Outlet exits the Silver Creek watershed.

Field inspection has confirmed the presence of an intermittent drainage channel through the eastern development area which outlets to a 5.5 m x 1.7 m box culvert beneath Highway 26 at the northeast tip of the property. This intermittent drainage channel collects sheet flow from the site, as well as drainage from property to the south which are conveyed beneath the Georgian Trail via twin 450 mm diameter culverts. The undulating nature of the property is characterized by a number of closed depressions which store site drainage in storm or melting events prior to overflow to the above noted intermittent drainage channel.

Pre-Development drainage conditions are illustrated on Figure 5.

8.2 Proposed Drainage Conditions

The development has been designed to respect and potentially enhance Silver Creek by implementing a buffer setback from both sides of the watercourse. No residential buildings will be placed within this buffer and further no roadway watercourse crossings will be required. Considerations to the nature of Silver Creek and the associated floodplain will be made during detailed design of such elements as Stormwater Management (SWM) facilities and drainage ditches / outfalls. Any works required within the buffer setback of the Silver Creek will ultimately be subject to NVCA Regulation.

Following the requirements of the Town of Collingwood, the development will incorporate a "dual" drainage system consisting of storm sewer, catchbasins and lot drainage swales (minor system) and the use of the roadway and ditches (major system). The proposed drainage system including overland flow routes, storm sewer alignment and required stormwater management facilities is reflected on Figure 6.

Given the natural segmentation of the site caused by the Silver Creek and associated buffers, runoff generated from the proposed development will be collected and treated in two separate stormwater management "end-of-pipe" facilities. One facility will be required to service the western development area

while a second facility will be required to service the eastern development area. As such, the east and west development areas are independent and would allow for future phasing of the development.

External drainage entering the subject site will be routed around the proposed development to an appropriate outlet in its' pre-development state. As such, external lands were excluded from hydrologic modeling used to confirm SWM block sizing as detailed further in subsequent sections of this report.

The West SWM Facility will receive runoff from approximately 10.6 ha of the western development area (Catchment 2101). The hydraulics of the SWM facility govern the grades across the site, beginning with the entrance road profile. The entrance roadway will also be graded to provide flood protection to existing residences along Silver Creek Drive.

Rear to front drainage for lots has been applied in all cases where feasible, to ensure runoff generated from the proposed development will reach the SWM Facility. Roads within the western development area generally drain north following the natural contours of the site to a low point in the main access road adjacent the West SWM Facility. The West SWM Facility will outlet to Silver Creek upstream of Highway 26 as in the pre-development condition.

The East SWM Facility will treat stormwater generated from the eastern development area. The total drainage area contribution to the East SWM Facility is approximately 13.1 ha (Catchment 2103). The East SWM Facility will discharge to the Northeast Outlet as in the pre-development condition.

Similar to the west development, grading for the east development area will direct runoff generated from the proposed lots and roadways to the SWM Facility. Lots backing onto the internal wetlands will incorporate split drainage allowing runoff from rear yards and rooftops to drain to the wetlands; the front half of lots and driveways will drain to the proposed roadway and storm sewer network. The split lot grading will maintain a water balance to the onsite wetlands. Full calculations regarding the wetland water balance have been included with this report in Appendix B. Detailed grading design for the site will be completed in order to balance the pre to post development runoff contribution to the wetland area as appropriate.

Drainage from the buffer setback along Silver Creek (Catchment 2102), central woodland / wetland tract (Catchment 2104) and northern PSW (Catchment 2105) will be conveyed to the respective natural outlet as in a pre-development condition. As the eastern development area obstructs a portion of drainage from Catchment 2104, a series of 100-Year pipes with an emergency overland flow route will be required to convey these flows to the Northeast Outlet in extreme events.

Figure 7 illustrates the post-development drainage patterns of the proposed development.

8.3 Stormwater Quantity Control

Hydrologic modeling was prepared for both pre-development and post-development site conditions. The SCS Type II and Chicago 4-hour rainfall distributions were applied to the hydrologic model; the SCS distribution produced the greatest runoff peaks and volumes and was thus used throughout this analysis. The purpose of the modeling was to determine the detention storage volumes and corresponding SWM block sizing required on-site to ensure post-development peak flow rates do not exceed pre-development levels (ie. quantity control).

The stormwater management hydrologic computer program SWMHYMO (Sabourin, 1998) was used to model the pre and post development site conditions and determine peak flow rates discharging to the Silver Creek and the Northeast Outlet. The principal hydrologic parameters used in the modeling analysis are summarized in Table 1 below and are based on supporting computations found in Appendix C.

Table 1: Pre and Post-development Hydrologic Parameters

Catchment ID	101	102	2101	2102	2103	2104	2105
Scenario	Pre	Pre	Post	Post	Post	Post	Post
Drainage Area (ha)	17.4	34.1	10.6	9.8	13.1	13.0	5.0
Total Imperviousness (%)	0	0	50	0	60	3	0
Directly Connected Imperviousness (%)	0	0	30	0	40	0	0
Curve Number (CN) ¹	53.2	58.4	55.0	52.8	63.5	62.2	55.5
Time of Concentration (hrs)	1.55	2.14	0.52	1.52	0.67	1.40	1.09
Time to Peak (hrs)	1.04	1.43	0.35	1.02	0.45	0.94	0.73

1. Curve number presented as utilized in SWMHYMO modeling. CN reflects composite curve number for rural catchments modeled using NASHYD routine and curve number for pervious areas only for urban catchments using STANDHYD routine.

The CALIB NASHYD command was used in the model to simulate the pre-development hydrographs. This hydrograph is used to simulate runoff from rural/undeveloped areas. The CALIB STANDHYD command was applied to the post-development conditions of the subject lands.

Hydrologic models were prepared for design storm events including the 2 year, 5 year, 10 year, 25 year, 50 year, 100 year and Regional storms. The hydrologic modeling output is found in Appendix D.

8.3.1 Modeling Results

Based on the modeling, the pre-development and post-development (uncontrolled) peak flow rates generated are summarized in Table 2. It is evident that left unattenuated, post-development peak flows to the Silver Creek and the Northeast Outlet would substantially increase.

Table 2: Pre & Post-development Peak Flow Rates (Uncontrolled)

Return Period (Years)	Pre-development (Silver Creek Outlet) (m ³ /s)	Post-development (Silver Creek Outlet) (m ³ /s)	Pre-development (Northeast Outlet) (m ³ /s)	Post-development (Northeast Outlet) (m ³ /s)
2	0.09	0.55	0.15	0.90
5	0.16	0.81	0.26	1.33
10	0.21	1.01	0.34	1.64
25	0.28	1.27	0.47	2.05
50	0.34	1.50	0.57	2.37
100	0.40	1.72	0.68	2.74
Regional	0.69	1.21	1.38	2.01

Using the ROUTE RESERVOIR command in the SWMHYMO modeling, it was possible to determine the volume of detention storage required to attenuate the post-development peak flows to pre-development levels based on a preliminary storage – discharge relationship. It was concluded that approximately 4,550 m³ of active detention storage for the West SWM facility and 6,130 m³ of active detention storage for the East SWM Facility is required to meet the flood (quantity) control requirements of all storm events including the 100 year return period. The detention storage requirements are summarized in Tables 3 & 4 below. Preliminary SWM Facility storage-discharge relationships have been included in Appendix E.

Table 3: West SWM Facility Storage Characteristics

Return Period (Years)	Peak Inflow (m ³ /s)	Storage (m ³)	Release Rate (m ³ /s)
2	0.54	1530	0.03
5	0.79	2210	0.03
10	0.97	2720	0.03
25	1.22	3390	0.04
50	1.44	3960	0.04
100	1.65	4550	0.04
Regional	0.93	5600	0.62

Table 4: East SWM Facility Storage Characteristics

Return Period (Years)	Peak Inflow (m ³ /s)	Storage (m ³)	Release Rate (m ³ /s)
2	0.87	2560	0.04
5	1.26	3460	0.06
10	1.55	4070	0.08
25	1.92	4850	0.11
50	2.21	5480	0.13
100	2.55	6130	0.15
Regional	1.32	7840	0.94

With the use of the East and West SWM Facilities post-development peak flows will respect the pre-development flows at the Silver Creek and the Northeast Outlet. The "post to pre" peak flows are summarized in Table 5 below. It is noted that the uncontrolled flows emanating from the undisturbed areas of the site (Catchment 2102, 2104 and 2105) have been accounted for in the total peak flow values shown in Table 5. Detailed modeling output is included in Appendix D.

Table 5: Total "Post to Pre" Peak Flow Rates (Controlled)

Return Period (Years)	Pre-development (Silver Creek Outlet) (m ³ /s)	Post-development (Silver Creek Outlet) (m ³ /s)	Pre-development (Northeast Outlet) (m ³ /s)	Post-development (Northeast Outlet) (m ³ /s)
2	0.09	0.08	0.15	0.15
5	0.16	0.12	0.26	0.26
10	0.21	0.15	0.34	0.34
25	0.28	0.19	0.47	0.47
50	0.34	0.23	0.57	0.57
100	0.40	0.26	0.68	0.68
Regional	0.69	0.97	1.38	1.76

Note: "Post to Pre" control of Regional event is not required.

8.4 Stormwater Quality Control

It will be necessary to implement Best Management Practices (BMP's) to address site water quality requirements. A review of all the environmental constraints and site specific conditions was completed. It was concluded that an end-of-pipe wetland for the West SWM Facility and an end-of-pipe wet pond facility for the East SWM Facility are the preferred BMP's. Lot level BMP's may also be implemented, subject to detailed grading design and soil/water table considerations. The selected BMP's incorporate erosion and sediment control measures "to protect life and property and to minimize adverse impacts on water quality, and the natural environment both internal and external to the site" (INVCA, May 2000).

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

Based on the total site imperviousness of approximately 50% contributing to the West SWM Facility, the water quality storage volume for a stormwater wetland is 99 m³/ha (MOE, 2003). This is made up of 40 m³/ha extended detention volume and 59 m³/ha permanent pool volume. Based on the total site imperviousness of approximately 60% contributing to the East SWM facility the required storage volume for a stormwater wet pond is 202 m³/ha (MOE, 2003). This is made up of 40 m³/ha extended detention volume and 162 m³/ha permanent pool volume. Therefore minimum water quality volumes required are follows:

West SWM Facility – 10.6 ha Drainage Area

- Permanent Pool 625 m³
- Extended Detention 425 m³

East SWM Facility – 13.1 ha Drainage Area

- Permanent Pool 2,120 m³
- Extended Detention 524 m³

The preliminary pond sizing is based on the following criteria, consistent with the standards of MOE (2003):

West SWM Facility – Wetland Design

- Permanent Pool Depth 0.3 m maximum
- Active Storage Depth 1.5 m maximum (1.0 m maximum for storms <10 year event)
- Side Slopes 5:1 typical (3:1 maximum)
- Freeboard Depth 0.3 m minimum

East SWM Facility – Wet Pond Design

- Permanent Pool Depth 1.0 m minimum (2.0 m maximum)
- Active Storage Depth 1.5 m maximum (1.0 m maximum for storms <10 year event)
- Side Slopes 5:1 typical (3:1 maximum)
- Freeboard Depth 0.3 m minimum
-

At this initial stage of the design process we have confirmed that the blocks allotted for stormwater management in the subject plan are adequate in order to provide the level of treatment as described above in accordance with the standards of the NVCA and MOE. The details with respect to the specific design including provisions for access, side slopes, detailed grading, inlet inverts, length to width ratios, sediment forebays, and control structures will be specified/finalized during the detailed engineering design stage of the project. Likewise, permits/instruments such as a Certificate of Approval (MOE) and Fill Permit (NVCA) will be secured at that time. Preliminary designs for the east and west SWM facilities have been presented in Figure 8 and Figure 9 respectively.

8.4.1 Stormwater Erosion Control/Geomorphology

Erosion control will also be integrated into the design of the stormwater management system. These measures will provide protection to Silver Creek from changes in geomorphology as a result of the proposed development.

Erosion control is principally achieved by incorporating extended detention into the operation of an end-of-pipe SWM facility. Sizing is based on providing between 24 and 48 hours extended detention of the runoff produced following a short duration (4 hour) 25 mm storm event. The volume of extended detention for the runoff produced from a 25 mm event was found to exceed the extended detention volume as mandated by MOE stormwater management sizing criteria. Accordingly, the higher extended detention volume from the 25 mm event runoff was used in this assessment. The extended detention volumes from the 25 mm event are listed below.

- West SWM Facility 930 m³
- East SWM Facility 1510 m³

A Natural Hazards Study has been completed to determine the hazard limits associated with Silver Creek. It is reasonable to assert that through the course of detailed design, an adequate level of protection of the geomorphic condition of Silver Creek and the Northeast Outlet will be specified. The protection will consist of extended detention active storage volume provided within the operation of the stormwater facilities as described above and restriction to development in erosion prone areas as presented further in the accompanying Natural Hazards Study, submitted under separate cover.

9.0 Conclusions

Based on the foregoing, we conclude that the proposed Huntingwood Trails development can be adequately serviced.

1. Access to the site will be by way of frontage onto Silver Creek Drive and extension of Silver Glen Boulevard.
2. The proposed development will be fully serviced by gravity sewer ultimately discharging to the regional pumping station to be located on the Consulate Development site north of Highway 26 ("The Preserve at Georgian Bay"). Interim servicing for the Huntingwood development is possible via the existing pumping station on Silver Glen Preserve, in advance of the regional pumping station. The timing of the subject development will affect the agreements and infrastructure cost sharing required.
3. The domestic water supply will be provided from existing watermains located on Silver Creek Drive and Silver Glen Boulevard. Sufficient pressure and flows exist in the service area to supply the proposed development.
4. Utilities including power, gas, telephone and cable services are available as plant is located on the perimeter roads surrounding the subject lands.
5. "Post to Pre" water balance to on-site wetland areas will be provided through detailed site grading design.
6. Stormwater management controls will be implemented for the proposed development to provide water quantity, water quality and erosion control. Two stormwater management facilities will treat runoff from the future development area of the site prior to discharging to the respective pre-development outlet. The current concept plan includes blocks of adequate size to accommodate the SWM requirements of the site.

7. The proposed development will provide public benefit to the Town of Collingwood by providing a gravity sanitary sewer outfall for extension of services to existing residences currently on septic systems, watermain redundancy to the Collingwood west end service area and flood protection to existing residences along Silver Creek Drive and former Spill Flow Route 'B'. (see Natural Hazard Report)

Therefore, we recommend approval of the Planning Applications for the subject lands from the perspective of engineering servicing requirements.

Respectfully Submitted,

C.F. CROZIER & ASSOCIATES INC.



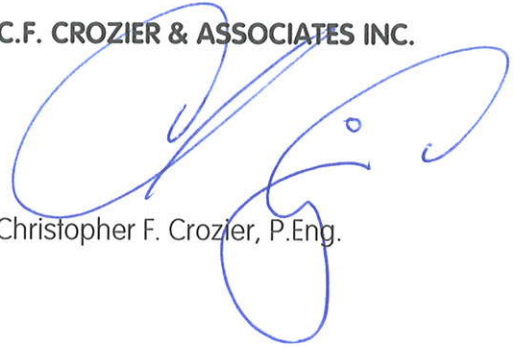
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Enclosure

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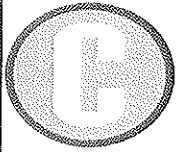
C.F. CROZIER & ASSOCIATES INC.



Christopher F. Crozier, P.Eng.

APPENDIX A

Sanitary / Water Design Flows



**CROZIER
& ASSOCIATES**
Consulting Engineers

Project: Huntingwood
Project No.: 281-2769
Date: January 2011
By: JK/JP

Huntingwood Development Servicing Population Projection

Land area

Future Residential	16.92 Ha
Future Commercial	0.55 Ha
Total land use	17.5 Ha

Unit Loading - Residential

25.77 units/Ha

Unit density (per MOE)

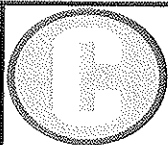
3.5 ppu

Design population

436 units

Population

1526 people



**CROZIER
& ASSOCIATES**
Consulting Engineers

Project: Huntingwood
Project No.: 281-2769
Date: January 2011
By: JK/JP

Huntingwood Development Servicing Sanitary Design Criteria

Total Residential Area	16.92 Ha
Future population	1,526 people
Commercial / Institutional	0.55 Ha

Sewage Flows

Residential (per MOE)	450 L/C-day
Commercial / Institutional (per MOE)	28 m ³ /Ha-day
Infiltration (per MOE)	0.28 L/s-Ha

Total Design Sewage Flows

Average Daily Flow

Residential	7.9 L/sec
Commercial	0.2 L/sec
Infiltration	4.9 L/sec

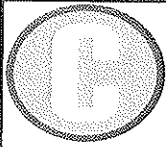
Total (ADF)	13.0 L/sec
--------------------	-------------------

Peak Flow

Peak Factor	3.67
Residential	29.2 L/sec
Commercial	0.7 L/sec
Infiltration	4.9 L/sec

Total(PF)	34.7 L/sec
------------------	-------------------

Notes: Peak Factor (M) = $1 + (14 / (4 + (P/1000)^{0.5}))$ (per MOE)



**CROZIER
& ASSOCIATES**
Consulting Engineers

Project: Huntingwood
Project No.: 281-2769
Date: January 2011
By: JK/JP

Huntingwood Development Servicing Potable Water Design Criteria

Total Residential Area	16.92 Ha
Future Population	1,526 people
Commercial / Institutional	0.55 Ha

Water Flows

Residential (per MOE)	450 L/C-day
Commercial / Institutional (per MOE)	28 m ³ /Ha-day

Total Water Flows

Average Daily Flow

Residential	7.9 L/sec
Commercial	0.2 L/sec
Total (ADF)	8.1 L/sec

Maximum Day Demand

Peak Factor (per MOE)	2.5
Residential	19.9 L/sec
Commercial	0.4 L/sec
Total (MDD)	20.3 L/sec

Peak Hour Flow

Peak Factor (per MOE)	3.75
Residential	29.8 L/sec
commercial	0.7 L/sec
Total (PHF)	30.5 L/sec

APPENDIX B

Water Balance Analysis

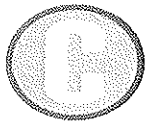


Project: Huntingwood
 Project No.: 281-2769
 Design by: JK /JMP
 Date: January 2011

Summary of Runoff Contributions for Individual Wetlands
Pre to Post Development Conditions

Wetland Area	Pre Runoff Contribution (Coefficient x Area)	Post Runoff Contribution (Coefficient x Area)	Increase/Decrease For Pre-Post Development	Percent Change (%)
2	1.32	1.43	Increase	8.1%
3A	3.00	2.96	Decrease	-1.4%
4A	1.00	1.04	Increase	4.0%
5A	0.47	0.49	Increase	4.8%
5B	3.44	---	---	---
Total Percent Change for Wetlands (Excluding 5B)				2.2%

Notes: 1) Individual contributions to wetlands to be refined at detailed design stage following detailed site grading exercise
 2) Runoff Contribution to Wetland 5B controlled by East SWM Facility with Post to Pre control



**CROZIER
& ASSOCIATES**
Consulting Engineers

Project: Huntingwood Trail
Project No.: 281-2769
Design by: KW/JMP
Date: January 2011

D.A.
Pre Area
Post Area

WETLAND 2
3.42 ha
3.00 ha

WETLAND 2: Pre to Post Runoff Determination

PRE-DEVELOPMENT

SOILS		LANDUSE									Runoff Coefficient x Area
Soil Texture	Percent Soil Area (%)	Percent Wetland (%)	Area Wetland (ha)	Runoff Coefficient Wetland (°C)	Percent Wooded (%)	Area Wooded (ha)	Runoff Coefficient Wooded (°C)	Percent Meadow (%)	Area Meadow (ha)	Runoff Coefficient Meadow (°C)	
Sand Loam	30	25	0.26	0.95	75	0.77	0.08	0	0.00	0.10	0.31
Loam/Silt Loam	70	25	0.60	0.95	75	1.80	0.25	0	0.00	0.28	1.02
Clay Loam/Clay	0	0	0.00	0.95	0	0.00	0.35	0	0.00	0.40	0.00
											1.32

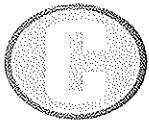
POST-DEVELOPMENT

SOILS		LANDUSE									Runoff Coefficient x Area
Soil Texture	Percent Soil Area (%)	Percent Wetland (%)	Area Wetland (ha)	Runoff Coefficient Wetland ('C')	Percent Wooded (%)	Area Wooded (ha)	Runoff Coefficient Wooded ('C')	Percent Meadow (%)	Area Meadow (ha)	Runoff Coefficient Meadow ('C')	
Sand Loam			0.26	0.95		0.36	0.08		0.00	0.10	0.27
Loam/Silt Loam			0.60	0.95		0.85	0.25		0.00	0.28	0.78
Clay Loam/Clay			0.00	0.95		0.00	0.35		0.00	0.40	0.00
			Area	Runoff Coefficient	Area	Runoff Coefficient	Area	Runoff Coefficient			
			Residential Detached (ha)	Residential Detached ('C')	Residential Townhome (ha)	Residential Townhome ('C')	Seniors Complex (ha)	Seniors Complex ('C')			
			0.93	0.40	0.00	0.60	0.00	0.45			0.37
											1.43

$$\% \text{ Change for Pre-Post} = (\text{Post-Pre}) / \text{Pre} * 100\%$$

$$= 8.1\%$$

Notes: Wetland 'C' value modified to reflect wetland storage



**CROZIER
& ASSOCIATES**
Consulting Engineers

Project: Huntingwood Trail
Project No.: 281-2769
Design by: KW/JMP
Date: January 2011

D.A.
Pre Area
Post Area

WETLAND 3A
7.50 ha
5.30 ha

WETLAND 3A: Pre to Post Runoff Determination

PRE-DEVELOPMENT

SOILS		LANDUSE									Runoff Coefficient x Area
Soil Texture	Percent Soil Area (%)	Percent Wetland (%)	Area Wetland (ha)	Runoff Coefficient Wetland (C)	Percent Wooded (%)	Area Wooded (ha)	Runoff Coefficient Wooded (C)	Percent Meadow (%)	Area Meadow (ha)	Runoff Coefficient Meadow (C)	
Sand Loam	50	30	1.13	0.95	70	2.63	0.08	0	0.00	0.10	1.28
Loam/Silt Loam	50	30	1.13	0.95	70	2.63	0.25	0	0.00	0.28	1.73
Clay Loam/Clay	0	0	0.00	0.95	0	0.00	0.35	0	0.00	0.40	0.00
											3.00

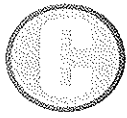
POST-DEVELOPMENT

SOILS		LANDUSE									Runoff Coefficient x Area
Soil Texture	Percent Soil Area (%)	Percent Wetland (%)	Area Wetland (ha)	Runoff Coefficient Wetland (°C)	Percent Wooded (%)	Area Wooded (ha)	Runoff Coefficient Wooded (°C)	Percent Meadow (%)	Area Meadow (ha)	Runoff Coefficient Meadow (°C)	
Sand Loam			0.56	0.95		0.55	0.08		0.00	0.10	0.58
Loam/Silt Loam			1.69	0.95		1.65	0.25		0.00	0.28	2.02
Clay Loam/Clay			0.00	0.95		0.00	0.35		0.00	0.40	0.00
			Area	Runoff Coefficient	Area	Runoff Coefficient	Area	Runoff Coefficient			
			Residential Detached	Residential Detached	Residential Townhome	Residential Townhome	Seniors Complex	Seniors Complex			
			(ha)	(°C)	(ha)	(°C)	(ha)	(°C)			
			0.71	0.40	0.14	0.60	0.00	0.45			0.37
											2.96

% Change for Pre-Post = (Post-Pre)/Pre * 100%

= -1.4%

Note wetland 'C' value modified to reflect wetland storage



**CROZIER
& ASSOCIATES**
Consulting Engineers

Project: Huntingwood Trail
Project No.: 281-2769
Design by: KW/JMP
Date: January 2011

D.A.
Pre Area
Post Area

WETLAND 4A
2.20 ha
1.93 ha

WETLAND 4A: Pre to Post Runoff Determination

PRE-DEVELOPMENT

SOILS		LANDUSE									Runoff Coefficient x Area
Soil Texture	Percent Soil Area (%)	Percent Wetland (%)	Area Wetland (ha)	Runoff Coefficient Wetland (C)	Percent Wooded (%)	Area Wooded (ha)	Runoff Coefficient Wooded (C)	Percent Meadow (%)	Area Meadow (ha)	Runoff Coefficient Meadow (C)	
Sand Loam	75	40	0.66	0.95	60	0.99	0.08	0	0.00	0.10	0.71
Loam/Silt Loam	25	40	0.22	0.95	60	0.33	0.25	0	0.00	0.28	0.29
Clay Loam/Clay	0	0	0.00	0.95	0	0.00	0.35	0	0.00	0.40	0.00
											1.00

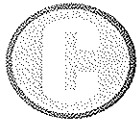
POST-DEVELOPMENT

SOILS		LANDUSE									Runoff Coefficient x Area
Percent Soil Soil Texture Area (%)	Percent Wetland (%)	Area Wetland (ha)	Runoff Coefficient Wetland (%C)	Percent Wooded (%)	Area Wooded (ha)	Runoff Coefficient Wooded (%C)	Percent Meadow (%)	Area Meadow (ha)	Runoff Coefficient Meadow (%C)		
Sand Loam			0.44	0.95		0.48	0.08		0.00	0.10	0.46
Loam/Silt Loam			0.44	0.95		0.48	0.25		0.00	0.28	0.54
Clay Loam/Clay			0.00	0.95		0.00	0.35		0.00	0.40	0.00
		Area Residential Detached (ha)	Runoff Coefficient Residential Detached (%C)	Area Residential Townhome (ha)	Runoff Coefficient Residential Townhome (%C)	Area Seniors Complex (ha)	Runoff Coefficient Seniors Complex (%C)				
		0.00	0.40	0.00	0.60	0.10	0.45				0.05
											1.04

% Change for Pre-Post= (Post-Pre)/Pre*100%

= 4.0%

Note wetland 'C' value modified to reflect wetland storage



**CROZIER
& ASSOCIATES**
Consulting Engineers

Project: Huntingwood Trail
Project No.: 281-2769
Design by: KW/JMP
Date: January 2011

D.A.
Pre Area
Post Area

WETLAND 5A
1.31 ha
0.86 ha

WETLAND 5A: Pre to Post Runoff Determination

PRE-DEVELOPMENT

SOILS		LANDUSE									Runoff Coefficient x Area
Soil Texture	Percent Soil Area (%)	Percent Wetland (%)	Area Wetland (ha)	Runoff Coefficient Wetland (°C)	Percent Wooded (%)	Area Wooded (ha)	Runoff Coefficient Wooded (°C)	Percent Meadow (%)	Area Meadow (ha)	Runoff Coefficient Meadow (°C)	
Sand Loam	100	30	0.39	0.95	0	0.00	0.08	70	0.92	0.10	0.47
Loam/Silt Loam	0	0	0.00	0.95	0	0.00	0.25	0	0.00	0.28	0.00
Clay Loam/Clay	0	0	0.00	0.95	0	0.00	0.35	0	0.00	0.40	0.00
											0.47

POST-DEVELOPMENT

SOILS		LANDUSE									Runoff Coefficient x Area
Soil Texture	Percent Soil Area (%)	Percent Wetland (%)	Area Wetland (ha)	Runoff Coefficient Wetland (°C)	Percent Wooded (%)	Area Wooded (ha)	Runoff Coefficient Wooded (°C)	Percent Meadow (%)	Area Meadow (ha)	Runoff Coefficient Meadow (°C)	
Sand Loam			0.39	0.95		0.00	0.08		0.27	0.10	0.40
Loam/Silt Loam			0.00	0.95		0.00	0.25		0.00	0.28	0.00
Clay Loam/Clay			0.00	0.95		0.00	0.35		0.00	0.40	0.00
			Area	Runoff Coefficient		Area	Runoff Coefficient		Area	Runoff Coefficient	
			Residential Detached (ha)	Residential Detached (°C)		Residential Townhome (ha)	Residential Townhome (°C)		Seniors Complex (ha)	Seniors Complex (°C)	
			0.00	0.40		0.00	0.60		0.20	0.45	0.09
											0.49

% Change for Pre-Post = (Post-Pre)/Pre*100%

= 4.8%

Note wetland 'C' value modified to reflect wetland storage



Project: Huntingwood Trail
 Project No.: 281-2769
 Design by: KW/JMP
 Date: January 2011

D.A.
 Pre Area
 Post Area

WETLAND 5B
 11.18 ha
 18.10 ha

WETLAND 5B: Pre to Post Runoff Determination

PRE-DEVELOPMENT

SOILS		LANDUSE									Runoff Coefficient x Area
Soil Texture	Percent Soil Area (%)	Percent Wetland (%)	Area Wetland (ha)	Runoff Coefficient Wetland (C)	Percent Wooded (%)	Area Wooded (ha)	Runoff Coefficient Wooded (C)	Percent Meadow (%)	Area Meadow (ha)	Runoff Coefficient Meadow (C)	
Sand Loam	100	25	2.80	0.95	25	2.80	0.08	50	5.59	0.10	3.44
Loam/Silt Loam	0	0	0.00	0.95	0	0.00	0.25	0	0.00	0.28	0.00
Clay Loam/Clay	0	0	0.00	0.95	0	0.00	0.35	0	0.00	0.40	0.00
											3.44

1) Wetland 'C' value modified to reflect wetland storage

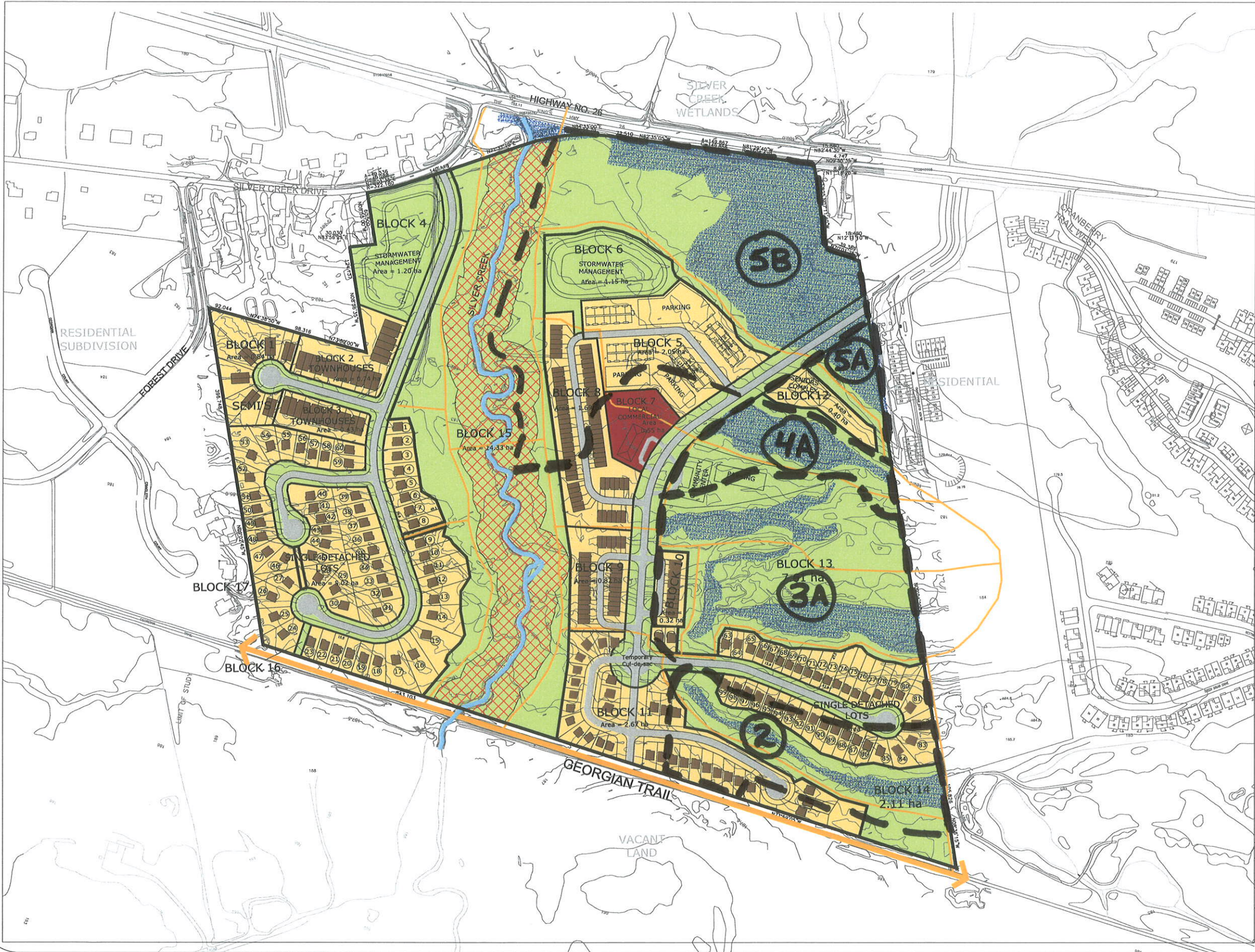
POST-DEVELOPMENT

SOILS		LANDUSE									Runoff Coefficient x Area
Soil Texture	Percent Soil Area (%)	Percent Wetland (%)	Area Wetland (ha)	Runoff Coefficient Wetland (C)	Percent Wooded (%)	Area Wooded (ha)	Runoff Coefficient Wooded (C)	Percent Meadow (%)	Area Meadow (ha)	Runoff Coefficient Meadow (C)	
Sand Loam			2.80	0.95		1.10	0.08		1.10	0.10	2.86
Loam/Silt Loam			0.00	0.95		0.00	0.25		0.00	0.28	0.00
Clay Loam/Clay			0.00	0.95		0.00	0.35		0.00	0.40	0.00

Post-Development Peak Flows From 13.1ha Urban Catchement Reduced to Pre-Development Level Via Proposed East Stormwater Management Pond

Note: RC for Wetlands is 0.95 to reflect most rainfall stored in closed depressions

PRE - DEVELOPMENT



CONCEPT PLAN

LAND USE		
	UNITS	AREA
RESIDENTIAL SINGLE DETACHED LOTS	1 to 99	7.36 ha
BLOCK 1 - RESIDENTIAL SEMI'S (12 SEMI-DETACHED UNITS)	12	0.84 ha
BLOCK 2 - RESIDENTIAL TOWNHOUSES (18 TOWNHOUSE UNITS)	18	0.74 ha
BLOCK 3 - RESIDENTIAL TOWNHOUSES (12 TOWNHOUSE UNITS)	12	0.43 ha
BLOCK 4 - STORMWATER MANAGEMENT (DEDICATED TO MUNICIPALITY)		1.20 ha
BLOCK 5 - RESIDENTIAL HIGH DENSITY (5 - 36 UNIT WALK UP APARTMENT BUILDINGS)	144	2.05 ha
BLOCK 6 - STORMWATER MANAGEMENT (TO BE DEDICATED TO MUNICIPALITY)		1.15 ha
BLOCK 7 - LOCAL COMMERCIAL		0.55 ha
BLOCK 8 - RESIDENTIAL TOWNHOUSES (75 TOWNHOUSE UNITS)	75	1.69 ha
BLOCK 9 - RESIDENTIAL TOWNHOUSES (33 TOWNHOUSE UNITS)	32	0.82 ha
BLOCK 10 - RESIDENTIAL TOWNHOUSES (12 TOWNHOUSE UNITS)	12	0.32 ha
BLOCK 11 - RESIDENTIAL SINGLE DETACHED (31 FREEHOLD SINGLE DETACHED LOTS)	32	2.67 ha
BLOCK 12 - SENIORS COMPLEX		0.40 ha
BLOCK 13 - COMMUNITY CENTER + OPEN SPACE + ENVIRONMENTAL PROTECTION (DEDICATED TO TOWN)		7.61 ha
BLOCK 14 - OPEN SPACE + ENVIRONMENTAL PROTECTION (DEDICATED TO TOWN)		2.11 ha
BLOCK 15 - OPEN SPACE + ENVIRONMENTAL PROTECTION (DEDICATED TO TOWN)		14.33 ha
BLOCK 16+17 - WALKWAY (DEDICATED TO TOWN)		0.07 ha
ROADS		4.63 ha
TOTAL	436	48.97 ha

- PROTECTED WETLANDS
- 30 METER SETBACK FROM SILVER CREEK
- PUBLIC TRAIL

SCALE 1:2000

METRIC
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY
DIVIDING BY 0.3048
PROJECT: 704-10 DRAWN: AP DATE: JAN 19/2010

DWG: 704-10-Concept Plan

DCS D.C. Slade Consultants INC.
Planning & Development
243 Hurontario Street, Collingwood, ON Phone: 705.444.1830

① CROZIER WETLAND ID

Post - Development



CONCEPT PLAN

LAND USE	UNITS	AREA
RESIDENTIAL SINGLE DETACHED LOTS	1 to 99	7.36 ha
BLOCK 1 - RESIDENTIAL SEMI'S (12 SEMI-DETACHED UNITS)	12	0.84 ha
BLOCK 2 - RESIDENTIAL TOWNHOUSES (18 TOWNHOUSE UNITS)	18	0.74 ha
BLOCK 3 - RESIDENTIAL TOWNHOUSES (12 TOWNHOUSE UNITS)	12	0.43 ha
BLOCK 4 - STORMWATER MANAGEMENT (DEDICATED TO MUNICIPALITY)		1.20 ha
BLOCK 5 - RESIDENTIAL HIGH DENSITY (5-36 UNIT WALK UP APARTMENT BUILDINGS)	144	2.05 ha
BLOCK 6 - STORMWATER MANAGEMENT (TO BE DEDICATED TO MUNICIPALITY)		1.15 ha
BLOCK 7 - LOCAL COMMERCIAL		0.55 ha
BLOCK 8 - RESIDENTIAL TOWNHOUSES (75 TOWNHOUSE UNITS)	75	1.69 ha
BLOCK 9 - RESIDENTIAL TOWNHOUSES (33 TOWNHOUSE UNITS)	32	0.82 ha
BLOCK 10 - RESIDENTIAL TOWNHOUSES (12 TOWNHOUSE UNITS)	12	0.32 ha
BLOCK 11 - RESIDENTIAL SINGLE DETACHED (32 FREEHOLD SINGLE DETACHED LOTS)	32	2.67 ha
BLOCK 12 - SENIORS COMPLEX		0.40 ha
BLOCK 13 - COMMUNITY CENTER + OPEN SPACE + ENVIRONMENTAL PROTECTION (DEDICATED TO TOWN)		7.61 ha
BLOCK 14 - OPEN SPACE + ENVIRONMENTAL PROTECTION (DEDICATED TO TOWN)		2.11 ha
BLOCK 15 - OPEN SPACE + ENVIRONMENTAL PROTECTION (DEDICATED TO TOWN)		14.33 ha
BLOCK 16+17 - WALKWAY (DEDICATED TO TOWN)		0.07 ha
ROADS		4.63 ha
TOTAL	436	48.97 ha

- PROTECTED WETLANDS
- 30 METER SETBACK FROM SILVER CREEK
- PUBLIC TRAIL

SCALE 1:2000

METRIC
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY
DIVIDING BY 0.3048
PROJECT: 704-10 DRAWN: AP DATE: JAN 19/2010

DWG: 704-10-Concept Plan

DCS D.C. Slade Consultants Inc.
Planning & Development
243 Huronville Street, Collingwood, ON Phone: 705.444.1830

① - CROZIER WETLAND ID

APPENDIX C

Hydrologic Parameters

Pre-Development - West

CURVE NUMBER

Soil Series	Hydrologic Soil Group	Soil Texture	Soil Area Composition		Woodland			Meadow		
			Area(ha)	Percent	Area	CN	CN*A	Area	CN	CN*A
Alliston	AB	Sandy loam	10.4	60	0.0	46	0	4.2	51	212.976
Tioga	A	Loamy sand	7.0	40	0.0	32	0	0.0	38	0
Totals			17.40		0.00		0.00	4.18		212.98

Wetlands			Lawn / Pasture			Cultivated			Impervious	
Area	CN	CN*A	Area	CN	CN*A	Area	CN	CN*A	Land Use	Area (ha)
	50	0	6.2	59	367		68	0	Roadway	0.00
	50	0	7.0	49	341		62	0	Sidewalk	0.00
									Driveway	0.00
									Building	0.04
0.00		0.00	13.18		708.26	0.00		0.00		0.04

17.40

Ximp 0 % **Composite Curve Number 53.1**
(for pervious areas)
Timp 0 % **Composite Curve Number 53.2**
(for all areas)

Land Use	Initial Abstraction (mm)	Area (ha)	IA *A
Wetlands	16	0.0	0.0
Woodland	10	0.0	0.0
Meadow	8	4.2	33.4
Cultivated	7	0.0	0.0
Lawn / Pasture	5	13.2	65.9
Impervious	2	0.0	0.1

Total Catchment Area 17.4 ha

IA Avg 5.71

Number of Houses 2
Building footprint 200 m²
Pavement Width 0.0 m
Sidewalks 0.0 m
Length ROW 0 m
Driveway 0 m²

Soil Type	Initial Abstraction (mm)	Slope (%)	Lot Depth/Travel Length (m)	Mannings n
Pervious	5.72	0.79	700	0.15
Impervious	2		0	0.013

TIME OF CONCENTRATION

GENERAL INPUTS

Longest Flow Path 700 m
Elevation Drop 5.5 m
Sw 0.79 %

Runoff Coefficient Determination

Land Use	Alliston			Tioga			0			0		
	C(-)	Area	CA	C(-)	Area	CA	C(-)	Area	CA	C(-)	Area	CA
Woodland	0.08	0.0	0.0	0.08	0.0	0.0	0.25	0.0	0.0	0.25	0.0	0.0
Meadow	0.10	4.2	0.4	0.10	0.0	0.0	0.28	0.0	0.0	0.28	0	0.0
Wetlands	0.05	0.0	0.0	0.05	0.0	0.0	0.05	0.0	0.0	0.05	0	0.0
Lawn / Pasture	0.10	6.2	0.6	0.10	7.0	0.7	0.11	0.0	0.0	0.11	0	0.0
Cultivated	0.22	0.0	0.0	0.22	0.0	0.0	0.35	0.0	0.0	0.35	0	0.0
Impervious	0.95	0.04	0.0	0.95	0.00	0.0	0.95	0	0.0	0.95	0	0.0
Total		10.44	1.1		6.96	0.7		0.0	0.0		0.0	0.0

Composite Runoff Coefficient 0.10

AIRPORT METHOD
(runoff coefficient less than 0.40, <1 km²)

Time of Concentration 93.2 min 1.55 hours $t_c = \frac{3.26 * (1.1 - C) * L^{0.5}}{S_w^{0.33}}$
Time to Peak 62.5 min 1.04 hours

BRANSBY-WILLIAMS METHOD
(Runoff Coefficient greater than 0.40, <25km²)

Time of Concentration 31.5 min 0.52 hours $t_c = \frac{0.057 * L}{S^{0.2} * A^{0.1}}$
Time to Peak 21.1 min 0.35 hours

TIME TO PEAK	
Appropriate Method	AIRPORT METHOD
TP	1.04

Pre-Development - East

CURVE NUMBER

*Approximate Areas										
Soil Series	Hydrologic Soil Group	Soil Texture	Soil Area Composition		Woodland			Meadow		
			Area (ha)	Percent	Area	CN	CN*A	Area	CN	CN*A
Alliston	AB	Sandy loam	17.1	50	6.8	46	313.7	5.1	51	260.9
Warton	B	Loam	1.7	5	1.7	60	102.3	0.0	65	0.0
Granby	B	Sandy loam	3.4	10	1.7	60	102.3	1.7	65	110.8
Parkhill	BC	Loam	11.9	35	11.9	67	799.6	0.0	71	0.0
Totals			34.1		22.2		1317.97	6.8		371.69

Wetlands			Lawn / Pasture			Cultivated			Impervious	
Area	CN	CN*A	Area	CN	CN*A	Area	CN	CN*A	Land Use	Area (ha)
0.00	50	0.00	5.1	59	301.8	0.00	68	0.00	Roadway	0.00
0.00	50	0.00	0.00	69	0.00	0.00	74	0.00	Sidewalk	0.00
0.00	50	0.00	0.00	69	0.00	0.00	74	0.00	Driveway	0.00
0.00	50	0.00	0.00	74	0.00	0.00	78	0.00	Building	0.00
0.00		0.00	5.1		301.79	0.00		0.00		0.00

34.10

Ximp 0 %
Composite Curve Number (for pervious areas) 58.4
Timp 0 %
Composite Curve Number (for all areas) 58.4

Land Use	Initial Abstraction (mm)	Area (ha)	IA * A
Wetlands	16	0.0	0.0
Woodland	10	22.2	221.7
Meadow	8	6.8	54.6
Cultivated	7	0.0	0.0
Lawn / Pasture	5	5.1	25.6
Impervious	2	0.0	0.0

Total Catchment Area 34.1 ha

IA Avg

8.85

Number of Houses 0
Building footprint 0 m²
Pavement Width 0.0 m
Sidewalks 0.0 m
Length ROW 0 m
Driveway 0 m²

Soil Type	Initial Abstraction (mm)	Slope (%)	Lot Depth/Travel Length (m)	Mannings n
Pervious	8.85	0.54	1200	0.15
Impervious	2		0	0.013

TIME OF CONCENTRATION

GENERAL INPUTS

Longest Flow Path 1200 m
Elevation Drop 6.5 m
Sw 0.54 %

Runoff Coefficient Determination

Land Use	C(-)	Alliston Area	CA	C(-)	Warton Area	CA	C(-)	Granby Area	CA	C(-)	Parkhill Area	CA
Woodland	0.08	6.8	0.5	0.25	1.7	0.4	0.25	1.7	0.4	0.25	11.9	3.0
Meadow	0.10	5.1	0.5	0.28	0.0	0.0	0.28	1.7	0.5	0.28	0	0.0
Wetlands	0.05	0.0	0.0	0.05	0.0	0.0	0.05	0.0	0.0	0.05	0	0.0
Lawn / Pasture	0.10	5.1	0.5	0.28	0.0	0.0	0.28	0.0	0.0	0.28	0	0.0
Cultivated	0.22	0.0	0.0	0.35	0.0	0.0	0.35	0.0	0.0	0.35	0	0.0
Impervious	0.95	0.0	0.0	0.95	0.00	0.0	0.95	0	0.0	0.95	0	0.0
Total		17.1	1.6		1.7	0.4		3.4	0.9		11.9	3.0

Composite Runoff Coefficient 0.17

AIRPORT METHOD

(runoff coefficient less than 0.40, <1 km²)

Time of Concentration 128.2 min
Time to Peak 85.9 min
2.14 hours
1.43 hours
$$t_c = \frac{3.26 * (1.1 - C) * L^{0.3}}{S_n^{0.33}}$$

BRANSBY-WILLIAMS METHOD

(Runoff Coefficient greater than 0.40, <25km²)

Time of Concentration 54.3 min
Time to Peak 36.4 min
0.91 hours
0.61 hours
$$t_c = \frac{0.057 * L}{S^{0.2} * A^{0.1}}$$

TIME TO PEAK	
Appropriate Method	AIRPORT METHOD
Tp	1.43

Post-Development - West Development Area

CURVE NUMBER

*Approximate Areas										
Soil Series	Hydrologic Soil Group	Soil Texture	Soil Area Composition		Woodland			Meadow		
			Area(ha)	Percent	Area	CN	CN*A	Area	CN	CN*A
Alliston	AB	Sandy loam	6.4	60	0.0	46	0.0	0.0	51	0.0
Tioga	A	Loamy sand	4.2	40	0.0	32	0.0	0.0	38	0.0
Totals			10.60		0.00		0.00	0.00		0.00

Wetlands			Lawn / Pasture			Cultivated			Impervious	
Area	CN	CN*A	Area	CN	CN*A	Area	CN	CN*A	Land Use	Area (ha)
	50	0	3.3	59	193.9		68	0.0	Roadway	1.12
	50	0	2.2	49	107.4		62	0.0	Sidewalk	0.16
									SF Driveway	0.60
									TH Driveway	0.32
									SF Building	1.20
									TH Building	0.53
									SWM Pond	1.20
0.00		0.00	5.48		301.32	0.00		0.00		5.12

10.60

Ximp	<u>29</u>	%	Composite Curve Number	<u>55.0</u>
			(for pervious areas)	
Temp	<u>48</u>	%	Composite Curve Number	<u>76.7</u>
			(for all areas)	

SF= Single Family Detached
TH= Semi / Townhomes

Land Use	Initial Abstraction (mm)	Area (ha)	IA *A
Wetlands	16	0.0	0.0
Woodland	10	0.0	0.0
Meadow	8	0.0	0.0
Cultivated	7	0.0	0.0
Lawn / Pasture	5	5.5	27.4
Impervious	2	5.1	10.2

Total Catchment Area 10.6 ha

IA Avg 3.55

Number of SF Houses	60
Number of Townhomes	42
SF Building footprint	200 m ²
TH Building footprint	125 m ²
Pavement Width	9.5 m
Sidewalks	1.5 m
Length RCW	1050 m
SF Driveway	100 m ²
TH Driveway	75 m ²

Soil Type	Initial Abstraction (mm)	Slope (%)	Lot Depth/Travel Length (m)	Mannings n
Pervious	5	2.00	35	0.15
Impervious	2	0.5	600	0.013

TIME OF CONCENTRATION

GENERAL INPUTS

Longest Flow Path	600 m
Elevation Drop	3 m
Sw	0.50 %

Runoff Coefficient Determination

Land Use	C(-)	Alliston Area	CA	C(-)	Tioga Area	CA	C(-)	0 Area	CA	C(-)	0 Area	CA
Woodland	0.08	0.0	0.0	0.08	0.0	0.0	0.25	0.0	0.0	0.25	0.0	0.0
Meadow	0.10	0.0	0.0	0.10	0.0	0.0	0.28	0.0	0.0	0.28	0.0	0.0
Wetlands	0.05	0.0	0.0	0.05	0.0	0.0	0.05	0.0	0.0	0.05	0.0	0.0
Lawn / Pasture	0.10	3.3	0.3	0.10	2.2	0.2	0.28	0.0	0.0	0.28	0.0	0.0
Cultivated	0.22	0.0	0.0	0.22	0.0	0.0	0.35	0.0	0.0	0.35	0.0	0.0
Impervious	0.95	3.1	2.9	0.95	2.0	1.9	0.95	0.0	0.0	0.95	0.0	0.0
Total		6.4	3.2		4.2	2.2		0.0	0.0		0.0	0.0

Composite Runoff Coefficient 0.51

AIRPORT METHOD
(runoff coefficient less than 0.40, <1 km²)

Time of Concentration	<u>59.2</u> min	<u>0.99</u> hours
Time to Peak	<u>39.6</u> min	<u>0.66</u> hours

$$t_c = \frac{3.26 * (1.1 - C) * L^{0.5}}{S^{0.33}}$$

$$t_c = \frac{3.26 * (1.1 - C) * L^{0.5}}{S^{0.33}}$$

BRANSBY-WILLIAMS METHOD
(Runoff Coefficient greater than 0.40, <25km²)

Time of Concentration	<u>31.0</u> min	<u>0.52</u> hours
Time to Peak	<u>20.8</u> min	<u>0.35</u> hours

$$t_c = \frac{0.057 * L}{S^{0.2} * A^{0.1}}$$

$$t_c = \frac{0.057 * L}{S^{0.2} * A^{0.1}}$$

TIME TO PEAK	
Appropriate Method	BRANSBY-WILLIAMS METHOD
TP	0.35

Post-Development - Silver Creek Buffer

CURVE NUMBER

Soil Series	Hydrologic Soil Group	Soil Texture	Soil Area Composition		Woodland			Meadow		
			Area(ha)	Percent	Area	CN	CN*A	Area	CN	CN*A
Alliston	AB	Sandy loam	5.9	60	0.0	46	0	2.9	51	149.94
Tioga	A	Loamy sand	2.9	30	0.0	32	0	1.5	38	55.86
Granby	B	Sandy loam	1.0	10	0.0	60	0	0.5	65	31.85
Totals			9.80		0.00		0.00	4.90		237.65

Wetlands			Lawn / Pasture			Cultivated			Impervious	
Area	CN	CN*A	Area	CN	CN*A	Area	CN	CN*A	Land Use	Area (ha)
	50	0	2.9	59	173		68	0	Roadway	0.00
	50	0	1.5	49	72		62	0	Sidewalk	0.00
	50	0	0.5	69	34		74	0	Driveway	0.00
									Building	0.00
									SWM Pond	0.00
0.00		0.00	4.90		279.30	0.00		0.00		0.00

9.80

Xmp 0 % **Composite Curve Number (for pervious areas) 52.8**
Tump 0 % **Composite Curve Number (for all areas) 52.8**

Land Use	Initial Abstraction (mm)	Area (ha)	IA * A
Wetlands	16	0.0	0.0
Woodland	10	0.0	0.0
Meadow	8	4.9	39.2
Cultivated	7	0.0	0.0
Lawn / Pasture	5	4.9	24.5
Impervious	2	0.0	0.0

IA Avg

6.50

Total Catchment Area 9.8 ha

Number of Houses 0
Building footprint 0 m²
Pavement Width 0.0 m
Sidewalks 0.0 m
Length ROW 0 m
Driveway 0 m²

Soil Type	Initial Abstraction (mm)	Slope (%)	Lot Depth/Travel Length (m)	Mannings n
Pervious	6.50	0.75	670	0.15
Impervious	2	0	0	0.013

TIME OF CONCENTRATION

GENERAL INPUTS

Longest Flow Path 670 m
Elevation Drop 5 m
Sw 0.75 %

Runoff Coefficient Determination

Land Use	C(-)	Alliston Area	CA	C(-)	Tioga Area	CA	C(-)	Granby Area	CA	C(-)	0 Area	CA
Woodland	0.08	0.0	0.0	0.08	0.0	0.0	0.25	0.0	0.0	0.25	0.0	0.0
Meadow	0.10	2.9	0.3	0.10	1.5	0.1	0.28	0.5	0.1	0.28	0	0.0
Wetlands	0.05	0.0	0.0	0.05	0.0	0.0	0.05	0.0	0.0	0.05	0	0.0
Lawn / Pasture	0.10	2.9	0.3	0.10	1.5	0.1	0.28	0.5	0.1	0.11	0	0.0
Cultivated	0.22	0.0	0.0	0.22	0.0	0.0	0.35	0.0	0.0	0.35	0	0.0
Impervious	0.95	0.0	0.0	0.95	0.0	0.0	0.95	0	0.0	0.95	0	0.0
Total		5.9	0.6		2.94	0.3		1.0	0.3		0.0	0.0

Composite Runoff Coefficient 0.12

AIRPORT METHOD

(runoff coefficient less than 0.40, <1 km²)

Time of Concentration 91.3 min 1.52 hours $t_c = \frac{3.26 * (1.1 - C) * L^{0.5}}{S_w^{0.31}}$
Time to Peak 61.1 min 1.02 hours

BRANSBY-WILLIAMS METHOD

(Runoff Coefficient greater than 0.40, <25km²)

Time of Concentration 32.2 min 0.54 hours $t_c = \frac{0.057 * L}{S^{0.2} * A^{0.1}}$
Time to Peak 21.6 min 0.36 hours

TIME TO PEAK	
Appropriate Method	AIRPORT METHOD
Tp	1.02

Post-Development - East Development Area

CURVE NUMBER

*Approximate Areas											
Soil Series	Hydrologic Soil Group	Soil Texture	Soil Area Composition		Woodland			Meadow			
			Area (ha)	Percent	Area	CN	CN*A	Area	CN	CN*A	
Alliston Parkhill	AB	Sandy loam	9.2	70	0.0	46	0.0	0.0	51	0.0	0.0
	BC	Loam	3.9	30	0.0	67	0.0	0.0	71	0.0	0.0
Totals			13.10		0.00		0.00	0.00			0.00

Wetlands			Lawn / Pasture			Cultivated			Impervious	
Area	CN	CN*A	Area	CN	CN*A	Area	CN	CN*A	Land Use	Area (ha)
0.0	50	0	3.8	59	225.7	0.0	68	0.0	Roadway	1.93
0.0	50	0	1.6	74	121.3	0.0	78	0.0	Sidewalk	0.30
									Buildings	2.52
									Driveways	1.74
									SWM Pond	1.15
0.00		0.00	5.46		346.98	0.00		0.00		7.64

13.10

Xmp 40 % **Composite Curve Number (for pervious areas) 63.5**
Timp 58 % **Composite Curve Number (for all areas) 84.8**

SF= Single Family Detached
TH= Semi / Townhomes

Land Use	Initial Abstraction (mm)	Area (ha)	IA*A
Wetlands	16	0.0	0.0
Woodland	10	0.0	0.0
Meadow	8	0.0	0.0
Cultivated	7	0.0	0.0
Lawn / Pasture	5	5.5	27.3
Impervious	2	7.6	15.3

IA Avg

3.25

Total Catchment Area 13.1 ha

Number of SF Houses 49
Number of Townhomes 113
SF Building footprint 125 m²
TH Building footprint 100 m²
Pavement Width 9.5 m
Sidewalks 1.5 m

Length ROW 2000 m
SF Driveway 75 m²
TH Driveway 50 m²

Soil Type	Initial Abstraction (mm)	Slope (%)	Lot Depth/Travel Length (m)	Mannings n
Pervious	5	2.00	35	0.15
Impervious	2	0.5	800	0.013

TIME OF CONCENTRATION

GENERAL INPUTS

Longest Flow Path 800 m
Elevation Drop 4 m
Sw 0.50 %

Runoff Coefficient Determination

Land Use	Alliston			Parkhill			0			0		
	C(-)	Area	CA	C(-)	Area	CA	C(-)	Area	CA	C(-)	Area	CA
Woodland	0.08	0.0	0.0	0.25	0.0	0.0	0.25	0.0	0.0	0.25	0.0	0.0
Meadow	0.10	0.0	0.0	0.28	0.0	0.0	0.28	0.0	0.0	0.28	0	0.0
Wetlands	0.05	0.0	0.0	0.05	0.0	0.0	0.05	0.0	0.0	0.05	0	0.0
Lawn / Pasture	0.10	3.8	0.4	0.28	1.6	0.5	0.28	0.0	0.0	0.28	0	0.0
Cultivated	0.22	0.0	0.0	0.35	0.0	0.0	0.35	0.0	0.0	0.35	0	0.0
Impervious	0.95	5.3	5.1	0.95	2.3	2.2	0.95	0	0.0	0.95	0	0.0
Total		9.2	5.5		3.9	2.6		0.0	0.0		0.0	0.0

Composite Runoff Coefficient 0.62

AIRPORT METHOD
(runoff coefficient less than 0.40, <1 km²)

Time of Concentration 55.9 min **0.93** hours
Time to Peak 37.4 min **0.62** hours

$$t_c = \frac{3.26 * (1.1 - C) * L^{0.5}}{S^{0.33}}$$

$$t_c = \frac{3.26 * (1.1 - C) * L^{0.5}}{S^{0.33}}$$

BRANSBY-WILLIAMS METHOD
(Runoff Coefficient greater than 0.40, <25km²)

Time of Concentration 40.5 min **0.67** hours
Time to Peak 27.1 min **0.45** hours

$$t_c = \frac{0.057 * L}{S^{0.2} * A^{0.1}}$$

$$t_c = \frac{0.057 * L}{S^{0.2} * A^{0.1}}$$

TIME TO PEAK	
Appropriate Method	BRANSBY-WILLIAMS METHOD
TP	0.45

Post-Development - Central Natural Area

CURVE NUMBER

*Approximate Areas										
Soil Series	Hydrologic Soil Group	Soil Texture	Soil Area Composition		Woodland			Meadow		
			Area(ha)	Percent	Area	CN	CN*A	Area	CN	CN*A
Alliston	AB	Sandy loam	3.3	25	3.3	46	149.5	0.0	51	0.0
Warton	B	Loam	2.0	15	2.0	60	117.0	0.0	65	0.0
Parkhill	BC	Loam	7.8	60	6.24	67	418.1	0.0	71	0.0
Totals			13.00		11.44		684.58	0.00		0.00

Wetlands			Lawn / Pasture			Cultivated			Impervious	
Area	CN	CN*A	Area	CN	CN*A	Area	CN	CN*A	Land Use	Area (ha)
0.0	50	0.0	0.0	59	0.0	0.0	68	0.0	Roadway	0.00
0.0	50	0.0	0.0	69	0.0	0.0	74	0.0	Sidewalk	0.00
0.0	50	0.0	1.23	74	90.7	0.0	78	0.0	Driveway	0.00
									Building	0.34
0.00		0.00	1.23		90.65	0.00		0.00		0.34

13.00

Xmp	<u>0</u>	%	Composite Curve Number	61.2
			(for pervious areas)	
Imp	<u>3</u>	%	Composite Curve Number	62.2
			(for all areas)	

Land Use	Initial Abstraction (mm)	Area (ha)	IA * A
Wetlands	16	0.0	0.0
Woodland	10	11.4	114.4
Meadow	8	0.0	0.0
Cultivated	7	0.0	0.0
Lawn / Pasture	5	1.2	6.1
Impervious	2	0.3	0.7

Total Catchment Area 13.0 ha

IA Avg

9.32

Number of SF Houses 22
Number of Townhomes 6
SF Building footprint 125 m²
TH Building footprint 100 m²

Soil Type	Initial Abstraction (mm)	Slope (%)	Lot Depth/Travel Length (m)	Mannings n
Pervious	9.516383735	0.80	750	0.15
Impervious	2		0	0.013

TIME OF CONCENTRATION

GENERAL INPUTS

Longest Flow Path 750 m
Elevation Drop 6 m
Sw 0.80 %

Runoff Coefficient Determination

Land Use	C(-)	Alliston Area	CA	C(-)	Warton Area	CA	C(-)	Parkhill Area	CA	C(-)	0 Area	CA
Woodland	0.08	3.3	0.3	0.25	2.0	0.5	0.25	6.2	1.6	0.25	0.0	0.0
Meadow	0.10	0.0	0.0	0.28	0.0	0.0	0.28	0.0	0.0	0.28	0	0.0
Wetlands	0.05	0.0	0.0	0.05	0.0	0.0	0.05	0.0	0.0	0.05	0	0.0
Lawn / Pasture	0.10	0.0	0.0	0.28	0.0	0.0	0.28	1.2	0.3	0.28	0	0.0
Cultivated	0.22	0.0	0.0	0.35	0.0	0.0	0.35	0.0	0.0	0.35	0	0.0
Impervious	0.95	0.0	0.0	0.95	0.00	0.0	0.95	0.34	0.3	0.95	0	0.0
Total		3.3	0.3		2.0	0.5		7.8	2.2		0.0	0.0

Composite Runoff Coefficient 0.23

AIRPORT METHOD

(runoff coefficient less than 0.40, <1 km¹)

Time of Concentration 83.8 min 1.40 hours
Time to Peak 56.1 min 0.94 hours

$$t_c = \frac{3.26 * (1.1 - C) * L^{0.5}}{S_w^{0.33}}$$

BRANSBY-WILLIAMS METHOD

(Runoff Coefficient greater than 0.40, <25km²)

Time of Concentration 34.6 min 0.58 hours
Time to Peak 23.2 min 0.39 hours

$$t_c = \frac{0.057 * L}{S^{0.2} * A^{0.1}}$$

TIME TO PEAK	
Appropriate Method	AIRPORT METHOD
Tp	0.94

Post-Development - Natural Area Adjacent Hwy 26

CURVE NUMBER

*Approximate Areas										
Soil Series	Hydrologic Soil Group	Soil Texture	Soil Area Composition		Woodland			Meadow		
			Area (ha)	Percent	Area	CN	CN*A	Area	CN	CN*A
Alliston	AB	Sandy loam	2.5	50	1.3	46	57.5	1.3	51	63.8
Granby	B	Sandy loam	2.5	50	1.3	60	75.0	1.3	65	81.3
Totals			5.00		2.50		132.50	2.50		145.00

Wetlands			Lawn / Pasture			Cultivated			Impervious	
Area	CN	CN*A	Area	CN	CN*A	Area	CN	CN*A	Land Use	Area (ha)
0.0	50	0	0.0	59	0.0	0.0	68	0.0	Roadway	0.00
0.0	50	0	0.0	69	0.0	0.0	74	0.0	Sidewalk	0.00
									Driveway	0.00
									Building	0.00
0.00		0.00	0.00		0.00	0.00		0.00		0.00

5.00

Ximp 0 % Composite Curve Number 55.5
(for pervious areas)
Timp 0 % Composite Curve Number 55.5
(for all areas)

Land Use	Initial Abstraction (mm)	Area (ha)	IA * A
Wetlands	16	0.0	0.0
Woodland	10	2.5	25.0
Meadow	8	2.5	20.0
Cultivated	7	0.0	0.0
Lawn / Pasture	5	0.0	0.0
Impervious	2	0.0	0.0

Total Catchment Area 5.0 ha

IA Avg

9.00

Number of Houses 0
Building footprint 0 m²
Pavement Width 0.0 m
Sidewalks 0.0 m
Length ROW 0 m
Driveway 0 m²

Soil Type	Initial Abstraction (mm)	Slope (%)	Lot Depth/Travel Length (m)	Mannings n
Pervious	9	0.50	300	0.15
Impervious	2		0	0.013

TIME OF CONCENTRATION

GENERAL INPUTS

Longest Flow Path 300 m
Elevation Drop 1.5 m
Sw 0.50 %

Runoff Coefficient Determination

Land Use	Alliston			Granby			0			0		
	C(-)	Area	CA	C(-)	Area	CA	C(-)	Area	CA	C(-)	Area	CA
Woodland	0.08	1.3	0.1	0.25	1.3	0.3	0.25	0.0	0.0	0.25	0.0	0.0
Meadow	0.10	1.3	0.1	0.28	1.3	0.4	0.28	0.0	0.0	0.28	0	0.0
Wetlands	0.05	0.0	0.0	0.05	0.0	0.0	0.05	0.0	0.0	0.05	0	0.0
Lawn / Pasture	0.10	0.0	0.0	0.28	0.0	0.0	0.28	0.0	0.0	0.28	0	0.0
Cultivated	0.22	0.0	0.0	0.35	0.0	0.0	0.35	0.0	0.0	0.35	0	0.0
Impervious	0.95	0.0	0.0	0.95	0.00	0.0	0.95	0	0.0	0.95	0	0.0
Total		2.5	0.2		2.5	0.7		0.0	0.0		0.0	0.0

Composite Runoff Coefficient 0.18

AIRPORT METHOD

(runoff coefficient less than 0.40, <1 km²)

Time of Concentration 65.5 min 1.09 hours $t_c = \frac{3.26 * (1.1 - C) * L^{0.5}}{S^{0.33}}$
Time to Peak 43.9 min 0.73 hours

BRANSBY-WILLIAMS METHOD

(Runoff Coefficient greater than 0.40, <25km²)

Time of Concentration 16.7 min 0.28 hours $t_c = \frac{0.057 * L}{S^{0.2} * A^{0.1}}$
Time to Peak 11.2 min 0.19 hours

TIME TO PEAK	
Appropriate Method	AIRPORT METHOD
Tp	0.73

APPENDIX D

SWMHYMO Modeling Files

```

00001 2 Metric Units
00002 *
00003 * Project Name: [Huntingwood Trail] Project Number: [281-2769]
00004 * Date : 05-13-2009
00005 * Updated : 01-17-2011
00006 * Modeler : [J.D. Crozier]
00007 * Company : C.F. Crozier & Associates Inc.
00008 * License # : 3737016
00009 *
00010 * START
00011 * [ ] <- Storm Filename, one per line for NSTORM time
00012 *
00013 *
00014 *
00015 * ***PRE-DEVELOPMENT - 2 YEAR Event***
00016 *
00017 * Rainfall Depths per MTO - Basins East of Collingwood
00018 * SCS Rainfall Distribution
00019 *
00020 *
00021 *
00022 * MASS STORM
00023 * PTOTAL=[50.4] (mm), CSDF=[5] (min),
00024 * CURVE_FILENAME=[SCS24H11.MST]
00025 *
00026 *
00027 * Area 101 (West)
00028 * ID=[1], NHYD=[101], DT=[5] (min), AREA=[17.4] (ha),
00029 * DWF=[0] (cms), CN/C=[53.2], IA=[5.7] (mm),
00030 * N=[3], TP=[1.04] hrs,
00031 * RAINFALL=[ , , , ] (mm/hr), END=-1
00032 *
00033 * Area 102 (East)
00034 * ID=[2], NHYD=[102], DT=[5] (min), AREA=[34.1] (ha),
00035 * DWF=[0] (cms), CN/C=[53.2], IA=[5.7] (mm),
00036 * N=[3], TP=[1.04] hrs,
00037 * RAINFALL=[ , , , ] (mm/hr), END=-1
00038 *
00039 * SAVE HYD
00040 * ID=[1], # OF PCYCLES=[-1], ICASESH=[1]
00041 * HYD_COMMENT=[precast]
00042 *
00043 * SAVE HYD
00044 * ID=[2], # OF PCYCLES=[-1], ICASESH=[1]
00045 * HYD_COMMENT=[precast]
00046 *
00047 *
00048 *
00049 * Rainfall Depths per MTO - Basins East of Collingwood
00050 * SCS Rainfall Distribution
00051 *
00052 *
00053 *
00054 * MASS STORM
00055 * PTOTAL=[64.8] (mm), CSDF=[5] (min),
00056 * CURVE_FILENAME=[SCS24H11.MST]
00057 *
00058 *
00059 * Area 101 (West)
00060 * ID=[1], NHYD=[101], DT=[5] (min), AREA=[17.4] (ha),
00061 * DWF=[0] (cms), CN/C=[53.2], IA=[5.7] (mm),
00062 * N=[3], TP=[1.04] hrs,
00063 * RAINFALL=[ , , , ] (mm/hr), END=-1
00064 *
00065 * Area 102 (East)
00066 * ID=[2], NHYD=[102], DT=[5] (min), AREA=[34.1] (ha),
00067 * DWF=[0] (cms), CN/C=[53.2], IA=[5.7] (mm),
00068 * N=[3], TP=[1.04] hrs,
00069 * RAINFALL=[ , , , ] (mm/hr), END=-1
00070 *
00071 * SAVE HYD
00072 * ID=[1], # OF PCYCLES=[-1], ICASESH=[1]
00073 * HYD_COMMENT=[precast]
00074 *
00075 * SAVE HYD
00076 * ID=[2], # OF PCYCLES=[-1], ICASESH=[1]
00077 * HYD_COMMENT=[precast]
00078 *
00079 *
00080 *
00081 * Rainfall Depths per MTO - Basins East of Collingwood
00082 * SCS Rainfall Distribution
00083 *
00084 *
00085 *
00086 * MASS STORM
00087 * PTOTAL=[74.4] (mm), CSDF=[5] (min),
00088 * CURVE_FILENAME=[SCS24H11.MST]
00089 *
00090 *
00091 * Area 101 (West)
00092 * ID=[1], NHYD=[101], DT=[5] (min), AREA=[17.4] (ha),
00093 * DWF=[0] (cms), CN/C=[53.2], IA=[5.7] (mm),
00094 * N=[3], TP=[1.04] hrs,
00095 * RAINFALL=[ , , , ] (mm/hr), END=-1
00096 *
00097 * Area 102 (East)
00098 * ID=[2], NHYD=[102], DT=[5] (min), AREA=[34.1] (ha),
00099 * DWF=[0] (cms), CN/C=[53.2], IA=[5.7] (mm),
00100 * N=[3], TP=[1.04] hrs,
00101 * RAINFALL=[ , , , ] (mm/hr), END=-1
00102 *
00103 * SAVE HYD
00104 * ID=[1], # OF PCYCLES=[-1], ICASESH=[1]
00105 * HYD_COMMENT=[precast]
00106 *
00107 * SAVE HYD
00108 * ID=[2], # OF PCYCLES=[-1], ICASESH=[1]
00109 * HYD_COMMENT=[precast]
00110 *
00111 *
00112 *
00113 * Rainfall Depths per MTO - Basins East of Collingwood
00114 * SCS Rainfall Distribution
00115 *
00116 *
00117 *
00118 * MASS STORM
00119 * PTOTAL=[86.4] (mm), CSDF=[5] (min),
00120 * CURVE_FILENAME=[SCS24H11.MST]
00121 *
00122 *
00123 * Area 101 (West)
00124 * ID=[1], NHYD=[101], DT=[5] (min), AREA=[17.4] (ha),
00125 * DWF=[0] (cms), CN/C=[53.2], IA=[5.7] (mm),
00126 * N=[3], TP=[1.04] hrs,
00127 * RAINFALL=[ , , , ] (mm/hr), END=-1
00128 *
00129 * Area 102 (East)
00130 * ID=[2], NHYD=[102], DT=[5] (min), AREA=[34.1] (ha),
00131 * DWF=[0] (cms), CN/C=[53.2], IA=[5.7] (mm),
00132 * N=[3], TP=[1.04] hrs,
00133 * RAINFALL=[ , , , ] (mm/hr), END=-1
00134 *
00135 * SAVE HYD
00136 * ID=[1], # OF PCYCLES=[-1], ICASESH=[1]
00137 * HYD_COMMENT=[precast]
00138 *
00139 * SAVE HYD
00140 * ID=[2], # OF PCYCLES=[-1], ICASESH=[1]
00141 * HYD_COMMENT=[precast]
00142 *
00143 *
00144 *
00145 * Rainfall Depths per MTO - Basins East of Collingwood
00146 * SCS Rainfall Distribution
00147 *
00148 *
00149 *
00150 * MASS STORM
00151 * PTOTAL=[96.0] (mm), CSDF=[5] (min),
00152 * CURVE_FILENAME=[SCS24H11.MST]
00153 *
00154 *
00155 * Area 101 (West)
00156 * ID=[1], NHYD=[101], DT=[5] (min), AREA=[17.4] (ha),
00157 * DWF=[0] (cms), CN/C=[53.2], IA=[5.7] (mm),
00158 * N=[3], TP=[1.04] hrs,
00159 * RAINFALL=[ , , , ] (mm/hr), END=-1
00160 *
00161 * Area 102 (East)
00162 * ID=[2], NHYD=[102], DT=[5] (min), AREA=[34.1] (ha),
00163 * DWF=[0] (cms), CN/C=[53.2], IA=[5.7] (mm),
00164 * N=[3], TP=[1.04] hrs,
00165 * RAINFALL=[ , , , ] (mm/hr), END=-1
00166 *
00167 * SAVE HYD
00168 * ID=[1], # OF PCYCLES=[-1], ICASESH=[1]
00169 * HYD_COMMENT=[precast]
00170 *
00171 * SAVE HYD
00172 * ID=[2], # OF PCYCLES=[-1], ICASESH=[1]
00173 * HYD_COMMENT=[precast]
00174 *
00175 *
00176 *
00177 * Rainfall Depths per MTO - Basins East of Collingwood
00178 * SCS Rainfall Distribution
00179 *
00180 *
00181 *
00182 * MASS STORM
00183 * PTOTAL=[105.6] (mm), CSDF=[5] (min),
00184 * CURVE_FILENAME=[SCS24H11.MST]
00185 *
00186 *
00187 * Area 101 (West)
00188 * ID=[1], NHYD=[101], DT=[5] (min), AREA=[17.4] (ha),
00189 * DWF=[0] (cms), CN/C=[53.2], IA=[5.7] (mm),
00190 * N=[3], TP=[1.04] hrs,
00191 * RAINFALL=[ , , , ] (mm/hr), END=-1
00192 *
00193 * Area 102 (East)
00194 * ID=[2], NHYD=[102], DT=[5] (min), AREA=[34.1] (ha),
00195 * DWF=[0] (cms), CN/C=[53.2], IA=[5.7] (mm),
00196 * N=[3], TP=[1.04] hrs,
00197 * RAINFALL=[ , , , ] (mm/hr), END=-1
00198 *
00199 * SAVE HYD
00200 * ID=[1], # OF PCYCLES=[-1], ICASESH=[1]
00201 * HYD_COMMENT=[precast]
00202 *
00203 * SAVE HYD
00204 * ID=[2], # OF PCYCLES=[-1], ICASESH=[1]
00205 * HYD_COMMENT=[precast]
00206 *
00207 *
00208 *
00209 *
00210 *
00211 *
00212 *
00213 *
00214 *
00215 *
00216 *
00217 *
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00228 *
00229 *
00230 *
00231 *
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00233 *
00234 *
00235 *
00236 *
00237 *
00238 *
00239 *
00240 *
00241 *
00242 *
00243 *

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00001> 2 Metric units
00002> *-----
00003> *2 Project Name: (Huntingwood Trails) Project Number: (281-2769)
00004> *3 Date : 05-13-2009
00005> *4 Updated : 01-17-2011
00006> *5 Modeller : (J.Proctor)
00007> *6 Company : C.F. Crozier & Associates Inc.
00008> *7 License # : PVI0016
00009> *-----
00010> START TZERO=(0.0), METOUT=(2), NSTORM=(0), HOURS=(0)
00011> * $ [ ] <- storm filenames, one per line for NSTORM time
00012> *-----
00013> *-----
00014> *-----[PRE-DEVELOPMENT] - Timmins Event-----
00015> *-----
00016> *-----
00017> READ STORM STORM_FILENAME=(C:\HYMO\201 HYMO\PreDev.in.dat)
00018> *-----
00019> *-----Area 101 (East)-----
00020> *-----
00021> CALIB NASHVD ID=(1), NHYD=(101), DT=(5)min, AREA=(17.4)(ha),
00022> DWF=(0)(cms), CN/C=(53.2), SA=(5.7)(cms),
00023> N=(3), TP=(1.04)hrs,
00024> RAINFALL=( , , , )(mm/hr), END=-1
00025> *-----
00026> *-----Area 102 (East)-----
00027> *-----
00028> CALIB NASHVD ID=(2), NHYD=(102), DT=(5)min, AREA=(34.1)(ha),
00029> DWF=(0)(cms), CN/C=(58.4), SA=(8.03)(cms),
00030> N=(3), TP=(1.43)hrs,
00031> RAINFALL=( , , , )(mm/hr), END=-1
00032> *-----
00033> SAVE HYD ID=(1), # OF PCYCLES=(-1), ICASESH=(1)
00034> *-----
00035> *-----HYD_COMMENT=(precast)-----
00036> *-----
00037> SAVE HYD ID=(2), # OF PCYCLES=(-1), ICASESH=(1)
00038> *-----
00039> *-----HYD_COMMENT=(precast)-----
00040> *-----
00041> *-----
00042> *-----
00043> *-----
00044> *-----
00045> *-----
00046> *-----
00047> *-----
00048> *-----
00049> *-----
00050> *-----
00051> *-----
00052> *-----
00053> *-----
00054> *-----
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00056> *-----
00057> *-----
00058> *-----
00059> *-----
00060> *-----
00061> *-----
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00064> *-----
00065> *-----
00066> *-----
00067> *-----
00068> *-----
00069> *-----
00070> *-----
00071> *-----
00072> *-----
00073> *-----
00074> *-----
00075> *-----
00076> *-----
00077> *-----
00078> *-----
00079> *-----

```

```

00001> ? Metric units
00002> * Project Name: [Huntingwood Trail] Project Number: [281-2769]
00003> * Date: 05-13-2009
00004> * Updated: 01-17-2011
00005> * Modeler: [J.Proctor]
00006> * Company: C.F. Crozier & Associates Inc.
00007> * License #: 3737016
00008> *
00009>
00010> START TZONE=[0.0], METZON=[2], NSTORM=[0], NUNM=[0]
00011> * [ ] 4-storm filename, one per line for NSTORM time
00012> *
00013> *
00014> * PRE-DEVELOPMENT - 2 YEAR Event
00015> *
00016> *
00017> * Rainfall Depths per MTD - Basins East of Collingwood
00018> * Chicago Rainfall Distribution
00019> *
00020>
00021> CHICAGO STORM UNITS=[2], TD=[4] (hrs), TPRAT=[0.333], CSDF=[5] (min),
00022> ICASR=[2],
00023> Enter ordinates of IDF curve below, at least seven points
00024> TIME (min) Intensity(mm/hr)
00025> (5) (195)
00026> (10) (170)
00027> (15) (160)
00028> (30) (140)
00029> (60) (120)
00030> (120) (100)
00031> (240) (80)
00032> (720) (60)
00033> (1440) (50)
00034>
00035>
00036> * Area 101 (West)
00037> *
00038> CALIB NASHVD ID=[1], NHVD=[101], DT=[5]min, AREA=[17.4] (ha),
00039> DWF=[0] (cms), CN/C=[53.2], IA=[5.71] (mm),
00040> N=[3], TP=[1.04] hrs,
00041> RAINFALL=[ , , , ] (mm/hr), END=-1
00042> *
00043> * Area 102 (East)
00044> *
00045> CALIB NASHVD ID=[2], NHVD=[102], DT=[5]min, AREA=[34.1] (ha),
00046> DWF=[0] (cms), CN/C=[58.4], IA=[8.85] (mm),
00047> N=[3], TP=[1.43] hrs,
00048> RAINFALL=[ , , , ] (mm/hr), END=-1
00049> *
00050> *
00051> SAVE HYD ID=[1], # OF PCYCLES=[1], ICASR=[1]
00052> HYD_COMMENT=[precast]
00053> *
00054> SAVE HYD ID=[2], # OF PCYCLES=[1], ICASR=[1]
00055> HYD_COMMENT=[precast]
00056> *
00057> * PRE-DEVELOPMENT - 5 YEAR Event
00058> *
00059> *
00060> *
00061> * Rainfall Depths per MTD - Basins East of Collingwood
00062> * Chicago Rainfall Distribution
00063> *
00064>
00065> CHICAGO STORM UNITS=[2], TD=[4] (hrs), TPRAT=[0.333], CSDF=[5] (min),
00066> ICASR=[2],
00067> Enter ordinates of IDF curve below, at least seven points
00068> TIME (min) Intensity(mm/hr)
00069> (5) (195)
00070> (10) (170)
00071> (15) (160)
00072> (30) (140)
00073> (60) (120)
00074> (120) (100)
00075> (240) (80)
00076> (720) (60)
00077> (1440) (50)
00078>
00079>
00080> * Area 101 (West)
00081> *
00082> CALIB NASHVD ID=[1], NHVD=[101], DT=[5]min, AREA=[17.4] (ha),
00083> DWF=[0] (cms), CN/C=[53.2], IA=[5.71] (mm),
00084> N=[3], TP=[1.04] hrs,
00085> RAINFALL=[ , , , ] (mm/hr), END=-1
00086> *
00087> * Area 102 (East)
00088> *
00089> CALIB NASHVD ID=[2], NHVD=[102], DT=[5]min, AREA=[34.1] (ha),
00090> DWF=[0] (cms), CN/C=[58.4], IA=[8.85] (mm),
00091> N=[3], TP=[1.43] hrs,
00092> RAINFALL=[ , , , ] (mm/hr), END=-1
00093> *
00094> *
00095> SAVE HYD ID=[1], # OF PCYCLES=[1], ICASR=[1]
00096> HYD_COMMENT=[precast]
00097> *
00098> SAVE HYD ID=[2], # OF PCYCLES=[1], ICASR=[1]
00099> HYD_COMMENT=[precast]
00100> *
00101> * PRE-DEVELOPMENT - 10 YEAR Event
00102> *
00103> *
00104> *
00105> * Rainfall Depths per MTD - Basins East of Collingwood
00106> * Chicago Rainfall Distribution
00107> *
00108>
00109> CHICAGO STORM UNITS=[2], TD=[4] (hrs), TPRAT=[0.333], CSDF=[5] (min),
00110> ICASR=[2],
00111> Enter ordinates of IDF curve below, at least seven points
00112> TIME (min) Intensity(mm/hr)
00113> (5) (195)
00114> (10) (170)
00115> (15) (160)
00116> (30) (140)
00117> (60) (120)
00118> (120) (100)
00119> (240) (80)
00120> (720) (60)
00121> (1440) (50)
00122>
00123>
00124> * Area 101 (West)
00125> *
00126> CALIB NASHVD ID=[1], NHVD=[101], DT=[5]min, AREA=[17.4] (ha),
00127> DWF=[0] (cms), CN/C=[53.2], IA=[5.71] (mm),
00128> N=[3], TP=[1.04] hrs,
00129> RAINFALL=[ , , , ] (mm/hr), END=-1
00130> *
00131> * Area 102 (East)
00132> *
00133> CALIB NASHVD ID=[2], NHVD=[102], DT=[5]min, AREA=[34.1] (ha),
00134> DWF=[0] (cms), CN/C=[58.4], IA=[8.85] (mm),
00135> N=[3], TP=[1.43] hrs,
00136> RAINFALL=[ , , , ] (mm/hr), END=-1
00137> *
00138> *
00139> *
00140> *
00141> *
00142> *
00143> *
00144> *
00145> *
00146> *
00147> *
00148> *
00149> * Rainfall Depths per MTD - Basins East of Collingwood
00150> * Chicago Rainfall Distribution
00151> *
00152>
00153> CHICAGO STORM UNITS=[2], TD=[4] (hrs), TPRAT=[0.333], CSDF=[5] (min),
00154> ICASR=[2],
00155> Enter ordinates of IDF curve below, at least seven points
00156> TIME (min) Intensity(mm/hr)
00157> (5) (195)
00158> (10) (170)
00159> (15) (160)
00160> (30) (140)
00161> (60) (120)
00162> (120) (100)
00163> (240) (80)
00164> (720) (60)
00165> (1440) (50)
00166>
00167>
00168> * Area 101 (West)
00169> *
00170> CALIB NASHVD ID=[1], NHVD=[101], DT=[5]min, AREA=[17.4] (ha),
00171> DWF=[0] (cms), CN/C=[53.2], IA=[5.71] (mm),
00172> N=[3], TP=[1.04] hrs,
00173> RAINFALL=[ , , , ] (mm/hr), END=-1
00174> *
00175> * Area 102 (East)
00176> *
00177> CALIB NASHVD ID=[2], NHVD=[102], DT=[5]min, AREA=[34.1] (ha),
00178> DWF=[0] (cms), CN/C=[58.4], IA=[8.85] (mm),
00179> N=[3], TP=[1.43] hrs,
00180> RAINFALL=[ , , , ] (mm/hr), END=-1
00181> *
00182> *
00183> SAVE HYD ID=[1], # OF PCYCLES=[1], ICASR=[1]
00184> HYD_COMMENT=[precast]
00185> *
00186> SAVE HYD ID=[2], # OF PCYCLES=[1], ICASR=[1]
00187> HYD_COMMENT=[precast]
00188> *
00189> * PRE-DEVELOPMENT - 50 YEAR Event
00190> *
00191> *
00192> *
00193> * Rainfall Depths per MTD - Basins East of Collingwood
00194> * Chicago Rainfall Distribution
00195> *
00196>
00197> CHICAGO STORM UNITS=[2], TD=[4] (hrs), TPRAT=[0.333], CSDF=[5] (min),
00198> ICASR=[2],
00199> Enter ordinates of IDF curve below, at least seven points
00200> TIME (min) Intensity(mm/hr)
00201> (5) (195)
00202> (10) (170)
00203> (15) (160)
00204> (30) (140)
00205> (60) (120)
00206> (120) (100)
00207> (240) (80)
00208> (720) (60)
00209> (1440) (50)
00210>
00211>
00212> * Area 101 (West)
00213> *
00214> CALIB NASHVD ID=[1], NHVD=[101], DT=[5]min, AREA=[17.4] (ha),
00215> DWF=[0] (cms), CN/C=[53.2], IA=[5.71] (mm),
00216> N=[3], TP=[1.04] hrs,
00217> RAINFALL=[ , , , ] (mm/hr), END=-1
00218> *
00219> * Area 102 (East)
00220> *
00221> CALIB NASHVD ID=[2], NHVD=[102], DT=[5]min, AREA=[34.1] (ha),
00222> DWF=[0] (cms), CN/C=[58.4], IA=[8.85] (mm),
00223> N=[3], TP=[1.43] hrs,
00224> RAINFALL=[ , , , ] (mm/hr), END=-1
00225> *
00226> *
00227> SAVE HYD ID=[1], # OF PCYCLES=[1], ICASR=[1]
00228> HYD_COMMENT=[precast]
00229> *
00230> SAVE HYD ID=[2], # OF PCYCLES=[1], ICASR=[1]
00231> HYD_COMMENT=[precast]
00232> *
00233> * PRE-DEVELOPMENT - 100 YEAR Event
00234> *
00235> *
00236> *
00237> * Rainfall Depths per MTD - Basins East of Collingwood
00238> * Chicago Rainfall Distribution
00239> *
00240>
00241> CHICAGO STORM UNITS=[2], TD=[4] (hrs), TPRAT=[0.333], CSDF=[5] (min),
00242> ICASR=[2],
00243> Enter ordinates of IDF curve below, at least seven points
00244> TIME (min) Intensity(mm/hr)
00245> (5) (195)
00246> (10) (170)
00247> (15) (160)
00248> (30) (140)
00249> (60) (120)
00250> (120) (100)
00251> (240) (80)
00252> (720) (60)
00253> (1440) (50)
00254>
00255>
00256> * Area 101 (West)
00257> *
00258> CALIB NASHVD ID=[1], NHVD=[101], DT=[5]min, AREA=[17.4] (ha),
00259> DWF=[0] (cms), CN/C=[53.2], IA=[5.71] (mm),
00260> N=[3], TP=[1.04] hrs,
00261> RAINFALL=[ , , , ] (mm/hr), END=-1
00262> *
00263> * Area 102 (East)
00264> *
00265> CALIB NASHVD ID=[2], NHVD=[102], DT=[5]min, AREA=[34.1] (ha),
00266> DWF=[0] (cms), CN/C=[58.4], IA=[8.85] (mm),
00267> N=[3], TP=[1.43] hrs,
00268> RAINFALL=[ , , , ] (mm/hr), END=-1
00269> *
00270> *

```

```
00271> SAVE HYD      ID={1}, * OF CYCLES={-1}, ICASESH={1}
00272>               HYD_COMMENT={proRest}
00273> *-----[
00274> SAVE HYD      ID={2}, * OF CYCLES={-1}, ICASESH={1}
00275>               HYD_COMMENT={proRest}
00276> *-----[
00277> FINISH
00278>
00279>
00280>
00281>
00282>
00283>
00284>
00285>
00286>
00287>
00288>
00289>
00290>
00291>
00292>
00293>
00294>
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00315>
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00001: *****
00002:
00003: SSSSS W W M M H H Y Y M M O O 999 999 *****
00004: S W W M M M H H Y Y M M O O 9 9 9 9
00005: SSSSS W W M M H H H H Y Y M M O O ## 9 9 9 9 Ver. 4.02
00006: S W W M M H H H Y Y M M O O 9999 9999 July 1999
00007: SSSSS W W M M H H Y Y M M O O 9 9 9 9
00008:
00009: StormWater Management Hydrologic Model 999 999 *****
00010:
00011:
00012: ***** SWMHYMO-99 Ver/4.02 *****
00013: ***** A single event and continuous hydrologic simulation model *****
00014: ***** based on the principles of HYMO and its successors *****
00015: ***** OTHYMO-81 and OTHYMO-89. *****
00016:
00017: ***** Distributed by: J.F. Sabourin and Associates Inc. *****
00018: ***** Ottawa, Ontario: (613) 727-5199 *****
00019: ***** Gatineau, Quebec: (819) 243-6858 *****
00020: ***** E-Mail: swmhyom@jfsa.Com *****
00021:
00022:
00023: ***** Licensed user: C.F. Crozier & Associates Inc. *****
00024: ***** Collingwood SERIAL#3737016 *****
00025:
00026:
00027:
00028: ***** PROGRAM ARRAY DIMENSIONS *****
00029: *****
00030: ***** Maximum value for ID numbers : 10 *****
00031: ***** Max. number of rainfall points: 15000 *****
00032: ***** Max. number of flow points : 15000 *****
00033: *****
00034:
00035: *** DESCRIPTION SUMMARY TABLE HEADERS (units depend on METOUT in START) ***
00036:
00037: *** ID: Hydrograph Identification numbers, (1-10). ***
00038: *** NYHD: Hydrograph reference numbers, (6 digits or characters). ***
00039: *** AREA: Drainage area associated with hydrograph, (ac.) or (ha.). ***
00040: *** PEAK: Peak flow of simulated hydrograph, (ft3/s) or (m3/s). ***
00041: *** TpeakDate_hh:mm is the date and time of the peak flow. ***
00042: *** R.V.: Runoff Volume of simulated hydrograph, (in) or (mm). ***
00043: *** R.C.: Runoff Coefficient of simulated hydrograph, (ratio). ***
00044: *** : see WARNING or NOTE message printed at end of run. ***
00045: *** : see ERROR message printed at end of run. ***
00046:
00047:
00048:
00049:
00050:
00051:
00052:
00053: ***** SUMMARY OUTPUT *****
00054:
00055: ***** DATE: 2011-01-26 TIME: 10:32:59 RUN COUNTER: 000680 *****
00056:
00057: ***** Input filename: C:\HYMO\281HYM-1\Pre\ALL_SCS.dat *****
00058: ***** Output filename: C:\HYMO\281HYM-1\Pre\ALL_SCS.out *****
00059: ***** Summary filename: C:\HYMO\281HYM-1\Pre\ALL_SCS.sum *****
00060: ***** User comments: *****
00061: ***** 1: *****
00062: ***** 2: *****
00063: ***** 3: *****
00064:
00065:
00066:
00067:
00068: ***** Project Name: [Huntingwood Trails] Project Number: [281-2769] *****
00069: ***** Date : 05-13-2009 *****
00070: ***** Updated : 01-17-2011 *****
00071: ***** Modeler : [J.Proctor] *****
00072: ***** Company : C.F. Crozier & Associates Inc. *****
00073: ***** License # : 3737016 *****
00074:
00075: RUN:COMMAND#
00076: 001:0001-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00077: START
00078: [ZERO = .00 hrs on 0]
00079: [METOUT= 2 (!=imperial, 2=metric output)]
00080: [NSTORM= 0]
00081: [NRUN= 1]
00082:
00083: *****PRE-DEVELOPMENT - 2 YEAR Event *****
00084:
00085: # Rainfall Depths per MTO - Basins East of Collingwood
00086: # SCS Rainfall Distribution
00087:
00088: 001:0002-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00089: MASS STORM
00090: Filename = C:\HYMO\281HYM-1\Pre\SCS24HII.MST
00091: Comment = 24 hour SCS II storm mass curve
00092: [SDT= 6.00:SDUR= 24.00:PTOT= 50.40]
00093:
00094: 001:0003-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00095: CALIB NASHYD 01:101 17.40 .093 No_date 13:18 7.45 .148
00096: [CN= 53.2: N= 3.00]
00097: [Tp= 1.04:DT= 6.00]
00098:
00099: 001:0004-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00100: CALIB NASHYD 02:102 34.10 .147 No_date 13:48 7.76 .154
00101: [CN= 58.4: N= 3.00]
00102: [Tp= 1.43:DT= 6.00]
00103:
00104: 001:0005-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00105: SAVE HYD 01:101 17.40 .093 No_date 13:18 7.45 n/a
00106: fname :C:\HYMO\281HYM-1\Pre\H-101.001
00107: remark:preWest
00108:
00109: 001:0006-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00110: SAVE HYD 02:102 34.10 .147 No_date 13:48 7.76 n/a
00111: fname :C:\HYMO\281HYM-1\Pre\H-102.001
00112: remark:preEast
00113:
00114: *****PRE-DEVELOPMENT - 5 YEAR Event *****
00115:
00116: # Rainfall Depths per MTO - Basins East of Collingwood
00117: # SCS Rainfall Distribution
00118:
00119: 001:0007-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00120: MASS STORM
00121: Filename = C:\HYMO\281HYM-1\Pre\SCS24HII.MST
00122: Comment = 24 hour SCS II storm mass curve
00123: [SDT= 6.00:SDUR= 24.00:PTOT= 64.80]
00124:
00125: 001:0008-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00126: CALIB NASHYD 01:101 17.40 .157 No_date 13:12 12.36 .191
00127: [CN= 53.2: N= 3.00]
00128: [Tp= 1.04:DT= 6.00]
00129:
00130: 001:0009-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00131: CALIB NASHYD 02:102 34.10 .258 No_date 13:42 13.22 .204
00132: [CN= 58.4: N= 3.00]
00133: [Tp= 1.43:DT= 6.00]
00134:
00135: 001:0010-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00136: SAVE HYD 01:101 17.40 .157 No_date 13:12 12.36 n/a
00137: fname :C:\HYMO\281HYM-1\Pre\H-101.001
00138: remark:preWest

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00136: 001:0011-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00137: SAVE HYD 02:102 34.10 .258 No_date 13:42 13.22 n/a
00138: fname :C:\HYMO\281HYM-1\Pre\H-102.001
00139: remark:preEast
00140:
00141: *****PRE-DEVELOPMENT - 10 YEAR Event *****
00142:
00143: # Rainfall Depths per MTO - Basins East of Collingwood
00144: # SCS Rainfall Distribution
00145:
00146: 001:0012-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00147: MASS STORM
00148: Filename = C:\HYMO\281HYM-1\Pre\SCS24HII.MST
00149: Comment = 24 hour SCS II storm mass curve
00150: [SDT= 6.00:SDUR= 24.00:PTOT= 74.40]
00151:
00152: 001:0013-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00153: CALIB NASHYD 01:101 17.40 .207 No_date 13:12 17.43 .217
00154: [CN= 53.2: N= 3.00]
00155: [Tp= 1.04:DT= 6.00]
00156:
00157: 001:0014-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00158: CALIB NASHYD 02:102 34.10 .344 No_date 13:42 17.43 .234
00159: [CN= 58.4: N= 3.00]
00160: [Tp= 1.43:DT= 6.00]
00161:
00162: 001:0015-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00163: SAVE HYD 01:101 17.40 .207 No_date 13:12 16.15 n/a
00164: fname :C:\HYMO\281HYM-1\Pre\H-101.001
00165: remark:preWest
00166:
00167: 001:0016-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00168: SAVE HYD 02:102 34.10 .344 No_date 13:42 17.43 n/a
00169: fname :C:\HYMO\281HYM-1\Pre\H-102.001
00170: remark:preEast
00171:
00172: *****PRE-DEVELOPMENT - 25 YEAR Event *****
00173:
00174: # Rainfall Depths per MTO - Basins East of Collingwood
00175: # SCS Rainfall Distribution
00176:
00177: 001:0017-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00178: MASS STORM
00179: Filename = C:\HYMO\281HYM-1\Pre\SCS24HII.MST
00180: Comment = 24 hour SCS II storm mass curve
00181: [SDT= 6.00:SDUR= 24.00:PTOT= 85.40]
00182:
00183: 001:0018-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00184: CALIB NASHYD 01:101 17.40 .277 No_date 13:12 21.41 .248
00185: [CN= 58.4: N= 3.00]
00186: [Tp= 1.04:DT= 6.00]
00187:
00188: 001:0019-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00189: CALIB NASHYD 02:102 34.10 .465 No_date 13:42 23.27 .269
00190: [CN= 58.4: N= 3.00]
00191: [Tp= 1.43:DT= 6.00]
00192:
00193: 001:0020-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00194: SAVE HYD 01:101 17.40 .277 No_date 13:12 21.41 n/a
00195: fname :C:\HYMO\281HYM-1\Pre\H-101.001
00196: remark:preWest
00197:
00198: 001:0021-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00199: SAVE HYD 02:102 34.10 .465 No_date 13:42 23.27 n/a
00200: fname :C:\HYMO\281HYM-1\Pre\H-102.001
00201: remark:preEast
00202:
00203: *****PRE-DEVELOPMENT - 50 YEAR Event *****
00204:
00205: # Rainfall Depths per MTO - Basins East of Collingwood
00206: # SCS Rainfall Distribution
00207:
00208: 001:0022-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00209: MASS STORM
00210: Filename = C:\HYMO\281HYM-1\Pre\SCS24HII.MST
00211: Comment = 24 hour SCS II storm mass curve
00212: [SDT= 6.00:SDUR= 24.00:PTOT= 96.00]
00213:
00214: 001:0023-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00215: CALIB NASHYD 01:101 17.40 .338 No_date 13:12 25.98 .271
00216: [CN= 53.2: N= 3.00]
00217: [Tp= 1.04:DT= 6.00]
00218:
00219: 001:0024-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00220: CALIB NASHYD 02:102 34.10 .570 No_date 13:42 28.33 .295
00221: [CN= 58.4: N= 3.00]
00222: [Tp= 1.43:DT= 6.00]
00223:
00224: 001:0025-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00225: SAVE HYD 01:101 17.40 .338 No_date 13:12 25.98 n/a
00226: fname :C:\HYMO\281HYM-1\Pre\H-101.001
00227: remark:preWest
00228:
00229: 001:0026-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00230: SAVE HYD 02:102 34.10 .570 No_date 13:42 28.33 n/a
00231: fname :C:\HYMO\281HYM-1\Pre\H-102.001
00232: remark:preEast
00233:
00234: *****PRE-DEVELOPMENT - 100 YEAR Event *****
00235:
00236: # Rainfall Depths per MTO - Basins East of Collingwood
00237: # SCS Rainfall Distribution
00238:
00239: 001:0027-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00240: MASS STORM
00241: Filename = C:\HYMO\281HYM-1\Pre\SCS24HII.MST
00242: Comment = 24 hour SCS II storm mass curve
00243: [SDT= 6.00:SDUR= 24.00:PTOT= 105.60]
00244:
00245: 001:0028-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00246: CALIB NASHYD 01:101 17.40 .404 No_date 13:12 30.86 .292
00247: [CN= 53.2: N= 3.00]
00248: [Tp= 1.04:DT= 6.00]
00249:
00250: 001:0029-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00251: CALIB NASHYD 02:102 34.10 .683 No_date 13:42 33.71 .319
00252: [CN= 58.4: N= 3.00]
00253: [Tp= 1.43:DT= 6.00]
00254:
00255: 001:0030-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00256: SAVE HYD 01:101 17.40 .404 No_date 13:12 30.86 n/a
00257: fname :C:\HYMO\281HYM-1\Pre\H-101.001
00258: remark:preWest
00259:
00260: 001:0031-----ID:NYHD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00261: SAVE HYD 02:102 34.10 .683 No_date 13:42 33.71 n/a
00262: fname :C:\HYMO\281HYM-1\Pre\H-102.001
00263: remark:preEast
00264:
00265: FINISH

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C.F. Crozier & Associates Inc.

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00001> =====
00002> SSSSS W W M M H H Y Y M M O O 999 999 =====
00003> S W W W M M H H Y Y M M O O 9 9 9 9
00004> SSSSS W W M M M H H H Y Y M M O O # 9 9 9 9 Ver. 4.02
00005> S W W M M M H H Y Y M M O O 9999 9999 July 1999
00006> SSSSS W W M M H H Y Y M M O O 9 9 9 9
00007> StormWater Management Hydrologic Model 999 999 # 3737016
00008>
00009>
00010>
00011> ***** SWHYMO-99 Ver/4.02 *****
00012> ***** A single event and continuous hydrologic simulation model *****
00013> ***** based on the principles of HYMO and its successors *****
00014> ***** OTTHYMO-83 and OTTHYMO-89 *****
00015> ***** Distributed by: J.F. Sabourin and Associates Inc. *****
00016> ***** Ottawa, Ontario: (613) 727-5199 *****
00017> ***** Gatineau, Quebec: (819) 243-6858 *****
00018> ***** E-Mail: swmhyo@jfsa.com *****
00019>
00020>
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 : 10 *****
00031> ***** Max. number of rainfall points: 15000 *****
00032> ***** Max. number of flow points : 15000 *****
00033>
00034>
00035> *** DESCRIPTION SUMMARY TABLE HEADERS (units depend on METOUT in START) ***
00036> *** ID: Hydrograph Identification numbers, (1-10). ***
00037> *** NHYD: Hydrograph reference numbers, (6 digits or characters). ***
00038> *** AREA: Drainage area associated with hydrograph, (ac.) or (ha.). ***
00039> *** QPEAK: Peak flow of simulated hydrograph, (ft3/s) or (m3/s). ***
00040> *** TpeakDate_hh:mm is the date and time of the peak flow. ***
00041> *** R.V.: Runoff Volume of simulated hydrograph, (in) or (mm). ***
00042> *** R.C.: Runoff Coefficient of simulated hydrograph, (ratio). ***
00043> *** *: see WARNING or NOTE message printed at end of run. ***
00044> *** **: see ERROR message printed at end of run. ***
00045>
00046>
00047>
00048>
00049>
00050>
00051>
00052>
00053> ***** SUMMARY OUTPUT *****
00054> *****
00055> ***** DATE: 2011-01-26 TIME: 10:32:51 RUN COUNTER: 000679 *****
00056> *****
00057> ***** Input filename: C:\HYMO\281HYM-1\Pre\ALL_CHI.dat *****
00058> ***** Output filename: C:\HYMO\281HYM-1\Pre\ALL_CHI.out *****
00059> ***** Summary filename: C:\HYMO\281HYM-1\Pre\ALL_CHI.sum *****
00060> ***** User comments: *****
00061> ***** 1: *****
00062> ***** 2: *****
00063> ***** 3: *****
00064>
00065>
00066>
00067>
00068>
00069> # Project Name: [Huntingwood Trails] Project Number: [281-2769]
00070> # Date : 05-13-2009
00071> # Updated : 01-17-2011
00072> # Modeller : [J.Proctor]
00073> # Company : C.F. Crozier & Associates Inc.
00074> # License # : 3737016
00075>
00076> *****
00077> *****
00078> *****
00079> *****
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00083> *****
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00131> *****
00132> *****
00133> *****
00134> *****
00135> *****

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00136> fname :C:\HYMO\281HYM-1\Pre\H-102.001
00137> remark:preEast
00138> *****
00139> *****
00140> *****
00141> *****
00142> *****
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00145> *****
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00001 * 2 Metric units
00002 *
00003 * Project Name: [Montgomery Trail] Project Number: [281-2769]
00004 * Date: [01-17-2011]
00005 * Updated: [J.Proctor]
00006 * Modeler: [J.Proctor]
00007 * Company: [C.F. Crozier & Associates Inc.]
00008 * License #: [3737016]
00009 *
00010 * START
00011 * [ ] <- storm filename, one per line for NETORM line
00012 *
00013 *
00014 * POST-DEVELOPMENT UNCONTROLLED - 2 YEAR EVENT
00015 *
00016 *
00017 * Rainfall Depths per MTO - Basins East of Collingwood
00018 * SCS Rainfall Distribution
00019 *
00020 *
00021 *
00022 * MASS STORM
00023 * PTPOT=[50.4](mm), CSPT=[5](min),
00024 * CURVE_FILENAME=[SCS24H1.MST]
00025 *
00026 * Area 2101 (West Developed Area)
00027 * CALIB STANDHYD
00028 * ID=[1], NYID=[2101], DT=[1](min), AREA=[10.6](ha),
00029 * XIMP=[0.30], TIMP=[0.50], DWF=[0.0](cm), LOSS=[2],
00030 * SCS curve number CN=[55.0],
00031 * Pervious surfaces: IAP=[5.00](mm), SLPP=[2.0](%),
00032 * IGP=[35](mm), MNP=[0.15], SCP=[0](min),
00033 * Impervious surfaces: IAIM=[2.0](mm), SLPI=[0.5](%),
00034 * LGI=[265](mm), MNI=[0.013], SCI=[0](min)
00035 * RAINFALL=[ , , ] (mm/hr), END=1
00036 *
00037 * Area 2102 (Silver Creek Buffer)
00038 * CALIB NASHYD
00039 * ID=[2], NYID=[2102], DT=[5](min), AREA=[9.8](ha),
00040 * DWF=[0](cm), CN/C=[52.8], IA=[6.50](mm),
00041 * N=[3], TP=[1.02]hrs,
00042 * RAINFALL=[ , , ] (mm/hr), END=1
00043 *
00044 * Area 2103 (East Developed Area)
00045 * CALIB STANDHYD
00046 * ID=[3], NYID=[2103], DT=[1](min), AREA=[13.1](ha),
00047 * XIMP=[0.40], TIMP=[0.60], DWF=[0.0](cm), LOSS=[2],
00048 * SCS curve number CN=[63.5],
00049 * Pervious surfaces: IAP=[5.00](mm), SLPP=[2.0](%),
00050 * IGP=[35](mm), MNP=[0.15], SCP=[0](min),
00051 * Impervious surfaces: IAIM=[2.0](mm), SLPI=[0.5](%),
00052 * LGI=[295](mm), MNI=[0.013], SCI=[0](min)
00053 * RAINFALL=[ , , ] (mm/hr), END=1
00054 *
00055 * Area 2104 (Central Natural Area)
00056 * CALIB NASHYD
00057 * ID=[4], NYID=[2104], DT=[5](min), AREA=[13.0](ha),
00058 * DWF=[0](cm), CN/C=[62.2], IA=[10.0](mm),
00059 * N=[3], TP=[0.94]hrs,
00060 * RAINFALL=[ , , ] (mm/hr), END=1
00061 *
00062 * Area 2105 (Natural Area Adj Hwy 26)
00063 * CALIB NASHYD
00064 * ID=[5], NYID=[2105], DT=[5](min), AREA=[5.0](ha),
00065 * DWF=[0](cm), CN/C=[55.5], IA=[9.00](mm),
00066 * N=[3], TP=[0.73]hrs,
00067 * RAINFALL=[ , , ] (mm/hr), END=1
00068 *
00069 *
00070 * Post Development Uncontrolled Flow to Silver Creek
00071 * ADD HYD
00072 * IDnum=[6], NYID=[UC-West], ID to add=[1+2]
00073 * SAVE HYD
00074 * ID=[6], # OF PCYCLES=[1], ICASH=[1]
00075 * HYD_COMMENT=[UC-West]
00076 *
00077 * Post Development Uncontrolled Flow to Northeast Outlet
00078 * ADD HYD
00079 * IDnum=[7], NYID=[UC-East], ID to add=[3+4+5]
00080 * SAVE HYD
00081 * ID=[7], # OF PCYCLES=[1], ICASH=[1]
00082 * HYD_COMMENT=[UC-East]
00083 *
00084 * POST-DEVELOPMENT UNCONTROLLED - 5 YEAR EVENT
00085 *
00086 * Rainfall Depths per MTO - Basins East of Collingwood
00087 * SCS Rainfall Distribution
00088 *
00089 *
00090 *
00091 * MASS STORM
00092 * PTPOT=[64.8](mm), CSPT=[5](min),
00093 * CURVE_FILENAME=[SCS24H1.MST]
00094 *
00095 * Area 2101 (West Developed Area)
00096 * CALIB STANDHYD
00097 * ID=[1], NYID=[2101], DT=[1](min), AREA=[10.6](ha),
00098 * XIMP=[0.30], TIMP=[0.50], DWF=[0.0](cm), LOSS=[2],
00099 * SCS curve number CN=[55.0],
00100 * Pervious surfaces: IAP=[5.00](mm), SLPP=[2.0](%),
00101 * IGP=[35](mm), MNP=[0.15], SCP=[0](min),
00102 * Impervious surfaces: IAIM=[2.0](mm), SLPI=[0.5](%),
00103 * LGI=[265](mm), MNI=[0.013], SCI=[0](min)
00104 * RAINFALL=[ , , ] (mm/hr), END=1
00105 *
00106 * Area 2102 (Silver Creek Buffer)
00107 * CALIB NASHYD
00108 * ID=[2], NYID=[2102], DT=[5](min), AREA=[9.8](ha),
00109 * DWF=[0](cm), CN/C=[52.8], IA=[6.50](mm),
00110 * N=[3], TP=[1.02]hrs,
00111 * RAINFALL=[ , , ] (mm/hr), END=1
00112 *
00113 * Area 2103 (East Developed Area)
00114 * CALIB STANDHYD
00115 * ID=[3], NYID=[2103], DT=[1](min), AREA=[13.1](ha),
00116 * XIMP=[0.40], TIMP=[0.60], DWF=[0.0](cm), LOSS=[2],
00117 * SCS curve number CN=[63.5],
00118 * Pervious surfaces: IAP=[5.00](mm), SLPP=[2.0](%),
00119 * IGP=[35](mm), MNP=[0.15], SCP=[0](min),
00120 * Impervious surfaces: IAIM=[2.0](mm), SLPI=[0.5](%),
00121 * LGI=[295](mm), MNI=[0.013], SCI=[0](min)
00122 * RAINFALL=[ , , ] (mm/hr), END=1
00123 *
00124 * Area 2104 (Central Natural Area)
00125 * CALIB NASHYD
00126 * ID=[4], NYID=[2104], DT=[5](min), AREA=[13.0](ha),
00127 * DWF=[0](cm), CN/C=[62.2], IA=[10.0](mm),
00128 * N=[3], TP=[0.94]hrs,
00129 * RAINFALL=[ , , ] (mm/hr), END=1
00130 *
00131 * Area 2105 (Natural Area Adj Hwy 26)
00132 * CALIB NASHYD
00133 * ID=[5], NYID=[2105], DT=[5](min), AREA=[5.0](ha),
00134 * DWF=[0](cm), CN/C=[55.5], IA=[9.00](mm),
00135 * N=[3], TP=[0.73]hrs,
00136 * RAINFALL=[ , , ] (mm/hr), END=1

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00136 *
00137 *
00138 * Post Development Uncontrolled Flow to Silver Creek
00139 * ADD HYD
00140 * IDnum=[6], NYID=[UC-West], ID to add=[1+2]
00141 * SAVE HYD
00142 * ID=[6], # OF PCYCLES=[1], ICASH=[1]
00143 * HYD_COMMENT=[UC-West]
00144 *
00145 * Post Development Uncontrolled Flow to Northeast Outlet
00146 * ADD HYD
00147 * IDnum=[7], NYID=[UC-East], ID to add=[3+4+5]
00148 * SAVE HYD
00149 * ID=[7], # OF PCYCLES=[1], ICASH=[1]
00150 * HYD_COMMENT=[UC-East]
00151 *
00152 * POST-DEVELOPMENT UNCONTROLLED - 10 YEAR EVENT
00153 *
00154 *
00155 * Rainfall Depths per MTO - Basins East of Collingwood
00156 * SCS Rainfall Distribution
00157 *
00158 *
00159 *
00160 * MASS STORM
00161 * PTPOT=[74.4](mm), CSPT=[5](min),
00162 * CURVE_FILENAME=[SCS24H1.MST]
00163 *
00164 * Area 2101 (West Developed Area)
00165 * CALIB STANDHYD
00166 * ID=[1], NYID=[2101], DT=[1](min), AREA=[10.6](ha),
00167 * XIMP=[0.30], TIMP=[0.50], DWF=[0.0](cm), LOSS=[2],
00168 * SCS curve number CN=[55.0],
00169 * Pervious surfaces: IAP=[5.00](mm), SLPP=[2.0](%),
00170 * IGP=[35](mm), MNP=[0.15], SCP=[0](min),
00171 * Impervious surfaces: IAIM=[2.0](mm), SLPI=[0.5](%),
00172 * LGI=[265](mm), MNI=[0.013], SCI=[0](min)
00173 * RAINFALL=[ , , ] (mm/hr), END=1
00174 *
00175 * Area 2102 (Silver Creek Buffer)
00176 * CALIB NASHYD
00177 * ID=[2], NYID=[2102], DT=[5](min), AREA=[9.8](ha),
00178 * DWF=[0](cm), CN/C=[52.8], IA=[6.50](mm),
00179 * N=[3], TP=[1.02]hrs,
00180 * RAINFALL=[ , , ] (mm/hr), END=1
00181 *
00182 * Area 2103 (East Developed Area)
00183 * CALIB STANDHYD
00184 * ID=[3], NYID=[2103], DT=[1](min), AREA=[13.1](ha),
00185 * XIMP=[0.40], TIMP=[0.60], DWF=[0.0](cm), LOSS=[2],
00186 * SCS curve number CN=[63.5],
00187 * Pervious surfaces: IAP=[5.00](mm), SLPP=[2.0](%),
00188 * IGP=[35](mm), MNP=[0.15], SCP=[0](min),
00189 * Impervious surfaces: IAIM=[2.0](mm), SLPI=[0.5](%),
00190 * LGI=[295](mm), MNI=[0.013], SCI=[0](min)
00191 * RAINFALL=[ , , ] (mm/hr), END=1
00192 *
00193 * Area 2104 (Central Natural Area)
00194 * CALIB NASHYD
00195 * ID=[4], NYID=[2104], DT=[5](min), AREA=[13.0](ha),
00196 * DWF=[0](cm), CN/C=[62.2], IA=[10.0](mm),
00197 * N=[3], TP=[0.94]hrs,
00198 * RAINFALL=[ , , ] (mm/hr), END=1
00199 *
00200 * Area 2105 (Natural Area Adj Hwy 26)
00201 * CALIB NASHYD
00202 * ID=[5], NYID=[2105], DT=[5](min), AREA=[5.0](ha),
00203 * DWF=[0](cm), CN/C=[55.5], IA=[9.00](mm),
00204 * N=[3], TP=[0.73]hrs,
00205 * RAINFALL=[ , , ] (mm/hr), END=1
00206 *
00207 *
00208 * Post Development Uncontrolled Flow to Silver Creek
00209 * ADD HYD
00210 * IDnum=[6], NYID=[UC-West], ID to add=[1+2]
00211 * SAVE HYD
00212 * ID=[6], # OF PCYCLES=[1], ICASH=[1]
00213 * HYD_COMMENT=[UC-West]
00214 *
00215 * Post Development Uncontrolled Flow to Northeast Outlet
00216 * ADD HYD
00217 * IDnum=[7], NYID=[UC-East], ID to add=[3+4+5]
00218 * SAVE HYD
00219 * ID=[7], # OF PCYCLES=[1], ICASH=[1]
00220 * HYD_COMMENT=[UC-East]
00221 *
00222 * POST-DEVELOPMENT UNCONTROLLED - 25 YEAR EVENT
00223 *
00224 * Rainfall Depths per MTO - Basins East of Collingwood
00225 * SCS Rainfall Distribution
00226 *
00227 *
00228 *
00229 * MASS STORM
00230 * PTPOT=[86.4](mm), CSPT=[5](min),
00231 * CURVE_FILENAME=[SCS24H1.MST]
00232 *
00233 * Area 2101 (West Developed Area)
00234 * CALIB STANDHYD
00235 * ID=[1], NYID=[2101], DT=[1](min), AREA=[10.6](ha),
00236 * XIMP=[0.30], TIMP=[0.50], DWF=[0.0](cm), LOSS=[2],
00237 * SCS curve number CN=[55.0],
00238 * Pervious surfaces: IAP=[5.00](mm), SLPP=[2.0](%),
00239 * IGP=[35](mm), MNP=[0.15], SCP=[0](min),
00240 * Impervious surfaces: IAIM=[2.0](mm), SLPI=[0.5](%),
00241 * LGI=[265](mm), MNI=[0.013], SCI=[0](min)
00242 * RAINFALL=[ , , ] (mm/hr), END=1
00243 *
00244 * Area 2102 (Silver Creek Buffer)
00245 * CALIB NASHYD
00246 * ID=[2], NYID=[2102], DT=[5](min), AREA=[9.8](ha),
00247 * DWF=[0](cm), CN/C=[52.8], IA=[6.50](mm),
00248 * N=[3], TP=[1.02]hrs,
00249 * RAINFALL=[ , , ] (mm/hr), END=1
00250 *
00251 * Area 2103 (East Developed Area)
00252 * CALIB STANDHYD
00253 * ID=[3], NYID=[2103], DT=[1](min), AREA=[13.1](ha),
00254 * XIMP=[0.40], TIMP=[0.60], DWF=[0.0](cm), LOSS=[2],
00255 * SCS curve number CN=[63.5],
00256 * Pervious surfaces: IAP=[5.00](mm), SLPP=[2.0](%),
00257 * IGP=[35](mm), MNP=[0.15], SCP=[0](min),
00258 * Impervious surfaces: IAIM=[2.0](mm), SLPI=[0.5](%),
00259 * LGI=[295](mm), MNI=[0.013], SCI=[0](min)
00260 * RAINFALL=[ , , ] (mm/hr), END=1
00261 *
00262 * Area 2104 (Central Natural Area)
00263 * CALIB NASHYD
00264 * ID=[4], NYID=[2104], DT=[5](min), AREA=[13.0](ha),
00265 * DWF=[0](cm), CN/C=[62.2], IA=[10.0](mm),
00266 * N=[3], TP=[0.94]hrs,
00267 * RAINFALL=[ , , ] (mm/hr), END=1
00268 *
00269 * Area 2105 (Natural Area Adj Hwy 26)
00270 * CALIB NASHYD
00271 * ID=[5], NYID=[2105], DT=[5](min), AREA=[5.0](ha),

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00271> SWS=[0] (cms), CN/C=[55.5], IA=[9.00] (mi),
00272> N=[3], TP=[0.73] hrs,
00273> RAINFALL=[ , , , ] (in/hr), END=-1
00274> *-----Post Development Uncontrolled Flow to Silver Creek-----
00275> *-----
00276> *-----
00277> ADD HYD IDsum=[6], NHYD=["UC-West"], IDS to add=[1+2]
00278> *-----
00279> SAVE HYD ID=[6], # OF PCYCLES=[-1], ICASEsh=[1]
00280> *-----
00281> *-----
00282> *-----Post Development Uncontrolled Flow to Northeast Outlet-----
00283> *-----
00284> ADD HYD IDsum=[7], NHYD=["UC-East"], IDS to add=[3+4+5]
00285> *-----
00286> SAVE HYD ID=[7], # OF PCYCLES=[-1], ICASEsh=[1]
00287> *-----
00288> *-----
00289> *-----
00290> *-----POST-DEVELOPMENT UNCONTROLLED - 50 YEAR Event-----
00291> *-----
00292> *-----
00293> * Rainfall Depths per MTO - Basins East of Collingwood
00294> * SCS Rainfall Distribution
00295> *-----
00296> *-----
00297> *-----
00298> MASS STORM PTOTAL=[96.0] (mm), CSOT=[5] (min),
00299> CURVE_FILENAME=["SCS24H1.MST"]
00300> *-----
00301> *-----Area 2101 (East Developed Area)-----
00302> *-----
00303> CALIB STANDHYD ID=[1], NHYD=["2101"], DT=[1] (min), AREA=[10.6] (ha),
00304> XIMP=[0.40], TIMP=[0.50], DWP=[0.0] (cms), LOS=[2],
00305> SCS curve number CN=[55.0],
00306> Pervious surfaces: IAPer=[5.00] (mm), SLPP=[2.0] (%),
00307> IGP=[35] (m), MNP=[0.15], SCP=[0] (min),
00308> Impervious surfaces: IAImp=[2.0] (mm), SLPI=[0.5] (%),
00309> IGI=[265] (m), MNI=[0.01], SCI=[0] (min)
00310> RAINFALL=[ , , , ] (in/hr), END=-1
00311> *-----
00312> *-----Area 2102 (Silver Creek Buffer)-----
00313> *-----
00314> CALIB NASHYD ID=[2], NHYD=["2102"], DT=[5] (min), AREA=[9.0] (ha),
00315> DWP=[0] (cms), CN/C=[52.8], IA=[6.50] (mi),
00316> N=[3], TP=[1.02] hrs,
00317> RAINFALL=[ , , , ] (in/hr), END=-1
00318> *-----
00319> *-----Area 2103 (East Developed Area)-----
00320> *-----
00321> CALIB STANDHYD ID=[3], NHYD=["2103"], DT=[1] (min), AREA=[13.1] (ha),
00322> XIMP=[0.40], TIMP=[0.50], DWP=[0.0] (cms), LOS=[2],
00323> SCS curve number CN=[53.5],
00324> Pervious surfaces: IAPer=[5.00] (mm), SLPP=[2.0] (%),
00325> IGP=[35] (m), MNP=[0.15], SCP=[0] (min),
00326> Impervious surfaces: IAImp=[2.0] (mm), SLPI=[0.5] (%),
00327> IGI=[295] (m), MNI=[0.01], SCI=[0] (min)
00328> RAINFALL=[ , , , ] (in/hr), END=-1
00329> *-----
00330> *-----Area 2104 (Central Natural Area)-----
00331> *-----
00332> CALIB NASHYD ID=[4], NHYD=["2104"], DT=[5] (min), AREA=[13.0] (ha),
00333> DWP=[0] (cms), CN/C=[62.2], IA=[10.0] (mi),
00334> N=[3], TP=[0.94] hrs,
00335> RAINFALL=[ , , , ] (in/hr), END=-1
00336> *-----
00337> *-----Area 2105 (Natural Area Adj Hwy 26)-----
00338> *-----
00339> CALIB NASHYD ID=[5], NHYD=["2105"], DT=[5] (min), AREA=[5.0] (ha),
00340> DWP=[0] (cms), CN/C=[55.5], IA=[9.00] (mi),
00341> N=[3], TP=[0.73] hrs,
00342> RAINFALL=[ , , , ] (in/hr), END=-1
00343> *-----
00344> *-----Post Development Uncontrolled Flow to Silver Creek-----
00345> *-----
00346> ADD HYD IDsum=[6], NHYD=["UC-West"], IDS to add=[1+2]
00347> *-----
00348> SAVE HYD ID=[6], # OF PCYCLES=[-1], ICASEsh=[1]
00349> *-----
00350> *-----
00351> *-----Post Development Uncontrolled Flow to Northeast Outlet-----
00352> *-----
00353> ADD HYD IDsum=[7], NHYD=["UC-East"], IDS to add=[3+4+5]
00354> *-----
00355> SAVE HYD ID=[7], # OF PCYCLES=[-1], ICASEsh=[1]
00356> *-----
00357> *-----
00358> *-----
00359> *-----POST-DEVELOPMENT UNCONTROLLED - 100 YEAR Event-----
00360> *-----
00361> *-----
00362> * Rainfall Depths per MTO - Basins East of Collingwood
00363> * SCS Rainfall Distribution
00364> *-----
00365> *-----
00366> *-----
00367> MASS STORM PTOTAL=[105.6] (mm), CSOT=[5] (min),
00368> CURVE_FILENAME=["SCS24H1.MST"]
00369> *-----
00370> *-----Area 2101 (East Developed Area)-----
00371> *-----
00372> CALIB STANDHYD ID=[1], NHYD=["2101"], DT=[1] (min), AREA=[10.6] (ha),
00373> XIMP=[0.40], TIMP=[0.50], DWP=[0.0] (cms), LOS=[2],
00374> SCS curve number CN=[55.0],
00375> Pervious surfaces: IAPer=[5.00] (mm), SLPP=[2.0] (%),
00376> IGP=[35] (m), MNP=[0.15], SCP=[0] (min),
00377> Impervious surfaces: IAImp=[2.0] (mm), SLPI=[0.5] (%),
00378> IGI=[265] (m), MNI=[0.01], SCI=[0] (min)
00379> RAINFALL=[ , , , ] (in/hr), END=-1
00380> *-----
00381> *-----Area 2102 (Silver Creek Buffer)-----
00382> *-----
00383> CALIB NASHYD ID=[2], NHYD=["2102"], DT=[5] (min), AREA=[9.0] (ha),
00384> DWP=[0] (cms), CN/C=[52.8], IA=[6.50] (mi),
00385> N=[3], TP=[1.02] hrs,
00386> RAINFALL=[ , , , ] (in/hr), END=-1
00387> *-----
00388> *-----Area 2103 (East Developed Area)-----
00389> *-----
00390> CALIB STANDHYD ID=[3], NHYD=["2103"], DT=[1] (min), AREA=[13.1] (ha),
00391> XIMP=[0.40], TIMP=[0.50], DWP=[0.0] (cms), LOS=[2],
00392> SCS curve number CN=[53.5],
00393> Pervious surfaces: IAPer=[5.00] (mm), SLPP=[2.0] (%),
00394> IGP=[35] (m), MNP=[0.15], SCP=[0] (min),
00395> Impervious surfaces: IAImp=[2.0] (mm), SLPI=[0.5] (%),
00396> IGI=[295] (m), MNI=[0.01], SCI=[0] (min)
00397> RAINFALL=[ , , , ] (in/hr), END=-1
00398> *-----
00399> *-----Area 2104 (Central Natural Area)-----
00400> *-----
00401> CALIB NASHYD ID=[4], NHYD=["2104"], DT=[5] (min), AREA=[13.0] (ha),
00402> DWP=[0] (cms), CN/C=[62.2], IA=[10.0] (mi),
00403> N=[3], TP=[0.94] hrs,
00404> RAINFALL=[ , , , ] (in/hr), END=-1
00405> *-----

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00406> *-----Area 2105 (Natural Area Adj Hwy 26)-----
00407> *-----
00408> CALIB NASHYD ID=[5], NHYD=["2105"], DT=[5] (min), AREA=[5.0] (ha),
00409> DWP=[0] (cms), CN/C=[55.5], IA=[9.00] (mi),
00410> N=[3], TP=[0.73] hrs,
00411> RAINFALL=[ , , , ] (in/hr), END=-1
00412> *-----
00413> *-----Post Development Uncontrolled Flow to Silver Creek-----
00414> *-----
00415> ADD HYD IDsum=[6], NHYD=["UC-West"], IDS to add=[1+2]
00416> *-----
00417> SAVE HYD ID=[6], # OF PCYCLES=[-1], ICASEsh=[1]
00418> *-----
00419> *-----
00420> *-----Post Development Uncontrolled Flow to Northeast Outlet-----
00421> *-----
00422> ADD HYD IDsum=[7], NHYD=["UC-East"], IDS to add=[3+4+5]
00423> *-----
00424> SAVE HYD ID=[7], # OF PCYCLES=[-1], ICASEsh=[1]
00425> *-----
00426> *-----
00427> FINISH
00428> *-----
00429> *-----
00430> *-----
00431> *-----
00432> *-----
00433> *-----
00434> *-----
00435> *-----
00436> *-----
00437> *-----
00438> *-----
00439> *-----
00440> *-----
00441> *-----
00442> *-----
00443> *-----
00444> *-----
00445> *-----
00446> *-----
00447> *-----
00448> *-----
00449> *-----
00450> *-----
00451> *-----
00452> *-----
00453> *-----
00454> *-----
00455> *-----
00456> *-----
00457> *-----
00458> *-----
00459> *-----
00460> *-----
00461> *-----
00462> *-----
00463> *-----
00464> *-----
00465> *-----
00466> *-----
00467> *-----
00468> *-----
00469> *-----
00470> *-----
00471> *-----
00472> *-----
00473> *-----
00474> *-----
00475> *-----
00476> *-----

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00001> 2      Metric units
00002> *-----*
00003> * Project Name: [Huntingwood Trails]   Project Number: [281-2769]
00004> * Date       : 06-04-2009
00005> * Updated    : 01-17-2011
00006> * Modeler    : [J.Proctor]
00007> * Company   : C.F. Crozier & Associates Inc.
00008> * License #  : 373016
00009> *-----*
00010> START      TIRMS=[0.0], MFCOUT=[2], NSTORM=[0], MURN=[0]
00011> %          [ ] <- Storm filename, one per line for NSTORM time
00012> %-----*
00013> %-----*
00014> *-----* POST-DEVELOPMENT UNCONTROLLED - Timing Event *-----*
00015> *-----*
00016> %-----*
00017> READ STORM STORM_FILENAME=[C:\HYMWS\281 HYMOUCytic.stm]
00018> %-----*
00019> *-----* Area 2101 (West Developed Area) *-----*
00020> %-----*
00021> CALIB STANDHYD ID=[1], NHYD=[2101], DT=[1]min, AREA=[10.6]ha,
00022> KIMP=[0.30], TIRP=[0.50], DWP=[0.0]cms, LOSS=[2],
00023> SCS curve number CN=[55.0]
00024> Pervious surfaces: IAPer=[5.00]mm, SLP=[2.0]%,
00025> IGP=[35]mm, MNP=[0.15], SCP=[0]min,
00026> Impervious surfaces: IAImp=[2.0]mm, SLP=[0.5]%,
00027> IGI=[265]mm, MNI=[0.013], SCI=[0]min
00028> RAINFALL=[ , , , ]mm/hr, END=-1
00029> %-----*
00030> *-----* Area 2102 (Silver Creek Buffer) *-----*
00031> %-----*
00032> CALIB NASHYD ID=[2], NHYD=[2102], DT=[5]min, AREA=[9.6]ha,
00033> DWP=[0]cms, CN/C=[52.8], IA=[6.50]mm,
00034> M=[3], TP=[1.02]hrs,
00035> RAINFALL=[ , , , ]mm/hr, END=-1
00036> %-----*
00037> *-----* Area 2103 (East Developed Area) *-----*
00038> %-----*
00039> CALIB STANDHYD ID=[3], NHYD=[2103], DT=[1]min, AREA=[13.1]ha,
00040> KIMP=[0.40], TIRP=[0.60], DWP=[0.0]cms, LOSS=[2],
00041> SCS curve number CN=[63.5],
00042> Pervious surfaces: IAPer=[5.00]mm, SLP=[2.0]%,
00043> IGP=[35]mm, MNP=[0.15], SCP=[0]min,
00044> Impervious surfaces: IAImp=[2.0]mm, SLP=[0.5]%,
00045> IGI=[265]mm, MNI=[0.013], SCI=[0]min
00046> RAINFALL=[ , , , ]mm/hr, END=-1
00047> %-----*
00048> *-----* Area 2104 (CONCRETE Natural Area) *-----*
00049> %-----*
00050> CALIB NASHYD ID=[4], NHYD=[2104], DT=[5]min, AREA=[13.0]ha,
00051> DWP=[0]cms, CN/C=[62.2], IA=[10.0]mm,
00052> M=[3], TP=[0.94]hrs,
00053> RAINFALL=[ , , , ]mm/hr, END=-1
00054> %-----*
00055> *-----* Area 2105 (Natural Area Adj Hwy 26) *-----*
00056> %-----*
00057> CALIB NASHYD ID=[5], NHYD=[2105], DT=[5]min, AREA=[5.0]ha,
00058> DWP=[0]cms, CN/C=[55.9], IA=[9.00]mm,
00059> M=[3], TP=[0.73]hrs,
00060> RAINFALL=[ , , , ]mm/hr, END=-1
00061> %-----*
00062> *-----* Post Development Uncontrolled Flow to Silver Creek *-----*
00063> %-----*
00064> ADD HYD IDnum=[6], NHYD=[UC-West], IDS to add=[1-2]
00065> %-----*
00066> SAVE HYD ID=[6], # OF DCYCLES=[-1], ICASEsh=[1]
00067> HYD_COMMENT=[UC-West]
00068> %-----*
00069> *-----* Post Development Uncontrolled Flow to Northeast Outlet *-----*
00070> %-----*
00071> ADD HYD IDnum=[7], NHYD=[UC-East], IDS to add=[3-4-5]
00072> %-----*
00073> SAVE HYD ID=[7], # OF DCYCLES=[-1], ICASEsh=[1]
00074> HYD_COMMENT=[UC-East]
00075> %-----*
00076> FINISH
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00001> * Metric units
00002> *-----
00003> * Project Name: [Huntingwood Trails] Project Number: [261-2769]
00004> * Date : 05-13-2009
00005> * Updated : 01-17-2011
00006> * Modeler : [J.Proctor]
00007> * Company : C.F. Crozier & Associates Inc.
00008> * License # : 3737016
00009> *-----
00010> * START TWEBO=[0.0], METOFT=[2], NSTORM=[0], NRUN=[0]
00011> * * * * * SLOPE criterion, one per line for NSTORM time
00012> *-----
00013> *-----
00014> *-----POST-DEVELOPMENT UNCONTROLLED - 25mm Event-----
00015> *-----
00016> *
00017> * Rainfall Depths per MTU - Basins East of Collingwood
00018> * 24 hour Rifer Chu Chicago Rainfall Distribution
00019> *
00020> *-----
00021> *-----
00022> CHICAGO STORM RUNTS=[2], TD=[4] hrs, TPRAT=[0.33], CSNP=[5] min,
00023> ICASR=[1],
00024> A=[568.7], B=[6.662], and C=[0.619],
00025> *-----
00026> *-----Area 2101 (East Developed Area)-----
00027> *-----
00028> CALIB STANDHYD ID=[1], NYHD=[2101], DT=[1] min, AREA=[10.6] (ha),
00029> XIMP=[0.30], TIMP=[0.50], DWF=[0.0] (cm), LOSS=[2],
00030> SCS curve number CN=[55.0],
00031> Pervious surfaces: LAperv=[9.00] (mm), SLP=[2.0] (%),
00032> LGP=[35] (m), RMP=[0.15], SCP=[0] (min),
00033> Impervious surfaces: LApimp=[2.0] (mm), SLP=[0.5] (%),
00034> LGI=[265] (m), MMI=[0.013], SCL=[0] (min)
00035> RAINFALL=[ , , , ] (mm/hr), END=-1
00036> *-----
00037> *-----Area 2102 (Silver Creek Buffer)-----
00038> *-----
00039> CALIB NASHYD ID=[2], NYHD=[2102], DT=[5] min, AREA=[9.6] (ha),
00040> DWF=[0] (cm), CN/C=[52.8], LA=[6.50] (mm),
00041> H=[3], TP=[1.02] hrs,
00042> RAINFALL=[ , , , ] (mm/hr), END=-1
00043> *-----
00044> *-----Area 2103 (East Developed Area)-----
00045> *-----
00046> CALIB STANDHYD ID=[3], NYHD=[2103], DT=[1] min, AREA=[13.1] (ha),
00047> XIMP=[0.40], TIMP=[0.50], DWF=[0.0] (cm), LOSS=[2],
00048> SCS curve number CN=[53.5],
00049> Pervious surfaces: LAperv=[5.00] (mm), SLP=[2.0] (%),
00050> LGP=[35] (m), RMP=[0.15], SCP=[0] (min),
00051> Impervious surfaces: LApimp=[2.0] (mm), SLP=[0.5] (%),
00052> LGI=[295] (m), MMI=[0.013], SCL=[0] (min)
00053> RAINFALL=[ , , , ] (mm/hr), END=-1
00054> *-----
00055> *-----Area 2104 (Central Natural Area)-----
00056> *-----
00057> CALIB NASHYD ID=[4], NYHD=[2104], DT=[5] min, AREA=[13.0] (ha),
00058> DWF=[0] (cm), CN/C=[62.2], LA=[10.0] (mm),
00059> H=[3], TP=[0.94] hrs,
00060> RAINFALL=[ , , , ] (mm/hr), END=-1
00061> *-----
00062> *-----Area 2105 (Natural Area Adj Hwy 26)-----
00063> *-----
00064> CALIB NASHYD ID=[5], NYHD=[2105], DT=[5] min, AREA=[5.0] (ha),
00065> DWF=[0] (cm), CN/C=[55.5], LA=[9.00] (mm),
00066> H=[3], TP=[0.73] hrs,
00067> RAINFALL=[ , , , ] (mm/hr), END=-1
00068> *-----
00069> *-----Post Development Uncontrolled Flow to Silver Creek-----
00070> *-----
00071> ADD HYD IDbase=[6], NYHD=[UC-Rest], ID to add=[1-2]
00072> *-----
00073> SAVE HYD ID=[6], # OF CYCLES=[-1], ICASE=[1]
00074> HYD_COMMENT=[UC-Rest]
00075> *-----
00076> *-----Post Development Uncontrolled Flow to Northeast Outlet-----
00077> *-----
00078> ADD HYD IDbase=[7], NYHD=[UC-Rest], ID to add=[3-4-5]
00079> *-----
00080> SAVE HYD ID=[7], # OF CYCLES=[-1], ICASE=[1]
00081> HYD_COMMENT=[UC-Rest]
00082> *-----
00083> FINISH
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000010 * Metric Units
000020 *
000030 * Project Name: [Huntsgwood Trails] Project Number: [281-2469]
000040 * Date : 06-04-2009
000050 * Updater : 01-12-2011
000060 * Modeler : [J.Pectector]
000070 * Company : C.F. Crocier & Associates Inc.
000080 * License # : 3737016
000090 *
000100 * START TZONE=[0.0], MDTIME=[2], SSTDIME=[0], NDATE=[0]
000110 * [ ] 5 - Storm Elevation, GPD per line for NITFUM time
000120 *
000130 *
000140 * POST-DEVELOPMENT UNCONTROLLED - 2 YEAR Event
000150 *
000160 *
000170 * Rainfall Depths per MFO - Basins East of Collingswood
000180 * Chicago Rainfall Distribution
000190 *
000200 *
000210 * CHICAGO STORM IUNIT=[2], TD=[4] (hrs), TPRAT=[0.333], CSDT=[5] (min),
000220 * LCASCH=[2],
000230 * Enter ordinates of IDF curve below, at least seven points
000240 * TIME (min) Intensity (in/hr)
000250 * (5) (1.5)
000260 * (10) (2.5)
000270 * (15) (6.2)
000280 * (30) (4.0)
000290 * (60) (2.5)
000300 * (120) (1.4)
000310 * (360) (0.6)
000320 * (720) (0.3)
000330 * (1440) (0.2)
000340 * -1
000350 *
000360 * Area 2101 (West Developed Area)
000370 *
000380 * CALIB STANDHYD ID=[1], NYHD=[2101], DT=[1] (min), AREA=[10.6] (ha),
000390 * XMP=[0.40], TIMP=[0.50], INF=[0.0] (cms), LOSS=[2],
000400 * SCG curve number CN=[55.0],
000410 * Pervious surfaces: IAPer=[5.60] (mm), SLPP=[2.0] (%),
000420 * LGP=[35] (mm), MGP=[0.15], SCP=[0] (min),
000430 * Impervious surfaces: IAIp=[2.0] (mm), SLIP=[0.5] (%),
000440 * LGI=[265] (mm), MNI=[0.013], SCI=[0] (min)
000450 * RAINFALL=[ ] (in/hr), END=-1
000460 *
000470 * Area 2102 (Silver Creek Buffer)
000480 *
000490 * CALIB NASHYD ID=[2], NYHD=[2102], DT=[5] (min), AREA=[9.8] (ha),
000500 * XMP=[0] (cms), CN/C=[52.8], IA=[6.50] (mm),
000510 * N=[3], TP=[1.02] (hrs),
000520 * RAINFALL=[ ] (in/hr), END=-1
000530 *
000540 * Area 2103 (East Developed Area)
000550 *
000560 * CALIB STANDHYD ID=[3], NYHD=[2103], DT=[1] (min), AREA=[13.1] (ha),
000570 * XMP=[0.40], TIMP=[0.60], INF=[0.0] (cms), LOSS=[2],
000580 * SCG curve number CN=[55.0],
000590 * Pervious surfaces: IAPer=[5.60] (mm), SLPP=[2.0] (%),
000600 * LGP=[35] (mm), MGP=[0.15], SCP=[0] (min),
000610 * Impervious surfaces: IAIp=[2.0] (mm), SLIP=[0.5] (%),
000620 * LGI=[295] (mm), MNI=[0.013], SCI=[0] (min)
000630 * RAINFALL=[ ] (in/hr), END=-1
000640 *
000650 * Area 2104 (Central Natural Area)
000660 *
000670 * CALIB NASHYD ID=[4], NYHD=[2104], DT=[5] (min), AREA=[13.0] (ha),
000680 * XMP=[0] (cms), CN/C=[52.8], IA=[10.0] (mm),
000690 * N=[3], TP=[0.96] (hrs),
000700 * RAINFALL=[ ] (in/hr), END=-1
000710 *
000720 * Area 2105 (Natural Area Adj Hwy 26)
000730 *
000740 * CALIB NASHYD ID=[5], NYHD=[2105], DT=[5] (min), AREA=[5.0] (ha),
000750 * XMP=[0] (cms), CN/C=[55.5], IA=[9.00] (mm),
000760 * N=[3], TP=[0.73] (hrs),
000770 * RAINFALL=[ ] (in/hr), END=-1
000780 *
000790 * POST-DEVELOPMENT UNCONTROLLED FLOW TO SILVER CREEK
000800 *
000810 * ADD HYD Dam=[6], NYHD=[UC-West], IDG to add=[1,2]
000820 *
000830 * SAVE HYD ID=[6], # OF RYCLRS=[1], LCASCH=[1]
000840 * NYD_COMMENT=[UC-West]
000850 *
000860 * POST-DEVELOPMENT UNCONTROLLED FLOW to Northeast Outlet
000870 *
000880 * ADD HYD Dam=[7], NYHD=[UC-East], IDG to add=[3,4,5]
000890 *
000900 * SAVE HYD ID=[7], # OF RYCLRS=[1], LCASCH=[1]
000910 * NYD_COMMENT=[UC-East]
000920 *
000930 * POST-DEVELOPMENT UNCONTROLLED - 5 YEAR Event
000940 *
000950 *
000960 * Rainfall Depths per MFO - Basins East of Collingswood
000970 * Chicago Rainfall Distribution
000980 *
000990 *
010000 *
010010 * CHICAGO STORM IUNIT=[2], TD=[4] (hrs), TPRAT=[0.333], CSDT=[5] (min),
010020 * LCASCH=[2],
010030 * Enter ordinates of IDF curve below, at least seven points
010040 * TIME (min) Intensity (in/hr)
010050 * (5) (1.5)
010060 * (10) (2.5)
010070 * (15) (6.2)
010080 * (30) (4.0)
010090 * (60) (2.5)
010100 * (120) (1.4)
010110 * (360) (0.6)
010120 * (720) (0.3)
010130 * (1440) (0.2)
010140 * -1
010150 *
010160 * Area 2101 (West Developed Area)
010170 *
010180 * CALIB STANDHYD ID=[1], NYHD=[2101], DT=[1] (min), AREA=[10.6] (ha),
010190 * XMP=[0.40], TIMP=[0.50], INF=[0.0] (cms), LOSS=[2],
010200 * SCG curve number CN=[55.0],
010210 * Pervious surfaces: IAPer=[5.60] (mm), SLPP=[2.0] (%),
010220 * LGP=[35] (mm), MGP=[0.15], SCP=[0] (min),
010230 * Impervious surfaces: IAIp=[2.0] (mm), SLIP=[0.5] (%),
010240 * LGI=[265] (mm), MNI=[0.013], SCI=[0] (min)
010250 * RAINFALL=[ ] (in/hr), END=-1
010260 *
010270 * Area 2102 (Silver Creek Buffer)
010280 *
010290 * CALIB NASHYD ID=[2], NYHD=[2102], DT=[5] (min), AREA=[9.8] (ha),
010300 * XMP=[0] (cms), CN/C=[52.8], IA=[6.50] (mm),
010310 * N=[3], TP=[1.02] (hrs),
010320 * RAINFALL=[ ] (in/hr), END=-1
010330 *

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00136	%	Area 2103 (East Developed Area)
00137	%	
00138	CALIB STANNHYD	ID=[3], NHYD=["2103"], DT=[1] (min), AREA=[13.1] (ha),
00139	%	XIMP=[0.00], TIMP=[0.60], IWP=[0.0] (cms), LOSS=[2],
00140	%	SCS curve number CN=[53.5],
00141	%	Pervious surfaces: Iaper=[5.00] (cm), SLPP=[2.0] (%),
00142	%	LGP=[35] (m), MNP=[0.15], SCP=[0] (mm),
00143	%	Impervious surfaces: Ialpp=[2.0] (mm), SLIP=[0.5] (%),
00144	%	LGI=[295] (m), MNI=[0.013], SCI=[0] (mm)
00145	%	RAINFALL=[, , ,] (mm/hr), END=1
00146	%	Area 2104 (Central Natural Area)
00147	%	
00148	%	
00149	CALIB NASHYD	ID=[4], NHYD=["2104"], DT=[5] (min), AREA=[13.0] (ha),
00150	%	IWP=[0] (cms), CN/C=[62.2], IA=[10.0] (cm),
00151	%	N=[3], TP=[0.94] hrs,
00152	%	RAINFALL=[, , ,] (mm/hr), END=1
00153	%	Area 2105 (Natural Area Adj Hwy 26)
00154	%	
00155	%	
00156	CALIB NASHYD	ID=[5], NHYD=["2105"], DT=[5] (min), AREA=[5.0] (ha),
00157	%	IWP=[0] (cms), CN/C=[55.5], IA=[9.00] (cm),
00158	%	N=[3], TP=[0.73] hrs,
00159	%	RAINFALL=[, , ,] (mm/hr), END=1
00160	%	
00161	%	---Post Development Uncontrolled Flow to Silver Creek---
00162	%	
00163	ADD HYD	IDsum=[6], NHYD=["UC-West"], IDn to add=[1,2]
00164	%	
00165	SAVE HYD	ID=[6], # OF PCYCLES=[-1], ICASESh=[1]
00166	%	HYD_COMMENT=["UC-West"]
00167	%	
00168	%	---Post Development Uncontrolled Flow to Northeast Outlet---
00169	%	
00170	ADD HYD	IDsum=[7], NHYD=["UC-East"], IDn to add=[3,4,5]
00171	%	
00172	SAVE HYD	ID=[7], # OF PCYCLES=[-1], ICASESh=[1]
00173	%	HYD_COMMENT=["UC-East"]
00174	%	
00175	%	
00176	%	---POST-DEVELOPMENT UNCONTROLLED - 10 YEAR EVENT---
00177	%	
00178	%	
00179	%	Rainfall Depths per MTO - Basins East of Collingwood
00180	%	Chicago Rainfall Distribution
00181	%	
00182	%	
00183	%	
00184	CHICAGO STORM	UNITS=[2], TD=[4] (hrs), TPRAT=[0.333], CSDF=[9] (min),
00185	%	ICASESh=[2],
00186	%	Enter ordinates of IDF curve below, at least seven points
00187	%	TIME (min) Intensity (mm/hr)
00188	%	[5] [150]
00189	%	[10] [115]
00190	%	[15] [90]
00191	%	[30] [62]
00192	%	[45] [48]
00193	%	[120] [23]
00194	%	[360] [10]
00195	%	[720] [5.5]
00196	%	[1440] [3.1]
00197	%	-1 -
00198	%	
00199	%	Area 2101 (West Developed Area)
00200	%	
00201	CALIB STANNHYD	ID=[1], NHYD=["2101"], DT=[1] (min), AREA=[10.6] (ha),
00202	%	XIMP=[0.00], TIMP=[0.56], IWP=[0.0] (cms), LOSS=[2],
00203	%	SCS curve number CN=[55.0],
00204	%	Pervious surfaces: Iaper=[5.00] (cm), SLPP=[2.0] (%),
00205	%	LGP=[35] (m), MNP=[0.15], SCP=[0] (mm),
00206	%	Impervious surfaces: Ialpp=[2.0] (mm), SLIP=[0.5] (%),
00207	%	LGI=[295] (m), MNI=[0.013], SCI=[0] (mm)
00208	%	RAINFALL=[, , ,] (mm/hr), END=1
00209	%	Area 2102 (Silver Creek Inlet)
00210	%	
00211	%	
00212	CALIB NASHYD	ID=[2], NHYD=["2102"], DT=[5] (min), AREA=[9.8] (ha),
00213	%	IWP=[0] (cms), CN/C=[53.8], IA=[6.50] (cm),
00214	%	N=[3], TP=[1.02] hrs,
00215	%	RAINFALL=[, , ,] (mm/hr), END=1
00216	%	
00217	%	Area 2103 (East Developed Area)
00218	%	
00219	CALIB STANNHYD	ID=[3], NHYD=["2103"], DT=[1] (min), AREA=[13.1] (ha),
00220	%	XIMP=[0.00], TIMP=[0.60], IWP=[0.0] (cms), LOSS=[2],
00221	%	SCS curve number CN=[53.5],
00222	%	Pervious surfaces: Iaper=[5.00] (cm), SLPP=[2.0] (%),
00223	%	LGP=[35] (m), MNP=[0.15], SCP=[0] (mm),
00224	%	Impervious surfaces: Ialpp=[2.0] (mm), SLIP=[0.5] (%),
00225	%	LGI=[295] (m), MNI=[0.013], SCI=[0] (mm)
00226	%	RAINFALL=[, , ,] (mm/hr), END=1
00227	%	
00228	%	Area 2104 (Central Natural Area)
00229	%	
00230	CALIB NASHYD	ID=[4], NHYD=["2104"], DT=[5] (min), AREA=[13.0] (ha),
00231	%	IWP=[0] (cms), CN/C=[62.2], IA=[10.0] (cm),
00232	%	N=[3], TP=[0.94] hrs,
00233	%	RAINFALL=[, , ,] (mm/hr), END=1
00234	%	
00235	%	Area 2105 (Natural Area Adj Hwy 26)
00236	%	
00237	CALIB NASHYD	ID=[5], NHYD=["2105"], DT=[5] (min), AREA=[5.0] (ha),
00238	%	IWP=[0] (cms), CN/C=[55.5], IA=[9.00] (cm),
00239	%	N=[3], TP=[0.73] hrs,
00240	%	RAINFALL=[, , ,] (mm/hr), END=1
00241	%	
00242	%	---Post Development Uncontrolled Flow to Silver Creek---
00243	%	
00244	ADD HYD	IDsum=[6], NHYD=["UC-West"],

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00271> [15] [110]
00272> [36] [73]
00273> [50] [49]
00274> [120] [27]
00275> [160] [12]
00276> [220] [6.6]
00277> [1440] [1.6]
00278> -1 -1
00279> %-----
00280> %-----Area 2101 (West Developed Area)-----
00281> %-----
00282> CALIB STANHYD ID=[1], NHYD=[2101], DT=[1](min), AREA=[10.6](ha),
00283> XIMP=[0.30], TIMP=[0.50], INP=[0.0](cms), LOSS=[2],
00284> SCS curve number CN=[55.0],
00285> Pervious surfaces: IAP=[5.00](mm), SLPP=[2.0](%),
00286> LGP=[35](m), MNP=[0.15], SCP=[0](min),
00287> IALP=[2.0](mm), SLPI=[0.5](%),
00288> LGI=[295](m), MNI=[0.013], SCT=[0](min)
00289> IMPERVIOUS SURFACES: IALP=[2.0](mm), SLPI=[0.5](%),
00290> LGI=[295](m), MNI=[0.013], SCT=[0](min)
00291> RAINFALL=[ , , , ](mm/hr), END=-1
00292> %-----
00293> %-----Area 2102 (Silver Creek Buffer)-----
00294> %-----
00295> CALIB NASHYD ID=[2], NHYD=[2102], DT=[5](min), AREA=[9.8](ha),
00296> XIMP=[0.30], TIMP=[0.50], INP=[0.0](cms), LOSS=[2],
00297> SCS curve number CN=[55.0],
00298> Pervious surfaces: IAP=[5.00](mm), SLPP=[2.0](%),
00299> LGP=[35](m), MNP=[0.15], SCP=[0](min),
00300> IALP=[2.0](mm), SLPI=[0.5](%),
00301> LGI=[295](m), MNI=[0.013], SCT=[0](min)
00302> IMPERVIOUS SURFACES: IALP=[2.0](mm), SLPI=[0.5](%),
00303> LGI=[295](m), MNI=[0.013], SCT=[0](min)
00304> RAINFALL=[ , , , ](mm/hr), END=-1
00305> %-----
00306> %-----Area 2103 (East Developed Area)-----
00307> %-----
00308> CALIB STANHYD ID=[3], NHYD=[2103], DT=[1](min), AREA=[13.1](ha),
00309> XIMP=[0.40], TIMP=[0.60], INP=[0.0](cms), LOSS=[2],
00310> SCS curve number CN=[63.5],
00311> Pervious surfaces: IAP=[5.00](mm), SLPP=[2.0](%),
00312> LGP=[35](m), MNP=[0.15], SCP=[0](min),
00313> IALP=[2.0](mm), SLPI=[0.5](%),
00314> LGI=[295](m), MNI=[0.013], SCT=[0](min)
00315> IMPERVIOUS SURFACES: IALP=[2.0](mm), SLPI=[0.5](%),
00316> LGI=[295](m), MNI=[0.013], SCT=[0](min)
00317> RAINFALL=[ , , , ](mm/hr), END=-1
00318> %-----
00319> %-----Area 2104 (Central Natural Area)-----
00320> %-----
00321> CALIB NASHYD ID=[4], NHYD=[2104], DT=[5](min), AREA=[13.0](ha),
00322> XIMP=[0.30], TIMP=[0.50], INP=[0.0](cms), LOSS=[2],
00323> SCS curve number CN=[55.0],
00324> Pervious surfaces: IAP=[5.00](mm), SLPP=[2.0](%),
00325> LGP=[35](m), MNP=[0.15], SCP=[0](min),
00326> IALP=[2.0](mm), SLPI=[0.5](%),
00327> LGI=[295](m), MNI=[0.013], SCT=[0](min)
00328> IMPERVIOUS SURFACES: IALP=[2.0](mm), SLPI=[0.5](%),
00329> LGI=[295](m), MNI=[0.013], SCT=[0](min)
00330> RAINFALL=[ , , , ](mm/hr), END=-1
00331> %-----
00332> %-----Area 2105 (Natural Area Adj Hwy 26)-----
00333> %-----
00334> CALIB NASHYD ID=[5], NHYD=[2105], DT=[5](min), AREA=[5.0](ha),
00335> XIMP=[0.30], TIMP=[0.50], INP=[0.0](cms), LOSS=[2],
00336> SCS curve number CN=[55.0],
00337> Pervious surfaces: IAP=[5.00](mm), SLPP=[2.0](%),
00338> LGP=[35](m), MNP=[0.15], SCP=[0](min),
00339> IALP=[2.0](mm), SLPI=[0.5](%),
00340> LGI=[295](m), MNI=[0.013], SCT=[0](min)
00341> IMPERVIOUS SURFACES: IALP=[2.0](mm), SLPI=[0.5](%),
00342> LGI=[295](m), MNI=[0.013], SCT=[0](min)
00343> RAINFALL=[ , , , ](mm/hr), END=-1
00344> %-----
00345> %-----Post Development Uncontrolled Flow to Silver Creek-----
00346> %-----
00347> ADD HYD IDnum=[6], NHYD=[UC-West], IAs to add=[1+2]
00348> %-----
00349> SAVE HYD ID=[6], # OF PCYCLES=[1], ICASH=[1]
00350> %-----
00351> %-----Post Development Uncontrolled Flow to Northeast Outlet-----
00352> %-----
00353> ADD HYD IDnum=[7], NHYD=[UC-East], IAs to add=[3+4+5]
00354> %-----
00355> SAVE HYD ID=[7], # OF PCYCLES=[1], ICASH=[1]
00356> %-----
00357> %-----HYD COMMENT=[UC-East]-----
00358> %-----
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00271> 001:0033> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00272> CALIB STANDHYD 01:2101 10.60 1.223 No_date 12:14 16.09 .533
00273> [XIMP:30:TMP:50]
00274> [LOSS:2:CN:55.0]
00275> [Previous area: IApex: 5.00:SLPP:2.00:IGP: 35:MMN:150:SCP: .0]
00276> [Impervious area: IAlmp: 2.00:SLPI: .50:IGI: 295:MMN:013:SCI: .0]
00277> -----Area 2102 (Silver Creek Buffer)-----
00278> 001:0034> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00279> CALIB NASHYD 02:2102 9.80 1.154 No_date 13:12 20.80 .241
00280> [CN: 52.8: N: 3.00]
00281> [TP: 1.02:DT: 6.00]
00282> -----Area 2103 (East Developed Area)-----
00283> 001:0035> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00284> CALIB STANDHYD 03:2103 13.10 1.919 No_date 12:14 56.71 .696
00285> [XIMP:40:TMP:60]
00286> [LOSS:2:CN:63.5]
00287> [Previous area: IApex: 5.00:SLPP:2.00:IGP: 35:MMN:150:SCP: .0]
00288> [Impervious area: IAlmp: 2.00:SLPI: .50:IGI: 295:MMN:013:SCI: .0]
00289> -----Area 2104 (Central Natural Area)-----
00290> 001:0036> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00291> CALIB NASHYD 04:2104 13.00 2.267 No_date 13:06 25.29 .293
00292> [CN: 62.2: N: 3.00]
00293> [TP: .94:DT: 6.00]
00294> -----Area 2105 (Natural Area Adj HWY 26)-----
00295> 001:0037> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00296> CALIB NASHYD 05:2105 5.00 1.103 No_date 12:54 21.31 .247
00297> [CN: 55.5: N: 3.00]
00298> [TP: .73:DT: 6.00]
00299> -----Post Development Uncontrolled Flow to Silver Creek-----
00300> 001:0038> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00301> ADD HYD 01:2101 10.60 1.223 No_date 12:14 16.09 n/a
00302> 02:2102 9.80 1.154 No_date 13:12 20.80 n/a
00303> [DT: 1.00] SUM: 06:UC-Was 20.40 1.269 No_date 12:14 33.94 n/a
00304> 001:0039> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00305> SAVE HYD 06:UC-Was 20.40 1.269 No_date 12:14 33.94 n/a
00306> [Name: C:\HYMOL\281HYM-1\UCVH-UC-Was.001]
00307> remark:UC-West
00308> -----Post Development Uncontrolled Flow to Northeast Outlet-----
00309> 001:0040> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00310> ADD HYD 03:2103 13.10 1.919 No_date 12:14 56.71 n/a
00311> 04:2104 13.00 2.267 No_date 13:06 25.29 n/a
00312> 05:2105 5.00 1.103 No_date 12:54 21.31 n/a
00313> [DT: 1.00] SUM: 07:UC-Eas 31.10 2.045 No_date 12:14 37.89 n/a
00314> 001:0041> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00315> SAVE HYD 07:UC-Eas 31.10 2.045 No_date 12:14 37.89 n/a
00316> [Name: C:\HYMOL\281HYM-1\UCVH-UC-Eas.001]
00317> remark:UC-East
00318> -----POST-DEVELOPMENT UNCONTROLLED - 50 YEAR Event-----
00319>
00320> Rainfall depths per MTD - Basins East of Collingswood
00321> SCS Rainfall Distribution
00322>
00323> 001:0042>
00324> MASS STORM
00325> Filename = C:\HYMOL\281HYM-1\UCVH\SCS24H1.MST
00326> Comment = 24 hour SCS II storm mass curve
00327> [SFT: 6.00:SKUR: 24.00:PTOT: 96.00]
00328> -----Area 2101 (East Developed Area)-----
00329> 001:0043> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00330> CALIB STANDHYD 01:2101 10.60 1.439 No_date 12:13 53.03 .552
00331> [XIMP:30:TMP:50]
00332> [LOSS:2:CN:55.0]
00333> [Previous area: IApex: 5.00:SLPP:2.00:IGP: 35:MMN:150:SCP: .0]
00334> [Impervious area: IAlmp: 2.00:SLPI: .50:IGI: 295:MMN:013:SCI: .0]
00335> -----Area 2102 (Silver Creek Buffer)-----
00336> 001:0044> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00337> CALIB NASHYD 02:2102 9.80 1.186 No_date 13:12 25.30 .264
00338> [CN: 52.8: N: 3.00]
00339> [TP: 1.02:DT: 6.00]
00340> -----Area 2103 (East Developed Area)-----
00341> 001:0045> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00342> CALIB STANDHYD 03:2103 13.10 2.213 No_date 12:14 64.72 .674
00343> [XIMP:40:TMP:60]
00344> [LOSS:2:CN:63.5]
00345> [Previous area: IApex: 5.00:SLPP:2.00:IGP: 35:MMN:150:SCP: .0]
00346> [Impervious area: IAlmp: 2.00:SLPI: .50:IGI: 295:MMN:013:SCI: .0]
00347> -----Area 2104 (Central Natural Area)-----
00348> 001:0046> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00349> CALIB NASHYD 04:2104 13.00 2.328 No_date 13:06 30.77 .321
00350> [CN: 62.2: N: 3.00]
00351> [TP: .94:DT: 6.00]
00352> -----Area 2105 (Natural Area Adj HWY 26)-----
00353> 001:0047> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00354> CALIB NASHYD 05:2105 5.00 1.127 No_date 12:54 26.04 .271
00355> [CN: 55.5: N: 3.00]
00356> [TP: .73:DT: 6.00]
00357> -----Post Development Uncontrolled Flow to Silver Creek-----
00358> 001:0048> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00359> ADD HYD 01:2101 10.60 1.439 No_date 12:13 53.03 n/a
00360> 02:2102 9.80 1.186 No_date 13:12 25.30 n/a
00361> [DT: 1.00] SUM: 06:UC-Was 20.40 1.496 No_date 12:14 39.71 n/a
00362> 001:0049> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00363> SAVE HYD 06:UC-Was 20.40 1.496 No_date 12:14 39.71 n/a
00364> [Name: C:\HYMOL\281HYM-1\UCVH-UC-Was.001]
00365> remark:UC-West
00366> -----Post Development Uncontrolled Flow to Northeast Outlet-----
00367> 001:0050> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00368> ADD HYD 03:2103 13.10 2.213 No_date 12:14 64.72 n/a
00369> 04:2104 13.00 2.328 No_date 13:06 30.77 n/a
00370> 05:2105 5.00 1.127 No_date 12:54 26.04 n/a
00371> [DT: 1.00] SUM: 07:UC-Eas 31.10 2.371 No_date 12:14 44.31 n/a
00372> 001:0051> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00373> SAVE HYD 07:UC-Eas 31.10 2.371 No_date 12:14 44.31 n/a
00374> [Name: C:\HYMOL\281HYM-1\UCVH-UC-Eas.001]
00375> remark:UC-East
00376> -----POST-DEVELOPMENT UNCONTROLLED - 100 YEAR Event-----
00377>
00378> Rainfall depths per MTD - Basins East of Collingswood
00379> SCS Rainfall Distribution
00380>
00381> 001:0052>
00382> MASS STORM
00383> Filename = C:\HYMOL\281HYM-1\UCVH\SCS24H1.MST
00384> Comment = 24 hour SCS II storm mass curve
00385> [SFT: 6.00:SKUR: 24.00:PTOT: 105.60]
00386> -----Area 2101 (East Developed Area)-----
00387> 001:0053> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00388> CALIB STANDHYD 01:2101 10.60 1.649 No_date 12:13 60.17 .570
00389> [XIMP:30:TMP:50]
00390> [LOSS:2:CN:55.0]
00391> [Previous area: IApex: 5.00:SLPP:2.00:IGP: 35:MMN:150:SCP: .0]
00392> [Impervious area: IAlmp: 2.00:SLPI: .50:IGI: 295:MMN:013:SCI: .0]
00393> -----Area 2102 (Silver Creek Buffer)-----
00394> 001:0054> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00395> CALIB NASHYD 02:2102 9.80 1.325 No_date 13:12 30.11 .285
00396> [CN: 52.8: N: 3.00]
00397> [TP: 1.02:DT: 6.00]
00398> -----Area 2103 (East Developed Area)-----
00399> 001:0055> ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00400> CALIB STANDHYD 03:2103 13.10 2.547 No_date 12:14 72.88 .690
00401> [XIMP:40:TMP:60]
00402> [LOSS:2:CN:63.5]
00403> [Previous area: IApex: 5.00:SLPP:2.00:IGP: 35:MMN:150:SCP: .0]

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00003> SSSSS W W M M H H Y Y M M OOO 999 999 =====
00004> SSSSS W W M M M M H H Y Y M M M O O 9 9 9 9
00005> SSSSS W W M M M M H H H H Y Y M M M O O ## 9 9 9 9 Ver. 4.02
00006> S W W M M H H Y Y M M O 9999 9999 July 1999
00007> SSSSS W W M M H H Y Y M M OOO 9 9 9 9
00008> StormWater Management Hydrologic Model 999 999 =====
00009>
00010>
00011> ***** SWHYMO-99 Ver/4.02 *****
00012> ***** A single event and continuous hydrologic simulation model *****
00013> ***** based on the principles of HYMO and its successors *****
00014> ***** OTHYMO-83 and OTHYMO-89 *****
00015> *****
00016> ***** Distributed by: J.F. Sabourin and Associates Inc. *****
00017> ***** Ottawa, Ontario: (613) 727-5199 *****
00018> ***** Gatineau, Quebec: (819) 243-6858 *****
00019> ***** E-Mail: swmhyo@jfsa.com *****
00020>
00021>
00022>
00023> ***** Licensed user: C.F. Crozier & Associates Inc. *****
00024> ***** Collingwood SERIAL#:3737016 *****
00025>
00026>
00027>
00028> ***** PROGRAM ARRAY DIMENSIONS *****
00029> ***** Maximum value for ID numbers : 10 *****
00030> ***** Max. number of rainfall points : 15000 *****
00031> ***** Max. number of flow points : 15000 *****
00032>
00033>
00034>
00035> ***** DESCRIPTION SUMMARY TABLE HEADERS (units depend on METOUT in START) *****
00036>
00037> ***** ID: Hydrograph Identification numbers, (1-10). *****
00038> ***** NHYD: Hydrograph reference numbers, (6 digits or characters). *****
00039> ***** AREA: Drainage area associated with hydrograph, (ac.) or (ha.). *****
00040> ***** QPEAK: Peak flow of simulated hydrograph, (ft3/s) or (m3/s). *****
00041> ***** TpeakDate_hh:mm is the date and time of the peak flow. *****
00042> ***** R.V.: Runoff Volume of simulated hydrograph, (in) or (mm). *****
00043> ***** R.C.: Runoff Coefficient of simulated hydrograph, (ratio). *****
00044> ***** : see WARNING or NOTE message printed at end of run. *****
00045> ***** : see ERROR message printed at end of run. *****
00046>
00047>
00048>
00049>
00050>
00051>
00052>
00053> ***** SUMMARY OUTPUT *****
00054>
00055> ***** DATE: 2011-01-26 TIME: 10:33:17 RUN COUNTER: 000682 *****
00056>
00057> ***** Input filename: C:\HYMO\281HYM-1\UC\25mm_CHI.dat *****
00058> ***** Output filename: C:\HYMO\281HYM-1\UC\25mm_CHI.out *****
00059> ***** Summary filename: C:\HYMO\281HYM-1\UC\25mm_CHI.sum *****
00060> ***** User comments: *****
00061> ***** 1: *****
00062> ***** 2: *****
00063> ***** 3: *****
00064>
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00067>
00068> *****
00069> ***** Project Name: [Huntingwood Trail] Project Number: [281-2769] *****
00070> ***** Date : 05-13-2009 *****
00071> ***** Updated : 01-17-2011 *****
00072> ***** Modeller : [J.Proctor] *****
00073> ***** Company : C.F. Crozier & Associates Inc. *****
00074> ***** License # : 3737016 *****
00075> *****
00076> ***** RUN:COMMAND *****
00077> *****
00078> ***** START *****
00079> ***** [TZERO = .00 hrs on 0] *****
00080> ***** [METOUT= 2 (1=imperial, 2=metric output)] *****
00081> ***** [NFORM= 0] *****
00082> ***** [NRUN = 1] *****
00083> *****
00084> ***** POST-DEVELOPMENT UNCONTROLLED - 25mm Event *****
00085> *****
00086> ***** Rainfall depths per WFO - Basins East of Collingwood *****
00087> ***** 24 hour Kifer Chu Chicago Rainfall Distribution *****
00088> *****
00089> ***** 001:0002 *****
00090> ***** CHICAGO STORM *****
00091> ***** [SDT=15.00:SDUR= 4.00:PTOT= 24.95] *****
00092> ***** [A/B/C= 568.700/ 6.662/ .819] *****
00093> *****
00094> ***** 001:0003 *****
00095> ***** ID: NHYD ***** AREA ***** QPEAK-TpeakDate_hh:mm ***** R.V.-R.C. *****
00096> ***** CALIB STANDHYD 01:2101 10.60 .340 No_date 1:17 8.77 .351 *****
00097> ***** [XIMP=.30:TIMP=.50] *****
00098> ***** [LOSS= 2 :CN= 55.0] *****
00099> ***** [Pervious area: IAPER= 5.00:SLPP= 2.00:LGP= 35.:MNP=.150:SCP= .0] *****
00100> ***** [Imperious area: IAIMP= 2.00:SLPI= .50:LGI= 265.:MNI=.013:SCI= .0] *****
00101> ***** 001:0004 *****
00102> ***** ID: NHYD ***** AREA ***** QPEAK-TpeakDate_hh:mm ***** R.V.-R.C. *****
00103> ***** CALIB NASHYD 02:2102 9.80 .013 No_date 2:40 1.39 .056 *****
00104> ***** [CN= 52.8: N= 3.00] *****
00105> ***** [Tp= 1.02:DT= 5.00] *****
00106> *****
00107> ***** 001:0005 *****
00108> ***** ID: NHYD ***** AREA ***** QPEAK-TpeakDate_hh:mm ***** R.V.-R.C. *****
00109> ***** CALIB STANDHYD 03:2103 13.10 .555 No_date 1:18 11.54 .462 *****
00110> ***** [XIMP=.40:TIMP=.60] *****
00111> ***** [LOSS= 2 :CN= 63.5] *****
00112> ***** [Pervious area: IAPER= 5.00:SLPP= 2.00:LGP= 35.:MNP=.150:SCP= .0] *****
00113> ***** [Imperious area: IAIMP= 2.00:SLPI= .50:LGI= 295.:MNI=.013:SCI= .0] *****
00114> ***** 001:0006 *****
00115> ***** ID: NHYD ***** AREA ***** QPEAK-TpeakDate_hh:mm ***** R.V.-R.C. *****
00116> ***** CALIB NASHYD 04:2104 13.00 .017 No_date 2:45 1.32 .053 *****
00117> ***** [CN= 62.2: N= 3.00] *****
00118> ***** [Tp= .94:DT= 5.00] *****
00119> *****
00120> ***** 001:0007 *****
00121> ***** ID: NHYD ***** AREA ***** QPEAK-TpeakDate_hh:mm ***** R.V.-R.C. *****
00122> ***** CALIB NASHYD 05:2105 5.00 .007 No_date 2:25 1.16 .046 *****
00123> ***** [CN= 55.5: N= 3.00] *****
00124> ***** [Tp= .73:DT= 5.00] *****
00125> *****
00126> ***** 001:0008 *****
00127> ***** ID: NHYD ***** AREA ***** QPEAK-TpeakDate_hh:mm ***** R.V.-R.C. *****
00128> ***** ADD HYD 01:2101 10.60 .340 No_date 1:17 8.77 n/a *****
00129> ***** [DT= 1.00] SUM= 02:2102 9.80 .013 No_date 2:40 1.39 n/a *****
00130> ***** 001:0009 *****
00131> ***** ID: NHYD ***** AREA ***** QPEAK-TpeakDate_hh:mm ***** R.V.-R.C. *****
00132> ***** SAVE HYD 06:UC-Wes 20.40 .341 No_date 1:17 5.22 n/a *****
00133> ***** fname :C:\HYMO\281HYM-1\UC\H-UC-Eas.001 *****
00134> ***** remark:UC-West *****
00135> *****
00136> ***** 001:0010 *****
00137> ***** ID: NHYD ***** AREA ***** QPEAK-TpeakDate_hh:mm ***** R.V.-R.C. *****
00138> ***** ADD HYD 03:2103 13.10 .555 No_date 1:18 11.54 n/a *****
00139> ***** + 04:2104 13.00 .017 No_date 2:45 1.32 n/a *****
00140> ***** + 05:2105 5.00 .007 No_date 2:25 1.16 n/a *****
00141> ***** [DT= 1.00] SUM= 07:UC-Eas 31.10 .556 No_date 1:18 5.60 n/a *****

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00136> 001:0011-----ID:NHYD-----AREA-----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00137> SAVE HYD 07:UC-Eas 31.10 .556 No_date 1:18 5.60 n/a
00138> fname :C:\HYMO\281HYM-1\UC\H-UC-Eas.001
00139> remark:UC-East
00140> 001:0012-----
00141> FINISH
00142>
00143>
00144>
00145>
00146>
00147>
00148>
00149>

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Extended Detention

2101

$$Vol = 10.6 \times 8.77 \times 10 = 930m^3$$

2103

$$13.1 \times 11.54 \times 10 = 1510m^3$$

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00271> [Pervious area: Iapex= 5.00:SLPP=2.00:IGP= 35:MNP=150:SCP=.01
00272> [Impervious area: Ialpx= 2.00:SLPI=.50:IGI= 265:MNI=.013:SCI=.01
00273> [Area 2102 (Silver Creek Buffer)-----R.V.-R.C.
00274> 001:0034 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00275> CALIB NASHVD 02:2102 9.80 .122 No_date 2:45 11.79 .183
00276> [CN= 52.8: N= 3.00]
00277> [Tpe= 1.02:DT= 5.00]
00278> -----Area 2103 (East Developed Area)-----R.V.-R.C.
00279> 001:0035 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00280> CALIB STANDHYD 03:2103 13.10 2.073 No_date 1:24 39.15 .007
00281> [XIMP=.40:TIMP=.60]
00282> [LOSS= 2 :CN= 63.5]
00283> [Pervious area: Iapex= 5.00:SLPP=2.00:IGP= 35:MNP=150:SCP=.01
00284> [Impervious area: Ialpx= 2.00:SLPI=.50:IGI= 265:MNI=.013:SCI=.01
00285> [Area 2104 (Central Natural Area)-----R.V.-R.C.
00286> 001:0036 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00287> CALIB NASHVD 04:2104 13.00 .205 No_date 2:40 14.21 .220
00288> [CN= 62.2: N= 3.00]
00289> [Tpe= .94:DT= 5.00]
00290> -----Area 2105 (Natural Area Adj HWY 26)-----R.V.-R.C.
00291> 001:0037 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00292> CALIB NASHVD 05:2105 9.00 .078 No_date 2:20 11.88 .184
00293> [CN= 55.5: N= 3.00]
00294> [Tpe= .73:DT= 5.00]
00295> -----Post Development Uncontrolled Flow to Silver Creek-----R.V.-R.C.
00296> 001:0038 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00297> ADD HYD 01:2101 10.60 1.285 No_date 1:24 31.15 n/a
00298> [DT= 1.00] SUM= 02:2102 9.80 .122 No_date 2:45 11.79 n/a
00299> 06:UC-Wes 20.40 1.291 No_date 1:24 31.85 n/a
00300> 001:0039 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00301> SAVE HYD 06:UC-Wes 20.40 1.291 No_date 1:24 31.85 n/a
00302> [name=C:\HYM\261HYM-1\UCM-UC-Wes.001]
00303> remark:UC-West
00304> -----Post Development Uncontrolled Flow to Northeast Outlot-----R.V.-R.C.
00305> 001:0040 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00306> ADD HYD 03:2103 13.10 2.073 No_date 1:24 39.15 n/a
00307> [DT= 1.00] SUM= 04:2104 13.00 .205 No_date 2:40 14.21 n/a
00308> 05:2105 9.00 .078 No_date 2:20 11.88 n/a
00309> 07:UC-Eas 31.10 2.088 No_date 1:24 24.34 n/a
00310> 001:0041 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00311> SAVE HYD 07:UC-Eas 31.10 2.088 No_date 1:24 24.34 n/a
00312> [name=C:\HYM\261HYM-1\UCM-UC-Eas.001]
00313> remark:UC-East
00314> -----POST-DEVELOPMENT UNCONTROLLED - 50 YEAR Event-----R.V.-R.C.
00315> Rainfall Depths per MTD - Basins East of Collingwood
00316> Chicago Rainfall Distribution
00317> CHICAGO STORM
00318> [SDP= 5.00:SDUR= 4.00:PTOT= 71.55]
00319> [A/B/C=1924.754/ 10.500/ .847: R=.9998]
00320> -----Area 2101 (West Developed Area)-----R.V.-R.C.
00321> 001:0042 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00322> CALIB STANDHYD 01:2101 10.60 1.498 No_date 1:23 35.81 .501
00323> [XIMP=.30:TIMP=.50]
00324> [LOSS= 2 :CN= 55.0]
00325> [Pervious area: Iapex= 5.00:SLPP=2.00:IGP= 35:MNP=150:SCP=.01
00326> [Impervious area: Ialpx= 2.00:SLPI=.50:IGI= 265:MNI=.013:SCI=.01
00327> [Area 2102 (Silver Creek Buffer)-----R.V.-R.C.
00328> 001:0043 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00329> CALIB NASHVD 02:2102 9.80 .151 No_date 2:40 14.49 .202
00330> [CN= 52.8: N= 3.00]
00331> [Tpe= 1.02:DT= 5.00]
00332> -----Area 2103 (East Developed Area)-----R.V.-R.C.
00333> 001:0044 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00334> CALIB STANDHYD 03:2103 13.10 2.441 No_date 1:24 44.69 .635
00335> [XIMP=.40:TIMP=.60]
00336> [LOSS= 2 :CN= 63.5]
00337> [Pervious area: Iapex= 5.00:SLPP=2.00:IGP= 35:MNP=150:SCP=.01
00338> [Impervious area: Ialpx= 2.00:SLPI=.50:IGI= 265:MNI=.013:SCI=.01
00339> [Area 2104 (Central Natural Area)-----R.V.-R.C.
00340> 001:0045 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00341> CALIB NASHVD 04:2104 13.00 .256 No_date 2:35 17.55 .245
00342> [CN= 62.2: N= 3.00]
00343> [Tpe= .94:DT= 5.00]
00344> -----Area 2105 (Natural Area Adj HWY 26)-----R.V.-R.C.
00345> 001:0046 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00346> CALIB NASHVD 05:2105 9.00 .098 No_date 2:20 14.70 .205
00347> [CN= 55.5: N= 3.00]
00348> [Tpe= .73:DT= 5.00]
00349> -----Post Development Uncontrolled Flow to Silver Creek-----R.V.-R.C.
00350> 001:0047 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00351> ADD HYD 01:2101 10.60 1.498 No_date 1:23 35.81 n/a
00352> [DT= 1.00] SUM= 02:2102 9.80 .151 No_date 2:40 14.49 n/a
00353> 06:UC-Wes 20.40 1.505 No_date 1:23 25.57 n/a
00354> 001:0048 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00355> SAVE HYD 06:UC-Wes 20.40 1.505 No_date 1:23 25.57 n/a
00356> [name=C:\HYM\261HYM-1\UCM-UC-Wes.001]
00357> remark:UC-West
00358> -----Post Development Uncontrolled Flow to Northeast Outlot-----R.V.-R.C.
00359> 001:0049 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00360> ADD HYD 03:2103 13.10 2.441 No_date 1:24 44.69 n/a
00361> [DT= 1.00] SUM= 04:2104 13.00 .256 No_date 2:35 17.55 n/a
00362> 05:2105 9.00 .098 No_date 2:20 14.70 n/a
00363> 07:UC-Eas 31.10 2.461 No_date 1:24 28.53 n/a
00364> 001:0050 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00365> SAVE HYD 07:UC-Eas 31.10 2.461 No_date 1:24 28.52 n/a
00366> [name=C:\HYM\261HYM-1\UCM-UC-Eas.001]
00367> remark:UC-East
00368> -----POST-DEVELOPMENT UNCONTROLLED - 100 YEAR Event-----R.V.-R.C.
00369> Rainfall Depths per MTD - Basins East of Collingwood
00370> Chicago Rainfall Distribution
00371> CHICAGO STORM
00372> [SDP= 5.00:SDUR= 4.00:PTOT= 79.80]
00373> [A/B/C=2088.320/ 10.500/ .842: R=.9996]
00374> -----Area 2101 (West Developed Area)-----R.V.-R.C.
00375> 001:0051 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00376> CALIB STANDHYD 01:2101 10.60 1.712 No_date 1:23 41.45 .519
00377> [XIMP=.30:TIMP=.50]
00378> [LOSS= 2 :CN= 55.0]
00379> [Pervious area: Iapex= 5.00:SLPP=2.00:IGP= 35:MNP=150:SCP=.01
00380> [Impervious area: Ialpx= 2.00:SLPI=.50:IGI= 265:MNI=.013:SCI=.01
00381> [Area 2102 (Silver Creek Buffer)-----R.V.-R.C.
00382> 001:0052 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00383> CALIB NASHVD 02:2102 9.80 .186 No_date 2:40 17.89 .224
00384> [CN= 52.8: N= 3.00]
00385> [Tpe= 1.02:DT= 5.00]
00386> -----Area 2103 (East Developed Area)-----R.V.-R.C.
00387> 001:0053 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00388> CALIB STANDHYD 03:2103 13.10 2.801 No_date 1:23 51.31 .643
00389> [XIMP=.40:TIMP=.60]
00390> [LOSS= 2 :CN= 63.5]
00391> [Pervious area: Iapex= 5.00:SLPP=2.00:IGP= 35:MNP=150:SCP=.01
00392> [Impervious area: Ialpx= 2.00:SLPI=.50:IGI= 265:MNI=.013:SCI=.01
00393> [Area 2104 (Central Natural Area)-----R.V.-R.C.
00394> 001:0054 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00395> CALIB NASHVD 04:2104 13.00 .318 No_date 2:35 21.74 .272
00396> [CN= 62.2: N= 3.00]
00397> [Tpe= .94:DT= 5.00]

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00406> -----Area 2105 (Natural Area Adj HWY 26)-----R.V.-R.C.
00407> 001:0057 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00408> CALIB NASHVD 05:2105 9.00 .122 No_date 2:20 18.27 .229
00409> [CN= 55.5: N= 3.00]
00410> [Tpe= .73:DT= 5.00]
00411> -----Post Development Uncontrolled Flow to Silver Creek-----R.V.-R.C.
00412> 001:0058 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00413> ADD HYD 01:2101 10.60 1.712 No_date 1:23 41.45 n/a
00414> [DT= 1.00] SUM= 02:2102 9.80 .186 No_date 2:40 17.89 n/a
00415> 06:UC-Wes 20.40 1.721 No_date 1:23 30.13 n/a
00416> 001:0059 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00417> SAVE HYD 06:UC-Wes 20.40 1.721 No_date 1:23 30.13 n/a
00418> [name=C:\HYM\261HYM-1\UCM-UC-Wes.001]
00419> remark:UC-West
00420> -----Post Development Uncontrolled Flow to Northeast Outlot-----R.V.-R.C.
00421> 001:0060 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00422> ADD HYD 03:2103 13.10 2.801 No_date 1:23 51.31 n/a
00423> [DT= 1.00] SUM= 04:2104 13.00 .318 No_date 2:35 21.74 n/a
00424> 05:2105 9.00 .122 No_date 2:20 18.27 n/a
00425> 07:UC-Eas 31.10 2.824 No_date 1:23 33.64 n/a
00426> 001:0061 ID:MHYD AREA QPEAK-TpeakDate_hh:mm--R.V.-R.C.
00427> SAVE HYD 07:UC-Eas 31.10 2.824 No_date 1:23 33.64 n/a
00428> [name=C:\HYM\261HYM-1\UCM-UC-Eas.001]
00429> remark:UC-East
00430> 001:0062 FINISH
00431>
00432>
00433>
00434>
00435>
00436> simulation ended on 2011-01-26 at 10:33:29
00437>
00438>
00439>

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00001> 2      Metric units
00002> * Project Name: [Huntingwood Trails] Project Number: [281-2769]
00004> * Date      : 06-04-2009
00005> * Updated    : 01-17-2011
00006> * Modeler    : [J.Proctor]
00007> * Company  : C.F. Crozier & Associates Inc.
00008> * License # : 3737016
00009>
00010> START      TNRD=0.01, MNTOUT=21, NSTORM=01, NRUN=01
00011> *           [ ] <- storm filename, one per line for NSTORM time
00012> *
00013> *
00014> * POST-DEVELOPMENT CONTROLLED - 2 YEAR Event
00015> *
00016> *
00017> * Rainfall Depths per MTO - Basins East of Collingwood
00018> * SCS Rainfall Distribution
00019> *
00020> *
00021> *
00022> MASS STORM      PTOTAL=64.81 (mm), CSPT=5 (min),
00023> CURVE_FILENAME= [SCS24H1.MST]
00024> *
00025> * Area 2101 (East Developed Area)
00026> *
00027> CALIB STANHYD   ID=11, NHYD=[2101], DT=11 (min), AREA=13.1 (ha),
00028> XIMP=[0.30], TIMP=[0.50], DWF=[0.0] (cm), LOSS=[2],
00029> SCS curve number CN=[55.0],
00030> Pervious surfaces: IAPer=[5.00] (mm), SLPP=[2.0] (%),
00031> LGP=[35] (m), MNP=[0.15], SCP=[0] (min),
00032> Impervious surfaces: IAIMp=[2.0] (mm), SLPI=[0.5] (%),
00033> LGI=[295] (m), MNI=[0.013], SCI=[0] (min)
00034> RAINFALL=[ , , , ] (mm/hr), RND=1
00035> *
00036> * Area 2102 (Silver Creek Buffer)
00037> *
00038> CALIB NASHYD    ID=21, NHYD=[2102], DT=[5] (min), AREA=[9.8] (ha),
00039> DWF=[0] (cm), CN/C=[52.8], IA=[6.50] (mm),
00040> N=[3], TP=[1.02] hrs,
00041> RAINFALL=[ , , , ] (mm/hr), RND=1
00042> *
00043> * Area 2103 (East Developed Area)
00044> *
00045> CALIB STANHYD   ID=31, NHYD=[2103], DT=[1] (min), AREA=[13.1] (ha),
00046> XIMP=[0.40], TIMP=[0.60], DWF=[0.0] (cm), LOSS=[2],
00047> SCS curve number CN=[63.5],
00048> Pervious surfaces: IAPer=[5.00] (mm), SLPP=[2.0] (%),
00049> LGP=[35] (m), MNP=[0.15], SCP=[0] (min),
00050> Impervious surfaces: IAIMp=[2.0] (mm), SLPI=[0.5] (%),
00051> LGI=[295] (m), MNI=[0.013], SCI=[0] (min)
00052> RAINFALL=[ , , , ] (mm/hr), RND=1
00053> *
00054> * Area 2104 (Central Natural Area)
00055> *
00056> CALIB NASHYD    ID=41, NHYD=[2104], DT=[5] (min), AREA=[13.0] (ha),
00057> DWF=[0] (cm), CN/C=[62.2], IA=[10.0] (mm),
00058> N=[3], TP=[0.94] hrs,
00059> RAINFALL=[ , , , ] (mm/hr), RND=1
00060> *
00061> * Area 2105 (Natural Area Adj Hwy 26)
00062> *
00063> CALIB NASHYD    ID=51, NHYD=[2105], DT=[5] (min), AREA=[13.0] (ha),
00064> DWF=[0] (cm), CN/C=[55.5], IA=[9.00] (mm),
00065> N=[3], TP=[0.73] hrs,
00066> RAINFALL=[ , , , ] (mm/hr), RND=1
00067> *
00068> * Route West Pond
00069> *
00070> ROUTE RESERVOIR IDout=[6], NHYD=[W.Pond], IDin=[1],
00071> RDT=[1] (min),
00072>
00073> TABLE of ( OUTFLOW-STORAGE ) values
00074> (cm) - (ha-n)
00075> [ 0.0, 0.0 ]
00076> [ 0.018, 0.081 ]
00077> [ 0.025, 0.143 ]
00078> [ 0.030, 0.213 ]
00079> [ 0.034, 0.289 ]
00080> [ 0.038, 0.372 ]
00081> [ 0.042, 0.462 ]
00082> [ 0.463, 0.559 ]
00083> [ 0.566, 0.718 ]
00084> [ -1, -1 ] (max twenty pts)
00085> IDout=[7], NHYDout=[W.Spill]
00086> *
00087> * Route East Pond
00088> *
00089> ROUTE RESERVOIR IDout=[8], NHYD=[E.Pond], IDin=[3],
00090> RDT=[1] (min),
00091>
00092> TABLE of ( OUTFLOW-STORAGE ) values
00093> (cm) - (ha-n)
00094> [ 0.0, 0.0 ]
00095> [ 0.017, 0.154 ]
00096> [ 0.046, 0.293 ]
00097> [ 0.090, 0.441 ]
00098> [ 0.145, 0.599 ]
00099> [ 0.197, 0.632 ]
00100> [ 0.767, 0.767 ]
00101> [ 2.238, 0.909 ]
00102> [ 6.297, 1.131 ]
00103> [ -1, -1 ] (max twenty pts)
00104> IDout=[9], NHYDout=[W.Spill]
00105> *
00106> * Post Development Controlled Flow to Silver Creek
00107> *
00108> ADD HYD          IDout=[1], NHYD=[West], IDin=[2+6+7]
00109> *
00110> SAVE HYD         ID=[1], # OF PCYCLES=[1], ICASRsh=[1]
00111> HYD_COMMENT=[West]
00112> *
00113> * Post Development Controlled Flow to East
00114> *
00115> ADD HYD          IDout=[2], NHYD=[East], IDin=[4+5+8+9]
00116> *
00117> SAVE HYD         ID=[2], # OF PCYCLES=[1], ICASRsh=[1]
00118> HYD_COMMENT=[East]
00119> *
00120> * POST-DEVELOPMENT CONTROLLED - 5 YEAR Event
00121> *
00122> * Rainfall Depths per MTO - Basins East of Collingwood
00123> * SCS Rainfall Distribution
00124> *
00125> *
00126> MASS STORM      PTOTAL=64.81 (mm), CSPT=5 (min),
00127> CURVE_FILENAME= [SCS24H1.MST]
00128> *
00129> * Area 2101 (East Developed Area)
00130> *
00131> CALIB STANHYD   ID=11, NHYD=[2101], DT=11 (min), AREA=13.0 (ha),
00132> XIMP=[0.30], TIMP=[0.50], DWF=[0.0] (cm), LOSS=[2],
00133> SCS curve number CN=[55.0],
00134> Pervious surfaces: IAPer=[5.00] (mm), SLPP=[2.0] (%),
00135> LGP=[35] (m), MNP=[0.15], SCP=[0] (min),
00136> Impervious surfaces: IAIMp=[2.0] (mm), SLPI=[0.5] (%),
00137> LGI=[295] (m), MNI=[0.013], SCI=[0] (min)
00138> RAINFALL=[ , , , ] (mm/hr), RND=1
00139> *
00140> * Area 2102 (Silver Creek Buffer)
00141> *
00142> CALIB NASHYD    ID=21, NHYD=[2102], DT=[5] (min), AREA=[9.8] (ha),
00143> DWF=[0] (cm), CN/C=[52.8], IA=[6.50] (mm),
00144> N=[3], TP=[1.02] hrs,
00145> RAINFALL=[ , , , ] (mm/hr), RND=1
00146> *
00147> * Area 2103 (East Developed Area)
00148> *
00149> CALIB STANHYD   ID=31, NHYD=[2103], DT=[1] (min), AREA=[13.1] (ha),
00150> XIMP=[0.40], TIMP=[0.60], DWF=[0.0] (cm), LOSS=[2],
00151> SCS curve number CN=[63.5],
00152> Pervious surfaces: IAPer=[5.00] (mm), SLPP=[2.0] (%),
00153> LGP=[35] (m), MNP=[0.15], SCP=[0] (min),
00154> Impervious surfaces: IAIMp=[2.0] (mm), SLPI=[0.5] (%),
00155> LGI=[295] (m), MNI=[0.013], SCI=[0] (min)
00156> RAINFALL=[ , , , ] (mm/hr), RND=1
00157> *
00158> * Area 2104 (Central Natural Area)
00159> *
00160> CALIB NASHYD    ID=41, NHYD=[2104], DT=[5] (min), AREA=[13.0] (ha),
00161> DWF=[0] (cm), CN/C=[62.2], IA=[10.0] (mm),
00162> N=[3], TP=[0.94] hrs,
00163> RAINFALL=[ , , , ] (mm/hr), RND=1
00164> *
00165> * Area 2105 (Natural Area Adj Hwy 26)
00166> *
00167> CALIB NASHYD    ID=51, NHYD=[2105], DT=[5] (min), AREA=[13.0] (ha),
00168> DWF=[0] (cm), CN/C=[55.5], IA=[9.00] (mm),
00169> N=[3], TP=[0.73] hrs,
00170> RAINFALL=[ , , , ] (mm/hr), RND=1
00171> *
00172> * Route West Pond
00173> *
00174> ROUTE RESERVOIR IDout=[6], NHYD=[W.Pond], IDin=[1],
00175> RDT=[1] (min),
00176>
00177> TABLE of ( OUTFLOW-STORAGE ) values
00178> (cm) - (ha-n)
00179> [ 0.0, 0.0 ]
00180> [ 0.018, 0.081 ]
00181> [ 0.025, 0.143 ]
00182> [ 0.030, 0.213 ]
00183> [ 0.034, 0.289 ]
00184> [ 0.038, 0.372 ]
00185> [ 0.042, 0.462 ]
00186> [ 0.463, 0.559 ]
00187> [ 0.566, 0.718 ]
00188> [ -1, -1 ] (max twenty pts)
00189> IDout=[7], NHYDout=[W.Spill]
00190> *
00191> * Route East Pond
00192> *
00193> ROUTE RESERVOIR IDout=[8], NHYD=[E.Pond], IDin=[3],
00194> RDT=[1] (min),
00195>
00196> TABLE of ( OUTFLOW-STORAGE ) values
00197> (cm) - (ha-n)
00198> [ 0.0, 0.0 ]
00199> [ 0.017, 0.154 ]
00200> [ 0.046, 0.293 ]
00201> [ 0.090, 0.441 ]
00202> [ 0.145, 0.599 ]
00203> [ 0.197, 0.632 ]
00204> [ 0.767, 0.767 ]
00205> [ 2.238, 0.909 ]
00206> [ 6.297, 1.131 ]
00207> [ -1, -1 ] (max twenty pts)
00208> IDout=[9], NHYDout=[W.Spill]
00209> *
00210> * Post Development Controlled Flow to Silver Creek
00211> *
00212> ADD HYD          IDout=[1], NHYD=[West], IDin=[2+6+7]
00213> *
00214> SAVE HYD         ID=[1], # OF PCYCLES=[1], ICASRsh=[1]
00215> HYD_COMMENT=[West]
00216> *
00217> * Post Development Controlled Flow to East
00218> *
00219> ADD HYD          IDout=[2], NHYD=[East], IDin=[4+5+8+9]
00220> *
00221> SAVE HYD         ID=[2], # OF PCYCLES=[1], ICASRsh=[1]
00222> HYD_COMMENT=[East]
00223> *
00224> * POST-DEVELOPMENT CONTROLLED - 10 YEAR Event
00225> *
00226> * Rainfall Depths per MTO - Basins East of Collingwood
00227> * SCS Rainfall Distribution
00228> *
00229> *
00230> MASS STORM      PTOTAL=74.4 (mm), CSPT=5 (min),
00231> CURVE_FILENAME= [SCS24H1.MST]
00232> *
00233> * Area 2101 (East Developed Area)
00234> *
00235> CALIB STANHYD   ID=11, NHYD=[2101], DT=11 (min), AREA=13.0 (ha),
00236> XIMP=[0.30], TIMP=[0.50], DWF=[0.0] (cm), LOSS=[2],
00237> SCS curve number CN=[55.0],
00238> Pervious surfaces: IAPer=[5.00] (mm), SLPP=[2.0] (%),
00239> LGP=[35] (m), MNP=[0.15], SCP=[0] (min),
00240> Impervious surfaces: IAIMp=[2.0] (mm), SLPI=[0.5] (%),
00241> LGI=[295] (m), MNI=[0.013], SCI=[0] (min)
00242> RAINFALL=[ , , , ] (mm/hr), RND=1
00243> *
00244> * Area 2102 (Silver Creek Buffer)
00245> *
00246> CALIB NASHYD    ID=21, NHYD=[2102], DT=[5] (min), AREA=[9.8] (ha),
00247> DWF=[0] (cm), CN/C=[52.8], IA=[6.50] (mm),
00248> N=[3], TP=[1.02] hrs,
00249> RAINFALL=[ , , , ] (mm/hr), RND=1
00250> *
00251> * Area 2103 (East Developed Area)
00252> *
00253> CALIB STANHYD   ID=31, NHYD=[2103], DT=[1] (min), AREA=[13.1] (ha),
00254> XIMP=[0.40], TIMP=[0.60], DWF=[0.0] (cm), LOSS=[2],
00255> SCS curve number CN=[63.5],
00256> Pervious surfaces: IAPer=[5.00] (mm), SLPP=[2.0] (%),
00257> LGP=[35] (m), MNP=[0.15], SCP=[0] (min),
00258> Impervious surfaces: IAIMp=[2.0] (mm), SLPI=[0.5] (%),
00259> LGI=[295] (m), MNI=[0.013], SCI=[0] (min)
00260> RAINFALL=[ , , , ] (mm/hr), RND=1
00261> *
00262> * Area 2104 (Central Natural Area)
00263> *
00264> CALIB NASHYD    ID=41, NHYD=[2104], DT=[5] (min), AREA=[13.0] (ha),
00265> DWF=[0] (cm), CN/C=[62.2], IA=[10.0] (mm),
00266> N=[3], TP=[0.94] hrs,
00267> RAINFALL=[ , , , ] (mm/hr), RND=1
00268> *
00269> * Area 2105 (Natural Area Adj Hwy 26)
00270> *
00271> CALIB NASHYD    ID=51, NHYD=[2105], DT=[5] (min), AREA=[13.0] (ha),
00272> DWF=[0] (cm), CN/C=[55.5], IA=[9.00] (mm),
00273> N=[3], TP=[0.73] hrs,
00274> RAINFALL=[ , , , ] (mm/hr), RND=1
00275> *

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004068 * 0.046, 0.293]
004069 * 0.090, 0.451]
004070 * 0.145, 0.599]
004071 * 0.157, 0.632]
004072 * 0.767, 0.767]
004073 * 2.238, 0.907]
004074 * 6.297, 1.131]
004075 * -1 -1 (max twenty plus)
004076 IDDev=[9], MYDev=[*R.Spill*]
004077 %
004078 ---Post Development Controlled Flow to Silver Creek---
004079 %
004080 IDDev=[1], MYDev=[*East*], IDs to add=[2+6+7]
004081 %
004082 SAVE HYD
004083 ID=[1], # OF PCYCLES=[1], ICASRes=[1]
004084 HYD_COMMENT=[*East*]
004085 %
004086 ---Post Development Controlled Flow to East---
004087 %
004088 IDDev=[2], MYDev=[*East*], IDs to add=[4+5+8+9]
004089 %
004090 ID=[2], # OF PCYCLES=[1], ICASRes=[1]
004091 HYD_COMMENT=[*East*]
004092 %
004093 POST-DEVELOPMENT CONTROLLED - 50 YEAR EVENT
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00541> *%-----[-----]
00542> MASS STORM PFORM=[100.0]mm, CCR=[0]mm,
00543> CHWV.FILENAME=[SCS24H1.MST]
00544> *%-----[-----]
00545> *%-----Area 2101 (Most Developed Area)-----[-----]
00546> *%-----[-----]
00547> CALIB STANDHYD ID=[1], NHYD=[2101], DT=[1]min, AREA=[10.0]ha,
00548> XIMP=[0.30], TIMP=[0.50], SGP=[0.0]cms, LOSS=[2],
00549> SCS curve number CN=[55.0],
00550> Pervious surfaces: IAP=[5.00]mm, SLP=[2.0]%,
00551> IGP=[10]mm, MNP=[0.15], SCP=[0]min,
00552> Impervious surfaces: IAP=[2.0]mm, SLP=[0.5]%,
00553> IGP=[20]mm, MNP=[0.01], SCP=[0]min
00554> RAINFALL=[ , , , ]mm/hr, END=1
00555> *%-----[-----]
00556> *%-----Area 2102 (Silver Creek Buffer)-----[-----]
00557> *%-----[-----]
00558> CALIB NASHYD ID=[2], NHYD=[2102], DT=[5]min, AREA=[9.8]ha,
00559> IIMP=[0]cms, CN/C=[52.8], IAP=[6.50]mm,
00560> N=[3], TP=[1.0]hrs,
00561> RAINFALL=[ , , , ]mm/hr, END=1
00562> *%-----[-----]
00563> *%-----Area 2103 (Most Developed Area)-----[-----]
00564> *%-----[-----]
00565> CALIB STANDHYD ID=[3], NHYD=[2103], DT=[1]min, AREA=[13.1]ha,
00566> XIMP=[0.40], TIMP=[0.60], SGP=[0.0]cms, LOSS=[2],
00567> SCS curve number CN=[63.0],
00568> Pervious surfaces: IAP=[5.00]mm, SLP=[2.0]%,
00569> IGP=[10]mm, MNP=[0.15], SCP=[0]min,
00570> Impervious surfaces: IAP=[2.0]mm, SLP=[0.5]%,
00571> IGP=[20]mm, MNP=[0.01], SCP=[0]min
00572> RAINFALL=[ , , , ]mm/hr, END=1
00573> *%-----[-----]
00574> *%-----Area 2104 (Central Natural Area)-----[-----]
00575> *%-----[-----]
00576> CALIB NASHYD ID=[4], NHYD=[2104], DT=[5]min, AREA=[13.0]ha,
00577> IIMP=[0]cms, CN/C=[62.3], IAP=[10.0]mm,
00578> N=[3], TP=[0.94]hrs,
00579> RAINFALL=[ , , , ]mm/hr, END=1
00580> *%-----[-----]
00581> *%-----Area 2105 (Natural Area Adj. to R. 26)-----[-----]
00582> *%-----[-----]
00583> CALIB NASHYD ID=[5], NHYD=[2105], DT=[5]min, AREA=[5.0]ha,
00584> IIMP=[0]cms, CN/C=[55.5], IAP=[9.00]mm,
00585> N=[3], TP=[0.7]hrs,
00586> RAINFALL=[ , , , ]mm/hr, END=1
00587> *%-----[-----]
00588> *%-----Route West Pond-----[-----]
00589> *%-----[-----]
00590> ROUTE RESERVOIR IDout=[6], NHYD=[W.Pond], IDin=[3],
00591> RDT=[1]min,
00592> TABLE of ( CUTFLOW-STORAGE ) values
00593> (cms) (ha-m)
00594> [ 0.0 , 0.0 ]
00595> [ 0.018 , 0.081 ]
00596> [ 0.025 , 0.143 ]
00597> [ 0.030 , 0.213 ]
00598> [ 0.034 , 0.289 ]
00599> [ 0.036 , 0.373 ]
00600> [ 0.042 , 0.462 ]
00601> [ 0.603 , 0.559 ]
00602> [ 3.086 , 0.718 ]
00603> [ -1 , -1 ] (max twenty pts)
00604> IDout=[7], NHYDout=[W.Spill]
00605> *%-----[-----]
00606> *%-----Route East Pond-----[-----]
00607> *%-----[-----]
00608> ROUTE RESERVOIR IDout=[8], NHYD=[E.Pond], IDin=[3],
00609> RDT=[1]min,
00610> TABLE of ( CUTFLOW-STORAGE ) values
00611> (cms) (ha-m)
00612> [ 0.0 , 0.0 ]
00613> [ 0.017 , 0.194 ]
00614> [ 0.046 , 0.293 ]
00615> [ 0.090 , 0.441 ]
00616> [ 0.145 , 0.599 ]
00617> [ 0.157 , 0.632 ]
00618> [ 0.767 , 0.767 ]
00619> [ 2.338 , 0.907 ]
00620> [ 6.297 , 1.131 ]
00621> [ -1 , -1 ] (max twenty pts)
00622> IDout=[9], NHYDout=[E.Spill]
00623> *%-----[-----]
00624> *%-----Post Development Controlled Flow to Silver Creek-----[-----]
00625> *%-----[-----]
00626> ADD HYD IDout=[1], NHYD=[West], IDin to add=[2+6+7]
00627> *%-----[-----]
00628> SAVE HYD ID=[1], # OF PCYCLES=[-1], ICASESH=[1]
00629> HYD_COMMENT=[West]
00630> *%-----[-----]
00631> *%-----Post Development Controlled Flow to East-----[-----]
00632> *%-----[-----]
00633> ADD HYD IDout=[2], NHYD=[East], IDin to add=[4+5+8+9]
00634> *%-----[-----]
00635> SAVE HYD ID=[2], # OF PCYCLES=[-1], ICASESH=[1]
00636> HYD_COMMENT=[East]
00637> *%-----[-----]
00638> FINISH
00639>
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00001> 2      Metric units
00002> *-----*
00003> * Project Name: [Drainage Tracts]      Project Number: [281-2769]
00004> * Date       : 06-04-2009
00005> * Modeler    : J. Proctor
00006> * Company    : C.F. Crozier & Associates Inc.
00007> * License # : 3737016
00008> *-----*
00009> START      TZERO=[0.0], MDTOUT=[2], NSTORM=[0], NRRN=[0]
00010> *          * [ 1 ] Storm filename, one per line for NSTORM time
00011> *-----*
00012> *-----*
00013> *-----*
00014> *-----*
00015> *-----*
00016> READ STORM  STORM_FILENAME=[C:\HYMO\281\HYMOPOST\1m.stm]
00017> *          *
00018> *-----*
00019> *-----*
00020> CALIB STANDHYD ID=[1], NHYD=[2101], DT=[1] (min), AREA=[10.6] (ha),
00021> *          * XIMP=[0.10], TIMP=[0.50], WRF=[0.0] (cm), LOSS=[2],
00022> *          * SCS curve number CN=[55.0],
00023> *          * Pervious surfaces: IAP=[5.00] (cm), SLPP=[2.0] (s),
00024> *          * LGP=[35] (m), MNP=[0.15], SCP=[0] (min),
00025> *          * ImperVIOUS surfaces: IAMP=[2.0] (cm), SLPI=[0.5] (s),
00026> *          * LGI=[250] (m), MNI=[0.013], SCI=[0] (min)
00027> *          * RAINFALL=[ , , , ] (mm/hr)      END=-1
00028> *-----*
00029> *-----*
00030> *-----*
00031> CALIB NASHYD ID=[2], NHYD=[2102], DT=[5] (min), AREA=[9.8] (ha),
00032> *          * WRF=[0] (cm), CN/C=[52.8], IA=[6.50] (mm),
00033> *          * N=[3], TP=[1.03] (hrs),
00034> *          * RAINFALL=[ , , , ] (mm/hr)      END=-1
00035> *-----*
00036> *-----*
00037> *-----*
00038> CALIB STANDHYD ID=[3], NHYD=[2103], DT=[1] (min), AREA=[13.1] (ha),
00039> *          * XIMP=[0.40], TIMP=[0.60], WRF=[0.0] (cm), LOSS=[2],
00040> *          * SCS curve number CN=[63.5],
00041> *          * Pervious surfaces: IAP=[5.00] (cm), SLPP=[2.0] (s),
00042> *          * LGP=[35] (m), MNP=[0.15], SCP=[0] (min),
00043> *          * ImperVIOUS surfaces: IAMP=[2.0] (cm), SLPI=[0.5] (s),
00044> *          * LGI=[295] (m), MNI=[0.013], SCI=[0] (min)
00045> *          * RAINFALL=[ , , , ] (mm/hr)      END=-1
00046> *-----*
00047> *-----*
00048> *-----*
00049> CALIB NASHYD ID=[4], NHYD=[2104], DT=[5] (min), AREA=[13.0] (ha),
00050> *          * WRF=[0] (cm), CN/C=[62.2], IA=[10.0] (mm),
00051> *          * N=[3], TP=[0.94] (hrs),
00052> *          * RAINFALL=[ , , , ] (mm/hr)      END=-1
00053> *-----*
00054> *-----*
00055> *-----*
00056> CALIB NASHYD ID=[5], NHYD=[2105], DT=[5] (min), AREA=[5.0] (ha),
00057> *          * WRF=[0] (cm), CN/C=[55.5], IA=[9.00] (mm),
00058> *          * N=[3], TP=[0.73] (hrs),
00059> *          * RAINFALL=[ , , , ] (mm/hr)      END=-1
00060> *-----*
00061> *-----*
00062> *-----*
00063> ROUTE RESERVOIR IDOUT=[6], NHYD=[2106], IDIN=[1],
00064> *          * MDT=[1] (min),
00065> *          * TABLE of ( OUTFLOW-STORAGE ) values
00066> *          * (cm) - (ha-m)
00067> *          * {
00068> *          *   { 0.0 , 0.0 }
00069> *          *   { 0.016 , 0.061 }
00070> *          *   { 0.025 , 0.143 }
00071> *          *   { 0.030 , 0.213 }
00072> *          *   { 0.034 , 0.289 }
00073> *          *   { 0.038 , 0.372 }
00074> *          *   { 0.042 , 0.462 }
00075> *          *   { 0.463 , 0.559 }
00076> *          *   { 3.086 , 0.718 }
00077> *          * [ 1 , 1 ] (max twenty pts)
00078> *          * IDOUT=[7], NHYDOV=[2107]
00079> *-----*
00080> *-----*
00081> ROUTE RESERVOIR IDOUT=[8], NHYD=[2108], IDIN=[3],
00082> *          * MDT=[1] (min),
00083> *          * TABLE of ( OUTFLOW-STORAGE ) values
00084> *          * (cm) - (ha-m)
00085> *          * {
00086> *          *   { 0.0 , 0.0 }
00087> *          *   { 0.017 , 0.154 }
00088> *          *   { 0.046 , 0.293 }
00089> *          *   { 0.090 , 0.441 }
00090> *          *   { 0.145 , 0.599 }
00091> *          *   { 0.157 , 0.632 }
00092> *          *   { 0.767 , 0.767 }
00093> *          *   { 2.238 , 0.907 }
00094> *          *   { 6.297 , 1.131 }
00095> *          * [ 1 , 1 ] (max twenty pts)
00096> *          * IDOUT=[9], NHYDOV=[2109]
00097> *-----*
00098> *-----*
00099> ADD HYD IDOUT=[1], NHYD=[2110], IDIN=[2], IDIN=[2-6-7]
00100> *-----*
00101> SAVE HYD ID=[1], # OF CYCLES=[-1], ICASESH=[1]
00102> *          * HYD_COMMENT=[2110]
00103> *-----*
00104> *-----*
00105> *-----*
00106> ADD HYD IDOUT=[2], NHYD=[2111], IDIN=[4], IDIN=[4-5-8-9]
00107> *-----*
00108> SAVE HYD ID=[2], # OF CYCLES=[-1], ICASESH=[1]
00109> *          * HYD_COMMENT=[2111]
00110> *-----*
00111> FINISH
00112>
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00001 * Metric units
00002 *
00003 * Project Name: [Huntingwood Trail] Project Number: [281-2769]
00004 * Date : 06-04-2009
00005 * Updated : 01-37-2011
00006 * Modeler : [J.P. Crozier]
00007 * Company : C.F. Crozier & Associates Inc.
00008 * License # : 3737016
00009 *
00010 * START
00011 * TMRM=[0.0], MRCR=[2], MRCR=[0], MRCR=[0]
00012 * [ ] <- storm filename, one per line for MRCR time
00013 *
00014 * POST-DEVELOPMENT CONTROLLED - 2 YEAR Event
00015 *
00016 *
00017 * Rainfall Depths per MTO - Basins East of Collingwood
00018 * Chicago Rainfall Distribution
00019 *
00020 *
00021 * CHICAGO STORM
00022 * UNITS=[2], TD=[4] (hrs), TPRAT=[0.333], CSDF=[5] (min),
00023 * ICASH=[2],
00024 * Enter ordinates of IDF curve below, at least seven points
00025 * TIME (min) Intensity (mm/hr)
00026 * [5] [95]
00027 * [10] [120]
00028 * [15] [150]
00029 * [30] [180]
00030 * [60] [200]
00031 * [120] [220]
00032 * [360] [240]
00033 * [720] [260]
00034 * [1440] [280]
00035 * -1
00036 *
00037 * Area 2101 (West Developed Area)
00038 *
00039 * CALIB STANDHYD
00040 * ID=[1], NYVD=[2101], DT=[1] (min), AREA=[10.6] (ha),
00041 * XIMP=[0.30], TIMP=[0.50], DWP=[0.0] (cms), LOSS=[2],
00042 * SCS curve number CN=[55.0],
00043 * Pervious surfaces: IAPex=[5.00] (mm), SLPP=[2.0] (%),
00044 * LCP=[35] (m), MNP=[0.15], SCP=[0] (min),
00045 * Impervious surfaces: IAPex=[2.0] (mm), SLPP=[0.5] (%),
00046 * LCP=[255] (m), MNP=[0.013], SCT=[0] (min)
00047 * RAINFALL=[ , , , ] (mm/hr), END=-1
00048 *
00049 * Area 2102 (Silver Creek Buffer)
00050 *
00051 * CALIB NASHYD
00052 * ID=[2], NYVD=[2102], DT=[5] (min), AREA=[9.8] (ha),
00053 * DWP=[0] (cms), CN/C=[52.8], IA=[16.50] (mm),
00054 * N=[3], TP=[1.02] hrs,
00055 * RAINFALL=[ , , , ] (mm/hr), END=-1
00056 *
00057 * Area 2103 (East Developed Area)
00058 *
00059 * CALIB STANDHYD
00060 * ID=[3], NYVD=[2103], DT=[1] (min), AREA=[13.1] (ha),
00061 * XIMP=[0.40], TIMP=[0.60], DWP=[0.0] (cms), LOSS=[2],
00062 * SCS curve number CN=[55.0],
00063 * Pervious surfaces: IAPex=[5.00] (mm), SLPP=[2.0] (%),
00064 * LCP=[35] (m), MNP=[0.15], SCP=[0] (min),
00065 * Impervious surfaces: IAPex=[2.0] (mm), SLPP=[0.5] (%),
00066 * LCP=[255] (m), MNP=[0.013], SCT=[0] (min)
00067 * RAINFALL=[ , , , ] (mm/hr), END=-1
00068 *
00069 * Area 2104 (Central Natural Area)
00070 *
00071 * CALIB NASHYD
00072 * ID=[4], NYVD=[2104], DT=[5] (min), AREA=[13.0] (ha),
00073 * DWP=[0] (cms), CN/C=[52.2], IA=[10.0] (mm),
00074 * N=[3], TP=[0.94] hrs,
00075 * RAINFALL=[ , , , ] (mm/hr), END=-1
00076 *
00077 * Area 2105 (Natural Area Adj Rwy 26)
00078 *
00079 * CALIB NASHYD
00080 * ID=[5], NYVD=[2105], DT=[5] (min), AREA=[5.0] (ha),
00081 * DWP=[0] (cms), CN/C=[55.5], IA=[19.00] (mm),
00082 * N=[3], TP=[0.73] hrs,
00083 * RAINFALL=[ , , , ] (mm/hr), END=-1
00084 *
00085 * ROUTE RESERVOIR
00086 * IDout=[6], NYVD=[2106], IDin=[1],
00087 * ROT=[1] (min),
00088 *
00089 * TABLE of (OUTFLOW-STORAGE) values
00090 * (cms) - (ha-m)
00091 * [ 0.0, 0.0 ]
00092 * [ 0.018, 0.081 ]
00093 * [ 0.025, 0.143 ]
00094 * [ 0.030, 0.213 ]
00095 * [ 0.034, 0.289 ]
00096 * [ 0.038, 0.372 ]
00097 * [ 0.042, 0.462 ]
00098 * [ 0.603, 0.559 ]
00099 * [ 3.886, 0.718 ]
00100 * [ -1, -1 ] (max twenty pts)
00101 * IDovf=[7], NYVDovf=[2107]
00102 *
00103 * ROUTE EAST POND
00104 * IDout=[8], NYVD=[2108], IDin=[3],
00105 * ROT=[1] (min),
00106 *
00107 * TABLE of (OUTFLOW-STORAGE) values
00108 * (cms) - (ha-m)
00109 * [ 0.0, 0.0 ]
00110 * [ 0.017, 0.154 ]
00111 * [ 0.046, 0.293 ]
00112 * [ 0.090, 0.441 ]
00113 * [ 0.145, 0.599 ]
00114 * [ 0.157, 0.632 ]
00115 * [ 0.167, 0.767 ]
00116 * [ 2.238, 0.907 ]
00117 * [ 6.297, 1.131 ]
00118 * [ -1, -1 ] (max twenty pts)
00119 * IDovf=[9], NYVDovf=[2109]
00120 *
00121 * POST-DEVELOPMENT CONTROLLED FLOW TO SILVER CREEK
00122 *
00123 * ADD HYD
00124 * ID=[1], NYVD=[2110], ID to add=[2.6.7]
00125 *
00126 * SAVE HYD
00127 * HYD_COMMENT=[2110]
00128 *
00129 * POST-DEVELOPMENT CONTROLLED FLOW TO EAST
00130 *
00131 * ADD HYD
00132 * ID=[2], NYVD=[2111], ID to add=[4.5.8.9]
00133 *
00134 * SAVE HYD
00135 * HYD_COMMENT=[2111]
00136 *
00137 * POST-DEVELOPMENT CONTROLLED - 5 YEAR Event
00138 *
00139 *
00140 * Rainfall Depths per MTO - Basins East of Collingwood
00141 * Chicago Rainfall Distribution
00142 *
00143 *
00144 * CHICAGO STORM
00145 * UNITS=[2], TD=[4] (hrs), TPRAT=[0.333], CSDF=[5] (min),
00146 * ICASH=[2],
00147 * Enter ordinates of IDF curve below, at least seven points
00148 * TIME (min) Intensity (mm/hr)
00149 * [5] [150]
00150 * [10] [115]
00151 * [15] [95]
00152 * [30] [65]
00153 * [60] [45]
00154 * [120] [23]
00155 * [360] [10]
00156 * [720] [5.5]
00157 * [1440] [3.1]
00158 * -1
00159 *
00160 * Area 2101 (West Developed Area)
00161 *
00162 *

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00163 *
00164 * Area 2102 (Silver Creek Buffer)
00165 *
00166 * CALIB NASHYD
00167 * ID=[2], NYVD=[2102], DT=[5] (min), AREA=[9.8] (ha),
00168 * DWP=[0] (cms), CN/C=[52.8], IA=[16.50] (mm),
00169 * N=[3], TP=[1.02] hrs,
00170 * RAINFALL=[ , , , ] (mm/hr), END=-1
00171 *
00172 * Area 2103 (East Developed Area)
00173 *
00174 * CALIB STANDHYD
00175 * ID=[3], NYVD=[2103], DT=[1] (min), AREA=[13.1] (ha),
00176 * XIMP=[0.40], TIMP=[0.60], DWP=[0.0] (cms), LOSS=[2],
00177 * SCS curve number CN=[55.0],
00178 * Pervious surfaces: IAPex=[5.00] (mm), SLPP=[2.0] (%),
00179 * LCP=[35] (m), MNP=[0.15], SCP=[0] (min),
00180 * Impervious surfaces: IAPex=[2.0] (mm), SLPP=[0.5] (%),
00181 * LCP=[255] (m), MNP=[0.013], SCT=[0] (min)
00182 * RAINFALL=[ , , , ] (mm/hr), END=-1
00183 *
00184 * Area 2104 (Central Natural Area)
00185 *
00186 * CALIB NASHYD
00187 * ID=[4], NYVD=[2104], DT=[5] (min), AREA=[13.0] (ha),
00188 * DWP=[0] (cms), CN/C=[52.2], IA=[10.0] (mm),
00189 * N=[3], TP=[0.94] hrs,
00190 * RAINFALL=[ , , , ] (mm/hr), END=-1
00191 *
00192 * Area 2105 (Natural Area Adj Rwy 26)
00193 *
00194 * CALIB NASHYD
00195 * ID=[5], NYVD=[2105], DT=[5] (min), AREA=[5.0] (ha),
00196 * DWP=[0] (cms), CN/C=[55.5], IA=[19.00] (mm),
00197 * N=[3], TP=[0.73] hrs,
00198 * RAINFALL=[ , , , ] (mm/hr), END=-1
00199 *
00200 * ROUTE RESERVOIR
00201 * IDout=[6], NYVD=[2106], IDin=[1],
00202 * ROT=[1] (min),
00203 *
00204 * TABLE of (OUTFLOW-STORAGE) values
00205 * (cms) - (ha-m)
00206 * [ 0.0, 0.0 ]
00207 * [ 0.018, 0.081 ]
00208 * [ 0.025, 0.143 ]
00209 * [ 0.030, 0.213 ]
00210 * [ 0.034, 0.289 ]
00211 * [ 0.038, 0.372 ]
00212 * [ 0.042, 0.462 ]
00213 * [ 0.603, 0.559 ]
00214 * [ 3.886, 0.718 ]
00215 * [ -1, -1 ] (max twenty pts)
00216 * IDovf=[7], NYVDovf=[2107]
00217 *
00218 * ROUTE EAST POND
00219 * IDout=[8], NYVD=[2108], IDin=[3],
00220 * ROT=[1] (min),
00221 *
00222 * TABLE of (OUTFLOW-STORAGE) values
00223 * (cms) - (ha-m)
00224 * [ 0.0, 0.0 ]
00225 * [ 0.017, 0.154 ]
00226 * [ 0.046, 0.293 ]
00227 * [ 0.090, 0.441 ]
00228 * [ 0.145, 0.599 ]
00229 * [ 0.157, 0.632 ]
00230 * [ 0.167, 0.767 ]
00231 * [ 2.238, 0.907 ]
00232 * [ 6.297, 1.131 ]
00233 * [ -1, -1 ] (max twenty pts)
00234 * IDovf=[9], NYVDovf=[2109]
00235 *
00236 * POST-DEVELOPMENT CONTROLLED FLOW TO SILVER CREEK
00237 *
00238 * ADD HYD
00239 * ID=[1], NYVD=[2110], ID to add=[2.6.7]
00240 *
00241 * SAVE HYD
00242 * HYD_COMMENT=[2110]
00243 *
00244 * POST-DEVELOPMENT CONTROLLED FLOW TO EAST
00245 *
00246 * ADD HYD
00247 * ID=[2], NYVD=[2111], ID to add=[4.5.8.9]
00248 *
00249 * SAVE HYD
00250 * HYD_COMMENT=[2111]
00251 *
00252 * POST-DEVELOPMENT CONTROLLED - 10 YEAR Event
00253 *
00254 *
00255 * Rainfall Depths per MTO - Basins East of Collingwood
00256 * Chicago Rainfall Distribution
00257 *
00258 *
00259 * CHICAGO STORM
00260 * UNITS=[2], TD=[4] (hrs), TPRAT=[0.333], CSDF=[5] (min),
00261 * ICASH=[2],
00262 * Enter ordinates of IDF curve below, at least seven points
00263 * TIME (min) Intensity (mm/hr)
00264 * [5] [150]
00265 * [10] [115]
00266 * [15] [95]
00267 * [30] [65]
00268 * [60] [45]
00269 * [120] [23]
00270 * [360] [10]
00271 * [720] [5.5]
00272 * [1440] [3.1]
00273 * -1
00274 *
00275 * Area 2101 (West Developed Area)
00276 *
00277 *

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00271> CALIB STANDHYD ID=[1], NHYD=[2101], DT=[1] (min), AREA=[10.6] (ha),
00272> XIMP=[0.30], TIMP=[0.50], DWP=[0.0] (cms), LOSS=[2],
00273> SCS curve number CN=[55.0],
00274> Pervious surfaces: IAPer=[5.00] (cm), SLPP=[2.0] (%),
00275> IGP=[35] (m), MNP=[0.15], SCP=[0] (min),
00276> Impervious surfaces: IAImp=[2.0] (cm), SLPI=[0.5] (%),
00277> IGI=[265] (m), MNI=[0.013], SCT=[0] (min)
00278> RAINFALL=[ , , , ] (mm/hr), END=-1
00279> *-----Area 2102 (Silver Creek Buffer)-----
00280> ID=[2], NHYD=[2102], DT=[5] (min), AREA=[9.8] (ha),
00281> DWP=[0] (cms), CN/C=[52.8], IA=[6.50] (cm),
00282> N=[3], TP=[1.02] hrs,
00283> RAINFALL=[ , , , ] (mm/hr), END=-1
00284> *-----Area 2103 (East Developed Area)-----
00285> ID=[3], NHYD=[2103], DT=[1] (min), AREA=[13.1] (ha),
00286> XIMP=[0.40], TIMP=[0.60], DWP=[0.0] (cms), LOSS=[2],
00287> SCS curve number CN=[63.5],
00288> Pervious surfaces: IAPer=[5.00] (cm), SLPP=[2.0] (%),
00289> IGP=[35] (m), MNP=[0.15], SCP=[0] (min),
00290> Impervious surfaces: IAImp=[2.0] (cm), SLPI=[0.5] (%),
00291> IGI=[295] (m), MNI=[0.013], SCT=[0] (min)
00292> RAINFALL=[ , , , ] (mm/hr), END=-1
00293> *-----Area 2104 (Central Natural Area)-----
00294> ID=[4], NHYD=[2104], DT=[5] (min), AREA=[13.0] (ha),
00295> DWP=[0] (cms), CN/C=[62.2], IA=[10.0] (cm),
00296> N=[3], TP=[0.94] hrs,
00297> RAINFALL=[ , , , ] (mm/hr), END=-1
00298> *-----Area 2105 (Natural Area Adj Hwy 26)-----
00299> ID=[5], NHYD=[2105], DT=[5] (min), AREA=[5.0] (ha),
00300> DWP=[0] (cms), CN/C=[55.5], IA=[9.00] (cm),
00301> N=[3], TP=[0.73] hrs,
00302> RAINFALL=[ , , , ] (mm/hr), END=-1
00303> *-----Route West Pond-----
00304> IDout=[6], NHYD=[W.Pond], IDin=[1],
00305> IDW=[1] (min),
00306> TABLE of ( OUTFLOW-STORAGE ) values
00307> (cms) (ha-m)
00308> [ 0.0, 0.0 ]
00309> [ 0.018, 0.081 ]
00310> [ 0.025, 0.143 ]
00311> [ 0.030, 0.213 ]
00312> [ 0.034, 0.289 ]
00313> [ 0.038, 0.372 ]
00314> [ 0.042, 0.462 ]
00315> [ 0.043, 0.559 ]
00316> [ 0.046, 0.718 ]
00317> [ -1, -1 ] (max twenty pts)
00318> IDout=[7], NHYDout=[W.Spill]
00319> *-----Route East Pond-----
00320> IDout=[8], NHYD=[E.Pond], IDin=[3],
00321> IDW=[1] (min),
00322> TABLE of ( OUTFLOW-STORAGE ) values
00323> (cms) (ha-m)
00324> [ 0.0, 0.0 ]
00325> [ 0.017, 0.154 ]
00326> [ 0.046, 0.293 ]
00327> [ 0.090, 0.442 ]
00328> [ 0.145, 0.599 ]
00329> [ 0.157, 0.632 ]
00330> [ 0.167, 0.671 ]
00331> [ 2.238, 0.907 ]
00332> [ 6.297, 1.131 ]
00333> [ -1, -1 ] (max twenty pts)
00334> IDout=[9], NHYDout=[E.Spill]
00335> *-----Post Development Controlled Flow to Silver Creek-----
00336> *-----Post Development Controlled Flow to East-----
00337> ADD HYD IDout=[1], NHYD=[West], IDin to add=[2+6+7]
00338> *-----Post Development Controlled Flow to East-----
00339> ADD HYD IDout=[2], NHYD=[East], IDin to add=[4+5+8+9]
00340> *-----Post Development Controlled Flow to East-----
00341> SAVE HYD ID=[2], # OF CYCLES=[-1], ICASHSH=[1]
00342> HYD_COMMENT=[West]
00343> *-----Post Development Controlled Flow to East-----
00344> SAVE HYD ID=[2], # OF CYCLES=[-1], ICASHSH=[1]
00345> HYD_COMMENT=[East]
00346> *-----POST-DEVELOPMENT CONTROLLED - 25 YEAR Event-----
00347> *-----Rainfall Depths per MTO - Basin East of Collingwood-----
00348> *-----Chicago Rainfall Distribution-----
00349> *-----CHICAGO STORM-----
00350> TIME (min) Intensity (mm/hr)
00351> [ 5 ] [ 175 ]
00352> [ 10 ] [ 130 ]
00353> [ 15 ] [ 110 ]
00354> [ 30 ] [ 73 ]
00355> [ 60 ] [ 49 ]
00356> [ 120 ] [ 27 ]
00357> [ 180 ] [ 12 ]
00358> [ 720 ] [ 6.6 ]
00359> [ 1440 ] [ 3.0 ]
00360> *-----Area 2101 (West Developed Area)-----
00361> ID=[1], NHYD=[2101], DT=[1] (min), AREA=[10.6] (ha),
00362> XIMP=[0.30], TIMP=[0.50], DWP=[0.0] (cms), LOSS=[2],
00363> SCS curve number CN=[55.0],
00364> Pervious surfaces: IAPer=[5.00] (cm), SLPP=[2.0] (%),
00365> IGP=[35] (m), MNP=[0.15], SCP=[0] (min),
00366> Impervious surfaces: IAImp=[2.0] (cm), SLPI=[0.5] (%),
00367> IGI=[265] (m), MNI=[0.013], SCT=[0] (min)
00368> RAINFALL=[ , , , ] (mm/hr), END=-1
00369> *-----Area 2102 (Silver Creek Buffer)-----
00370> ID=[2], NHYD=[2102], DT=[5] (min), AREA=[9.8] (ha),
00371> DWP=[0] (cms), CN/C=[52.8], IA=[6.50] (cm),
00372> N=[3], TP=[1.02] hrs,
00373> RAINFALL=[ , , , ] (mm/hr), END=-1
00374> *-----Area 2103 (East Developed Area)-----
00375> ID=[3], NHYD=[2103], DT=[1] (min), AREA=[13.1] (ha),
00376> XIMP=[0.40], TIMP=[0.60], DWP=[0.0] (cms), LOSS=[2],
00377> SCS curve number CN=[63.5],
00378> Pervious surfaces: IAPer=[5.00] (cm), SLPP=[2.0] (%),
00379> IGP=[35] (m), MNP=[0.15], SCP=[0] (min),
00380> Impervious surfaces: IAImp=[2.0] (cm), SLPI=[0.5] (%),
00381> IGI=[295] (m), MNI=[0.013], SCT=[0] (min)
00382> RAINFALL=[ , , , ] (mm/hr), END=-1
00383> *-----Area 2104 (Central Natural Area)-----
00384> ID=[4], NHYD=[2104], DT=[5] (min), AREA=[13.0] (ha),
00385> DWP=[0] (cms), CN/C=[62.2], IA=[10.0] (cm),
00386> N=[3], TP=[0.94] hrs,
00387> RAINFALL=[ , , , ] (mm/hr), END=-1
00388> *-----Area 2105 (Natural Area Adj Hwy 26)-----
00389> ID=[5], NHYD=[2105], DT=[5] (min), AREA=[5.0] (ha),
00390> DWP=[0] (cms), CN/C=[55.5], IA=[9.00] (cm),
00391> N=[3], TP=[0.73] hrs,
00392> RAINFALL=[ , , , ] (mm/hr), END=-1
00393> *-----Route West Pond-----
00394> IDout=[6], NHYD=[W.Pond], IDin=[1],
00395> IDW=[1] (min),
00396> TABLE of ( OUTFLOW-STORAGE ) values
00397> (cms) (ha-m)
00398> [ 0.0, 0.0 ]
00399> [ 0.017, 0.154 ]
00400> [ 0.046, 0.293 ]
00401> [ 0.090, 0.442 ]
00402> [ 0.145, 0.599 ]
00403> [ 0.157, 0.632 ]
00404> [ 0.167, 0.671 ]
00405> [ 2.238, 0.907 ]
00406> [ 6.297, 1.131 ]
00407> [ -1, -1 ] (max twenty pts)
00408> IDout=[7], NHYDout=[W.Spill]
00409> *-----Route East Pond-----
00410> IDout=[8], NHYD=[E.Pond], IDin=[3],
00411> IDW=[1] (min),
00412> TABLE of ( OUTFLOW-STORAGE ) values
00413> (cms) (ha-m)
00414> [ 0.0, 0.0 ]
00415> [ 0.017, 0.154 ]
00416> [ 0.046, 0.293 ]
00417> [ 0.090, 0.442 ]
00418> [ 0.145, 0.599 ]
00419> [ 0.157, 0.632 ]
00420> [ 0.167, 0.671 ]
00421> [ 2.238, 0.907 ]
00422> [ 6.297, 1.131 ]
00423> [ -1, -1 ] (max twenty pts)
00424> IDout=[9], NHYDout=[E.Spill]
00425> *-----Post Development Controlled Flow to Silver Creek-----
00426> *-----Post Development Controlled Flow to East-----
00427> ADD HYD IDout=[1], NHYD=[West], IDin to add=[2+6+7]
00428> *-----Post Development Controlled Flow to East-----
00429> ADD HYD IDout=[2], NHYD=[East], IDin to add=[4+5+8+9]
00430> *-----Post Development Controlled Flow to East-----
00431> SAVE HYD ID=[2], # OF CYCLES=[-1], ICASHSH=[1]
00432> HYD_COMMENT=[West]
00433> *-----Post Development Controlled Flow to East-----
00434> SAVE HYD ID=[2], # OF CYCLES=[-1], ICASHSH=[1]
00435> HYD_COMMENT=[East]
00436> *-----POST-DEVELOPMENT CONTROLLED - 50 YEAR Event-----
00437> *-----Rainfall Depths per MTO - Basin East of Collingwood-----
00438> *-----Chicago Rainfall Distribution-----
00439> *-----CHICAGO STORM-----
00440> TIME (min) Intensity (mm/hr)
00441> [ 5 ] [ 175 ]
00442> [ 10 ] [ 130 ]
00443> [ 15 ] [ 110 ]
00444> [ 30 ] [ 73 ]
00445> [ 60 ] [ 49 ]
00446> [ 120 ] [ 27 ]
00447> [ 180 ] [ 12 ]
00448> [ 720 ] [ 6.6 ]
00449> [ 1440 ] [ 3.0 ]
00450> *-----Area 2101 (West Developed Area)-----
00451> ID=[1], NHYD=[2101], DT=[1] (min), AREA=[10.6] (ha),
00452> XIMP=[0.30], TIMP=[0.50], DWP=[0.0] (cms), LOSS=[2],
00453> SCS curve number CN=[55.0],
00454> Pervious surfaces: IAPer=[5.00] (cm), SLPP=[2.0] (%),
00455> IGP=[35] (m), MNP=[0.15], SCP=[0] (min),
00456> Impervious surfaces: IAImp=[2.0] (cm), SLPI=[0.5] (%),
00457> IGI=[265] (m), MNI=[0.013], SCT=[0] (min)
00458> RAINFALL=[ , , , ] (mm/hr), END=-1
00459> *-----Area 2102 (Silver Creek Buffer)-----
00460> ID=[2], NHYD=[2102], DT=[5] (min), AREA=[9.8] (ha),
00461> DWP=[0] (cms), CN/C=[52.8], IA=[6.50] (cm),
00462> N=[3], TP=[1.02] hrs,
00463> RAINFALL=[ , , , ] (mm/hr), END=-1
00464> *-----Area 2103 (East Developed Area)-----
00465> ID=[3], NHYD=[2103], DT=[1] (min), AREA=[13.1] (ha),
00466> XIMP=[0.40], TIMP=[0.60], DWP=[0.0] (cms), LOSS=[2],
00467> SCS curve number CN=[63.5],
00468> Pervious surfaces: IAPer=[5.00] (cm), SLPP=[2.0] (%),
00469> IGP=[35] (m), MNP=[0.15], SCP=[0] (min),
00470> Impervious surfaces: IAImp=[2.0] (cm), SLPI=[0.5] (%),
00471> IGI=[295] (m), MNI=[0.013], SCT=[0] (min)
00472> RAINFALL=[ , , , ] (mm/hr), END=-1
00473> *-----Area 2104 (Central Natural Area)-----
00474> ID=[4], NHYD=[2104], DT=[5] (min), AREA=[13.0] (ha),
00475> DWP=[0] (cms), CN/C=[62.2], IA=[10.0] (cm),
00476> N=[3], TP=[0.94] hrs,
00477> RAINFALL=[ , , , ] (mm/hr), END=-1
00478> *-----Area 2105 (Natural Area Adj Hwy 26)-----
00479> ID=[5], NHYD=[2105], DT=[5] (min), AREA=[5.0] (ha),
00480> DWP=[0] (cms), CN/C=[55.5], IA=[9.00] (cm),
00481> N=[3], TP=[0.73] hrs,
00482> RAINFALL=[ , , , ] (mm/hr), END=-1
00483> *-----Route West Pond-----
00484> IDout=[6], NHYD=[W.Pond], IDin=[1],
00485> IDW=[1] (min),
00486> TABLE of ( OUTFLOW-STORAGE ) values
00487> (cms) (ha-m)
00488> [ 0.0, 0.0 ]
00489> [ 0.017, 0.154 ]
00490> [ 0.046, 0.293 ]
00491> [ 0.090, 0.442 ]
00492> [ 0.145, 0.599 ]
00493> [ 0.157, 0.632 ]
00494> [ 0.167, 0.671 ]
00495> [ 2.238, 0.907 ]
00496> [ 6.297, 1.131 ]
00497> [ -1, -1 ] (max twenty pts)
00498> IDout=[7], NHYDout=[W.Spill]
00499> *-----Route East Pond-----
00500> IDout=[8], NHYD=[E.Pond], IDin=[3],
00501> IDW=[1] (min),
00502> TABLE of ( OUTFLOW-STORAGE ) values
00503> (cms) (ha-m)
00504> [ 0.0, 0.0 ]
00505> [ 0.017, 0.154 ]
00506> [ 0.046, 0.293 ]
00507> [ 0.090, 0.442 ]
00508> [ 0.145, 0.599 ]
00509> [ 0.157, 0.632 ]
00510> [ 0.167, 0.671 ]
00511> [ 2.238, 0.907 ]
00512> [ 6.297, 1.131 ]
00513> [ -1, -1 ] (max twenty pts)
00514> IDout=[9], NHYDout=[E.Spill]
00515> *-----Post Development Controlled Flow to Silver Creek-----
00516> *-----Post Development Controlled Flow to East-----
00517> ADD HYD IDout=[1], NHYD=[West], IDin to add=[2+6+7]
00518> *-----Post Development Controlled Flow to East-----
00519> ADD HYD IDout=[2], NHYD=[East], IDin to add=[4+5+8+9]
00520> *-----Post Development Controlled Flow to East-----
00521> SAVE HYD ID=[2], # OF CYCLES=[-1], ICASHSH=[1]
00522> HYD_COMMENT=[West]
00523> *-----Post Development Controlled Flow to East-----
00524> SAVE HYD ID=[2], # OF CYCLES=[-1], ICASHSH=[1]
00525> HYD_COMMENT=[East]
00526> *-----POST-DEVELOPMENT CONTROLLED - 50 YEAR Event-----
00527> *-----Rainfall Depths per MTO - Basin East of Collingwood-----
00528> *-----Chicago Rainfall Distribution-----
00529> *-----CHICAGO STORM-----
00530> TIME (min) Intensity (mm/hr)
00531> [ 5 ] [ 175 ]
00532> [ 10 ] [ 130 ]
00533> [ 15 ] [ 110 ]
00534> [ 30 ] [ 73 ]
00535> [ 60 ] [ 49 ]
00536> [ 120 ] [ 27 ]
00537> [ 180 ] [ 12 ]
00538> [ 720 ] [ 6.6 ]
00539> [ 1440 ] [ 3.0 ]
00540> *-----Area 2101 (West Developed Area)-----
00541> ID=[1], NHYD=[2101], DT=[1] (min), AREA=[10.6] (ha),
00542> XIMP=[0.30], TIMP=[0.50], DWP=[0.0] (cms), LOSS=[2],
00543> SCS curve number CN=[55.0],
00544> Pervious surfaces: IAPer=[5.00] (cm), SLPP=[2.0] (%),
00545> IGP=[35] (m), MNP=[0.15], SCP=[0] (min),
00546> Impervious surfaces: IAImp=[2.0] (cm), SLPI=[0.5] (%),
00547> IGI=[265] (m), MNI=[0.013], SCT=[0] (min)
00548> RAINFALL=[ , , , ] (mm/hr), END=-1
00549> *-----Area 2102 (Silver Creek Buffer)-----
00550> ID=[2], NHYD=[2102], DT=[5] (min), AREA=[9.8] (ha),
00551> DWP=[0] (cms), CN/C=[52.8], IA=[6.50] (cm),
00552> N=[3], TP=[1.02] hrs,
00553> RAINFALL=[ , , , ] (mm/hr), END=-1
00554> *-----Area 2103 (East Developed Area)-----
00555> ID=[3], NHYD=[2103], DT=[1] (min), AREA=[13.1] (ha),
00556> XIMP=[0.40], TIMP=[0.60], DWP=[0.0] (cms), LOSS=[2],
00557> SCS curve number CN=[63.5],
00558> Pervious surfaces: IAPer=[5.00] (cm), SLPP=[2.0] (%),
00559> IGP=[35] (m), MNP=[0.15], SCP=[0] (min),
00560> Impervious surfaces: IAImp=[2.0] (cm), SLPI=[0.5] (%),
00561> IGI=[295] (m), MNI=[0.013], SCT=[0] (min)
00562> RAINFALL=[ , , , ] (mm/hr), END=-1
00563> *-----Area 2104 (Central Natural Area)-----
00564> ID=[4], NHYD=[2104], DT=[5] (min), AREA=[13.0] (ha),
00565> DWP=[0] (cms), CN/C=[62.2], IA=[10.0] (cm),
00566> N=[3], TP=[0.94] hrs,
00567> RAINFALL=[ , , , ] (mm/hr), END=-1
00568> *-----Area 2105 (Natural Area Adj Hwy 26)-----
00569> ID=[5], NHYD=[2105], DT=[5] (min), AREA=[5.0] (ha),
00570> DWP=[0] (cms), CN/C=[55.5], IA=[9.00] (cm),
00571> N=[3], TP=[0.73] hrs,
00572> RAINFALL=[ , , , ] (mm/hr), END=-1
00573> *-----Route West Pond-----
00574> IDout=[6], NHYD=[W.Pond], IDin=[1],
00575> IDW=[1] (min),
00576> TABLE of ( OUTFLOW-STORAGE ) values
00577> (cms) (ha-m)
00578> [ 0.0, 0.0 ]
00579> [ 0.017, 0.154 ]
00580> [ 0.046, 0.293 ]
00581> [ 0.090, 0.442 ]
00582> [ 0.145, 0.599 ]
00583> [ 0.157, 0.632 ]
00584> [ 0.167, 0.671 ]
00585> [ 2.238, 0.907 ]
00586> [ 6.297, 1.131 ]
00587> [ -1, -1 ] (max twenty pts)
00588> IDout=[7], NHYDout=[W.Spill]
00589> *-----Route East Pond-----
00590> IDout=[8], NHYD=[E.Pond], IDin=[3],
00591> IDW=[1] (min),
00592> TABLE of ( OUTFLOW-STORAGE ) values
00593> (cms) (ha-m)
00594> [ 0.0, 0.0 ]
00595> [ 0.017, 0.154 ]
00596> [ 0.046, 0.293 ]
00597> [ 0.090, 0.442 ]
00598> [ 0.145, 0.599 ]
00599> [ 0.157, 0.632 ]
00600> [ 0.167, 0.671 ]
00601> [ 2.238, 0.907 ]
00602> [ 6.297, 1.131 ]
00603> [ -1, -1 ] (max twenty pts)
00604> IDout=[9], NHYDout=[E.Spill]

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00541> N=[3], TP=[0.73]hrs,
00542> RAINFALL=[ , , , ](in/hr), END=-1
00543> *%-----Route West Pond-----
00544> *%-----Route East Pond-----
00545> ROUTE RESERVOIR IDout=[6], NHVD=[ "W.Pond" ], IDin=[3],
00546> RDT=[1](min),
00547>
00548> TABLE of ( OUTFLOW-STORAGE ) values
00549> (cms) - (ft-m)
00550> [ 0.0 , 0.0 ]
00551> [ 0.014 , 0.061 ]
00552> [ 0.025 , 0.143 ]
00553> [ 0.030 , 0.213 ]
00554> [ 0.034 , 0.289 ]
00555> [ 0.038 , 0.372 ]
00556> [ 0.042 , 0.462 ]
00557> [ 0.003 , 0.559 ]
00558> [ 0.086 , 0.718 ]
00559> [ -1 , -1 ] (max twenty pts)
00560> IDout=[9], NHVD=[ "W.Spill" ]
00561> *%-----Route East Pond-----
00562> *%-----Route West Pond-----
00563> *%-----Route East Pond-----
00564> ROUTE RESERVOIR IDout=[8], NHVD=[ "E.Pond" ], IDin=[3],
00565> RDT=[1](min),
00566>
00567> TABLE of ( OUTFLOW-STORAGE ) values
00568> (cms) - (ft-m)
00569> [ 0.0 , 0.0 ]
00570> [ 0.017 , 0.154 ]
00571> [ 0.046 , 0.293 ]
00572> [ 0.090 , 0.441 ]
00573> [ 0.145 , 0.599 ]
00574> [ 0.157 , 0.632 ]
00575> [ 0.767 , 0.767 ]
00576> [ 2.238 , 0.907 ]
00577> [ 6.297 , 1.131 ]
00578> [ -1 , -1 ] (max twenty pts)
00579> IDout=[9], NHVD=[ "E.Spill" ]
00580> *%-----Post Development Controlled Flow to Silver Creek-----
00581> *%-----Post Development Controlled Flow to East-----
00582> ADD HYD IDout=[1], NHVD=[ "West" ], IDto add=[2+6+7]
00583> *%-----
00584> SAVE HYD ID=[1], # OF PCYCLES=[-1], ICASEsh=[1]
00585> *%-----HYD COMMENT=[ "West" ]-----
00586> *%-----Post Development Controlled Flow to East-----
00587> *%-----Post Development Controlled Flow to East-----
00588> *%-----
00589> ADD HYD IDout=[2], NHVD=[ "East" ], IDto add=[4+5+8+9]
00590> *%-----
00591> SAVE HYD ID=[2], # OF PCYCLES=[-1], ICASEsh=[1]
00592> *%-----HYD COMMENT=[ "East" ]-----
00593> *%-----
00594> *%-----POST-DEVELOPMENT CONTROLLED - 100 YEAR FLOOD-----
00595> *%-----
00596> *%-----
00597> *% Rainfall Depths per MTO - Basin East of Collingwood
00598> *% Chicago Rainfall Distribution
00599> *%-----
00600> *%-----
00601> *%-----
00602> CHICAGO STORM UNITS=[2], TD=[4](hrs), THRA=[0.333], CSDF=[5](min),
00603> ICASEsh=[2],
00604> Enter ordinates of IDF curve below, at least seven points
00605> TIME (min) Intensity(in/hr)
00606> [5] [219]
00607> [10] [160]
00608> [15] [135]
00609> [30] [89]
00610> [60] [61]
00611> [120] [33]
00612> [180] [19]
00613> [720] [8.2]
00614> [1440] [4.4]
00615> [ -1 ] [ -1 ]
00616> *%-----
00617> *%-----Area 2101 (Basin Developed Area)-----
00618> *%-----
00619> CALIB STANDHYD ID=[1], NHVD=[ "2101" ], DT=[3](min), AREA=[10.6](ha),
00620> XIMP=[0.30], TIMP=[0.50], LQF=[0.0](cms), LOSS=[2],
00621> SCS curve number CN=[55.0],
00622> Pervious surfaces: IAPer=[5.00](mm), SLPP=[2.0](%),
00623> Impervious surfaces: IAImp=[2.0](mm), SLPI=[0.5](%),
00624> LQI=[265](m), MNI=[0.013], SCL=[0](min)
00625> *%-----
00626> RAINFALL=[ , , , ](in/hr), END=-1
00627> *%-----
00628> *%-----Area 2102 (Silver Creek Buffer)-----
00629> *%-----
00630> CALIB NASHVD ID=[2], NHVD=[ "2102" ], DT=[5](min), AREA=[9.0](ha),
00631> IAPer=[0](cms), CN/C=[52.8], IA=[6.50](mm),
00632> H=[3], TP=[1.02]hrs,
00633> RAINFALL=[ , , , ](in/hr), END=-1
00634> *%-----
00635> *%-----Area 2103 (Basin Developed Area)-----
00636> *%-----
00637> CALIB STANDHYD ID=[3], NHVD=[ "2103" ], DT=[1](min), AREA=[13.1](ha),
00638> XIMP=[0.40], TIMP=[0.50], LQF=[0.0](cms), LOSS=[2],
00639> SCS curve number CN=[63.5],
00640> Pervious surfaces: IAPer=[5.00](mm), SLPP=[2.0](%),
00641> Impervious surfaces: IAImp=[2.0](mm), SLPI=[0.5](%),
00642> LQI=[265](m), MNI=[0.013], SCL=[0](min)
00643> *%-----
00644> RAINFALL=[ , , , ](in/hr), END=-1
00645> *%-----
00646> *%-----Area 2104 (Central Natural Area)-----
00647> *%-----
00648> CALIB NASHVD ID=[4], NHVD=[ "2104" ], DT=[5](min), AREA=[13.6](ha),
00649> IAPer=[0](cms), CN/C=[62.2], IA=[20.0](mm),
00650> H=[3], TP=[0.94]hrs,
00651> RAINFALL=[ , , , ](in/hr), END=-1
00652> *%-----
00653> *%-----Area 2105 (Natural Area Adj Hwy 261)-----
00654> *%-----
00655> CALIB NASHVD ID=[5], NHVD=[ "2105" ], DT=[5](min), AREA=[5.0](ha),
00656> IAPer=[0](cms), CN/C=[55.5], IA=[9.00](mm),
00657> H=[3], TP=[0.73]hrs,
00658> RAINFALL=[ , , , ](in/hr), END=-1
00659> *%-----
00660> *%-----Route West Pond-----
00661> *%-----
00662> ROUTE RESERVOIR IDout=[6], NHVD=[ "W.Pond" ], IDin=[2],
00663> RDT=[1](min),
00664>
00665> TABLE of ( OUTFLOW-STORAGE ) values
00666> (cms) - (ft-m)
00667> [ 0.0 , 0.0 ]
00668> [ 0.018 , 0.081 ]
00669> [ 0.025 , 0.143 ]
00670> [ 0.030 , 0.213 ]
00671> [ 0.034 , 0.289 ]
00672> [ 0.038 , 0.372 ]
00673> [ 0.042 , 0.462 ]
00674> [ 0.003 , 0.559 ]
00675> [ 0.086 , 0.718 ]
00676> [ -1 , -1 ] (max twenty pts)

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00001> =====
00002>
00003> SSSSS W W M M H H Y Y M M O O O 999 999
00004> S W W M M H H Y Y M M O O 9 9 9 9
00005> SSSSS W W M M M H H H Y Y M M O O 9 9 9 9 Ver. 4.02
00006> S W W M M H H Y Y M M O O 9999 9999 July 1999
00007> SSSSS W W M M H H Y Y M M O O 9 9 9 9
00008>
00009> StormWater Management Hydrologic Model 9 9 9 9 # 3737016
00010>
00011> *****
00012> ***** SWHYMO-99 Ver/4.02 *****
00013> ***** A single event and continuous hydrologic simulation model *****
00014> ***** based on the principles of HYMO and its successors *****
00015> *****
00016> ***** Distributed by: J.F. Sabourin and Associates Inc. *****
00017> ***** Ottawa, Ontario: (613) 727-5199 *****
00018> ***** Gatineau, Quebec: (819) 243-6858 *****
00019> ***** E-Mail: smhymo@jfasa.com *****
00020> *****
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 : 10 *****
00031> ***** Max. number of rainfall points: 15000 *****
00032> ***** Max. number of flow points : 15000 *****
00033> *****
00034> *****
00035> ***** DESCRIPTION SUMMARY TABLE HEADERS (units depend on METOUT in START) *****
00036> *****
00037> ***** ID: Hydrograph Identification numbers, (1-10). *****
00038> ***** NMYD: Hydrograph reference numbers, (6 digits or characters). *****
00039> ***** AREA: Drainage area associated with hydrograph, (ac) or (ha). *****
00040> ***** QPEAK: Peak flow of simulated hydrograph, (ft3/s) or (m3/s). *****
00041> ***** TpeakDate_hh:mm is the date and time of the peak flow. *****
00042> ***** R.V.: Runoff Volume of simulated hydrograph, (in) or (mm). *****
00043> ***** R.C.: Runoff Coefficient of simulated hydrograph, (ratio). *****
00044> ***** *: see WARNING or NOTE message printed at end of run. *****
00045> ***** **: see ERROR message printed at end of run. *****
00046> *****
00047> *****
00048> *****
00049> *****
00050> *****
00051> *****
00052> *****
00053> ***** SUMMARY OUTPUT *****
00054> *****
00055> ***** DATE: 2011-01-26 TIME: 10:34:13 RUN COUNTER: 000687 *****
00056> *****
00057> ***** Input filename: C:\HYMO\281HYM-1\Post\ALL_SCS.dat *****
00058> ***** Output filename: C:\HYMO\281HYM-1\Post\ALL_SCS.out *****
00059> ***** Summary filename: C:\HYMO\281HYM-1\Post\ALL_SCS.sum *****
00060> ***** User comments: *****
00061> ***** 1: *****
00062> ***** 2: *****
00063> ***** 3: *****
00064> *****
00065> *****
00066> *****
00067> *****
00068> ***** Project Name: [Huntingwood Trails] Project Number: [281-2769] *****
00069> ***** Date: 01-17-2011 *****
00070> ***** Updated: 01-17-2011 *****
00071> ***** Modeller: [J.Proctor] *****
00072> ***** Company: C.F. Crozier & Associates Inc. *****
00073> ***** License #: 3737016 *****
00074> *****
00075> ***** RUN:COMMAND *****
00076> ***** 001:0001 *****
00077> ***** START *****
00078> ***** [TZERO = .00 hrs on 0] *****
00079> ***** [METOUT = 2 (imperial, 2=metric output)] *****
00080> ***** [NSTORM = 0] *****
00081> ***** [NRUN = 1] *****
00082> *****
00083> *****
00084> *****
00085> ***** POST-DEVELOPMENT CONTROLLED - 2 YEAR Event *****
00086> *****
00087> ***** Rainfall Depths per MTO - Basins East of Collingwood *****
00088> ***** SCS Rainfall Distribution *****
00089> *****
00090> ***** 001:0002 *****
00091> ***** MASS STORM *****
00092> ***** Filename = C:\HYMO\281HYM-1\Post\SCS24HI.MST *****
00093> ***** Comment = 24 hour SCS II storm mass curve *****
00094> ***** [SDT= 6.00:SDUR= 24.00:PTOT= 50.40] *****
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00271> [RDT= 1.00] out< 06:W.Pond 10.60 .033 No_date 17:06 37.73 n/a
00272> overflow <= 07:W.Spill .00 .000 No_date 0:00 .00 n/a
00273> [MxStoUsed=.2715E+00, TotOvfVol=.0000E+00, N-Ovf= 0, TotDurOvf= 0 hrs
00274> -----Post Development Controlled Flow to Silver Creek-----
00275> # 001:0033-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00276> ROUTE RESERVOIR -> 03:2103 13.10 1.548 No_date 12:14 46.95 n/a
00277> [RDT= 1.00] out< 08:E.Pond 13.10 .080 No_date 14:24 46.95 n/a
00278> overflow <= 09:E.Spill .00 .000 No_date 0:00 .00 n/a
00279> [MxStoUsed=.4070E+00, TotOvfVol=.0000E+00, N-Ovf= 0, TotDurOvf= 0 hrs
00280> -----Post Development Controlled Flow to Silver Creek-----
00281> # 001:0034-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00282> ADD HYD 02:2102 9.80 .115 No_date 13:12 15.63 n/a
00283> + 06:W.Pond 10.60 .033 No_date 17:06 37.73 n/a
00284> + 07:W.Spill .00 .000 No_date 0:00 .00 n/a
00285> [DT= 1.00] SUM= 02:East 20.40 .146 No_date 13:12 27.12 n/a
00286> # 001:0035-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00287> SAVE HYD 02:East 20.40 .146 No_date 13:12 27.12 n/a
00288> filename :C:\HYMO\281HYM-1\Post\H-West.001
00289> remark:West
00290> -----Post Development Controlled Flow to East-----
00291> # 001:0036-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00292> ADD HYD 04:2104 13.00 .197 No_date 13:06 18.96 n/a
00293> + 05:2105 5.00 .076 No_date 12:54 15.90 n/a
00294> + 08:E.Pond 13.10 .080 No_date 14:24 46.95 n/a
00295> + 09:E.Spill .00 .000 No_date 0:00 .00 n/a
00296> [DT= 1.00] SUM= 02:East 31.10 .344 No_date 13:06 30.26 n/a
00297> # 001:0037-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00298> SAVE HYD 02:East 31.10 .344 No_date 13:06 30.26 n/a
00299> filename :C:\HYMO\281HYM-1\Post\H-East.001
00300> remark:East
00301> *****POST-DEVELOPMENT CONTROLLED - 25 YEAR Event *****
00302> # Rainfall Depths per MTO - Basins East of Collingwood
00303> # SCS Rainfall Distribution
00304> #
00305> #
00306> # 001:0038-----MASS STORM
00307> filename :C:\HYMO\281HYM-1\Post\SCS24HII.MST
00308> Comment = 24 hour SCS II storm mass curve
00309> [SDT= 6.00:SDUR= 24.00:PTOT= 86.40]
00310> -----Area 2101 (West Developed Area)-----
00311> # 001:0039-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00312> CALIB STANDHYD 01:2101 10.60 1.223 No_date 12:14 46.09 .533
00313> [XIMP=.30:TIMP=.50]
00314> [LOSS= 2 :CN= 55.0]
00315> [Pervious area: Iaper= 5.00:SLPP=2.00:LGP= 35.:MNP=.150:SCP=.0]
00316> [Impervious area: Iaimp= 2.00:SLPI=.50:LGI= 265.:MNI=.013:SCI=.0]
00317> -----Area 2102 (Silver Creek Buffer)-----
00318> # 001:0040-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00319> CALIB NASHYD 02:2102 9.80 .154 No_date 13:12 20.80 .241
00320> [CN= 52.8: N= 3.00]
00321> [T= 1.02:DT= 6.00]
00322> -----Area 2103 (East Developed Area)-----
00323> # 001:0041-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00324> CALIB STANDHYD 03:2103 13.10 1.919 No_date 12:14 56.71 .656
00325> [XIMP=.40:TIMP=.60]
00326> [LOSS= 2 :CN= 63.5]
00327> [Pervious area: Iaper= 5.00:SLPP=2.00:LGP= 35.:MNP=.150:SCP=.0]
00328> [Impervious area: Iaimp= 2.00:SLPI=.50:LGI= 295.:MNI=.013:SCI=.0]
00329> -----Area 2104 (Central Natural Area)-----
00330> # 001:0042-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00331> CALIB NASHYD 04:2104 13.00 .267 No_date 13:06 25.29 .293
00332> [CN= 62.2: N= 3.00]
00333> [T= .94:DT= 6.00]
00334> -----Area 2105 (Natraul Area Adj HWY 26)-----
00335> # 001:0043-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00336> CALIB NASHYD 05:2105 5.00 .103 No_date 12:54 21.31 .247
00337> [CN= 55.5: N= 3.00]
00338> [T= .73:DT= 6.00]
00339> -----Route West Pond-----
00340> # 001:0044-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00341> ROUTE RESERVOIR -> 01:2101 10.60 1.223 No_date 12:14 46.09 n/a
00342> [RDT= 1.00] out< 06:W.Pond 10.60 .033 No_date 17:09 46.08 n/a
00343> overflow <= 07:W.Spill .00 .000 No_date 0:00 .00 n/a
00344> [MxStoUsed=.3392E+00, TotOvfVol=.0000E+00, N-Ovf= 0, TotDurOvf= 0 hrs
00345> -----Route East Pond-----
00346> # 001:0045-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00347> ROUTE RESERVOIR -> 03:2103 13.10 1.919 No_date 12:14 56.71 n/a
00348> [RDT= 1.00] out< 08:E.Pond 13.10 .105 No_date 14:20 56.71 n/a
00349> overflow <= 09:E.Spill .00 .000 No_date 0:00 .00 n/a
00350> [MxStoUsed=.4852E+00, TotOvfVol=.0000E+00, N-Ovf= 0, TotDurOvf= 0 hrs
00351> -----Post Development Controlled Flow to Silver Creek-----
00352> # 001:0046-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00353> ADD HYD 02:2102 9.80 .154 No_date 13:12 20.80 n/a
00354> + 06:W.Pond 10.60 .036 No_date 17:09 46.08 n/a
00355> + 07:W.Spill .00 .000 No_date 0:00 .00 n/a
00356> [DT= 1.00] SUM= 02:East 20.40 .188 No_date 13:12 33.94 n/a
00357> # 001:0047-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00358> SAVE HYD 01:West 20.40 .188 No_date 13:12 33.94 n/a
00359> filename :C:\HYMO\281HYM-1\Post\H-West.001
00360> remark:West
00361> -----Post Development Controlled Flow to East-----
00362> # 001:0048-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00363> ADD HYD 04:2104 13.00 .267 No_date 13:06 25.29 n/a
00364> + 05:2105 5.00 .103 No_date 12:54 21.31 n/a
00365> + 08:E.Pond 13.10 .105 No_date 14:20 56.71 n/a
00366> + 09:E.Spill .00 .000 No_date 0:00 .00 n/a
00367> [DT= 1.00] SUM= 02:East 31.10 .465 No_date 13:06 37.89 n/a
00368> # 001:0049-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00369> SAVE HYD 02:East 31.10 .465 No_date 13:06 37.89 n/a
00370> filename :C:\HYMO\281HYM-1\Post\H-East.001
00371> remark:East
00372> *****POST-DEVELOPMENT CONTROLLED - 50 YEAR Event *****
00373> # Rainfall Depths per MTO - Basins East of Collingwood
00374> # SCS Rainfall Distribution
00375> #
00376> #
00377> # 001:0050-----MASS STORM
00378> filename :C:\HYMO\281HYM-1\Post\SCS24HII.MST
00379> Comment = 24 hour SCS II storm mass curve
00380> [SDT= 6.00:SDUR= 24.00:PTOT= 86.40]
00381> -----Area 2101 (West Developed Area)-----
00382> # 001:0051-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00383> CALIB STANDHYD 01:2101 10.60 1.439 No_date 12:13 53.03 .552
00384> [XIMP=.30:TIMP=.50]
00385> [LOSS= 2 :CN= 55.0]
00386> [Pervious area: Iaper= 5.00:SLPP=2.00:LGP= 35.:MNP=.150:SCP=.0]
00387> [Impervious area: Iaimp= 2.00:SLPI=.50:LGI= 265.:MNI=.013:SCI=.0]
00388> -----Area 2102 (Silver Creek Buffer)-----
00389> # 001:0052-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00390> CALIB NASHYD 02:2102 9.80 .188 No_date 13:12 25.30 .264
00391> [CN= 52.8: N= 3.00]
00392> [T= 1.02:DT= 6.00]
00393> -----Area 2103 (East Developed Area)-----
00394> # 001:0053-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00395> CALIB STANDHYD 03:2103 13.10 2.213 No_date 12:14 64.72 .674
00396> [XIMP=.40:TIMP=.60]
00397> [LOSS= 2 :CN= 63.5]
00398> [Pervious area: Iaper= 5.00:SLPP=2.00:LGP= 35.:MNP=.150:SCP=.0]
00399> [Impervious area: Iaimp= 2.00:SLPI=.50:LGI= 295.:MNI=.013:SCI=.0]
00400> -----Area 2104 (Central Natural Area)-----
00401> # 001:0054-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00402> CALIB NASHYD 04:2104 13.00 .328 No_date 13:06 30.77 n/a
00403> [CN= 62.2: N= 3.00]
00404> [T= .94:DT= 6.00]
00405> -----Area 2105 (Natraul Area Adj HWY 26)-----
00406> # 001:0055-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00407> CALIB NASHYD 05:2105 5.00 .127 No_date 12:54 26.04 .271
00408> [CN= 55.5: N= 3.00]
00409> [T= .73:DT= 6.00]
00410> -----Route West Pond-----
00411> # 001:0056-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00412> ROUTE RESERVOIR -> 01:2101 10.60 1.439 No_date 12:13 53.03 n/a
00413> [RDT= 1.00] out< 06:W.Pond 10.60 .039 No_date 17:11 53.03 n/a
00414> overflow <= 07:W.Spill .00 .000 No_date 0:00 .00 n/a
00415> [MxStoUsed=.3958E+00, TotOvfVol=.0000E+00, N-Ovf= 0, TotDurOvf= 0 hrs
00416> -----Route East Pond-----
00417> # 001:0057-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00418> ROUTE RESERVOIR -> 03:2103 13.10 2.213 No_date 12:14 64.72 n/a
00419> [RDT= 1.00] out< 08:E.Pond 13.10 .127 No_date 14:18 64.71 n/a
00420> overflow <= 09:E.Spill .00 .000 No_date 0:00 .00 n/a
00421> [MxStoUsed=.5483E+00, TotOvfVol=.0000E+00, N-Ovf= 0, TotDurOvf= 0 hrs
00422> -----Post Development Controlled Flow to Silver Creek-----
00423> # 001:0058-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00424> ADD HYD 02:2102 9.80 .188 No_date 13:12 25.30 n/a
00425> + 05:2105 5.00 .127 No_date 12:54 26.04 n/a
00426> + 06:W.Pond 10.60 .039 No_date 17:11 53.03 n/a
00427> + 07:W.Spill .00 .000 No_date 0:00 .00 n/a
00428> [DT= 1.00] SUM= 01:West 20.40 .225 No_date 13:12 39.71 n/a
00429> # 001:0059-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00430> SAVE HYD 01:West 20.40 .225 No_date 13:12 39.71 n/a
00431> filename :C:\HYMO\281HYM-1\Post\H-West.001
00432> remark:West
00433> -----Post Development Controlled Flow to East-----
00434> # 001:0060-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00435> ADD HYD 04:2104 13.00 .328 No_date 13:06 30.77 n/a
00436> + 05:2105 5.00 .127 No_date 12:54 26.04 n/a
00437> + 08:E.Pond 13.10 .127 No_date 14:18 64.71 n/a
00438> + 09:E.Spill .00 .000 No_date 0:00 .00 n/a
00439> [DT= 1.00] SUM= 02:East 31.10 .570 No_date 13:05 44.31 n/a
00440> # 001:0061-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00441> SAVE HYD 02:East 31.10 .570 No_date 13:05 44.31 n/a
00442> filename :C:\HYMO\281HYM-1\Post\H-East.001
00443> remark:East
00444> *****POST-DEVELOPMENT CONTROLLED - 100 YEAR Event *****
00445> # Rainfall Depths per MTO - Basins East of Collingwood
00446> # SCS Rainfall Distribution
00447> #
00448> #
00449> # 001:0062-----MASS STORM
00450> filename :C:\HYMO\281HYM-1\Post\SCS24HII.MST
00451> Comment = 24 hour SCS II storm mass curve
00452> [SDT= 6.00:SDUR= 24.00:PTOT= 105.60]
00453> -----Area 2101 (West Developed Area)-----
00454> # 001:0063-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00455> CALIB STANDHYD 01:2101 10.60 1.649 No_date 12:13 60.17 .570
00456> [XIMP=.30:TIMP=.50]
00457> [LOSS= 2 :CN= 55.0]
00458> [Pervious area: Iaper= 5.00:SLPP=2.00:LGP= 35.:MNP=.150:SCP=.0]
00459> [Impervious area: Iaimp= 2.00:SLPI=.50:LGI= 265.:MNI=.013:SCI=.0]
00460> -----Area 2102 (Silver Creek Buffer)-----
00461> # 001:0064-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00462> CALIB NASHYD 02:2102 9.80 .225 No_date 13:12 30.11 .285
00463> [CN= 52.8: N= 3.00]
00464> [T= 1.02:DT= 6.00]
00465> -----Area 2103 (East Developed Area)-----
00466> # 001:0065-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00467> CALIB STANDHYD 03:2103 13.10 2.547 No_date 12:14 72.88 .690
00468> [XIMP=.40:TIMP=.60]
00469> [LOSS= 2 :CN= 63.5]
00470> [Pervious area: Iaper= 5.00:SLPP=2.00:LGP= 35.:MNP=.150:SCP=.0]
00471> [Impervious area: Iaimp= 2.00:SLPI=.50:LGI= 295.:MNI=.013:SCI=.0]
00472> -----Area 2104 (Central Natural Area)-----
00473> # 001:0066-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00474> CALIB NASHYD 04:2104 13.00 .392 No_date 13:06 36.56 .346
00475> [CN= 62.2: N= 3.00]
00476> [T= .94:DT= 6.00]
00477> -----Area 2105 (Natraul Area Adj HWY 26)-----
00478> # 001:0067-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00479> CALIB NASHYD 05:2105 5.00 .152 No_date 12:54 31.08 .294
00480> [CN= 55.5: N= 3.00]
00481> [T= .73:DT= 6.00]
00482> -----Route West Pond-----
00483> # 001:0068-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00484> ROUTE RESERVOIR -> 01:2101 10.60 1.649 No_date 12:13 60.17 n/a
00485> [RDT= 1.00] out< 06:W.Pond 10.60 .042 No_date 17:14 60.17 n/a
00486> overflow <= 07:W.Spill .00 .000 No_date 0:00 .00 n/a
00487> [MxStoUsed=.4546E+00, TotOvfVol=.0000E+00, N-Ovf= 0, TotDurOvf= 0 hrs
00488> -----Route East Pond-----
00489> # 001:0069-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00490> ROUTE RESERVOIR -> 03:2103 13.10 2.547 No_date 12:14 72.88 n/a
00491> [RDT= 1.00] out< 08:E.Pond 13.10 .150 No_date 14:16 72.88 n/a
00492> overflow <= 09:E.Spill .00 .000 No_date 0:00 .00 n/a
00493> [MxStoUsed=.6126E+00, TotOvfVol=.0000E+00, N-Ovf= 0, TotDurOvf= 0 hrs
00494> -----Post Development Controlled Flow to Silver Creek-----
00495> # 001:0070-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00496> ADD HYD 02:2102 9.80 .225 No_date 13:12 30.11 n/a
00497> + 05:2105 5.00 .152 No_date 12:54 31.08 n/a
00498> + 06:W.Pond 10.60 .042 No_date 17:14 60.17 n/a
00499> + 07:W.Spill .00 .000 No_date 0:00 .00 n/a
00500> [DT= 1.00] SUM= 01:West 20.40 .264 No_date 13:12 45.73 n/a
00501> # 001:0071-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00502> SAVE HYD 01:West 20.40 .264 No_date 13:12 45.73 n/a
00503> filename :C:\HYMO\281HYM-1\Post\H-West.001
00504> remark:West
00505> -----Post Development Controlled Flow to East-----
00506> # 001:0072-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00507> ADD HYD 04:2104 13.00 .392 No_date 13:06 36.56 n/a
00508> + 05:2105 5.00 .152 No_date 12:54 31.08 n/a
00509> + 08:E.Pond 13.10 .150 No_date 14:16 72.88 n/a
00510> + 09:E.Spill .00 .000 No_date 0:00 .00 n/a
00511> [DT= 1.00] SUM= 02:East 31.10 .682 No_date 13:00 50.98 n/a
00512> # 001:0073-----ID:NMHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C.
00513> SAVE HYD 02:East 31.10 .682 No_date 13:00 50.98 n/a
00514> filename :C:\HYMO\281HYM-1\Post\H-East.001
00515> remark:East
00516> -----Area 2104 (Central Natural Area)-----
00517> # 001:0074-----FINISH
00518> *****WARNINGS / ERRORS / NOTES *****
00519> Simulation ended on 2011-01-26 at 10:34:17
00520>
00521>
00522>
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00001: *****
00002:
00003: SSSSS W M M M H H Y Y M M M OOO 999 999 *****
00004: S W M M M M H H Y Y M M M O O 9 9 9 9
00005: SSSSS W M M M M H H H H Y Y M M M O O 9 9 9 9 Ver. 4.02
00006: S W M M M H H H Y Y M M M O O 9999 9999 July 1999
00007: SSSSS W M M M H H H Y Y M M OOO 9 9 9 9
00008:
00009: Stormwater Management Hydrologic Model 999 999 *****
00010:
00011: *****
00012: ***** CROZIER-99 Ver74.02 *****
00013: ***** A single event and continuous hydrologic simulation model *****
00014: ***** based on the principles of HYMO and its successors *****
00015: ***** CROZIER-83 and CROZIER-89 *****
00016: *****
00017: ***** Distributed by: J.F. Crozier and Associates Inc. *****
00018: ***** Ottawa, Ontario: (613) 727-5199 *****
00019: ***** Gatineau, Quebec: (819) 243-6858 *****
00020: ***** E-Mail: jfcrozier@jfa.com *****
00021: *****
00022: *****
00023: *****
00024: ***** Licensed user: C.F. Crozier & Associates Inc. *****
00025: ***** Collingwood SERIAL#3737016 *****
00026: *****
00027: *****
00028: ***** PROGRAM ARRAY DIMENSIONS *****
00029: *****
00030: ***** Maximum value for ID numbers : 10 *****
00031: ***** Max. number of rainfall points: 15000 *****
00032: ***** Max. number of flow points : 15000 *****
00033: *****
00034: *****
00035: ***** DESCRIPTION SUMMARY TABLE HEADERS (units depend on METOUT in START) *****
00036: *****
00037: ***** ID: Hydrograph identification numbers, (1-10) *****
00038: ***** HYMO: Hydrograph reference numbers, (6 digits or characters) *****
00039: ***** AREA: Drainage area associated with hydrograph, (ac.) or (ha.) *****
00040: ***** OPEAK: Peak flow of simulated hydrograph, ((t3/s) or (m3/s)) *****
00041: ***** TpeakDate_hhmm: is the date and time of the peak flow *****
00042: ***** R.V.: Runoff volume of simulated hydrograph, (cu) or (mm) *****
00043: ***** R.C.: Runoff coefficient of simulated hydrograph, (ratio) *****
00044: ***** ** see WARNING or NOTE message printed at end of run. *****
00045: ***** ** see ERROR message printed at end of run. *****
00046: *****
00047: *****
00048: *****
00049: *****
00050: *****
00051: *****
00052: *****
00053: ***** SUMMARY OUTPUT *****
00054: *****
00055: ***** DATE: 2011-01-26 TIME: 10:34:23 RUN COUNTER: 000688 *****
00056: *****
00057: ***** Input filename: C:\HYMO\281HYM-1\PostVtm.dat *****
00058: ***** Output filename: C:\HYMO\281HYM-1\PostVtm.out *****
00059: ***** Summary filename: C:\HYMO\281HYM-1\PostVtm.sum *****
00060: ***** User comments: *****
00061: *****
00062: *****
00063: *****
00064: *****
00065: *****
00066: *****
00067: *****
00068: ***** Project Name: [Huntingwood Trails] Project Number: [281-2769] *****
00069: ***** Date : 06-04-2009 *****
00070: ***** Modeler : [J.Proctor] *****
00071: ***** Company : C.F. Crozier & Associates Inc. *****
00072: ***** Version : 3737016 *****
00073: *****
00074: ***** RUN/COMMAND *****
00075: ***** 001:0001 *****
00076: ***** START *****
00077: ***** [ZERO = .00 hrs on 0] *****
00078: ***** [METOUT = 2 (1=imperial, 2=metric output)] *****
00079: ***** [INSTORM = 0] *****
00080: ***** [NRUN = 1] *****
00081: *****
00082: ***** POST-DEVELOPMENT CONTROLLED - Timings Event *****
00083: *****
00084: ***** 001:0002 *****
00085: ***** HEAD STORM *****
00086: ***** File name : C:\HYMO\281HYM\POSTVtm.stm *****
00087: ***** Comment : Timings Storm Event *****
00088: ***** [SDT=60.00;SDRN= 12.00;PTOT= 193.00] *****
00089: ***** [Area 2101 (Most Developed Area)] *****
00090: ***** 001:0003 ID:HYMO AREA OPEAK-TpeakDate_hhmm R.V.-R.C. *****
00091: ***** CALIB STANHYD 01:2101 10.60 .931 No_date 7:00 131.64 .682 *****
00092: ***** [XIMP=30;TIMP=.50] *****
00093: ***** [LOSS=2;CIN=55.0] *****
00094: ***** [Impervious area: Iapov= 5.00;SLPP=2.00;LGP= 35;MNP=150;SCP=.0] *****
00095: ***** [Impervious area: Ialpp= 2.00;SLPP=.50;LGI= 265;MNI=.01;SCI=.0] *****
00096: ***** [Area 2102 (Silver Creek Buffer)] *****
00097: ***** 001:0004 ID:HYMO AREA OPEAK-TpeakDate_hhmm R.V.-R.C. *****
00098: ***** CALIB NASHYD 02:2102 9.80 .383 No_date 7:55 84.10 .436 *****
00099: ***** [CIN=52.8;N=3.00] *****
00100: ***** [Tpe=1.02;DT=5.00] *****
00101: ***** [Area 2103 (Least Developed Area)] *****
00102: ***** 001:0005 ID:HYMO AREA OPEAK-TpeakDate_hhmm R.V.-R.C. *****
00103: ***** CALIB STANHYD 03:2103 13.10 1.316 No_date 7:00 151.61 .786 *****
00104: ***** [XIMP=40;TIMP=.60] *****
00105: ***** [LOSS=2;CIN=63.5] *****
00106: ***** [Impervious area: Iapov= 5.00;SLPP=2.00;LGP= 35;MNP=150;SCP=.0] *****
00107: ***** [Impervious area: Ialpp= 2.00;SLPP=.50;LGI= 295;MNI=.01;SCI=.0] *****
00108: ***** [Area 2104 (Control Natural Area)] *****
00109: ***** 001:0006 ID:HYMO AREA OPEAK-TpeakDate_hhmm R.V.-R.C. *****
00110: ***** CALIB NASHYD 04:2104 13.00 .635 No_date 7:45 99.27 .514 *****
00111: ***** [CIN=62.2;N=3.00] *****
00112: ***** [Tpe=1.02;DT=5.00] *****
00113: ***** [Area 2105 (Natural Area Adj HWY 26)] *****
00114: ***** 001:0007 ID:HYMO AREA OPEAK-TpeakDate_hhmm R.V.-R.C. *****
00115: ***** CALIB NASHYD 05:2105 5.00 .735 No_date 7:25 87.33 .453 *****
00116: ***** [CIN=55.5;N=3.00] *****
00117: ***** [Tpe=1.73;DT=5.00] *****
00118: ***** [Route West Pond] *****
00119: ***** 001:0008 ID:HYMO AREA OPEAK-TpeakDate_hhmm R.V.-R.C. *****
00120: ***** ROUTE RESERVOIR -> 01:2101 10.60 .931 No_date 7:00 131.64 n/a *****
00121: ***** [RPT=1.00] out= 06:W.Pond 10.60 .619 No_date 7:20 131.64 n/a *****
00122: ***** overflow <= 07:W.Spill .00 .000 No_date 0:00 .00 n/a *****
00123: ***** [RSTUsed=5600E+00, TotOvVol=.0000E+00, N-Ovf= 0, TotRov= 0 hrs *****
00124: ***** [Route East Pond] *****
00125: ***** 001:0009 ID:HYMO AREA OPEAK-TpeakDate_hhmm R.V.-R.C. *****
00126: ***** ROUTE RESERVOIR -> 03:2103 13.10 1.316 No_date 7:00 151.61 n/a *****
00127: ***** [RPT=1.00] out= 08:W.Pond 13.10 .962 No_date 7:16 151.60 n/a *****
00128: ***** overflow <= 09:W.Spill .00 .000 No_date 0:00 .00 n/a *****
00129: ***** [RSTUsed=.7837E+00, TotOvVol=.0000E+00, N-Ovf= 0, TotRov= 0 hrs *****
00130: ***** [Post Development Controlled Flow to Silver Creek] *****
00131: ***** 001:0010 ID:HYMO AREA OPEAK-TpeakDate_hhmm R.V.-R.C. *****
00132: ***** ADD HYD 05:2102 9.80 .383 No_date 7:55 84.10 n/a *****
00133: ***** [RPT=1.00] SUM= 06:W.Pond 10.60 .619 No_date 7:20 131.64 n/a *****
00134: ***** overflow <= 07:W.Spill .00 .000 No_date 0:00 .00 n/a *****
00135: ***** [RPT=1.00] SUM= 01:West 20.40 .965 No_date 7:22 108.80 n/a *****

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00136: 001:0011 ID:HYMO AREA OPEAK-TpeakDate_hhmm R.V.-R.C.
00137: SUM HYD 01:West 20.40 .965 No_date 7:22 108.80 n/a
00138: [name :C:\HYMO\281HYM-1\PostVH-West.001]
00139: Remark:West
00140: [Post Development Controlled Flow to East]
00141: 001:0012 ID:HYMO AREA OPEAK-TpeakDate_hhmm R.V.-R.C.
00142: ADD HYD 04:2104 13.00 .635 No_date 7:45 99.27 n/a
00143: [RPT=1.00] SUM= 05:W.Pond 13.00 .735 No_date 7:25 87.33 n/a
00144: overflow <= 06:W.Pond 13.10 .942 No_date 7:16 151.60 n/a
00145: [RSTUsed=.5600E+00, TotOvVol=.0000E+00, N-Ovf= 0, TotRov= 0 hrs
00146: [Route East Pond]
00147: 001:0013 ID:HYMO AREA OPEAK-TpeakDate_hhmm R.V.-R.C.
00148: ADD HYD 02:West 13.10 1.316 No_date 7:00 151.61 n/a
00149: [RPT=1.00] SUM= 03:W.Pond 13.10 .962 No_date 7:16 151.60 n/a
00150: overflow <= 09:W.Spill .00 .000 No_date 0:00 .00 n/a
00151: [Post Development Controlled Flow to Silver Creek]
00152: 001:0014 ID:HYMO AREA OPEAK-TpeakDate_hhmm R.V.-R.C.
00153: ADD HYD 05:2102 9.80 .383 No_date 7:55 84.10 n/a
00154: Remark:East
00155: FINISH
00156:
00157:
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00159:
00160:

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00001> *****
00002>
00003> SSSSS W W M M H H Y Y M M O O 999 999 *****
00004> S W W M M M M H H Y Y M M O O 9 9 9 9
00005> SSSSS S W W M M M H H Y Y M M O O 9 9 9 9 Ver. 4.02
00006> S W W M M M H H Y Y M M O O 9999 9999 July 1999
00007> SSSSS W W M M H H Y Y M M O O 9 9 9 9 3737016
00008>
00009> Stormwater Management Hydrologic Model 9 9 9 9 3737016
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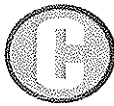
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000060 CALIB WASHYD 05:2105 5.00 098 No_date 2:20 14.70 2.95
000067 [CEN 55.00 N= 3.00]
000068 [TP= 73:DT= 5.00]
000069 -----
000100 001:0056 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000101 ROUTE RESERVOIR -> 01:2101 10.60 1.498 No_date 1:23 35.81 n/a
000102 [INT= 1.00] OUT= 06:M.Pond 10.60 0.97 No_date 4:05 35.81 n/a
000103 overflow <= 07:M.Spill .00 0.00 No_date 0:00 .00 n/a
000104 [MaxUseUsed=3920E+00, TotCvVol=0.000E+00, N-Cv= 0, TotBarV=0 0 hrs
000105 -----Route East Pond-----
000106 001:0057 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000107 ROUTE RESERVOIR -> 03:2103 13.10 2.443 No_date 1:24 41.49 n/a
000108 [INT= 1.00] OUT= 08:M.Pond 13.10 1.08 No_date 3:52 41.66 n/a
000109 overflow <= 09:M.Spill .00 0.00 No_date 0:00 .00 n/a
000110 [MaxUseUsed=4920E+00, TotCvVol=0.000E+00, N-Cv= 0, TotBarV=0 0 hrs
000111 -----Post Development Controlled Flow to Silver Creek-----
000112 001:0058 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000113 ADD HYD -----02:2102 9.80 1.51 No_date 2:40 14.29 n/a
000114 [INT= 1.00] SUR= 07:M.Spill .00 0.97 No_date 4:08 35.81 n/a
000115 overflow <= 09:M.Spill .00 0.00 No_date 0:00 .00 n/a
000116 [MaxUseUsed=4920E+00, TotCvVol=0.000E+00, N-Cv= 0, TotBarV=0 0 hrs
000117 -----Post Development Controlled Flow to Silver Creek-----
000118 001:0059 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000119 SAVE HYD 01:West 20.40 1.86 No_date 2:45 25.57 n/a
000120 [name=C:\HYM\281HYM-1\PostM-Hest.001
000121 remark:West
000122 -----Post Development Controlled Flow to East-----
000123 001:0060 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000124 ADD HYD -----04:2104 13.00 2.56 No_date 2:35 17.55 n/a
000125 [INT= 1.00] SUR= 08:M.Pond 13.10 1.08 No_date 3:52 44.68 n/a
000126 overflow <= 09:M.Spill .00 0.00 No_date 0:00 .00 n/a
000127 [MaxUseUsed=4920E+00, TotCvVol=0.000E+00, N-Cv= 0, TotBarV=0 0 hrs
000128 -----Post Development Controlled Flow to Silver Creek-----
000129 001:0061 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000130 SAVE HYD 02:East 31.10 1.449 No_date 2:35 28.52 n/a
000131 [name=C:\HYM\281HYM-1\PostM-Hest.001
000132 remark:West
000133 -----Post Development Controlled Flow to East-----
000134 001:0062 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000135 ADD HYD -----04:2104 13.00 2.56 No_date 2:35 17.55 n/a
000136 [INT= 1.00] SUR= 08:M.Pond 13.10 1.08 No_date 3:52 44.68 n/a
000137 overflow <= 09:M.Spill .00 0.00 No_date 0:00 .00 n/a
000138 [MaxUseUsed=4920E+00, TotCvVol=0.000E+00, N-Cv= 0, TotBarV=0 0 hrs
000139 -----Post Development Controlled Flow to Silver Creek-----
000140 001:0063 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000141 SAVE HYD 02:East 31.10 1.449 No_date 2:35 28.52 n/a
000142 [name=C:\HYM\281HYM-1\PostM-Hest.001
000143 remark:West
000144 -----Post Development Controlled Flow to East-----
000145 001:0064 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000146 ADD HYD -----04:2104 13.00 2.56 No_date 2:35 17.55 n/a
000147 [INT= 1.00] SUR= 08:M.Pond 13.10 1.08 No_date 3:52 44.68 n/a
000148 overflow <= 09:M.Spill .00 0.00 No_date 0:00 .00 n/a
000149 [MaxUseUsed=4920E+00, TotCvVol=0.000E+00, N-Cv= 0, TotBarV=0 0 hrs
000150 -----Post Development Controlled Flow to Silver Creek-----
000151 001:0065 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000152 SAVE HYD 02:East 31.10 1.449 No_date 2:35 28.52 n/a
000153 [name=C:\HYM\281HYM-1\PostM-Hest.001
000154 remark:West
000155 -----Post Development Controlled Flow to East-----
000156 001:0066 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000157 ADD HYD -----04:2104 13.00 2.56 No_date 2:35 17.55 n/a
000158 [INT= 1.00] SUR= 08:M.Pond 13.10 1.08 No_date 3:52 44.68 n/a
000159 overflow <= 09:M.Spill .00 0.00 No_date 0:00 .00 n/a
000160 [MaxUseUsed=4920E+00, TotCvVol=0.000E+00, N-Cv= 0, TotBarV=0 0 hrs
000161 -----Post Development Controlled Flow to Silver Creek-----
000162 001:0067 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000163 SAVE HYD 02:East 31.10 1.449 No_date 2:35 28.52 n/a
000164 [name=C:\HYM\281HYM-1\PostM-Hest.001
000165 remark:West
000166 -----Post Development Controlled Flow to East-----
000167 001:0068 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000168 ADD HYD -----04:2104 13.00 2.56 No_date 2:35 17.55 n/a
000169 [INT= 1.00] SUR= 08:M.Pond 13.10 1.08 No_date 3:52 44.68 n/a
000170 overflow <= 09:M.Spill .00 0.00 No_date 0:00 .00 n/a
000171 [MaxUseUsed=4920E+00, TotCvVol=0.000E+00, N-Cv= 0, TotBarV=0 0 hrs
000172 -----Post Development Controlled Flow to Silver Creek-----
000173 001:0069 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000174 SAVE HYD 02:East 31.10 1.449 No_date 2:35 28.52 n/a
000175 [name=C:\HYM\281HYM-1\PostM-Hest.001
000176 remark:West
000177 -----Post Development Controlled Flow to East-----
000178 001:0070 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000179 ADD HYD -----04:2104 13.00 2.56 No_date 2:35 17.55 n/a
000180 [INT= 1.00] SUR= 08:M.Pond 13.10 1.08 No_date 3:52 44.68 n/a
000181 overflow <= 09:M.Spill .00 0.00 No_date 0:00 .00 n/a
000182 [MaxUseUsed=4920E+00, TotCvVol=0.000E+00, N-Cv= 0, TotBarV=0 0 hrs
000183 -----Post Development Controlled Flow to Silver Creek-----
000184 001:0071 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000185 SAVE HYD 02:East 31.10 1.449 No_date 2:35 28.52 n/a
000186 [name=C:\HYM\281HYM-1\PostM-Hest.001
000187 remark:West
000188 -----Post Development Controlled Flow to East-----
000189 001:0072 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000190 ADD HYD -----04:2104 13.00 2.56 No_date 2:35 17.55 n/a
000191 [INT= 1.00] SUR= 08:M.Pond 13.10 1.08 No_date 3:52 44.68 n/a
000192 overflow <= 09:M.Spill .00 0.00 No_date 0:00 .00 n/a
000193 [MaxUseUsed=4920E+00, TotCvVol=0.000E+00, N-Cv= 0, TotBarV=0 0 hrs
000194 -----Post Development Controlled Flow to Silver Creek-----
000195 001:0073 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000196 SAVE HYD 02:East 31.10 1.449 No_date 2:35 28.52 n/a
000197 [name=C:\HYM\281HYM-1\PostM-Hest.001
000198 remark:West
000199 -----Post Development Controlled Flow to East-----
000200 001:0074 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000201 ADD HYD -----04:2104 13.00 2.56 No_date 2:35 17.55 n/a
000202 [INT= 1.00] SUR= 08:M.Pond 13.10 1.08 No_date 3:52 44.68 n/a
000203 overflow <= 09:M.Spill .00 0.00 No_date 0:00 .00 n/a
000204 [MaxUseUsed=4920E+00, TotCvVol=0.000E+00, N-Cv= 0, TotBarV=0 0 hrs
000205 -----Post Development Controlled Flow to Silver Creek-----
000206 001:0075 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000207 SAVE HYD 02:East 31.10 1.449 No_date 2:35 28.52 n/a
000208 [name=C:\HYM\281HYM-1\PostM-Hest.001
000209 remark:West
000210 -----Post Development Controlled Flow to East-----
000211 001:0076 -----ID:INHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R-V.-R.-C.
000212 ADD HYD -----04:2104 13.00 2.56 No_date 2:35 17.5
```

APPENDIX E

SWM Facility Preliminary Design Info



HUNTINGWOOD TRAILS - WEST SWM POND DESIGN

Project: Huntingwood Trail
Project No.: 281-2769
File: Pond Hydraulic Design
Design by: J. Proctor
Date: May 2009
Updated: January 2011

Pond Stage - Storage - Discharge Calculations

E.D. Orifice Diameter: 0.130 m
E.D. Orifice Invert Elevation: 181.3 m
Rect weir length: m
Rect weir invert: m
Weir Elevation Above PP: m
Extended Detention Depth: 181.65 m
Emergency Spill Elev. 182.6 m
Emerg Spill Bot. Width 3 m
Trap. Side Slopes 5 :1 H:V

Elev. (m)	Depth Above PP (m)	Area (sqm)	Storage Volume (cu.m)	ED Orifice Discharge (cu.m/s)	Rect. Weir Discharge* (cu.m/s)	Emerg. Weir Ave. Width (m)	Emerg. Weir Discharge (cu.m/s)	Total Discharge (cu.m/s)	Storage (ha-m)
181.30	0.00	2430	0	0.0000	0.000	0.00	0.000	0.000	0.000
181.35	0.05	2517	124	0.0000	0.000	0.00	0.000	0.000	0.012
181.40	0.10	2603	252	0.0070	0.000	0.00	0.000	0.007	0.025
181.45	0.15	2690	384	0.0110	0.000	0.00	0.000	0.011	0.038
181.50	0.20	2777	521	0.0138	0.000	0.00	0.000	0.014	0.052
181.55	0.25	2863	662	0.0162	0.000	0.00	0.000	0.016	0.066
181.60	0.30	2950	807	0.0182	0.000	0.00	0.000	0.018	0.081
181.65	0.35	3037	957	0.0201	0.000	0.00	0.000	0.020	0.096
181.70	0.40	3123	1111	0.0218	0.000	0.00	0.000	0.022	0.111
181.75	0.45	3210	1269	0.0233	0.000	0.00	0.000	0.023	0.127
181.80	0.50	3297	1432	0.0248	0.000	0.00	0.000	0.025	0.143
181.85	0.55	3383	1599	0.0262	0.000	0.00	0.000	0.026	0.160
181.90	0.60	3470	1770	0.0275	0.000	0.00	0.000	0.028	0.177
181.95	0.65	3557	1946	0.0288	0.000	0.00	0.000	0.029	0.195
182.00	0.70	3643	2126	0.0300	0.000	0.00	0.000	0.030	0.213
182.05	0.75	3730	2310	0.0311	0.000	0.00	0.000	0.031	0.231
182.10	0.80	3817	2499	0.0323	0.000	0.00	0.000	0.032	0.250
182.15	0.85	3903	2692	0.0333	0.000	0.00	0.000	0.033	0.269
182.20	0.90	3990	2889	0.0344	0.000	0.00	0.000	0.034	0.289
182.25	0.95	4077	3091	0.0354	0.000	0.00	0.000	0.035	0.309
182.30	1.00	4163	3297	0.0364	0.000	0.00	0.000	0.036	0.330
182.35	1.05	4250	3507	0.0373	0.000	0.00	0.000	0.037	0.351
182.40	1.10	4337	3722	0.0383	0.000	0.00	0.000	0.038	0.372
182.45	1.15	4423	3941	0.0392	0.000	0.00	0.000	0.039	0.394
182.50	1.20	4510	4164	0.0401	0.000	0.00	0.000	0.040	0.416
182.55	1.25	4597	4392	0.0410	0.000	0.00	0.000	0.041	0.439
182.60	1.30	4683	4624	0.0418	0.000	3.00	0.000	0.042	0.462
182.65	1.35	4770	4860	0.0427	0.000	3.25	0.057	0.099	0.486
182.70	1.40	4857	5101	0.0435	0.000	3.50	0.173	0.216	0.510
182.75	1.45	4943	5346	0.0443	0.000	3.75	0.340	0.384	0.535
182.80	1.50	5030	5595	0.0451	0.000	4.00	0.558	0.603	0.559
182.85	1.55	5117	5849	0.0459	0.000	4.25	0.829	0.875	0.585
182.90	1.60	5203	6107	0.0466	0.000	4.50	1.154	1.200	0.611
182.95	1.65	5290	6369	0.0474	0.000	4.75	1.534	1.582	0.637
183.00	1.70	5377	6636	0.0481	0.000	5.00	1.973	2.021	0.664
183.05	1.75	5463	6907	0.0488	0.000	5.25	2.472	2.521	0.691
183.10	1.80	5550	7182	0.0496	0.000	5.50	3.033	3.083	0.718



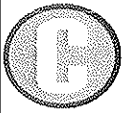
HUNTINGWOOD TRAILS - EAST SWM POND DESIGN

Project: Huntingwood Trail
Project No.: 281-2769
File: Pond Hydraulic Design
Design by: J. Proctor
Date: May 2009
Updated: January 2011

Pond Stage - Storage - Discharge Calculations

E.D. Orifice Diameter: 0.125 m
E.D. Orifice Invert Elevation: 181.2 m
Rect weir length: 0.1 m
Rect weir invert: 181.5 m
Weir Elevation Above PP: m
Extended Detention Depth: 181.5 m
Emergency Spill Elev. 182.3 m
Emerg Spill Bot. Width 3 m
Trap. Side Slopes 5 :1 H:V

Elev. (m)	Depth Above PP (m)	Area (sqm)	Storage Volume (cu.m)	ED Orifice Discharge (cu.m/s)	Rect. Weir Discharge* (cu.m/s)	Emerg. Weir Ave. Width (m)	Emerg. Weir Discharge (cu.m/s)	Total Discharge (cu.m/s)	Storage (ha-m)
181.20	0.00	4900	0	0.0000	0.000	0.00	0.000	0.000	0.000
181.25	0.05	4977	247	0.0000	0.000	0.00	0.000	0.000	0.025
181.30	0.10	5053	498	0.0067	0.000	0.00	0.000	0.007	0.050
181.35	0.15	5130	752	0.0103	0.000	0.00	0.000	0.010	0.075
181.40	0.20	5207	1011	0.0129	0.000	0.00	0.000	0.013	0.101
181.45	0.25	5283	1273	0.0151	0.000	0.00	0.000	0.015	0.127
181.50	0.30	5360	1539	0.0170	0.000	0.00	0.000	0.017	0.154
181.55	0.35	5437	1809	0.0187	0.002	0.00	0.000	0.021	0.181
181.60	0.40	5513	2083	0.0202	0.005	0.00	0.000	0.026	0.208
181.65	0.45	5590	2360	0.0217	0.010	0.00	0.000	0.032	0.236
181.70	0.50	5667	2642	0.0230	0.015	0.00	0.000	0.038	0.264
181.75	0.55	5743	2927	0.0243	0.021	0.00	0.000	0.046	0.293
181.80	0.60	5820	3216	0.0255	0.028	0.00	0.000	0.053	0.322
181.85	0.65	5897	3509	0.0267	0.035	0.00	0.000	0.062	0.351
181.90	0.70	5973	3806	0.0278	0.043	0.00	0.000	0.071	0.381
181.95	0.75	6050	4106	0.0288	0.051	0.00	0.000	0.080	0.411
182.00	0.80	6127	4411	0.0299	0.060	0.00	0.000	0.090	0.441
182.05	0.85	6203	4719	0.0309	0.069	0.00	0.000	0.100	0.472
182.10	0.90	6280	5031	0.0318	0.079	0.00	0.000	0.111	0.503
182.15	0.95	6357	5347	0.0328	0.089	0.00	0.000	0.122	0.535
182.20	1.00	6433	5667	0.0337	0.100	0.00	0.000	0.133	0.567
182.25	1.05	6510	5990	0.0346	0.110	0.00	0.000	0.145	0.599
182.30	1.10	6587	6318	0.0354	0.122	3.00	0.000	0.157	0.632
182.35	1.15	6663	6649	0.0363	0.133	3.25	0.057	0.226	0.665
182.40	1.20	6740	6984	0.0371	0.145	3.50	0.173	0.355	0.698
182.45	1.25	6817	7323	0.0379	0.157	3.75	0.340	0.535	0.732
182.50	1.30	6893	7666	0.0387	0.170	4.00	0.558	0.767	0.767
182.55	1.35	6970	8012	0.0395	0.183	4.25	0.829	1.051	0.801
182.60	1.40	7046	8363	0.0402	0.196	4.50	1.154	1.390	0.836
182.65	1.45	7123	8717	0.0410	0.210	4.75	1.534	1.785	0.872
182.70	1.50	7200	9075	0.0417	0.223	5.00	1.973	2.238	0.907
182.75	1.55	7283	9437	0.0424	0.238	5.25	2.472	2.752	0.944
182.80	1.60	7367	9803	0.0431	0.252	5.50	3.033	3.329	0.980
182.85	1.65	7450	10174	0.0438	0.267	5.75	3.659	3.969	1.017
182.90	1.70	7533	10548	0.0445	0.282	6.00	4.350	4.676	1.055
182.95	1.75	7617	10927	0.0452	0.297	6.25	5.109	5.451	1.093
183.00	1.80	7700	11310	0.0459	0.312	6.50	5.939	6.297	1.131



**CROZIER
& ASSOCIATES**
ENGINEERS

Project: Huntingwood
Project No.: 281-2769
File: Pond Hydraulic Design
Design by: J. Proctor
Date: May 2009
Updated: January 2011

EXTENDED DETENTION SPECIFICATIONS - PRELIMINARY WEST POND DESIGN

Extended Detention Volume (Area x runoff from 25mm event)	930
t (drawdown time - seconds, <i>hours in italics</i>)	24.0 86400
Ao (cross section area of orifice - sqm)	0.013
h (maximum water elevation above orifice for extended detention- m)	0.35
C (discharge coefficient)	0.64
Ap (average surface area for extended detention - sqm)	2700

$$t = 2 * A_p * (h^{0.5}) / (C * A_o * (g * 2)^{0.5})$$

Ao =	0.01304321 m	d =	129 mm
------	--------------	-----	--------

Extended Detention Orifice Diameter (as designed)	d =	130 mm
---	-----	---------------



**CROZIER
& ASSOCIATES**
ENGINEERS

Project: Huntingwood
Project No.: 281-2769
File: Pond Hydraulic Design
Design by: J. Proctor
Date: May 2009
Updated: January 2011

EXTENDED DETENTION SPECIFICATIONS - PRELIMINARY EAST POND DESIGN

Extended Detention Volume (Area x runoff from 25mm event)	1510
t (drawdown time - seconds, <i>hours in italics</i>)	48.0 172800
Ao (cross section area of orifice - sqm)	0.011
h (maximum water elevation above orifice for extended detention- m)	0.30
C (discharge coefficient)	0.64
Ap (average surface area for extended detention - sqm)	5130

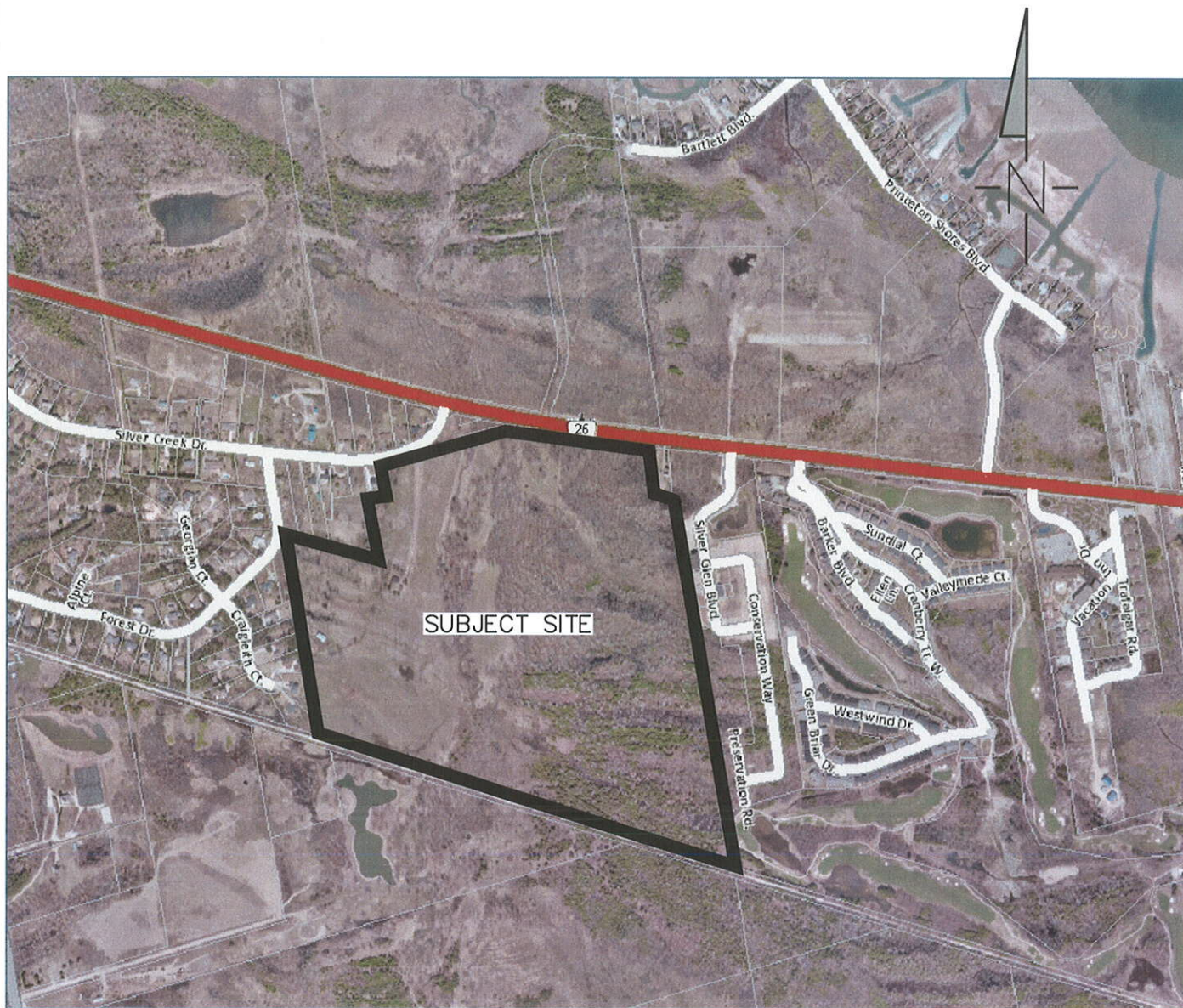
$$t = 2 * A_p * (h^{0.5}) / (C * A_o * (g * 2)^{0.5})$$

Ao =	0.01147188 m	d =	121 mm
------	--------------	-----	--------

Extended Detention Orifice Diameter (as designed)	d =	125 mm
---	-----	--------

FIGURES

Figure 1:	Site Location
Figure 2:	Concept Plan
Figure 3:	Sanitary Servicing Plan
Figure 4:	Water Servicing Plan
Figure 5:	Pre-Development Drainage Plan
Figure 6:	Internal Storm Drainage Plan
Figure 7:	Post-Development Drainage Plan
Figure 8:	Proposed Stormwater Management Facility Plan (East)
Figure 9:	Proposed Stormwater Management Facility Plan (West)



Project	HUNTINGWOOD DEVELOPMENT TOWN OF COLLINGWOOD			
Drawing	SITE LOCATION			
Drawn By	J.O.	Design By	J.O.	Project
Scale	N.T.S.	Date	01/20/2011	Check By
				J.P./C.F.C.
				Drawing
				281-2769
				Fig. 1



**CROZIER
& ASSOCIATES**
Consulting Engineers

110 PINE STREET,
COLLINGWOOD, ON L9Y 2N9
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA



Key Map

CONCEPT PLAN

LAND USE	UNITS	AREA
RESIDENTIAL SINGLE DETACHED LOTS	1 to 99	7.36 ha
BLOCK 1 - RESIDENTIAL SEMI'S (12 SEMI-DETACHED UNITS)	12	0.84 ha
BLOCK 2 - RESIDENTIAL TOWNHOUSES (18 TOWNHOUSE UNITS)	18	0.74 ha
BLOCK 3 - RESIDENTIAL TOWNHOUSES (12 TOWNHOUSE UNITS)	12	0.43 ha
BLOCK 4 - STORMWATER MANAGEMENT (DEDICATED TO MUNICIPALITY)		1.20 ha
BLOCK 5 - RESIDENTIAL HIGH DENSITY (5 - 36 UNIT WALK UP APARTMENT BUILDINGS)	144	2.05 ha
BLOCK 6 - STORMWATER MANAGEMENT (TO BE DEDICATED TO MUNICIPALITY)		1.15 ha
BLOCK 7 - LOCAL COMMERCIAL		0.55 ha
BLOCK 8 - RESIDENTIAL TOWNHOUSES (75 TOWNHOUSE UNITS)	75	1.69 ha
BLOCK 9 - RESIDENTIAL TOWNHOUSES (33 TOWNHOUSE UNITS)	32	0.82 ha
BLOCK 10 - RESIDENTIAL TOWNHOUSES (12 TOWNHOUSE UNITS)	12	0.32 ha
BLOCK 11 - RESIDENTIAL SINGLE DETACHED (31 FREEHOLD SINGLE DETACHED LOTS)	32	2.67 ha
BLOCK 12 - SENIORS COMPLEX		0.40 ha
BLOCK 13 - COMMUNITY CENTER + OPEN SPACE + ENVIRONMENTAL PROTECTION (DEDICATED TO TOWN)		7.61 ha
BLOCK 14 - OPEN SPACE + ENVIRONMENTAL PROTECTION (DEDICATED TO TOWN)		2.11 ha
BLOCK 15 - OPEN SPACE + ENVIRONMENTAL PROTECTION (DEDICATED TO TOWN)		14.33 ha
BLOCK 16+17 - WALKWAY (DEDICATED TO TOWN)		0.07 ha
ROADS		4.63 ha
TOTAL	436	48.97 ha

-  PROTECTED WETLANDS
-  30 METER SETBACK FROM SILVER CREEK
-  PUBLIC TRAIL

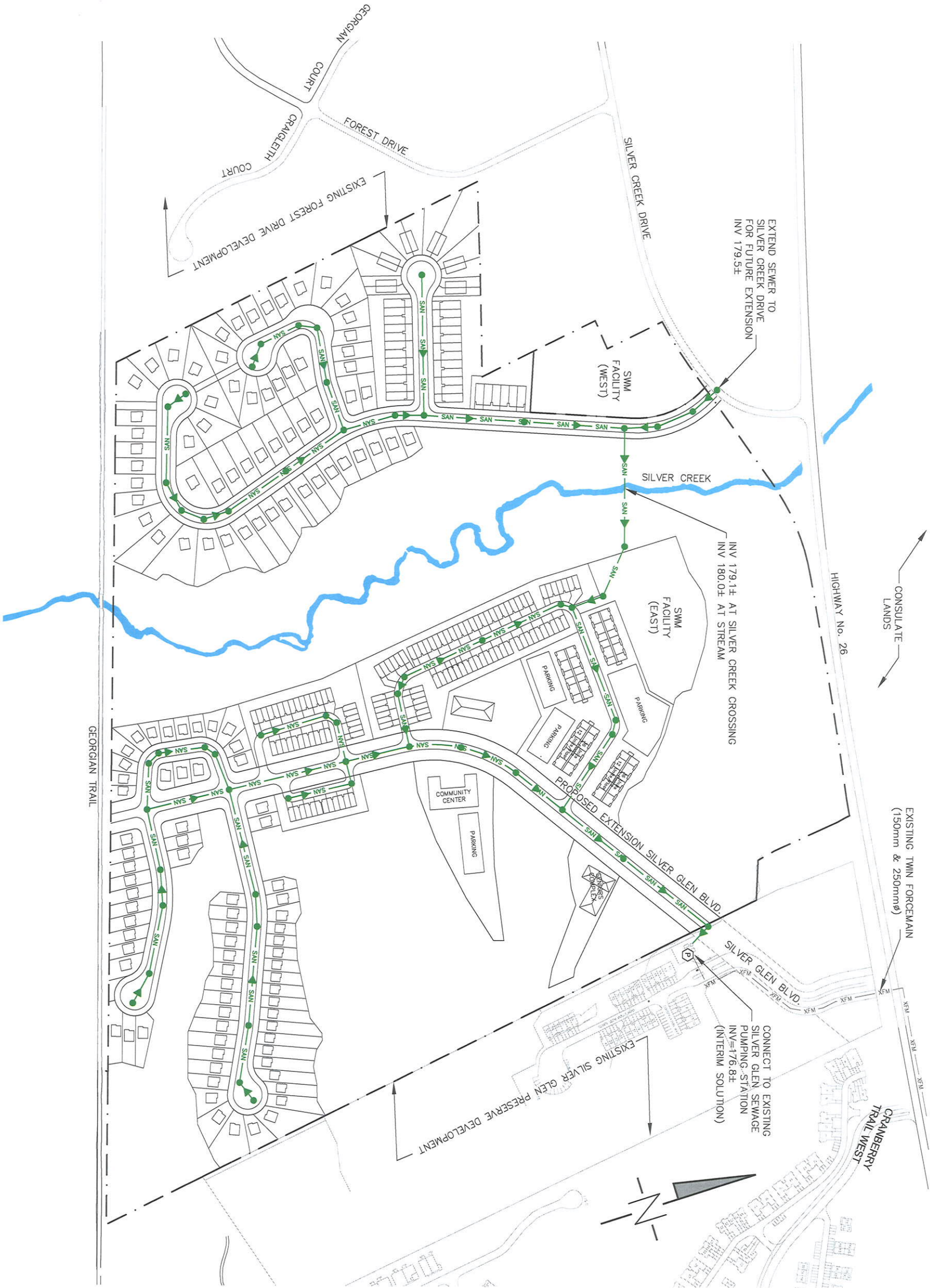
SCALE 1:2000

METRIC
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY
DIVIDING BY 0.3048

PROJECT: 704-10 DRAWN: AP DATE: JAN 19/2010

DWG: 704-10-Concept Plan

DCS D.C. Slade Consultants INC.
Planning & Development
243 Hurontario Street, Collingwood, ON Phone: 705.444.1830



LEGEND

PROPOSED GRAVITY SANITARY SEWER ROUTE

PROPOSED SANITARY SEWER MANHOLE

EXISTING SANITARY PUMP STATION

SUBJECT LANDS

EXISTING FORCEMAIN

SILVER CREEK WATERCOURSE

Project

HUNTINGWOOD DEVELOPMENTS
TOWN OF COLLINGWOOD

Drawn By

J.O.

Design By

J.O.

Check By

J.P./C.F.C.

Project

281-2769

Scale

1:4000

Date

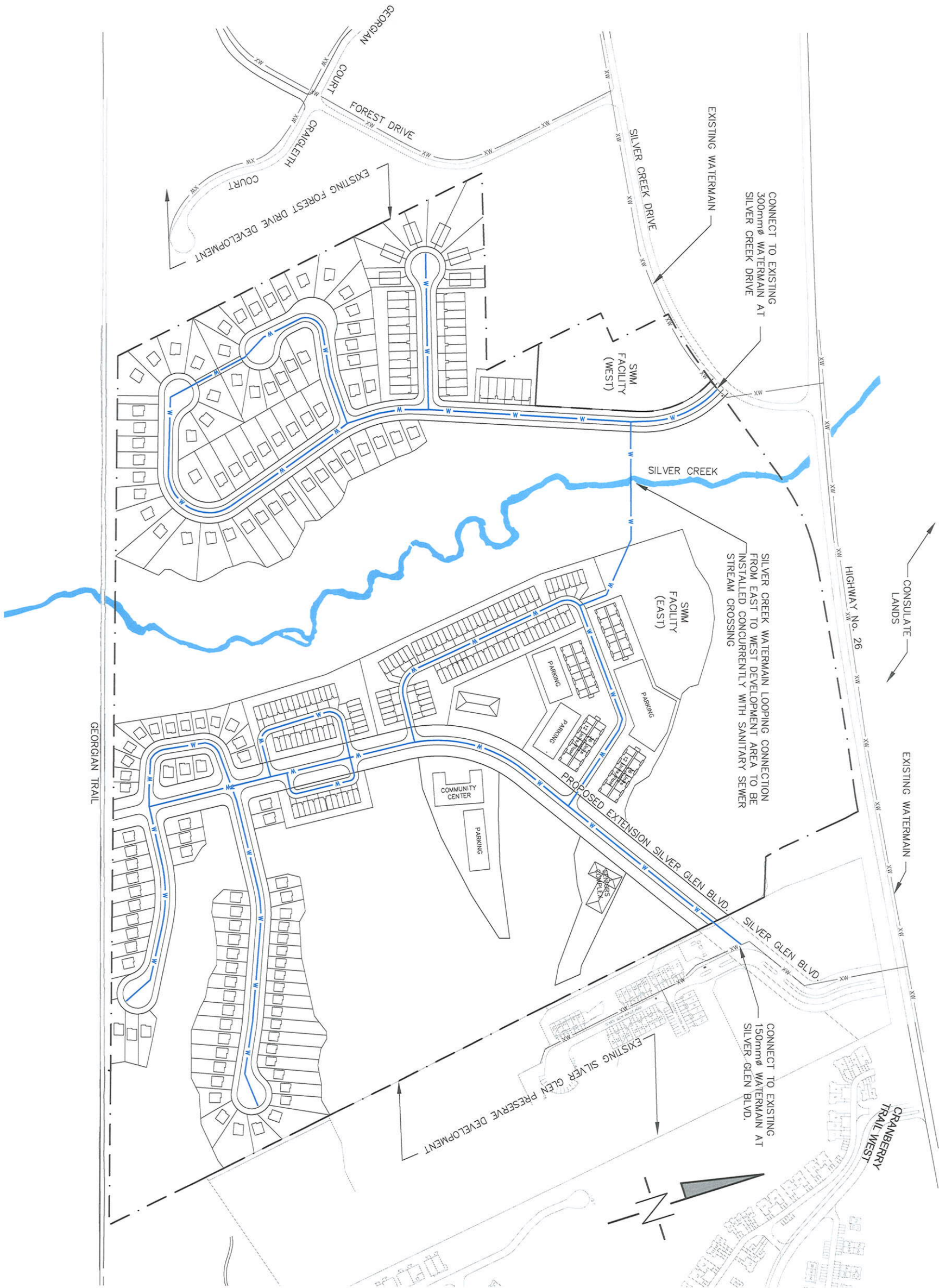
01/20/2011

Fig. 3

CROZIER & ASSOCIATES
Consulting Engineers

110 PINE STREET,
COLLINGWOOD, ONT L9Y 2N9
709.446.3810
WWW.CROZIERCA.COM
INFO@CROZIERCA.COM

SANITARY SERVICING PLAN



LEGEND

- W — PROPOSED WATERMAIN ROUTE
- - - SUBJECT LANDS
- - - EXISTING WATERMAIN
- XW — EXISTING WATERMAIN
- SILVER CREEK WATERCOURSE

Project

HUNTINGWOOD DEVELOPMENTS
TOWN OF COLLINGWOOD

Water Servicing Plan

Scale 1:4000

Date 01/20/2011

Drawn By J.O.

Design By J.O.

Check By J.P./C.F.C.

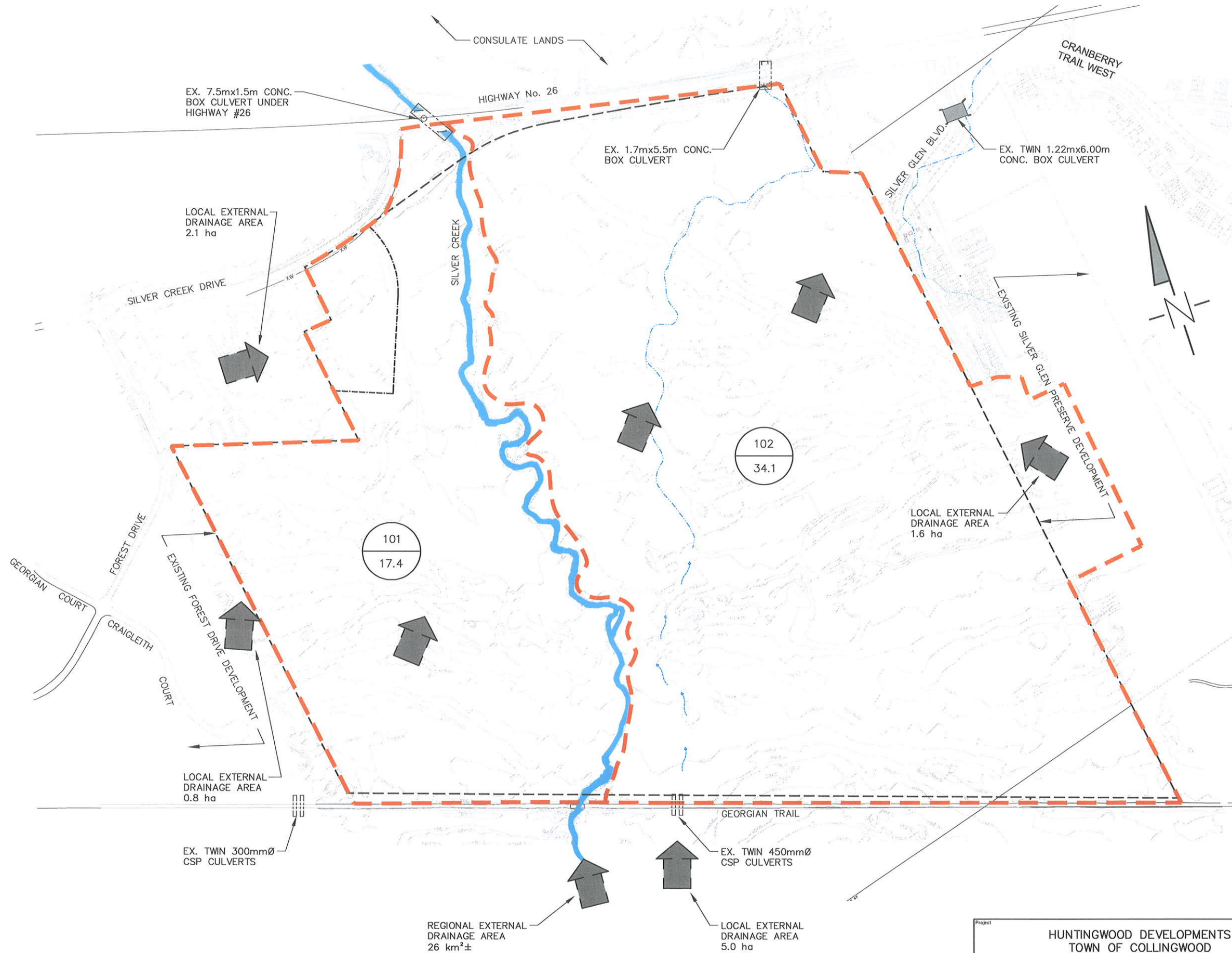
Project 281-2769

Fig. 4

CROZIER & ASSOCIATES
Consulting Engineers

110 PINE STREET
COLLINGWOOD, ON L9Y 2N9
705 4463810 T
705 4463520 F
WWW.CROZIERCA
INFO@CROZIERCA

J:\200\281 - Huntingwood - Skelton Farm\2769\Cad\2769_701-709.dwg, PRE_705, 1/28/2011 10:50:27 AM



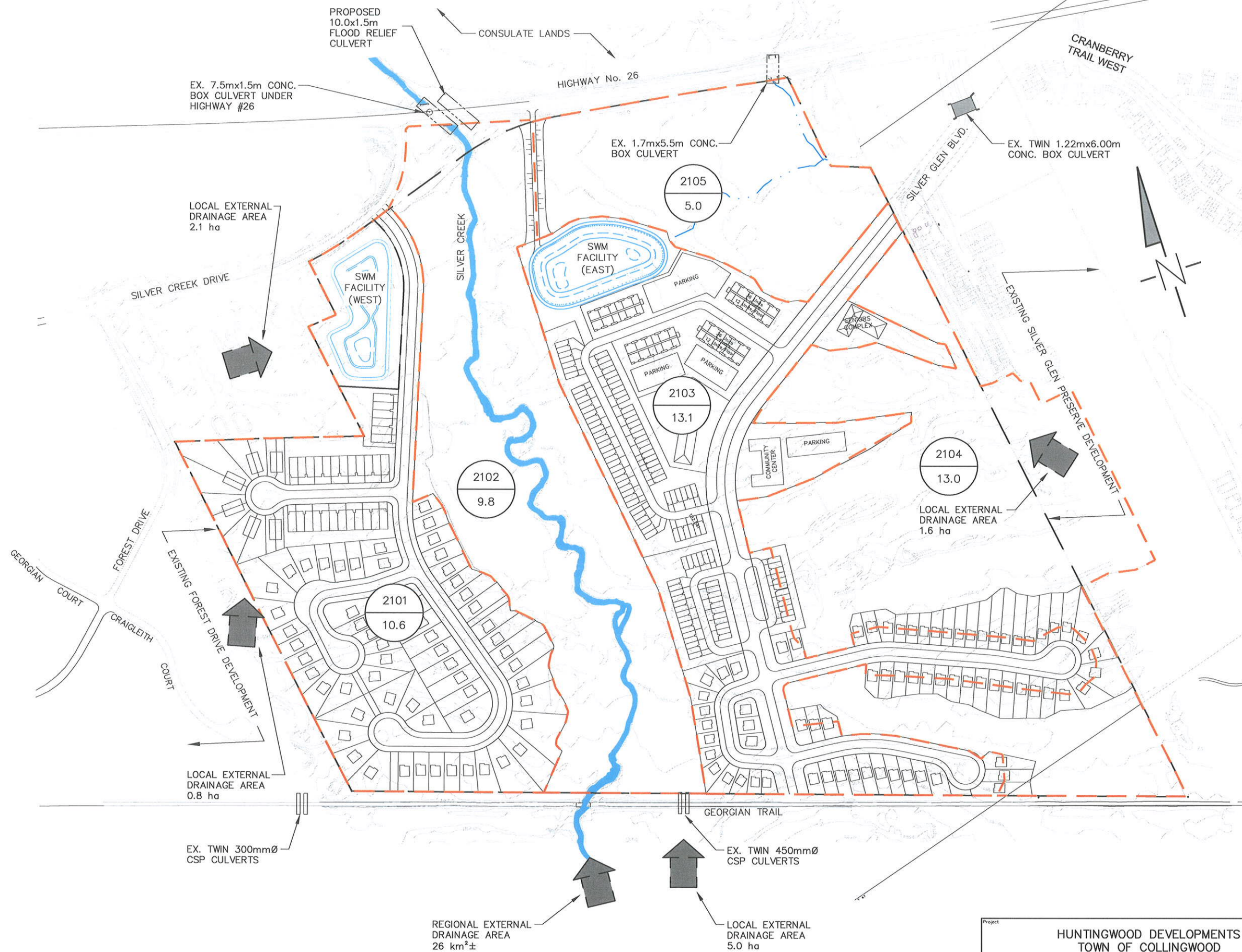
LEGEND

- FLOW DIRECTION
- EXISTING CULVERT
- EXISTING DRAINAGE CATCHMENT BOUNDARY
- CATCHMENT ID
16.55 CATCHMENT AREA (ha)
- SILVER CREEK WATERCOURSE
- EXISTING INTERMITTENT DRAINAGE CHANNEL
- EXISTING CONTOUR (0.5m INTERVAL)
- EXISTING INTERMITTENT DITCH AS OBSERVED DURING FIELD SITE WALK (FEB 2009)

NOTE:
CONTOURS GENERATED BY FIRST BASE SOLUTIONS
(AIR PHOTO 2008)

Project		HUNTINGWOOD DEVELOPMENTS TOWN OF COLLINGWOOD			CROZIER & ASSOCIATES Consulting Engineers	110 PINE STREET, COLLINGWOOD, ON L9Y 2N9 705 446-3510 T 705 446-3520 F WWW.CFCROZIER.CA INFO@CFCROZIER.CA	
Drawing		PRE-DEVELOPMENT DRAINAGE PLAN					
Drawn By	J.O.	Design By	J.P./N.M.	Project	281-2769		
Scale	1:4000	Date	01/20/2011	Check By	N.M./C.F.C.	Drawing	Fig. 5

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LEGEND

- FLOW DIRECTION
- EXISTING CULVERT
- EXISTING DRAINAGE CATCHMENT BOUNDARY
- CATCHMENT ID
- CATCHMENT AREA (ha)
- SILVER CREEK WATERCOURSE
- EXISTING INTERMITTENT DRAINAGE CHANNEL
- EXISTING CONTOUR (0.5m INTERVAL)
- EXISTING INTERMITTENT DITCH AS OBSERVED DURING FIELD SITE WALK (FEB 2009)

NOTE:
CONTOURS GENERATED BY FIRST BASE SOLUTIONS
(AIR PHOTO 2008)

HUNTINGWOOD DEVELOPMENTS
TOWN OF COLLINGWOOD

POST-DEVELOPMENT DRAINAGE PLAN



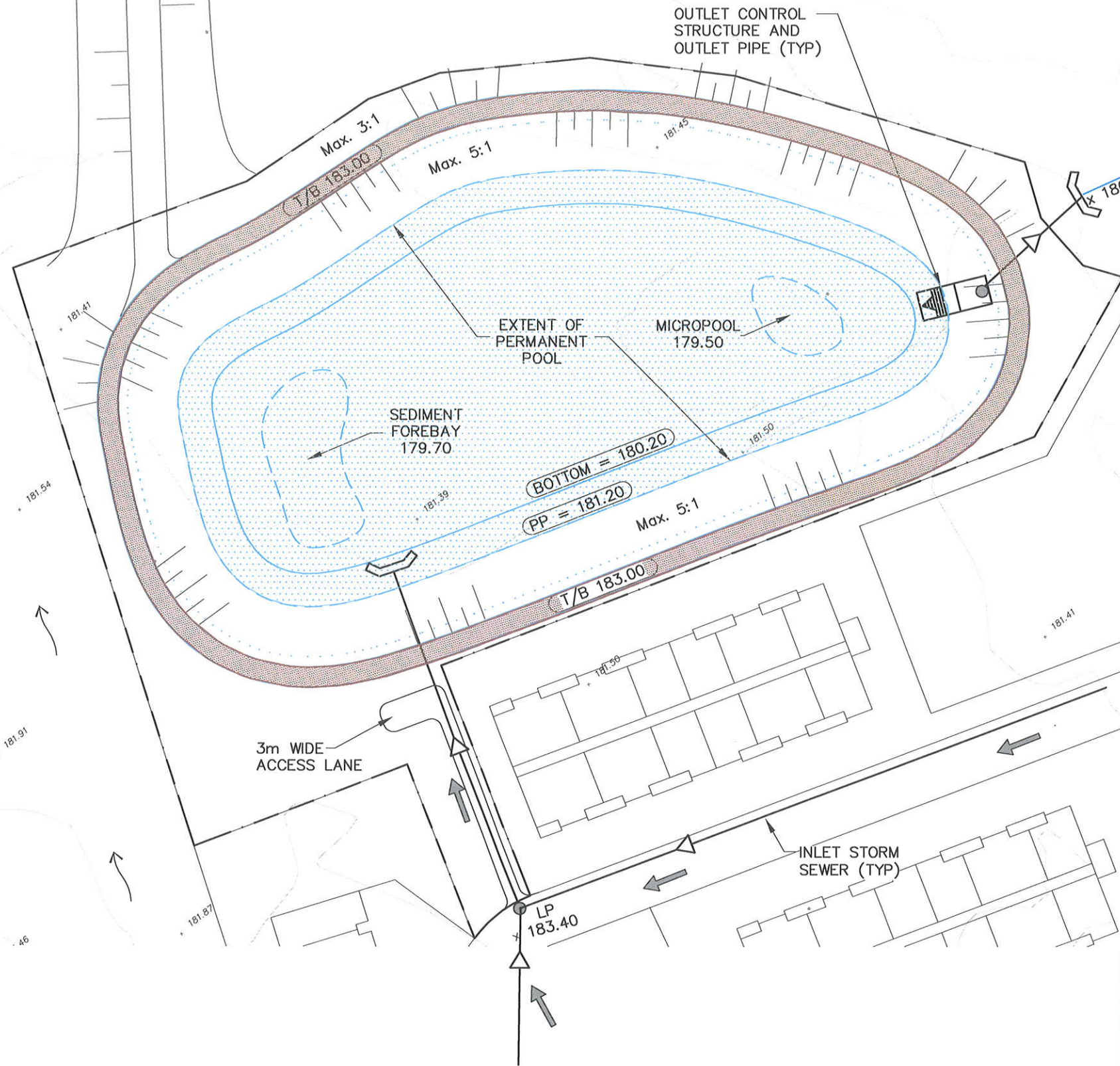
110 PINE STREET,
COLLINGWOOD, ON L9Y 2N9
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn By	J.O.	Design By	J.P./N.M.	Project	281-2769
Scale	1:4000	Date	01/20/2011	Check By	N.M./C.F.C.

Fig. 7

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EAST SWM FACILITY (WET POND)		
LEVEL	ELEVATION	STORAGE
BOTTOM OF POND	180.20m (MIN.)	NIL
PERMANENT POOL	181.20m	4,200 m ³ (DEAD)
100 YEAR HWL	182.30m	6,320 m ³ (ACTIVE)
TOP OF BANK	183.00m	11,310 m ³ (ACTIVE)

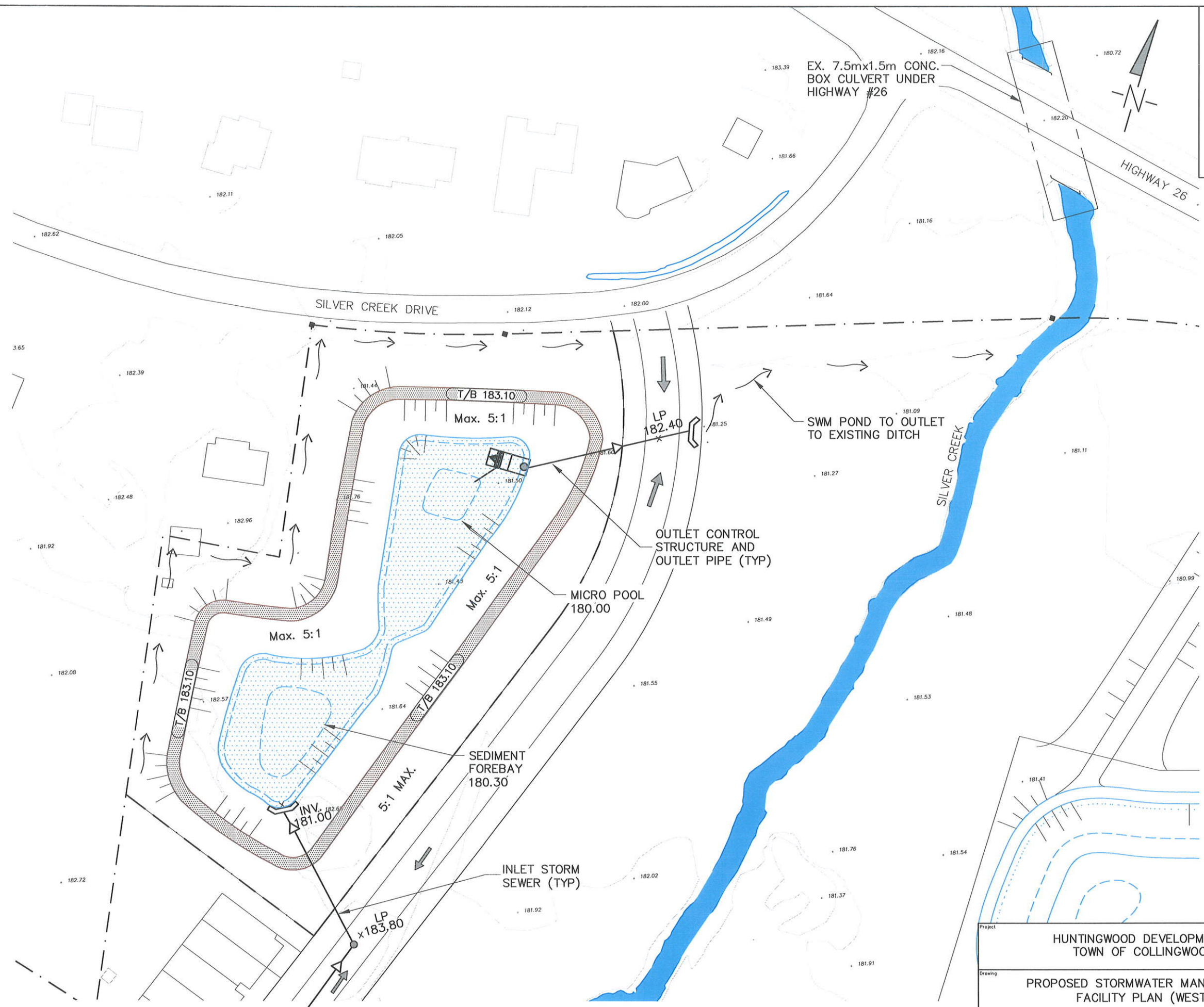


Project		HUNTINGWOOD DEVELOPMENTS TOWN OF COLLINGWOOD		 CROZIER & ASSOCIATES Consulting Engineers 110 PINE STREET, COLLINGWOOD, ON L9Y 2N9 705 446-3510 T 705 446-3520 F WWW.CFCROZIER.CA INFO@CFCROZIER.CA	
Drawing		PROPOSED STORMWATER MANAGEMENT FACILITY PLAN (EAST)			
Drawn By	J.O.	Design By	J.P.	Project	281-2769
Scale	1:750	Date	01/20/2011	Check By	N.M./C.F.C.
					Fig. 8

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WEST SWM FACILITY
(WETLAND)

LEVEL	ELEVATION	STORAGE
BOTTOM OF POND	181.00m	NIL
PERMANENT POOL	181.30m	650 m ³ (DEAD)
100 YEAR HWL	182.60m	4,620 m ³ (ACTIVE)
TOP OF BANK	183.10m	7,180 m ³ (ACTIVE)



Project		HUNTINGWOOD DEVELOPMENTS TOWN OF COLLINGWOOD		 CROZIER & ASSOCIATES Consulting Engineers	110 PINE STREET, COLLINGWOOD, ON L9Y 2N9 705 446-3510 T 705 446-3520 F WWW.CFCROZIER.CA INFO@CFCROZIER.CA
Drawing		PROPOSED STORMWATER MANAGEMENT FACILITY PLAN (WEST)			
Drawn By	J.O.	Design By	J.P.	Project	281-2769
Scale	1:1000	Date	01/20/2011	Check By	N.M./C.F.C.
					Fig. 9