TOWN OF CALEDON
PLANNING
RECEIVED

October 31, 2023

FUNCTIONAL SERVICING & STORMWATER MANAGEMENT REPORT

12245 TORBRAM ROAD
TULLAMORE LANDS

TOWN OF CALEDON
REGION OF PEEL

PREPARED FOR:

TULLAMORE INDUSTRIAL GP LIMITED

PREPARED BY:

C.F. CROZIER & ASSOCIATES INC.
2800 HIGH POINT DRIVE, SUITE 100
MILTON, ON L9T 6P4

OCTOBER 2023

CFCA FILE NO. 2022-5842

The material in this report reflects best judgment in light of the information available at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. C.F. Crozier & Associates Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

CROZIER
CONSULTING ENGINEERS

Revision Number	Date	Comments
Rev.0	June 29, 2021	Issued for DPOS, OPA & ZBA
Rev.1	December 2021	Issued for Plan of Subdivision
Rev.2	April 6, 2023	Issued for OPA and DPoS
Rev.3	October 30, 2023	Issued for OPA and DPoS

TABLE OF CONTENTS

1.0 INTRODUCTION 1

1.1 Site Description 1
1.2 Proposed Development 1
1.3 Reference Documents 1

2.0 SANITARY SERVICING 3

2.1 Sanitary Design Criteria 3
2.2 Existing Municipal Sanitary System 3
2.3 Proposed Regional Sanitary Infrastructure 3
2.4 Proposed Sanitary Sewer System 4

3.0 WATER SERVICING 5

3.1 Water Design Criteria 5
3.2 Existing Water Services 5
3.3 Proposed Regional Water Infrastructure 5
3.4 Proposed Watermain System 5

4.0 GRADING AND STORM DRAINAGE 7

4.1 Site Grading 7

5.0 STORMWATER MANAGEMENT 7

5.1 Stormwater Management Criteria 7
5.2 Drainage Conditions 10
5.2.1 Existing Drainage Conditions 10
5.2.2 Proposed Drainage Conditions 14

5.3 Quantity Control for Salt Creek 17
5.4 Flows to the Southeast Neighbouring Property 18
5.5 Quantity Control for the West Tributary 20
5.6 Stormwater Management for the East Tributary 21
5.7 Quantity Control Within Blocks 21
5.8 Design Storm Events Stormwater Management (SWM) Facility Design 22
5.8.1 Grading and Design Considerations 23
5.8.2 Quantity Control 23
5.8.3 Quality Control 26
5.8.4 Erosion Control Measures 28
5.8.5 Stormwater Management Facilities Outlet Structures 29
5.8.6 Emergency Spillway 30

5.9 Regional Storm Event Stormwater Management (SWM) Facility Design 30
5.9.1 Grading and Design Considerations 31
5.9.2 Quantity Control 31
5.9.3 Dry Pond Outlet Structure 31
5.9.4 Emergency Spillway 32

5.10 Stormwater Conveyance Systems 32
5.10.1 Minor Storm Sewer System Conveyance 32
5.10.2 Major Storm System Conveyance 33

5.11 Water Balance 33

6.0 CONCLUSIONS AND RECOMMENDATIONS 37

LIST OF TABLES

Table 1: Proposed Sanitary Demand Flows
Table 2: Domestic Water Demands
Table 3: Fire Flow Demands – Fire Underwriter's Survey
Table 4: Pre-Development Catchments
Table 5: Pre-Development Uncontrolled Runoff Summary to Watercourses (6-Hour Storm)
Table 6: Pre-Development Uncontrolled Runoff Summary (6-Hour Storm)
Table 7: Pre-Development Uncontrolled Runoff Summary to Watercourses (12-Hour Storm)
Table 8: Pre-Development Uncontrolled Runoff Summary (12-Hour Storm)
Table 9: Post-Development Catchments
Table 10: Post-Development Uncontrolled Runoff Summary (6-Hour Storm)
Table 11: Post-Development Uncontrolled Runoff Summary (12-Hour Storm)
Table 12: Flow Summary to Salt Creek
Table 13: Site Flow Summary to the Southeast Neighbouring Property
Table 14: Summary of Neighbouring SWM Pond Peak Flows and Storage Volumes
Table 15: Flow Summary to West Tributary
Table 16: Summary of Block-Level Peak Stormwater Flow Rates and Storage Requirements
Table 17: Summary of Unit Flow Relationships for the Site
Table 18: Stormwater Management Facility Target Release Rates for Wetland 1
Table 19: Stormwater Management Facility Target Release Rates for Wetland 2
Table 20: Summary of SWM Facilities Peak Flows and Storage Volumes for Wetland 1
Table 21: Summary of SWM Facilities Peak Flows and Storage Volumes for Wetland 2
Table 22: SWM Facilities Water Quality Requirements
Table 23: SWM Facility Forebay Sizing Summary
Table 24: Summary of Water Balance (Private Blocks 1-8)
Table 25: Summary of Infiltration Water Balance Target for the Industrial Blocks
Table 26: LID Options Feasibility Summary - Private Blocks
Table 27: Summary of Water Balance (Public Blocks)

LIST OF APPENDICES

Appendix A: Sanitary

Appendix B: Watermain

Appendix C: Pre-Development Stormwater Management

Appendix D: Post-Development Stormwater Management

LIST OF FIGURES

FIG-01 Sanitary Drainage Area Plan

FIG-02 Water Distribution Plan

FIG-03 Pre-Development Drainage Plan

FIG-04 Post Development Drainage Plan

FIG-05 Pre-Development Land Cover

FIG-06 Summary of Stormwater Control Requirements

FIG-07 Preliminary LID Locations

LIST OF DRAWINGS

C101 Preliminary Storm and Sanitary Servicing Plan - North

C101A Preliminary Storm and Sanitary Servicing Plan - South

C102 Preliminary Grading Plan - North

C102A Preliminary Grading Plan - South

C103 Stormwater Management Facility and Environment Protection Area Plan

C103A Stormwater Management Facility and Environmental Protection Area Sections

C103B Stormwater Management Facility and Environmental Protection Area Sections

1.0 Introduction

C.F. Crozier & Associates Inc. (Crozier) was retained by Tullamore Industrial GP Limited to prepare a Functional Servicing and Stormwater Management Report in support of a proposed 202.9 ha Business Park at 12245 Torbram Road (the Tullamore Lands). The Tullamore Lands are located on the north-west corner of Mayfield Road and Airport Road, in the Town of Caledon (Site). In September 2022, the province issued a Minister's Zoning Order (MZO) for this property, therefore this report is in support of the Draft Plan of Subdivision (DPoS) and Official Plan Amendment (OPA) application for the Site.

This Functional Servicing and Stormwater Management Report forms part of the OPA and DPoS applications. This report is to be read in conjunction with the Traffic Impact Study by Crozier (October 2023), the Comprehensive Environmental Impact Study and Management Plan by GEI Consultants (October 023) and the Draft Plan of Subdivision by Weston Consulting (October 2023).

1.1 Site Description

The Site is primarily a greenfield area covering approximately 202.9 ha and is currently zoned as industrial per the MZO. The Site is bounded by Mayfield Road (Regional Road 14) to the south, Airport Road (Regional Road 7) to the east, greenfield lands to the north, and Torbram Road to the west.

The Site consists of primarily agricultural land and contains a Greenbelt area as well as two tributaries of the West Humber River. The Greenbelt area of the Site is located northeast of the Torrand Road and Mayfield Road intersection and a tributary of the West Humber River is conveyed through this Greenbelt area. A second tributary of the West Humber River passes through the middle of the Site. Both tributaries convey drainage southwards through existing culverts under Mayfield Road.

1.2 Proposed Development

The proposed development, as outlined on the Draft Plan of Subdivision (Weston Consulting, October 2023) includes three 26.0 m Right-of-Ways (ROWs), seven (7) development Blocks and two (2) stormwater management Blocks. The Draft Plan proposes no development within the Greenbelt area of the Site.

The first ROW (Street A) runs east-west through the Site and connects to Airport Road on the east. The second ROW (Street B) runs north-south through the Site connecting to Mayfield Road at the south limit of the site and extending to the north property limit where it ends with a cul-de-sac. The third ROW (Street C) runs east-west through the Site and connects to Torbram Road on the west. The eight (8) development blocks are proposed to contain industrial buildings. The two stormwater management Blocks are located along the south property line of the Site, near Mayfield Road. The stormwater management Blocks are proposed to service the entire Site including the seven (7) development Blocks and three ROWs.

1.3 Reference Documents

Crozier reviewed the following reports and design standards when preparing this report:

- Settlement Area Boundary Expansion (SABE) Water & Wastewater Servicing Analysis (GM BluePlan Engineering, August 12, 2021)

- Scoped Subwatershed Study, Part B – Detailed Studies and Impact Assessment (Final Report) for the Settlement Area Boundary (Wood Environmental and Infrastructure Solutions Inc., November 2022)
- FSR & SWM Report for Sandringham East Development (RAND Engineering Corp., October 2020)
- Region of Peel – 2020 Water and Wastewater Master Plan for the Lake Based Systems Volume 1, Volume 3, & Volume 4 (June 29, 2020)
- Functional Servicing Report for Countryside Villages Block 48-2 – Secondary Plan Area 48 (The Municipal Infrastructure Group Ltd. (TMIG), April 2017)
- Environmental Implementation Report – Block 48-2, Countryside Villages (Beacon Environmental Ltd., April 2017)
- Humber River Watershed – Scenario Modelling and Analysis Report (TRCA, 2008)
- Humber River Hydrology Update (Civica April 2018)
- Humber River Watershed Plan – Pathways to a Heathy Humber (TRCA, June 2008)
- Two hydraulic model files – Estimated Model of the WHR West Branch and Engineered Model of the Final West Humber (TRCA, received on April 9, 2021)
- Flood Plain Mapping Program, Humber River Sheet 125 (TRCA, May 2018)
- Preliminary Hydrogeological Investigation (Toronto Inspection Ltd., October 2023)
- Geotechnical Investigation (Toronto Inspection Ltd., October 2023)
- Comprehensive Environmental Impact Study and Management Plan (GEI Consultants Ltd., October 2023)
- East Tributary – Hydraulic Analysis Report (C.F. Crozier & Associates Inc., October 2023)
- Development Standards Manual (Town of Caledon, 2019)
- Stormwater Management Criteria (TRCA, August 2012)
- Sanitary Sewer Design Criteria (Region of Peel, 2017)
- Watermain Design Criteria (Region of Peel, 2010)
- Guidance for Development Activities in Redside Dace Protected Habitat Version 1.2 (Ministry of Natural Resources and Forestry, March 2016).

2.0 Sanitary Servicing

2.1 Sanitary Design Criteria

The proposed sanitary sewers will be designed and constructed to current Region of Peel and Ministry of Environment, Conservation, and Parks criteria and specifications. The sanitary design criteria are as follows:

- Population Density - 70 persons/ha (Industrial)
- Infiltration - 0.20 L/s/ha
- Sanitary Sewage Demand – 302.8 L/capita/day
- Harmon Peaking Factor

2.2 Existing Municipal Sanitary System

Review of the Region of Peel as-built drawing 38114-D shows an existing 750 mm diameter gravity sanitary sewer sloping at 0.30% on Airport Road (Regional Road 7) (refer to Appendix A). The existing sewer is on the west side of the Airport Road ROW and currently services Caledon East. This sanitary sewer conveys sewage south along Airport Road past Mayfield Road. There is no existing sanitary infrastructure along Torbram Road and Mayfield Road.

2.3 Proposed Regional Sanitary Infrastructure

As per the Region of Peel Water and Wastewater Master Plan (June 2020), there are planned sanitary infrastructure projects in the vicinity of the Site. The proposed Regional infrastructure includes Region Project Numbers ST—011, ST-009 and ST-178.

- ST-011: 600 mm diameter sanitary sewer through the lands south of Mayfield Road from Airport Road to approximately 1,070 m north-westerly
- ST-009: 600 mm diameter sanitary sewer through the lands south of Mayfield Road from Mayfield Road to approximately 750 m south-easterly
- ST-178: 600 mm diameter sanitary sewer from Mayfield Road to approximately 1,700 m north

There is an ongoing Draft Plan of Subdivision application south of the Site in the City of Brampton that is included in Secondary Plan Area 48. The subdivision is known as Sandringham East (21T-19020B) and the civil engineer working on this subdivision is Rand Engineering Corporation. As part of Sandringham East, a 600 mm diameter sanitary trunk sewer is proposed along Future Street 11.

Through coordination with the Region, it is understood that the construction timeline of these proposed Regional Infrastructure projects will be developer driven. Discussions with Rand Engineering Corporation have suggested that the construction of ST-011 and ST-009 will take place in the year 2026-2027.

2.4 Proposed Sanitary Sewer System

Sanitary servicing to the proposed Blocks will be provided within Street A, B and C. The sanitary servicing internal to the Site has two outlets, one along Street A to the existing 750 mm diameter sewer on Airport Road, and the other along Street B to the future 600 mm sanitary sewer proposed as part of Sandringham East subdivision.

Note, the proposed location of the 600 mm diameter sanitary sewer in the Sandringham East subdivision (on Street 11) does not align with the proposed location of the Street B. A servicing easement is required within the Site to allow for a connection to the future 600 mm diameter sanitary sewer. The proposed sanitary sewer configuration is shown on Drawings C101-C101A.

Crozier has calculated the sanitary sewage design flows based on the Draft Plan (Weston Consulting, October 2023) and the Site Plan (Turner Fleischer, October 2023), the criteria outlined in Section 2.1 and the sanitary drainage areas as shown on Figure 1. Table 1 outlines the sanitary demands for each block and detailed calculations are included in Appendix A.

Table 1: Proposed Sanitary Demand Flows

Block	Equivalent Population	Peak Flow (L/s)	Infiltration Flow (L/s)	Total Flow (L/s)	Outlet
1	705	9.62	7.28	16.90	Airport Rd
2	299	4.27	2.33	6.61	Mayfield Rd
3	510	7.10	3.62	10.72	Mayfield Rd
4	656	8.99	3.80	12.79	Airport Rd
5	635	8.72	3.49	12.21	Airport Rd
7	656	8.99	3.60	12.59	Mayfield Rd
8	519	7.21	3.45	10.66	Mayfield Rd
Total	**3980**	**54.90**	**27.57**	**82.47**	

As described in the table above, Blocks 1, 4 and 5 are proposed to outlet to a proposed 300 mm gravity sanitary sewer on Street A and outlet to the existing 750 mm sanitary sewer on Airport Road. As stated in the latest Draft Plan of Subdivision comments received from the Region, the Region does not have an objection to Blocks 1, 4 and 5 outletting to the existing 750 mm sanitary sewer on Airport Road.

Blocks 2, 3, 7 and 8 will outlet to a 600 mm diameter sanitary sewer in Street B. As previously described, this 600 mm sanitary sewer outlets to the future 600 mm sanitary sewer proposed as part of the Sandringham East subdivision. Per the most recent comments received from the Region, Blocks 2, 3, 7 and 8 cannot proceed until the 600 mm sanitary sewers south of Mayfield Road is constructed.

Note, we are working with Region staff to confirm design capacity (as equivalent population) for future external contributions to this 600 mm sewer based on the Region's Master Servicing studies.

The proposed sanitary sewer design includes minimum slopes of 0.35% up to a maximum of 2.00% based on the proposed servicing design. Based on the detailed sanitary sewer design sheets (Appendix A) the maximum flow generated from this development can be accommodated within the sewers designed for Street A & Street B.

3.0 Water Servicing

3.1 Water Design Criteria

Water servicing for the subject lands will be designed in accordance with the Region of Peel standards and specifications to ensure that adequate pressures and flows are achieved.

Watermain design flows will be based on the following criteria:

- Average Day Demand - 300 L/capita/day
- Population Density - 70 persons/ha (industrial)
- Maximum Day Factor – 1.4
- Peak Hour Factor – 3.0
- Design Flow – Greater of Maximum Daily Demand plus Fire Flow or Peak Hourly Demand

3.2 Existing Water Services

Based on review of Region of Peel as-built drawings, there are several existing watermains in the vicinity of the Site. As per as-built drawing 29039-D, there is an existing 300 mm diameter local watermain on Airport Road that connects to an existing 300 mm diameter watermain on Mayfield Road (refer to Appendix B). Additionally, a 200 mm diameter watermain on Torbram Road is connected to the existing 300 mm diameter watermain on Mayfield Road. The Site is in Pressure Zone 6 within the South Region of Peel Water Supply System.

3.3 Proposed Regional Water Infrastructure

As per Region of Peel Water and Wastewater Master Plan (June 2020), there are several planned watermain infrastructure projects in the vicinity of the Site. The Region proposed that the following watermains be constructed around 2036 under Region Project numbers D-180 to D-182:

- D-180 to D-182: 400 mm watermain on Airport Road, Torbram Road and a future street proposed across the Site (construction year 2036)

3.4 Proposed Watermain System

The proposed water servicing system includes 300 mm and 400 mm diameter watermains creating a looped system around the Site. On Street B, the 300 mm diameter watermain will connect to the existing 300 mm watermain on Mayfield Road and will transition to 400 mm at the intersection with Street A. A 400 mm diameter watermain is proposed along Street A and Street C, as per the future Region Project. The proposed 400 mm diameter watermains will connect to the existing watermains on Airport Road and Torbram Road. The proposed watermain layout is depicted on Figure 2.

All Blocks will be serviced with a 250 mm diameter fire service and 150 mm diameter domestic water service as per Region of Peel Standard 1-8-6. Hydrants have been placed within the ROWs on the Site based on the Town's required spacing.

The domestic water demand has been calculated based on the Draft Plan (Weston Consulting, October 2023). Table 2 below summarizes the domestic water demands for each block. The detailed calculations are included in Appendix B.

Table 2: Domestic Water Demands

Block	Equivalent Population	Average Daily Demand (L/s)	Maximum Daily Demand (L/s)	Peak Hourly Demand (L/s)
1	705	2.45	3.43	7.34
2	299	1.04	1.45	3.11
3	510	1.77	2.48	5.32
4	656	2.28	3.19	6.84
5	635	2.20	3.08	6.61
7	656	2.28	3.19	6.83
8	519	1.80	2.52	5.40
Total	**3980**	**13.82**	**19.35**	**41.46**

As shown in the table above, the total average, maximum and peak hour demands for the Site are 13.82 L/s, 19.35 L/s, and 41.46 L/s, respectively.

The fire flow requirements for the Site were also calculated based on the Fire Underwriters Survey (FUS) requirements, as shown in Table 3 below.

Table 3: Fire Flow Demands – Fire Underwriter's Survey

Block	Building	Fire Flow (L/s)
1	A	300.0
2	I & J	200.0
3	C	250.0
4	D	283.3
5	H	283.3
7	E	283.3
8	F	250.0

The FUS calculations included in Table 3 are conservative and have been completed for each building. Note, the FUS flows will be further refined at the Site Plan Application Stage. Each block may retain a fire suppression consultant to calculate the building specific fire flow demands based on the individual fire suppression tactics that are proposed in each building.

A hydrant flow test completed by Watermark Solutions Limited on June 29, 2021 for hydrants located on Airport Road, Mayfield Road, Torbram Road. The results indicate that there is an available fire flow of 202 L/s (3199 USGPM), 1,134 L/s (17,980 USGPM), and 101 L/s (1,599 USGPM) on Airport Road, Mayfield Road, and Torbram Road respectively.

In a meeting on March 3, 2023, the Region confirmed that water modeling has been completed for the Site and that the entire Site is serviceable based on the water and fire demands provided in this report. Minutes from the meeting on March 3, 2023 are included in Appendix B.

4.0 Grading and Storm Drainage

4.1 Site Grading

The site grading design will take into consideration the following requirements and constraints:

- Conform to the Town's grading criteria;
- Match existing boundary grading conditions;
- Minimize required earthworks;
- Provide minimum cover on proposed servicing infrastructure; and,
- Provide overland flow conveyance for major storm conditions.

The Site has been designed to match the existing topography where possible, while ensuring positive drainage towards the proposed stormwater management facilities. Road grades are proposed such that the ROWs are utilized as overland flow routes to direct the major storm events to the proposed stormwater management facility (Wetland 2). The proposed preliminary road centerline grades and overland flow routes are shown on Drawings C102-C102A.

5.0 Stormwater Management

5.1 Stormwater Management Criteria

The stormwater management strategy for the Site shall adhere to the design guidelines for the Town of Caledon, the TRCA, the Ministry of the Environment, Conservation and Parks (MECP) and the Ministry of Natural Resources and Forestry (MNRF). Stormwater management design criteria for the proposed development are established in accordance with the following documents:

- Development Standards Manual (Town of Caledon, 2019)
- Consolidated Linear Infrastructure Environmental Compliance Approval (CLI-ECA) Stormwater Criteria (Town of Caledon, 2023)
- Stormwater Management Criteria (TRCA, August 2012)
- Ministry of the Environment – Stormwater Management Planning and Design Manual (March 2003)
- Ministry of Natural Resources and Forestry – Guidance for Development Activities in Redside Dace Protected Habitat (March 2016)

The stormwater management design objectives for the Site are summarized in the following pages.

<u>Stormwater Conveyance Systems</u>

Stormwater conveyance within the Site must be designed to meet Town standards. According to Town criteria, the storm sewer (minor) systems must be designed to provide conveyance of runoff from the 5-year design storm for systems that do not allow for foundation drains to be connected to the storm sewer system.

To provide safe access to all blocks on the site the stormwater conveyance system must also account for the safe conveyance of the uncontrolled regional storm through the site. As such the roadways, which will convey much of the regional flows from the site, must be graded such that the depth x velocity product for the road and block entrance is less than 0.4 m^2/s and the maximum depth is less than 0.3 m. It is noted that Town of Caledon standards requires that the depth x velocity product in the gutter be less than 0.65 m^2/s.

Stormwater Quantity Control

According to the Town of Caledon Development Standards Manual (2019), "all newly developing or redeveloping areas must assess their potential impacts on local and Regional flooding and mitigate accordingly." Given that the property is located within a TRCA regulated area, the Site is within TRCA jurisdiction and therefore, stormwater quantity control is also regulated by the conservation authority. Additionally, per the Town's CLI-ECA Stormwater Criteria, water quantity control is to be per the municipal standards, Master Stormwater Management Plan, Class EA, Individual EA and/or ECA, as appropriate.

According to the Stormwater Management Criteria prepared by TRCA (August 2012), control of post-development peak stormwater flows to pre-development levels for all design storm events, up to and including the 100-year storm event, is required. Unit flow relationships have been established by the TRCA for all areas located within the Humber River Watershed, not discharging to the main branches of the Humber River. The site is located within Sub-Basin 36 so peak flows must be controlled to meet the unit flow rates. Refer to Section 5.8.2 for more details regarding the flow targets for the Site.

Through coordination with TRCA and the Town, it has been determined that control of the Regional storm event is also required for the Site to ensure the post-development flow to the Mayfield Road culvert is reduced to the pre-development peak flow. Refer to Section 5.9 for details regarding the proposed Regional storm controls on Site.

Erosion Control

At a minimum, TRCA requires on-site retention of the first 5 mm of runoff generated from the total impervious area. This criterion is applied where the sensitivity of the receiving watercourses does not warrant a more comprehensive analysis of the erosion potential associated with urban development. For properties with stormwater management facilities, extended detention of the 25 mm design storm event for a period of 48-hours are required.

The East Tributary (Figure 3) has been identified as a potential erosion concern as per the Scoped Subwatershed Study for the Settlement Area Boundary Expansion (Wood Environmental and Infrastructure Solutions Inc., November 2022). Therefore, erosion concerns associated with discharge from the Site will need to be evaluated further to determine whether additional stormwater management measures to mitigate erosion will be required. Further coordination between Crozier and GEI will be required through detailed design to evaluate erosion concerns on Site.

It is noted that the above requirements are also in line with the Town's CLI-ECA Stormwater Criteria.

Stormwater Quality Control

Both the Town and TRCA require an Enhanced level of water quality protection (80% total suspended solids (TSS) removal) for the Site. TRCA notes that this criterion represents a minimum requirement that may be superseded by the results of additional studies or provincial requirements.

Tributaries of the Humber River crossing the Site have been identified by GEI as contributing habitat for Redside Dace. As such, the Guidance for Development Activities in Redside Dace Protected Habitat Version 1.2 (MNRF, March 2016) needs to be followed. This guidance manual sets limits for temperature, dissolved oxygen and TSS as indicated below:

- Discharge temperature should be below 24°C
- Dissolved oxygen concentrations of minimum 7 mg/L
- Maximum TSS of 25 mg/L above the background stream level of TSS

GEI has developed a baseline surface water quality monitoring program, beginning in 2023. GEI is currently conducting monthly manual surface water depth and temperature measurements within the ponds on site. Dataloggers have been installed at each monitoring location to obtain continuous measurements to supplement manual monitoring results. This monitoring program commenced in the summer of 2023 and will continue until 2024. Additionally, surface water quality samples will be taken and analyzed against various parameters. Water quality monitoring to understand baseline conditions is required to properly inform the stormwater management strategy. As per the SABE Study, water quality criteria for the West Humber Watershed receiver is 80% TSS removal (and less than 25 mg/L above background conditions), thermal (below 24 degrees Celsius), dissolved oxygen of at least 7 mg/L. The results of GEI's surface water quality monitoring program will be included in the final CEISMP and will help inform the stormwater management and restoration plans.

It is noted that the Site does not drain towards Lake Erie or Lake Simcoe therefore, phosphorus loading is not a concern.

Water Balance

Water balance criteria according to TRCA requirements are determined with respect to recharge and protection of natural features. TRCA has undertaken modeling to understand water budget parameters throughout their jurisdiction. The results distinguish between four types of recharge areas within the TRCA's watershed, each with corresponding recharge criteria. According to these modeling results, the subject site is not located within a significant recharge area.

For developments proposed near identified natural features, additional investigation is required to understand water balance impact on those specific features. The natural features identified within the Site include wetlands, watercourses and headwater drainage features. The overall objective is to manage water balance to maintain the quantity of surface water and groundwater contributions to these features. Baseline conditions need to be established to assess the water balance target for these features. Crozier will work with GEI to determine feature-specific water balance requirements throughout detailed design. Consultation with TRCA will also be required to confirm the targets set for these features.

In addition to maintaining the water balance for the proposed development area, an overall site water balance is also required. A water balance analysis is required using the average and more frequent precipitation events that comprise of the bulk volume of annual precipitation to ensure maintenance of pre-development water balance following development. The water balance for the public lands will be reviewed under the Town's CLI-ECA Stormwater Criteria while the water balance for the industrial blocks will require an ECA at the time of Site Plan Application for the individual private blocks. The target is to match pre-development proportions of infiltration, runoff and evapotranspiration. Refer to Section 5.11 for more details on the site-specific water balance and the infiltration targets set for each Block.

Construction Erosion and Sediment Control

The CLI-ECA Stormwater Criteria for construction erosion and sediment control will be achieved through the separate Topsoil Stripping Permit application completed for the Site. Refer to the Erosion and Sediment Control Report and associated drawings completed by Crozier (October 2023) included under separate cover for more details.

5.2 Drainage Conditions

5.2.1 Existing Drainage Conditions

The Site is located within the regulation limits of the Toronto and Region Conservation Authority (TRCA) and is bisected by three tributaries of the West Humber River. The tributaries located in the northeast and southwest corners of the Site are well-defined watercourses and are herein referred to as "Salt Creek" and the "West Tributary", respectively. The smaller tributary, herein referred to as the "East Tributary", flows southwards through the middle of the property and outlets to an existing culvert under Mayfield Road near the southeast corner of the property.

The West Tributary has been identified within the *Comprehensive Environmental Impact Study and Management Plan* by GEI Consultants as habitat for Redside Dace (October 2023). The East Tributary has been identified as an area of contributing habitat for Redside Dace and identified as a headwater drainage feature by GEI Consultants (October 2023).

According to aerial imagery and confirmed through Crozier's site visit on April 8, 2021, the property currently consists of agricultural land and was occupied by a cattle farm. Based on a review of the topographic survey completed by Young & Young Surveying Inc. (May 2021, July 2021, October 2021 & March 2023) and the 0.5 m contour information obtained through the Ontario Classified Point Cloud Data (accessed via online Equator Software on April 8, 2021), most of the Site generally slopes towards each of the east and west tributaries located on the property, which convey flows southwards towards Mayfield Road. A northeast portion of the Site slopes gently east towards Airport Road, which ultimately drains towards Salt Creek. A small section in the northeast portion of the Site also drains directly towards Salt Creek. Based on the existing topography, the Site has been divided into a total of ten (11) subcatchments.

In addition to drainage within the property, there is a combined 13.9 ha external area that also drains through the Site. These areas generally flow southwards and are conveyed through the East Tributary on site, apart from a 1.4 ha area which drains through the site towards Airport Road and a 1.9 ha area that drains towards the West Tributary. The external catchments have been delineated according to the locations at which runoff enters each branch of the East Tributary to facilitate floodplain modeling.

Table 4 summarizes each drainage catchment under existing conditions. The table includes Time to Peak (Tp) values and SCS Curve Numbers (CN), which were determined based on existing soil, land use, and topographic conditions. The time to peak values were calculated using the Airport Method since runoff coefficient values were less than 0.40 and the drainage areas are less than 1 km^2 for all analyzed existing catchments. The Airport Method uses the travel length and average slope within a catchment to determine the Time to Peak.

According to the Ontario Soil Survey, there are generally two dominant soil types present on site: Chinguacousy Clay Loam and Peel Clay. Existing land cover on Site is mostly classified as meadow, resulting in CN values of 84 and 79 for Peel Clay and Chinguacousy Clay Loam, respectively. For catchments that include both soil types, the weighted average was determined accordingly. The values presented in Table 4 were determined as described above however, it is noted that CN

values were converted to CN* within VO software for the 2-year to 100-year storm events and converted to CNIII within VO for the Regional model to better represent the available soil moisture storage volume during a storm event. Refer to Table 4 for a summary of CN and Tp values.

The total imperviousness (TIMP) and directly connected imperviousness (XIMP) values for each STANDHYD were determined based on the existing land cover on Site. It is noted that highly pervious catchments are represented as NASHYDs (which do not require TIMP/XIMP inputs), and highly impervious catchments are represented as STANDHYD commands. The TIMP of each catchment is determined based on the proposed surface on site. For external catchments, TIMP values were calculated using the runoff coefficient (RC) for the catchment and is calculated as (RC-0.2)/0.7. The XIMP values are determined as TIMP-0.2.

Note that the parameters used for all external catchments remain the same under pre-development and post-development conditions. Refer to Table 4 for a summary of TIMP and XIMP values, and Appendix C for a summary of the hydrologic parameters used during modeling. Figure 3 illustrates the pre-development drainage areas.

Table 4: Pre-Development Catchments

Catchment ID	Area (ha)	Runoff Coefficient	TIMP	XIMP	Curve Number (CN - AMCII)	CN* (AMC II)	Time to Peak (hr)	Outlet
101	34.6	0.26	-	-	79	82	0.63	West Tributary (34.6 ha)
102	46.7	0.25	-	-	82	85	0.99	East Tributary (137.8 ha)
103	17.0	0.25	-	-	84	88	0.75	
104	32.0	0.25	-	-	84	88	0.93	
105	11.1	0.25	-	-	80	82	0.55	
106	31.0	0.28	-	-	79	82	1.01	
107	1.7	0.25	-	-	84	88	0.31	Airport Road/ Salt Creek (13.0 ha)
108	11.3	0.25	-	-	84	88	0.63	
109	7.7	0.25	-	-	82	85	0.52	Southeast Neighbors (7.7 ha)
110	9.7	0.25	-	-	84	88	0.46	Salt Creek (9.8 ha)
111	0.1	0.25	-	-	84	88	0.29	
Total Site	**202.9**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
EXT1	0.6	0.36	-	-	79	79	0.29	West Tributary (1.9 ha)
EXT2	1.3	0.35	-	-	79	79	0.21	
EXT3	3.4	0.49	0.42	0.22	79	80	-	East Tributary (9.7 ha)
EXT4	4.9	0.25	-	-	79	82	0.50	
EXT5	0.9	0.25	-	-	84	88	0.33	
EXT6	0.5	0.25	-	-	84	88	0.20	
EXT7	1.4	0.60	0.57	0.37	84	82	-	Airport Road/ Salt Creek[1] (1.4 ha)
EXT8	0.9	0.58	0.54	0.34	79	80	-	East Tributary (0.9 ha)
Total External	**13.9**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

1. External flows runoff towards Catchment 107 and ultimately outlet to Airport Road/Salt Creek.

Stormwater runoff from most of the Site is directed to the East Tributary under existing conditions. Catchments on Site have been delineated according to where runoff enters the East Tributary to facilitate floodplain modeling. There are two (2) man-made berms located within the property along the East Tributary which create upstream ponds (labeled as the north pond and south pond on Figure 3). It is likely that these berms were constructed by the farmer to create drinking water areas for the farm animals and to provide access to the property across the naturally existing low valley area. Existing culverts allow flows to pass through both berms, controlling the flow rates out of the ponds, and consequently impacting the drainage conditions on Site.

As described, there are five (5) main stormwater outlets for the Site under existing conditions: the West Tributary, the East Tributary, Airport Road (which ultimately drains to Salt Creek), the neighboring property to the southeast and Salt Creek. Visual OTTHYMO (VO), a hydrologic stormwater modeling software, was used to determine the pre-development peak runoff directed to each outlet; the modelling results are summarized in the following tables.

Per TRCA standards for the Humber River, return period peak flows based on both the 6-hour and 12-hour AES design storm distributions have been modeled. Refer to Tables 5 to 8 for a summary of total Site and external pre-development uncontrolled flows directed to each outlet during the 6-hour and 12-hour storms, respectively. Detailed VO model inputs and results are included in Appendix C.

Table 5: Pre-Development Uncontrolled Runoff Summary to Watercourses (6-Hour Storm)

Storm Event (years)	Uncontrolled Peak Runoff Rates (m^3/s)						
	West Tributary			East Tributary			Salt Creek
	External Areas	Site Areas	Total	External Areas	Site Areas	Total	Site Area
2	0.047	0.455	**0.477**	0.248	1.720	**1.578**	**0.209**
5	0.080	0.826	**0.863**	0.420	3.030	**2.801**	**0.367**
10	0.105	1.104	**1.157**	0.542	4.004	**3.727**	**0.484**
25	0.139	1.485	**1.553**	0.711	5.298	**5.003**	**0.637**
50	0.164	1.786	**1.864**	0.859	6.311	**6.050**	**0.755**
100	0.191	2.092	**2.182**	0.999	7.340	**7.147**	**0.873**
Regional	0.269	4.116	**4.327**	1.396	15.101	**15.979**	**1.287**

Table 6: Pre-Development Uncontrolled Runoff Summary (6-Hour Storm)

Storm Event (years)	Uncontrolled Peak Runoff Rates (m^3/s)			
	Airport Road[1]			Neighboring Property
	External Areas	Site Areas	Total	Site Area
2	0.081	0.247	**0.263**	0.130
5	0.118	0.433	**0.453**	0.233
10	0.145	0.568	**0.589**	0.309
25	0.179	0.745	**0.768**	0.413
50	0.205	0.882	**0.907**	0.493
100	0.238	1.020	**1.043**	0.575
Regional	0.204	1.603	**1.726**	0.975

1. Drainage from Airport Road ultimately drains to Salt Creek

Table 7: Pre-Development Uncontrolled Runoff Summary to Watercourses (12-Hour Storm)

Storm Event (years)	Uncontrolled Peak Runoff Rates (m^3/s)						
	West Tributary			East Tributary			Salt Creek
	External Areas	Site Areas	Total	External Areas	Site Areas	Total	Site Area
2	0.040	0.471	**0.492**	0.218	1.791	**0.652**	**0.213**
5	0.063	0.791	**0.829**	0.346	2.944	**2.790**	**0.343**
10	0.080	1.029	**1.078**	0.437	3.785	**3.612**	**0.435**
25	0.102	1.346	**1.407**	0.556	4.889	**4.707**	**0.552**
50	0.119	1.590	**1.661**	0.653	5.737	**5.588**	**0.641**
100	0.136	1.841	**1.925**	0.746	6.603	**6.508**	**0.730**

Table 8: Pre-Development Uncontrolled Runoff Summary (12-Hour Storm)

Storm Event (years)	Uncontrolled Peak Runoff Rates (m^3/s)			
	Airport Road[1]			Neighboring Property
	External Areas	Site Areas	Total	Site Area
2	0.054	0.251	**0.270**	0.134
5	0.075	0.404	**0.434**	0.222
10	0.091	0.513	**0.547**	0.285
25	0.110	0.654	**0.698**	0.367
50	0.124	0.760	**0.811**	0.430
100	0.138	0.867	**0.926**	0.494

1. Drainage from Airport Road ultimately drains to Salt Creek

Note that addition of the individual flows from the external and site areas do not exactly equal the total flows to each outlet shown in the above tables. These differences in peak flows occur because the total flows to each outlet were calculated in VO (accounting for channel routing and time to peak values), whereas the total external and total site flows presented in the table above were calculated by manually adding the peak runoff rates from the individual catchments (i.e., without channel routing and without consideration of time to peak values when adding these peak flows together).

5.2.1.1 Existing Mayfield Road Culvert

There is an existing culvert crossing Mayfield Road located in the southeast corner of the Site; this culvert conveys flows from the East Tributary on the property southwards beneath Mayfield Road. The existing culvert was enlarged as part of the works completed during the Mayfield Road widening.

According to the Issued for Tender drawings prepared by IBI Group (March 2017), the Mayfield Road culvert is a 6,706 mm by 1,829 mm precast open-bottom culvert with a slope of 0.865%. Details of the existing culvert are included in Appendix C.

According to the Hydraulic Analysis Report prepared by Crozier, under separate cover, the Mayfield Road culvert conveys the Regional and all other storm events and flooding does not overtop Mayfield Road. Refer to the *Hydraulic Analysis Report* prepared by Crozier (October 2023) for more details.

5.2.2 Proposed Drainage Conditions

Full build-out of the Site is proposed to consist of:

- Seven (7) industrial Blocks to be further designed as part of individual Site Plan Applications.

- Three (3) Right-of-Ways: one (1) running north-south providing connection to Mayfield Road (Street B), one (1) running east-west providing connection to from the internal north-south road to Airport Road (Street A) and another running east-west providing connection to from the internal north-south road to Torbram Road (Street C).

- Stormwater management facilities in the form of two (2) wetlands (design storm control) and an Environmental Protection (EPA) / flood management area during the Regional event.

The proposed grading on Site is designed to maintain the existing drainage patterns as closely as possible. Under post-development conditions, most stormwater flows will outlet to the west and the east tributaries, with some minor flows being directed towards Salt Creek uncontrolled, mimicking existing conditions. Table 9 summarizes the post-development drainage areas as shown in Figure 4.

Table 9 includes SCS curve number (CN) and time to peak (Tp) values, which were determined based on existing soil and topographic conditions. The time to peak values were calculated using the Airport Method since runoff coefficient values were less than 0.40 and the drainage areas are less than 1 km^2 for all analyzed existing catchments. SCS Curve Numbers were determined for each catchment based on the existing soils on Site.

As previously discussed in Section 5.2.1, there are generally two dominant soil types presents on site; Chinguacousy Clay Loam and Peel Clay. The CN values of 84 and 79 for Peel Clay and Chinguacousy Clay Loam, respectively, were maintained in areas where highly pervious covers remain post-development. For catchments that include both soil types, the weighted average was determined accordingly.

The values presented in Table 9 were determined as described above however, it is noted that CN values were converted to CN* within VO software for the 2-year to 100-year storm events and converted to CNIII within VO for the Regional model to better represent the available soil moisture storage volume during a storm event. Refer to Table 9 for a summary of CN and Tp values.

The TIMP and XIMP values for each STANDHYD were determined based on the proposed land cover on Site. The TIMP of each catchment is determined based on the proposed surface on site. According to the typical 26.0 m right-of-way section for George Bolton Parkway (Town of Caledon Drawing TYP-01 included in Appendix D), approximately 27% of the road area will consist of landscaping. The zoning for industrial blocks was also reviewed and indicates that a minimum 10% landscaping must be provided. Therefore, all blocks and roads have been assumed to have 10% of their total area landscaped. The total landscaping provided for each block will need to be reviewed at the detailed design stage.

It is noted that for catchments consisting only of rooftops, TIMP was assigned as 0.99, representing completely impervious cover. The XIMP values are determined as TIMP-0.20, except for the rooftop (Catchments 201 and 221) and the stormwater management pond (Catchments 213, 216 and 217) areas, where XIMP equals TIMP.

As indicated in Section 5.2.1, the parameters for the external catchments remain the same under pre-development and post-development conditions. Refer to Table 9 for a summary of TIMP

and XIMP values, and Appendix D for a summary of the hydrologic parameters used during modeling.

Table 9: Post-Development Catchments

Catchment ID	Area (ha)	Runoff Coefficient	TIMP	XIMP	Curve Number (CN)	Time to Peak (hr)	Outlet
200	28.2	0.25	-	-	79	0.64	West Tributary (29.59 ha)
201[1]	1.39	0.90	0.99	0.99	98	-	
202	18.1	0.84	0.91	0.71	82	-	East Tributary (151.37 ha)
203	0.8	0.84	0.75	0.55	84	-	
204	1.7	0.84	0.75	0.55	82	-	
205	17.3	0.84	0.91	0.71	83	-	
206	6.04	0.71	0.72	0.52	84	-	
207	1.8	0.84	0.75	0.55	84	-	
208	19.2	0.84	0.91	0.71	84	-	
209	1.8	0.84	0.75	0.55	84	-	
210	36.6	0.84	0.91	0.71	80	-	
211	0.9	0.84	0.75	0.55	81	-	
212	16.72	0.84	0.91	0.71	84	-	
213	4.3	0.50	0.50	0.50	79	-	
214	9.81	0.84	0.91	0.71	79	-	
215	1.9	0.84	0.75	0.55	81	-	
216	4.7	0.50	0.50	0.50	79	-	
217	8.0	0.50	0.50	0.50	79	-	
218	0.8	0.25	-	-	79	0.31	
219	7.5	0.25	-	-	84	0.44	Salt Creek (8.9 ha)
220	1.4	0.25	-	-	84	0.32	
221[2]	12.06	0.90	0.99	0.99	98	-	Varies
222	0.9	0.83	0.75	0.54	84	-	East Tributary[3]
223	0.98	0.25	-	-	79	0.73	Neighboring Property
Total Site	**202.9**	**-**	**-**	**-**	**-**	**-**	**-**
EXT1	0.6	0.36	-	-	79	0.29	West Tributary (1.9 ha)
EXT2	1.3	0.35	-	-	79	0.21	
EXT3A	1.4	0.47	0.38	0.18	79	-	East Tributary (13.4 ha)
EXT3B	2.0	0.51	0.44	0.24	79	-	
EXT4	4.9	0.25	-	-	79	0.50	
EXT5	0.9	0.25	-	-	84	0.33	
EXT6	0.5	0.25	-	-	84	0.20	
EXT7	1.4	0.60	0.57	0.37	84	-	
EXT8	0.9	0.58	0.54	0.34	79	-	
Total External	**13.9**	**-**	**-**	**-**	**-**	**-**	**-**

1. Rooftop redirection from Block 2 to West Tributary during the design storm events (2-year to 100-year storm events) and towards the East Tributary during the Regional Storm event.
2. Area directed to the East Tributary during the design storm events (2-year to 100-year storm events) and towards Salt Creek during the Regional Storm event. Area not included in 151.37 ha total indicated for the East Tributary.
3. Area included in 151.37 ha total indicated for the East Tributary.

Most of the stormwater runoff from the Site will continue to drain to the East Tributary under proposed conditions, like existing drainage conditions. Catchments 202, 205, 206/221, 208, 210, 212

and 214 represent the future industrial Blocks. It is noted that the runoff from the Reserve Block 6 (Catchment 222) will drain through industrial Block 3 (Catchment 206/221). Stormwater runoff from the industrial blocks will be captured by the internal block storm sewer systems and controlled on-site to the 5-year post-development design storm event. Controlled Block flows will discharge to the proposed storm sewer system within the proposed Right-of-Ways and conveyed to the proposed stormwater management (SWM) wetlands located near the southeast corner of the Site (represented as Catchments 213 and 216). The SWM wetlands are designed to provide design storm event quantity, quality, and erosion control of stormwater runoff prior to its release to the East Tributary. Refer to Section 5.7 for more details. It is noted that Catchment 221 is directed towards the SWM facilities during the design storm events only and will drain overland towards Salt Creek during the Regional Storm event.

Stormwater runoff from the remainder of the internal Site catchments (Catchments 203, 207, 209, 211 and Catchment 215, representing the proposed ROWs) will be conveyed through the Site to the SWM wetlands. Proposed storm sewers within the ROWs will convey the 100-year design storm event from these catchments. Runoff from storms exceeding the capacity of the sewer system will be conveyed overland, contained within the ROWs, ultimately discharging to southmost SWM wetland (Wetland 2).

Where feasible, the proposed development will not alter the external drainage catchments, and conveyance for all external catchments will be maintained post-development. Drainage from Catchments EXT3A-EXT5 and EXT7 will continue to drain through the Site and will be captured by the proposed storm sewer systems within the industrial blocks and conveyed through the Site to the proposed SWM wetlands. It is noted that these external catchments are routed through the SWM wetlands uncontrolled. Under existing conditions, runoff from Catchment EXT7 drained towards Airport Road, however under the proposed conditions, this runoff will be redirected to outlet to the East Tributary. Catchment EXT8 will remain unchanged and will continue to drain to the Mayfield Road culvert through the existing storm system within Mayfield Road. Under existing conditions, runoff from Catchment EXT6 drained towards the East Tributary however, under the proposed conditions, this runoff will be redirected towards Salt Creek.

Site Catchments 217 and 218 are located downstream of the SWM wetlands and drain towards the East Tributary. Catchment 217 represents another SWM facility in the form of an Environmental Protection Area / dry pond, which provides Regional storm control for Site discharge to the East Tributary. Drainage from Catchment 218 is not controlled post-development and remains undisturbed post-development. Controlled flows from both proposed SWM wetlands will drain through these catchments prior to discharging to the East Tributary through the Mayfield Road culvert.

The Greenbelt area, represented as Catchment 200, will remain undisturbed and stormwater runoff from this catchment will continue to drain towards the West Tributary under proposed conditions. The total site area directed to the West Tributary is slightly reduced compared to pre-development conditions, therefore, it is proposed that the rooftops from Block 2 be redirected towards the Greenbelt during the design storm events (2-year to 100-year storm events) to maintain pre-development condition flows to the West Tributary. During the Regional Storm event, this area will runoff overland towards Wetland 2 and ultimately to the East Tributary. Catchment 201 represents the assumed total future roof area for Block 2. Drainage from external Catchment EXT1 and EXT2 will remain unchanged following development and will continue to drain to the West Tributary.

Visual OTTHYMO was used to determine the post-development peak runoff directed to each outlet. The results of this modelling are summarized in the following tables. Per TRCA standards for the Humber River, return period peak stormwater flows based on both the 6-hour and 12-hour AES storm distributions have been modeled. Refer to Tables 10 and 11 for a summary of total Site

post-development uncontrolled flows directed to each outlet during the 6-hour and 12-hour storms, respectively. Detailed Visual OTTHYMO model inputs and results are included in Appendix D.

Table 10: Post-Development Uncontrolled Runoff Summary (6-Hour Storm)

Storm Event (year)	Uncontrolled Peak Runoff Rates (m^3/s)									
	West Tributary			East Tributary			Salt Creek			Neighbouring Property
	External Areas	Site Areas	Total	External Areas	Site Areas	Total	External Areas	Site Areas	Total	Total (Site only)
2	0.047	0.492	**0.409**	0.322	11.418	**11.710**	0.017	0.200	**0.209**	0.013
5	0.080	0.833	**0.737**	0.521	16.166	**16.644**	0.029	0.354	**0.369**	0.022
10	0.105	1.086	**0.984**	0.673	19.432	**20.052**	0.038	0.466	**0.487**	0.029
25	0.139	1.427	**1.319**	0.880	23.548	**24.360**	0.050	0.612	**0.641**	0.039
50	0.164	1.696	**1.583**	1.033	26.859	**27.814**	0.059	0.725	**0.760**	0.046
100	0.191	1.969	**1.852**	1.201	30.008	**31.117**	0.068	0.840	**0.880**	0.054
Regional	0.269	3.341	**3.549**	1.543	22.757	**24.188**	0.073	2.968	**3.012**	0.112

Table 11: Post-Development Uncontrolled Runoff Summary (12-Hour Storm)

Storm Event (year)	Uncontrolled Peak Runoff Rates (m^3/s)									
	West Tributary			East Tributary			Salt Creek			Neighbouring Property
	External Areas	Site Areas	Total	External Areas	Site Areas	Total	External Areas	Site Areas	Total	Total (Site only)
2	0.040	0.452	**0.421**	0.264	7.553	**7.796**	0.014	0.203	**0.213**	0.013
5	0.063	0.733	**0.701**	0.407	10.192	**10.568**	0.022	0.324	**0.341**	0.021
10	0.080	0.939	**0.909**	0.511	12.020	**12.492**	0.028	0.410	**0.432**	0.027
25	0.102	1.214	**1.183**	0.645	14.346	**14.943**	0.035	0.518	**0.549**	0.035
50	0.119	1.425	**1.395**	0.750	16.043	**16.736**	0.040	0.601	**0.637**	0.041
100	0.136	1.643	**1.615**	0.854	17.734	**18.524**	0.045	0.684	**0.725**	0.047

Note that addition of the individual flows from the external and site areas do not exactly equal the total flows to each outlet shown in the above tables. These differences in peak flows occur because the total flows to each outlet were calculated in VO (accounting for time to peak values), whereas the total external and total site flows presented in the table above were calculated by manually adding the peak runoff rates from the individual catchments (i.e., without consideration of time to peak values when adding these peak flows together).

It is noted that no flows are proposed to outlet to Airport Road post-development.

5.3 Quantity Control for Salt Creek

Catchments 219, 220, 221 and EXT6 represent the areas directed towards Salt Creek under proposed conditions. Catchment 219 represents the EPA block in the northeast corner of the Site, which will remain undeveloped, while Catchment 220 represents the woodland buffer block, which will also remain undeveloped. Catchment 220 generally drains south, where a swale is proposed along the south boundary of the catchment to direct clean runoff towards Salt Creek under all storm events. Catchment EXT6 drains through the woodland block (Catchment 220) and will also drain through the swale. Catchment 221 is only directed to Salt Creek under the Regional storm event when the capacity of Block 3's storm sewer system is exceeded. Under the design storm

events (2-year to 100-year storm events) all runoff within Block 3, including Catchment 221, is directed towards the proposed SWM facilities.

Comparing pre-development and post-development results, the total runoff directed to Salt Creek has been reduced under the post-development conditions for all design storm events. In fact, a reduction of 55-56% is observed when comparing the results for the 2-year to 100-year storm events, from both the 6-hour and 12-hour AES storm distributions. Peak flow controls are therefore not proposed for areas draining towards Salt Creek under the proposed development conditions during the 2-year to 100-year storm events.

During the Regional storm event, it is proposed that a minimum area of 12.06 ha (Catchment 221), assumed to be fully impervious, be directed towards Salt Creek to maintain Regional flows to the watercourse. During detailed design for Block 3, the grading will need to be as such that an area of approximately 12.06 ha be directed towards Salt Creek during the Regional Storm event when the storm sewers and storage tank within the block are over-capacity.

Refer to Table 12 for a summary of pre-development and post-development flows to Salt Creek.

Table 12: Flow Summary to Salt Creek

Storm Event	Pre-Development Results[1] (m^3/s)		Post-Development Results[2] (m^3/s)		Difference (m^3/s)		% Difference	
	6-Hour	12-hour	6-Hour	12-hour	6-Hour	12-hour	6-Hour	12-hour
2-year	0.472	0.483	0.209	0.213	-0.263	-0.270	-56	-56
5-year	0.820	0.777	0.369	0.341	-0.451	-0.436	-55	-56
10-year	1.073	0.982	0.487	0.432	-0.586	-0.550	-55	-56
25-year	1.405	1.25	0.641	0.549	-0.764	-0.701	-54	-56
50-year	1.662	1.452	0.760	0.637	-0.902	-0.815	-54	-56
100-year	1.916	1.656	0.880	0.725	-1.036	-0.931	-54	-56
Regional	3.013		3.012		-0.001		0	

1. Total from Catchments 107, 108, 110, 111 and EXT7
2. Total from Catchments 220, 221 and EXT6 for the design storm events (2-year to 100-year storms) and the addition of Catchment 221 under the Regional Storm event only

It is noted that stormwater treatment is not required during emergency (Regional Storm) events. Given that drainage from the parking lot and/or rooftop (Catchment 221) is only directed to Salt Creek during the Regional Storm event, treatment is not required. Runoff from this area will also drain over a grassed area, which will remove large sediments prior to entering Salt Creek. Catchments 219, 220 and EXT6 remain unaltered post-development, consisting of only natural areas, which are considered inherently 'clean'. Therefore, no additional water quality controls are proposed for runoff directed towards Salt Creek.

5.4 Flows to the Southeast Neighbouring Property

Catchment 223 represent the drainage area on Site directing runoff to the neighbouring property under proposed development conditions. This catchment consists of landscaped areas along the south and east boundaries of Block 5 which will be directed to the neighbouring property to maintain surface water contributions to the stormwater management (SWM) pond within the neighbouring property. The 0.98 ha landscape area within Block 5 (Catchment 223) has been

delineated based on the current concept plan for the block and will be further refined through detailed design at the Site Plan Application stage.

VO was used to assess the existing and proposed peak flows draining to the SWM pond within the neighboring property. The existing SWM pond was also included in both the pre-development and post-development design storm models to ensure its function is maintained. The SWM pond was modeled using the Storm Water Management Report for the Tullamore Industrial Subdivision, Project No. C3075 and the associated Storm Drainage Area Plan (Drawing G3) prepared by Cansult Limited dated July 2003. These documents are included in Appendix C for reference.

Peak uncontrolled runoff rates to the neighbouring property are decreased for all storm events when compared to existing conditions. In fact, a reduction of 89-91% is observed when comparing the results for the 2-year to Regional storm events, from both the 6-hour and 12-hour AES storm distributions. A summary of the total flows directed to the neighbouring SWM pond is included in Table 13 for reference. Table 14 also summarizes the storage utilized within the neighbouring pond during the design storm events.

Table 13: Site Flow Summary to the Southeast Neighbouring Property

Storm Event (year)	Pre-Development Results (m^3/s)		Post-Development Results (m^3/s)		Difference (m^3/s)		% Difference	
	6-Hour	12-hour	6-Hour	12-hour	6-Hour	12-hour	6-Hour	12-hour
2-year	0.130	0.134	0.013	0.013	-0.117	-0.121	-90	-90
5-year	0.233	0.222	0.022	0.021	-0.211	-0.201	-91	-91
10-year	0.309	0.285	0.029	0.027	-0.280	-0.258	-91	-91
25-year	0.413	0.367	0.039	0.035	-0.374	-0.332	-91	-90
50-year	0.493	0.430	0.046	0.041	-0.447	-0.389	-91	-90
100-year	0.575	0.494	0.054	0.047	-0.521	-0.447	-91	-90
Regional	0.975		0.112		-0.863		-89	

Table 14: Summary of Neighboring SWM Pond Peak Flows and Storage Volumes

Design Storm Event (year)	6-Hour Design Storm				12-Hour Design Storm			
	Pre-Development		Post-Development		Pre-Development		Post-Development	
	Release Rate (m^3/s)	Storage Volume (m^3)	Release Rate (m^3/s)	Storage Volume (m^3)	Release Rate (m^3/s)	Storage Volume (m^3)	Release Rate (m^3/s)	Storage Volume (m^3)
2	0.180	4,412	0.146	3,956	0.207	4,779	0.169	4,266
5	0.292	5,931	0.233	5,130	0.309	6,205	0.250	5,360
10	0.361	7,014	0.292	5,928	0.374	7,226	0.303	6,107
25	0.451	8,418	0.358	6,972	0.460	8,529	0.365	7,082
50	0.532	9,452	0.409	7,767	0.533	9,461	0.412	7,812
100	0.581	10,551	0.462	8,553	0.579	10,499	0.461	8,543

Based on Table 14, the reduced area directed to the neighbouring property post-development does not impact the function of the existing pond within the property.

5.5 Quantity Control for the West Tributary

Catchments 200 and 201 represent drainage areas on Site directing runoff to the West Tributary under the proposed development conditions. Catchment 200 represents the Greenbelt area which will remain undisturbed by the proposed development. Catchment 201 represents the proposed rooftop compensation area which will be directed to the West Tributary to maintain surface water contributions to the West Tributary.

The rooftop area within Catchment 201 has been delineated to represent the minimum area required to provide balance for the volume of water directed to the West Tributary during the 25 mm event and will be further refined through the Site Plan Application stage. A detailed storm sewer layout directing the stormwater runoff from the rooftop to the Greenbelt area will also be completed as part of the future Site Plan Application for Block 2.

VO was used to assess the existing and proposed peak flows draining to the West Tributary. To maintain the pre-development volume directed to the West Tributary during the 25 mm event, to maintain surface flows to this feature, a minimum roof area of 1.39 ha must be redirected towards this feature. Peak uncontrolled runoff rates to the West Tributary are decreased for all storm events as a result when compared to existing conditions. In fact, a reduction of 14-18% is observed when comparing the results for the 2-year to Regional storm events, from both the 6-hour and 12-hour AES storm distributions. A summary of the total flows directed to the West Tributary is included in Table 15 for reference.

Table 15: Flow Summary to the West Tributary

Storm Event (year)	Pre-Development Results[1] (m^3/s)		Post-Development Results[1] (m^3/s)		Difference (m^3/s)		% Difference	
	6-Hour	12-hour	6-Hour	12-hour	6-Hour	12-hour	6-Hour	12-hour
2-year	0.477	0.492	0.409	0.421	-0.068	-0.071	-14	-14
5-year	0.863	0.829	0.737	0.701	-0.126	-0.128	-15	-15
10-year	1.157	1.078	0.984	0.909	-0.173	-0.169	-15	-16
25-year	1.553	1.407	1.319	1.183	-0.234	-0.224	-15	-16
50-year	1.864	1.661	1.583	1.395	-0.281	-0.266	-15	-16
100-year	2.182	1.925	1.852	1.615	-0.330	-0.310	-15	-16
Regional	4.327		3.549		-0.778		-18	

1. Includes uncontrolled flows from both internal and external catchments.
2. During the Regional storm event, runoff from the roof will exceed the roof drain capacity and will therefore spill and flow overland towards the East Tributary (Regional pond). Flows from Catchment 201 are not included in the total for the Regional storm event.

It is noted that the roof areas for all industrial blocks are not specified at the Draft Plan stage. As a result, a larger roof area may be directed to the West Tributary following development. Post-development peak flows to the West Tributary should be reviewed during the detailed design stage of Block 2. If flows to the West Tributary are increased post-development, storage requirements will need to be reviewed to ensure proper control is provided to ensure the pre-development flow rates to the West Tributary are not exceeded following development.

On-site storage options for Block 2, if required, may include rooftop storage and/or underground storage systems. Additional measures such as Low Impact Development (LID) techniques may also

be explored to help reduce peak flows to the West Tributary and encourage infiltration of clean water through techniques like engineered wetlands or rain gardens.

Stormwater runoff from the building rooftop (Catchment 201) is considered inherently 'clean'. Given that the West Tributary is identified as habitat for Redside Dace, thermal mitigation is recommended to ensure stormwater captured on the roof meet MNRF requirements. This can be achieved by directing rooftop water to an underground chamber or LID prior to discharging to the West Tributary.

Catchments 200, EXT1 and EXT2 remain unaltered post-development, consisting of only natural Greenbelt areas, which are also considered to be inherently 'clean'. Therefore, no additional water quality controls are proposed for runoff directed towards the West Tributary.

5.6 Stormwater Management for the East Tributary

As can be seen in Figure 4, most of the site will drain to the East Tributary. The results of the VO model show a significant increase in peak flows to the East Tributary if the site is allowed to drain uncontrolled. As such quantity control will be required for most of the site. The following sections describe the proposed stormwater management for discharge to the East Tributary.

5.7 Quantity Control Within Blocks

Catchments 202, 205, 206/221, 208, 210, 212 and 214 all represent drainage areas within the various Blocks proposed on-site. These catchments have been delineated based on their connection to the proposed internal storm sewer system. One (1) storm sewer connection is provided for each individual Block. Detailed storm sewer layouts internal to each of the development Blocks will be completed as part of future Site Plan Applications.

Note, as part of detailed design for Block 5 (Catchment 212), we will investigate the feasibility of having all, or a portion of, the rooftop from Block 5 outlet directly to the EPA Block 12. The roof outletting directly to the EPA Block would provide clean water to the wetland compensation area included as part of the EPA Block.

The Town of Caledon standards require the internal storm sewers on Site (including within the ROWs) be designed to convey runoff from the 5-year design storm event. Therefore, Block-level controls are proposed to control 100-year post-development peak flows to the 5-year post-development peak flows, prior to discharging to the proposed storm sewer system within the ROWs.

It is noted that Block 16, represented by Catchment 222, is Reserve Block for a future ROW and will be directed towards Block 3 under interim condition. The area for Block 16 is not included when setting the 5-year design flow target for Block 3 but is accounted for when determining the storage requirement for the Block to ensure additional flows are not released from Block 3 in the future. Therefore, under interim conditions, Block 3 is over-controlled to account for the additional flows received from Block 16.

VO was used to determine the target Block-level peak runoff and required storage volume to control the 100-year peak runoff rates to the 5-year runoff rates. As required in TRCA standards for the Humber River, the return period peak flows were modeled based on both the 6-hour and 12-hour AES storm distributions.

Table 16 summarizes the peak flow targets for each catchment and the associated storage requirement. Review of the model output indicates that the 12-hour storm results in a smaller flow target than the 6-hour storm; therefore, the 5-year peak flows under the 12-hour storm event were set as the target peak flow for each Block for both storm distributions to ensure consistency

in peak flow targets during modeling. Appendix D contains the VO model inputs and results for both the 6-hour and 12-hour design storms.

Table 16: Summary of Block-Level Peak Stormwater Flow Rates and Storage Requirements

Catchment ID	Block ID	5-Year Target Flow (m^3/s)	6-Hour Storm		12-Hour Storm	
			100-Yr Controlled Flow Rate (m^3/s)	Storage Volume Required (m^3)	100-Yr Controlled Flow Rate (m^3/s)	Storage Volume Required (m^3)
202	7	1.142	1.141	7,085	1.142	5,439
205	8	1.101	1.100	6,798	1.100	5,228
206 & 221	3	1.183	1.182	7,616	1.181	6,065
208	4	1.197	1.195	7,599	1.194	5,856
210	1	2.230	2.226	14,276	2.226	11,030
212	5	1.079	1.077	6,618	1.076	5,087
214	2	0.624	0.623	3,830	0.623	2,966

The storage volumes indicated in Table 16 have been provided for modelling purposes to properly size the downstream storm sewers and SWM pond. The 6-hour storm event produces the larger storage volume requirements, compared to the 12-hour storm event, therefore the storage volumes shall be governed by the larger 6-hour event.

Storage volume requirements and peak flow controls will need to be reviewed and refined at the Site Plan Application stage to meet the 5-year peak flow targets indicated in Table 16. Storage options may include rooftop storage, at-grade ponding, and/or underground storage systems. Additional measures such as LID techniques may also be explored. It is noted that TRCA does not support accounting for storm sewer pipe storage in controlling peak flows.

Emergency overland flow routes for the Blocks are designed to direct stormwater runoff above the 100-year event towards the municipal ROWs proposed within the Site, which convey these flows overland to the proposed southmost SWM facility (Wetland 2). As previously indicated, Catchment 221, within Block 3, is the exception where the overland flow from this 12.06 ha area will be directed to Salt Creek to provide flow balance during the Regional Storm event. Refer to Section 5.8 for more information regarding the design of the SWM facilities.

5.8 Design Storm Events Stormwater Management (SWM) Facility Design

Two (2) stormwater management facilities are proposed in the form of wetlands to provide stormwater quantity, quality, and erosion controls during the design storm events (2-year to 100-year storm events) for the overall development. Stormwater flows will enter the proposed SWM facilities primarily through the proposed internal storm sewer system (minor system) and by overland flow (major system) as described further in Section 5.10.

The following subsections provide details regarding the SWM facilities proposed on Site to provide control during the design storm events.

5.8.1 Grading and Design Considerations

The stormwater management wetlands shall be designed with consideration for grading, public safety, future maintenance access, and safe conveyance of emergency flows. Both stormwater management facilities discussed within this report include the following features:

- Site grading to provide safe overland conveyance of flows exceeding the capacity of the storm sewer system to the southmost stormwater management facility (Wetland 2);
- The Wetlands will be graded with a maximum of 5:1 side slope for 3.0 m above and below the permanent pool and maximum 3:1 everywhere else within the wetland perimeter as per MECP Guidelines. A consistent grading of 4:1 will be provided from the top of both wetlands/access road to the bottom of the environmental protection area/NHS. Additional erosion protection measures for the 4:1 slope within the environmental protection area will be provided at detailed design stage;
- Permanent pool volume is sized as per the MECP Manual (to provide Enhanced Level quality Protection) with a depth of 1.5 m in the forebays and 0.3 m in the main cells for both wetlands 1 & 2;
- Extended detention storage and drawdown provided at a maximum depth of 1.5 m per MECP guidelines (0.65m for Wetland 1 & 0.60m for Wetland 2);
- Active storage sized per the requirements in the Subwatershed Management Study to meet Unitary Flow Rates for the Humber River Watershed (Sub-Basin 36);
- A minimum 0.30 m of freeboard provided above the 100-year water level or highest water level within both Wetlands;
- Emergency spillway sized to convey unattenuated Regulatory storm event runoff (greater of the Regional or 100-year unattenuated flow). Refer to Section 5.8.6 for details on sizing of emergency spillways;
- A 5.0 m wide maintenance access road will be located at the top of the wetlands, at 0.3 m above the highest water level with maximum longitudinal slopes of 10.0% and a maximum cross-fall slope of 2.0%. The access road will facilitate access to the forebays and outlet structures for maintenance. Additionally, the access roads will loop and connect both wetlands with three (3) entrances fronting Street B; and
- Sediment drying areas are provided within the SWM blocks, adjacent to the forebay of Wetland 1 and adjacent to the main cell and Street B for Wetland 2 to facilitate maintenance of the facilities.

Refer to preliminary stormwater management design drawings enclosed with this report as Drawings C103 to C103B.

5.8.2 Quantity Control

Unit flow relationships have been established by the TRCA for all areas located within the Humber River Watershed, not discharging to the main branches of the Humber River. Table 17 summarizes the unit flow rate equations for the subject site, which is contained within Sub-Basin 36 of the Humber River as per the Humber River Stormwater Management Quantity Control Release Rates map included in Appendix C. The allowable release rates for the wetlands were calculated based

on a total Site drainage area directed to each stormwater management facility proposed on the property. Wetland 1 has a total site drainage area of 79.62 ha, including half of Catchments 202-211, which are directed towards the facility through a proposed flow splitter, and Catchments 212-213. Wetland 2 has a total site drainage area of 75.01 ha, including half of Catchments 202-211, which are directed towards the facility through a proposed flow splitter, and Catchments 214-216.

Table 17 Summary of Unit Flow Relationships for the Site

Storm Event (year)	**Unit Flow Equations (Sub-Basin 36)**	**Wetland 1 Allowable Release Rate** (m^3/s)	**Wetland 2 Allowable Release Rate** (m^3/s)
2	Q = 9.506 – 0.719 * ln (A)	0.506	0.480
5	Q = 14.652 – 1.136 * ln (A)	0.771	0.731
10	Q = 17.957 – 1.373 * ln (A)	0.951	0.902
25	Q = 22.639 – 1.741 * ln (A)	1.196	1.134
50	Q = 26.566 – 2.082 * ln (A)	1.390	1.318
100	Q = 29.912 – 2.316 * ln (A)	1.574	1.494

Notes: Q = unit flow (L/s/ha), A = area (ha)
Source: Stormwater Management Criteria prepared by TRCA (August 2012)

Stormwater quantity control is only required for the Site. Several external catchment areas, Catchments EXT3A-EXT5 and EXT7, will be conveyed through the site and similarly, conveyed through the SWM facilities. Drainage from the external catchments will be captured by the proposed storm sewer systems within the industrial blocks and conveyed through the Site to the proposed SWM facilities through a flow splitter.

As such, the allowable release rates from the wetlands have been increased accordingly, to allow half of the external drainage areas from Catchments EXT3A-EXT5 and EXT7 to be conveyed uncontrolled through Wetland 1 and to allow half of the external drainage areas from Catchments EXT3A-EXT5 and EXT7 to be conveyed uncontrolled through Wetland 2. A summary of the overall target release rates from the SWM facilities, considering the flows from the external catchments added to the TRCA allowable release rates, are summarized in Tables 18 and 19.

Table 18 Stormwater Management Facility Target Release Rates for Wetland 1

Storm Event (year)	**TRCA Allowable Release Rate** (m^3/s)	**Total Uncontrolled External Flow[1]** (m^3/s)		**Total Target Release Rate for SWM Wetland** (m^3/s)	
		6-Hour	**12-Hour**	**6-Hour**	**12-Hour**
2	0.506	0.146	0.122	0.652	0.628
5	0.771	0.239	0.188	1.010	0.959
10	0.951	0.310	0.236	1.261	1.187
25	1.196	0.406	0.299	1.602	1.494
50	1.390	0.478	0.347	1.867	1.736
100	1.574	0.555	0.395	2.129	1.969

1. Sum of half of Catchments EXT3A-EXT5 and EXT7 Uncontrolled

Table 19: Stormwater Management Facility Target Release Rates for Wetland 2

Storm Event (year)	TRCA Allowable Release Rate (m^3/s)	Total Uncontrolled External Flow[1] (m^3/s)		Total Target Release Rate for SWM Wetland (m^3/s)	
		6-Hour	12-Hour	6-Hour	12-Hour
2	0.480	0.146	0.122	0.626	0.602
5	0.731	0.239	0.188	0.970	0.919
10	0.902	0.310	0.236	1.212	1.138
25	1.134	0.406	0.299	1.540	1.433
50	1.318	0.478	0.347	1.796	1.665
100	1.494	0.555	0.395	2.048	1.889

1. Sum of half of Catchments EXT3A-EXT5 and EXT7 Uncontrolled

Based on the determined target release rates, Visual Otthymo (VO) modeling software was used to determine the required storage volumes for the wetlands to control the post development peak flows to the allowable release rates for the 2-year to 100-year design storm events. As required by the TRCA standards for the Humber River, Crozier modelled the return period peak stormwater flows based on the 6-hour and 12-hour AES storm distribution.

Table 20 summarizes the post development peak flow targets for Wetland 1 and the associated required storage. Appendix D contains the Visual OTTHYMO model inputs and results.

Table 20: Summary of SWM Facilities Peak Flows and Storage Volumes for Wetland 1

Design Storm Event (year)	6-Hour Design Storm				12-Hour Design Storm			
	Wetland Allowable Release Rate[1] (m^3/s)	Wetland Controlled Flow Rate (m^3/s)	Storage Volume (m^3)	Water Level in Pond (masl)	Wetland Allowable Release Rate[1] (m^3/s)	Wetland Controlled Flow Rate (m^3/s)	Storage Volume (m^3)	Water Level in Pond (masl)
2	0.652	0.275	20,827	233.33	0.628	0.383	23,489	233.40
5	1.010	0.604	26,298	233.53	0.959	0.780	28,502	233.61
10	1.261	0.858	29,479	233.63	1.187	1.020	31,758	233.69
25	1.602	1.130	33,576	233.76	1.494	1.281	36,100	233.85
50	1.867	1.323	36,787	233.87	1.736	1.515	39,271	233.94
100	2.129	1.569	39,821	233.96	1.969	1.796	42,141	234.04

1. Wetland allowable release rate per Table 18
2. Total active storage provided in Wetland 1 is 56,387 m^3

As shown in Table 20, the storage requirements for all design storm events (2-year to 100-year storms) are dictated by the 12-hour design storm. The maximum required storage volume for the SWM facility occurs during the 100-year storm event, requiring 42,141 m^3.

The proposed wetland provides 56,387 m^3 of active storage between the permanent pool water level (232.50 m) and the emergency spillway elevation (234.50 m), therefore providing sufficient volume to accommodate quantity control requirements. During the 100-year storm event, the maximum ponding level within Wetland 1 is 234.04 m, providing 0.76 m of freeboard from the top of Wetland at 234.80 m.

Table 21 summarizes the post development peak flow targets for Wetland 2 and the associated required storage. Appendix D contains the Visual OTTHYMO model inputs and results.

Table 21: Summary of SWM Facility Peak Flows and Storage Volumes for Wetland 2

Design Storm Event (year)	6-Hour Design Storm				12-Hour Design Storm			
	Wetland Allowable Release Rate[1] (m^3/s)	Wetland Controlled Flow Rate (m^3/s)	Storage Volume (m^3)	Water Level in Wetland (masl)	Wetland Allowable Release Rate[1] (m^3/s)	Wetland Controlled Flow Rate (m^3/s)	Storage Volume (m^3)	Water Level in Wetland (masl)
2	0.626	0.210	19,983	231.73	0.602	0.321	22,499	231.79
5	0.970	0.455	25,519	231.90	0.919	0.620	27,844	231.99
10	1.212	0.689	28,789	232.02	1.138	0.854	31,044	232.08
25	1.540	0.974	32,690	232.11	1.433	1.129	35,034	232.21
50	1.796	1.166	35,650	232.24	1.665	1.315	38,086	232.31
100	2.048	1.349	38,639	232.33	1.889	1.504	41,169	232.39

1. Wetland allowable release rate per Table 19
2. Total active storage provided in Wetland 2 is 58,169 m^3

As shown in Table 21, the storage requirements for all design storm events (2-year to 100-year storms) are dictated by the 12-hour design storm. The maximum required storage volume for the SWM Wetland occurs during the 100-year storm event, requiring 41,169 m^3.

The proposed Wetland provides 58,169 m^3 of active storage between the permanent pool water level (231.00 m) and the emergency spillway elevation (232.90 m), therefore providing sufficient volume to accommodate quantity control requirements. During the 100-year storm event, the maximum ponding level within Wetland 2 is 232.39 m, providing 0.91 m of freeboard from the top of wetland at 233.30 m.

5.8.3 Quality Control

Stormwater quality controls for the Site must incorporate measures to provide "Enhanced" Level Protection per the MECP (2003) guidelines. "Enhanced" water quality protection involves the removal of at least 80% of the Total Suspended Solids (TSS) from 90% of the annual runoff volume.

The proposed SWM facilities have been designed with a permanent pool volume sized to achieve 80% TSS removal per MECP guidelines. All minor system drainage from the proposed development will be treated in the proposed wetland facilities. Wetland 1 has a total site drainage area of 79.62 ha, including half of Catchments 202-211, which are directed towards the facility through a proposed flow splitter, and Catchments 212-213, with an approximate 90% imperviousness. Wetland 2 has a total site drainage area of 75.01 ha, including half of Catchments 202-211, which are directed towards the facility through a proposed flow splitter, and Catchments 214-216, also with an approximate 90% imperviousness.

The required permanent pool volume to meet the quality control criteria from Table 3.2 of the MECP Stormwater Management Planning and Design Manual (2003) is summarized in Table 22.

Table 22: SWM Facilities Water Quality Requirements

SWM Facility	Total Contributing Drainage Area (ha)	Percent Imperviousness of Drainage Area	Required Permanent Pool Storage Volume (m^3/ha)	Required Permanent Pool Storage Volume (m^3)	Provided Permanent Pool Storage Volume (m^3)
Wetland 1	79.62	90%	109	8,683	12,567
Wetland 2	75.01	90%	109	8,180	13,057

Note: The required storage volumes are interpolated from Table 3.2 of MECP SWM Planning and Design Manual (2003) based on upstream impervious area.

Wetland 1 provides 12,567 m^3 of permanent pool volume between the bottom of the wetland (elevation 231.00 m) and the permanent pool water level (232.50 m) while Wetland 2 provides 13,057 m^3 of permanent pool volume between the bottom of the wetland (elevation 229.50 m) and the permanent pool water level (231.00 m). Therefore, the provided permanent pool volume design for each SWM facility meets the MECP requirements to achieve 80% TSS removal.

Forebay Sizing

The forebay has been designed to provide forebay lengths that meet the required dispersion and settling lengths in accordance with water quality sizing objectives from Section 4.6.2 of the MECP Planning & Design Manual (2003). A summary of the forebay sizing calculations is provided in Table 23, and detailed calculations are provided in Appendix D.

Table 23: SWM Facility Forebay Sizing Summary

Parameter	Wetland 1		Wetland 2	
	Required Size (m)	Provided Size (m)	Required Size (m)	Provided Size (m)
Minimum Forebay Length for Settling (V^S = 0.0003 m/s)	30	115	36	130
Minimum Dispersion Length	32		30	
Minimum Bottom Width	4	40	3.7	31

Wetland 1 has been designed with a sediment forebay that is approximately 115 m in length, and 40 m in width. The sediment forebay comprises approximately 26% of the total permanent pool area. The forebay is separated from the main cell of the wetland by a berm with a top elevation of 232.80 m, set 0.30 m above the normal water level. The berm includes a 75 m wide trapezoidal weir with 3:1 side slope that serves as a spillway between the forebay and the main cell of the wetland. The spillway invert is located at the normal water level (232.50 m) per Town of Caledon standards. Conveyance of the 25 mm uncontrolled flow through the proposed spillway was modelled in FlowMaster, resulting in a flow depth of 0.06 m through the spillway.

Wetland 2 has been designed with a sediment forebay that is approximately 130 m in length, and 31 m in width. The sediment forebay comprises approximately 22% of the total permanent pool area. The forebay is separated from the main cell of the wetland by a berm with a top elevation of 231.30 m, set 0.30 m above the normal water level. The berm includes a 32.5 m wide trapezoidal weir with 3:1 side slope that serves as a spillway between the forebay and the main cell of the wetland. The spillway invert is located at the normal water level (231.00) per Town of Caledon

standards. Conveyance of the 25 mm uncontrolled flow through the proposed spillway was modelled in FlowMaster, resulting in a flow depth of 0.09 m through the spillway.

Refer to Appendix D for the FlowMaster model outputs. The spillways will be protected by cable concrete to stabilize the slope against erosion.

Major system flows, other than those captured by the Block-level controls, will bypass the forebay and enter the main cell of Wetland 2. This will increase the effectiveness of the SWM facility in providing quality control as larger flows will not re-suspend sediment that has settled in the forebay.

Thermal Mitigation

Tributaries of the Humber River flowing through the Site have been identified as habitat or contributing area for Redside Dace. As such, the Guidance for Development Activities in Redside Dace Protected Habitat Version 1.2 (MNRF, March 2016) needs to be followed. Per their standard, the Ministry of Natural Resources and Forestry requires thermal mitigation for effluent from SWM facilities directed to Redside Dace habitats to be reduced to a temperature of 24°C.

Thermal mitigation of runoff from the proposed development will be provided by the SWM facilities, which have been designed as wetlands. The wetlands will have ample vegetation, providing shade over the facilities, which reduces heating of sitting water. Further coordination will be required at the detailed design stage to ensure fast growing and dense vegetation is planted within the wetlands.

5.8.4 Erosion Control Measures

The design of the SWM facilities includes extended detention volume control as well as surface treatment measures to reduce the risk of erosion at the wetland berms, receiving watercourse, and near the existing Mayfield Road culvert.

Extended Detention Drawdown Time

The SWM facilities have been designed to detain runoff from the 25 mm design storm event, and the extended detention orifices within the outlet structures has been designed to release this volume over a minimum period of 48 hours.

Per the VO model prepared for the site, the total runoff depth directed to Wetland 1 during the 25 mm event is 19.75 mm. Given the total drainage area directed to Wetland 1 (79.62 ha), this results in a total extended detention volume requirement of 15,725 m^3. The proposed wetland provides this detention volume at a water level of 233.15 m. The total runoff depth directed to Wetland 2 during the 25 mm event is 19.45 mm. Given the total drainage area directed to Wetland 2 (75.01 ha), this results in a total extended detention volume requirement of 14,589 m^3. The proposed wetland provides this detention volume at a water level of approximately 231.60 m.

An extended detention orifice has been designed to slowly release runoff volume from the 25 mm design storm event over a minimum period of 48-hours for each SWM facility. A 250 mm diameter orifice is proposed within the outlet structures at an invert elevation of 232.50 m and 231.00 m (permanent pool elevation) for Wetland 1 and Wetland 2, respectively.

The top of extended detention for Wetland 1 is at an elevation of 233.15 m, resulting in a provided extended detention volume of 16,427 m^3. Given the total maximum head of 0.65 m acting on the orifice during the 25 mm event, MECP Equation 4.10 (Stormwater Management Planning and Design Manual, March 2003) was used to determine that the total extended detention volume is released over a period of 71-hours.

The top of extended detention for Wetland 2 is at an elevation of 231.60 m, resulting in a provided extended detention volume of 16,466 m^3. Given the total maximum head of 0.60 m acting on the orifice during the 25 mm event, it was determined that the total extended detention volume is released over a period of 74-hours.

It is noted that the top of extended detention in both wetlands will be refined during detailed design to ensure the volume provided is closer to the required volume for erosion control.

Refer to the calculations included in Appendix D for more details.

Concrete Cable Mat Erosion Mitigation

Concrete cable mat is proposed as an erosion treatment at wetland inlets, wetland outlets, overland spillways, forebay berms, and emergency spillways. Minor system flows enter the SWM facilities forebay through a storm sewer connection. Major system (overland) flows enter the Wetland 2 at the west end of the main cell via the major overland flow route. At each inlet location, as well as the forebay berms, emergency spillways, and wetland outfalls, cable concrete mat is proposed to resist the tractive force of the unattenuated Regulatory storm event (greater of the 100-year or Regional flow). The cable concrete will be sized by the manufacturer prior to approval.

5.8.5 Stormwater Management Facilities Outlet Structures

Preliminary sizing for the outlet for the SWM facilities was completed as part of this submission. The outlet structure for Wetland 1 is proposed in the southwest corner of its main cell, while the outlet structure for Wetland 2 is in the northeast corner of its main cell. The outlets for both wetlands will connect to one common manhole proposed within the access road for the facilities and will outlet to the dry pond/NHS area through one headwall located in the northwest corner of the dry pond. Flows will then be directed southeast through the dry pond through a proposed channel, to be designed during detailed design, towards the outlet of the dry pond, directing flows to a 96.5m long natural channel at a slope of 1.03%, which directs storm flows towards the existing Mayfield culvert.

The outlet control manhole for both SWM facilities, which will be detailed further at the detailed design stage, will include three orifice controls. A 250 mm diameter circular orifice with its invert set at the normal water level (232.50 m and 231.00 m for Wetland 1 and Wetland 2, respectively) will provide extended detention control.

For Wetland 1, a second orifice control, comprising of a 1,200 mm (W) by 500 mm (H) rectangular orifice, will be installed at an invert of 233.15 m (top of extended detention water elevation). The combination of the first two orifice controls will control the 2-year through 10-year storm events to the quantity control target release rates indicated in Table 19. A third orifice control, comprising of a 1,500 mm (W) by 500 mm (H) rectangular orifice, will be installed at an invert of 233.80 m. The combination of all noted orifice controls will control the 25-year through 100-year storm events to the quantity control target release rates indicated in Table 20.

For Wetland 2, a second orifice control, comprising of a 1,200 mm (W) by 500 mm (H) rectangular orifice, will be installed at an invert of 231.60 m (top of extended detention water elevation). The combination of the first two orifice controls will control the 2-year through 25-year storm events to the quantity control target release rates indicated in Table 20. A third orifice control, comprising of a 1,500 mm (W) by 500 mm (H) rectangular orifice, will be installed at an invert of 232.25 m. The combination of all noted orifice controls will control the 50-year through 100-year storm events to the quantity control target release rates indicated in Table 21.

Detailed orifice control calculations and SSD table for the SWM facilities are provided in Appendix D.

5.8.6 Emergency Spillway

In the event of a storm exceeding the 100-year event or a blockage of the outlet structure, an emergency spillway has been designed to safely convey runoff from the uncontrolled Regulatory event (greater of 100-year and Regional events) through the SWM facilities to the dry pond. Given the size of the proposed storm sewers within Street B, blockage of the storm sewer system during the 100-year storm is highly unlikely therefore, the 100-year storm flows considered through the emergency spillway assumes that only the wetland outlet is plugged (flow splitter is functioning and the block-level controls remain in place). Under the emergency overland flow situation (Regional storm), runoff from all blocks and ROWs are directed to Wetland 2 therefore, Wetland 1 only receives flows falling on the wetland itself. It is noted that block controls are assumed to fail under the Regional storm event.

The 100-year flows to Wetland 1 are 5.33 m^3/s and 5.24 m^3/s for the 6-hour and 12-hour AES storm distributions, respectively, as per the VO model output. The Regional uncontrolled flow directed towards Wetland 1 is only 0.62 m^3/s since all major overland flows are directed to Wetland 2. The maximum anticipated flow was used to size the emergency spillway (5.33 m^3/s). The spillway is located on the southeast bank of the wetland, just west of the property line, and has been sized as a 25 m wide trapezoidal weir with 3:1 side slope to convey the Regulatory flow with 0.03 m of freeboard to the top of the wetland.

The 100-year flows to Wetland 2 are 5.11 m^3/s and 5.00 m^3/s for the 6-hour and 12-hour AES storm distributions, respectively, as per the VO model output. The Regional uncontrolled flow directed towards Wetland 2 is 21.61 m^3/s. The maximum anticipated flow was used to size the emergency spillway (21.61 m^3/s). The spillway is located on at the north end of the eastern bank of the wetland, west of the dry pond and has been sized as a 70 m wide trapezoidal weir with 3:1 side slope to convey the Regulatory flow with 0.06 m of freeboard to the top of the wetland.

Detailed emergency spillway calculations (FlowMaster) are provided in Appendix D.

5.9 Regional Storm Event Stormwater Management (SWM) Facility Design

One (1) stormwater management facility is proposed in Block 12 in the form of wetland compensation area in combination with a dry pond to provide stormwater quantity control of the Regional Storm Event for the discharge of the overall development to the East Tributary/Mayfield Road Culvert. Stormwater flows will enter the proposed SWM facility by overland flow as described further in Section 5.10.

It is noted that a Regional Storm downstream analysis was completed for the East Tributary and it was determined that there is no increase in flood elevation downstream of the Site with the Regional pond in place. Refer to the *Hydraulic Analysis Report* by Crozier (October 2023) for more details.

The following subsections provide details regarding the SWM facilities proposed on Site.

5.9.1 Grading and Design Considerations

The stormwater management dry pond shall be designed with consideration for grading, public safety, future maintenance access, and safe conveyance of emergency flows. The dry pond discussed within this report include the following features:

- The dry pond will be graded with a maximum of 4:1 side slope. Additional erosion protection measures for the 4:1 slope within the pond will be provided at detailed design stage;
- Active storage sized to control the post-development Regional flow to the pre-development Regional peak flow;
- A minimum 0.30 m of freeboard provided above the Regional Storm water level within the facility;
- A low-flow channel that will convey flows from Wetlands 1 and 2. The low-flow channel will be laid out during detailed design, and we will work closely with GEI to ensure the block best suits the wetland compensation requirement.

Refer to preliminary stormwater management design drawings enclosed with this report as Drawings C103 to C103B for more details.

5.9.2 Quantity Control

Through coordination with TRCA and the Town, it has been determined that control of the Regional storm event is required for the Site to ensure the post-development flow to the Mayfield Road culvert is reduced to the pre-development peak flow. As shown in Table 5, the total pre-development peak flow directed to the Mayfield Road culvert during the Regional storm event is 15.979 m^3/s.

Based on the determined target release rate (15,979 m^3/s), Visual Otthymo (VO) modeling software was used to determine the required storage volume for the dry pond to control the post-development peak flow. For the purposes of a Regional analysis, ponds designed to control flows from the 2 through 100-year return periods are considered to be at maximum capacity. As such, the Regional model does not contain any routing elements representing stormwater management facilities, including the proposed Block-level controls and the SWM wetlands that were designed to provide design storm control within the Site.

The results show that the dry pond successfully reduces the post-development Regional Storm peak flow to a release rate of 14.842 m^3/s, requiring a total storage volume of 115,099 m^3 within the dry pond. The proposed dry pond provides 121,630 m^3 of active storage between the bottom of pond elevation (229.00 m) and the emergency spillway elevation (231.00 m), therefore providing sufficient volume to accommodate the quantity control requirement. During the Regional Storm event, the maximum ponding level within the dry pond is 230.83 m, providing 0.47 m of freeboard from the top of the dry pond at 231.30 m.

5.9.3 Dry Pond Outlet Structure

Preliminary sizing for the outlet for the dry pond was completed as part of this submission. The outlet structure is proposed in the southeast corner of the dry pond and will consist of two (2) 2,130 mm (W) by 1,200 mm (H) concrete box culverts, which will be installed at an invert of 229.00 m (bottom of dry pond). Flows will then be directed towards the existing Mayfield Road culvert. The outlet control for the dry pond will be detailed further at the detailed design stage.

During the design storm events (2-year to 100-year storm events), stormwater released from the upstream SWM wetlands (Wetland 1 and 2) along with any rainfall falling over the dry pond area, will be directed towards one of the proposed 2,130 mm (W) by 1,200 mm (H) concrete box culverts through a low-flow channel within the dry pond. The required low-flow channel will be designed at the detailed design stage to convey the 100-year 12-hour peak flow of 3.367 m^3/s. To ensure functionality of the design, CulvertMaster was used to verify the capacity of one (1) culvert to convey the flow from the 100-year storm event. Results show that the culvert can convey the 100-year storm flow, with a headwater depth of 0.83 m and a normal depth of 0.44 m within the culvert.

Detailed culvert control calculations and SSD table for the dry pond, along with the CulvertMaster analysis for the conveyance of the 100-year storm flow are provided in Appendix D.

5.9.4 Emergency Spillway

In the event of a blockage of the outlet structure, an emergency spillway has been designed to safely convey runoff from the uncontrolled Regulatory event through the dry pond.

The Regional uncontrolled flow directed towards the dry pond is 23.367 m^3/s. The spillway is located on the south bank of the dry pond, just east of the property line, and has been sized as a 100 m wide trapezoidal weir with 3:1 side slope to convey the Regulatory flow with 0.02 m of freeboard to the top of the dry pond. The full extent of the emergency spillway is not included in the drawing package at this stage and will be shown at detailed design.

Detailed emergency spillway calculations (FlowMaster) are provided in Appendix D.

5.10 Stormwater Conveyance Systems

The Rational Method was used to preliminarily size the proposed storm sewer system within the Site. Street B represents the main emergency overland flow route for the Site, directing all runoff towards the southmost SWM facility (Wetland 2) proposed in the southeast corner of the subject property during the Regional storm event. All development blocks are also proposed to outlet to the storm sewer system within the municipal ROWs. The development block flows were added to the design sheet as constant flows according to their respective allowable release rates.

5.10.1 Minor Storm Sewer System Conveyance

The storm sewers on Site have been preliminarily designed to convey the 5-year design storm event to each SWM facility. The storm sewer system has been designed with a flow splitter manhole, which will split flow from Catchments 202-211 (Blocks 1, 3, 4, 7 and 8 and the ROWs north of the flow splitter manhole) equally between the two proposed SWM facilities. Storm flows from Block 5 will be directed to the northmost SWM facility (Wetland 1), while the remainder of the Site (Block 2 and the ROW south of the flow splitter manhole) will be directed to the southmost SWM facility (Wetland 2).

It is noted that the 100-year storm flows from all industrial blocks are controlled to the 5-year storm event. The allowable release rate from each block was applied as a constant flow rate while sizing the storm sewer system.

Refer to the 5-year Rational Method storm sewer sizing results provided within Appendix D for further details and Drawings C101 and C101A**.** As part of the detailed design phase, a dynamic dual drainage model will be prepared to further design the minor storm system.

5.10.2 Major Storm System Conveyance

Flows that are greater than the minor storm sewer system capacity will drain overland via the proposed ROWs towards Wetland 2. A low point is proposed along Street B, which will direct overland runoff into the main cell of this SWM facility. As part of the detailed design phase, a dynamic dual drainage model will be prepared to quantify the proposed major storm conveyance to Wetland 2.

5.11 Water Balance

Per the CLI-ECA stormwater criteria, a water balance analysis is required for the public lands using the average and more frequent precipitation events that comprise of the bulk volume of annual precipitation to ensure maintenance of pre-development water balance following development. The same is required for the private blocks on Site, which will each go through an ECA at the Site Plan Application stage. Refer to Figure 6 for more information on the areas that will be private versus public following development of the subject property.

Water balance calculations were completed using the Thornthwaite and Mather Method (1957). The Thornthwaite and Mather water balance is an accounting type method to analyze the allocation of water among various components of the hydrologic cycle. Inputs to the model include monthly temperature, site latitude, precipitation, and stormwater run-on. The Richmond Hill Weather Station was chosen as the most representative database for the Site. The most recent 30-year normal (average weather data) available from Environment Canada covers the period from January 1971 to December 2000.

A Preliminary Hydrogeological Investigation is provided under separate cover by Toronto Inspections (October 2023). The results of the investigation show that wells located near drainage features have groundwater at depths between 0.9 to 2.46 m below ground surface while wells in locations further removed from the drainage features reported groundwater elevations at depths ranging between 3.19 m to 5.87 m below ground surface. A long-term groundwater level monitoring program is currently underway on Site to capture the seasonal fluctuations and determine the high groundwater level for the property. In addition to groundwater elevations, the investigation also includes hydraulic response testing to determine the hydraulic conductivity of soils on Site. According to the estimates completed by Toronto Inspection, the hydraulic conductivity of the materials on site ranges from 1.5×10^{-9} m/s and 3.7×10^{-7} m/s, with a geometric mean of 6.8×10^{-9} m/s. This results in an infiltration rate of approximately 3.55 mm/hr. The results of the hydrogeological investigation will help inform the potential for LID implementation on Site to achieve both the feature-base and site-specific water balance requirement.

The water balance for the Site was completed to set the targets for the private and public blocks separately. The private part of the Site includes Blocks 1-5 and 7-8, consisting of a total area of about 138 ha. The private industrial blocks will be required to go through an ECA at the Site Plan Application stage. The private blocks are determined to create an infiltration deficit of 164,519 m^3/year. A summary of the private block water balance is provided in Table 24. Refer to Appendix D for the water balance calculations and Figure 5 which shows pre-development cover.

Table 24: Summary of Water Balance (Private Blocks 1-8)

Scenario	Precipitation (m^3/yr)	Evapotranspiration (m^3/yr)	Infiltration (m^3/yr)	Runoff (m^3/yr)
Pre-Development	1,083,572	621,705	182,907	278,960
Post-Development[1]	1,083,572	257,429	18,388	807,754
Change (Pre to Post)	**0%**	**-58%**	**-90%**	**290%**

1. Post-development with no mitigation, assuming 10% landscaping for industrial blocks per standard minimum requirement

To achieve the private block infiltration water balance, the infiltration deficit will be mitigated through measures within each of the industrial blocks (Blocks 1-8). It is noted that there are no current plans to develop Block 10 therefore, the water balance for this block is achieved as the total pervious area is maintained post-development. Targets for each of the industrial blocks have been set according to their relative total area. Refer to Table 25 for the infiltration target for each block.

Table 25: Summary of Infiltration Water Balance Target for the Industrial Blocks

Block ID	Area (ha)	Infiltration Target (m^3/year)
1	36.409	43,450
2	11.673	13,930
3	18.103	21,604
4	18.990	22,662
5	17.455	20,831
7	17.997	21,477
8	17.232	20,564
Total	**137.859**	**164,519**

To mitigate the infiltration deficit for the blocks, it was assumed that a combination of rooftop and surface parking drainage from each of the private development blocks could be directed to Low Impact Development (LID) measures designed to promote infiltration. Based on this assumption we have estimated that an infiltration target of 4.2 mm of rainfall is required to match the pre-development infiltration rates for each respective block, except for Block 2, which is required to infiltrate 5.0 mm of rainfall to achieve the target. The 4.2 mm design storm was determined assuming 90% of the impervious area for the industrial blocks will be directed to infiltration facilities. As previously mentioned, a minimum roof area of 1.39 ha within Block 2 is to be redirected to the Greenbelt to maintain the existing flows within the West Tributary post-development, resulting in the larger rainfall event required to achieve the infiltration water balance.

As noted in Section 5.1, TRCA also has an erosion criterion that applies to the Site, which requires onsite retention of 5 mm of runoff generated from the total impervious area. Therefore, the larger infiltration target between the water balance and erosion control requirements must be applied, resulting in a target of 5 mm for all blocks.

It is noted that pre-treatment will be required for any surface runoff directed to the infiltration facilities. Refer to Appendix D for the water balance calculations.

Detailed infiltration facility sizing, including in-situ percolation tests and drawdown calculations for each facility will be completed as part of the detailed design for each Site Plan, however, to maintain existing infiltration levels, it is recommended that LIDs be included in the stormwater management design to promote infiltration. As such, a list of feasible LID options is presented in Table 26 for consideration at the site plan stage.

Table 26: LID Options Feasibility Summary – Private Blocks

LID Option	Comments	Feasible Y/N	Rationale
Green Roof	- Retains stormwater to reduce runoff - Does not recharge groundwater	Y	- Commercial/industrial development will include large buildings with flat roof areas conducive for green roof installations.
Roof Downspout Disconnection	- Improves groundwater recharge by directing runoff from impervious roofs to landscaped areas	N	- Commercial/industrial development will include large buildings, however there is not sufficient landscape area available near each building to support downspout disconnection.
Infiltration Galleries	- Improves groundwater recharge	Y	- High groundwater and tight soils may limit feasible locations for infiltration galleries, feasibility to be confirmed at the site plan stage. - It is preferred to direct 'clean' roof runoff into infiltration galleries. -If parking/asphalt areas will be directed to infiltration galleries, quality treatment of runoff will be required to treat runoff prior to entering the infiltration gallery.
Rainwater Harvesting	- Retains stormwater to reduce runoff - Allows infiltration when used for irrigation of landscaped areas	Y	-Runoff from commercial/industrial rooftops could feasibly be directed to a rainwater cistern and used for irrigation of landscaped areas on-site. Feasibility to be confirmed at Site Plan stage.
Bioretention	- Improves groundwater recharge	N	- Commercial/industrial development will comprise mainly of buildings and parking lot areas, with limited landscaping, therefore there is not sufficient landscape area to support bioretention features. - It is preferred to direct 'clean' roof runoff into vegetated filter strips. -If parking/asphalt areas will be directed to vegetated filter strip, quality treatment of runoff will be required to treat runoff prior to entering the bioretention facility.
Vegetated Filter Strips	- Reduces stormwater runoff - Improves groundwater recharge	N	- Commercial/industrial development will comprise mainly of building and parking lot areas, with limited landscaping, therefore there is not sufficient landscape area available to support vegetated filter strip features. - It is preferred to direct 'clean' roof runoff into vegetated filter strips. -If parking/asphalt areas will be directed to vegetated filter strip, quality treatment of runoff will be required to

			treat runoff prior to entering the vegetated filter strip.
Permeable Pavement	- Reduces stormwater runoff - Improves groundwater recharge	Y	- Parking lots and drive aisles could feasibly be converted to permeable pavement to reduce runoff and promote infiltration. Feasibility to be confirmed at site plan stage.
Enhanced Grass Swales	- Reduces stormwater runoff - Improves groundwater recharge	N	- Commercial/industrial development will comprise mainly of building and parking lot areas, with limited landscaping, therefore there is not sufficient landscape area available to support enhanced grassed swale features.

As noted above, feasible options can be further investigated at the detailed site plan stage, to meet the private block water balance deficit. Refer to Figure 7 for preliminary LID locations within each block and preliminary supporting calculations. The LID footprints presented in the figure have been determined using a depth for the facilities of 0.40 m, which is a conservative value based on the maximum depth of 0.43 m determined to provide a drawdown time of 48 hours within the facilities using the infiltration rate of 3.55 mm/hour as specified in the Preliminary Hydrogeological Investigation by Toronto Inspections. Refer to Appendix D for the maximum depth calculation.

The remainder of the Site will be conveyed to the Town post-development and will therefore consist of public land, which are to be reviewed under the Town's CLI-ECA Stormwater Criteria. The water balance for the public land is proposed to be provided completely within the future ROWs on the property. The public blocks are determined to create an infiltration deficit of 9,876 m^3/year. A summary of the public blocks water balance is provided in Table 27. Refer to Appendix D for the water balance calculations.

Table 27: Summary of Water Balance (Public Blocks)

Scenario	Precipitation (m^3/yr)	Evapotranspiration (m^3/yr)	Infiltration (m^3/yr)	Runoff (m^3/yr)
Pre-Development	494,551	283,487	83,361	127,703
Post-Development[1]	494,551	261,621	73,486	159,445
Change (Pre to Post)	**0%**	**-8%**	**-12%**	**25%**

1. Post-development with no mitigation, assuming 27% landscaping for the ROWs per standard minimum requirements

To mitigate the infiltration deficit for the public lands, it was determined that surface runoff from the entire ROWs can be directed to LID measures designed to promote infiltration. Drainage from all impervious surfaces within the ROWs directed towards infiltration facilities sized to capture and infiltrate 4.5 mm of rainfall is required to achieve the infiltration target. It is noted that pre-treatment will be required for any surface runoff directed to the infiltration facilities. Refer to Appendix D for the water balance calculations.

As noted in Section 5.1, TRCA also has an erosion criterion that applies to the Site, which requires onsite retention of 5 mm of runoff generated from the total impervious area. Therefore, the larger infiltration target between the water balance and erosion control requirements must be applied, resulting in a target of 5 mm for the ROWs.

There are several LID measures that could be installed within the ROWs to meet the water balance target. Examples of suitable LIDs include bioswales, enhanced swales, exfiltration trenches, boulevard bioretention and permeable pavements for the sidewalks. Detailed facility sizing, including in-situ percolation tests and drawdown calculations for each facility will be completed as part of detailed design. Refer to Figure 7 included for preliminary LID locations within the ROWs and supporting calculations. Similar to the LIDs for the industrial blocks, the LID footprints presented in the figure have been determined using a depth for the facilities of 0.40 m.

6.0 Conclusions and Recommendations

We conclude that proposed development of the subject property can be readily serviced from a civil engineering and stormwater management perspective. The proposed civil engineering servicing and stormwater management design outlined in this report can meet the objectives of the regulatory agencies.

Based on the information contained in this report, we offer the following conclusions:

1. The sanitary servicing for Blocks 1, 4 and 5 will outlet to the existing 750 mm diameter sanitary trunk sewer on Airport Road. The sanitary servicing for Blocks 2, 3, 7 and 8 will discharge to the future 600 mm diameter sanitary trunk sewer that is proposed as part of the Block 48-2 (Sandringham East) development.

2. Domestic water and fire flows will be provided for the Site by proposed 300 mm and 400 mm diameter watermains that are proposed in the internal Right-of-Ways. The proposed watermains will be looped through the Site and connect to the existing watermains along Airport Road, Torbram Road and Mayfield Road.

3. External stormwater flows from the adjacent property to the north will continue to be conveyed through the Site under post-development conditions.

4. The Town and TRCA stormwater quantity criteria are satisfied through a combination of measures. Industrial Blocks will be required to control 100-year post development peak flows to the 5-year post development flow on site, prior to discharging to the storm sewer system within the municipal Right-of-Ways. Storage within the Blocks may be in the form of rooftop ponding, surface ponding, and/or underground storage. Stormwater runoff from the controlled Blocks and the Right-of-Ways on Site will be conveyed to the SWM facilities for quantity, quality, and erosion control. The facilities will provide the active storage volume and control required to release the stormwater at the Humber River Watershed unit flow rates. The proposed stormwater management wetlands will discharge towards the EPA area on site prior to the existing culvert under Mayfield Road.

5. Post-development Regional Storm event flows will be reduced to the pre-development peak flow for runoff from the Site directed to the East Tributary through the dry pond proposed within the EPA area in the southeast corner of the property.

6. Erosion control will be provided by the proposed stormwater management facilities by releasing the 25 mm design storm event over a minimum 48-hour period. Erosion control for all blocks (private and public) is also provided through retention of 5 mm of runoff generated from the total impervious area.

7. Stormwater quality control criteria are satisfied by the SWM facilities design. The permanent pool component of the proposed wetlands will provide Level 1 Enhanced Protection for the entire Site.

We recommend approval of the Official Plan Amendment and Draft Plan of Subdivision for the development of the subject lands from the perspective of site servicing and stormwater management requirements. If you have any questions about this report, please call us.

Respectfully submitted,

C.F. CROZIER & ASSOCIATES INC.



Isabelle Forsyth, P.Eng.
Project Engineer

C.F. CROZIER & ASSOCIATES INC.



Julie Scott, P.Eng.
Project Manager

C.F. CROZIER & ASSOCIATES INC.



Rebecca Archer, P.Eng.
Senior Project Engineer

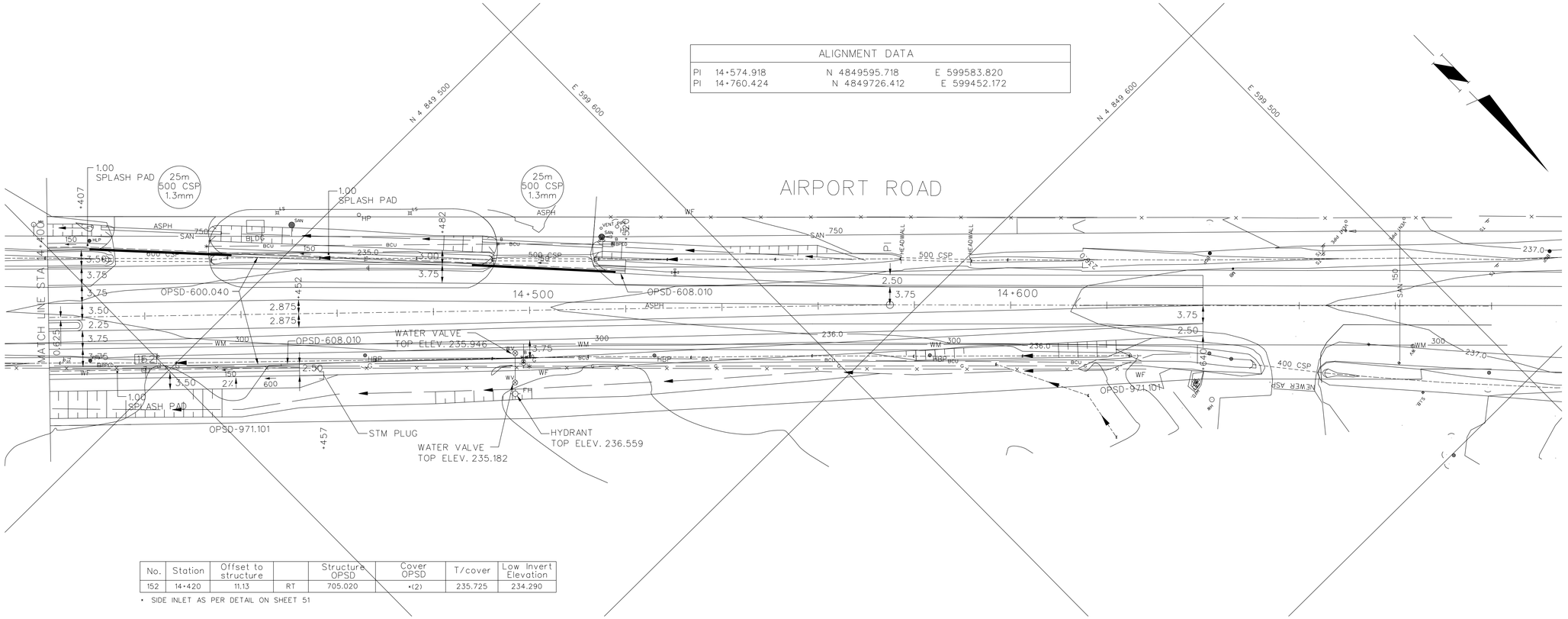
IF/cj:stm

I:\2000\2022 - Rice Group\5842 - Tullamore Lands\Reports\2023.04.06 FSR&SWM\5842_FSR&SWM Report.docx

APPENDIX A

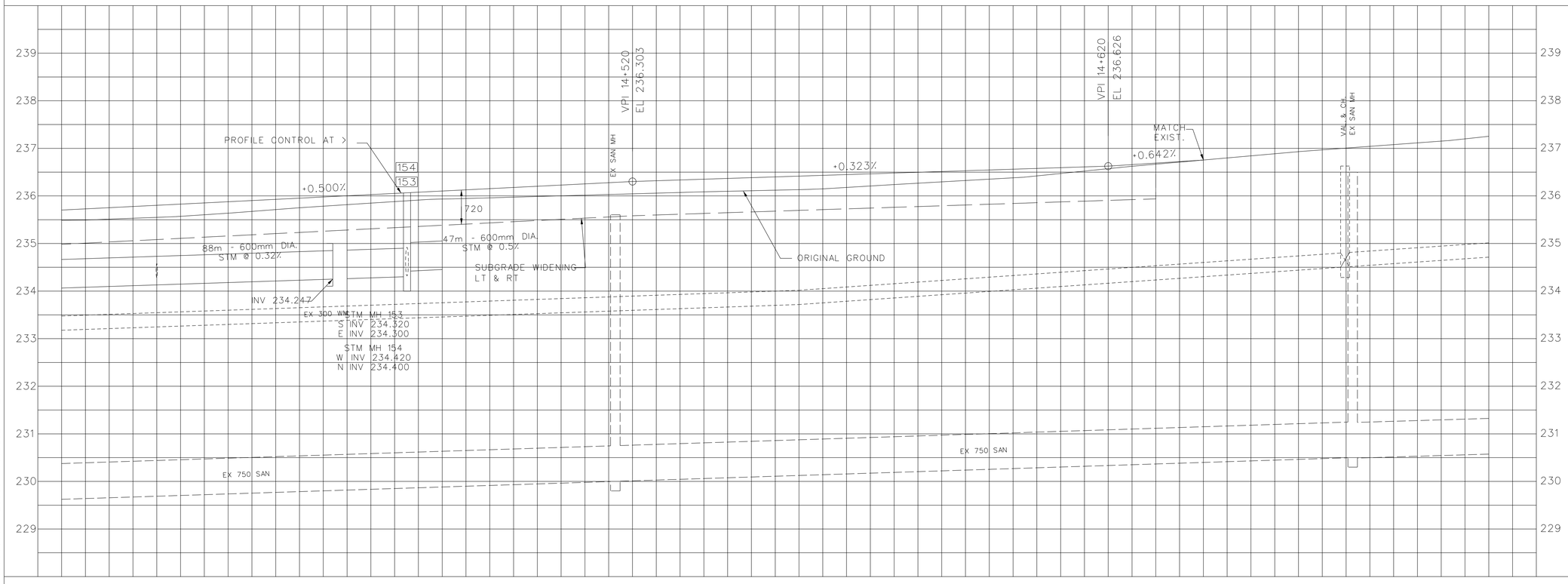
Sanitary

ALIGNMENT DATA			
PI	14+574.918	N 4849595.718	E 599583.820
PI	14+760.424	N 4849726.412	E 599452.172



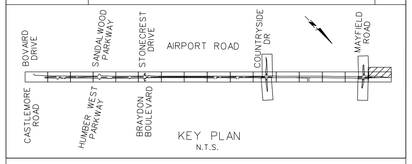
No.	Station	Offset to structure		Structure OPSD	Cover OPSD	T/cover	Low Invert Elevation
152	14+420	11.13	RT	705.020	*(2)	235.725	234.290

* SIDE INLET AS PER DETAIL ON SHEET 51



SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			ONT. HYDRO		
PARKS & REC.			CTV		
ONT. CLEAN WATER					

REVISIONS		
DATE	DETAILS	INIT.
APR 21,2006	REVISION No. 28	J.M.
AUG. 26/09	AS BUILT	J.K.



General Notes

- All Driveways ASPHALT (25mm HL3, 50mm HL8, 150mm GRAN 'A') Unless Otherwise Noted.
- All Service Locations Are Approximate And Must Be Located Accurately In The Field
- Denotes Building - Not Located
- Denotes Building Located
- Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No. Elev.

The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction. Location of shown Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

Giffels Giffels Associates Limited
Consulting Engineers and Architects

REGISTERED PROFESSIONAL ENGINEER
S.S.CHIU
PROVINCE OF ONTARIO

Designed by Chkd.

Designed by

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMMENCING WORK NOTIFY THE FOLLOWING

THE REGIONAL MUNICIPALITY OF PEEL
CITY OF MISSISSAUGA WORKS DEPT.
CITY OF BRAMPTON WORKS DEPT.
TOWN OF CALEDON WORKS DEPT.
BELL TELEPHONE COMPANY
CONSUMERS GAS COMPANY
MINISTRY OF TRANSPORTATION
ONTARIO CLEAN WATER AGENCY
HYDRO ELECTRIC POWER COMM. OF ONTARIO
HYDRO ELECTRIC COMM. CITY OF MISSISSAUGA
HYDRO ELECTRIC COMM. CITY OF BRAMPTON
CABLE TELEVISION

10m 0 10 20 30m HORIZONTAL SCALE

1m 0 1 2 3m VERTICAL SCALE

Region of Peel
Public Works

AIRPORT ROAD

(FROM BOVAIRD DRIVE TO MAYFIELD ROAD)

NEW CONSTRUCTION

Sta. 14+400 To Sta. 14+700

LOTS	AREA	PROJECT NO. 01-4035
CHECKED BY S.B. / E.B.	DRAWN BY R.R. / P.T.	
DATE APR 2005	SHEET 41 OF 156	PLAN NO. 38114-D

$$$$TIME$$$$$$$$$DATE$$$$ $$$$USERNAME$$$$ DGNSPEC*123456789012345678901234567890123456789012

Proposed Sanitary Design Flow - Block 1

Block Area:	36.409	ha
Building GFA:	10.070	ha
Population*	705	

Design Criteria

Total Peak Flow = Average Daily Flow + Infiltration Allowance

Peak Factor =	3.9	Harmon Peaking Factor
Average Industrial Flow =	302.8	L/cap/d
Infiltration =	0.20	L/s/ha

Region of Peel - Public Works Design, Specifications & Procedures Manual - Linear Infrastructure - Sanitary Sewer Design Criteria (March 2017)

Sanitary Design Flow:

Average Daily Flow =	**2.47**	L/s
Peak Factor =	**3.89**	
Peak Daily Flow =	**9.62**	L/s
Infiltration Flow =	**7.28**	L/s
Total Peak Flow =	**16.90**	L/s

*Population calculation is based on the total Gross Floor Area (GFA) of all the proposed buildings shown on the Site Plan prepared by Weston Consulting

Proposed Sanitary Design Flow - Block 2

Block Area:	11.673	ha
Building GFA:	4.271	ha
Population*	299	

Design Criteria

Total Peak Flow = Average Daily Flow + Infiltration Allowance

Peak Factor =	4.1	Harmon Peaking Factor
Average Industrial Flow =	302.8	L/cap/d
Infiltration =	0.20	L/s/ha

Region of Peel - Public Works Design, Specifications & Procedures Manual - Linear Infrastructure - Sanitary Sewer Design Criteria (March 2017)

Sanitary Design Flow - Unit Sewage Flow Rate:

Average Daily Flow =	**1.05**	L/s
Peak Factor =	**4.08**	
Peak Daily Flow =	**4.27**	L/s
Infiltration Flow =	**2.33**	L/s
Total Peak Flow =	**6.61**	L/s

*Population calculation is based on the total Gross Floor Area (GFA) of all the proposed buildings shown on the Site Plan prepared by Weston Consulting

Proposed Sanitary Design Flow - Block 3

Block Area:	18.103	ha
Building GFA:	7.290	ha
Population*	510	

Design Criteria

Total Peak Flow = Average Daily Flow + Infiltration Allowance

Peak Factor =	4.0	Harmon Peaking Factor
Average Industrial Flow =	302.8	L/cap/d
Infiltration =	0.20	L/s/ha

Region of Peel - Public Works Design, Specifications & Procedures Manual - Linear Infrastructure - Sanitary Sewer Design Criteria (March 2017)

Sanitary Design Flow:

Average Daily Flow =	**1.79**	L/s
Peak Factor =	**3.97**	
Peak Daily Flow =	**7.10**	L/s
Infiltration Flow =	**3.62**	L/s
Total Peak Flow =	**10.72**	L/s

*Population calculation is based on the total Gross Floor Area (GFA) of all the proposed buildings shown on the Site Plan prepared by Weston Consulting

Proposed Sanitary Design Flow - Block 4

Block Area:	18.990	ha
Building GFA:	9.376	ha
Population*	656	

Design Criteria

Total Peak Flow = Average Daily Flow + Infiltration Allowance

Peak Factor =	3.9	Harmon Peaking Factor
Average Industrial Flow =	302.8	L/cap/d
Infiltration =	0.20	L/s/ha

Region of Peel - Public Works Design, Specifications & Procedures Manual - Linear Infrastructure - Sanitary Sewer Design Criteria (March 2017)

Sanitary Design Flow - Unit Sewage Flow Rate:

Average Daily Flow =	**2.30**	L/s
Peak Factor =	**3.91**	
Peak Daily Flow =	**8.99**	L/s
Infiltration Flow =	**3.80**	L/s
Total Peak Flow =	**12.79**	L/s

*Population calculation is based on the total Gross Floor Area (GFA) of all the proposed buildings shown on the Site Plan prepared by Weston Consulting

Proposed Sanitary Design Flow - Block 5

Block Area:	17.455	ha
Building GFA:	9.066	ha
Population*	635	

Design Criteria

Total Peak Flow = Average Daily Flow + Infiltration Allowance

Peak Factor =	3.9	Harmon Peaking Factor
Average Industrial Flow =	302.8	L/cap/d
Infiltration =	0.20	L/s/ha

Region of Peel - Public Works Design, Specifications & Procedures Manual - Linear Infrastructure - Sanitary Sewer Design Criteria (March 2017)

Sanitary Design Flow - Unit Sewage Flow Rate:

Average Daily Flow =	**2.22**	L/s
Peak Factor =	**3.92**	
Peak Daily Flow =	**8.72**	L/s
Infiltration Flow =	**3.49**	L/s
Total Peak Flow =	**12.21**	L/s

*Population calculation is based on the total Gross Floor Area (GFA) of all the proposed buildings shown on the Site Plan prepared by Weston Consulting

Proposed Sanitary Design Flow - Block 7

Block Area:	17.997	ha
Building GFA:	9.373	ha
Population*	656	

Design Criteria

Total Peak Flow = Average Daily Flow + Infiltration Allowance

Peak Factor =	3.9	Harmon Peaking Factor
Average Industrial Flow =	302.8	L/cap/d
Infiltration =	0.20	L/s/ha

Region of Peel - Public Works Design, Specifications & Procedures Manual - Linear Infrastructure - Sanitary Sewer Design Criteria (March 2017)

Sanitary Design Flow - Unit Sewage Flow Rate:

Average Daily Flow =	**2.30**	L/s
Peak Factor =	**3.91**	
Peak Daily Flow =	**8.99**	L/s
Infiltration Flow =	**3.60**	L/s
Total Peak Flow =	**12.59**	L/s

*Population calculation is based on the total Gross Floor Area (GFA) of all the proposed buildings shown on the Site Plan prepared by Weston Consulting

Proposed Sanitary Design Flow - Block 8

Block Area:	17.232	ha
Building GFA:	7.409	ha
Population*	519	

Design Criteria

Total Peak Flow = Average Daily Flow + Infiltration Allowance

Peak Factor =	4.0	Harmon Peaking Factor
Average Industrial Flow =	302.8	L/cap/d
Infiltration =	0.20	L/s/ha

Region of Peel - Public Works Design, Specifications & Procedures Manual - Linear Infrastructure - Sanitary Sewer Design Criteria (March 2017)

Sanitary Design Flow - Unit Sewage Flow Rate:

Average Daily Flow =	**1.82**	L/s
Peak Factor =	**3.97**	
Peak Daily Flow =	**7.21**	L/s
Infiltration Flow =	**3.45**	L/s
Total Peak Flow =	**10.66**	L/s

*Population calculation is based on the total Gross Floor Area (GFA) of all the proposed buildings shown on the Site Plan prepared by Weston Consulting

CROZIER CONSULTING ENGINEERS

2022-5842 Tullamore Lands
Sanitary Demand Flows - Summary

Date: 2021.11.24
Designed By: L.E
Checked By: JMS
Updated: 2023.10.26

Block	Block Area	Building GFA	Equivalent Population	Peak Flow	Infiltration Flow	Total Flow	Outlet
	ha	ha		(L/s)	(L/s)	(L/s)	
1	36.41	10.07	705	9.62	7.28	16.90	Airport Rd
2	11.67	4.27	299	4.27	2.33	6.61	Mayfield Rd
3	18.10	7.29	510	7.10	3.62	10.72	Mayfield Rd
4	18.99	9.38	656	8.99	3.80	12.79	Airport Rd
5	17.46	9.07	635	8.72	3.49	12.21	Airport Rd
7	18.00	9.37	656	8.99	3.60	12.59	Mayfield Rd
8	17.23	7.41	519	7.21	3.45	10.66	Mayfield Rd
Total	**137.86**	**56.86**	**3980**	**54.90**	**27.57**	**82.47**	

Note: Block Areas are based on Weston Consulting Draft Plan
Note: Population estimates are based on building GFAs provided by Turner Fleischer Site Plan

SANITARY SEWER DESIGN SHEET

Tullamore, Region of Peel, Town of Caledon

CROZIER CONSULTING ENGINEERS

Project #: 2022-5842
Updated Date: 2023.10.26
Designed: L.E.
Checked: J.S.

Min Diameter = 250 mm
Mannings 'n'= 0.013
Min. Velocity = 0.75 m/s
Max. Velocity = 3.50 m/s

Avg. Domestic Flow = 302.8 l/c/d
Infiltration = 0.200 l/s/ha
Max. Peaking Factor = 4.00
Min. Peaking Factor= 1.50

Factor of Safety = 20 %

NOMINAL PIPE SIZE USED

DESCRIPTION	FROM MH	TO MH	EXTERNAL							COMMERCIAL/INDUSTRIAL/INSTITUTIONAL						FLOW CALCULATIONS					PIPE DATA						NOTES
			AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENISTY (P/ha)	DENSITY (P/unit)	EXT POP	ACCUM. EXT POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (p/ha)	FLOW RATE (l/s/ha)	EQUIV. POP.	ACCUM. EQUIV. POP.	INFILTRATION (l/s)	TOTAL ACCUM. POP.	PEAKING FACTOR	POP. FLOW (l/s)	TOTAL FLOW (l/s)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)	
STREET C																											
100	MH1A	MH2A						5250	5250	0.40	0.40					0.08	5250	3.23	59.34	59.42	0.35	600	363.25	1.28	0.95	16.4%	
101	MH2A	MH3A							5250	0.20	0.60					0.12	5250	3.23	59.34	59.46	0.35	600	363.25	1.28	0.95	16.4%	
102	MH3A	MH4A							5250	0.30	0.90					0.18	5250	3.23	59.34	59.52	0.35	600	363.25	1.28	0.95	16.4%	
103	MH4A	MH5A							5250	0.30	1.20					0.24	5250	3.23	59.34	59.58	0.35	600	363.25	1.28	0.95	16.4%	
104	MH5A	MH6A							5250	0.30	1.50					0.30	5250	3.23	59.34	59.64	0.35	600	363.25	1.28	0.95	16.4%	
																											Ext. area = block area excl. GFA.
Block 7	MH100A	MH6A	8.6240	8.62						9.3730	9.37	70		657	657	3.60	657	3.91	9.00	12.60	2.00	250	84.10	1.71	1.23	15.0%	/Internal area = GFA
105	MH6A	MH7A		8.62					5250	0.20	11.07				657	3.94	5907	3.18	65.77	69.71	0.35	600	363.25	1.28	0.99	19.2%	
STREET B																											
																											Connection provided for potential
106	MH8A	MH10A								0.40	0.40					0.08				0.08	0.35	600	363.25	1.28	0.12	0.0%	fut. Connection
107	MH10A	MH11A								0.30	0.70					0.14				0.14	0.35	600	363.25	1.28	0.14	0.0%	
108	MH11A	MH7A								0.20	0.90					0.18				0.18	0.35	600	363.25	1.28	0.16	0.0%	
110	MH7A	MH12A		8.62					5250	0.30	12.27				657	4.18	5907	3.18	65.77	69.95	0.35	600	363.25	1.28	0.99	19.3%	
111	MH12A	MH13A		8.62					5250	0.30	12.57				657	4.24	5907	3.18	65.77	70.01	0.35	600	363.25	1.28	0.99	19.3%	
																											Ext. area = block area excl. GFA.
Block 8	MH101A	MH13A	9.8230	9.82						7.4090	7.41	70		519	519	3.45	519	3.97	7.21	10.66	2.00	250	84.10	1.71	1.17	12.7%	/Internal area = GFA
																											Ext. area = block area excl. GFA.
Block 3	MH102A	MH13A	10.8130	10.81						7.2900	7.29	70		511	511	3.62	511	3.97	7.11	10.73	2.00	250	84.10	1.71	1.18	12.8%	/Internal area = GFA
112	MH13A	MH14A		29.26					5250	0.30	27.57				1687	11.37	6937	3.11	75.62	86.99	0.35	600	363.25	1.28	1.06	23.9%	
113	MH14A	MH15A		29.26					5250	0.30	27.87				1687	11.43	6937	3.11	75.62	87.05	0.35	600	363.25	1.28	1.06	24.0%	
114	MH15A	MH16A		29.26					5250	0.30	28.17				1687	11.49	6937	3.11	75.62	87.11	0.35	600	363.25	1.28	1.06	24.0%	
115	MH16A	MH18A		29.26					5250	0.30	28.47				1687	11.55	6937	3.11	75.62	87.17	0.35	600	363.25	1.28	1.06	24.0%	
116	MH18A	MH19A		29.26					5250	0.20	28.67				1687	11.59	6937	3.11	75.62	87.21	0.35	600	363.25	1.28	1.06	24.0%	
117	MH19A	MH20A		29.26					5250	0.20	28.87				1687	11.63	6937	3.11	75.62	87.25	0.35	600	363.25	1.28	1.06	24.0%	
118	MH20A	MH21A		29.26					5250	0.20	29.07				1687	11.67	6937	3.11	75.62	87.29	0.35	600	363.25	1.28	1.06	24.0%	
119	MH21A	MH22A		29.26					5250	0.30	29.37				1687	11.73	6937	3.11	75.62	87.35	0.35	600	363.25	1.28	1.06	24.0%	
120	MH22A	MH23A		29.26					5250	0.30	29.67				1687	11.79	6937	3.11	75.62	87.41	0.35	600	363.25	1.28	1.06	24.1%	
121	MH23A	MH24A		29.26					5250	0.30	29.97				1687	11.85	6937	3.11	75.62	87.47	0.35	600	363.25	1.28	1.06	24.1%	
Block 2	MH106A	MH24A	7.4040	7.40						4.2710	4.27	70		299	299	2.34	299	4.00	4.19	6.53	2.00	250	84.10	1.71		7.8%	
																											Ext. area = block area excl. GFA.
																											/Internal area = GFA
																											Ext. area = block area excl. GFA.
122	MH24A	MH25A		36.66					5250	0.20	34.44				1986	14.22	7236	3.09	78.43	92.65	0.35	600	363.25	1.28	1.07	25.5%	/Internal area = GFA
123	MH25A	MH26A		36.66					5250	0.30	34.74				1986	14.28	7236	3.09	78.43	92.71	0.35	600	363.25	1.28	1.07	25.5%	
124	MH26A	MH27A		36.66					5250	0.30	35.04				1986	14.34	7236	3.09	78.43	92.77	0.35	600	363.25	1.28	1.07	25.5%	
125	MH27A	MH28A		36.66					5250	0.10	35.14				1986	14.36	7236	3.09	78.43	92.79	0.35	600	363.25	1.28	1.07	25.5%	
126	MH28A	MH29A		36.66					5250	0.10	35.24				1986	14.38	7236	3.09	78.43	92.81	0.35	600	363.25	1.28	1.07	25.5%	
127	MH29A	MH30A		36.66					5250	0.10	35.34				1986	14.40	7236	3.09	78.43	92.83	0.35	600	363.25	1.28	1.07	25.6%	
	MH30A	FUT. 600 dia San South of Mayfield		36.66					5250		35.34				1986	14.40	7236	3.09	78.43	92.83	0.35	600	363.25	1.28	1.07	25.6%	

SANITARY SEWER DESIGN SHEET

Tullamore, Region of Peel, Town of Caledon

CROZIER CONSULTING ENGINEERS

Project #: 2022-5842
Updated Date: 2023.10.26
Designed: L.E.
Checked: J.S.

Min Diameter = 250 mm
Mannings 'n'= 0.013
Min. Velocity = 0.75 m/s
Max. Velocity = 3.50 m/s

Avg. Domestic Flow = 302.8 l/c/d
Infiltration = 0.200 l/s/ha
Max. Peaking Factor = 4.00
Min. Peaking Factor= 1.50

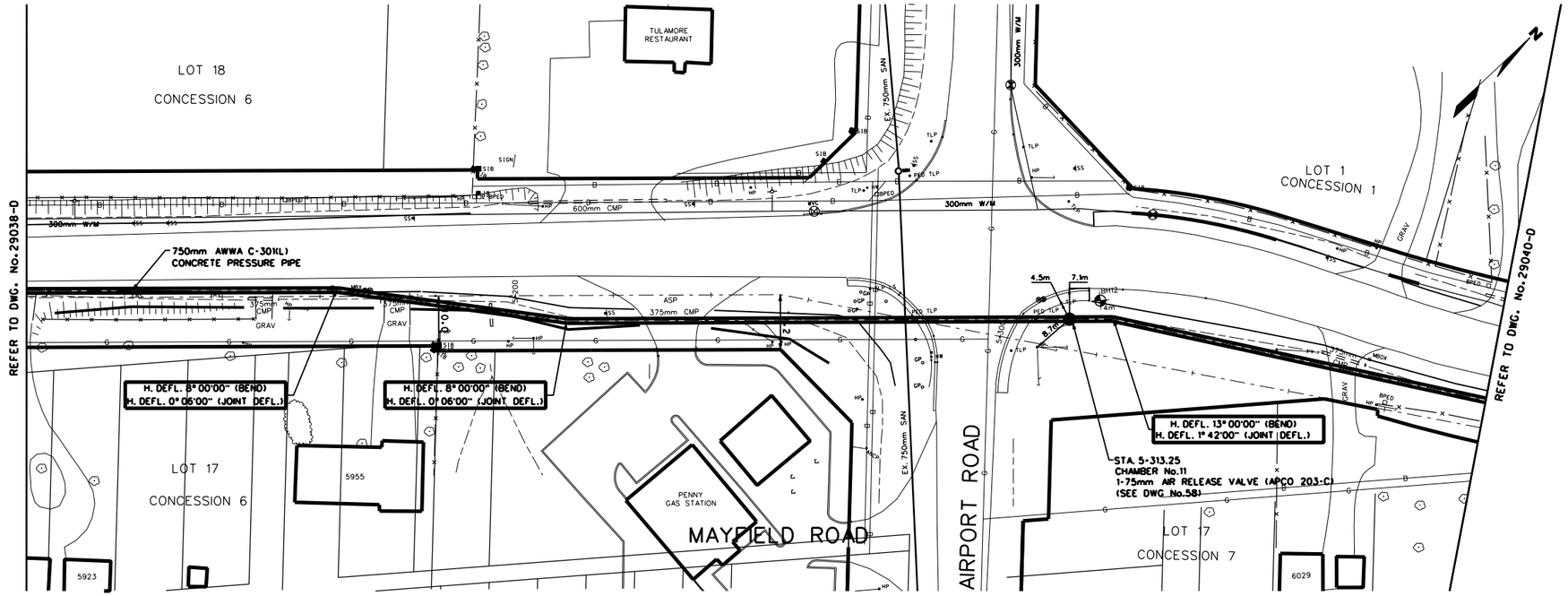
Factor of Safety = 20 %

NOMINAL PIPE SIZE USED

DESCRIPTION	FROM MH	TO MH	EXTERNAL							COMMERCIAL/INDUSTRIAL/INSTITUTIONAL						FLOW CALCULATIONS					PIPE DATA						NOTES
			AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENISTY (P/ha)	DENSITY (P/unit)	EXT POP	ACCUM. EXT POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (p/ha)	FLOW RATE (l/s/ha)	EQUIV. POP.	ACCUM. EQUIV. POP.	INFILTRATION (l/s)	TOTAL ACCUM. POP.	PEAKING FACTOR	POP. FLOW (l/s)	TOTAL FLOW (l/s)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)	
STREET A																											
Block 1	MH103A	MH50A	26.3390	26.34						10.0700	10.07	70		705	705	7.28	705	3.89	9.62	16.90	2.00	300	136.76	1.93	1.32	12.4%	Ext. area = block area excl. GFA. /Internal area = GFA
	MH50A	MH51A		26.34						0.30	10.37				705	7.34	705	3.89	9.62	16.96	0.50	300	68.38	0.97	0.80	24.8%	
	MH51A	MH52A		26.34						0.30	10.67				705	7.40	705	3.89	9.62	17.02	0.50	300	68.38	0.97	0.80	24.9%	
	MH52A	MH53A		26.34						0.30	10.97				705	7.46	705	3.89	9.62	17.08	0.50	300	68.38	0.97	0.80	25.0%	
Block 4	MH104A	MH53A	9.6140	9.61						9.3760	9.38	70		656	656.32	3.80	656.32	3.91	8.99	12.79	2.00	250	84.10	1.71	1.24	15.2%	Ext. area = block area excl. GFA. /Internal area = GFA
Block 5	MH105A	MH53A	8.3890	8.39						9.0660	9.07	70		635	634.62	3.49	634.62	3.92	8.72	12.21	2.00	250	84.10	1.71	1.22	14.5%	Ext. area = block area excl. GFA. /Internal area = GFA
128	MH53A	MH54A		44.34						0.30	29.71				1995.94	14.81	1995.94	3.59	25.09	39.90	0.50	300	68.38	0.97	1.00	58.3%	
129	MH54A	MH55A		44.34						0.30	30.01				1995.94	14.87	1995.94	3.59	25.09	39.96	0.50	300	68.38	0.97	1.00	58.4%	
130	MH55A	MH56A		44.34						0.20	30.21				1995.94	14.91	1995.94	3.59	25.09	40.00	0.50	300	68.38	0.97	1.01	58.5%	
	MH56A	MH57A		44.34							30.21				1995.94	14.91	1995.94	3.59	25.09	40.00	0.50	300	68.38	0.97	1.01	58.5%	
	MH57A	EX. 750dia on Airport		44.34							30.21				1995.94	14.91	1995.94	3.59	25.09	40.00		300					

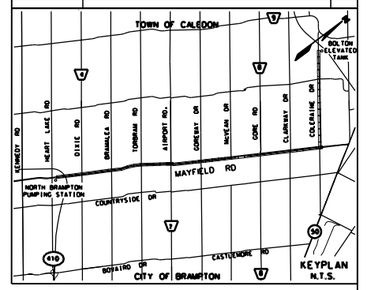
APPENDIX B

Watermain



SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN. SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			ONT. HYDRO		
PARKS & REC.			CTV		
ONT. CLEAN WATER					

REVISIONS		
DATE	DETAILS	INIT.
MARCH 2002	CONSTRUCTION RECORD	T.M.

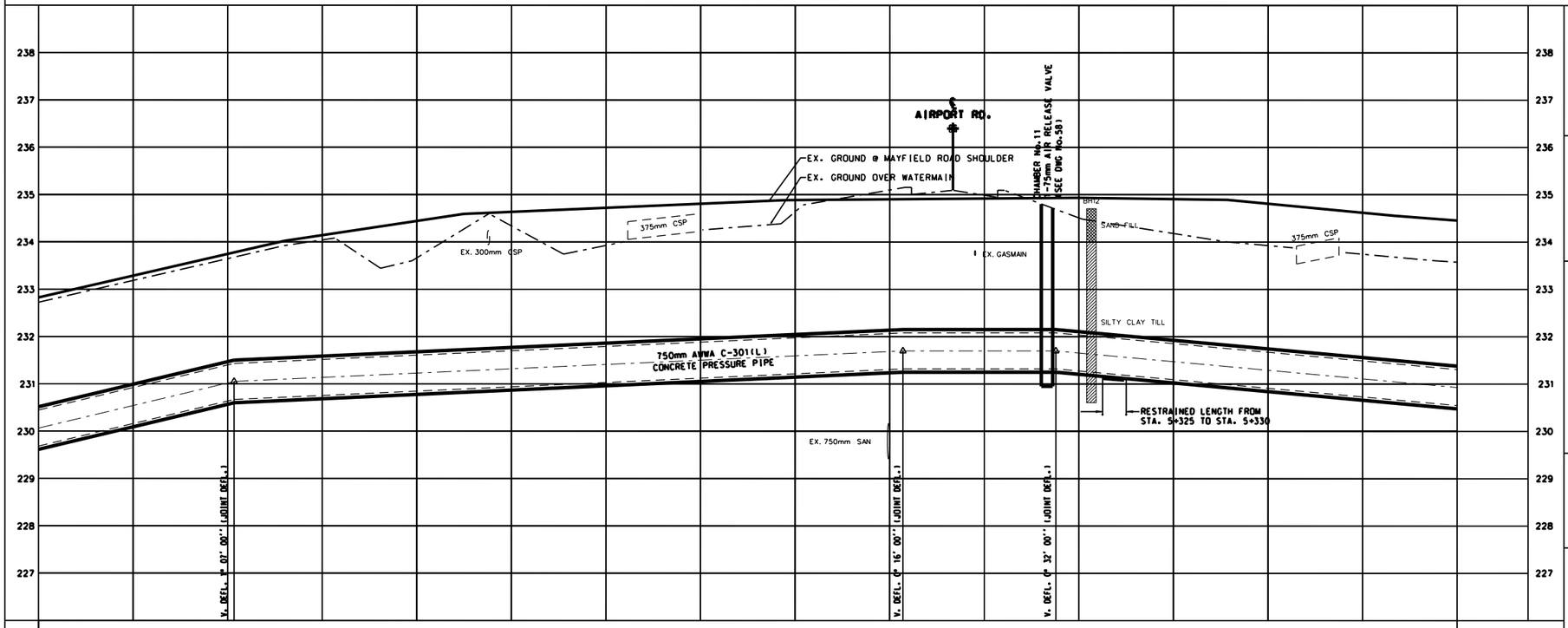


NOTE:
CHAMBER SWING TIES ARE TO ACCESS COVER

CONSTRUCTION RECORD

CONSTRUCTION PERIOD JAN. 2001 TO AUG. 2001

FOR GENERAL NOTES SEE PLAN 1



General Notes

- All Driveways ASPHALT Unless Otherwise Noted.
- All Service Locations Are Approximate And Must Be Located Accurately In The Field
- Denotes Building - Not Located
- Denotes Building Located
- Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No. Elev.

The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction Location of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

KMK Consultants Limited
Consulting Engineers, Project Managers, Ecological Planners, Landscape Architects
DESIGNED BY _____ CHKD. _____

REGISTERED PROFESSIONAL ENGINEER
R. A. VARIAE
PROVINCE OF ONTARIO
Approved by _____

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

THE REGIONAL MUNICIPALITY OF PEEL
CITY OF BRAMPTON WORKS DEPT.
TOWN OF CALEDON WORKS DEPT.
BELL TELEPHONE COMPANY
CONSUMERS GAS COMPANY
MINISTRY OF TRANSPORTATION
HYDRO ELECTRIC POWER COMM. OF ONTARIO
HYDRO ELECTRIC COMM. TOWN OF CALEDON
HYDRO ELECTRIC COMM. CITY OF BRAMPTON
CABLE TELEVISION

10m 0 10 20 30m HORIZONTAL SCALE
1m 0 1 2 3m VERTICAL SCALE

Region of Peel
Public Works

MAYFIELD ROAD

PROPOSED 750mm BOLTON FEEDERMAIN

Sta. 5+100 To Sta. 5+400

Lots	Ref No. 2199-A-35	Project No.	99-1930
Checked by R.V.	Drawn by G.D.	Plan No.	29039-D
Date SEPT 00	Sheet 18 of x		

Project: Tullamore Lands | **Design:** LE | **Date:** 2021-11-15
Project No.: 2022-5842 | **Check:** JMS | **Updated:** 2023.10.26

Water Demand - Block 1

Block Area	36.409	ha
Building Area	10.070	ha
Population	705	persons

Design Criteria:

Average Daily Demand:	300	L/employee.day
Maximum Daily Demand Peaking Factor:	1.40	-
Peak Hourly Demand Peaking Factor:	3.00	-

Region of Peel - Public Works Design, Specifications & Procedures Manual - Linear Infrastructure - Watermain Design Criteria (June 2010)

Domestic Water Demand:

Average Daily Demand:	211470	L/day
	2.45	L/s
Maximum Daily Demand:	296058	L/day
	3.43	L/s
Peak Hourly Demand:	634410	L/day
	7.34	L/s

*Population calculation is based on the total Gross Floor Area (GFA) of all the proposed buildings shown on the Site Plan prepared by Turner Fleischer.

Water Demand - Block 2

Block Area	11.673	ha
Building Area	4.271	ha
Population	299	persons

Design Criteria:

Average Daily Demand:	300	L/employee.day
Maximum Daily Demand Peaking Factor:	1.40	-
Peak Hourly Demand Peaking Factor:	3.00	-

Region of Peel - Public Works Design, Specifications & Procedures Manual - Linear Infrastructure - Watermain Design Criteria (June 2010)

Domestic Water Demand:

Average Daily Demand:	89691	L/day
	1.04	L/s
Maximum Daily Demand:	125567	L/day
	1.45	L/s
Peak Hourly Demand:	269073	L/day
	3.11	L/s

*Population calculation is based on the total Gross Floor Area (GFA) of all the proposed buildings shown on the Site Plan prepared by Turner Fleischer.

Water Demand - Block 3

Block Area	18.103	ha
Building Area	7.290	ha
Population	510	persons

Design Criteria:

Average Daily Demand:	300	L/employee.day
Maximum Daily Demand Peaking Factor:	1.40	-
Peak Hourly Demand Peaking Factor:	3.00	-

Region of Peel - Public Works Design, Specifications & Procedures Manual - Linear Infrastructure - Watermain Design Criteria (June 2010)

Domestic Water Demand:

Average Daily Demand:	153090	L/day
	1.77	L/s
Maximum Daily Demand:	214326	L/day
	2.48	L/s
Peak Hourly Demand:	459270	L/day
	5.32	L/s

*Population calculation is based on the total Gross Floor Area (GFA) of all the proposed buildings shown on the Site Plan prepared by Turner Fleischer.

Water Demand - Block 4

Block Area	18.990	ha
Building Area	9.376	ha
Population	656	persons

Design Criteria:

Average Daily Demand:	300	L/employee.day
Maximum Daily Demand Peaking Factor:	1.40	-
Peak Hourly Demand Peaking Factor:	3.00	-

Region of Peel - Public Works Design, Specifications & Procedures Manual - Linear Infrastructure - Watermain Design Criteria (June 2010)

Domestic Water Demand:

Average Daily Demand:	196896	L/day
	2.28	L/s
Maximum Daily Demand:	275654	L/day
	3.19	L/s
Peak Hourly Demand:	590688	L/day
	6.84	L/s

*Population calculation is based on the total Gross Floor Area (GFA) of all the proposed buildings shown on the Site Plan prepared by Turner Fleischer.

Water Demand - Block 5

Block Area	17.455	ha
Building Area	9.066	ha
Population	635	persons

Design Criteria:

Average Daily Demand:	300	L/employee.day
Maximum Daily Demand Peaking Factor:	1.40	-
Peak Hourly Demand Peaking Factor:	3.00	-

Region of Peel - Public Works Design, Specifications & Procedures Manual - Linear Infrastructure - Watermain Design Criteria (June 2010)

*Population calculation is based on the total Gross Floor Area (GFA) of all the proposed buildings shown on the Site Plan prepared by Turner Fleischer.

Domestic Water Demand:

Average Daily Demand:	190386	L/day
	2.20	L/s
Maximum Daily Demand:	266540	L/day
	3.08	L/s
Peak Hourly Demand:	571158	L/day
	6.61	L/s

Water Demand - Block 7

Block Area	17.997	ha
Building Area	9.373	ha
Population	656	persons

Design Criteria:

Average Daily Demand:	300	L/employee.day
Maximum Daily Demand Peaking Factor:	1.40	-
Peak Hourly Demand Peaking Factor:	3.00	-

Region of Peel - Public Works Design, Specifications & Procedures Manual - Linear Infrastructure - Watermain Design Criteria (June 2010)

Domestic Water Demand:

Average Daily Demand:	196833	L/day
	2.28	L/s
Maximum Daily Demand:	275566	L/day
	3.19	L/s
Peak Hourly Demand:	590499	L/day
	6.83	L/s

*Population calculation is based on the total Gross Floor Area (GFA) of all the proposed buildings shown on the Site Plan prepared by Turner Fleischer.

Water Demand - Block 8

Block Area	17.232	ha
Building Area	7.409	ha
Population	519	persons

Design Criteria:

Average Daily Demand:	300	L/employee.day
Maximum Daily Demand Peaking Factor:	1.40	-
Peak Hourly Demand Peaking Factor:	3.00	-

Region of Peel - Public Works Design, Specifications & Procedures Manual - Linear Infrastructure - Watermain Design Criteria (June 2010)

Domestic Water Demand:

Average Daily Demand:	155589	L/day
	1.80	L/s
Maximum Daily Demand:	217825	L/day
	2.52	L/s
Peak Hourly Demand:	466767	L/day
	5.40	L/s

*Population calculation is based on the total Gross Floor Area (GFA) of all the proposed buildings shown on the Site Plan prepared by Turner Fleischer.

CROZIER CONSULTING ENGINEERS

Project: Tullamore Lands
Project No.: 2022-5842

Design: LE
Check: JMS

Date: 2021-11-15
Updated: 2023.10.26

Block	Equivalent Population	Average Day Demand (L/s)	Maximum Day Demand (L/s)	Peak Hour Demand (L/s)
1	705	2.45	3.43	7.34
2	299	1.04	1.45	3.11
3	510	1.77	2.48	5.32
4	656	2.28	3.19	6.84
5	635	2.20	3.08	6.61
7	656	2.28	3.19	6.83
8	519	1.80	2.52	5.40
Total	**3980**	**13.82**	**19.35**	**41.46**

CROZIER
CONSULTING ENGINEERS

Project.: Tullamore Lands
Project No.: 2022-5842
Date.: 2023-10-26
Design: AM
Checked by: JS

Fire Protection Flow Calculation Summary
Tullamore Lands

WATER SUPPLY FOR PUBLIC FIRE PROTECTION (2020)
FIRE UNDERWRITER'S SURVEY

Block	Building	Total Floor Area (m²)	Flow (L/min)	Reduction (L/min)	Sprinkler Reduction (L/min)	Exposure Surcharge (L/min)	Required Flow (L/min)	Required Flow (L/s)
Block 1	**Building A**	100,702	41,889	-6,283	17,803	0	18,000	300.0
Block 3	**Building C**	72,901	35,641	-5,346	15,148	0	15,000	250.0
Block 4	**Building D**	93,759	40,419	-6,063	17,179	0	17,000	283.3
Block 7	**Building E**	93,730	40,413	-6,062	17,176	0	17,000	283.3
Block 8	**Building F**	74,090	35,930	-5,390	15,271	0	15,000	250.0
Block 5	**Building H**	90,662	39,746	-5,962	16,893	0	17,000	283.3
Block 2	**Building I & J**	42,713	27,281	-4,092	11,595	0	12,000	200.0

CROZIER CONSULTING ENGINEERS

Tullamore Lands - BLOCK 1
Fire Protection Volume Calculation
CFCA File: 2022-5842

Date: 2023-10-26
Design: AM
Check: JS

Water Supply for Public Fire Protection - 2020
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

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

RFF = 220 * C * sqrt A

where

RFF = the required fire flow in litres per minute

C = coefficient related to the type of construction:

=	1.5	for Type V Wood Frame Construction (structure essentially all combustible)
=	0.8	for Type IV-A Mass Timber Construction (encapsulated mass timber)
=	0.9	for Type IV-B Mass Timber Construction (rated mass timber)
=	1.0	for Type IV-C Mass Timber Construction (ordinary mass timber)
=	1.5	for Type IV-D Mass Timber Construction (un-rated mass timber)
=	1.0	for Type III Ordinary Construction (brick or other masonry walls, combustible floor and interior)
=	0.8	for Type II Non-combustible Construction (unprotected metal structural components)
=	0.6	for Type I Fire-resistive Construction (fully protected frame, floors, roof)

Proposed Buildings

Floor Area 100,702.0 sq.m

Area = 100,702 sq.m

C = 0.6 Assumes Type I Fire-resistive Construction (fully protected frame, floors, roof)

Therefore RFF = 41,889 L/min

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

Non-Combustible	-25%	Free Burning	15%
Limited Combustible	-15%	Rapid Burning	25%
Combustible	0% (No Change)		

Limited Combustible	-15% reduction

-6,283 L/min reduction
35,606 L/min

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

3. Sprinklers - The value obtained in No. 2 above maybe reduced by up to 50% for complete automatic sprinkler protection. The initial credit for the system will be a maximum of 30% for an adequately designed system conforming to NFPA 13 and other NFPA sprinkler standards.

As part of this analysis, the building will have sprinkler protection: 50%

17,803 L/min reduction

Water Supply for Public Fire Protection - 2020
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

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

Separation	Charge	Separation	Charge
0 to 3 m	25%	20.1 to 30 m	10%
3.1 to 10 m	20%	> 30 m	0%
10.1 to 20 m	15%		

Exposed buildings

Name	Distance (m)	Charge (%)	Surcharge (L/min)
E	268.0	0%	-
W	214.0	0%	-
N	99.0	0%	-
S	89.0	0%	-

0 L/min Surcharge

Determine Required Fire Flow

No.1	41,889		
No. 2	-6,283 reduction		
No. 3	-17,803 reduction		
No. 4	0 surcharge		
Required Flow:	**17,803 L/min**		
Rounded to nearest 1000 L/min:	**18,000 L/min**	or	**300.0 L/s** 4,755 USGPM

Tullamore Lands - BLOCK 2
Fire Protection Volume Calculation
CFCA File: 2022-5842

Date: 2023-10-26
Design: AM
Check: JS

Water Supply for Public Fire Protection - 2020
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

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

RFF = 220 * C * sqrt A

where

RFF = the required fire flow in litres per minute

C = coefficient related to the type of construction:

=	1.5	for Type V Wood Frame Construction (structure essentially all combustible)
=	0.8	for Type IV-A Mass Timber Construction (encapsulated mass timber)
=	0.9	for Type IV-B Mass Timber Construction (rated mass timber)
=	1.0	for Type IV-C Mass Timber Construction (ordinary mass timber)
=	1.5	for Type IV-D Mass Timber Construction (un-rated mass timber)
=	1.0	for Type III Ordinary Construction (brick or other masonry walls, combustible floor and interior)
=	0.8	for Type II Non-combustible Construction (unprotected metal structural components)
=	0.6	for Type I Fire-resistive Construction (fully protected frame, floors, roof)

Proposed Buildings

Floor Area 42,713.0 sq.m

Area = 42,713 sq.m

C = 0.6 Assumes Type I Fire-resistive Construction (fully protected frame, floors, roof)

Therefore RFF = 27,281 L/min

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

Non-Combustible	-25%	Free Burning	15%
Limited Combustible	-15%	Rapid Burning	25%
Combustible	0% (No Change)		

Limited Combustible	-15% reduction

-4,092 L/min reduction
23,189 L/min

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

3. Sprinklers - The value obtained in No. 2 above maybe reduced by up to 50% for complete automatic sprinkler protection. The initial credit for the system will be a maximum of 30% for an adequately designed system conforming to NFPA 13 and other NFPA sprinkler standards.

As part of this analysis, the building will have sprinkler protection: 50%

11,595 L/min reduction

Water Supply for Public Fire Protection - 2020
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

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

Separation	Charge	Separation	Charge
0 to 3 m	25%	20.1 to 30 m	10%
3.1 to 10 m	20%	> 30 m	0%
10.1 to 20 m	15%		

Exposed buildings

Name	Distance (m)	Charge (%)	Surcharge (L/min)
E	642.0	0%	-
W	162.0	0%	-
N	62.0	0%	-
S	64.0	0%	-

0 L/min Surcharge

Determine Required Fire Flow

No.1	27,281		
No. 2	-4,092 reduction		
No. 3	-11,595 reduction		
No. 4	0 surcharge		
Required Flow:	**11,595 L/min**		
Rounded to nearest 1000 L/min:	**12,000 L/min**	or	**200.0 L/s** 3,170 USGPM

Tullamore Lands - BLOCK 3
Fire Protection Volume Calculation
CFCA File: 2022-5842

Date: 2023-10-26
Design: AM
Check: JS

Water Supply for Public Fire Protection - 2020
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

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

RFF = 220 * C * sqrt A

where

RFF = the required fire flow in litres per minute

C = coefficient related to the type of construction:

=	1.5	for Type V Wood Frame Construction (structure essentially all combustible)
=	0.8	for Type IV-A Mass Timber Construction (encapsulated mass timber)
=	0.9	for Type IV-B Mass Timber Construction (rated mass timber)
=	1.0	for Type IV-C Mass Timber Construction (ordinary mass timber)
=	1.5	for Type IV-D Mass Timber Construction (un-rated mass timber)
=	1.0	for Type III Ordinary Construction (brick or other masonry walls, combustible floor and interior)
=	0.8	for Type II Non-combustible Construction (unprotected metal structural components)
=	0.6	for Type I Fire-resistive Construction (fully protected frame, floors, roof)

Proposed Buildings

Floor Area 72,901.0 sq.m

Area = 72,901 sq.m

C = 0.6 Assumes Type I Fire-resistive Construction (fully protected frame, floors, roof)

Therefore RFF = 35,641 L/min

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

Non-Combustible	-25%	Free Burning	15%
Limited Combustible	-15%	Rapid Burning	25%
Combustible	0% (No Change)		

Limited Combustible	-15% reduction

-5,346 L/min reduction
30,295 L/min

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

3. Sprinklers - The value obtained in No. 2 above maybe reduced by up to 50% for complete automatic sprinkler protection. The initial credit for the system will be a maximum of 30% for an adequately designed system conforming to NFPA 13 and other NFPA sprinkler standards.

As part of this analysis, the building will have sprinkler protection: 50%

15,148 L/min reduction

Water Supply for Public Fire Protection - 2020
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

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

Separation	Charge	Separation	Charge
0 to 3 m	25%	20.1 to 30 m	10%
3.1 to 10 m	20%	> 30 m	0%
10.1 to 20 m	15%		

Exposed buildings

Name	Distance (m)	Charge (%)	Surcharge (L/min)
E	N/A	0%	-
W	116.0	0%	-
N	N/A	0%	-
S	148.0	0%	-

0 L/min Surcharge

Determine Required Fire Flow

No.1	35,641		
No. 2	-5,346 reduction		
No. 3	-15,148 reduction		
No. 4	0 surcharge		
Required Flow:	**15,148 L/min**		
Rounded to nearest 1000 L/min:	**15,000 L/min**	or	**250.0 L/s** 3,963 USGPM

Tullamore Lands - BLOCK 4
Fire Protection Volume Calculation
CFCA File: 2022-5842

Date: 2023-10-26
Design: AM
Check: JS

Water Supply for Public Fire Protection - 2020
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

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

RFF = 220 * C * sqrt A

where

RFF = the required fire flow in litres per minute

C = coefficient related to the type of construction:

=	1.5	for Type V Wood Frame Construction (structure essentially all combustible)
=	0.8	for Type IV-A Mass Timber Construction (encapsulated mass timber)
=	0.9	for Type IV-B Mass Timber Construction (rated mass timber)
=	1.0	for Type IV-C Mass Timber Construction (ordinary mass timber)
=	1.5	for Type IV-D Mass Timber Construction (un-rated mass timber)
=	1.0	for Type III Ordinary Construction (brick or other masonry walls, combustible floor and interior)
=	0.8	for Type II Non-combustible Construction (unprotected metal structural components)
=	0.6	for Type I Fire-resistive Construction (fully protected frame, floors, roof)

Proposed Buildings

Floor Area 93,759 sq.m

Area = 93,759 sq.m

C = 0.6 Assumes Type I Fire-resistive Construction (fully protected frame, floors, roof)

Therefore RFF = 40,419 L/min

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

Non-Combustible	-25%	Free Burning	15%
Limited Combustible	-15%	Rapid Burning	25%
Combustible	0% (No Change)		

Limited Combustible	-15% reduction

-6,063 L/min reduction
34,357 L/min

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

3. Sprinklers - The value obtained in No. 2 above maybe reduced by up to 50% for complete automatic sprinkler protection. The initial credit for the system will be a maximum of 30% for an adequately designed system conforming to NFPA 13 and other NFPA sprinkler standards.

As part of this analysis, the building will have sprinkler protection: 50%

17,179 L/min reduction

Water Supply for Public Fire Protection - 2020
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

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

Separation	Charge	Separation	Charge
0 to 3 m	25%	20.1 to 30 m	10%
3.1 to 10 m	20%	> 30 m	0%
10.1 to 20 m	15%		

Exposed buildings

Name	Distance (m)	Charge (%)	Surcharge (L/min)
E	184.0	0%	-
W	268.0	0%	-
N	148.0	0%	-
S	137.0	0%	-

0 L/min Surcharge

Determine Required Fire Flow

No.1	40,419		
No. 2	-6,063 reduction		
No. 3	-17,179 reduction		
No. 4	0 surcharge		
Required Flow:	**17,178 L/min**		
Rounded to nearest 1000 L/min:	**17,000 L/min**	or	**283.3 L/s** 4,491 USGPM

CROZIER CONSULTING ENGINEERS

Tullamore Lands - BLOCK 5
Fire Protection Volume Calculation
CFCA File: 2022-5842

Date: 2023-10-26
Design: AM
Check: JS

Water Supply for Public Fire Protection - 2020
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

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

RFF = 220 * C * sqrt A

where

RFF = the required fire flow in litres per minute

C = coefficient related to the type of construction:

=	1.5	for Type V Wood Frame Construction (structure essentially all combustible)
=	0.8	for Type IV-A Mass Timber Construction (encapsulated mass timber)
=	0.9	for Type IV-B Mass Timber Construction (rated mass timber)
=	1.0	for Type IV-C Mass Timber Construction (ordinary mass timber)
=	1.5	for Type IV-D Mass Timber Construction (un-rated mass timber)
=	1.0	for Type III Ordinary Construction (brick or other masonry walls, combustible floor and interior)
=	0.8	for Type II Non-combustible Construction (unprotected metal structural components)
=	0.6	for Type I Fire-resistive Construction (fully protected frame, floors, roof)

Proposed Buildings

Floor Area 90,662.0 sq.m

Area = 90,662 sq.m

C = 0.6 Assumes Type I Fire-resistive Construction (fully protected frame, floors, roof)

Therefore RFF = 39,746 L/min

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

Non-Combustible	-25%	Free Burning	15%
Limited Combustible	-15%	Rapid Burning	25%
Combustible	0% (No Change)		

Limited Combustible	-15% reduction

-5,962 L/min reduction
33,785 L/min

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

3. Sprinklers - The value obtained in No. 2 above maybe reduced by up to 50% for complete automatic sprinkler protection. The initial credit for the system will be a maximum of 30% for an adequately designed system conforming to NFPA 13 and other NFPA sprinkler standards.

As part of this analysis, the building will have sprinkler protection: 50%

16,893 L/min reduction

Water Supply for Public Fire Protection - 2020
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

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

Separation	Charge	Separation	Charge
0 to 3 m	25%	20.1 to 30 m	10%
3.1 to 10 m	20%	> 30 m	0%
10.1 to 20 m	15%		

Exposed buildings

Name	Distance (m)	Charge (%)	Surcharge (L/min)
E	112.0	0%	-
W	270.0	0%	-
N	167.0	0%	-
S	92.0	0%	-

0 L/min Surcharge

Determine Required Fire Flow

No.1	39,746		
No. 2	-5,962 reduction		
No. 3	-16,893 reduction		
No. 4	0 surcharge		
Required Flow:	**16,892 L/min**		
Rounded to nearest 1000 L/min:	**17,000 L/min**	or	**283.3 L/s** 4,491 USGPM

CROZIER CONSULTING ENGINEERS

Tullamore Lands - BLOCK 7
Fire Protection Volume Calculation
CFCA File: 2022-5842

Date: 2023-10-26
Design: AM
Check: JS

Water Supply for Public Fire Protection - 2020
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

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

RFF = 220 * C * sqrt A

where

RFF = the required fire flow in litres per minute

C = coefficient related to the type of construction:

=	1.5	for Type V Wood Frame Construction (structure essentially all combustible)
=	0.8	for Type IV-A Mass Timber Construction (encapsulated mass timber)
=	0.9	for Type IV-B Mass Timber Construction (rated mass timber)
=	1.0	for Type IV-C Mass Timber Construction (ordinary mass timber)
=	1.5	for Type IV-D Mass Timber Construction (un-rated mass timber)
=	1.0	for Type III Ordinary Construction (brick or other masonry walls, combustible floor and interior)
=	0.8	for Type II Non-combustible Construction (unprotected metal structural components)
=	0.6	for Type I Fire-resistive Construction (fully protected frame, floors, roof)

Proposed Buildings

Floor Area 93,730.0 sq.m

Area = 93,730 sq.m

C = 0.6 Assumes Type I Fire-resistive Construction (fully protected frame, floors, roof)

Therefore RFF = 40,413 L/min

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

Non-Combustible	-25%	Free Burning	15%
Limited Combustible	-15%	Rapid Burning	25%
Combustible	0% (No Change)		

Limited Combustible	-15% reduction

-6,062 L/min reduction
34,352 L/min

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

3. Sprinklers - The value obtained in No. 2 above maybe reduced by up to 50% for complete automatic sprinkler protection. The initial credit for the system will be a maximum of 30% for an adequately designed system conforming to NFPA 13 and other NFPA sprinkler standards.

As part of this analysis, the building will have sprinkler protection: 50%

17,176 L/min reduction

Water Supply for Public Fire Protection - 2020
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

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

Separation	Charge	Separation	Charge
0 to 3 m	25%	20.1 to 30 m	10%
3.1 to 10 m	20%	> 30 m	0%
10.1 to 20 m	15%		

Exposed buildings

Name	Distance (m)	Charge (%)	Surcharge (L/min)
E	110.0	0%	-
W	N/A	0%	-
N	80.0	0%	-
S	127.0	0%	-

0 L/min Surcharge

Determine Required Fire Flow

No.1	40,413		
No. 2	-6,062 reduction		
No. 3	-17,176 reduction		
No. 4	0 surcharge		
Required Flow:	**17,176 L/min**		
Rounded to nearest 1000 L/min:	**17,000 L/min**	or	**283.3 L/s** 4,491 USGPM

Tullamore Lands - BLOCK 8
Fire Protection Volume Calculation
CFCA File: 2022-5842

Date: 2023-10-26
Design: AM
Check: JS

Water Supply for Public Fire Protection - 2020
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

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

RFF = 220 * C * sqrt A

where

RFF = the required fire flow in litres per minute

C = coefficient related to the type of construction:

=	1.5	for Type V Wood Frame Construction (structure essentially all combustible)
=	0.8	for Type IV-A Mass Timber Construction (encapsulated mass timber)
=	0.9	for Type IV-B Mass Timber Construction (rated mass timber)
=	1.0	for Type IV-C Mass Timber Construction (ordinary mass timber)
=	1.5	for Type IV-D Mass Timber Construction (un-rated mass timber)
=	1.0	for Type III Ordinary Construction (brick or other masonry walls, combustible floor and interior)
=	0.8	for Type II Non-combustible Construction (unprotected metal structural components)
=	0.6	for Type I Fire-resistive Construction (fully protected frame, floors, roof)

Proposed Buildings

Floor Area 74,090.0 sq.m

Area = 74,090 sq.m

C = 0.6 Assumes Type I Fire-resistive Construction (fully protected frame, floors, roof)

Therefore RFF = 35,930 L/min

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

Non-Combustible	-25%	Free Burning	15%
Limited Combustible	-15%	Rapid Burning	25%
Combustible	0% (No Change)		

Limited Combustible	-15% reduction

-5,390 L/min reduction
30,541 L/min

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

3. Sprinklers - The value obtained in No. 2 above maybe reduced by up to 50% for complete automatic sprinkler protection. The initial credit for the system will be a maximum of 30% for an adequately designed system conforming to NFPA 13 and other NFPA sprinkler standards.

As part of this analysis, the building will have sprinkler protection: 50%

15,271 L/min reduction

Water Supply for Public Fire Protection - 2020
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

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

Separation	Charge	Separation	Charge
0 to 3 m	25%	20.1 to 30 m	10%
3.1 to 10 m	20%	> 30 m	0%
10.1 to 20 m	15%		

Exposed buildings

Name	Distance (m)	Charge (%)	Surcharge (L/min)
E	116.0	0%	-
W	92.0	0%	-
N	127.0	0%	-
S	99.0	0%	-

0 L/min Surcharge

Determine Required Fire Flow

No.1	35,930		
No. 2	-5,390	reduction	
No. 3	-15,271	reduction	
No. 4	0	surcharge	
Required Flow:	**15,270 L/min**		
Rounded to nearest 1000 L/min:	**15,000 L/min**	or	**250.0 L/s** 3,963 USGPM

Hydrant Flow Test Report

Residual Hydrant Number _____

Operator: LEE STANSFIELD

Date: 21-Jun-29 Time: 1:45 PM

Witness: REGION OF PEEL

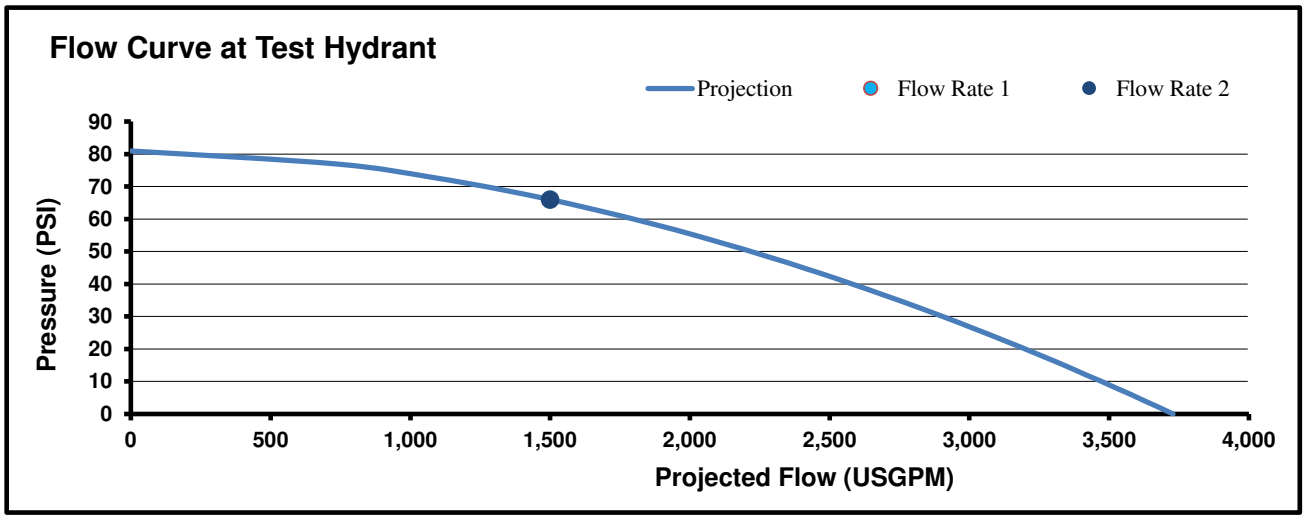
Residual Test Hydrant:	1ST HYDR N OF DAVIS ON AIRPORT, CALEDON		
Hydrant Number:		NFPA Colour Code:	**CLASS AA - BLUE**
Owner:	REGION OF PEEL		

STATIC PRESSURE:	81 psi	558 kPa	Pressure Drop
RESIDUAL PRESSURE 1:	psi	kPa	
RESIDUAL PRESSURE 2:	66 psi	455 kPa	22.7%

			Hydrant Number
Flow Hydrants:	A	12203 AIRPORT RD	
	B		
	C		

Hydrant No.	Flow Device	Outlet Dia. (in.)	Flow Rate 1 Reading (psi)	Flow Rate 1 (USGPM)	Flow Rate 2 Reading (psi)	Flow Rate 2 (USGPM)
A	Pitot	2.5		0		0
A	Pitot	2.5		0		0
A	HoseMonster	4"				1500
Total Flow (USGPM)				0		1500
Total Flow (L/second)				0		95
Available Flow At Test Hydrant at 20 psi			0	USGPM	3,199	USGPM
			0	L/second	202	L/second

Average Projection at 20 PSI	3,199	USGPM



Comments/Discrepencies/Diagram:

Watermark Solutions Limited
(705) 250-0368 www.watermark.ca

Hydrant Flow Test Report

Residual Hydrant Number _____

Operator: LEE STANSFIELD

Date: 21-Jun-29 Time: 2:45 PM

Witness: REGION OF PEEL

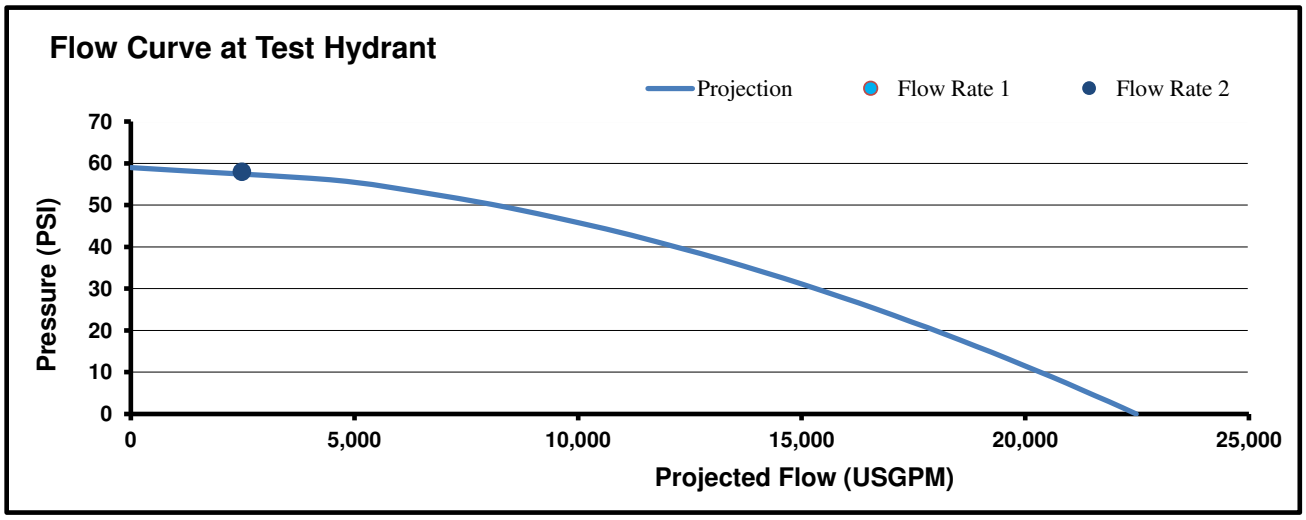
Residual Test Hydrant:	5762 MAYFIELD, CALEDON		
Hydrant Number:		NFPA Colour Code:	**CLASS AA - BLUE**
Owner:	REGION OF PEEL		

STATIC PRESSURE:	59 psi	407 kPa	Pressure Drop
RESIDUAL PRESSURE 1:	psi	kPa	
RESIDUAL PRESSURE 2:	58 psi	400 kPa	1.7%

			Hydrant Number
Flow Hydrants:	A	OPP 5847 MAYFIELD	
	B		
	C		

Hydrant No.	Flow Device	Outlet Dia. (in.)	Flow Rate 1 Reading (psi)	Flow Rate 1 (USGPM)	Flow Rate 2 Reading (psi)	Flow Rate 2 (USGPM)
A	Pitot	2.5		0	10	493
A	Pitot	2.5		0	10	493
A	HoseMonster	4"		0		1500
Total Flow (USGPM)				0		2487
Total Flow (L/second)				0		157
Available Flow At Test Hydrant at 20 psi			0	USGPM	17,980	USGPM
			0	L/second	1,134	L/second

Average Projection at 20 PSI	17,980	USGPM



Comments/Discrepencies/Diagram:

Watermark Solutions Limited
(705) 250-0368 www.watermark.ca

Hydrant Flow Test Report

Residual Hydrant Number _____

Operator: LEE STANSFIELD

Date: 21-Jun-29 Time: 1:25 PM

Witness: REGION OF PEEL

Residual Test Hydrant:	1ST HYDR S OF 12245 TORBRAM, CALEDON
Hydrant Number:	
Owner:	REGION OF PEEL

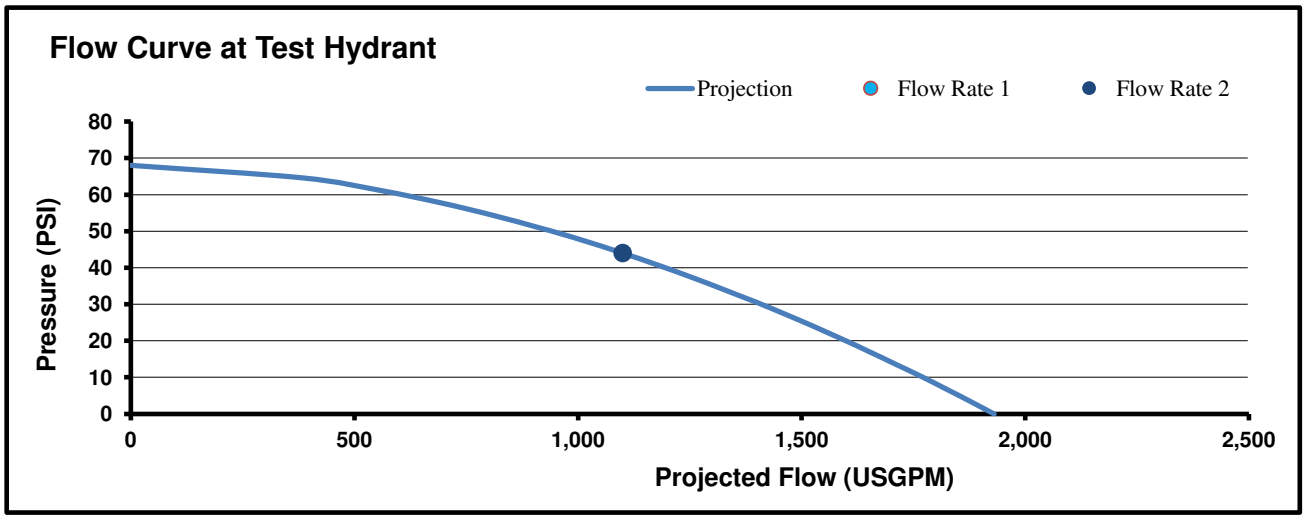
NFPA Colour Code: **CLASS AA - BLUE**

STATIC PRESSURE:	68 psi	469 kPa	Pressure Drop
RESIDUAL PRESSURE 1:	psi	kPa	
RESIDUAL PRESSURE 2:	44 psi	303 kPa	54.5%

			Hydrant Number
Flow Hydrants:	A	1ST HYDR N 12245 TORBRAM	
	B		
	C		

Hydrant No.	Flow Device	Outlet Dia. (in.)	Flow Rate 1 Reading (psi)	Flow Rate 1 (USGPM)	Flow Rate 2 Reading (psi)	Flow Rate 2 (USGPM)
A	Pitot	2.5		0		0
A	Pitot	2.5		0		0
A	HoseMonster	4"		0		1100
Total Flow (USGPM)			0		1100	
Total Flow (L/second)			0		69	
Available Flow At Test Hydrant at 20 psi			0	USGPM	1,599	USGPM
			0	L/second	101	L/second

Average Projection at 20 PSI: 1,599 USGPM



Comments/Discrepencies/Diagram:

Watermark Solutions Limited
(705) 250-0368 www.watermark.ca

CROZIER
CONSULTING ENGINEERS

2800 High Point Drive | T. 905.875.0026
Suite 100, Milton, ON | F. 905.875.4915
L9T 6P4 | cfcrozier.ca

MINUTES

NAME OF MEETING: Meeting with Town & Region
DATE OF MINUTES: March 16, 2023
DATE OF MEETING: March 3, 2023
PROJECT NAME: Tullamore Lands
PROJECT NO.: 2022-5842
LOCATION: Microsoft Teams

ATTENDEES

NAME	COMPANY	EMAIL ADDRESS
John McGovern	Rice Group	John.McGovern@ricegroup.ca
Michael Mendes	Rice Group	Michael.Mendes@ricegroup.ca
Aarthi Thaya	Rice Group	Aarthi.Thaya@ricegroup.ca
Alex Masley	Region of Peel	Alex.Masley@peelregion.ca
William Turner	Region of Peel	William.Turner@peelregion.ca
Elizabeth Trent	Region of Peel	Elizabeth.Trent@peelregion.ca
Miriam Polga	Region of Peel	Miriam.Polga@peelregion.ca
Christina Marzo	Region of Peel	Christina.Marzo@peelregion.ca
Justin Lee	Region of Peel	Justin.Lee@peelregion.ca
Patrick Amaral	Region of Peel	Patrick.Amaral@peelregion.ca
Aleah Clarke	MHBC	Aclarke@mhbcplan.com
Drew Haines	Town of Caledon	Drew.Haines@caledon.ca
Rita Juliao	Town of Caledon	Rita.Juliao@caledon.ca
Jim Firth	Crozier	Jfirth@cfcrozier.ca
Michael Linton	Crozier	Mlinton@cfcrozier.ca
Julie Scott	Crozier	Jscott@cfcrozier.ca

This document was created by an application that isn't licensed to use novaPDF.
Purchase a license to generate PDF files without this notice.

ITEMS

ACTION / DISCUSSION	ACTION BY
1.0 Sanitary Servicing	
1.1 Summary of proposed sanitary design was provided by J.Scott (Crozier): - 600mm trunk sanitary will be constructed through the Tullamore Lands in Streets B and C. The proposed alignment of the trunk sewer is in line with the Region's Master Plan. Note, the Region has this trunk sewer project slated for 2035 in the Master Plan. - The 600mm trunk will connect under Mayfield Road to the trunk sewer in lands owned by DG Group. This portion of the trunk sewer is designed by RAND Engineering. - A 300mm sanitary sewer in Street A will connect to the existing 750mm trunk sewer on Airport Rd. - Blocks 1, 4 and 5 are proposed to outlet to the 300mm sewer. The remainder of the Blocks will outlet to the 600mm trunk sewer.	
1.2 A.Masley (Region) noted that RAND Engineering had previously shown a 525mm trunk sewer. The Region has advised RAND that the trunk sewer needs to be increased to 600mm.	
1.3 J.Scott (Crozier) noted that DG Group will not be constructing their portion of the trunk sewer for at least 4 years.	
1.4 J.Lee (Region) requested that Crozier look into connecting the 600mm trunk sewer along Mayfield to the existing Airport trunk sewer, since DG Group timelines are long. This connection option, like the remainder of the trunk sewer, would need to be front ended by Rice Group.	**Crozier**
1.5 J.Firth (Crozier) summarized work that had been done to calculate the overall drainage area to the 600mm trunk sewer. Crozier's work concludes that approximately 350 ha of land can outlet to the 600mm trunk sewer, which aligns with the Region's drainage area mapping that was received from A.Masley (Region) via email on February 9, 2023.	
1.6 J.McGovern (Rice) requested that the Region provide further clarification on the Region's front ending policy. A.Masley (Region) emailed the policy on March 3, 2023. Once reviewed, a follow-up call may take place between the Region & Rice.	
1.7 J.McGovern (Rice) confirmed that full build out of Streets A, B and C as well as the associated servicing will be constructed at the beginning of the project.	
1.8 Discussion took place regarding construction year versus date of use of the 600mm trunk sewer. Crozier to put together a figure with high-level phasing and approximate timing.	**Crozier**
2.0 Water Servicing	
2.1 Summary of proposed watermain design was provided by J.Scott (Crozier):	

This document was created by an application that isn't licensed to use novaPDF.
Purchase a license to generate PDF files without this notice.

- Proposed watermains internal to the Tullamore Lands will connect to the existing watermains surrounding the property (existing 300mm on Airport & Mayfield, and existing 200mm on Torbram). - The proposed watermain will be 400mm in diameter along Street A, Street C and a portion of Street B. The remainder of Street B will be 300mm in diameter. - The proposed 400mm watermain aligns with the Region's Master Plan.	
2.2 J.Lee (Region) noted that the water model has been completed for the Tullamore Lands and that the entire site is serviceable based on the water and fire demands provided in the Crozier report dated January 2023.	
2.3 J.Lee (Region) noted that the water connection to service Block 7 should be located as close as possible to the Street B/C intersection & the watermain at the north part of Street B should be removed from the design to get rid of the dead-end.	**Crozier**
3.0 Stormwater	
3.1 Summary of proposed stormwater design was provided by J.Scott (Crozier): - All stormwater for the Tullamore Lands will drain to one of the three proposed stormwater management facilities. - The facilities will be located immediately north of Mayfield Rd and will provide quality and quantity control.	
3.2 D.Haines (Town) noted that conversations between Crozier, Town and MECP are ongoing regarding CLI ECA criteria.	
4.0 Transportation	
4.1 M.Linton (Crozier) provided an overview of the transportation design for the Tullamore Lands. As part of the design charette meeting that took place on Feb. 7, the Town provided feedback that there needs to be more detail provided regarding how the road network internal to Tullamore Lands aligns with the external network and the proposed Master Plan for the area. Crozier is working to update the Transportation Impact Study to incorporate these comments.	
4.2 Region transportation staff were unable to attend the meeting. A separate transportation focused meeting is to be coordinated.	**Crozier / Region / Town**
5.0 Overall Project Approval Plan	
5.1 The Town will ultimately require a Draft Plan and Subdivision Agreement. As per the agreed upon process by the Town, the project will undergo Site Plan first as part of which the roads and servicing will be private and protected by easements. The roads and servicing will be constructed to public standard. The Right-of-Ways will then be established in Draft Plan and through the subdivision agreement.	
5.2 C.Marzo (Region) noted that a Site Plan Agreement could be executed for the first block (Block 1) to facilitate building construction and that the required service corridors for Street A and Street B could be advanced as easements until such a time that the Subdivision Agreement is in place.	

This document was created by an application that isn't licensed to use novaPDF.
Purchase a license to generate PDF files without this notice.

5.3 Region staff noted that all risk for advancing the servicing ahead of an executed Subdivision Agreement would be carried by the owner. J.McGovern (Rice) agreed.	
5.4 A.Masley (Region) suggested that in the absence of a subdivision agreement, a spine servicing agreement could be put in place. However, it is unlikely this will be required due to the Town's proposed approval process for the Tullamore Lands.	

These minutes are a record of the above noted meeting and are considered final. If there are any additions or revisions, please contact the undersigned prior to **March 17, 2023,** otherwise these minutes will be accepted as correct.

Thank you,

C.F. CROZIER & ASSOCIATES INC.



Julie Scott, P.Eng.
Project Manager

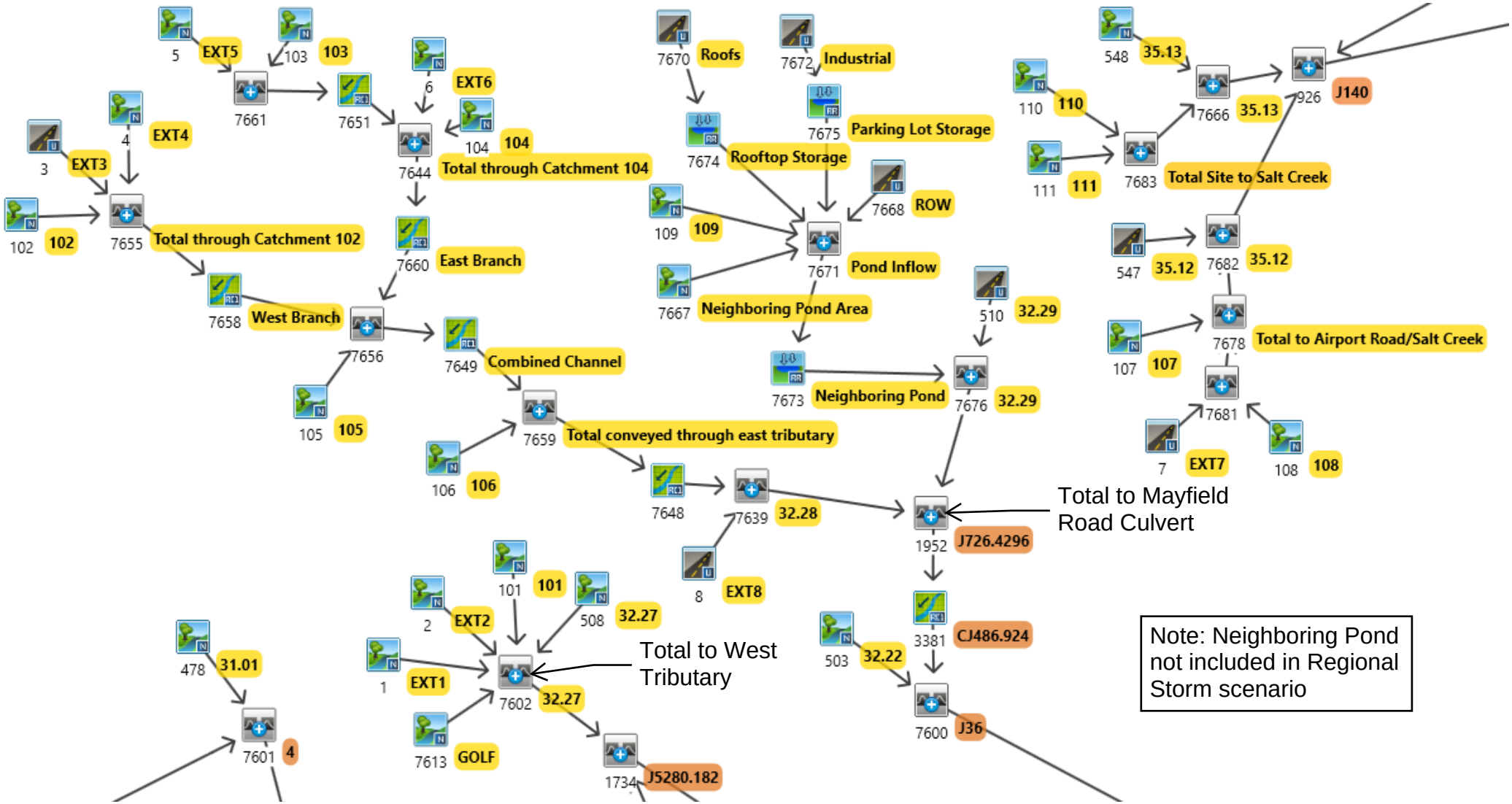
JS

I:\2000\2022 - Rice Group\5842 - Tullamore Lands\Minutes\2023.03.03_Meeting Minutes (Town & Region).docx

This document was created by an application that isn't licensed to use novaPDF.
Purchase a license to generate PDF files without this notice.

APPENDIX C

Pre-Development Stormwater Management



Note: Neighboring Pond not included in Regional Storm scenario

VO EXISTING MODEL SCHEMATIC
DATE: 2023-10-19
BY: IF
CHECK: RA

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-27
By: IC
Check: RA

Catchment NAME	**101**
Catchment AREA (ha)	**34.6**

Hydrologic Parameters: NASHYD Command
Pre-Development Drainage Area: Catchment 101

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Chinguacousy Clay Loam	CCL	C	100	34.6
				0
Total Area Check				34.6

Impervious Landuses Present:											
	Driveway/Rooftop		Sidewalk		Gravel Driveway		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL	0.52	79				79					0.52

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL			34.1	79							34.1

CN Calculations		
	Total Area	34.6
	Composite Curve Number	79

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	34.08	0.25	0.25
Impervious	0.52	0.90	0.01
Total Subcatchment	**34.6**	**-**	**0.26**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	34.1	(Meadow)
Impervious	1	0.52	
Total	7.9	34.6	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
874	26	2.97%	2.3	0.40	0.61	0.37	0.37	0.47	0.31	0.94	0.63

Appropriate calculated time to peak:	0.63	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-27
By: IC
Check: RA

Catchment NAME	**102**
Catchment AREA (ha)	**46.7**

Hydrologic Parameters: NASHYD Command
Pre-Development Drainage Area: Catchment 102

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	51.2	23.9
Chinguacousy Clay Loam	CCL	C	48.8	22.8
Total Area Check				46.7

Impervious Landuses Present:											
	Driveway/Rooftop		Sidewalk		Gravel Driveways		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL		98				89					0.00

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC			23.9	84							23.9
CCL			22.8	79							22.8
				CN Calculations			Total Area				46.7
							Composite Curve Number				82

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	46.70	0.25	0.25
Impervious	0.00	0.90	0.00
Gravel	0.00	0.60	0.00
Total Subcatchment	**46.7**	**-**	**0.25**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	46.7	(Meadow)
Impervious	1	0.00	
Total	8.0	46.7	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
1245	16.5	1.33%	2.3	0.26	1.31	0.78	0.78	0.76	0.51	1.48	0.99

Appropriate calculated time to peak:	0.99	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-27
By: IC
Check: RA

Catchment NAME	**103**
Catchment AREA (ha)	**17.0**

Hydrologic Parameters: NASHYD Command
Pre-Development Drainage Area: Catchment 103

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	100	17.0
Total Area Check				17.0

Impervious Landuses Present:											
	Driveway/Rooftop		Sidewalk		Gravel Driveways		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
		98				89					0.00

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC			17.0	84							17.0

CN Calculations		
	Total Area	17.0
	Composite Curve Number	84

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	17.00	0.25	0.25
Impervious	0.00	0.90	0.00
Gravel	0.00	0.60	0.00
Total Subcatchment	**17.0**	**-**	**0.25**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	17.0	(Meadow)
Impervious	1	0.00	
Total	8.0	17.0	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
810	13	1.60%	2.3	0.29	0.77	0.46	0.46	0.53	0.35	1.12	0.75

Appropriate calculated time to peak:	0.75	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-27
By: IC
Check: RA

Catchment NAME	**104**
Catchment AREA (ha)	**32.0**

Hydrologic Parameters: NASHYD Command
Pre-Development Drainage Area: Catchment 104

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	100	32.0
Total Area Check				32.0

Impervious Landuses Present:											
	Driveway/Rooftop		Sidewalk		Gravel Driveways		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
		98				89					0.00

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC			32.0	84							32.0

CN Calculations		
	Total Area	32.0
	Composite Curve Number	84

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	32.00	0.25	0.25
Impervious	0.00	0.90	0.00
Gravel	0.00	0.60	0.00
Total Subcatchment	**32.0**	**-**	**0.25**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	32.0	(Meadow)
Impervious	1	0.00	
Total	8.0	32.0	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
1162	17	1.46%	2.3	0.28	1.16	0.70	0.70	0.72	0.48	1.39	0.93

Appropriate calculated time to peak:	0.93	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-27
By: IC
Check: RA

Catchment NAME	**105**
Catchment AREA (ha)	**11.1**

Hydrologic Parameters: NASHYD Command
Pre-Development Drainage Area: Catchment 105

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	15	1.7
Chinguacousy Clay Loam	CCL	C	85	9.4
Total Area Check				11.1

Impervious Landuses Present:											
	Driveway/Rooftop		Sidewalk		Gravel Driveways		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL		98				89					0.00

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC			1.7	84							1.7
CCL			9.4	79							9.4
				CN Calculations			Total Area				11.1
							Composite Curve Number				80

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	11.10	0.25	0.25
Impervious	0.00	0.90	0.00
Gravel	0.00	0.60	0.00
Total Subcatchment	**11.1**	**-**	**0.25**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	11.1	(Meadow)
Impervious	1	0.00	
Total	8.0	11.1	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
382	5	1.31%	2.3	0.26	0.40	0.24	0.24	0.27	0.18	0.83	0.55

Appropriate calculated time to peak:	0.55	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-27
By: IC
Check: RA

Catchment NAME	**106**
Catchment AREA (ha)	**31.0**

Hydrologic Parameters: NASHYD Command
Pre-Development Drainage Area: Catchment 106

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Chinguacousy Clay Loam	CCL	C	100	31.0
				0.0
Total Area Check				31.0

Impervious Landuses Present:											
	Driveway/Rooftop		Sidewalk		Gravel Driveways		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL	0.63	79				79					0.63

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL			30.4	79							30.4

CN Calculations		
	Total Area	31.0
	Composite Curve Number	79

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	30.4	0.25	0.24
Impervious	0.63	0.90	0.02
Total Subcatchment	**31.0**	**-**	**0.26**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	30.4	(Meadow)
Impervious	1	0.63	
Total	7.9	31.0	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
1448	21.8	1.51%	2.3	0.28	1.43	0.86	0.86	0.90	0.60	1.51	1.01

Appropriate calculated time to peak:	1.01	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-27
By: IC
Check: RA

Catchment NAME	**EXT1**
Catchment AREA (ha)	**0.6**

Hydrologic Parameters: NASHYD Command
Pre-Development Drainage Area: Catchment EXT1

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Chinguacousy Clay Loam	CCL	C	100	0.6
				0
Total Area Check				0.6

Impervious Landuses Present:											
	Driveway/Rooftop		Sidewalk		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL	0.10	79			0.00						0.10

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL							0.5	79			0.5

CN Calculations		
	Total Area	0.6
	Composite Curve Number	79

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
Pervious	0.50	0.25	0.21
Impervious	0.10	0.90	0.15
Total Subcatchment	**0.6**	**-**	**0.36**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	5	0.5	(Lawn)
Impervious	1	0.10	
Total	4.3	0.6	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
107	1	0.93%	2.3	0.22	0.13	0.08	0.08	0.11	0.07	0.43	0.29

Appropriate calculated time to peak:	0.29	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-27
By: IC
Check: RA

Catchment NAME	**EXT2**
Catchment AREA (ha)	**1.3**

Hydrologic Parameters: NASHYD Command
Pre-Development Drainage Area: Catchment EXT2

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Chinguacousy Clay Loam	CCL	C	100	1.3
				0
Total Area Check				1.3

Impervious Landuses Present:											
	Driveway/Rooftop		Sidewalk		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL	0.20	79			0.00						0.20

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL							1.1	79			1.1

CN Calculations	Total Area	1.3
	Composite Curve Number	79

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	1.10	0.25	0.21
Impervious	0.20	0.90	0.14
Total Subcatchment	**1.3**	**-**	**0.35**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	5	1.1	(Lawn)
Impervious	1	0.20	
Total	4.4	1.3	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
184	11	5.98%	2.3	0.56	0.09	0.05	0.05	0.12	0.08	0.31	0.21

Appropriate calculated time to peak:	0.21	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-27
By: IC
Check: RA

Catchment NAME	**EXT3**
Catchment AREA (ha)	**3.4**

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment EXT3

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Chinguacousy Clay Loam	CCL	C	100	3.4
				0
Total Area Check				3.4

Impervious Landuses Present:											
	Roadway/Rooftops		Sidewalk		Gravel Area		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL	1.27	79				79					1.27
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL			0.34	79			1.79	79			2.13

CN Calculations		
	Total Area	3.40
	Composite Curve Number	79

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
Pervious	2.13	0.25	0.16
Impervious	1.27	0.90	0.34
Total Subcatchment	**3.4**	**-**	**0.49**

TIMP	**0.42**
XIMP	**0.22**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Meadow	8	0.34
Pervious	5	1.79
Impervious	2	1.27
Total	4.2	3.40

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.5	-	-	0.25
Impervious	2.0	0.7	745	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-27
By: IC
Check: RA

Catchment NAME	**EXT4**
Catchment AREA (ha)	**4.9**

Hydrologic Parameters: NASHYD Command
Pre-Development Drainage Area: Catchment EXT4

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Chinguacousy Clay Loam	CCL	C	100	4.9
				0
Total Area Check				4.9

Impervious Landuses Present:											
	Roadway/Rooftops		Sidewalk		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL		79			0.00						0.00

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL			4.9	79				79			4.9

CN Calculations		
	Total Area	4.9
	Composite Curve Number	79

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	4.90	0.25	0.25
Impervious	0.00	0.90	0.00
Total Subcatchment	**4.9**	**-**	**0.25**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	4.9	(Meadow)
Impervious	1	0.00	
Total	8.0	4.9	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
180	1	0.56%	2.3	0.17	0.29	0.17	0.17	0.16	0.11	0.75	0.50

Appropriate calculated time to peak:	0.50	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-27
By: IC
Check: RA

Catchment NAME	**EXT5**
Catchment AREA (ha)	**0.9**

Hydrologic Parameters: NASHYD Command
Pre-Development Drainage Area: Catchment EXT5

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	100	0.9
				0
Total Area Check				0.9

Impervious Landuses Present:											
	Roadway		Sidewalk		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC	0.00				0.00						0.00

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC			0.9	84							0.9

CN Calculations	Total Area	0.9
	Composite Curve Number	84

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	0.90	0.25	0.25
Impervious	0.00	0.90	0.00
Total Subcatchment	**0.9**	**-**	**0.25**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	0.9	(Meadow)
Impervious	1	0.00	
Total	8.0	0.9	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
103	0.85	0.83%	2.3	0.21	0.14	0.08	0.08	0.10	0.07	0.50	0.33

Appropriate calculated time to peak:	0.33	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-27
By: IC
Check: RA

Catchment NAME	**EXT6**
Catchment AREA (ha)	**0.5**

Hydrologic Parameters: NASHYD Command
Pre-Development Drainage Area: Catchment EXT6

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	100	0.5
				0
Total Area Check				0.5

Impervious Landuses Present:										
	Roadway		Sidewalk		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC	0.00				0.00						0.00
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC			0.5	84							0.5

CN Calculations		
	Total Area	0.5
	Composite Curve Number	84

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	0.50	0.25	0.25
Impervious	0.00	0.90	0.00
Total Subcatchment	**0.5**	**-**	**0.25**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	0.5	(Meadow)
Impervious	1	0.00	
Total	8.0	0.5	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
79	2	2.53%	2.3	0.37	0.06	0.04	0.04	0.07	0.04	0.30	0.20

Appropriate calculated time to peak:	0.20	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-27
By: IC
Check: RA

Catchment NAME	**107**
Catchment AREA (ha)	**1.7**

Hydrologic Parameters: NASHYD Command
Pre-Development Drainage Area: Catchment 107

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	100	1.7
				0
Total Area Check				1.7

Impervious Landuses Present:											
	Roadway		Sidewalk		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC	0.00				0.00						0.00
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC			1.7	84							1.7

CN Calculations		
	Total Area	1.7
	Composite Curve Number	84

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	1.7	0.25	0.25
Impervious	0.00	0.90	0.00
Total Subcatchment	**1.7**	**-**	**0.25**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	1.7	(Meadow)
Impervious	1	0.00	
Total	8.0	1.7	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
75	0.5	0.67%	2.3	0.19	0.11	0.07	0.07	0.07	0.05	0.46	0.31

Appropriate calculated time to peak:	0.31	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-27
By: IC
Check: RA

Catchment NAME	**EXT7**
Catchment AREA (ha)	**1.4**

Hydrologic Parameters: STANDHYD Command
Pre-Development Drainage Area: Catchment EXT7

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	100	1.4
				0
Total Area Check				1.4

Impervious Landuses Present:											
	Roadway/Rooftops		Sidewalk		Gravel Area		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC		98			1.40	84					1.40
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC								84			0.00

CN Calculations		
	Total Area	1.40
	Composite Curve Number	84

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	0.00	0.25	0.00
Gravel	1.40	0.60	0.60
Total Subcatchment	**1.4**	**-**	**0.60**

TIMP	**0.57**
XIMP	**0.37**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	0.00
Gravel	2.5	1.40
Impervious	2	0.00
Total	2.5	1.40

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	2.5	-	-	0.25
Impervious	2.0	1.2	74	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-27
By: IC
Check: RA

Catchment NAME	**EXT8**
Catchment AREA (ha)	**0.9**

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment EXT8

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Chinguacousy Clay Loam	CCL	C	100	0.9
				0
Total Area Check				0.9

Impervious Landuses Present:											
	Roadway/Rooftops		Sidewalk		Gravel Area		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL	0.45	79				79					0.45

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Roadside Ditch		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL							0.45	79			0.45

CN Calculations		
	Total Area	0.90
	Composite Curve Number	79

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
Pervious	0.45	0.25	0.13
Impervious	0.45	0.90	0.45
Total Subcatchment	**0.9**	**-**	**0.58**

TIMP	**0.54**
XIMP	**0.34**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	0.45
Impervious	2	0.45
Total	3.5	0.90

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	2	313	0.25
Impervious	2.0	1	309	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-27
By: IC
Check: RA

Catchment NAME	**108**
Catchment AREA (ha)	**11.3**

Hydrologic Parameters: NASHYD Command
Pre-Development Drainage Area: Catchment 108

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	96.9	10.9
Chinguacousy Clay Loam	CCL	C	3.1	0.35
Total Area Check				11.3

Impervious Landuses Present:											
	Roadway		Sidewalk		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC	0.00				0.00						0.00

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC			10.9	84							10.9
CCL			0.35	79							0.35

CN Calculations		
	Total Area	11.3
	Composite Curve Number	84

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	11.3	0.25	0.25
Impervious	0.00	0.90	0.00
Total Subcatchment	**11.3**	**-**	**0.25**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	11.3	(Meadow)
Impervious	1	0.00	
Total	8.0	11.3	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
448	5	1.12%	2.3	0.24	0.51	0.31	0.31	0.33	0.22	0.94	0.63

Appropriate calculated time to peak:	0.63	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-27
By: IC
Check: RA

Catchment NAME	**109**
Catchment AREA (ha)	**7.7**

Hydrologic Parameters: NASHYD Command
Pre-Development Drainage Area: Catchment 109

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	64.6	5.0
Chinguacousy Clay Loam	CCL	C	35.4	2.7
Total Area Check				7.7

Impervious Landuses Present:											
	Roadway		Sidewalk		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC	0.00				0.00						0.00

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC			5.0	84							5.0
			2.7	79							2.7
				CN Calculations			Total Area				7.7
							Composite Curve Number				82

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
Pervious	7.7	0.25	0.25
Impervious	0.00	0.90	0.00
Total Subcatchment	**7.7**	**-**	**0.25**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	7.7	(Meadow)
Impervious	1	0.00	
Total	8.0	7.7	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
297	3.25	1.09%	2.3	0.24	0.34	0.21	0.21	0.23	0.15	0.77	0.52

Appropriate calculated time to peak:	0.52	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-27
By: IC
Check: RA

Catchment NAME	**110**
Catchment AREA (ha)	**9.7**

Hydrologic Parameters: NASHYD Command
Pre-Development Drainage Area: Catchment 110

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	100	9.7
Total Area Check				9.7

Impervious Landuses Present:											
	Roadway		Sidewalk		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC	0.00				0.00						0.00

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC			9.7	84							9.7
											0.0
				CN Calculations			Total Area				9.7
							Composite Curve Number				84

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	9.7	0.25	0.25
Impervious	0.00	0.90	0.00
Total Subcatchment	**9.7**	**-**	**0.25**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	9.7	(Meadow)
Impervious	1	0.00	
Total	8.0	9.7	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
466	14.3	3.07%	2.3	0.40	0.32	0.19	0.19	0.28	0.19	0.69	0.46

Appropriate calculated time to peak:	0.46	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-27
By: IC
Check: RA

Catchment NAME	**111**
Catchment AREA (ha)	**0.1**

Hydrologic Parameters: NASHYD Command
Pre-Development Drainage Area: Catchment 111

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	100	0.1
Total Area Check				0.1

Impervious Landuses Present:											
	Roadway		Sidewalk		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC	0.00				0.00						0.00

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC			0.1	84							0.1
											0.0
			CN Calculations				Total Area				0.1
							Composite Curve Number				84

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	0.1	0.25	0.25
Impervious	0.00	0.90	0.00
Total Subcatchment	**0.1**	**-**	**0.25**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	0.1	(Meadow)
Impervious	1	0.00	
Total	8.0	0.1	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
70	0.5	0.71%	2.3	0.19	0.10	0.06	0.06	0.09	0.06	0.43	0.29

Appropriate calculated time to peak:	0.29	Appropriate Method:	Airport

```
**********************************
** SIMULATION:0. 25mm_4hr_Chicago **
**********************************
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0101  1  5.0   34.60    0.20  2.58   4.02 0.16   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.02  1.92   4.81 0.19   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.01  2.00   4.86 0.19   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0001+  0101]  7684  3  5.0   35.20    0.20  2.58   4.03  n/a   0.000
*
    ADD [  7684+  0002]  7684  1  5.0   36.50    0.21  2.58   4.06  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0103  1  5.0   17.00    0.12  2.75   5.60 0.22   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.75]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.01  2.17   5.60 0.22   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    ADD [  0103+  0005]  7661  3  5.0   17.90    0.13  2.75   5.60  n/a   0.000
*
    CHANNEL[ 2:  7661]   7651  1  5.0   17.90    0.12  3.00   5.60  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.01  1.92   5.59 0.22   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
```

```
*
 *  CALIB NASHYD         0104  1  5.0   32.00    0.20  3.00   5.60 0.22   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.93]
*
    ADD [  0104+  0006]  7644  3  5.0   32.50    0.20  3.00   5.60  n/a   0.000
*
    ADD [  7644+  7651]  7644  1  5.0   50.40    0.32  3.00   5.60  n/a   0.000
*
    CHANNEL[ 2:  7644]   7660  1  5.0   50.40    0.27  3.67   5.60  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.03  2.42   3.97 0.16   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0102  1  5.0   46.70    0.23  3.08   4.68 0.19   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.99]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0003  1  5.0    3.40    0.07  1.83  10.06 0.40   0.000
    [I%=22.0:S%= 2.00]
*
    ADD [  0102+  0003]  7655  3  5.0   50.10    0.25  3.00   5.04  n/a   0.000
*
    ADD [  7655+  0004]  7655  1  5.0   55.00    0.28  2.92   4.95  n/a   0.000
*
    CHANNEL[ 2:  7655]   7658  1  5.0   55.00    0.27  3.17   4.95  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0105  1  5.0   11.10    0.07  2.50   3.97 0.16   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.55]
*
    ADD [  0105+  7658]  7656  3  5.0   66.10    0.32  3.00   4.78  n/a   0.000
*
    ADD [  7656+  7660]  7656  1  5.0  116.50    0.57  3.33   5.14  n/a   0.000
*
    CHANNEL[ 2:  7656]   7649  1  5.0  116.50    0.57  3.50   5.14  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0106  1  5.0   31.00    0.13  3.17   4.02 0.16   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 1.01]
*
    ADD [  0106+  7649]  7659  3  5.0  147.50    0.69  3.42   4.90  n/a   0.000
*
```

```
    CHANNEL[ 2:  7659]   7648  1  5.0  147.50    0.68  3.67   4.90  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.04  1.67  12.42 0.50   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  7648+  0008]  7639  3  5.0  148.40    0.69  3.67   4.95  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.03  1.67   6.40 0.26   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0109  1  5.0    7.70    0.06  2.42   4.68 0.19   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.52]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.05  1.67  15.06 0.60   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    1.06  1.67  23.27 0.93   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.09  2.33  23.22  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    1.41  1.67  20.93 0.84   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    0.82  1.75  20.93  n/a   0.000
*
    ADD [  0109+  7667]  7671  3  5.0    8.75    0.06  2.33   4.88  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    9.47    0.08  1.67   5.66  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   16.97    0.16  2.33  13.42  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   28.21    0.96  1.75  16.41  n/a   0.000
*
 ** Reservoir
```

```
    OUTFLOW:            7673  1  5.0   28.21    0.08  4.50  16.37  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0110  1  5.0    9.70    0.09  2.33   5.60 0.22   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.46]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0111  1  5.0    0.10    0.00  2.08   5.59 0.22   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0110+  0111]  7683  3  5.0    9.80    0.10  2.33   5.60  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0107  1  5.0    1.70    0.02  2.08   5.60 0.22   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0108  1  5.0   11.30    0.09  2.58   5.60 0.22   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.08  1.67  14.08 0.56   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0108+  0007]  7681  3  5.0   12.70    0.11  2.50   6.53  n/a   0.000
*
    ADD [  0107+  7681]  7678  3  5.0   14.40    0.12  2.33   6.42  n/a   0.000
*
*********************************
** SIMULATION:1. 2 Year 6 Hour **
*********************************
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0101  1  5.0   34.60    0.46  3.42   9.42 0.26   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
```

```
 *  CALIB NASHYD         0002  1  5.0    1.30    0.03  2.83  10.06 0.28   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.01  2.92  10.12 0.28   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0001+  0101]  7684  3  5.0   35.20    0.46  3.42   9.43  n/a   0.000
*
    ADD [  7684+  0002]  7684  1  5.0   36.50    0.48  3.42   9.45  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0103  1  5.0   17.00    0.27  3.58  12.52 0.35   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.75]
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.02  3.00  12.51 0.35   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    ADD [  0103+  0005]  7661  3  5.0   17.90    0.29  3.58  12.52  n/a   0.000
*
    CHANNEL[ 2:  7661]   7651  1  5.0   17.90    0.27  3.75  12.52  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.02  2.83  12.49 0.35   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0104  1  5.0   32.00    0.45  3.83  12.52 0.35   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.93]
*
    ADD [  0104+  0006]  7644  3  5.0   32.50    0.45  3.83  12.52  n/a   0.000
*
    ADD [  7644+  7651]  7644  1  5.0   50.40    0.73  3.83  12.52  n/a   0.000
*
    CHANNEL[ 2:  7644]   7660  1  5.0   50.40    0.62  4.33  12.52  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.07  3.25   9.36 0.26   0.000
```

```
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0102  1  5.0   46.70    0.54  3.92  10.77 0.30   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.99]
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    3.40    0.10  2.92  17.51 0.49   0.000
    [I%=22.0:S%= 2.00]
*
    ADD [  0102+  0003]  7655  3  5.0   50.10    0.58  3.83  11.22  n/a   0.000
*
    ADD [  7655+  0004]  7655  1  5.0   55.00    0.63  3.83  11.06  n/a   0.000
*
    CHANNEL[ 2:  7655]   7658  1  5.0   55.00    0.62  4.00  11.06  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0105  1  5.0   11.10    0.16  3.33   9.36 0.26   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.55]
*
    ADD [  0105+  7658]  7656  3  5.0   66.10    0.73  3.92  10.77  n/a   0.000
*
    ADD [  7656+  7660]  7656  1  5.0  116.50    1.32  4.17  11.53  n/a   0.000
*
    CHANNEL[ 2:  7656]   7649  1  5.0  116.50    1.30  4.25  11.53  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0106  1  5.0   31.00    0.31  4.00   9.42 0.26   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 1.01]
*
    ADD [  0106+  7649]  7659  3  5.0  147.50    1.60  4.25  11.08  n/a   0.000
*
    CHANNEL[ 2:  7659]   7648  1  5.0  147.50    1.57  4.42  11.08  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.03  2.75  20.61 0.57   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  7648+  0008]  7639  3  5.0  148.40    1.58  4.42  11.14  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
```

```
 *  CALIB NASHYD         7667  1  5.0    1.05    0.05  2.75  13.23 0.37   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0109  1  5.0    7.70    0.13  3.33  10.77 0.30   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.52]
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.04  2.75  23.64 0.66   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    0.69  2.75  34.21 0.95   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.13  3.33  34.17  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    0.95  2.75  31.20 0.87   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    0.85  2.75  31.20  n/a   0.000
*
    ADD [  0109+  7667]  7671  3  5.0    8.75    0.15  3.25  11.06  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    9.47    0.16  3.25  12.02  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   16.97    0.29  3.25  21.81  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   28.21    1.12  2.75  25.55  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   28.21    0.18  4.92  25.51  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0110  1  5.0    9.70    0.21  3.17  12.52 0.35   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.46]
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0111  1  5.0    0.10    0.00  2.92  12.50 0.35   0.000
```

```
    [CN=88.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0110+  0111]  7683  3  5.0    9.80    0.21  3.17  12.52  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0107  1  5.0    1.70    0.05  2.92  12.51 0.35   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0108  1  5.0   11.30    0.20  3.42  12.52 0.35   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.08  2.75  22.81 0.63   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0108+  0007]  7681  3  5.0   12.70    0.23  3.25  13.65  n/a   0.000
*
    ADD [  0107+  7681]  7678  3  5.0   14.40    0.26  3.25  13.52  n/a   0.000
*
**********
** SIMULATION:2. 2 Year 12 Hour **
**********
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 ** CALIB NASHYD         0101  1  5.0   34.60    0.47  5.67  12.94 0.31   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 ** CALIB NASHYD         0002  1  5.0    1.30    0.03  5.25  13.43 0.32   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 ** CALIB NASHYD         0001  1  5.0    0.60    0.01  5.33  13.50 0.32   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0001+  0101]  7684  3  5.0   35.20    0.48  5.67  12.95  n/a   0.000
*
    ADD [  7684+  0002]  7684  1  5.0   36.50    0.49  5.67  12.97  n/a   0.000
*
```

```
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 ** CALIB NASHYD         0103  1  5.0   17.00    0.28  5.83  16.84 0.40   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.75]
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 ** CALIB NASHYD         0005  1  5.0    0.90    0.02  5.33  16.84 0.40   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    ADD [  0103+  0005]  7661  3  5.0   17.90    0.29  5.75  16.84  n/a   0.000
*
    CHANNEL[ 2:  7661]   7651  1  5.0   17.90    0.28  6.00  16.84  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 ** CALIB NASHYD         0006  1  5.0    0.50    0.01  5.25  16.81 0.40   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 ** CALIB NASHYD         0104  1  5.0   32.00    0.46  6.08  16.84 0.40   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.93]
*
    ADD [  0104+  0006]  7644  3  5.0   32.50    0.47  6.08  16.84  n/a   0.000
*
    ADD [  7644+  7651]  7644  1  5.0   50.40    0.75  6.08  16.84  n/a   0.000
*
    CHANNEL[ 2:  7644]   7660  1  5.0   50.40    0.66  6.67  16.84  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 ** CALIB NASHYD         0004  1  5.0    4.90    0.08  5.50  12.88 0.31   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 ** CALIB NASHYD         0102  1  5.0   46.70    0.56  6.25  14.67 0.35   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.99]
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
```

```
 ** CALIB STANDHYD       0003  1  5.0    3.40    0.08  5.42  21.96 0.52   0.000
    [I%=22.0:S%= 2.00]
*
    ADD [  0102+  0003]  7655  3  5.0   50.10    0.61  6.17  15.16  n/a   0.000
*
    ADD [  7655+  0004]  7655  1  5.0   55.00    0.67  6.08  14.96  n/a   0.000
*
    CHANNEL[ 2:  7655]   7658  1  5.0   55.00    0.65  6.33  14.96  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 ** CALIB NASHYD         0105  1  5.0   11.10    0.16  5.58  12.88 0.31   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.55]
*
    ADD [  0105+  7658]  7656  3  5.0   66.10    0.77  6.17  14.61  n/a   0.000
*
    ADD [  7656+  7660]  7656  1  5.0  116.50    1.40  6.42  15.57  n/a   0.000
*
    CHANNEL[ 2:  7656]   7649  1  5.0  116.50    1.39  6.58  15.57  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 ** CALIB NASHYD         0106  1  5.0   31.00    0.32  6.25  12.94 0.31   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 1.01]
*
    ADD [  0106+  7649]  7659  3  5.0  147.50    1.71  6.50  15.02  n/a   0.000
*
    CHANNEL[ 2:  7659]   7648  1  5.0  147.50    1.68  6.75  15.02  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 ** CALIB STANDHYD       0008  1  5.0    0.90    0.02  5.25  25.39 0.60   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  7648+  0008]  7639  3  5.0  148.40    1.69  6.75  15.08  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 ** CALIB NASHYD         7667  1  5.0    1.05    0.03  5.25  17.43 0.42   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 ** CALIB NASHYD         0109  1  5.0    7.70    0.13  5.50  14.66 0.35   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.52]
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
```

```
*
 ** CALIB STANDHYD       7668  1  5.0    0.72    0.03  5.25  28.56 0.68   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    0.40  5.25  40.19 0.96   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.13  5.33  40.15  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    0.56  5.25  36.87 0.88   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    0.55  5.25  36.87  n/a   0.000
*
    ADD [  0109+  7667]  7671  3  5.0    8.75    0.15  5.25  15.00  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    9.47    0.17  5.25  16.03  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   16.97    0.30  5.25  26.69  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   28.21    0.85  5.25  30.75  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   28.21    0.21  7.67  30.70  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0110  1  5.0    9.70    0.21  5.42  16.84 0.40   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.46]
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0111  1  5.0    0.10    0.00  5.33  16.83 0.40   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0110+  0111]  7683  3  5.0    9.80    0.21  5.42  16.84  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0107  1  5.0    1.70    0.04  5.33  16.84 0.40   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
```

```
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0108  1  5.0   11.30    0.21  5.67  16.84 0.40   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.05  5.25  27.85 0.66   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0108+  0007]  7681  3  5.0   12.70    0.23  5.58  18.06  n/a   0.000
*
    ADD [  0107+  7681]  7678  3  5.0   14.40    0.27  5.50  17.91  n/a   0.000
*
*********************************
** SIMULATION:3. 5 Year 6 Hour  **
*********************************
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0101  1  5.0   34.60    0.83  3.42  16.65 0.35   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.06  2.83  16.96 0.35   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.02  2.92  17.04 0.36   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0001+  0101]  7684  3  5.0   35.20    0.84  3.42  16.66  n/a   0.000
*
    ADD [  7684+  0002]  7684  1  5.0   36.50    0.86  3.33  16.67  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0103  1  5.0   17.00    0.47  3.50  21.29 0.45   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.75]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.04  2.92  21.28 0.45   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
```

```
*
    ADD [  0103+  0005]  7661  3  5.0   17.90    0.50  3.50  21.29  n/a   0.000
*
    CHANNEL[ 2:  7661]   7651  1  5.0   17.90    0.49  3.58  21.29  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.03  2.83  21.25 0.44   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0104  1  5.0   32.00    0.78  3.75  21.29 0.45   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.93]
*
    ADD [  0104+  0006]  7644  3  5.0   32.50    0.78  3.75  21.29  n/a   0.000
*
    ADD [  7644+  7651]  7644  1  5.0   50.40    1.27  3.67  21.29  n/a   0.000
*
    CHANNEL[ 2:  7644]   7660  1  5.0   50.40    1.09  4.17  21.29  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.13  3.25  16.58 0.35   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0102  1  5.0   46.70    0.95  3.83  18.73 0.39   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.99]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    3.40    0.17  2.92  26.47 0.55   0.000
    [I%=22.0:S%= 2.00]
*
    ADD [  0102+  0003]  7655  3  5.0   50.10    1.01  3.83  19.25  n/a   0.000
*
    ADD [  7655+  0004]  7655  1  5.0   55.00    1.11  3.75  19.01  n/a   0.000
*
    CHANNEL[ 2:  7655]   7658  1  5.0   55.00    1.08  3.92  19.01  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0105  1  5.0   11.10    0.28  3.25  16.58 0.35   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.55]
```

```
*
    ADD [  0105+  7658]  7656  3  5.0   66.10    1.30  3.83  18.61  n/a   0.000
*
    ADD [  7656+  7660]  7656  1  5.0  116.50    2.34  4.00  19.77  n/a   0.000
*
    CHANNEL[ 2:  7656]   7649  1  5.0  116.50    2.31  4.17  19.77  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0106  1  5.0   31.00    0.55  3.92  16.65 0.35   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 1.01]
*
    ADD [  0106+  7649]  7659  3  5.0  147.50    2.85  4.08  19.11  n/a   0.000
*
    CHANNEL[ 2:  7659]   7648  1  5.0  147.50    2.79  4.33  19.11  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.04  2.75  30.18 0.63   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  7648+  0008]  7639  3  5.0  148.40    2.80  4.33  19.18  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.08  2.75  21.72 0.45   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0109  1  5.0    7.70    0.23  3.25  18.72 0.39   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.52]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.06  2.75  33.44 0.70   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    0.91  2.75  45.98 0.96   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.17  3.33  45.94  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
```

```
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    1.28  2.75  42.40 0.89   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    1.15  2.75  42.40  n/a   0.000
*
    ADD [  0109+  7667]  7671  3  5.0    8.75    0.26  3.25  19.08  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    9.47    0.28  3.25  20.18  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   16.97    0.46  3.25  31.56  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   28.21    1.57  2.75  35.88  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   28.21    0.29  4.67  35.84  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0110  1  5.0    9.70    0.36  3.08  21.29 0.45   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.46]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0111  1  5.0    0.10    0.00  2.92  21.27 0.44   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0110+  0111]  7683  3  5.0    9.80    0.37  3.08  21.29  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0107  1  5.0    1.70    0.08  2.92  21.28 0.45   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0108  1  5.0   11.30    0.35  3.33  21.29 0.45   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.12  2.75  32.86 0.69   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0108+  0007]  7681  3  5.0   12.70    0.39  3.25  22.56  n/a   0.000
*
    ADD [  0107+  7681]  7678  3  5.0   14.40    0.45  3.25  22.41  n/a   0.000
```

```
*
**********************************
** SIMULATION:4. 5 Year 12 Hour  **
**********************************
    READ STORM                 15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0101  1  5.0   34.60    0.79  5.67  21.13 0.39   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                 15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.04  5.25  21.23 0.39   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                 15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.02  5.33  21.32 0.39   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0001+  0101]  7684  3  5.0   35.20    0.80  5.58  21.13  n/a   0.000
*
    ADD [  7684+  0002]  7684  1  5.0   36.50    0.83  5.58  21.14  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0103  1  5.0   17.00    0.46  5.75  26.55 0.49   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.75]
*
    READ STORM                 15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.04  5.33  26.54 0.49   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    ADD [  0103+  0005]  7661  3  5.0   17.90    0.48  5.75  26.55  n/a   0.000
*
    CHANNEL[ 2:  7661]   7651  1  5.0   17.90    0.47  5.83  26.55  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.02  5.25  26.50 0.49   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    READ STORM                 15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
```

```
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0104  1  5.0   32.00    0.75  6.00  26.55 0.49   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.93]
*
    ADD [  0104+  0006]  7644  3  5.0   32.50    0.76  6.00  26.55  n/a   0.000
*
    ADD [  7644+  7651]  7644  1  5.0   50.40    1.23  5.92  26.55  n/a   0.000
*
    CHANNEL[ 2:  7644]   7660  1  5.0   50.40    1.08  6.50  26.55  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.13  5.50  21.06 0.39   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0102  1  5.0   46.70    0.93  6.17  23.59 0.43   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.99]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    3.40    0.13  5.33  31.75 0.58   0.000
    [I%=22.0:S%= 2.00]
*
    ADD [  0102+  0003]  7655  3  5.0   50.10    1.00  6.08  24.14  n/a   0.000
*
    ADD [  7655+  0004]  7655  1  5.0   55.00    1.09  6.00  23.87  n/a   0.000
*
    CHANNEL[ 2:  7655]   7658  1  5.0   55.00    1.07  6.25  23.87  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0105  1  5.0   11.10    0.27  5.50  21.06 0.39   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.55]
*
    ADD [  0105+  7658]  7656  3  5.0   66.10    1.27  6.08  23.39  n/a   0.000
*
    ADD [  7656+  7660]  7656  1  5.0  116.50    2.31  6.33  24.76  n/a   0.000
*
    CHANNEL[ 2:  7656]   7649  1  5.0  116.50    2.30  6.42  24.76  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0106  1  5.0   31.00    0.54  6.17  21.13 0.39   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 1.01]
*
    ADD [  0106+  7649]  7659  3  5.0  147.50    2.83  6.42  24.00  n/a   0.000
```

```
*
    CHANNEL[ 2:  7659]   7648  1  5.0  147.50    2.78  6.67  24.00  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.03  5.25  35.74 0.66   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  7648+  0008]  7639  3  5.0  148.40    2.79  6.67  24.07  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.05  5.25  26.79 0.49   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0109  1  5.0    7.70    0.22  5.50  23.58 0.43   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.52]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.04  5.25  39.08 0.72   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    0.52  5.25  52.54 0.97   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.17  5.33  52.49  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    0.73  5.25  48.69 0.90   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    0.72  5.25  48.69  n/a   0.000
*
    ADD [  0109+  7667]  7671  3  5.0    8.75    0.24  5.25  23.97  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    9.47    0.28  5.25  25.12  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   16.97    0.44  5.25  37.22  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   28.21    1.17  5.25  41.79  n/a   0.000
*
```

```
 ** Reservoir
    OUTFLOW:             7673  1  5.0   28.21    0.31  7.42  41.75  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0110  1  5.0    9.70    0.34  5.42  26.55 0.49   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.46]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0111  1  5.0    0.10    0.00  5.33  26.53 0.49   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0110+  0111]  7683  3  5.0    9.80    0.34  5.42  26.55  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0107  1  5.0    1.70    0.07  5.33  26.54 0.49   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0108  1  5.0   11.30    0.33  5.58  26.55 0.49   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\54f07d91-6525-454c-87f1-c27fc3a42fbd\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.07  5.25  38.64 0.71   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0108+  0007]  7681  3  5.0   12.70    0.37  5.50  27.88  n/a   0.000
*
    ADD [  0107+  7681]  7678  3  5.0   14.40    0.43  5.50  27.73  n/a   0.000
*
```

```
***********************************
** SIMULATION:10. 50 Year 12 Hour **
***********************************
    READ STORM                15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.08  5.25  40.51 0.50   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0101  1  5.0   34.60    1.59  5.58  41.32 0.51   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.04  5.25  40.63 0.50   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0001+  0101]  7684  3  5.0   35.20    1.62  5.58  41.31  n/a   0.000
*
    ADD [  7684+  0002]  7684  1  5.0   36.50    1.66  5.58  41.28  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0102  1  5.0   46.70    1.81  6.00  45.07 0.56   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.99]
*
    READ STORM                15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.25  5.42  41.24 0.51   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    3.40    0.24  5.33  54.39 0.67   0.000
    [I%=22.0:S%= 2.00]
*
    ADD [  0102+  0003]  7655  3  5.0   50.10    1.93  6.00  45.71  n/a   0.000
*
    ADD [  7655+  0004]  7655  1  5.0   55.00    2.13  5.83  45.31  n/a   0.000
*
    CHANNEL[ 2:  7655]   7658  1  5.0   55.00    2.09  6.08  45.31  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
```

```
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.04  5.25  49.25 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    READ STORM                 15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0103  1  5.0   17.00    0.86  5.67  49.35 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.75]
*
    READ STORM                 15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.07  5.33  49.33 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    ADD [  0103+  0005]  7661  3  5.0   17.90    0.91  5.67  49.35  n/a   0.000
*
    CHANNEL[ 2:  7661]   7651  1  5.0   17.90    0.89  5.83  49.35  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0104  1  5.0   32.00    1.43  5.92  49.35 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.93]
*
    ADD [  0104+  0006]  7644  3  5.0   32.50    1.44  5.92  49.35  n/a   0.000
*
    ADD [  7644+  7651]  7644  1  5.0   50.40    2.33  5.83  49.35  n/a   0.000
*
    CHANNEL[ 2:  7644]   7660  1  5.0   50.40    2.15  6.17  49.35  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0105  1  5.0   11.10    0.55  5.50  41.24 0.51   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.55]
*
    ADD [  0105+  7658]  7656  3  5.0   66.10    2.52  5.92  44.63  n/a   0.000
*
    ADD [  7656+  7660]  7656  1  5.0  116.50    4.63  6.08  46.67  n/a   0.000
*
    CHANNEL[ 2:  7656]   7649  1  5.0  116.50    4.59  6.25  46.67  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0106  1  5.0   31.00    1.08  6.08  41.32 0.51   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 1.01]
*
    ADD [  0106+  7649]  7659  3  5.0  147.50    5.66  6.17  45.54  n/a   0.000
*
```

```
    CHANNEL[ 2:  7659]   7648  1  5.0  147.50    5.56  6.42  45.54  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.06  5.25  59.24 0.73   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  7648+  0008]  7639  3  5.0  148.40    5.59  6.42  45.63  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.08  5.25  48.59 0.60   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0109  1  5.0    7.70    0.43  5.50  45.07 0.56   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.52]
*
    READ STORM                15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    0.77  5.25  78.92 0.98   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.25  5.33  78.88  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    1.11  5.25  74.29 0.92   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    1.09  5.25  74.29  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.06  5.25  62.70 0.78   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0109+  7667]  7671  3  5.0    8.75    0.48  5.25  45.49  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    9.47    0.54  5.25  46.80  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   16.97    0.78  5.25  60.98  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   28.21    1.88  5.25  66.28  n/a   0.000
*
 ** Reservoir
```

```
    OUTFLOW:            7673  1  5.0   28.21    0.53  7.25  66.24  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD        0110  1  5.0    9.70    0.63  5.42  49.34 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.46]
*
    READ STORM                15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD        0111  1  5.0    0.10    0.01  5.25  49.32 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0110+  0111]  7683  3  5.0    9.80    0.64  5.42  49.34  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD        0107  1  5.0    1.70    0.13  5.25  49.33 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD        0108  1  5.0   11.30    0.63  5.58  49.35 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                15.0
    [ Ptot= 80.82 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\24d9f0f6-cf73-497a-99d7-44
    remark: 50 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD      0007  1  5.0    1.40    0.12  5.25  62.81 0.78   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0108+  0007]  7681  3  5.0   12.70    0.69  5.50  50.83  n/a   0.000
*
    ADD [  0107+  7681]  7678  3  5.0   14.40    0.81  5.42  50.65  n/a   0.000
*
***********************************
** SIMULATION:11. 100 Year 6 Hour **
***********************************
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD        0002  1  5.0    1.30    0.14  2.83  40.11 0.50   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
```

```
 *  CALIB NASHYD         0101  1  5.0   34.60    2.09  3.33  40.91 0.51   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.06  2.83  40.23 0.50   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0001+  0101]  7684  3  5.0   35.20    2.12  3.33  40.90  n/a   0.000
*
    ADD [  7684+  0002]  7684  1  5.0   36.50    2.18  3.33  40.87  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0102  1  5.0   46.70    2.30  3.75  44.64 0.56   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.99]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.34  3.17  40.83 0.51   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    3.40    0.40  2.83  53.94 0.67   0.000
    [I%=22.0:S%= 2.00]
*
    ADD [  0102+  0003]  7655  3  5.0   50.10    2.43  3.75  45.27  n/a   0.000
*
    ADD [  7655+  0004]  7655  1  5.0   55.00    2.68  3.58  44.87  n/a   0.000
*
    CHANNEL[ 2:  7655]   7658  1  5.0   55.00    2.63  3.83  44.87  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.07  2.75  48.80 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0103  1  5.0   17.00    1.12  3.42  48.89 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.75]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
```

```
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.10  2.92  48.88 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    ADD [  0103+  0005]  7661  3  5.0   17.90    1.17  3.42  48.89  n/a   0.000
*
    CHANNEL[ 2:  7661]   7651  1  5.0   17.90    1.16  3.50  48.89  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0104  1  5.0   32.00    1.82  3.67  48.89 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.93]
*
    ADD [  0104+  0006]  7644  3  5.0   32.50    1.83  3.67  48.89  n/a   0.000
*
    ADD [  7644+  7651]  7644  1  5.0   50.40    2.98  3.58  48.89  n/a   0.000
*
    CHANNEL[ 2:  7644]   7660  1  5.0   50.40    2.82  3.83  48.89  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0105  1  5.0   11.10    0.73  3.25  40.83 0.51   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.55]
*
    ADD [  0105+  7658]  7656  3  5.0   66.10    3.20  3.67  44.19  n/a   0.000
*
    ADD [  7656+  7660]  7656  1  5.0  116.50    5.96  3.75  46.23  n/a   0.000
*
    CHANNEL[ 2:  7656]   7649  1  5.0  116.50    5.90  3.92  46.23  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0106  1  5.0   31.00    1.38  3.83  40.91 0.51   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 1.01]
*
    ADD [  0106+  7649]  7659  3  5.0  147.50    7.27  3.92  45.11  n/a   0.000
*
    CHANNEL[ 2:  7659]   7648  1  5.0  147.50    7.12  4.08  45.11  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.09  2.75  58.77 0.73   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  7648+  0008]  7639  3  5.0  148.40    7.15  4.08  45.19  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
```

```
 *  CALIB NASHYD         7667  1  5.0    1.05    0.16  2.75  48.15 0.60   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0109  1  5.0    7.70    0.58  3.17  44.64 0.56   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.52]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    1.54  2.75  78.41 0.98   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.30  3.33  78.37  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    2.21  2.75  73.79 0.92   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    2.00  2.75  73.79  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.12  2.75  62.23 0.77   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0109+  7667]  7671  3  5.0    8.75    0.62  3.17  45.06  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    9.47    0.67  3.17  46.36  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   16.97    0.96  3.17  60.51  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   28.21    2.92  2.75  65.80  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   28.21    0.58  4.50  65.76  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0110  1  5.0    9.70    0.86  3.08  48.89 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.46]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0111  1  5.0    0.10    0.01  2.83  48.86 0.61   0.000
```

```
    [CN=88.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0110+  0111]  7683  3  5.0    9.80    0.87  3.08  48.89  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0107  1  5.0    1.70    0.19  2.92  48.87 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0108  1  5.0   11.30    0.83  3.33  48.89 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.24  2.75  62.34 0.78   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0108+  0007]  7681  3  5.0   12.70    0.91  3.25  50.37  n/a   0.000
*
    ADD [  0107+  7681]  7678  3  5.0   14.40    1.04  3.17  50.20  n/a   0.000
*
************************************
** SIMULATION:12. 100 Year 12 Hour **
************************************
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.10  5.25  46.61 0.53   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0101  1  5.0   34.60    1.84  5.58  47.67 0.54   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.04  5.25  46.74 0.53   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0001+  0101]  7684  3  5.0   35.20    1.87  5.58  47.66  n/a   0.000
*
    ADD [  7684+  0002]  7684  1  5.0   36.50    1.93  5.50  47.62  n/a   0.000
*
```

```
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0102  1  5.0   46.70    2.09  6.00  51.74 0.58   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.99]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.29  5.42  47.59 0.54   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    3.40    0.27  5.25  61.28 0.69   0.000
    [I%=22.0:S%= 2.00]
*
    ADD [  0102+  0003]  7655  3  5.0   50.10    2.22  5.92  52.39  n/a   0.000
*
    ADD [  7655+  0004]  7655  1  5.0   55.00    2.45  5.83  51.96  n/a   0.000
*
    CHANNEL[ 2:  7655]   7658  1  5.0   55.00    2.41  6.00  51.96  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.05  5.25  56.21 0.63   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0103  1  5.0   17.00    0.99  5.67  56.32 0.64   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.75]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.07  5.33  56.30 0.64   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    ADD [  0103+  0005]  7661  3  5.0   17.90    1.04  5.67  56.32  n/a   0.000
*
    CHANNEL[ 2:  7661]   7651  1  5.0   17.90    1.03  5.75  56.32  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0104  1  5.0   32.00    1.64  5.92  56.32 0.64   0.000
```

```
    [CN=88.0         ]
    [ N = 3.0:Tp 0.93]
*
    ADD [  0104+  0006]  7644  3  5.0   32.50    1.65  5.92  56.32  n/a   0.000
*
    ADD [  7644+  7651]  7644  1  5.0   50.40    2.67  5.83  56.32  n/a   0.000
*
    CHANNEL[ 2:  7644]   7660  1  5.0   50.40    2.51  6.08  56.32  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0105  1  5.0   11.10    0.63  5.50  47.59 0.54   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.55]
*
    ADD [  0105+  7658]  7656  3  5.0   66.10    2.92  5.92  51.23  n/a   0.000
*
    ADD [  7656+  7660]  7656  1  5.0  116.50    5.39  6.00  53.43  n/a   0.000
*
    CHANNEL[ 2:  7656]   7649  1  5.0  116.50    5.34  6.17  53.43  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0106  1  5.0   31.00    1.25  6.08  47.68 0.54   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 1.01]
*
    ADD [  0106+  7649]  7659  3  5.0  147.50    6.59  6.17  52.22  n/a   0.000
*
    CHANNEL[ 2:  7659]   7648  1  5.0  147.50    6.48  6.33  52.22  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.06  5.25  66.32 0.75   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  7648+  0008]  7639  3  5.0  148.40    6.51  6.33  52.31  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.10  5.25  55.24 0.62   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0109  1  5.0    7.70    0.49  5.42  51.74 0.58   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.52]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
```

```
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    0.85  5.25  86.63 0.98   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.27  5.33  86.58  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    1.22  5.25  81.82 0.92   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    1.20  5.25  81.82  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.07  5.25  69.79 0.79   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0109+  7667]  7671  3  5.0    8.75    0.55  5.25  52.16  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    9.47    0.62  5.25  53.50  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   16.97    0.89  5.25  68.12  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   28.21    2.09  5.25  73.58  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   28.21    0.58  7.33  73.54  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0110  1  5.0    9.70    0.72  5.42  56.32 0.64   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.46]
*
    READ STORM                 15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0111  1  5.0    0.10    0.01  5.25  56.29 0.64   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0110+  0111]  7683  3  5.0    9.80    0.73  5.42  56.32  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0107  1  5.0    1.70    0.14  5.25  56.30 0.64   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                 15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
```

```
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0108  1  5.0   11.30    0.72  5.58  56.32 0.64   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\b69d30cc-79da-40ef-8cba-f2
    remark: 100 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.14  5.25  70.05 0.79   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0108+  0007]  7681  3  5.0   12.70    0.79  5.50  57.83  n/a   0.000
*
    ADD [  0107+  7681]  7678  3  5.0   14.40    0.93  5.42  57.65  n/a   0.000
*
*********************************
** SIMULATION:5. 10 Year 6 Hour **
*********************************
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.07  2.83  22.11 0.40   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0101  1  5.0   34.60    1.10  3.33  22.06 0.40   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.03  2.92  22.20 0.40   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0001+  0101]  7684  3  5.0   35.20    1.12  3.33  22.06  n/a   0.000
*
    ADD [  7684+  0002]  7684  1  5.0   36.50    1.16  3.33  22.06  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0102  1  5.0   46.70    1.25  3.83  24.58 0.44   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.99]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.18  3.17  21.98 0.39   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
```

```
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    3.40    0.22  2.83  32.82 0.59   0.000
    [I%=22.0:S%= 2.00]
*
    ADD [  0102+  0003]  7655  3  5.0   50.10    1.33  3.75  25.14  n/a   0.000
*
    ADD [  7655+  0004]  7655  1  5.0   55.00    1.47  3.67  24.86  n/a   0.000
*
    CHANNEL[ 2:  7655]   7658  1  5.0   55.00    1.43  3.92  24.86  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.04  2.75  27.57 0.50   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0103  1  5.0   17.00    0.62  3.50  27.63 0.50   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.75]
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.05  2.92  27.62 0.50   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    ADD [  0103+  0005]  7661  3  5.0   17.90    0.65  3.50  27.63  n/a   0.000
*
    CHANNEL[ 2:  7661]   7651  1  5.0   17.90    0.64  3.58  27.63  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0104  1  5.0   32.00    1.01  3.75  27.63 0.50   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.93]
*
    ADD [  0104+  0006]  7644  3  5.0   32.50    1.02  3.75  27.62  n/a   0.000
*
    ADD [  7644+  7651]  7644  1  5.0   50.40    1.66  3.67  27.62  n/a   0.000
*
    CHANNEL[ 2:  7644]   7660  1  5.0   50.40    1.46  4.08  27.62  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0105  1  5.0   11.10    0.38  3.25  21.98 0.39   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.55]
```

```
*
    ADD [  0105+  7658]  7656  3  5.0   66.10    1.72  3.75  24.38  n/a   0.000
*
    ADD [  7656+  7660]  7656  1  5.0  116.50    3.12  4.00  25.78  n/a   0.000
*
    CHANNEL[ 2:  7656]   7649  1  5.0  116.50    3.08  4.08  25.78  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0106  1  5.0   31.00    0.73  3.92  22.06 0.40   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 1.01]
*
    ADD [  0106+  7649]  7659  3  5.0  147.50    3.80  4.08  25.00  n/a   0.000
*
    CHANNEL[ 2:  7659]   7648  1  5.0  147.50    3.71  4.25  25.00  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.05  2.75  36.87 0.66   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  7648+  0008]  7639  3  5.0  148.40    3.73  4.25  25.07  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.10  2.75  27.82 0.50   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0109  1  5.0    7.70    0.31  3.17  24.58 0.44   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.52]
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    1.06  2.75  53.84 0.97   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.20  3.33  53.80  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    1.50  2.75  49.95 0.90   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    1.36  2.75  49.95  n/a   0.000
```

```
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.07  2.75  40.22 0.72   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0109+  7667]  7671  3  5.0    8.75    0.34  3.25  24.97  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    9.47    0.37  3.17  26.13  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   16.97    0.57  3.25  38.36  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   28.21    1.89  2.75  42.98  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   28.21    0.36  4.67  42.94  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0110  1  5.0    9.70    0.48  3.08  27.62 0.50   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.46]
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0111  1  5.0    0.10    0.01  2.92  27.60 0.50   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0110+  0111]  7683  3  5.0    9.80    0.48  3.08  27.62  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0107  1  5.0    1.70    0.11  2.92  27.62 0.50   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0108  1  5.0   11.30    0.46  3.33  27.63 0.50   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.14  2.75  39.81 0.71   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0108+  0007]  7681  3  5.0   12.70    0.51  3.25  28.97  n/a   0.000
*
    ADD [  0107+  7681]  7678  3  5.0   14.40    0.59  3.25  28.81  n/a   0.000
```

```
*
**********************************
** SIMULATION:6. 10 Year 12 Hour **
**********************************
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.06  5.25  26.98 0.43   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0101  1  5.0   34.60    1.03  5.58  27.17 0.43   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.02  5.33  27.08 0.43   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0001+  0101]  7684  3  5.0   35.20    1.05  5.58  27.17  n/a   0.000
*
    ADD [  7684+  0002]  7684  1  5.0   36.50    1.08  5.58  27.16  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0102  1  5.0   46.70    1.19  6.08  30.07 0.48   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.99]
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.16  5.50  27.09 0.43   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    3.40    0.16  5.33  38.68 0.62   0.000
    [I%=22.0:S%= 2.00]
*
    ADD [  0102+  0003]  7655  3  5.0   50.10    1.28  6.00  30.66  n/a   0.000
*
    ADD [  7655+  0004]  7655  1  5.0   55.00    1.40  5.92  30.34  n/a   0.000
*
    CHANNEL[ 2:  7655]   7658  1  5.0   55.00    1.38  6.17  30.34  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
```

```
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.03  5.25  33.44 0.53   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0103  1  5.0   17.00    0.58  5.75  33.50 0.53   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.75]
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.05  5.33  33.49 0.53   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    ADD [  0103+  0005]  7661  3  5.0   17.90    0.61  5.67  33.50  n/a   0.000
*
    CHANNEL[ 2:  7661]   7651  1  5.0   17.90    0.60  5.83  33.50  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0104  1  5.0   32.00    0.96  6.00  33.50 0.53   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.93]
*
    ADD [  0104+  0006]  7644  3  5.0   32.50    0.97  6.00  33.50  n/a   0.000
*
    ADD [  7644+  7651]  7644  1  5.0   50.40    1.56  5.92  33.50  n/a   0.000
*
    CHANNEL[ 2:  7644]   7660  1  5.0   50.40    1.39  6.33  33.50  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0105  1  5.0   11.10    0.35  5.50  27.09 0.43   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.55]
*
    ADD [  0105+  7658]  7656  3  5.0   66.10    1.64  6.00  29.79  n/a   0.000
*
    ADD [  7656+  7660]  7656  1  5.0  116.50    3.00  6.25  31.40  n/a   0.000
*
    CHANNEL[ 2:  7656]   7649  1  5.0  116.50    2.97  6.42  31.40  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0106  1  5.0   31.00    0.70  6.17  27.17 0.43   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 1.01]
*
    ADD [  0106+  7649]  7659  3  5.0  147.50    3.66  6.33  30.51  n/a   0.000
```

```
*
    CHANNEL[ 2:  7659]   7648  1  5.0  147.50    3.59  6.58  30.51  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.04  5.25  42.98 0.69   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  7648+  0008]  7639  3  5.0  148.40    3.61  6.58  30.58  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.06  5.25  33.45 0.53   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0109  1  5.0    7.70    0.28  5.50  30.07 0.48   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.52]
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    0.60  5.25  60.84 0.97   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.19  5.33  60.80  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    0.85  5.25  56.72 0.90   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    0.84  5.25  56.71  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.05  5.25  46.38 0.74   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0109+  7667]  7671  3  5.0    8.75    0.31  5.25  30.48  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    9.47    0.36  5.25  31.68  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   16.97    0.55  5.25  44.55  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   28.21    1.39  5.25  49.40  n/a   0.000
*
```

```
 ** Reservoir
    OUTFLOW:             7673  1  5.0   28.21    0.37  7.42  49.36  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0110  1  5.0    9.70    0.43  5.42  33.50 0.53   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.46]
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0111  1  5.0    0.10    0.01  5.25  33.48 0.53   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0110+  0111]  7683  3  5.0    9.80    0.43  5.42  33.50  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0107  1  5.0    1.70    0.09  5.33  33.49 0.53   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0108  1  5.0   11.30    0.43  5.58  33.50 0.53   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                15.0
    [ Ptot= 62.71 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\e4bd620b-35ce-4a6f-a65c-30
    remark: 10 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.09  5.25  46.12 0.74   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0108+  0007]  7681  3  5.0   12.70    0.47  5.50  34.89  n/a   0.000
*
    ADD [  0107+  7681]  7678  3  5.0   14.40    0.55  5.42  34.73  n/a   0.000
*
*********************************
** SIMULATION:7. 25 Year 6 Hour **
*********************************
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.10  2.83  29.04 0.44   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
```

```
*
 *  CALIB NASHYD         0101  1  5.0   34.60    1.49  3.33  29.34 0.45   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.04  2.83  29.15 0.44   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0001+  0101]  7684  3  5.0   35.20    1.51  3.33  29.33  n/a   0.000
*
    ADD [  7684+  0002]  7684  1  5.0   36.50    1.55  3.33  29.32  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0102  1  5.0   46.70    1.66  3.83  32.38 0.49   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.99]
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.24  3.17  29.26 0.45   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    3.40    0.28  2.83  41.12 0.63   0.000
    [I%=22.0:S%= 2.00]
*
    ADD [  0102+  0003]  7655  3  5.0   50.10    1.76  3.75  32.98  n/a   0.000
*
    ADD [  7655+  0004]  7655  1  5.0   55.00    1.94  3.67  32.65  n/a   0.000
*
    CHANNEL[ 2:  7655]   7658  1  5.0   55.00    1.90  3.83  32.65  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.05  2.75  35.89 0.55   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0103  1  5.0   17.00    0.82  3.50  35.96 0.55   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.75]
*
    READ STORM                 15.0
```

```
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.07  2.92  35.95 0.55   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    ADD [  0103+  0005]  7661  3  5.0   17.90    0.86  3.42  35.96  n/a   0.000
*
    CHANNEL[ 2:  7661]   7651  1  5.0   17.90    0.84  3.58  35.96  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0104  1  5.0   32.00    1.33  3.67  35.96 0.55   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.93]
*
    ADD [  0104+  0006]  7644  3  5.0   32.50    1.34  3.67  35.96  n/a   0.000
*
    ADD [  7644+  7651]  7644  1  5.0   50.40    2.18  3.67  35.96  n/a   0.000
*
    CHANNEL[ 2:  7644]   7660  1  5.0   50.40    1.96  4.00  35.96  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0105  1  5.0   11.10    0.52  3.25  29.26 0.45   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.55]
*
    ADD [  0105+  7658]  7656  3  5.0   66.10    2.29  3.75  32.08  n/a   0.000
*
    ADD [  7656+  7660]  7656  1  5.0  116.50    4.19  3.92  33.76  n/a   0.000
*
    CHANNEL[ 2:  7656]   7649  1  5.0  116.50    4.14  4.00  33.76  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0106  1  5.0   31.00    0.98  3.83  29.34 0.45   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 1.01]
*
    ADD [  0106+  7649]  7659  3  5.0  147.50    5.11  4.00  32.83  n/a   0.000
*
    CHANNEL[ 2:  7659]   7648  1  5.0  147.50    4.98  4.17  32.83  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.07  2.75  45.53 0.69   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  7648+  0008]  7639  3  5.0  148.40    5.00  4.17  32.90  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
```

```
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.13  2.75  35.80 0.55   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0109  1  5.0    7.70    0.41  3.17  32.38 0.49   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.52]
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    1.25  2.75  63.72 0.97   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.24  3.33  63.67  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    1.79  2.75  59.50 0.91   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    1.62  2.75  59.50  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.09  2.75  48.94 0.75   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0109+  7667]  7671  3  5.0    8.75    0.45  3.17  32.79  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    9.47    0.49  3.17  34.02  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   16.97    0.72  3.17  47.13  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   28.21    2.30  2.75  52.06  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   28.21    0.45  4.58  52.01  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0110  1  5.0    9.70    0.63  3.08  35.96 0.55   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.46]
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
```

```
 *  CALIB NASHYD         0111  1  5.0    0.10    0.01  2.83  35.94 0.55   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0110+  0111]  7683  3  5.0    9.80    0.64  3.08  35.96  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0107  1  5.0    1.70    0.14  2.92  35.95 0.55   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0108  1  5.0   11.30    0.61  3.33  35.96 0.55   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.18  2.75  48.75 0.74   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0108+  0007]  7681  3  5.0   12.70    0.67  3.25  37.37  n/a   0.000
*
    ADD [  0107+  7681]  7678  3  5.0   14.40    0.77  3.17  37.20  n/a   0.000
*
**********************************
** SIMULATION:8. 25 Year 12 Hour **
**********************************
    READ STORM                15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.07  5.25  34.59 0.47   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0101  1  5.0   34.60    1.35  5.58  35.14 0.48   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.03  5.25  34.71 0.47   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0001+  0101]  7684  3  5.0   35.20    1.37  5.58  35.14  n/a   0.000
*
    ADD [  7684+  0002]  7684  1  5.0   36.50    1.41  5.58  35.12  n/a   0.000
```

```
*
    READ STORM                15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0102  1  5.0   46.70    1.54  6.08  38.55 0.53   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.99]
*
    READ STORM                15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.21  5.42  35.06 0.48   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    3.40    0.20  5.33  47.60 0.65   0.000
    [I%=22.0:S%= 2.00]
*
    ADD [  0102+  0003]  7655  3  5.0   50.10    1.65  6.00  39.17  n/a   0.000
*
    ADD [  7655+  0004]  7655  1  5.0   55.00    1.82  5.92  38.80  n/a   0.000
*
    CHANNEL[ 2:  7655]   7658  1  5.0   55.00    1.78  6.08  38.80  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.03  5.25  42.41 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    READ STORM                15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0103  1  5.0   17.00    0.74  5.67  42.49 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.75]
*
    READ STORM                15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.06  5.33  42.48 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    ADD [  0103+  0005]  7661  3  5.0   17.90    0.78  5.67  42.49  n/a   0.000
*
    CHANNEL[ 2:  7661]   7651  1  5.0   17.90    0.77  5.83  42.49  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
```

```
 *  CALIB NASHYD         0104  1  5.0   32.00    1.23  5.92  42.49 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.93]
*
    ADD [  0104+  0006]  7644  3  5.0   32.50    1.24  5.92  42.49  n/a   0.000
*
    ADD [  7644+  7651]  7644  1  5.0   50.40    2.00  5.92  42.49  n/a   0.000
*
    CHANNEL[ 2:  7644]   7660  1  5.0   50.40    1.82  6.25  42.49  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0105  1  5.0   11.10    0.46  5.50  35.07 0.48   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.55]
*
    ADD [  0105+  7658]  7656  3  5.0   66.10    2.14  5.92  38.17  n/a   0.000
*
    ADD [  7656+  7660]  7656  1  5.0  116.50    3.91  6.17  40.04  n/a   0.000
*
    CHANNEL[ 2:  7656]   7649  1  5.0  116.50    3.88  6.33  40.04  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0106  1  5.0   31.00    0.91  6.08  35.15 0.48   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 1.01]
*
    ADD [  0106+  7649]  7659  3  5.0  147.50    4.78  6.25  39.01  n/a   0.000
*
    CHANNEL[ 2:  7659]   7648  1  5.0  147.50    4.68  6.50  39.01  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.05  5.25  52.23 0.71   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  7648+  0008]  7639  3  5.0  148.40    4.71  6.50  39.09  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.07  5.25  42.04 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0109  1  5.0    7.70    0.37  5.50  38.55 0.53   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.52]
*
    READ STORM                15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
```

```
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    0.70  5.25  71.21 0.97   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.23  5.33  71.17  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    1.00  5.25  66.78 0.91   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    0.99  5.25  66.78  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.06  5.25  55.68 0.76   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0109+  7667]  7671  3  5.0    8.75    0.41  5.25  38.97  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    9.47    0.46  5.25  40.24  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   16.97    0.68  5.25  53.91  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   28.21    1.67  5.25  59.04  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   28.21    0.46  7.33  58.99  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0110  1  5.0    9.70    0.55  5.42  42.49 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.46]
*
    READ STORM                 15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0111  1  5.0    0.10    0.01  5.25  42.47 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0110+  0111]  7683  3  5.0    9.80    0.55  5.42  42.49  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0107  1  5.0    1.70    0.11  5.33  42.48 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                 15.0
    [ Ptot= 73.10 mm ]
```

```
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0108  1  5.0   11.30    0.54  5.58  42.49 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                15.0
    [ Ptot= 73.10 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\4d77c8b6-8cde-4f61-be31-0f
    remark: 25 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.11  5.25  55.64 0.76   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0108+  0007]  7681  3  5.0   12.70    0.60  5.50  43.94  n/a   0.000
*
    ADD [  0107+  7681]  7678  3  5.0   14.40    0.70  5.42  43.77  n/a   0.000
*
**********
** SIMULATION:9. 50 Year 6 Hour **
**********
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.12  2.83  34.52 0.47   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0101  1  5.0   34.60    1.79  3.33  35.07 0.48   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.05  2.83  34.63 0.47   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0001+  0101]  7684  3  5.0   35.20    1.81  3.33  35.06  n/a   0.000
*
    ADD [  7684+  0002]  7684  1  5.0   36.50    1.86  3.33  35.04  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0102  1  5.0   46.70    1.98  3.75  38.47 0.53   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.99]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.29  3.17  34.99 0.48   0.000
    [CN=82.0         ]
```

```
    [ N = 3.0:Tp 0.50]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    3.40    0.35  2.83  47.51 0.65   0.000
    [I%=22.0:S%= 2.00]
*
    ADD [  0102+  0003]  7655  3  5.0   50.10    2.09  3.75  39.08  n/a   0.000
*
    ADD [  7655+  0004]  7655  1  5.0   55.00    2.30  3.67  38.72  n/a   0.000
*
    CHANNEL[ 2:  7655]   7658  1  5.0   55.00    2.26  3.83  38.72  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.06  2.75  42.32 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0103  1  5.0   17.00    0.96  3.42  42.40 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.75]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.08  2.92  42.39 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    ADD [  0103+  0005]  7661  3  5.0   17.90    1.02  3.42  42.40  n/a   0.000
*
    CHANNEL[ 2:  7661]   7651  1  5.0   17.90    1.00  3.58  42.40  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0104  1  5.0   32.00    1.57  3.67  42.40 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.93]
*
    ADD [  0104+  0006]  7644  3  5.0   32.50    1.59  3.67  42.40  n/a   0.000
*
    ADD [  7644+  7651]  7644  1  5.0   50.40    2.57  3.58  42.40  n/a   0.000
*
    CHANNEL[ 2:  7644]   7660  1  5.0   50.40    2.37  3.92  42.40  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0105  1  5.0   11.10    0.62  3.25  34.99 0.48   0.000
    [CN=82.0         ]
```

```
    [ N = 3.0:Tp 0.55]
*
    ADD [  0105+  7658]  7656  3  5.0   66.10    2.74  3.67  38.09  n/a   0.000
*
    ADD [  7656+  7660]  7656  1  5.0  116.50    5.05  3.83  39.96  n/a   0.000
*
    CHANNEL[ 2:  7656]   7649  1  5.0  116.50    5.00  4.00  39.96  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0106  1  5.0   31.00    1.18  3.83  35.07 0.48   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 1.01]
*
    ADD [  0106+  7649]  7659  3  5.0  147.50    6.16  3.92  38.93  n/a   0.000
*
    CHANNEL[ 2:  7659]   7648  1  5.0  147.50    6.02  4.17  38.93  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.08  2.75  52.15 0.71   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  7648+  0008]  7639  3  5.0  148.40    6.05  4.17  39.01  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.15  2.75  41.96 0.57   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0109  1  5.0    7.70    0.49  3.17  38.47 0.53   0.000
    [CN=85.0         ]
    [ N = 3.0:Tp 0.52]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    1.40  2.75  71.11 0.97   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.27  3.33  71.07  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    2.00  2.75  66.68 0.91   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
```

```
    OUTFLOW:             7675  1  5.0   11.24    1.81  2.75  66.68  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.10  2.75  55.59 0.76   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0109+  7667]  7671  3  5.0    8.75    0.54  3.17  38.89  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    9.47    0.58  3.17  40.16  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   16.97    0.84  3.17  53.82  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   28.21    2.61  2.75  58.94  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   28.21    0.53  4.50  58.90  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0110  1  5.0    9.70    0.75  3.08  42.40 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.46]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0111  1  5.0    0.10    0.01  2.83  42.38 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0110+  0111]  7683  3  5.0    9.80    0.75  3.08  42.40  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0107  1  5.0    1.70    0.16  2.92  42.39 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0108  1  5.0   11.30    0.72  3.33  42.40 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\13f88c8e-7b54-436b-90b2-86b02434588c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.21  2.75  55.55 0.76   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0108+  0007]  7681  3  5.0   12.70    0.79  3.25  43.85  n/a   0.000
*
```

```
    ADD [  0107+  7681]  7678  3  5.0   14.40    0.91  3.17  43.68  n/a   0.000
*
```

```
*******************************
** SIMULATION:Regional        **
*******************************
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0101  1  5.0   34.60    4.12 10.50 181.73 0.86   0.000
    [CN=91.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.19 10.00 182.47 0.86   0.000
    [CN=90.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.08 10.00 182.77 0.86   0.000
    [CN=90.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0001+  0101]  7684  3  5.0   35.20    4.18 10.50 181.75  n/a   0.000
*
    ADD [  7684+  0002]  7684  1  5.0   36.50    4.33 10.42 181.77  n/a   0.000
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.13 10.08 188.93 0.89   0.000
    [CN=94.0         ]
    [ N = 3.0:Tp 0.33]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0103  1  5.0   17.00    1.96 10.75 188.98 0.89   0.000
    [CN=94.0         ]
    [ N = 3.0:Tp 0.75]
*
    ADD [  0103+  0005]  7714  3  5.0   17.90    2.06 10.67 188.98  n/a   0.000
*
    CHANNEL[ 2:  7714]   7651  1  5.0   17.90    2.05 10.83 188.98  n/a   0.000
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0104  1  5.0   32.00    3.50 11.08 188.98 0.89   0.000
    [CN=94.0         ]
    [ N = 3.0:Tp 0.93]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
```

```
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.07 10.00 188.62 0.89   0.000
    [CN=94.0         ]
    [ N = 3.0:Tp 0.20]
*
    ADD [  0104+  0006]  7666  3  5.0   32.50    3.55 11.08 188.97  n/a   0.000
*
    ADD [  7666+  7651]  7666  1  5.0   50.40    5.59 11.00 188.98  n/a   0.000
*
    CHANNEL[ 2:  7666]   7660  1  5.0   50.40    5.55 11.17 188.97  n/a   0.000
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0102  1  5.0   46.70    5.00 11.08 186.52 0.88   0.000
    [CN=93.0         ]
    [ N = 3.0:Tp 0.99]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.62 10.25 181.62 0.86   0.000
    [CN=91.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0003  1  5.0    3.40    0.46 10.00 193.79 0.91   0.000
    [I%=22.0:S%= 2.00]
*
    ADD [  0102+  0003]  7674  3  5.0   50.10    5.35 11.08 187.01  n/a   0.000
*
    ADD [  7674+  0004]  7674  1  5.0   55.00    5.89 11.00 186.53  n/a   0.000
*
    CHANNEL[ 2:  7674]   7658  1  5.0   55.00    5.86 11.08 186.53  n/a   0.000
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0105  1  5.0   11.10    1.37 10.33 181.63 0.86   0.000
    [CN=91.0         ]
    [ N = 3.0:Tp 0.55]
*
    ADD [  0105+  7658]  7681  3  5.0   66.10    7.08 11.08 185.71  n/a   0.000
*
    ADD [  7681+  7660]  7681  1  5.0  116.50   12.64 11.08 187.12  n/a   0.000
*
    CHANNEL[ 2:  7681]   7649  1  5.0  116.50   12.61 11.17 187.12  n/a   0.000
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0106  1  5.0   31.00    3.27 11.17 181.73 0.86   0.000
    [CN=91.0         ]
    [ N = 3.0:Tp 1.01]
*
    ADD [  0106+  7649]  7685  3  5.0  147.50   15.88 11.17 185.99  n/a   0.000
*
```

```
    CHANNEL[ 2:  7685]  76488  1  5.0  147.50   15.90 11.17 185.99  n/a   0.000
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.11 10.00 197.14 0.93   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [ 76488+  0008]  7639  3  5.0  148.40   15.98 11.17 186.06  n/a   0.000
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0109  1  5.0    7.70    0.98 10.25 186.51 0.88   0.000
    [CN=93.0         ]
    [ N = 3.0:Tp 0.52]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         7688  1  5.0    1.05    0.15 10.00 181.43 0.86   0.000
    [CN=94.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       7716  1  5.0   11.24    1.65 10.00 207.00 0.98   0.000
    [I%=85.0:S%= 2.00]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       7689  1  5.0    0.72    0.10 10.00 198.99 0.94   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       7690  1  5.0    7.50    1.10 10.00 210.20 0.99   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0109+  7688]  7687  3  5.0    8.75    1.08 10.25 185.90  n/a   0.000
*
    ADD [  7687+  7689]  7687  1  5.0    9.47    1.16 10.17 186.90  n/a   0.000
*
    ADD [  7687+  7690]  7687  3  5.0   16.97    2.27 10.00 197.20  n/a   0.000
*
    ADD [  7687+  7716]  7687  1  5.0   28.21    3.92 10.00 201.10  n/a   0.000
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0110  1  5.0    9.70    1.27 10.17 188.97 0.89   0.000
    [CN=94.0         ]
```

```
    [ N = 3.0:Tp 0.46]
*
    READ STORM                60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0111  1  5.0    0.10    0.01 10.00 188.89 0.89   0.000
    [CN=94.0         ]
    [ N = 3.0:Tp 0.29]
*
    ADD [  0110+  0111]  7683  3  5.0    9.80    1.29 10.17 188.97  n/a   0.000
*
    READ STORM                60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0108  1  5.0   11.30    1.36 10.50 188.98 0.89   0.000
    [CN=94.0         ]
    [ N = 3.0:Tp 0.63]
*
    READ STORM                60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.20 10.00 200.19 0.94   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0108+  0007]  7699  3  5.0   12.70    1.52 10.42 190.21  n/a   0.000
*
    READ STORM                60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\0633789a-fa07-4e60-a4ca-c174c93f4b76\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0107  1  5.0    1.70    0.24 10.00 188.92 0.89   0.000
    [CN=94.0         ]
    [ N = 3.0:Tp 0.31]
*
    ADD [  0107+  7699]  7678  3  5.0   14.40    1.73 10.33 190.06  n/a   0.000
*
```

Summary of Pre-Development Peak Flow VO Results

Pre-Development Peak Runoff Directed to the West Tributary (6-Hour)

Design Storm Event	Pre-Development Uncontrolled Flow Rate (m^3/s)			
	101	EXT1	EXT2	Total
2-year	0.455	0.013	0.034	**0.477**
5-year	0.826	0.023	0.057	**0.863**
10-year	1.104	0.03	0.075	**1.157**
25-year	1.485	0.04	0.099	**1.553**
50-year	1.786	0.047	0.117	**1.864**
100-year	2.092	0.055	0.136	**2.182**
Regional	4.116	0.084	0.185	**4.327**

Pre-Development Peak Runoff Directed to the West Tributary (12-Hour)

Design Storm Event	Pre-Development Uncontrolled Flow Rate (m^3/s)			
	101	EXT1	EXT2	Total
2-year	0.471	0.012	0.028	**0.492**
5-year	0.791	0.019	0.044	**0.829**
10-year	1.029	0.024	0.056	**1.078**
25-year	1.346	0.031	0.071	**1.407**
50-year	1.59	0.036	0.083	**1.661**
100-year	1.841	0.041	0.095	**1.925**

External Pre-Development Peak Runoff Directed to the East Tributary (6-Hour Storm)

Design Storm Event	Pre-Development Uncontrolled Flow Rate (m^3/s)					
	EXT3	EXT4	EXT5	EXT6	EXT8	Total
2-year	0.105	0.073	0.023	0.017	0.030	**0.248**
5-year	0.174	0.133	0.041	0.029	0.043	**0.420**
10-year	0.219	0.178	0.054	0.038	0.053	**0.542**
25-year	0.282	0.240	0.071	0.050	0.068	**0.711**
50-year	0.349	0.289	0.084	0.059	0.078	**0.859**
100-year	0.402	0.339	0.098	0.068	0.092	**0.999**
Regional	0.464	0.621	0.126	0.073	0.112	**1.396**

External Pre-Development Peak Runoff Directed to the East Tributary (12-Hour Storm)

Design Storm Event	Pre-Development Uncontrolled Flow Rate (m^3/s)					
	EXT3	EXT4	EXT5	EXT6	EXT8	Total
2-year	0.085	0.075	0.023	0.014	0.021	**0.218**
5-year	0.130	0.127	0.036	0.022	0.031	**0.346**
10-year	0.161	0.164	0.045	0.028	0.039	**0.437**
25-year	0.202	0.214	0.057	0.035	0.048	**0.556**
50-year	0.237	0.253	0.066	0.040	0.057	**0.653**
100-year	0.270	0.292	0.075	0.045	0.064	**0.746**

Internal Pre-Development Peak Runoff Directed to the East Tributary (6-Hour)

Design Storm Event	Pre-Development Uncontrolled Flow Rate (m^3/s)						
	102	**103**	**104**	**105**	**106**	**Total Site**	**Total[1]**
2-year	0.536	0.273	0.448	0.157	0.306	**1.720**	**1.578**
5-year	0.947	0.474	0.775	0.285	0.549	**3.030**	**2.801**
10-year	1.253	0.622	1.014	0.383	0.732	**4.004**	**3.727**
25-year	1.661	0.815	1.327	0.515	0.980	**5.298**	**5.003**
50-year	1.979	0.965	1.572	0.619	1.176	**6.311**	**6.050**
100-year	2.305	1.117	1.818	0.725	1.375	**7.340**	**7.147**
Regional	5.001	1.958	3.501	1.371	3.270	**15.101**	**15.979**

1. Total internal and external flows directed to the east tributary.

Internal Pre-Development Peak Runoff Directed to the East Tributary (12-Hour)

Design Storm Event	Pre-Development Uncontrolled Flow Rate (m^3/s)						
	102	**103**	**104**	**105**	**106**	**Total Site**	**Total[1]**
2-year	0.562	0.280	0.465	0.162	0.322	**1.791**	**0.652**
5-year	0.926	0.455	0.752	0.272	0.539	**2.944**	**2.790**
10-year	1.193	0.580	0.958	0.355	0.699	**3.785**	**3.612**
25-year	1.544	0.741	1.227	0.463	0.914	**4.889**	**4.707**
50-year	1.814	0.865	1.431	0.547	1.080	**5.737**	**5.588**
100-year	2.091	0.990	1.638	0.633	1.251	**6.603**	**6.508**

1. Total internal and external flows directed to the east tributary.

Pre-Development Peak Runoff Directed to Airport Road & Salt Creek (6-Hour)

Design Storm Event	Pre-Development Uncontrolled Flow Rate (m^3/s)							
	107	**108**	**EXT7**	**Total to Airport Road/ Salt Creek**	**110**	**111**	**Total to Salt Creek**	**Total Site to Salt Creek[1]**
2-year	0.045	0.202	0.081	**0.263**	0.206	0.003	**0.209**	**0.472**
5-year	0.081	0.352	0.118	**0.453**	0.363	0.005	**0.367**	**0.820**
10-year	0.106	0.462	0.145	**0.589**	0.478	0.006	**0.484**	**1.073**
25-year	0.139	0.606	0.179	**0.768**	0.630	0.008	**0.637**	**1.405**
50-year	0.164	0.718	0.205	**0.907**	0.747	0.010	**0.755**	**1.662**
100-year	0.190	0.830	0.238	**1.043**	0.864	0.012	**0.873**	**1.916**
Regional	0.240	1.363	0.204	**1.726**	1.274	0.014	**1.287**	**3.013**

1. Total Site to Salt Creek is the Total to Airport Road/Salt Creek + Total to Salt Creek

Pre-Development Peak Runoff Directed to Airport Road & Salt Creek (12-Hour)

Design Storm Event	Pre-Development Uncontrolled Flow Rate (m^3/s)							
	107	108	EXT7	Total to Airport Road/ Salt Creek	110	111	Total to Salt Creek	Total Site to Salt Creek[1]
2-year	0.044	0.207	0.054	**0.270**	0.210	0.003	**0.213**	**0.483**
5-year	0.069	0.335	0.075	**0.434**	0.339	0.004	**0.343**	**0.777**
10-year	0.086	0.427	0.091	**0.547**	0.430	0.005	**0.435**	**0.982**
25-year	0.109	0.545	0.110	**0.698**	0.546	0.007	**0.552**	**1.250**
50-year	0.126	0.634	0.124	**0.811**	0.634	0.008	**0.641**	**1.452**
100-year	0.143	0.724	0.138	**0.926**	0.722	0.009	**0.730**	**1.656**

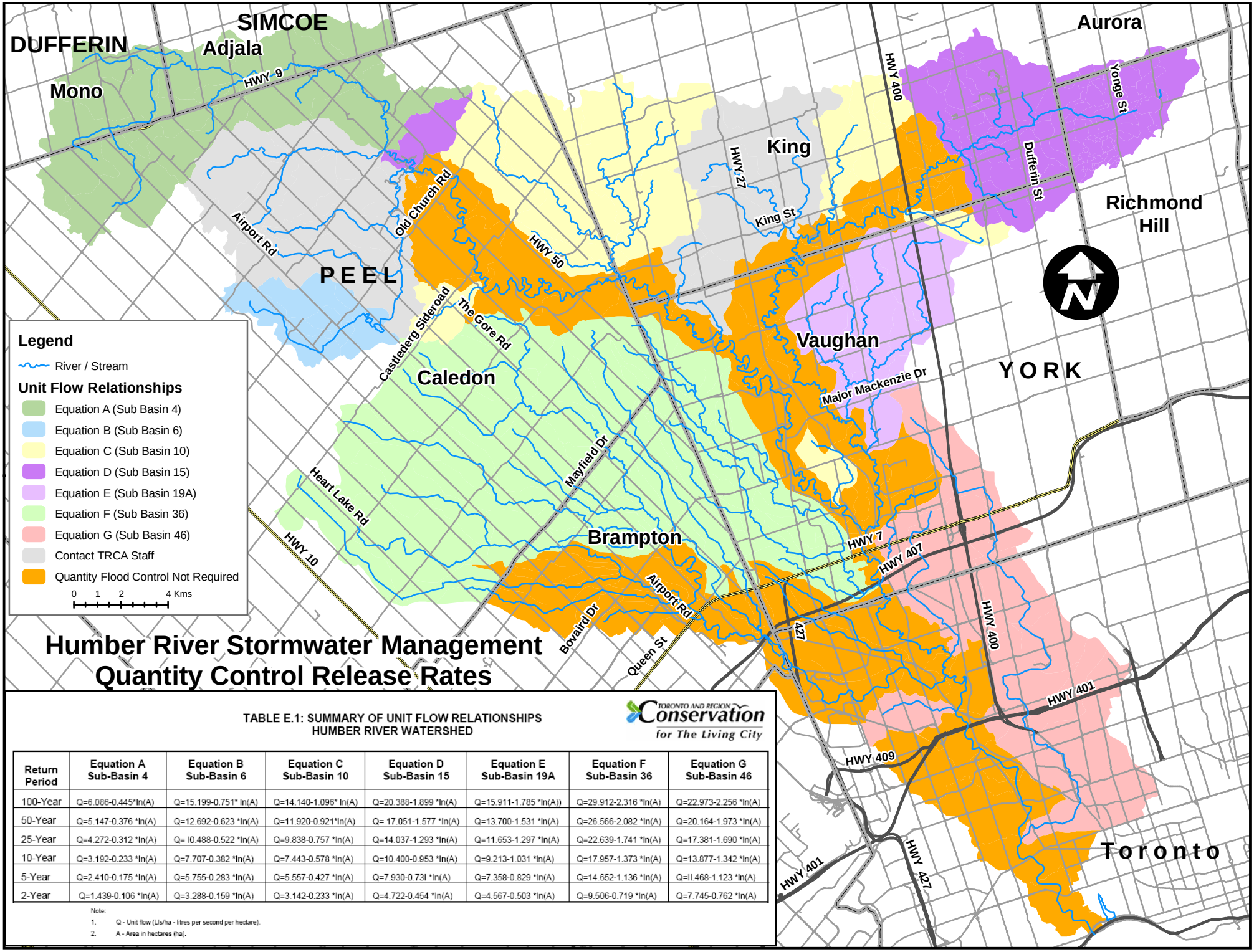
1. Total Site to Salt Creek is the Total to Airport Road/Salt Creek + Total to Salt Creek

Internal Pre-Development Peak Runoff Directed to South Neighboring Property (6-Hour Storm)

Design Storm Event	Pre-Development Uncontrolled Flow Rate (m^3/s)
	109
2-year	0.130
5-year	0.233
10-year	0.309
25-year	0.413
50-year	0.493
100-year	0.575
Regional	0.975

Internal Pre-Development Peak Runoff Directed to South Neighboring Property (12-Hour Storm)

Design Storm Event	Pre-Development Uncontrolled Flow Rate (m^3/s)
	109
2-year	0.134
5-year	0.222
10-year	0.285
25-year	0.367
50-year	0.430
100-year	0.494



Humber River Stormwater Management Quantity Control Release Rates

TABLE E.1: SUMMARY OF UNIT FLOW RELATIONSHIPS
HUMBER RIVER WATERSHED

Return Period	Equation A Sub-Basin 4	Equation B Sub-Basin 6	Equation C Sub-Basin 10	Equation D Sub-Basin 15	Equation E Sub-Basin 19A	Equation F Sub-Basin 36	Equation G Sub-Basin 46
100-Year	Q=6.086-0.445*ln(A)	Q=15.199-0.751* ln(A)	Q=14.140-1.096* ln(A)	Q=20.388-1.899 *ln(A)	Q=15.911-1.785 *ln(A))	Q=29.912-2.316 *ln(A)	Q=22.973-2.256 *ln(A)
50-Year	Q=5.147-0.376 *ln(A)	Q=12.692-0.623 *ln(A)	Q=11.920-0.921*ln(A)	Q= 17.051-1.577 *ln(A)	Q=13.700-1.531 *ln(A)	Q=26.566-2.082 *ln(A)	Q=20.164-1.973 *ln(A)
25-Year	Q=4.272-0.312 *ln(A)	Q= l0.488-0.522 *ln(A)	Q=9.838-0.757 *ln(A)	Q=14.037-1.293 *ln(A)	Q=11.653-1.297 *ln(A)	Q=22.639-1.741 *ln(A)	Q=17.381-1.690 *ln(A)
10-Year	Q=3.192-0.233 *ln(A)	Q=7.707-0.382 *ln(A)	Q=7.443-0.578 *ln(A)	Q=10.400-0.953 *ln(A)	Q=9.213-1.031 *ln(A)	Q=17.957-1.373 *ln(A)	Q=13.877-1.342 *ln(A)
5-Year	Q=2.410-0.175 *ln(A)	Q=5.755-0.283 *ln(A)	Q=5.557-0.427 *ln(A)	Q=7.930-0.73l *ln(A)	Q=7.358-0.829 *ln(A)	Q=14.652-1.136 *ln(A)	Q=ll.468-1.123 *ln(A)
2-Year	Q=1.439-0.106 *ln(A)	Q=3.288-0.159 *ln(A)	Q=3.142-0.233 *ln(A)	Q=4.722-0.454 *ln(A)	Q=4.567-0.503 *ln(A)	Q=9.506-0.719 *ln(A)	Q=7.745-0.762 *ln(A)

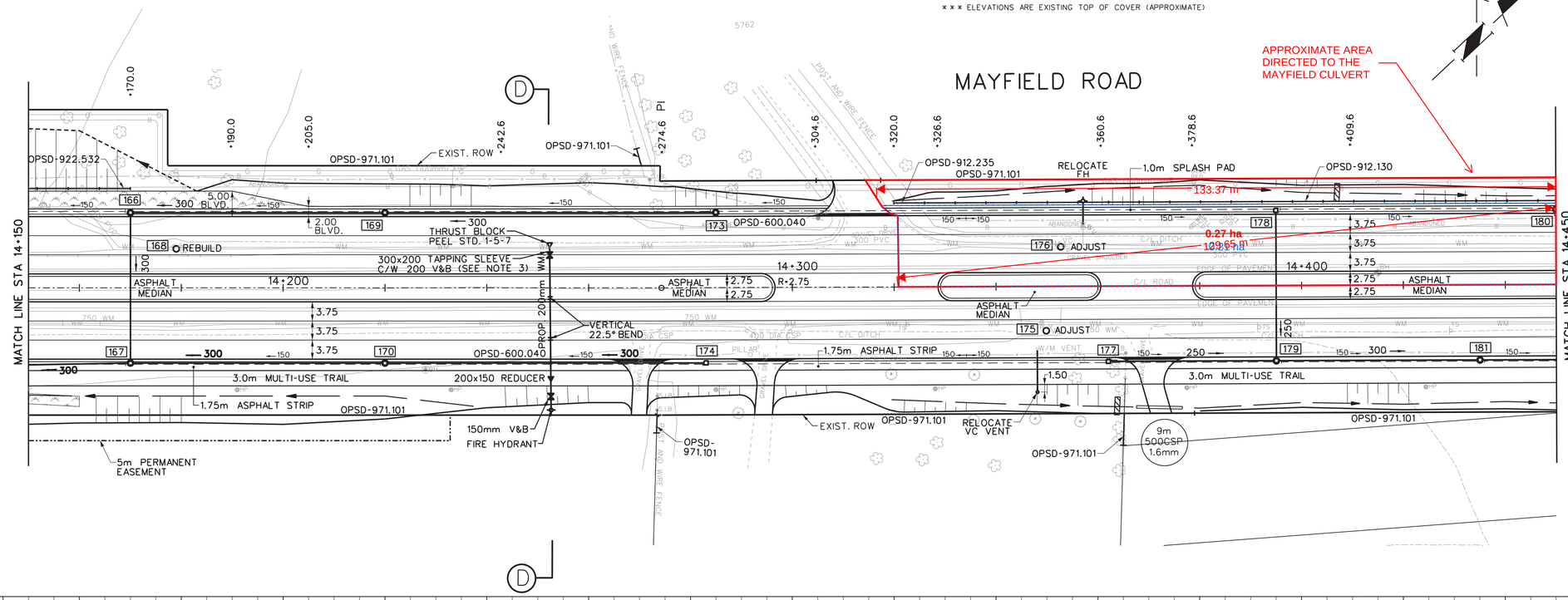
Note:
1. Q - Unit flow (Lls/ha - litres per second per hectare).
2. A - Area in hectares (ha).

TORONTO AND REGION Conservation for The Living City

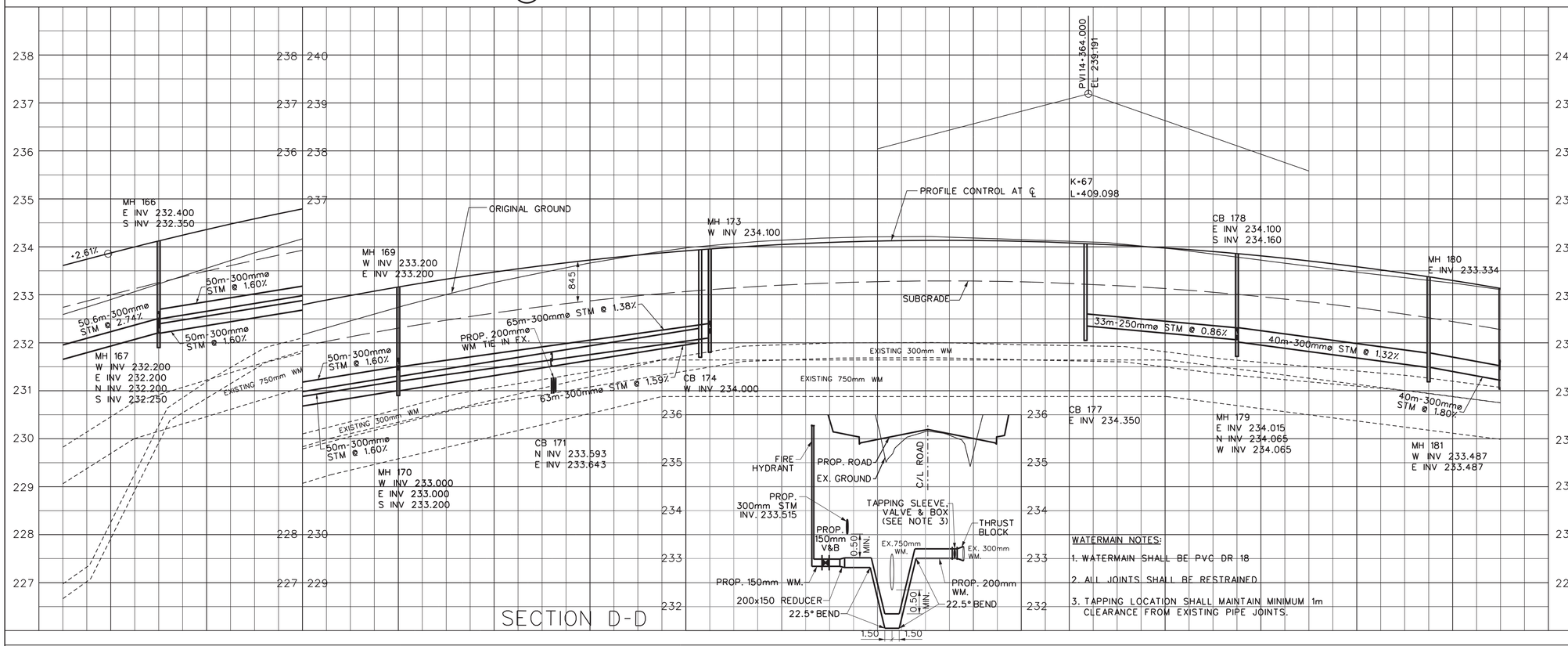
No.	Station	Offset to structure		Structure (OPSD)	Cover x x x (OPSD)	T/cover	Low Invert Elevation
166	14+170.0	14.76	LT	701.010	400.082	233.970	232.350
167	14+170.0	14.76	RT	701.010	400.082	233.830	232.200
168	14+179.0	7.67	LT	EXISTING	EXISTING(233.081)	234.186	EXISTING
169	14+220.0	14.76	LT	701.010	400.082	235.008	233.200
170	14+220.0	14.76	RT	701.010	400.082	234.868	233.200
173	14+285.0	14.76	LT	701.010	400.082	235.800	234.100
174	14+283.0	14.76	RT	705.010	400.082	235.785	234.000

No.	Station	Offset to structure		Structure (OPSD)	Cover x x x (OPSD)	T/cover	Low Invert Elevation
175	14+349.8	8.71	RT	EXISTING	EXISTING(235.875)	235.943	EXISTING
176	14+352.7	7.77	LT	EXISTING	EXISTING(235.830)	235.953	EXISTING
177	14+362.0	14.76	RT	705.010	400.082	235.803	234.350
178	14+395.0	11.01	LT	705.010	400.082	235.704	234.200
179	14+395.0	14.76	RT	701.010	400.082	235.704	234.015
180	14+450.0	14.76	LT	701.010	401.082	234.979	233.334
181	14+435.0	14.76	RT	701.010	400.082	235.221	233.487

x x x ELEVATIONS ARE EXISTING TOP OF COVER (APPROXIMATE)



KEY PLAN
N.T.S.



233.872	234.362	234.793	235.163	235.474	235.725	235.917	236.048	236.121	236.133	236.086	235.979	235.812	235.585	235.299	℄ PROP EL.
232.901	233.554	234.167	234.741	235.257	235.662	235.978	236.139	236.209	236.185	236.117	235.970	235.723	235.472	235.245	℄ EXIST EL.
14+160	14+180	14+200	14+220	14+240	14+260	14+280	14+300	14+320	14+340	14+360	14+380	14+400	14+420	14+440	CHAINAGE

SERVICE DATA

SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS	AUG 2014	S.Y
STORM SEWERS	NOV 2012	S.Y	BELL U/G CABLE	JAN 2017	S.Y
WATERMAINS	FEB 2010	S.Y	HYDRO U/G CABLE	OCT 2015	S.Y
TRANSIT			HYDRO ONE	OCT 2015	S.Y
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

DATE	DETAILS	INIT.
MAR 28, 2017	ISSUE FOR TENDER	J.K
APR 21, 2017	ADDENDUM 2	A.C
MAY 18, 2017	ISSUE FOR CONSTRUCTION	J.K
AUG 09, 2018	REVISION 1	A.C.
NOV 02, 2018	REVISION 2	A.C.

General Notes

- All Driveways ASPHALT Unless Otherwise Noted.
- All Service Locations Are Approximate And Must Be Located Accurately In The Field
- Denotes Building - Not Located
- Denotes Building Located Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No. Elev.

The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction Location of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

IBI Group
100 - 175 Galaxy Blvd.
Toronto ON M9W 0C9 CANADA

REGISTERED PROFESSIONAL ENGINEER J.KREUTZER MAR28,2017 PROVINCE OF ONTARIO
Designed by
Chkd.

LICENSED PROFESSIONAL ENGINEER R.G.PANDEY 100106174 MAR28,2017 PROVINCE OF ONTARIO
Designed by

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

THE REGIONAL MUNICIPALITY OF PEEL
CITY OF MISSISSAUGA WORKS DEPT.
CITY OF BRAMPTON WORKS DEPT.
TOWN OF CALEDON WORKS DEPT.
BELL CANADA
ENBRIDGE INCORPORATED-GAS DISTRIBUTION
ONTARIO MINISTRY OF TRANSPORTATION
ONTARIO CLEAN WATER AGENCY
HYDRO ONE NETWORKS
ENERSOURCE, HYDRO MISSISSAUGA
HYDRO ONE BRAMPTON

CABLE TELEVISION/FIBREOPTIC PROVIDERS:
BELL CANADA
ENERSOURCE TELECOM
HYDRO ONE TELECOM
ROGERS CABLE
ALLSTREAM
PSN (PUBLIC SECTOR NETWORK)
FUTUREWAY (FCI BROADBAND)

10m 0 10 20 30m — 30.00 m — HORIZONTAL SCALE
1m 0 1 2 3m — VERTICAL SCALE

Region of Peel
Working for you

MAYFIELD ROAD

(FROM EAST OF BRAMALEA ROAD TO WEST OF AIRPORT ROAD)

NEW CONSTRUCTION

STA. 14+150 TO STA. 14+450

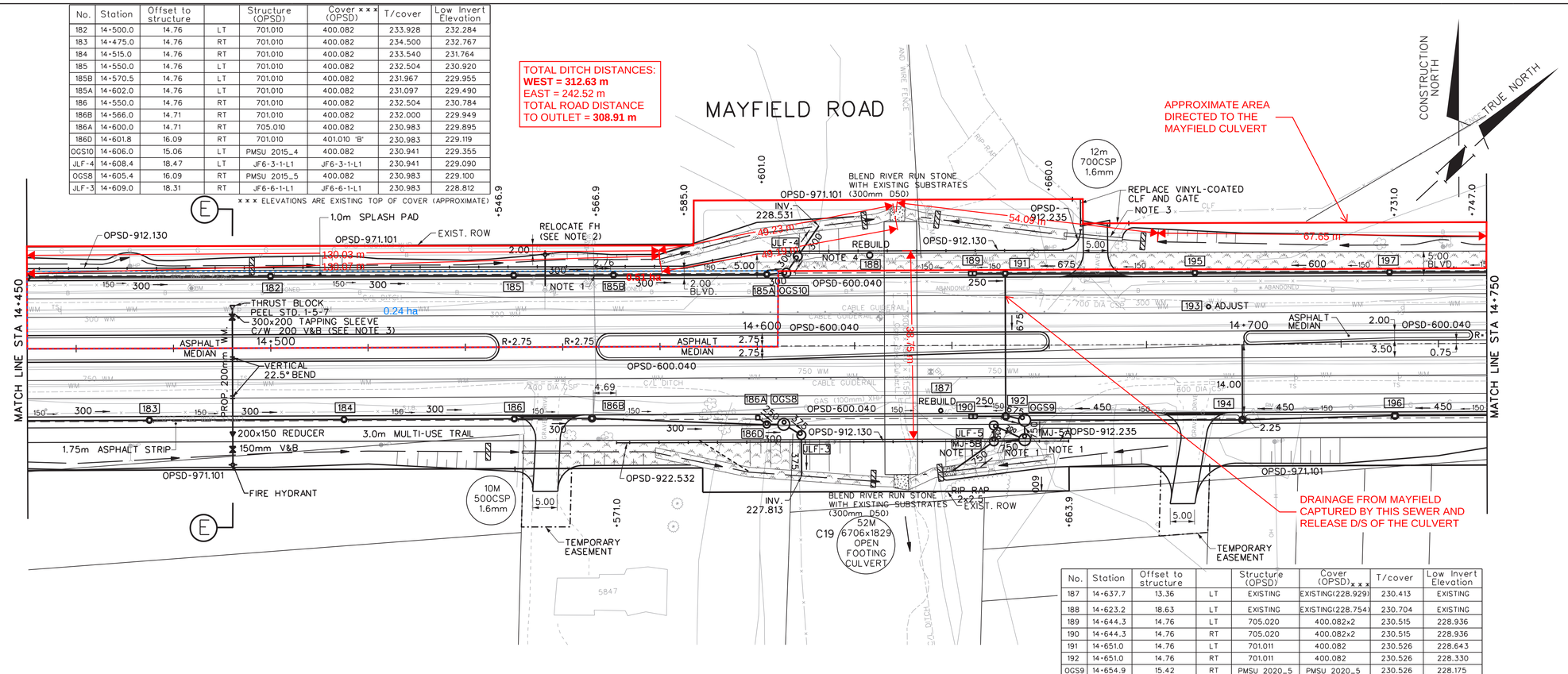
CAD Area		Area	B-29 / C-05
Checked by	J.K	Drawn by	S.Y
Date	FEB 6, 2017	Sheet	18 of 80

Project No. 06-4040
Plan No. 62272-D

No.	Station	Offset to structure		Structure (OPSD)	Cover x x x (OPSD)	T/cover	Low Invert Elevation
182	14+500.0	14.76	LT	701.010	400.082	233.928	232.284
183	14+475.0	14.76	RT	701.010	400.082	234.500	232.767
184	14+515.0	14.76	RT	701.010	400.082	233.540	231.764
185	14+550.0	14.76	LT	701.010	400.082	232.504	230.920
185B	14+570.5	14.76	LT	701.010	400.082	231.967	229.955
185A	14+602.0	14.76	LT	701.010	400.082	231.097	229.490
186	14+550.0	14.76	RT	701.010	400.082	232.504	230.784
186B	14+566.0	14.71	RT	701.010	400.082	232.000	229.949
186A	14+600.0	14.71	RT	705.010	400.082	230.983	229.895
186D	14+601.8	16.09	RT	701.010	401.010 'B'	230.983	229.119
OGS10	14+606.0	15.06	LT	PMSU 2015_4	400.082	230.941	229.355
JLF-4	14+608.4	18.47	LT	JF6-3-1-L1	JF6-3-1-L1	230.941	229.090
OGS8	14+605.4	16.09	RT	PMSU 2015_5	400.082	230.983	229.100
JLF-3	14+609.0	18.31	RT	JF6-6-1-L1	JF6-6-1-L1	230.983	228.812

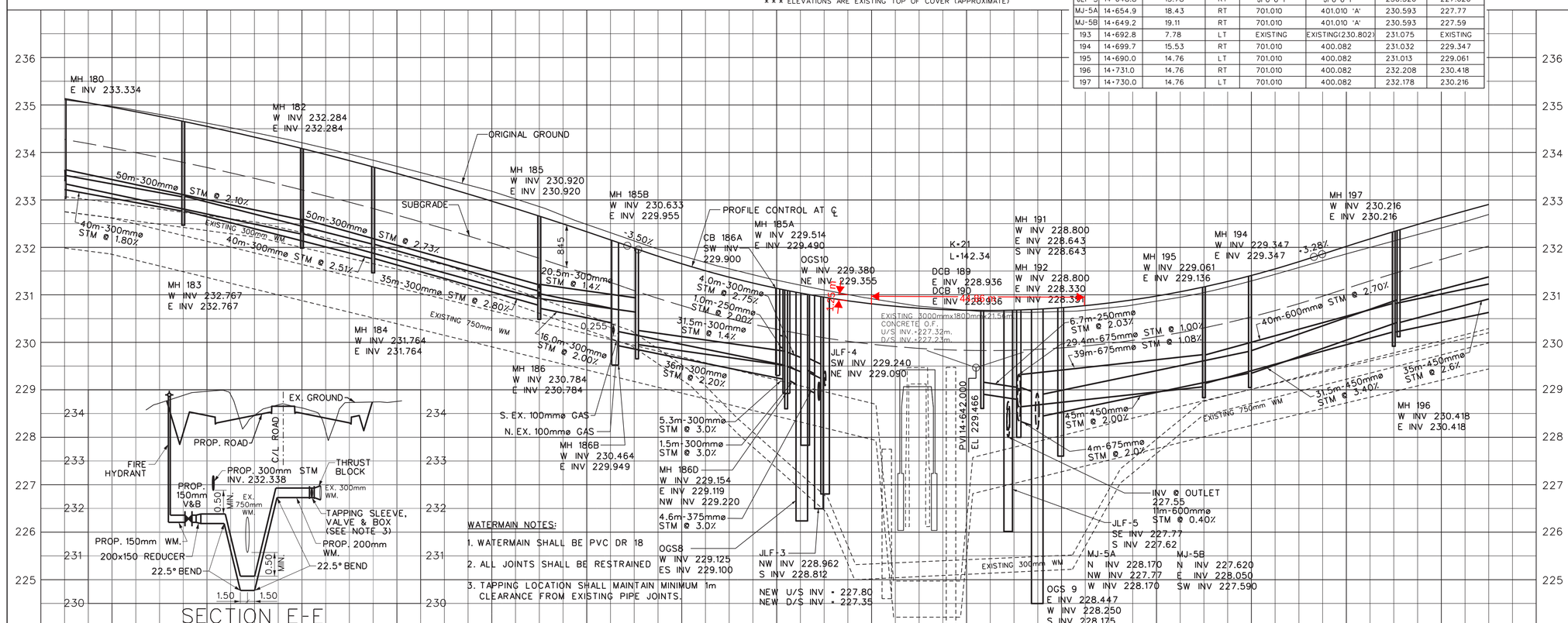
x x x ELEVATIONS ARE EXISTING TOP OF COVER (APPROXIMATE)

TOTAL DITCH DISTANCES:
WEST = 312.63 m
EAST = 242.52 m
TOTAL ROAD DISTANCE
TO OUTLET = **308.91 m**



x x x ELEVATIONS ARE EXISTING TOP OF COVER (APPROXIMATE)

No.	Station	Offset to structure		Structure (OPSD)	Cover (OPSD) x x x	T/cover	Low Invert Elevation
187	14+637.7	13.36	LT	EXISTING	EXISTING(228.929)	230.413	EXISTING
188	14+623.2	18.63	LT	EXISTING	EXISTING(228.754)	230.704	EXISTING
189	14+644.3	14.76	LT	705.020	400.082x2	230.515	228.936
190	14+644.3	14.76	RT	705.020	400.082x2	230.515	228.936
191	14+651.0	14.76	LT	701.011	400.082	230.526	228.643
192	14+651.0	14.76	RT	701.011	400.082	230.526	228.330
OGS9	14+654.9	15.42	RT	PMSU 2020_5	PMSU 2020_5	230.526	228.175
JLF-5	14+648.8	15.78	RT	JF6-6-1	JF6-6-1	230.526	227.620
MJ-5A	14+654.9	18.43	RT	701.010	401.010 'A'	230.593	227.77
MJ-5B	14+649.2	19.11	RT	701.010	401.010 'A'	230.593	227.59
193	14+692.8	7.78	LT	EXISTING	EXISTING(230.802)	231.075	EXISTING
194	14+699.7	15.53	RT	701.010	400.082	231.032	229.347
195	14+690.0	14.76	LT	701.010	400.082	231.013	229.061
196	14+731.0	14.76	RT	701.010	400.082	232.208	230.418
197	14+730.0	14.76	LT	701.010	400.082	232.178	230.216



WATERMAIN NOTES:

1. WATERMAIN SHALL BE PVC DR 18
2. ALL JOINTS SHALL BE RESTRAINED
3. TAPPING LOCATION SHALL MAINTAIN MINIMUM 1m CLEARANCE FROM EXISTING PIPE JOINTS.

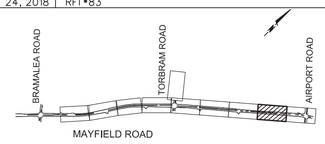
234.954	234.548	234.083	233.558	232.973	232.329	231.655	231.138	230.811	230.675	230.729	230.974	231.409	232.021	232.627	℄ PROP EL.
234.970	234.616	234.204	233.706	233.182	232.482	231.823	231.309	230.918	230.674	230.649	230.868	231.293	231.861	232.406	℄ EXIST EL.
14+460	14+480	14+500	14+520	14+540	14+560	14+580	14+600	14+620	14+640	14+660	14+680	14+700	14+720	14+740	CHAINAGE

SERVICE DATA

SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

DATE	DETAILS	INIT.
MAY 18, 2017	ISSUE FOR CONSTRUCTION	J.K
JUN 22, 2017	REVISION 1	J.K
AUG 31, 2017	REVISION 2	R.P.
JUNE 19, 2018	REVISION 3	R.P.
AUG 30, 2018	REVISION 4	A.C.
SEP 24, 2018	RFI #83	A.C.



KEY PLAN
N.T.S.

NOTES:

1. FIRE HYDRANT LEAD TO BE BELOW NEW STORM SEWER. CONFIRM LOCATION AND ELEVATION OF EXISTING BELL CONDUIT PRIOR TO RELOCATING FIRE HYDRANT AND ADVISE ENGINEER OF CONFLICT, IF ANY.
2. CONFIRM EXISTING BELL LINE LOCATION AND ELEVATION PRIOR TO INSTALLING CULVERT, AND ADVISE ENGINEER OF CONFLICT, IF ANY.

General Notes

- All Driveways ASPHALT Unless Otherwise Noted.
- All Service Locations Are Approximate And Must Be Located Accurately In The Field
- Denotes Building - Not Located
- Denotes Building Located Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No. Elev.

The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction Location of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

IBI Group
100 - 175 Galaxy Blvd.
Toronto ON M9W 0C9 CANADA

REGISTERED PROFESSIONAL ENGINEER J.KREUTZER MAR28,2017 PROVINCE OF ONTARIO — Designed by — Chkd.

LICENSED PROFESSIONAL ENGINEER R.G.PANDEY 100106174 MAR28,2017 PROVINCE OF ONTARIO — Designed by

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

THE REGIONAL MUNICIPALITY OF PEEL
CITY OF MISSISSAUGA WORKS DEPT.
CITY OF BRAMPTON WORKS DEPT.
TOWN OF CALEDON WORKS DEPT.
BELL CANADA
ENBRIDGE INCORPORATED-GAS DISTRIBUTION
ONTARIO MINISTRY OF TRANSPORTATION
ONTARIO CLEAN WATER AGENCY
HYDRO ONE NETWORKS
ENERSOURCE HYDRO MISSISSAUGA
HYDRO ONE BRAMPTON

CABLE TELEVISION/FIBREOPTIC PROVIDERS:
BELL CANADA
ENERSOURCE TELECOM
HYDRO ONE TELECOM
ROGERS CABLE
ALLSTREAM
PSN (PUBLIC SECTOR NETWORK)
FUTUREWAY (FCI BROADBAND)

10m 0 10 20 30m — HORIZONTAL SCALE
1m 0 1 2 3m — VERTICAL SCALE

Region of Peel
Working for you

MAYFIELD ROAD

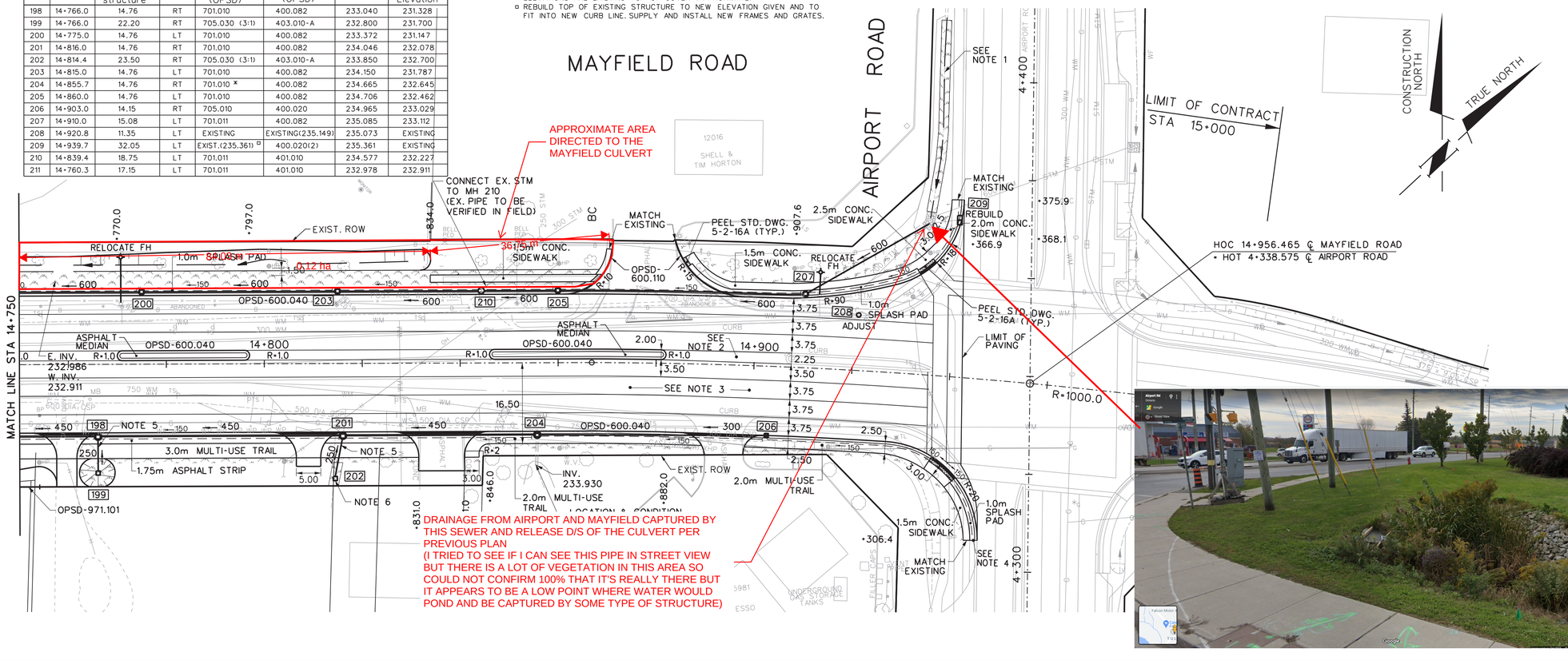
(FROM EAST OF BRAMALEA ROAD TO WEST OF AIRPORT ROAD)
NEW CONSTRUCTION

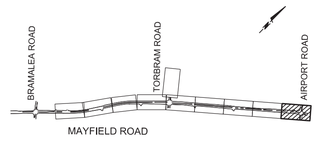
STA. 14+450 TO STA. 14+750

CAD Area	Area	B-29 / C-05	Project No. 06-4040
Checked by J.K	Drawn by	S.Y	
Date FEB 6, 2017	Sheet	19 of 80	Plan No. 62273-D

No.	Station	Offset to structure		Structure (OPSD)	Cover ×××(OPSD)	T/cover	Low Invert Elevation
198	14+766.0	14.76	RT	701.010	400.082	233.040	231.328
199	14+766.0	22.20	RT	705.030 (3:1)	403.010-A	232.800	231.700
200	14+775.0	14.76	LT	701.010	400.082	233.372	231.147
201	14+816.0	14.76	RT	701.010	400.082	234.046	232.078
202	14+814.4	23.50	RT	705.030 (3:1)	403.010-A	233.850	232.700
203	14+815.0	14.76	LT	701.010	400.082	234.150	231.787
204	14+855.7	14.76	RT	701.010 ×	400.082	234.665	232.645
205	14+860.0	14.76	LT	701.010	400.082	234.706	232.462
206	14+903.0	14.15	RT	705.010	400.020	234.965	233.029
207	14+910.0	15.08	LT	701.011	400.082	235.085	233.112
208	14+920.8	11.35	LT	EXISTING	EXISTING(235.149)	235.073	EXISTING
209	14+939.7	32.05	LT	EXIST.(235.361) □	400.020(2)	235.361	EXISTING
210	14+839.4	18.75	LT	701.011	401.010	234.577	232.227
211	14+760.3	17.15	LT	701.011	401.010	232.978	232.911

× CONNECT EXISTING CSP FROM SOUTH SIDE TO NEW MH
××× ELEVATIONS ARE EXISTING TOP OF COVER (APPROXIMATE)
□ REBUILD TOP OF EXISTING STRUCTURE TO NEW ELEVATION GIVEN AND TO FIT INTO NEW CURB LINE. SUPPLY AND INSTALL NEW FRAMES AND GRATES.





KEY PLAN
N.T.S.

SERVICE DATA

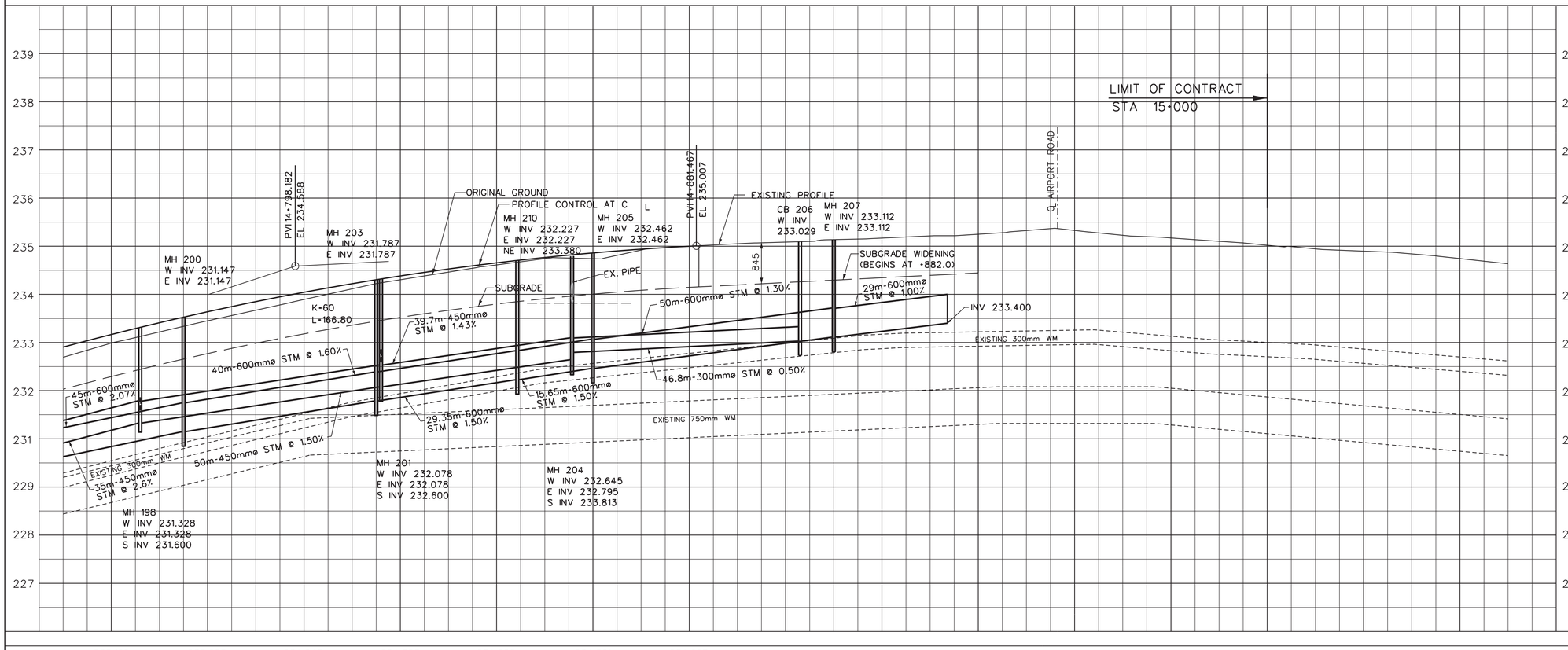
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS	AUG 2014	S.Y
STORM SEWERS	NOV 2012	S.Y	BELL U/G CABLE	JAN 2017	S.Y
WATERMAINS	FEB 2010	S.Y	HYDRO U/G CABLE	OCT 2015	S.Y
TRANSIT			HYDRO ONE	OCT 2015	S.Y
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

DATE	DETAILS	INIT.
MAR 28, 2017	ISSUE FOR TENDER	J.K
MAY 18, 2017	ISSUE FOR CONSTRUCTION	J.K

NOTES:

1. CLEAN OUT DITCH TO A MINIMUM DEPTH OF 150mm FOR 1m WIDTH EACH SIDE OF EXISTING DITCH CENTRE AND REGRADE OVER THE LENGTH INDICATED TO PROVIDE A UNIFORM SLOPE TO NEW STORM SEWER INLET. TOPSOIL AND SOD 1m ON EACH SIDE OF REGRADED DITCH CENTRE. REMOVE, SALVAGE AND REPLACE RIP-RAP AT NEW 600mm STORM SEWER INLET. MAINTAIN EXISTING STORM OUTFALLS IN RIP-
EA.
14+882.0 TO 14+907.6 MAYFIELD ROAD
DENS FROM 5.5m(2x2.75m) TO 5.75m
TO MATCH EXISTING MEDIAN.
OADWAY TO BE FULLY EXCAVATED AND
EST OF STA. 14+882.0. EXISTING ROADWAY
NTAINED EAST OF STA. 14+882.0 EXCEPT
NG EXISTING SURFACE 50mm AND
NG WITH 50mm HL-1 UP TO LIMIT OF
STING SUBDRAINS UNDER EXISTING
EDGE ALONG WITH THEIR OUTLETS TO BE
BETWEEN 14+830 AND LIMIT OF PAVING AND
WITH GRANULAR 'B' TYPE II.
XISTING SUBDRAIN FLOWING SOUTH ON
OAD AND JOIN NEW SUBDRAIN TO IT.
XISTING GASMAIN LOCATION AND ELEVATION
INSTALLING STORM SEWER AND ADJACENT
S, AND ADVISE ENGINEER OF CONFLICT,
ISTING SUMP PUMP DRAINAGE PIPE,
G FROM 5955 MAYFIELD ROAD TO EXISTING
H AT 14+815±. INTERCEPT, CUT, AND
TO NEW DI NO. 211A. DISPOSE OF SURPLUS.



233.166	233.638	234.047	234.383	234.655	234.861	234.997											℄ PROP EL.
232.989	233.452	233.895	234.303	234.613	234.840	235.000	235.086	235.168	235.249	235.328							℄ EXIST EL.
14+760	14+780	14+800	14+820	14+840	14+860	14+880	14+900	14+920	14+940	14+960	14+980	15+000	15+020	15+040			CHAINAGE

IBI Group
100 - 175 Galaxy Blvd.
Toronto ON M9W 0C9 CANADA

REGISTERED PROFESSIONAL ENGINEER J.KREUTZER MAR28,2017 PROVINCE OF ONTARIO
Designed by ____ Chkd. ____

LICENSED PROFESSIONAL ENGINEER R.G.PANDEY 100106174 MAR28,2017 PROVINCE OF ONTARIO
Designed by ____

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

THE REGIONAL MUNICIPALITY OF PEEL
CITY OF MISSISSAUGA WORKS DEPT.
CITY OF BRAMPTON WORKS DEPT.
TOWN OF CALEDON WORKS DEPT.
BELL CANADA
ENBRIDGE INCORPORATED-GAS DISTRIBUTION
ONTARIO MINISTRY OF TRANSPORTATION
ONTARIO CLEAN WATER AGENCY
HYDRO ONE NETWORKS
ENERSOURCE, HYDRO MISSISSAUGA
HYDRO ONE BRAMPTON

CABLE TELEVISION/FIBREOPTIC PROVIDERS:
BELL CANADA
ENERSOURCE TELECOM
HYDRO ONE TELECOM
ROGERS CABLE
ALLSTREAM
PSN (PUBLIC SECTOR NETWORK)
FUTUREWAY (FCI BROADBAND)

10m 0 10 20 30m — HORIZONTAL SCALE
1m 0 1 2 3m — VERTICAL SCALE

Region of Peel
Working for you

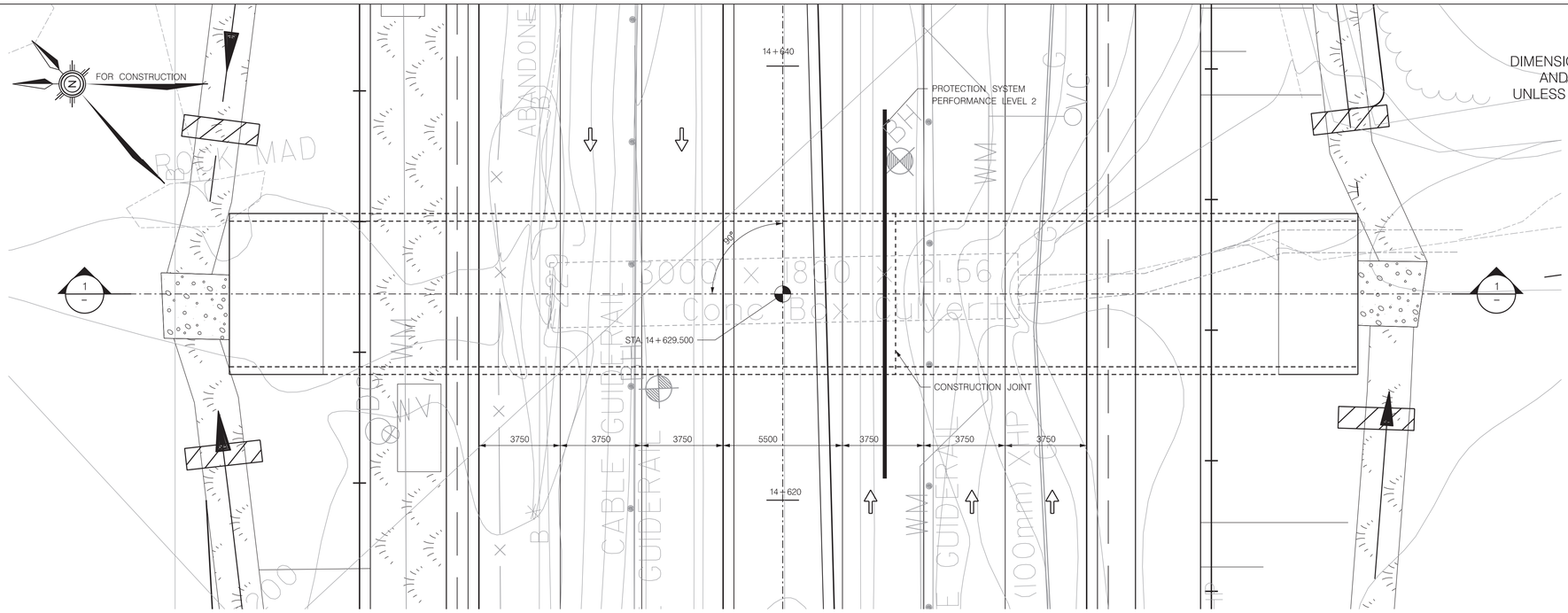
MAYFIELD ROAD

(FROM EAST OF BRAMALEA ROAD TO WEST OF AIRPORT ROAD)

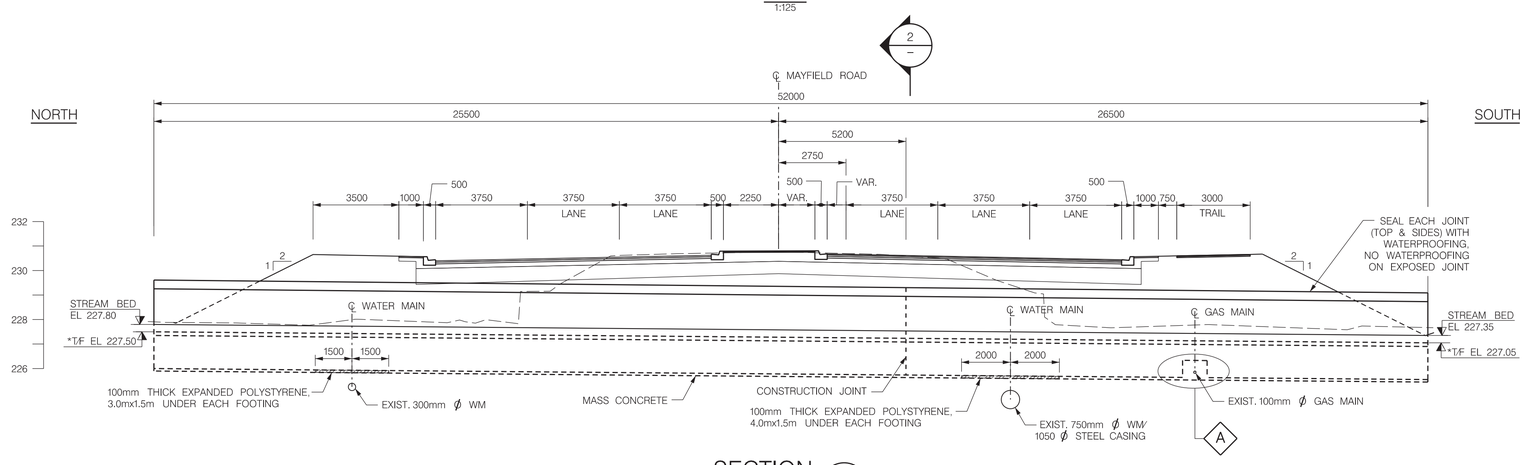
NEW CONSTRUCTION

STA. 14+750 TO STA. 15+000

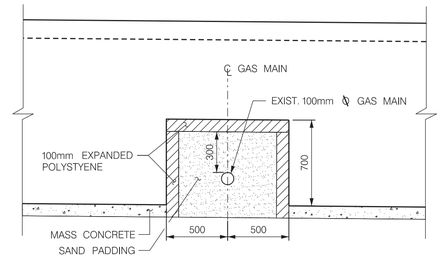
CAD Area	Area B-29 / C-05	Project No.	06-4040
Checked by J.K	Drawn by S.Y		
Date FEB 6, 2017	Sheet 20 of 80	Plan No.	62274-D

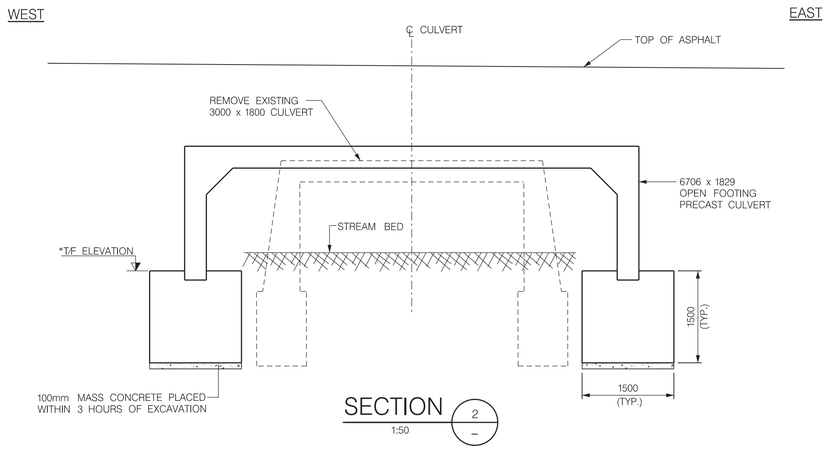


PLAN
1:125

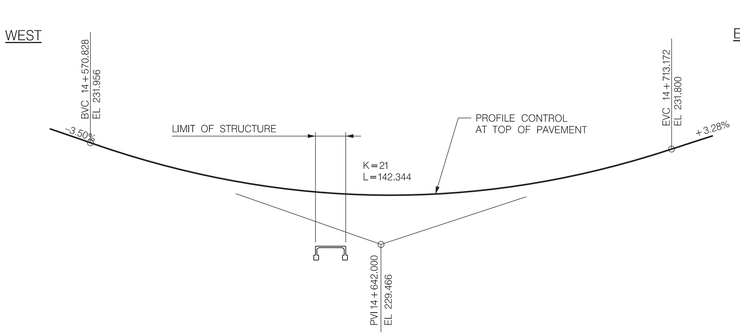


SECTION 1
1:125





SECTION 2
1:50



PROFILE OF MAYFIELD ROAD
N.T.S.

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

METRIC

DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

REVISIONS		
DATE	DETAILS	INIT.
MAR. 28, 2017	ISSUED FOR TENDER	D.M.
MAY 18, 2017	ISSUED FOR CONSTRUCTION	D.M.
JULY 7, 2017	REV 1: OPENING FOR GAS MAIN	D.M.
NOV 21, 2017	REV 2: OPENING FOR GAS MAIN	D.M.
MAR 21, 2018	REV 3: OPENING FOR GAS MAIN	D.M.
APR 19, 2018	REV 4: MNR REVISION	D.M.

GENERAL NOTES

DESIGN CODE : CHBDC CAN/CSA–S6–06
DESIGN LOAD : CL–625–ONT

CLASS OF CONCRETE

MASS CONCRETE 20MPa
PRECAST CONCRETE 35MPa
ALL CONCRETE (UNLESS OTHERWISE NOTED) 35MPa

CLEAR COVER TO REINFORCING STEEL

FOOTINGS ..... 100 ± 25mm
PRECAST CONCRETE..... 40 ± 10mm
REMAINDER (UNLESS OTHERWISE NOTED)..... 70 ± 20mm

REINFORCING STEEL

REINFORCING STEEL SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.

UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES SHALL BE CLASS B.

BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWING SS12–1, UNLESS INDICATED OTHERWISE.

CONSTRUCTION NOTES

REMOVAL OF CULVERT AND ANY IN–WATER WORK IS PERMITED ONLY BETWEEN JULY 1 AND SEPTEMBER 15 UNLESS OTHERWISE GRANTED IN WRITING BY MNR.

BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH SIDES OF THE CULVERT KEEPING THE HEIGHT OF THE BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN BACKFILL ELEVATION BE GREATER THAN 500mm.

FOR STAGING AND MAINTENANCE OF TRAFFIC, SEE CONSTRUCTION STAGING DRAWINGS.

APPLICABLE STANDARD DRAWINGS

OPSD – 803.010 BACKFILL AND COVER FOR CONCRETE CULVERTS

IBI Group
100-175 Galaxy Boulevard
Toronto ON M9W 0C9 Canada

LICENSED PROFESSIONAL ENGINEER
H. WANG
100147413
Mar. 21, 2018
PROVINCE OF ONTARIO
Designed by

LICENSED PROFESSIONAL ENGINEER
D.B. MOORE
Apr. 19, 2018
PROVINCE OF ONTARIO
Approved by

Region of Peel
Working for you

MAYFIELD ROAD

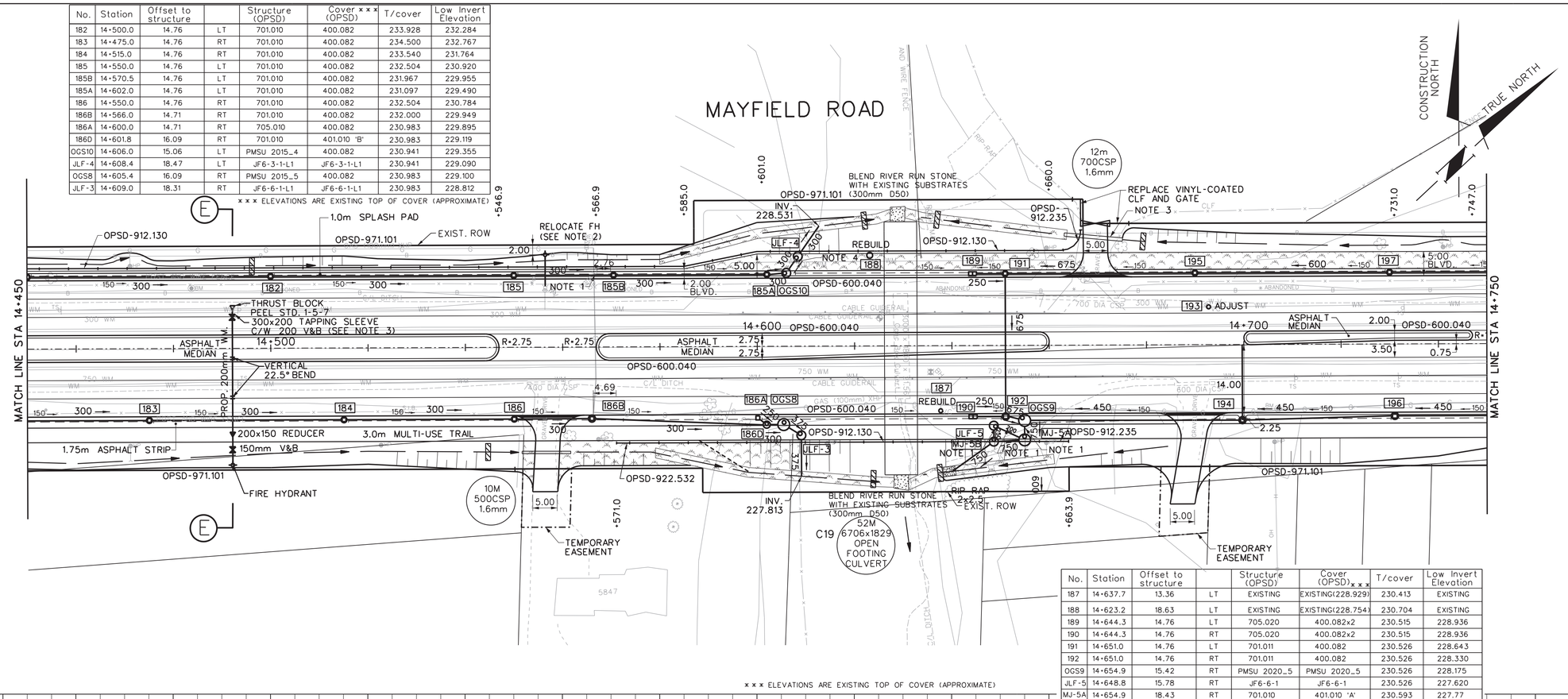
CULVERT AT 14 + 629.5
WEST OF AIRPORT ROAD (C–19)
GENERAL ARRANGEMENT

CAD Area	Area B-29 / C-05	Project No.	06-4040
Checked by D.B.M.	Drawn by A.M.S.		
Date FEB 6, 2017	Sheet 47 of 80	Plan No.	62301-D

DGN$SPEC*123456789012345678901234567890123456789012
9:35:50 AM 2019-03-06 USER:adeleh.shirazi

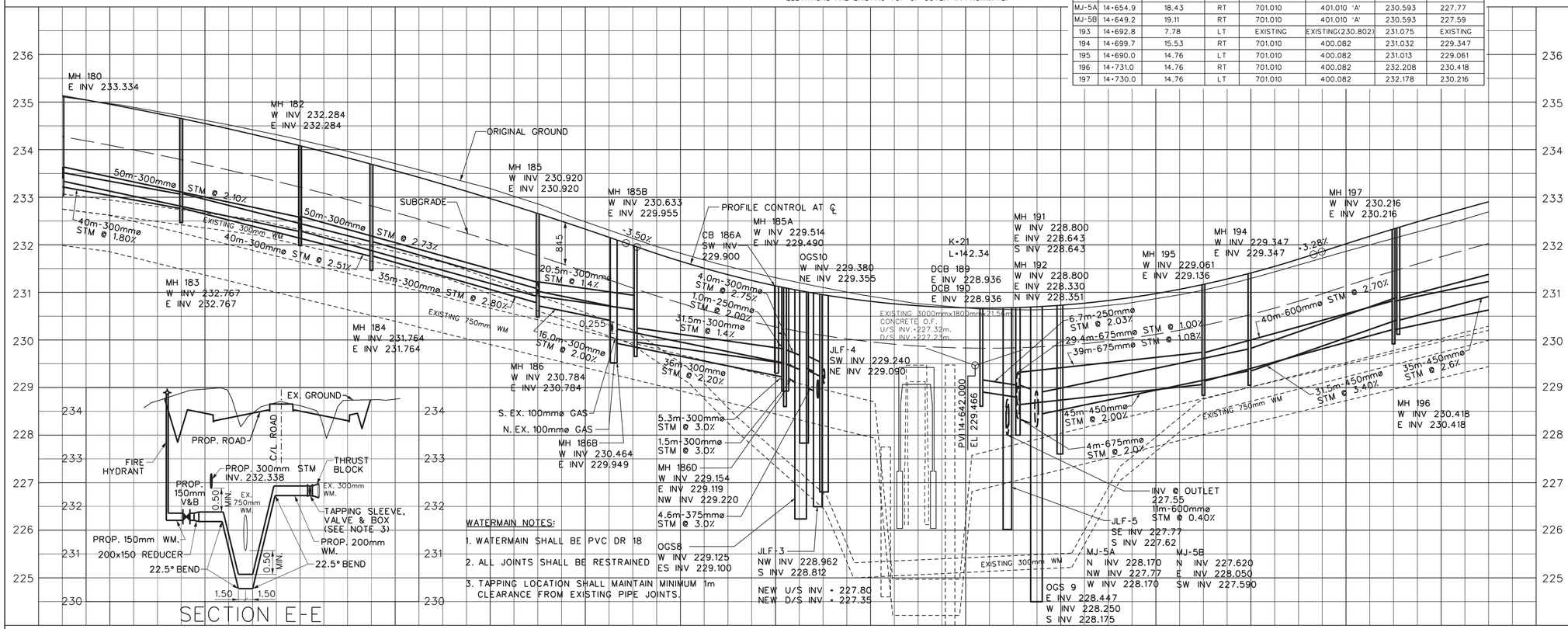
No.	Station	Offset to structure		Structure (OPSD)	Cover x x x (OPSD)	T/cover	Low Invert Elevation
182	14+500.0	14.76	LT	701.010	400.082	233.928	232.284
183	14+475.0	14.76	RT	701.010	400.082	234.500	232.767
184	14+515.0	14.76	RT	701.010	400.082	233.540	231.764
185	14+550.0	14.76	LT	701.010	400.082	232.504	230.920
185B	14+570.5	14.76	LT	701.010	400.082	231.967	229.955
185A	14+602.0	14.76	LT	701.010	400.082	231.097	229.490
186	14+550.0	14.76	RT	701.010	400.082	232.504	230.784
186B	14+566.0	14.71	RT	701.010	400.082	232.000	229.949
186A	14+600.0	14.71	RT	705.010	400.082	230.983	229.895
186D	14+601.8	16.09	RT	701.010	401.010 'B'	230.983	229.119
OGS10	14+606.0	15.06	LT	PMSU 2015_4	400.082	230.941	229.355
JLF-4	14+608.4	18.47	LT	JF6-3-1-L1	JF6-3-1-L1	230.941	229.090
OGS8	14+605.4	16.09	RT	PMSU 2015_5	400.082	230.983	229.100
JLF-3	14+609.0	18.31	RT	JF6-6-1-L1	JF6-6-1-L1	230.983	228.812

x x x ELEVATIONS ARE EXISTING TOP OF COVER (APPROXIMATE)



No.	Station	Offset to structure		Structure (OPSD)	Cover (OPSD) x x x	T/cover	Low Invert Elevation
187	14+637.7	13.36	LT	EXISTING	EXISTING(228.929)	230.413	EXISTING
188	14+623.2	18.63	LT	EXISTING	EXISTING(228.754)	230.704	EXISTING
189	14+644.3	14.76	LT	705.020	400.082x2	230.515	228.936
190	14+644.3	14.76	RT	705.020	400.082x2	230.515	228.936
191	14+651.0	14.76	LT	701.011	400.082	230.526	228.643
192	14+651.0	14.76	RT	701.011	400.082	230.526	228.330
OGS9	14+654.9	15.42	RT	PMSU 2020_5	PMSU 2020_5	230.526	228.175
JLF-5	14+648.8	15.78	RT	JF6-6-1	JF6-6-1	230.526	227.620
MJ-5A	14+654.9	18.43	RT	701.010	401.010 'A'	230.593	227.77
MJ-5B	14+649.2	19.11	RT	701.010	401.010 'A'	230.593	227.59
193	14+692.8	7.78	LT	EXISTING	EXISTING(230.802)	231.075	EXISTING
194	14+699.7	15.53	RT	701.010	400.082	231.032	229.347
195	14+690.0	14.76	LT	701.010	400.082	231.013	229.061
196	14+731.0	14.76	RT	701.010	400.082	232.208	230.418
197	14+730.0	14.76	LT	701.010	400.082	232.178	230.216

x x x ELEVATIONS ARE EXISTING TOP OF COVER (APPROXIMATE)



WATERMAIN NOTES:

1. WATERMAIN SHALL BE PVC DR 18
2. ALL JOINTS SHALL BE RESTRAINED
3. TAPPING LOCATION SHALL MAINTAIN MINIMUM 1m CLEARANCE FROM EXISTING PIPE JOINTS.

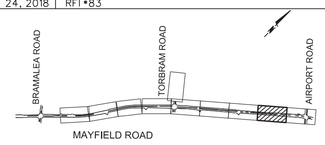
234.954	234.548	234.083	233.558	232.973	232.329	231.655	231.138	230.811	230.675	230.729	230.974	231.409	232.021	232.627	℄ PROP EL.
234.970	234.616	234.204	233.706	233.182	232.482	231.823	231.309	230.918	230.674	230.649	230.868	231.293	231.861	232.406	℄ EXIST EL.
14+460	14+480	14+500	14+520	14+540	14+560	14+580	14+600	14+620	14+640	14+660	14+680	14+700	14+720	14+740	CHAINAGE

SERVICE DATA

SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

DATE	DETAILS	INIT.
MAY 18, 2017	ISSUE FOR CONSTRUCTION	J.K
JUN 22, 2017	REVISION 1	J.K
AUG 31, 2017	REVISION 2	R.P.
JUNE 19, 2018	REVISION 3	R.P.
AUG 30, 2018	REVISION 4	A.C.
SEP 24, 2018	RFI•83	A.C.



KEY PLAN
N.T.S.

NOTES:

1. FIRE HYDRANT LEAD TO BE BELOW NEW STORM SEWER. CONFIRM LOCATION AND ELEVATION OF EXISTING BELL CONDUIT PRIOR TO RELOCATING FIRE HYDRANT AND ADVISE ENGINEER OF CONFLICT, IF ANY.
2. CONFIRM EXISTING BELL LINE LOCATION AND ELEVATION PRIOR TO INSTALLING CULVERT, AND ADVISE ENGINEER OF CONFLICT, IF ANY.

General Notes

- All Driveways ASPHALT Unless Otherwise Noted.
- All Service Locations Are Approximate And Must Be Located Accurately In The Field
- Denotes Building - Not Located
- Denotes Building Located Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No. Elev.

The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction Location of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

IBI Group
100 - 175 Galaxy Blvd.
Toronto ON M9W 0C9 CANADA

REGISTERED PROFESSIONAL ENGINEER J.KREUTZER MAR28,2017 PROVINCE OF ONTARIO — Designed by — Chkd.

LICENCED PROFESSIONAL ENGINEER R.G.PANDEY 100106174 MAR28,2017 PROVINCE OF ONTARIO — Designed by

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

THE REGIONAL MUNICIPALITY OF PEEL	CABLE TELEVISION/FIBREOPTIC PROVIDERS:
CITY OF MISSISSAUGA WORKS DEPT.	BELL CANADA
CITY OF BRAMPTON WORKS DEPT.	ENERSOURCE TELECOM
TOWN OF CALEDON WORKS DEPT.	HYDRO ONE TELECOM
BELL CANADA	ROGERS CABLE
ENBRIDGE INCORPORATED-GAS DISTRIBUTION	ALLSTREAM
ONTARIO MINISTRY OF TRANSPORTATION	PSN (PUBLIC SECTOR NETWORK)
ONTARIO CLEAN WATER AGENCY	FUTUREWAY (FCI BROADBAND)
HYDRO ONE NETWORKS	
ENERSOURCE HYDRO MISSISSAUGA	
HYDRO ONE BRAMPTON	

10m 0 10 20 30m — HORIZONTAL SCALE

1m 0 1 2 3m — VERTICAL SCALE

Region of Peel
Working for you

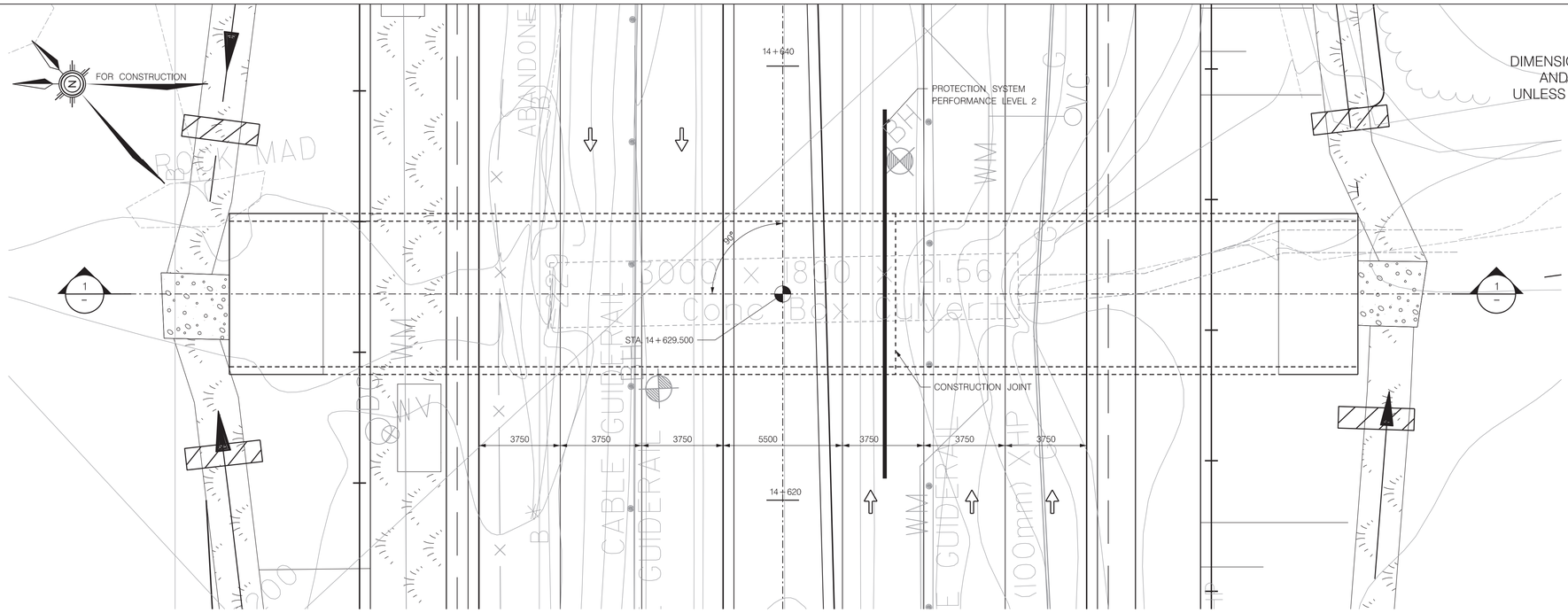
MAYFIELD ROAD

(FROM EAST OF BRAMALEA ROAD TO WEST OF AIRPORT ROAD)

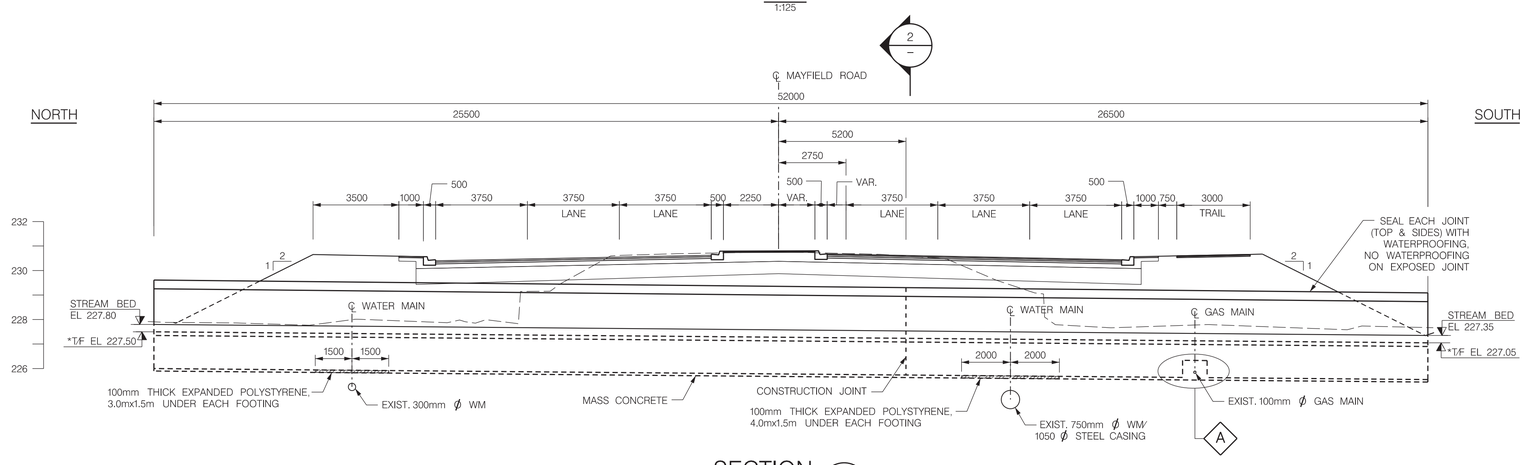
NEW CONSTRUCTION

STA. 14+450 TO STA. 14+750

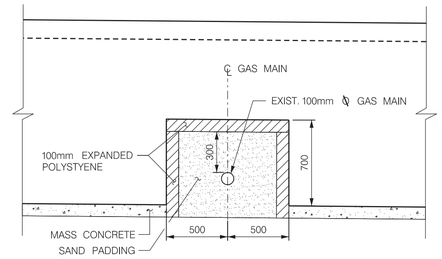
CAD Area	Area B-29 / C-05	Project No.	06-4040
Checked by J.K	Drawn by S.Y		
Date FEB 6, 2017	Sheet 19 of 80	Plan No.	62273-D

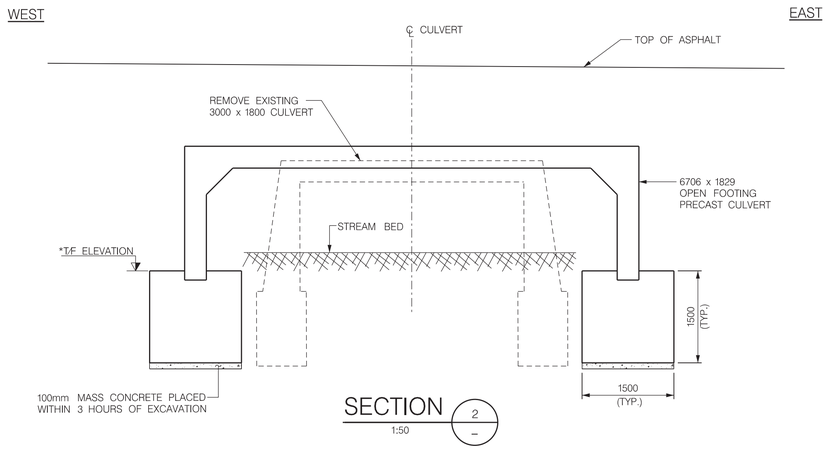


PLAN
1:125

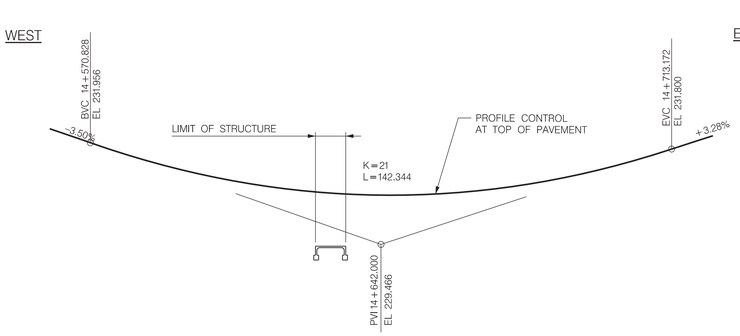


SECTION 1
1:125





SECTION 2
1:50



PROFILE OF MAYFIELD ROAD
N.T.S.

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

METRIC

DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

REVISIONS		
DATE	DETAILS	INIT.
MAR. 28, 2017	ISSUED FOR TENDER	D.M.
MAY 18, 2017	ISSUED FOR CONSTRUCTION	D.M.
JULY 7, 2017	REV 1: OPENING FOR GAS MAIN	D.M.
NOV 21, 2017	REV 2: OPENING FOR GAS MAIN	D.M.
MAR 21, 2018	REV 3: OPENING FOR GAS MAIN	D.M.
APR 19, 2018	REV 4: MNR REVISION	D.M.

GENERAL NOTES

DESIGN CODE : CHBDC CAN/CSA–S6–06
DESIGN LOAD : CL–625–ONT

CLASS OF CONCRETE

MASS CONCRETE 20MPa
PRECAST CONCRETE 35MPa
ALL CONCRETE (UNLESS OTHERWISE NOTED) 35MPa

CLEAR COVER TO REINFORCING STEEL

FOOTINGS ..... 100 ± 25mm
PRECAST CONCRETE..... 40 ± 10mm
REMAINDER (UNLESS OTHERWISE NOTED)..... 70 ± 20mm

REINFORCING STEEL

REINFORCING STEEL SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.

UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES SHALL BE CLASS B.

BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWING SS12–1, UNLESS INDICATED OTHERWISE.

CONSTRUCTION NOTES

REMOVAL OF CULVERT AND ANY IN–WATER WORK IS PERMITED ONLY BETWEEN JULY 1 AND SEPTEMBER 15 UNLESS OTHERWISE GRANTED IN WRITING BY MNR.

BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH SIDES OF THE CULVERT KEEPING THE HEIGHT OF THE BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN BACKFILL ELEVATION BE GREATER THAN 500mm.

FOR STAGING AND MAINTENANCE OF TRAFFIC, SEE CONSTRUCTION STAGING DRAWINGS.

APPLICABLE STANDARD DRAWINGS

OPSD – 803.010 BACKFILL AND COVER FOR CONCRETE CULVERTS

IBI Group
100-175 Galaxy Boulevard
Toronto ON M9W 0C9 Canada

LICENSED PROFESSIONAL ENGINEER
H. WANG
100147413
Mar. 21, 2018
PROVINCE OF ONTARIO
Designed by

LICENSED PROFESSIONAL ENGINEER
D.B. MOORE
Apr. 19, 2018
PROVINCE OF ONTARIO
Approved by

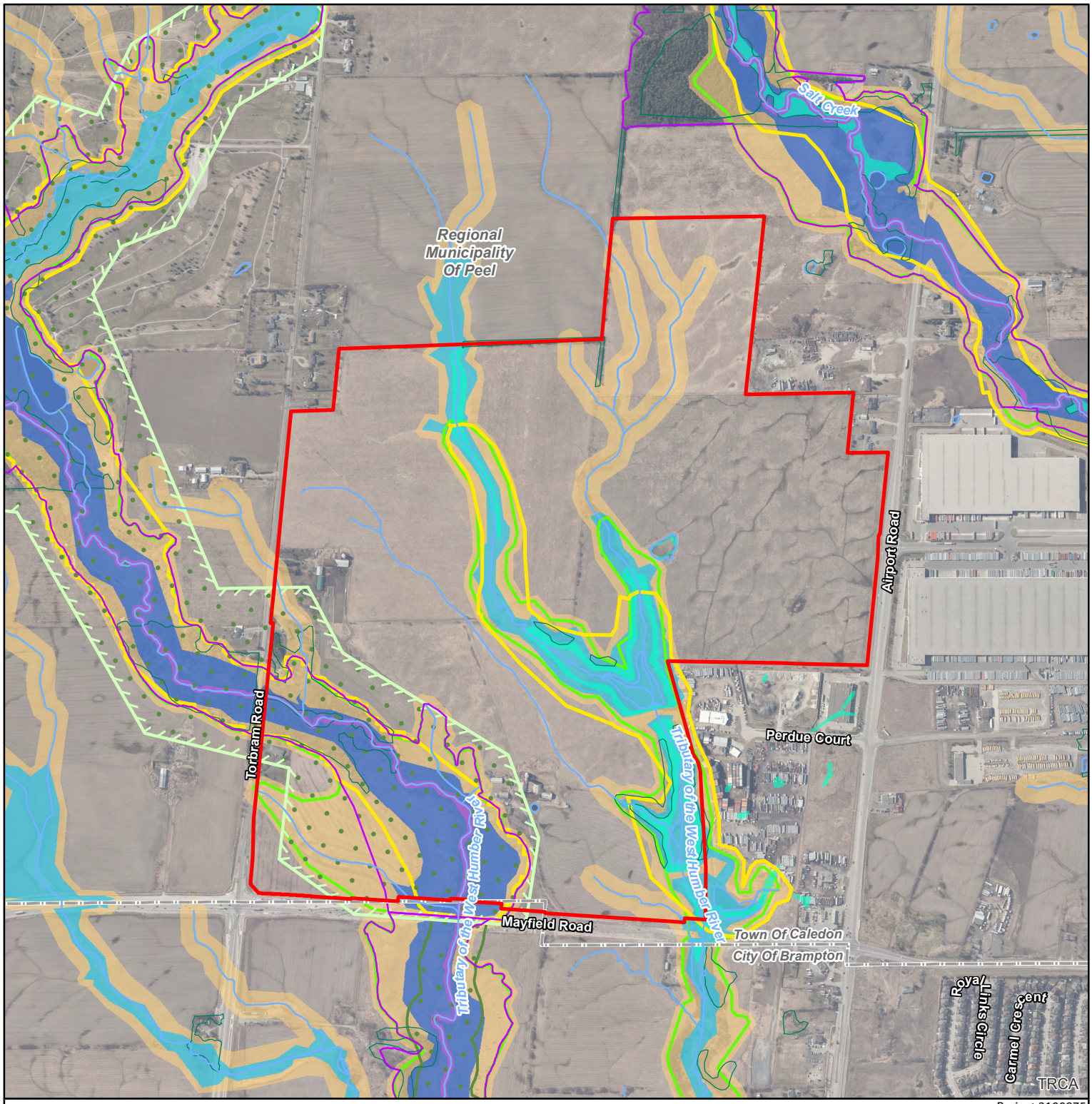
Region of Peel
Working for you

MAYFIELD ROAD

CULVERT AT 14 + 629.5
WEST OF AIRPORT ROAD (C–19)
GENERAL ARRANGEMENT

CAD Area	Area B-29 / C-05	Project No.	06-4040
Checked by D.B.M.	Drawn by A.M.S.		
Date FEB 6, 2017	Sheet 47 of 80	Plan No.	62301-D

DGN$SPEC*123456789012345678901234567890123456789012
9:35:50 AM 2019-03-06 USER:adeleh.shirazi



Project 2100975

Comprehensive Environmental Impact Study and Management Plan, Tullamore Employment Lands
Tullamore Industrial LP

Figure 2
Landscape Setting

NOTES:
1. Coordinate System: NAD 1983 UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2021; Town of Caledon, 2021; Toronto Region Conservation Authority, 2021; Region of Peel, 2021.
3. Orthoimagery © First Base Solutions, 2021. Imagery taken in 2019.

Legend

- Subject Lands (approximate)
- Aquatic Species at Risk - Fish
- Watercourse (TRCA)
- Waterbody
- Wetland - Not Evaluated per OWES
- Wooded Area
- Municipal Boundary, Lower/Single Tier
- Greenbelt Boundary
- Greenbelt NHS
- Core Areas of the Greenlands System (Region of Peel)
- Environmental Policy Area (Town of Caledon)
- TRCA Regulation Limits
- Crest of Slope (TRCA)
- Meander Belt (TRCA)
- Flood Hazard (Engineered) (TRCA)
- Flood Hazard (Estimated) (TRCA)

0 200 m
1:12,000

GEI Consultants
Savanta Division

Path: C:\SAVANTA\2100975 - Tullamore Emp Lands\figures\report_figures\2021 06 22 eis\2100975_rpt_fig02_landscape_setting.mxd Date Saved: Wednesday, November 10, 2021

CANSULT

Engineers and Project Managers

STORM WATER MANAGEMENT REPORT

43M 1670-701

Tullamore Industrial Subdivision
I.O. Investment Inc.
Town of Caledon

Project No. C3075
Revised (July 2003)

CANSULT LIMITED
60 Renfrew Drive, #300, Markham, Ontario, Canada L3R 0E1
Tel: 905.470.2010 Fax: 905.470.2060 Email: cansult@cansult.com Website: www.cansult.com

TABLE OF CONTENTS

1.0 INTRODUCTION.....1
- 1.1 General
- 1.2 Development Concept
- 1.3 Existing Internal Drainage
- 1.4 Existing External Drainage

2.0 DESIGN CRITERIA AND GUIDELINE 2

3.0 HYDROLOGY.....4
- 3.1 Minor System
- 3.2 Major System
- 3.3 Pond Control

4.0 EROSION AND SEDIMENTATION CONTROL.....5

5.0 CONCLUSIONS.....7

TABLES

Table 1 – Pond Operational Characteristics (Table 4.2 of MESP report)

Table 2 – Revised Pond No. 2 Operational Characteristics

Table 3 – Proposed Storage and Outflow from the Pond

DRAWINGS

3075-G3 – Storm Drainage Area Plan
3075-G6 – Stormwater Management Pond
3075-G7 – Pond Details
3075-102 – Storm Sewer Easement (Sheet 1 of 2)
3075-103 – Storm Sewer Easement (Sheet 2 of 2)

APPENDICES

Appendix A – SWMHYMO Simulation Data an Outputs
- 100 Year Storm Model Detail Output
- 50 Year Storm Model Detail Output
- 25 Year Storm Model Detail Output
- 10 Year Storm Model Detail Output
- 5 Year Storm Model Detail Output
- 2 Year Storm Model Detail Output

Appendix B – Pond Stage-Storage-Discharge Curves
Appendix C – Storm Drainage Design Charts
Appendix D – Ditch Size Calculations

1.0 INTRODUCTION

1.1. General

Cansult Limited has been retained by I.O. investments Inc., to prepare a Stormwater Management Report in support of a proposed Draft Plan of Subdivision, viz.: File 21T-00001C.

The subject property is located in the Township of Caledon. The site predominately consists of farm fields. The site slopes to the south as per the existing contours for the property. The site is bordered by Airport Road to the east, Mayfield Road to the south and Humber River tributary to the east and vacant farm fields to the north.

The proposed development is part of the Tullamore Secondary Plan Area.

The stormwater management designs and details presented in this report have been prepared in accordance with the data and requirements from the following documents;

- ***Functional Servicing Report for Tullamore Industrial/Commercial Area,*** by Falby Development Services Inc.

- ***Tullamore Secondary Plan Area Master Environmental Serving Plan Area ,*** dated June 2000, by Agra Earth & Environmental Limited. This document provides design guidelines for submission for design for the proposed pond and permit submission to the regulatory agencies.

- ***Storm Drainage and Stormwater Management Practices Planning and Design Manual, June 1994.*** This document was used to assist the designer in choosing SWMP's selection to maximize the quality of storm drainage from the subject site and to prevent silt entering Humber water shed.

The main purpose of this report is to outlines the hydrologic procedures and details used in design of the pond and process for the subject site.

During the design stages, advice was sought from Town of Caledon and Toronto Region of Conservation Agency.

1.2. Development Concept

The total Site Area including the pond is slightly greater than 17 ha. The proposed development will contain five industrial lots.

Drawing C3075-G3 of the storm drainage plan shows the external area, which drains into the subject site from north and east.

The proposed pond will be located at the south edge of the subject site as shown on the subdivision drawing. The MESP has designated this pond as Pond No. 2 in their report.

The principal development concept as detailed in the Tullamore Secondary Plan area is proposed for this site. The minor storm sewer system will convey storm runoff in underground sewers and ditches. The major drainage system will convey runoff in excess of the 10-year storm via surface roadway/ditch overland flow.

Inflow into the minor drainage system will be controlled by the incorporation of lot-level controls as follows:

- Roof Areas - control to 40 l/s/ha for 100 yr storm
- Site Areas - control to 180 l/s/ha for 100 yr storm
- Allowable ponding - 0.30m max. Within parking areas

1.3. Existing Internal Drainage

Existing drainage from the subject site drains to the south and outlets into the Humber river watershed, which is located west of the subject site. In the MESP report (Figure 3.1) this tributary is called tributary 2.

1.4. Existing External Drainage

Drawing C3075-G3 of the storm drainage plan shows the external area, which drains into the subject site from north and east. Figure 3.1 in the MESP report shows the external area and the subject site area, which drains, into the Humber River watershed.

During and after the subject development the external drainage of 9.2 ha will be conveyed via proposed ditches and the proposed pipe system to Pond No. 2.

1.5. Proposed Drainage

The proposed pond will be designed to accept total drainage of 29.71 ha including the external flow of 9.2 ha from the north. As per the MESP report approximately 30.7 ha was supposed to drain to Pond No.2. This drainage area was calculated using a 1:2000 map at the time of the development of the MESP report. During the time of the MESP development, legal survey for the subject property and adjacent properties were not available. The proposed pond has a capacity to handle 10% more volume than the required volume. The revised SWMHYMO runs for the proposed Pond No.2 is included in Appendix "A". Same Hydrological input parameters from the MESP report were used for consistency. A weighted higher CN number of 88 were used for the pond area. This will compensate for the permanent pool area.

2.0 DESIGN CRITERIA AND GUIDLINE

2.1. General

The criteria for the storm drainage design has been stipulated by the MESP report for this area and the Town of Caledon standards.

- ***Release rate from the pond# 2 as per the pre development allowable flow provided in Table 1 - Table 4.2 of the MESP Report***
- ***Required pond storage volume as per the revised computer modeling is shown on Table 2***
- ***Storm drainage design for the road area as per the Town Standards. The lot release rates as per the MESP report***
- ***External flow conveyance as per the pre development condition stipulated by MESP.***
- ***Erosion and Siltation resulting from the development will be minimized both during and after construction.***

Table 1

Table 4.2
Pond Operational Characteristics

Parameter			Units	POND NO. 1	2	3
Drainage Area			ha	67.8	30.7	51.0
Average Imperviousness			%	55	63	87
Required Storage Volume	Permanent Pool		m^3	10,170	5,190	10,860
	Extended Detention	at DRC Rel. Rate	m^3	7,050	3,360	6,630
		at 2 Yr. Rel. Rate	m^3	10,580	5,040	9,950
	5 Year Storm		m^3	13,600	6,290	11,890
	10 Year Storm		m^3	15,750	7,190	13,370
	25 Year Storm		m^3	18,840	8,570	15,430
	50 Year Storm		m^3	21,280	9,550	16,980
	100 Year Storm		m^3	23,780	10,620	18,590
Release Rate	DRC		cms	0.14	0.06	0.10
	2 Year Storm		cms	0.39	0.19	0.37
	5 Year Storm		cms	0.59	0.29	0.56
	10 Year Storm		cms	0.73	0.36	0.69
	25 Year Storm		cms	0.91	0.45	0.87
	50 Year Storm		cms	1.06	0.53	1.01
	100 Year Storm		cms	1.20	0.60	1.14

DRC Distributed Runoff control

Notes:
1. Ponds 1 and 2 include external drainage area contributions in the calculation of storage volumes.
2. DRC release rate (2 L/s/ha) based on recommendations of West Humber River Subwatershed Study.
3. DRC volume calculated as 2/3 of 2 year storage volume as per recommendations of the West Humber River Subwatershed Study.

Table 2
Revised Pond No. 2 Operational characteristics for the revised area

Parameter			Units	Pond 2
Drainage Area (Revised)			ha	29.71
Average Imperviousness			%	63
Required Storage Volume	Permanent Pool		m^3	5,022
	Extended Detention	At DRC Rel. rate	m^3	2,734
		At 2 yr Rel. rate	m^3	4,201
	5 year Storm		m^3	6,087
	10 year Storm		m^3	7,225
	25 year Storm		m^3	8,692
	50 year Storm		m^3	9,788
	100 year Storm		m^3	10,970
Release Rate	DRC		m^3/Sec	0.06
	2 year Storm		m^3/Sec	0.19
	5 year Storm		m^3/Sec	0.29
	10 year Storm		m^3/Sec	0.36
	25 year Storm		m^3/Sec	0.45
	50 year Storm		m^3/Sec	0.53
	100 year Storm		m^3/Sec	0.60

3.0 HYDROLOGY

3.1. Minor System

To design the minor system, rational method was used to calculate the flows via the pipe and external flows. Approximately 9.2 ha (External area) is flowing from the north via the subdivision. The following calculation was used to calculate the external flow from the north. Elevation Difference from the northern point to the north limit of the subdivision is 246.5 – 239 = 7.5m. Total length of flow is 500m. To calculate the time of concentration the following Bransby Williams formula was used.

$$T_c = \frac{0.57L}{S_w^{0.2} A^{0.1}}$$

$T_c = 21$ min

A=9.2ha, L=500m, S_w=1.5%

$I_{10} = (2221) / (21 + 12)^{0.9080} = 92.84$ mm/hr.

$Q_{10} = 0.25 \times 92.84 \times 9.2 \times 2.778 = 593.2$ 1/sec

Say Q_{10} = 600 l/s

This external flow will drain to the pipe system via two ditches as shown on the drawings. Majority of the flow (70%) 420 l/s will drain into DICB #1 as shown and the rest 180 l/s will flow to DICB # 2.

3.2. Major System

Major flow for the subdivision will be carried via the road system and the proposed ditch system to the pond as shown. The external flows form the north and east will be carried via the ditches proposed ditches to the pond. The ditches have the capacity to carry the overland flows to the pond.

$$T_c = \frac{0.57L}{S_w^{0.2} A^{0.1}}$$

T_c=21 min

A=9.2ha, L=500m, S_w=1.5%

$I_{100}=(4668)/(21 + 17)^{0.9624} = 140.85$ mm/hr.

$Q_{100}=0.25 \times 140.85 \times 9.2 \times 2.778 = 899.9$ 1/sec

Say Q_{100} = 1000 l/s

3.3. Pond Control

For out flow from the pond, required out flow information from table 4.2 of the MESP will be used. To size the required orifices and weirs for Pond 2 outlets, the following equations will be used:

For orifice sizing:

$$Q = C_d A \sqrt{2gh}$$

For weir flow:

$$Q = C_d L H^{1.5}$$

For Sharp Crested weir flow:

$$Q = C_d (L - 0.2H) H^{1.5}$$

Appendix "B" shows all the relevant calculations for the orifice and weir. A 200mm diameter Orifice will be used to control the DRC flow. Weir flow and orifice flow will be used to control flows from storms up to 100 year including the 2-year event. Appendix "B" gives the orifice invert height and the weir invert heights and the head heights for each storm event. Drawing C3075 - G7 gives the orifice and weir details.

Appendix "B" also gives the stage-storage-discharge relation ship for the pond. Appendix "C" includes the storm drainage design charts for the project. This gives the drainage flow for the proposed ditches 1 to 5. Appendix "D" includes ditch size calculations.

Table 3

Proposed Storage and Outflow from the Pond

Storm Event	Allowable Flow(cms)	Proposed Flow(cms)	Required Ponding(m^3)	Proposed Ponding (m^3)
Perm. Pool			5,022	5,025
DRC	0.06	0.06	2,734	2,811
2 year	0.19	0.15	4,201	4,065
5 year	0.29	0.29	6,087	6,054
10 year	0.36	0.34	7,225	7,272
25 year	0.45	0.44	8,692	8,738
50 year	0.53	0.53	9,788	9,732
100 year	0.60	0.60	10,970	10,973

The above table summarises all the calculations and the flows from the site. Table 3 shows that the out flows are similar to the specified outflow values set by the MESP report.

4.0 EROSION AND SEDIMENT CONTROL

Using DRC flow release rate for the subject land enhances the erosion flow from the site. The steep slopes which is part of the subject subdivision is a primary contributing factor for erosion. The proposed configuration including the ponds and the ditches will reduce the overall erosion for the site.

Erosion occurs when channelize or overland flow reaches a critical velocity, allowing the water to transport soil from one location to another. This critical velocity varies with soil particle size and land use. In the proposed subdivision vegetal cover and other erosion control mechanism will be used. The vegetal cover will stabilize the soil by permitting the soil particles to adhere to root system as well as providing a shield between the soil and the flow. The design for channel flow to the outlet has been revised. The slopes of the overland flow channel have been reduced from previous

designs. This will reduce the overland flow velocities and will reduce the erosion along the channel.

Where high flow rates and high velocities are encountered disturbed areas can be eroded, straw bales or rock check dams shall be used to curtail erosion.

Sedimentation is the process whereby suspended soil particles settle out because the velocity of flow is less than the critical velocity required to transport them. The largest grains, such as gravel and coarse sand, are deposited first, followed by fine sand, silt, and clay. In this way stratification of eroded soil arises. This sedimentation mechanism occurs when the channel capacity increase, or the channel grade decreases, thus causing a decrease in velocity.

Where soil has been exposed and erosion is possible, structures are specified be installed in place to trap the sediments. Check dams are used for this purpose and are placed in critical locations, such as in ditches and swales. The reduction of flow velocity also accomplished by routing the water through a detention area.

Siltation and erosion problems are most critical during construction phases, when soil is exposed. During construction of the subdivision and during the industrial unit construction these measures have been specified to minimize the exposure of the soil includes;

- Limiting top soil stripping, clearing and grubbing to the current area of operation. For the proposed subdivision the road area and the area where the pipe and the ditches will be constructed, will be stripped. The rest of the area will be left intact.
- Sodding ditches and landscaping areas immediately after grading.
- Using straw bales or rip rap at outlets to swales to minimize the amount of erosion within the swale.
- Locating stockpiles of topsoil and earth cut material away from swales and other existing ditches.
- Using silt fence where required to control the movement of water borne material onto adjacent lands.
- Ensuring that no construction activity or machinery intrudes beyond the silt fence or limit of construction.
- Periodically inspecting, repairing and cleaning erosion control devise to assure that they are functioning as required, and removing it after construction and restoration activities are completed.

To achieve the erosion and sediment control goals, it is recommended that the following to be implemented for the subject site before any construction commence.

- Before any topsoil is stripped from the site, silt fence, straw bales shall be constructed as per the construction drawings.
- The pond should be constructed and used as a temporary sediment basin during construction. Silt fence and other sediment control measures should be used to curtail sediment entering the creek.
- Filter bags shall be attached to hoses where pumping is carried out from excavations; the filter bags shall be maintained on a regular basis.

5.0 CONCLUSIONS

As per Toronto Region and Conservation authority requirement, unit flow relationship derived in the Humber River Watershed Study for the West Humber River Subwatershed (Sub-Basin 36) was used for the post development outflows. Compared to the pre-development flows for this area the post development release rate has been reduced around 4 times. Due to this reason, the storage for the subject site is substantially higher than controlling the outflow to the pre-development levels.

In this report it has been demonstrated that the stormwater techniques required providing runoff control for major flows from the site will be achieved as per the MESP report. Minor and major flows will be diverted to the pond via pipe and ditch system. The ditch system, which starts at the end of the pipe system, will enhance the quality of the water entering the pond. In the pond the permanent pool component will act as another quality enhancing system.

The minor external flow from the north will enter the storm drainage system via the proposed pipe system at the north limit of the cul de sac. Most of the major system will drain to the pond via the ditches and the road system. The external flow from the east will enter the drainage system via the proposed ditch system as shown on the subdivision drawings. When the areas to the east of the pond is developed in the later stages, the drainage will be directed to the pond via pipe system or ditch system.

Pond detail drawing C3075-G7 shows the wetland outfall details as per TRCA requirements. The landscape drawings will show more details for the outfall from the pond. The required Channel flow calculations have been included in Appendix "D". MTO charts were used to size the riprap proposed along the channel. To size the grate for the Ditch inlet catch basin, which will convey the 100 year flow at the end of the overland flow route, an orifice equation was used to simulate discharge under head.

An erosion and sediment control plan has been completed and included in the subdivision drawings. This plan will be implemented before the beginning of the construction for the subdivision. As shown on this plan a cut off swale will be constructed to redirect the water from the north. When the topsoil removal and the grading for the subdivision begin, the cut off swales and the temporary ditch inlet catch basins shall be constructed as shown.

As per TRCA requirement a revised computer simulation was completed for Pond 2 area. Roof and lot area flows has been revised as per comments made by TRCA. Pond area has been adjusted to accommodate the increased volume requirements. ROUTE RESERVOIR command was used to model the pond outflow as per TRCA requirement.

Respectfully submitted,



G.Ravisuthan, P.Eng.

Appendix A
SWMHYMO Simulation Data and Outputs

100 Year Storm Model Detail Output
50 Year Storm Model Detail Output
25 Year Storm Model Detail Output
10 Year Storm Model Detail Output
5 Year Storm Model Detail Output
2 Year Storm Model Detail Output

```
================================================================================

 SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO         999    55555 =========
 S      W W W  MM MM  H   H   Y Y   MM MM  O   O       9   9   5     =========
 SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##   9   9   5     Ver.  3.1
     S   W W   M   M  H   H    Y    M   M  O   O        9999   5555  Oct. 1997
 SSSSS   W W   M   M  H   H    Y    M   M   OOO            9       5 =========
                                                       9   9       5 # 4282778
      StormWater Management HYdrologic Model            999    5555  =========

 ********************************************************************************
 *************************** SWMHYMO-95w Ver/3.1 ********************************
 *******  A single event and continuous hydrologic simulation model  *******
 *******     based on the principles of HYMO and its successors      *******
 *******                  OTTHYMO-83 and OTTHYMO-89.                  *******
 ********************************************************************************
 ******* Distributed by:  J.F. Sabourin and Associates Inc.           *******
 *******                   Ottawa,  Ontario: (613) 727-5199          *******
 *******                   Gatineau, Quebec: (819) 243-6858          *******
 *******                   E-Mail: swmhymo@jfsa.Com                  *******
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++ Licensed user: Spnr Consultants Ltd.                            +++++++
 +++++++                Mississuga              SERIAL#:4282778         +++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *******           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *******
 *******           Maximum value for ID numbers  :     10            *******
 *******           Max. number of rainfall points:   5000            *******
 *******           Max. number of flow points    :   5000            *******
 ********************************************************************************


 ********************   D E T A I L E D   O U T P U T   ********************
 ********************************************************************************
 *       DATE: 2003-07-22     TIME: 13:29:03     RUN COUNTER: 001193       *
 ********************************************************************************
 * Input   filename: C:\SWMHYMO\PROJECTS\CANSULT\2POS.DAT                     *
 * Output  filename: C:\SWMHYMO\PROJECTS\CANSULT\2POS.out                     *
 * Summary filename: C:\SWMHYMO\PROJECTS\CANSULT\2POS.sum                     *
 * User comments:                                                             *
 * 1:_____________________________________________________________________*
 * 2:_____________________________________________________________________*
 * 3:_____________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name:  I.O. INVESTMENTS INC. TULLAMORE SUBDIVISION
*#  Date         : July 18, 2003
*#  Modeller     : [RAVI]
*#  Company      : Cansult
*#*****************************************************************************
*#   MODIFICATION FOR OUTLET 2
*#   MODIFICATION FOR MESP REPORT APPROVED IN JUNE 2000
*#   POST-DEVELOPMENT CONDITIONS.
*#   OUTLET TO TRIBUTARY OF WEST BRANCH OF WEST HUMBER RIVER.
*#   2 YEAR, 6HOUR AES STORMS.
*#
--------------------
| START            |  Project  dir.: C:\SWMHYMO\PROJECTS\CANSULT\
--------------------  Rainfall dir.: C:\SWMHYMO\PROJECTS\CANSULT\
    TZERO =    .00 hrs on        0
    METOUT=    2 (output = METRIC)
    NRUN  = 001
    NSTORM=    0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
```

```
--------------------
| READ STORM       |    Filename: C:\SWMHYMO\PROJECTS\CANSULT\2Y6.STM
| Ptotal=  36.00 mm|    Comments: 2yr/6hr
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	.000	2.00	12.240	3.75	5.040	5.50	.720
.50	.720	2.25	12.240	4.00	2.880	5.75	.720
.75	.720	2.50	33.120	4.25	2.880	6.00	.720
1.00	.720	2.75	33.120	4.50	1.440	6.25	.720
1.25	.720	3.00	9.360	4.75	1.440		
1.50	4.320	3.25	9.360	5.00	.720		
1.75	4.320	3.50	5.040	5.25	.720		

```
--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
*** AREA 102A - External, undeveloped
*   This area does not change for the new runs.
----------------------
| CALIB NASHYD       |   Area     (ha)=    9.20   Curve Number    (CN)=82.00
| 01:000102 DT= 5.00 |   Ia       (mm)=   6.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .220

     Unit Hyd Qpeak  (cms)=    1.597

     PEAK FLOW       (cms)=     .246 (i)
     TIME TO PEAK    (hrs)=    2.833
     RUNOFF VOLUME    (mm)=   10.495
     TOTAL RAINFALL   (mm)=   36.000
     RUNOFF COEFFICIENT   =     .292

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*** AREA 2021 - Roof area, controlled
----------------------
| CALIB STANDHYD     |   Area     (ha)=    7.50
| 02:002021 DT= 5.00 |   Total Imp(%)=   99.00   Dir. Conn.(%)=   99.00
----------------------
```

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	7.42	.07	
Dep. Storage	(mm)=	1.57	2.00	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	20.00	20.00	
Mannings n	=	.013	.250	
Max.eff.Inten.(mm/hr)=		33.12	15.53	
over (min)		5.00	10.00	
Storage Coeff. (min)=		1.51 (ii)	11.32 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		.33	.10	
				TOTALS
PEAK FLOW	(cms)=	.68	.00	.686 (iii)
TIME TO PEAK	(hrs)=	2.67	2.75	2.750
RUNOFF VOLUME	(mm)=	34.43	12.88	34.215
TOTAL RAINFALL	(mm)=	36.00	36.00	36.000
RUNOFF COEFFICIENT	=	.96	.36	.950

```
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  82.0     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
```

```
*
* Route flow through roof top storage
* Max. release rate: 0.30 cms (based on 40 l/s/ha)
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  5.0 min.
|  IN>02:(002021)   |
| OUT<03:(000901)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)    |    (cms)    (ha.m.)
                            .000  .0000E+00    |     .300  .3950E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >02: (002021)       7.50      .686     2.750     34.215
     OUTFLOW<03: (000901)       7.50      .130     3.333     34.213

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   18.981
                    TIME SHIFT OF PEAK FLOW         (min)=    35.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.1717E+00

--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------
*
*
*** AREA 2022 - Reminder of industrial area, controlled
----------------------
| CALIB STANDHYD     |   Area    (ha)=   11.24
| 04:002022 DT= 5.00 |   Total Imp(%)=   85.00   Dir. Conn.(%)=   85.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.55         1.69
     Dep. Storage     (mm)=       1.57         2.00
     Average Slope     (%)=       1.50         2.00
     Length            (m)=      50.00        20.00
     Mannings n           =       .013         .250

     Max.eff.Inten.(mm/hr)=      33.12        15.53
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.32 (ii)   12.13 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .30          .10
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .88          .06          .936 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.75         2.750
     RUNOFF VOLUME    (mm)=      34.43        12.88        31.197
     TOTAL RAINFALL   (mm)=      36.00        36.00        36.000
     RUNOFF COEFFICIENT   =        .96          .36          .867
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  82.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0007----------------------------------------------------------------------
*
* Route flow through parking lot storage
* Max. release rate: 2.02 cms (based on 180 l/s/ha)
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  5.0 min.
|  IN>04:(002022)   |
| OUT<05:(000902)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)    |    (cms)    (ha.m.)
                            .000  .0000E+00    |    2.020  .1550E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
```

```
     INFLOW >04: (002022)      11.24       .936      2.750      31.197
     OUTFLOW<05: (000902)      11.24       .845      2.750      31.197

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=   90.312
                   TIME SHIFT OF PEAK FLOW          (min)=      .00
                   MAXIMUM  STORAGE   USED        (ha.m.)=.6624E-01

--------------------------------------------------------------------------------
001:0008----------------------------------------------------------------------
*
*
*** AREA 2023 - ROW, uncontrolled
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .72
| 06:002023 DT= 5.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   50.00
----------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=        .36          .36
     Dep. Storage      (mm)=       1.57         2.00
     Average Slope      (%)=       1.00         2.00
     Length             (m)=     200.00        20.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=      33.12        14.85
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       6.02 (ii)   16.01 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .19          .07
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .03          .01          .043 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.83         2.750
     RUNOFF VOLUME    (mm)=      34.43        12.88        23.655
     TOTAL RAINFALL   (mm)=      36.00        36.00        36.000
     RUNOFF COEFFICIENT   =        .96          .36          .657

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  82.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------
*** AREA 99 - Pond Area, undeveloped
*   Area of the proposed pond is taken as undevloped.
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.05   Curve Number   (CN)=88.00
| 04:000102 DT= 2.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .083

     Unit Hyd Qpeak  (cms)=     .483

     PEAK FLOW       (cms)=     .051 (i)
     TIME TO PEAK    (hrs)=    2.750
     RUNOFF VOLUME    (mm)=   13.924
     TOTAL RAINFALL   (mm)=   36.000
     RUNOFF COEFFICIENT   =     .387

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------
*
*
*** Total inflow to POND 2
--------------------
| ADD HYD (000401) | ID: NHYD     AREA      QPEAK   TPEAK   R.V.      DWF
--------------------               (ha)      (cms)   (hrs)   (mm)    (cms)
                ID1 03:000901      7.50       .130    3.33  34.21     .000
               +ID2 05:000902     11.24       .845    2.75  31.20     .000
                ==========================================================
```

```
                SUM 02:000401    18.74     .960    2.75  32.40     .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0011----------------------------------------------------------------------
--------------------
| ADD HYD (000402) | ID: NHYD     AREA     QPEAK   TPEAK   R.V.      DWF
--------------------              (ha)     (cms)   (hrs)   (mm)    (cms)
                ID1 02:000401    18.74     .960    2.75  32.40     .000
               +ID2 06:002023      .72     .043    2.75  23.65     .000
                ==================================================
                SUM 03:000402    19.46    1.003    2.75  32.08     .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0012----------------------------------------------------------------------
--------------------
| ADD HYD (000403) | ID: NHYD     AREA     QPEAK   TPEAK   R.V.      DWF
--------------------              (ha)     (cms)   (hrs)   (mm)    (cms)
                ID1 01:000102     9.20     .246    2.83  10.49     .000
               +ID2 03:000402    19.46    1.003    2.75  32.08     .000
                ==================================================
                SUM 02:000403    28.66    1.234    2.75  25.15     .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0013----------------------------------------------------------------------
--------------------
| ADD HYD (000404) | ID: NHYD     AREA     QPEAK   TPEAK   R.V.      DWF
--------------------              (ha)     (cms)   (hrs)   (mm)    (cms)
                ID1 02:000403    28.66    1.234    2.75  25.15     .000
               +ID2 04:000102     1.05     .051    2.75  13.92     .000
                ==================================================
                SUM 06:000404    29.71    1.285    2.75  24.75     .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0014----------------------------------------------------------------------
*
*
*** POND 2
*** Max. 2 yr stm release rate: 0.19 cms (ex. conditions peak flow)
* Route flow through proposed pond
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  2.0 min.
|  IN>06:(000404)   |
| OUT<05:(000903)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW     STORAGE    |  OUTFLOW     STORAGE
                           (cms)      (ha.m.)    |    (cms)     (ha.m.)
                            .000   .0000E+00     |     .450   .8400E+00
                            .060   .2800E+00     |     .530   .9400E+00
                            .290   .5900E+00     |     .600   .1097E+01
                            .360   .7000E+00     |     .000   .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >06: (000404)       29.71     1.285     2.750     24.755
     OUTFLOW<05: (000903)       29.71      .186     4.750     24.753

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   14.494
                  TIME SHIFT OF PEAK FLOW          (min)=   120.00
                  MAXIMUM  STORAGE   USED        (ha.m.)=.4201E+00

--------------------------------------------------------------------------------
001:0015----------------------------------------------------------------------
*
*
```

```
      FINISH
-------------------------------------------------------------------------------
*******************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
 0004 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 0006 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
   Simulation ended on 2003-07-22     at 13:29:04
===============================================================================
```

```
================================================================================

 SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO         999   55555 =========
 S      W W W  MM MM  H   H   Y Y   MM MM  O   O      9   9  5     =========
 SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  5     Ver.  3.1
     S   W W   M   M  H   H    Y    M   M  O   O       9999  5555  Oct. 1997
 SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      5 =========
                                                      9   9      5 # 4282778
      StormWater Management HYdrologic Model           999   5555  =========

 ****************************************************************************
 *************************** SWMHYMO-95w Ver/3.1 ****************************
 *******  A single event and continuous hydrologic simulation model  *******
 *******     based on the principles of HYMO and its successors      *******
 *******                 OTTHYMO-83 and OTTHYMO-89.                  *******
 ****************************************************************************
 ******* Distributed by:  J.F. Sabourin and Associates Inc.          *******
 *******                   Ottawa,  Ontario: (613) 727-5199         *******
 *******                   Gatineau, Quebec: (819) 243-6858         *******
 *******                   E-Mail: swmhymo@jfsa.Com                 *******
 ****************************************************************************

 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++ Licensed user: Spnr Consultants Ltd.                         +++++++
 +++++++                Mississuga              SERIAL#:4282778      +++++++
 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ****************************************************************************
 *******          ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *******
 *******          Maximum value for ID numbers  :     10            *******
 *******          Max. number of rainfall points:   5000            *******
 *******          Max. number of flow points    :   5000            *******
 ****************************************************************************


 ********************   D E T A I L E D   O U T P U T   ********************
 ****************************************************************************
 *       DATE: 2003-07-22     TIME: 13:31:25     RUN COUNTER: 001194       *
 ****************************************************************************
 * Input   filename: C:\SWMHYMO\PROJECTS\CANSULT\5POS.DAT                   *
 * Output  filename: C:\SWMHYMO\PROJECTS\CANSULT\5POS.out                   *
 * Summary filename: C:\SWMHYMO\PROJECTS\CANSULT\5POS.sum                   *
 * User comments:                                                           *
 * 1:_______________________________________________________________________*
 * 2:_______________________________________________________________________*
 * 3:_______________________________________________________________________*
 ****************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*************************************************************************
*#  Project Name:  I.O. INVESTMENTS INC. TULLAMORE SUBDIVISION
*#  Date         : July 18, 2003
*#  Modeller     : [RAVI]
*#  Company      : Cansult
*#*************************************************************************
*#   MODIFICATION FOR OUTLET 2
*#   MODIFICATION FOR MESP REPORT APPROVED IN JUNE 2000
*#   POST-DEVELOPMENT CONDITIONS.
*#   OUTLET TO TRIBUTARY OF WEST BRANCH OF WEST HUMBER RIVER.
*#   5 YEAR, 6HOUR AES STORMS.
*#
--------------------
| START            |  Project  dir.: C:\SWMHYMO\PROJECTS\CANSULT\
--------------------  Rainfall dir.: C:\SWMHYMO\PROJECTS\CANSULT\
    TZERO =    .00 hrs on        0
    METOUT=    2 (output = METRIC)
    NRUN  = 001
    NSTORM=    0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
```

```
--------------------
| READ STORM       |    Filename: C:\SWMHYMO\PROJECTS\CANSULT\5Y6.STM
| Ptotal=  47.81 mm|    Comments: 5yr/6hr
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	.000	2.00	16.250	3.75	6.690	5.50	.960
.50	.960	2.25	16.250	4.00	3.820	5.75	.960
.75	.960	2.50	43.980	4.25	3.820	6.00	.960
1.00	.960	2.75	43.980	4.50	1.910	6.25	.960
1.25	.960	3.00	12.430	4.75	1.910		
1.50	5.740	3.25	12.430	5.00	.960		
1.75	5.740	3.50	6.690	5.25	.960		

```
--------------------------------------------------------------------------------
001:0003--------------------------------------------------------------------------
*
*** AREA 102A - External, undeveloped
*   This area does not change for the new runs.
----------------------
| CALIB NASHYD       |   Area     (ha)=    9.20   Curve Number    (CN)=82.00
| 01:000102 DT= 5.00 |   Ia       (mm)=   6.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .220

     Unit Hyd Qpeak  (cms)=    1.597

     PEAK FLOW       (cms)=     .428 (i)
     TIME TO PEAK    (hrs)=    2.833
     RUNOFF VOLUME    (mm)=   17.917
     TOTAL RAINFALL   (mm)=   47.810
     RUNOFF COEFFICIENT   =     .375

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004--------------------------------------------------------------------------
*
*** AREA 2021 - Roof area, controlled
----------------------
| CALIB STANDHYD     |   Area     (ha)=    7.50
| 02:002021 DT= 5.00 |   Total Imp(%)=   99.00   Dir. Conn.(%)=   99.00
----------------------
```

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	7.42	.07	
Dep. Storage	(mm)=	1.57	2.00	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	20.00	20.00	
Mannings n	=	.013	.250	
Max.eff.Inten.	(mm/hr)=	43.98	24.58	
over	(min)	5.00	10.00	
Storage Coeff.	(min)=	1.35 (ii)	9.51 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	.33	.12	
				TOTALS
PEAK FLOW	(cms)=	.91	.00	.911 (iii)
TIME TO PEAK	(hrs)=	2.67	2.75	2.750
RUNOFF VOLUME	(mm)=	46.24	20.66	45.984
TOTAL RAINFALL	(mm)=	47.81	47.81	47.810
RUNOFF COEFFICIENT	=	.97	.43	.962

```
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  82.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005--------------------------------------------------------------------------
```

```
*
* Route flow through roof top storage
* Max. release rate: 0.30 cms (based on 40 l/s/ha)
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  5.0 min.
|  IN>02:(002021)   |
| OUT<03:(000901)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |     .300  .3950E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >02: (002021)       7.50      .911     2.750     45.984
     OUTFLOW<03: (000901)       7.50      .175     3.333     45.982

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   19.170
                  TIME SHIFT OF PEAK FLOW         (min)=    35.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.2305E+00

--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------
*
*
*** AREA 2022 - Reminder of industrial area, controlled
----------------------
| CALIB STANDHYD     |   Area    (ha)=   11.24
| 04:002022 DT= 5.00 |   Total Imp(%)=   85.00   Dir. Conn.(%)=   85.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.55         1.69
     Dep. Storage     (mm)=       1.57         2.00
     Average Slope     (%)=       1.50         2.00
     Length            (m)=      50.00        20.00
     Mannings n           =       .013         .250

     Max.eff.Inten.(mm/hr)=      43.98        24.58
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       2.07 (ii)   10.23 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .31          .11
                                                      *TOTALS*
     PEAK FLOW       (cms)=       1.17          .10      1.264 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.75      2.750
     RUNOFF VOLUME    (mm)=      46.24        20.66     42.403
     TOTAL RAINFALL   (mm)=      47.81        47.81     47.810
     RUNOFF COEFFICIENT   =        .97          .43       .887
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  82.0     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0007----------------------------------------------------------------------
*
* Route flow through parking lot storage
* Max. release rate: 2.02 cms (based on 180 l/s/ha)
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  5.0 min.
|  IN>04:(002022)   |
| OUT<05:(000902)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.020  .1550E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
```

```
     INFLOW >04: (002022)      11.24      1.264      2.750      42.403
     OUTFLOW<05: (000902)      11.24      1.141      2.750      42.403

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=   90.234
                   TIME SHIFT OF PEAK FLOW          (min)=      .00
                   MAXIMUM  STORAGE   USED        (ha.m.)=.8938E-01

--------------------------------------------------------------------------------
001:0008----------------------------------------------------------------------
*
*
*** AREA 2023 - ROW, uncontrolled
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .72
| 06:002023 DT= 5.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   50.00
----------------------
                              IMPERVIOUS     PERVIOUS (i)
     Surface Area     (ha)=        .36           .36
     Dep. Storage     (mm)=       1.57          2.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     200.00         20.00
     Mannings n           =       .013          .250

     Max.eff.Inten.(mm/hr)=      43.98         23.66
               over (min)         5.00         15.00
     Storage Coeff.  (min)=       5.38 (ii)    13.67 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=        .21           .08
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .04           .02          .061 (iii)
     TIME TO PEAK    (hrs)=       2.75          2.83         2.750
     RUNOFF VOLUME    (mm)=      46.24         20.66        33.451
     TOTAL RAINFALL   (mm)=      47.81         47.81        47.810
     RUNOFF COEFFICIENT   =        .97           .43          .700

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  82.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------
*** AREA 99 - Pond Area, undeveloped
*   Area of the proposed pond is taken as undevloped.
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.05   Curve Number   (CN)=88.00
| 04:000102 DT= 2.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .083

     Unit Hyd Qpeak  (cms)=     .483

     PEAK FLOW       (cms)=     .082 (i)
     TIME TO PEAK    (hrs)=    2.750
     RUNOFF VOLUME    (mm)=   22.867
     TOTAL RAINFALL   (mm)=   47.810
     RUNOFF COEFFICIENT   =     .478

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------
*
*
*** Total inflow to POND 2
--------------------
| ADD HYD (000401) | ID: NHYD     AREA      QPEAK    TPEAK    R.V.      DWF
--------------------              (ha)      (cms)    (hrs)    (mm)     (cms)
                ID1 03:000901     7.50       .175     3.33   45.98      .000
               +ID2 05:000902    11.24      1.141     2.75   42.40      .000
                ==========================================================
```

```
                SUM 02:000401    18.74    1.294    2.75  43.84    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0011----------------------------------------------------------------------
--------------------
| ADD HYD (000402) | ID: NHYD     AREA     QPEAK   TPEAK   R.V.      DWF
--------------------              (ha)     (cms)   (hrs)   (mm)    (cms)
                ID1 02:000401    18.74    1.294    2.75  43.84    .000
               +ID2 06:002023      .72     .061    2.75  33.45    .000
                ====================================================
                SUM 03:000402    19.46    1.356    2.75  43.45    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0012----------------------------------------------------------------------
--------------------
| ADD HYD (000403) | ID: NHYD     AREA     QPEAK   TPEAK   R.V.      DWF
--------------------              (ha)     (cms)   (hrs)   (mm)    (cms)
                ID1 01:000102     9.20     .428    2.83  17.92    .000
               +ID2 03:000402    19.46    1.356    2.75  43.45    .000
                ====================================================
                SUM 02:000403    28.66    1.766    2.75  35.25    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0013----------------------------------------------------------------------
--------------------
| ADD HYD (000404) | ID: NHYD     AREA     QPEAK   TPEAK   R.V.      DWF
--------------------              (ha)     (cms)   (hrs)   (mm)    (cms)
                ID1 02:000403    28.66    1.766    2.75  35.25    .000
               +ID2 04:000102     1.05     .082    2.75  22.87    .000
                ====================================================
                SUM 06:000404    29.71    1.848    2.75  34.82    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0014----------------------------------------------------------------------
*
*
*** POND 2
*** Max. 5 yr stm release rate: 0.29 cms (ex. conditions peak flow)
*Route flow through proposed pond
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  2.0 min.
|  IN>06:(000404)   |
| OUT<05:(000903)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW     STORAGE   |  OUTFLOW    STORAGE
                           (cms)      (ha.m.)   |    (cms)    (ha.m.)
                            .000   .0000E+00    |     .450  .8400E+00
                            .060   .2800E+00    |     .530  .9400E+00
                            .290   .5900E+00    |     .600  .1097E+01
                            .360   .7000E+00    |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >06: (000404)       29.71    1.848     2.750     34.818
     OUTFLOW<05: (000903)       29.71     .302     4.464     34.816

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   16.338
                  TIME SHIFT OF PEAK FLOW         (min)=   102.86
                  MAXIMUM  STORAGE   USED       (ha.m.)=.6087E+00

--------------------------------------------------------------------------------
001:0015----------------------------------------------------------------------
*
*
```

```
      FINISH
-------------------------------------------------------------------------------
*******************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
 0004 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 0006 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
   Simulation ended on 2003-07-22     at 13:31:27
===============================================================================
```

```
================================================================================

 SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999   55555 =========
 S      W W W  MM MM  H   H   Y Y   MM MM  O   O      9   9  5     =========
 SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  5     Ver.  3.1
     S   W W   M   M  H   H    Y    M   M  O   O       9999  5555  Oct. 1997
 SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      5 =========
                                                      9   9      5 # 4282778
      StormWater Management HYdrologic Model           999   5555  =========

 ********************************************************************************
 *************************** SWMHYMO-95w Ver/3.1 ********************************
 *******  A single event and continuous hydrologic simulation model  *******
 *******     based on the principles of HYMO and its successors      *******
 *******                  OTTHYMO-83 and OTTHYMO-89.                  *******
 ********************************************************************************
 ******* Distributed by:  J.F. Sabourin and Associates Inc.           *******
 *******                   Ottawa,  Ontario: (613) 727-5199          *******
 *******                   Gatineau, Quebec: (819) 243-6858          *******
 *******                   E-Mail: swmhymo@jfsa.Com                  *******
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++ Licensed user: Spnr Consultants Ltd.                            +++++++
 +++++++                Mississuga              SERIAL#:4282778         +++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *******           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *******
 *******           Maximum value for ID numbers  :     10            *******
 *******           Max. number of rainfall points:   5000            *******
 *******           Max. number of flow points    :   5000            *******
 ********************************************************************************


 ********************   D E T A I L E D   O U T P U T   ********************
 ********************************************************************************
 *       DATE: 2003-07-22     TIME: 13:32:00     RUN COUNTER: 001195        *
 ********************************************************************************
 * Input   filename: C:\SWMHYMO\PROJECTS\CANSULT\10POS.DAT                      *
 * Output  filename: C:\SWMHYMO\PROJECTS\CANSULT\10POS.out                      *
 * Summary filename: C:\SWMHYMO\PROJECTS\CANSULT\10POS.sum                      *
 * User comments:                                                               *
 * 1:_____________________________________________________________________*
 * 2:_____________________________________________________________________*
 * 3:_____________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name:  I.O. INVESTMENTS INC. TULLAMORE SUBDIVISION
*#  Date         : July 18, 2003
*#  Modeller     : [RAVI]
*#  Company      : Cansult
*#*****************************************************************************
*#   MODIFICATION FOR OUTLET 2
*#   MODIFICATION FOR MESP REPORT APPROVED IN JUNE 2000
*#   POST-DEVELOPMENT CONDITIONS.
*#   OUTLET TO TRIBUTARY OF WEST BRANCH OF WEST HUMBER RIVER.
*#   10 YEAR, 6HOUR AES STORMS.
*#
--------------------
| START            |  Project  dir.: C:\SWMHYMO\PROJECTS\CANSULT\
--------------------  Rainfall dir.: C:\SWMHYMO\PROJECTS\CANSULT\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
```

```
--------------------
| READ STORM       |    Filename: C:\SWMHYMO\PROJECTS\CANSULT\10Y6.STM
| Ptotal=  55.69 mm|    Comments: 10yr/6hr
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	.000	2.00	18.940	3.75	7.800	5.50	1.110
.50	1.110	2.25	18.940	4.00	4.460	5.75	1.110
.75	1.110	2.50	51.240	4.25	4.460	6.00	1.110
1.00	1.110	2.75	51.240	4.50	2.230	6.25	1.110
1.25	1.110	3.00	14.480	4.75	2.230		
1.50	6.680	3.25	14.480	5.00	1.110		
1.75	6.680	3.50	7.800	5.25	1.110		

```
--------------------------------------------------------------------------------
001:0003--------------------------------------------------------------------------
*
*** AREA 102A - External, undeveloped
*   This area does not change for the new runs.
----------------------
| CALIB NASHYD       |   Area     (ha)=    9.20   Curve Number    (CN)=82.00
| 01:000102 DT= 5.00 |   Ia       (mm)=   6.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .220

     Unit Hyd Qpeak  (cms)=    1.597

     PEAK FLOW       (cms)=     .561 (i)
     TIME TO PEAK    (hrs)=    2.833
     RUNOFF VOLUME    (mm)=   23.416
     TOTAL RAINFALL   (mm)=   55.690
     RUNOFF COEFFICIENT   =     .420

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004--------------------------------------------------------------------------
*
*** AREA 2021 - Roof area, controlled
----------------------
| CALIB STANDHYD     |   Area     (ha)=    7.50
| 02:002021 DT= 5.00 |   Total Imp(%)=   99.00   Dir. Conn.(%)=   99.00
----------------------
```

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	7.42	.07	
Dep. Storage	(mm)=	1.57	2.00	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	20.00	20.00	
Mannings n	=	.013	.250	
Max.eff.Inten.	(mm/hr)=	51.24	31.10	
over	(min)	5.00	10.00	
Storage Coeff.	(min)=	1.27 (ii)	8.70 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	.33	.12	
				TOTALS
PEAK FLOW	(cms)=	1.06	.01	1.063 (iii)
TIME TO PEAK	(hrs)=	2.67	2.75	2.750
RUNOFF VOLUME	(mm)=	54.12	26.34	53.842
TOTAL RAINFALL	(mm)=	55.69	55.69	55.690
RUNOFF COEFFICIENT	=	.97	.47	.967

```
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  82.0     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005--------------------------------------------------------------------------
```

```
*
* Route flow through roof top storage
* Max. release rate: 0.30 cms (based on 40 l/s/ha)
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  5.0 min.
|  IN>02:(002021)   |
| OUT<03:(000901)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |     .300  .3950E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     ---------------------      (ha)     (cms)     (hrs)       (mm)
     INFLOW >02: (002021)       7.50     1.063     2.750     53.842
     OUTFLOW<03: (000901)       7.50      .204     3.333     53.841

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   19.246
                  TIME SHIFT OF PEAK FLOW         (min)=    35.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.2698E+00

--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------
*
*
*** AREA 2022 - Reminder of industrial area, controlled
----------------------
| CALIB STANDHYD     |   Area    (ha)=   11.24
| 04:002022 DT= 5.00 |   Total Imp(%)=   85.00   Dir. Conn.(%)=   85.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=       9.55         1.69
     Dep. Storage      (mm)=       1.57         2.00
     Average Slope      (%)=       1.50         2.00
     Length             (m)=      50.00        20.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=      51.24        31.10
               over (min)        5.00        10.00
     Storage Coeff.  (min)=      1.95 (ii)    9.38 (ii)
     Unit Hyd. Tpeak (min)=      5.00        10.00
     Unit Hyd. peak  (cms)=       .31          .12
                                                      *TOTALS*
     PEAK FLOW       (cms)=      1.36          .13       1.486 (iii)
     TIME TO PEAK    (hrs)=      2.75         2.75       2.750
     RUNOFF VOLUME    (mm)=     54.12        26.34      49.953
     TOTAL RAINFALL   (mm)=     55.69        55.69      55.690
     RUNOFF COEFFICIENT   =       .97          .47        .897
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  82.0     Ia = Dep. Storage   (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0007----------------------------------------------------------------------
*
* Route flow through parking lot storage
* Max. release rate: 2.02 cms (based on 180 l/s/ha)
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  5.0 min.
|  IN>04:(002022)   |
| OUT<05:(000902)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.020  .1550E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     ---------------------      (ha)     (cms)     (hrs)       (mm)
```

```
     INFLOW >04: (002022)      11.24      1.486      2.750      49.953
     OUTFLOW<05: (000902)      11.24      1.341      2.750      49.953

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   90.212
                    TIME SHIFT OF PEAK FLOW          (min)=      .00
                    MAXIMUM  STORAGE   USED        (ha.m.)=.1051E+00

--------------------------------------------------------------------------------
001:0008----------------------------------------------------------------------
*
*
*** AREA 2023 - ROW, uncontrolled
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .72
| 06:002023 DT= 5.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   50.00
----------------------
                              IMPERVIOUS     PERVIOUS (i)
     Surface Area     (ha)=        .36           .36
     Dep. Storage     (mm)=       1.57          2.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     200.00         20.00
     Mannings n           =       .013          .250

     Max.eff.Inten.(mm/hr)=      51.24         30.03
               over (min)         5.00         15.00
     Storage Coeff.  (min)=       5.06 (ii)    12.59 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=        .21           .08
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .05           .02          .074 (iii)
     TIME TO PEAK    (hrs)=       2.75          2.83         2.750
     RUNOFF VOLUME    (mm)=      54.12         26.34        40.229
     TOTAL RAINFALL   (mm)=      55.69         55.69        55.690
     RUNOFF COEFFICIENT   =        .97           .47          .722

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  82.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------
*** AREA 99 - Pond Area, undeveloped
*   Area of the proposed pond is taken as undevloped.
----------------------
| CALIB NASHYD       |   Area     (ha)=    1.05   Curve Number    (CN)=88.00
| 04:000102 DT= 2.00 |   Ia       (mm)=   6.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .083

     Unit Hyd Qpeak  (cms)=     .483

     PEAK FLOW       (cms)=     .103 (i)
     TIME TO PEAK    (hrs)=    2.750
     RUNOFF VOLUME    (mm)=   29.280
     TOTAL RAINFALL   (mm)=   55.690
     RUNOFF COEFFICIENT   =     .526

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------
*
*
*** Total inflow to POND 2
--------------------
| ADD HYD (000401) | ID: NHYD     AREA      QPEAK    TPEAK    R.V.      DWF
--------------------                (ha)      (cms)    (hrs)    (mm)    (cms)
                ID1 03:000901      7.50       .204     3.33   53.84     .000
               +ID2 05:000902     11.24      1.341     2.75   49.95     .000
                ==========================================================
```

```
                SUM 02:000401    18.74    1.521    2.75  51.51    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0011----------------------------------------------------------------------
--------------------
| ADD HYD (000402) | ID: NHYD     AREA      QPEAK    TPEAK    R.V.      DWF
--------------------              (ha)      (cms)    (hrs)    (mm)    (cms)
                ID1 02:000401    18.74    1.521     2.75   51.51    .000
               +ID2 06:002023      .72     .074     2.75   40.23    .000
                ==================================================
                SUM 03:000402    19.46    1.595     2.75   51.09    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0012----------------------------------------------------------------------
--------------------
| ADD HYD (000403) | ID: NHYD     AREA      QPEAK    TPEAK    R.V.      DWF
--------------------              (ha)      (cms)    (hrs)    (mm)    (cms)
                ID1 01:000102     9.20      .561     2.83   23.42    .000
               +ID2 03:000402    19.46    1.595     2.75   51.09    .000
                ==================================================
                SUM 02:000403    28.66    2.139     2.75   42.21    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0013----------------------------------------------------------------------
--------------------
| ADD HYD (000404) | ID: NHYD     AREA      QPEAK    TPEAK    R.V.      DWF
--------------------              (ha)      (cms)    (hrs)    (mm)    (cms)
                ID1 02:000403    28.66    2.139     2.75   42.21    .000
               +ID2 04:000102     1.05     .103     2.75   29.28    .000
                ==================================================
                SUM 06:000404    29.71    2.242     2.75   41.75    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0014----------------------------------------------------------------------
*
*
*** POND 2
*** Max. 10 yr stm release rate: 0.36 cms (ex. conditions peak flow)
* Route flow through proposed pond
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  2.0 min.
|  IN>06:(000404)   |
| OUT<05:(000903)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW     STORAGE    |  OUTFLOW     STORAGE
                           (cms)      (ha.m.)    |    (cms)     (ha.m.)
                            .000   .0000E+00     |     .450   .8400E+00
                            .060   .2800E+00     |     .530   .9400E+00
                            .290   .5900E+00     |     .600   .1097E+01
                            .360   .7000E+00     |     .000   .0000E+00

     ROUTING RESULTS            AREA      QPEAK      TPEAK       R.V.
     --------------------        (ha)      (cms)      (hrs)       (mm)
     INFLOW >06: (000404)       29.71      2.242      2.750      41.751
     OUTFLOW<05: (000903)       29.71       .374      4.429      41.750

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   16.701
                  TIME SHIFT OF PEAK FLOW          (min)=   100.71
                  MAXIMUM  STORAGE   USED        (ha.m.)=.7225E+00

--------------------------------------------------------------------------------
001:0015----------------------------------------------------------------------
*
*
```

```
      FINISH
-------------------------------------------------------------------------------
*******************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
 0004 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 0006 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
   Simulation ended on 2003-07-22     at 13:32:01
===============================================================================
```

```
================================================================================

 SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999   55555 =========
 S      W W W  MM MM  H   H   Y Y   MM MM  O   O      9   9  5     =========
 SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  5     Ver.  3.1
     S   W W   M   M  H   H    Y    M   M  O   O       9999  5555  Oct. 1997
 SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      5 =========
                                                      9   9      5 # 4282778
      StormWater Management HYdrologic Model           999   5555  =========

 ********************************************************************************
 *************************** SWMHYMO-95w Ver/3.1 ****************************
 *******  A single event and continuous hydrologic simulation model  *******
 *******     based on the principles of HYMO and its successors      *******
 *******                  OTTHYMO-83 and OTTHYMO-89.                  *******
 ********************************************************************************
 ******* Distributed by:  J.F. Sabourin and Associates Inc.           *******
 *******                  Ottawa,  Ontario: (613) 727-5199           *******
 *******                  Gatineau, Quebec: (819) 243-6858           *******
 *******                  E-Mail: swmhymo@jfsa.Com                   *******
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++ Licensed user: Spnr Consultants Ltd.                            +++++++
 +++++++                Mississuga             SERIAL#:4282778          +++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *******           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *******
 *******           Maximum value for ID numbers  :     10             *******
 *******           Max. number of rainfall points:   5000             *******
 *******           Max. number of flow points    :   5000             *******
 ********************************************************************************


 ********************   D E T A I L E D   O U T P U T   ********************
 ********************************************************************************
 *       DATE: 2003-07-22      TIME: 13:32:33      RUN COUNTER: 001196        *
 ********************************************************************************
 * Input   filename: C:\SWMHYMO\PROJECTS\CANSULT\25POS.DAT                      *
 * Output  filename: C:\SWMHYMO\PROJECTS\CANSULT\25POS.out                      *
 * Summary filename: C:\SWMHYMO\PROJECTS\CANSULT\25POS.sum                      *
 * User comments:                                                               *
 * 1:_____________________________________________________________________*
 * 2:_____________________________________________________________________*
 * 3:_____________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name:  I.O. INVESTMENTS INC. TULLAMORE SUBDIVISION
*#  Date         : July 18, 2003
*#  Modeller     : [RAVI]
*#  Company      : Cansult
*#*****************************************************************************
*#   MODIFICATION FOR OUTLET 2
*#   MODIFICATION FOR MESP REPORT APPROVED IN JUNE 2000
*#   POST-DEVELOPMENT CONDITIONS.
*#   OUTLET TO TRIBUTARY OF WEST BRANCH OF WEST HUMBER RIVER.
*#   25 YEAR, 6HOUR AES STORMS.
*#
--------------------
| START            |  Project  dir.: C:\SWMHYMO\PROJECTS\CANSULT\
--------------------  Rainfall dir.: C:\SWMHYMO\PROJECTS\CANSULT\
    TZERO =    .00 hrs on        0
    METOUT=    2 (output = METRIC)
    NRUN  = 001
    NSTORM=    0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
```

```
--------------------
| READ STORM       |    Filename: C:\SWMHYMO\PROJECTS\CANSULT\25Y6.STM
| Ptotal=  65.59 mm|    Comments: 25yr/6hr
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	.000	2.00	22.300	3.75	9.180	5.50	1.310
.50	1.310	2.25	22.300	4.00	5.250	5.75	1.310
.75	1.310	2.50	60.350	4.25	5.250	6.00	1.310
1.00	1.310	2.75	60.350	4.50	2.620	6.25	1.310
1.25	1.310	3.00	17.060	4.75	2.620		
1.50	7.870	3.25	17.060	5.00	1.310		
1.75	7.870	3.50	9.180	5.25	1.310		

```
------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
*** AREA 102A - External, undeveloped
*   This area does not change for the new runs.
----------------------
| CALIB NASHYD       |   Area     (ha)=    9.20   Curve Number    (CN)=82.00
| 01:000102 DT= 5.00 |   Ia       (mm)=   6.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .220

     Unit Hyd Qpeak  (cms)=    1.597

     PEAK FLOW       (cms)=     .740 (i)
     TIME TO PEAK    (hrs)=    2.833
     RUNOFF VOLUME    (mm)=   30.785
     TOTAL RAINFALL   (mm)=   65.590
     RUNOFF COEFFICIENT   =     .469

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*** AREA 2021 - Roof area, controlled
----------------------
| CALIB STANDHYD     |   Area     (ha)=    7.50
| 02:002021 DT= 5.00 |   Total Imp(%)=   99.00   Dir. Conn.(%)=   99.00
----------------------
```

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	7.42	.07	
Dep. Storage	(mm)=	1.57	2.00	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	20.00	20.00	
Mannings n	=	.013	.250	
Max.eff.Inten.	(mm/hr)=	60.35	39.63	
over	(min)	5.00	10.00	
Storage Coeff.	(min)=	1.19 (ii)	7.93 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	.33	.13	
				TOTALS
PEAK FLOW	(cms)=	1.24	.01	1.252 (iii)
TIME TO PEAK	(hrs)=	2.58	2.75	2.750
RUNOFF VOLUME	(mm)=	64.02	33.88	63.719
TOTAL RAINFALL	(mm)=	65.59	65.59	65.590
RUNOFF COEFFICIENT	=	.98	.52	.971

```
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  82.0     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
```

```
*
* Route flow through roof top storage
* Max. release rate: 0.30 cms (based on 40 l/s/ha)
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  5.0 min.
|  IN>02:(002021)   |
| OUT<03:(000901)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |     .300  .3950E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >02: (002021)       7.50     1.252     2.750     63.719
     OUTFLOW<03: (000901)       7.50      .242     3.333     63.717

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   19.318
                  TIME SHIFT OF PEAK FLOW         (min)=   35.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.3192E+00

--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------
*
*
*** AREA 2022 - Reminder of industrial area, controlled
----------------------
| CALIB STANDHYD     |   Area    (ha)=   11.24
| 04:002022 DT= 5.00 |   Total Imp(%)=   85.00   Dir. Conn.(%)=   85.00
----------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.55         1.69
     Dep. Storage     (mm)=       1.57         2.00
     Average Slope     (%)=       1.50         2.00
     Length            (m)=      50.00        20.00
     Mannings n           =       .013         .250

     Max.eff.Inten.(mm/hr)=      60.35        39.63
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.83 (ii)    8.57 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .32          .12
                                                      *TOTALS*
     PEAK FLOW       (cms)=       1.60          .17       1.767 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.75       2.750
     RUNOFF VOLUME    (mm)=      64.02        33.88      59.499
     TOTAL RAINFALL   (mm)=      65.59        65.59      65.590
     RUNOFF COEFFICIENT   =        .98          .52        .907
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  82.0     Ia = Dep. Storage   (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0007----------------------------------------------------------------------
*
* Route flow through parking lot storage
* Max. release rate: 2.02 cms (based on 180 l/s/ha)
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  5.0 min.
|  IN>04:(002022)   |
| OUT<05:(000902)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.020  .1550E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
```

```
     INFLOW >04: (002022)      11.24     1.767     2.750     59.499
     OUTFLOW<05: (000902)      11.24     1.594     2.750     59.499

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   90.210
                    TIME SHIFT OF PEAK FLOW          (min)=      .00
                    MAXIMUM  STORAGE   USED        (ha.m.)=.1249E+00

--------------------------------------------------------------------------------
001:0008----------------------------------------------------------------------
*
*
*** AREA 2023 - ROW, uncontrolled
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .72
| 06:002023 DT= 5.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   50.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .36          .36
     Dep. Storage     (mm)=       1.57         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     200.00        20.00
     Mannings n           =       .013         .250

     Max.eff.Inten.(mm/hr)=      60.35        39.63
               over (min)         5.00        10.00
     Storage Coeff.  (min)=      4.74 (ii)   11.48 (ii)
     Unit Hyd. Tpeak (min)=      5.00        10.00
     Unit Hyd. peak  (cms)=       .22          .10
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .06          .03        .093 (iii)
     TIME TO PEAK    (hrs)=      2.75         2.75       2.750
     RUNOFF VOLUME    (mm)=     64.02        33.88      48.951
     TOTAL RAINFALL   (mm)=     65.59        65.59      65.590
     RUNOFF COEFFICIENT   =       .98          .52        .746
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  82.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------
*** AREA 99 - Pond Area, undeveloped
*   Area of the proposed pond is taken as undevloped.
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.05   Curve Number   (CN)=88.00
| 04:000102 DT= 2.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .083

     Unit Hyd Qpeak  (cms)=     .483

     PEAK FLOW       (cms)=     .131 (i)
     TIME TO PEAK    (hrs)=    2.750
     RUNOFF VOLUME    (mm)=   37.685
     TOTAL RAINFALL   (mm)=   65.590
     RUNOFF COEFFICIENT   =     .575

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------
*
*
*** Total inflow to POND 2
--------------------
| ADD HYD (000401) | ID: NHYD     AREA      QPEAK    TPEAK    R.V.      DWF
--------------------              (ha)      (cms)    (hrs)    (mm)     (cms)
                 ID1 03:000901     7.50      .242     3.33   63.72     .000
```

```
                +ID2 05:000902    11.24    1.594    2.75  59.50    .000
                 ================================================
                 SUM 02:000401    18.74    1.808    2.75  61.19    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0011----------------------------------------------------------------------
--------------------
| ADD HYD (000402) | ID: NHYD     AREA     QPEAK   TPEAK   R.V.      DWF
--------------------              (ha)     (cms)   (hrs)   (mm)    (cms)
                 ID1 02:000401    18.74    1.808    2.75  61.19    .000
                +ID2 06:002023      .72     .093    2.75  48.95    .000
                 ================================================
                 SUM 03:000402    19.46    1.901    2.75  60.73    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0012----------------------------------------------------------------------
--------------------
| ADD HYD (000403) | ID: NHYD     AREA     QPEAK   TPEAK   R.V.      DWF
--------------------              (ha)     (cms)   (hrs)   (mm)    (cms)
                 ID1 01:000102     9.20     .740    2.83  30.79    .000
                +ID2 03:000402    19.46    1.901    2.75  60.73    .000
                 ================================================
                 SUM 02:000403    28.66    2.624    2.75  51.12    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0013----------------------------------------------------------------------
--------------------
| ADD HYD (000404) | ID: NHYD     AREA     QPEAK   TPEAK   R.V.      DWF
--------------------              (ha)     (cms)   (hrs)   (mm)    (cms)
                 ID1 02:000403    28.66    2.624    2.75  51.12    .000
                +ID2 04:000102     1.05     .131    2.75  37.69    .000
                 ================================================
                 SUM 06:000404    29.71    2.755    2.75  50.65    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0014----------------------------------------------------------------------
*
*
*** POND 2
*** Max. 25 yr stm release rate: 0.45 cms (ex. conditions peak flow)
* Route flow through proposed pond
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  2.0 min.
|  IN>06:(000404)   |
| OUT<05:(000903)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW     STORAGE    |  OUTFLOW     STORAGE
                           (cms)     (ha.m.)    |    (cms)     (ha.m.)
                            .000  .0000E+00     |     .450  .8400E+00
                            .060  .2800E+00     |     .530  .9400E+00
                            .290  .5900E+00     |     .600  .1097E+01
                            .360  .7000E+00     |     .000  .0000E+00

     ROUTING RESULTS            AREA      QPEAK      TPEAK       R.V.
     --------------------        (ha)      (cms)      (hrs)       (mm)
     INFLOW >06: (000404)      29.71      2.755      2.750     50.647
     OUTFLOW<05: (000903)      29.71       .473      4.393     50.645

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   17.182
                  TIME SHIFT OF PEAK FLOW          (min)=    98.57
                  MAXIMUM  STORAGE   USED        (ha.m.)=.8692E+00

--------------------------------------------------------------------------------
001:0015----------------------------------------------------------------------
```

```
*
*
      FINISH
-------------------------------------------------------------------------------
*******************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
 0004 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 0006 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 0008 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
   Simulation ended on 2003-07-22     at 13:32:34
===============================================================================
```

```
================================================================================

 SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO         999    55555 =========
 S      W W W  MM MM  H   H   Y Y   MM MM  O   O      9   9   5     =========
 SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9   5     Ver.  3.1
     S   W W   M   M  H   H    Y    M   M  O   O       9999   5555  Oct. 1997
 SSSSS   W W   M   M  H   H    Y    M   M   OOO           9       5 =========
                                                      9   9       5 # 4282778
      StormWater Management HYdrologic Model           999    5555  =========

 ********************************************************************************
 ************************** SWMHYMO-95w Ver/3.1 ***************************
 *******  A single event and continuous hydrologic simulation model  *******
 *******     based on the principles of HYMO and its successors      *******
 *******                  OTTHYMO-83 and OTTHYMO-89.                  *******
 ********************************************************************************
 ******* Distributed by:  J.F. Sabourin and Associates Inc.           *******
 *******                   Ottawa,  Ontario: (613) 727-5199          *******
 *******                   Gatineau, Quebec: (819) 243-6858          *******
 *******                   E-Mail: swmhymo@jfsa.Com                  *******
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++ Licensed user: Spnr Consultants Ltd.                            +++++++
 +++++++                Mississuga              SERIAL#:4282778         +++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *******           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *******
 *******           Maximum value for ID numbers  :     10            *******
 *******           Max. number of rainfall points:   5000            *******
 *******           Max. number of flow points    :   5000            *******
 ********************************************************************************


 ********************   D E T A I L E D   O U T P U T   ********************
 ********************************************************************************
 *       DATE: 2003-07-22     TIME: 13:32:56     RUN COUNTER: 001197       *
 ********************************************************************************
 * Input   filename: C:\SWMHYMO\PROJECTS\CANSULT\50POS.DAT                      *
 * Output  filename: C:\SWMHYMO\PROJECTS\CANSULT\50POS.out                      *
 * Summary filename: C:\SWMHYMO\PROJECTS\CANSULT\50POS.sum                      *
 * User comments:                                                               *
 * 1:_____________________________________________________________________*
 * 2:_____________________________________________________________________*
 * 3:_____________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name:  I.O. INVESTMENTS INC. TULLAMORE SUBDIVISION
*#  Date        : July 18, 2003
*#  Modeller    : [RAVI]
*#  Company     : Cansult
*#*****************************************************************************
*#   MODIFICATION FOR OUTLET 2
*#   MODIFICATION FOR MESP REPORT APPROVED IN JUNE 2000
*#   POST-DEVELOPMENT CONDITIONS.
*#   OUTLET TO TRIBUTARY OF WEST BRANCH OF WEST HUMBER RIVER.
*#   50 YEAR, 6HOUR AES STORMS.
*#
--------------------
| START            |  Project  dir.: C:\SWMHYMO\PROJECTS\CANSULT\
--------------------  Rainfall dir.: C:\SWMHYMO\PROJECTS\CANSULT\
    TZERO =    .00 hrs on        0
    METOUT=    2 (output = METRIC)
    NRUN  = 001
    NSTORM=    0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
```

```
--------------------
| READ STORM       |    Filename: C:\SWMHYMO\PROJECTS\CANSULT\50Y6.STM
| Ptotal=  73.00 mm|    Comments: 50yr/6hr
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	.000	2.00	24.820	3.75	10.220	5.50	1.460
.50	1.460	2.25	24.820	4.00	5.840	5.75	1.460
.75	1.460	2.50	67.160	4.25	5.840	6.00	1.460
1.00	1.460	2.75	67.160	4.50	2.920	6.25	1.460
1.25	1.460	3.00	18.980	4.75	2.920		
1.50	8.760	3.25	18.980	5.00	1.460		
1.75	8.760	3.50	10.220	5.25	1.460		

```
--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
*** AREA 102A - External, undeveloped
*   This area does not change for the new runs.
----------------------
| CALIB NASHYD       |   Area     (ha)=    9.20   Curve Number    (CN)=82.00
| 01:000102 DT= 5.00 |   Ia       (mm)=   6.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .220

     Unit Hyd Qpeak  (cms)=    1.597

     PEAK FLOW       (cms)=     .879 (i)
     TIME TO PEAK    (hrs)=    2.833
     RUNOFF VOLUME    (mm)=   36.568
     TOTAL RAINFALL   (mm)=   73.000
     RUNOFF COEFFICIENT   =     .501

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*** AREA 2021 - Roof area, controlled
----------------------
| CALIB STANDHYD     |   Area     (ha)=    7.50
| 02:002021 DT= 5.00 |   Total Imp(%)=   99.00   Dir. Conn.(%)=   99.00
----------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=       7.42          .07
     Dep. Storage      (mm)=       1.57         2.00
     Average Slope      (%)=       1.00         2.00
     Length             (m)=      20.00        20.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=      67.16        47.38
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.14 (ii)    7.42 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .34          .17
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.39          .01          1.394 (iii)
     TIME TO PEAK    (hrs)=       2.58         2.75          2.750
     RUNOFF VOLUME    (mm)=      71.43        39.77         71.113
     TOTAL RAINFALL   (mm)=      73.00        73.00         73.000
     RUNOFF COEFFICIENT   =        .98          .54           .974
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  82.0     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
```

```
*
* Route flow through roof top storage
* Max. release rate: 0.30 cms (based on 40 l/s/ha)
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  5.0 min.
|  IN>02:(002021)   |
| OUT<03:(000901)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |     .300  .3950E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >02: (002021)       7.50     1.394     2.750     71.113
     OUTFLOW<03: (000901)       7.50      .270     3.333     71.112

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   19.355
                  TIME SHIFT OF PEAK FLOW         (min)=    35.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.3562E+00

--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------
*
*
*** AREA 2022 - Reminder of industrial area, controlled
----------------------
| CALIB STANDHYD     |   Area    (ha)=   11.24
| 04:002022 DT= 5.00 |   Total Imp(%)=   85.00   Dir. Conn.(%)=   85.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.55         1.69
     Dep. Storage     (mm)=       1.57         2.00
     Average Slope     (%)=       1.50         2.00
     Length            (m)=      50.00        20.00
     Mannings n           =       .013         .250

     Max.eff.Inten.(mm/hr)=      67.16        46.21
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       1.75 (ii)    8.09 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .32          .13
                                                        *TOTALS*
     PEAK FLOW       (cms)=       1.78          .20        1.978 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.75        2.750
     RUNOFF VOLUME    (mm)=      71.43        39.77       66.681
     TOTAL RAINFALL   (mm)=      73.00        73.00       73.000
     RUNOFF COEFFICIENT   =        .98          .54         .913
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  82.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0007----------------------------------------------------------------------
*
* Route flow through parking lot storage
* Max. release rate: 2.02 cms (based on 180 l/s/ha)
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  5.0 min.
|  IN>04:(002022)   |
| OUT<05:(000902)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.020  .1550E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
```

```
     INFLOW >04: (002022)      11.24     1.978     2.750     66.681
     OUTFLOW<05: (000902)      11.24     1.785     2.750     66.681

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=   90.224
                   TIME SHIFT OF PEAK FLOW          (min)=      .00
                   MAXIMUM  STORAGE   USED        (ha.m.)=.1399E+00

--------------------------------------------------------------------------------
001:0008----------------------------------------------------------------------
*
*
*** AREA 2023 - ROW, uncontrolled
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .72
| 06:002023 DT= 5.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   50.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .36          .36
     Dep. Storage     (mm)=       1.57         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     200.00        20.00
     Mannings n           =       .013         .250

     Max.eff.Inten.(mm/hr)=      67.16        46.21
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       4.54 (ii)   10.88 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .23          .11
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .07          .04        .106 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.75       2.750
     RUNOFF VOLUME    (mm)=      71.43        39.77      55.599
     TOTAL RAINFALL   (mm)=      73.00        73.00      73.000
     RUNOFF COEFFICIENT   =        .98          .54        .762
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  82.0    Ia = Dep. Storage   (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------
*** AREA 99 - Pond Area, undeveloped
*   Area of the proposed pond is taken as undevloped.
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.05   Curve Number   (CN)=88.00
| 04:000102 DT= 2.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .083

     Unit Hyd Qpeak  (cms)=     .483

     PEAK FLOW       (cms)=     .151 (i)
     TIME TO PEAK    (hrs)=    2.750
     RUNOFF VOLUME    (mm)=   44.167
     TOTAL RAINFALL   (mm)=   73.000
     RUNOFF COEFFICIENT   =     .605

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------
*
*
*** Total inflow to POND 2
--------------------
| ADD HYD (000401) | ID: NHYD     AREA      QPEAK    TPEAK    R.V.      DWF
--------------------              (ha)      (cms)    (hrs)    (mm)     (cms)
                 ID1 03:000901     7.50      .270     3.33   71.11     .000
```

+ID2	05:000902	11.24	1.785	2.75	66.68	.000
SUM	02:000401	18.74	2.024	2.75	68.45	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

001:0011

ADD HYD (000402)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1	02:000401	18.74	2.024	2.75	68.45	.000
+ID2	06:002023	.72	.106	2.75	55.60	.000
SUM	03:000402	19.46	2.130	2.75	67.98	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

001:0012

ADD HYD (000403)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1	01:000102	9.20	.879	2.83	36.57	.000
+ID2	03:000402	19.46	2.130	2.75	67.98	.000
SUM	02:000403	28.66	2.994	2.75	57.90	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

001:0013

ADD HYD (000404)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1	02:000403	28.66	2.994	2.75	57.90	.000
+ID2	04:000102	1.05	.151	2.75	44.17	.000
SUM	06:000404	29.71	3.145	2.75	57.41	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

001:0014

```
*
*
*** POND 2
*** Max. 50 yr stm release rate: 0.53 cms (ex. conditions peak flow)
* Route flow through proposed pond
```

ROUTE RESERVOIR
IN>06:(000404)
OUT<05:(000903)

Requested routing time step = 2.0 min.

OUTLFOW STORAGE TABLE

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
.000	.0000E+00	.450	.8400E+00
.060	.2800E+00	.530	.9400E+00
.290	.5900E+00	.600	.1097E+01
.360	.7000E+00	.000	.0000E+00

ROUTING RESULTS	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW >06: (000404)	29.71	3.145	2.750	57.411
OUTFLOW<05: (000903)	29.71	.547	4.357	57.410

PEAK FLOW REDUCTION [Qout/Qin](%)= 17.401
TIME SHIFT OF PEAK FLOW (min)= 96.43
MAXIMUM STORAGE USED (ha.m.)=.9788E+00

001:0015

```
*
*
      FINISH
-------------------------------------------------------------------------------
*******************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
 0004 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 0006 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 0008 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
   Simulation ended on 2003-07-22     at 13:32:57
===============================================================================
```

```
================================================================================

 SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999   55555 =========
 S      W W W  MM MM  H   H   Y Y   MM MM  O   O      9   9  5     =========
 SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  5     Ver.  3.1
     S   W W   M   M  H   H    Y    M   M  O   O       9999  5555  Oct. 1997
 SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      5 =========
                                                      9   9      5 # 4282778
      StormWater Management HYdrologic Model           999   5555  =========

********************************************************************************
*************************** SWMHYMO-95w Ver/3.1 ********************************
*******  A single event and continuous hydrologic simulation model  ********
*******     based on the principles of HYMO and its successors      ********
*******                 OTTHYMO-83 and OTTHYMO-89.                  ********
********************************************************************************
******* Distributed by:  J.F. Sabourin and Associates Inc.           ********
*******                  Ottawa,  Ontario: (613) 727-5199           ********
*******                  Gatineau, Quebec: (819) 243-6858           ********
*******                  E-Mail: swmhymo@jfsa.Com                   ********
********************************************************************************

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
+++++++ Licensed user: Spnr Consultants Ltd.                          +++++++
+++++++                Mississuga              SERIAL#:4282778       +++++++
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

********************************************************************************
*******          ++++++ PROGRAM ARRAY DIMENSIONS ++++++              ********
*******          Maximum value for ID numbers  :     10             ********
*******          Max. number of rainfall points:   5000             ********
*******          Max. number of flow points    :   5000             ********
********************************************************************************


********************   D E T A I L E D   O U T P U T   ********************
********************************************************************************
*       DATE: 2003-07-22     TIME: 11:29:07     RUN COUNTER: 001190       *
********************************************************************************
* Input   filename: C:\SWMHYMO\PROJECTS\CANSULT\100POS.DAT                     *
* Output  filename: C:\SWMHYMO\PROJECTS\CANSULT\100POS.out                     *
* Summary filename: C:\SWMHYMO\PROJECTS\CANSULT\100POS.sum                     *
* User comments:                                                               *
* 1:_____________________________________________________________________      *
* 2:_____________________________________________________________________      *
* 3:_____________________________________________________________________      *
********************************************************************************

--------------------------------------------------------------------------------
001:0001-----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name:  I.O. INVESTMENTS INC. TULLAMORE SUBDIVISION
*#  Date         : July 18, 2003
*#  Modeller     : [RAVI]
*#  Company      : Cansult . File:1171APOS.DAT
*#  License #    :
*#*****************************************************************************
*#   MODIFICATION FOR OUTLET 2
*#   MODIFICATION FOR MESP REPORT APPROVED IN JUNE 2000
*#   POST-DEVELOPMENT CONDITIONS.
*#   OUTLET TO TRIBUTARY OF WEST BRANCH OF WEST HUMBER RIVER.
*#   100 YEAR, 6HOUR AES STORMS.
*#
--------------------
| START            |  Project  dir.: C:\SWMHYMO\PROJECTS\CANSULT\
--------------------  Rainfall dir.: C:\SWMHYMO\PROJECTS\CANSULT\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
```

001:0002----------

READ STORM	Filename: C:\SWMHYMO\PROJECTS\CANSULT\100Y6.STM
Ptotal= 80.31 mm	Comments: 100yr/6hr

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	.000	2.00	27.300	3.75	11.240	5.50	1.610
.50	1.610	2.25	27.300	4.00	6.420	5.75	1.610
.75	1.610	2.50	73.880	4.25	6.420	6.00	1.610
1.00	1.610	2.75	73.880	4.50	3.210	6.25	1.610
1.25	1.610	3.00	20.880	4.75	3.210		
1.50	9.640	3.25	20.880	5.00	1.610		
1.75	9.640	3.50	11.240	5.25	1.610		

001:0003----------

*

*** AREA 102A - External, undeveloped

* This area does not change for the new runs.

CALIB NASHYD	Area (ha)= 9.20	Curve Number (CN)=82.00
01:000102 DT= 5.00	Ia (mm)= 6.000	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= .220	

Unit Hyd Qpeak (cms)= 1.597

PEAK FLOW (cms)= 1.021 (i)
TIME TO PEAK (hrs)= 2.833
RUNOFF VOLUME (mm)= 42.455
TOTAL RAINFALL (mm)= 80.310
RUNOFF COEFFICIENT = .529

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

001:0004----------

*

*** AREA 2021 - Roof area, controlled

CALIB STANDHYD	Area (ha)= 7.50	
02:002021 DT= 5.00	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	7.42	.07	
Dep. Storage	(mm)=	1.57	2.00	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	20.00	20.00	
Mannings n	=	.013	.250	
Max.eff.Inten.	(mm/hr)=	73.88	54.06	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	1.10 (ii)	7.05 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.34	.17	
				TOTALS
PEAK FLOW	(cms)=	1.52	.01	1.534 (iii)
TIME TO PEAK	(hrs)=	2.58	2.75	2.750
RUNOFF VOLUME	(mm)=	78.74	45.74	78.410
TOTAL RAINFALL	(mm)=	80.31	80.31	80.310
RUNOFF COEFFICIENT	=	.98	.57	.976

*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 82.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
001:0005-------------------------------------------------------------------------
*
* Route flow through roof top storage
* Max. release rate: 0.30 cms (based on 40 l/s/ha)
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  5.0 min.
|  IN>02:(002021)   |
| OUT<03:(000901)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |     .300  .3950E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >02: (002021)       7.50     1.534     2.750     78.410
     OUTFLOW<03: (000901)       7.50      .297     3.333     78.408

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   19.388
                  TIME SHIFT OF PEAK FLOW         (min)=    35.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.3926E+00

-------------------------------------------------------------------------------
001:0006-------------------------------------------------------------------------
*
*
*** AREA 2022 - Reminder of industrial area, controlled
----------------------
| CALIB STANDHYD     |   Area    (ha)=   11.24
| 04:002022 DT= 5.00 |   Total Imp(%)=   85.00   Dir. Conn.(%)=   85.00
----------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=       9.55          1.69
     Dep. Storage      (mm)=       1.57          2.00
     Average Slope      (%)=       1.50          2.00
     Length             (m)=      50.00         20.00
     Mannings n            =       .013          .250

     Max.eff.Inten.(mm/hr)=      73.88         52.82
               over (min)        5.00         10.00
     Storage Coeff.  (min)=       1.68 (ii)     7.70 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=        .32           .13
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.96           .23          2.187 (iii)
     TIME TO PEAK    (hrs)=       2.75          2.75          2.750
     RUNOFF VOLUME    (mm)=      78.74         45.74         73.790
     TOTAL RAINFALL   (mm)=      80.31         80.31         80.310
     RUNOFF COEFFICIENT   =        .98           .57           .919
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  82.0     Ia = Dep. Storage   (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
001:0007-------------------------------------------------------------------------
*
* Route flow through parking lot storage
* Max. release rate: 2.02 cms (based on 180 l/s/ha)
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  5.0 min.
|  IN>04:(002022)   |
| OUT<05:(000902)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.020  .1550E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
```

```
--------------------        (ha)      (cms)      (hrs)        (mm)
INFLOW >04: (002022)       11.24      2.187      2.750      73.790
OUTFLOW<05: (000902)       11.24      1.974      2.750      73.790

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=   90.246
                TIME SHIFT OF PEAK FLOW          (min)=      .00
                MAXIMUM  STORAGE   USED        (ha.m.)=.1547E+00

--------------------------------------------------------------------------------
001:0008----------------------------------------------------------------------
*
*
*** AREA 2023 - ROW, uncontrolled
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .72
| 06:002023 DT= 5.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   50.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .36          .36
     Dep. Storage     (mm)=       1.57         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     200.00        20.00
     Mannings n           =       .013         .250

     Max.eff.Inten.(mm/hr)=      73.88        52.82
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       4.37 (ii)   10.38 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .23          .11
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .07          .05          .120 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.75         2.750
     RUNOFF VOLUME    (mm)=      78.74        45.74        62.241
     TOTAL RAINFALL   (mm)=      80.31        80.31        80.310
     RUNOFF COEFFICIENT   =        .98          .57          .775
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  82.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------
*** AREA 99 - Pond Area, undeveloped
*   Area of the proposed pond is taken as undevloped.
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.05   Curve Number   (CN)=88.00
| 04:000102 DT= 2.00 |   Ia      (mm)=   6.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .083

     Unit Hyd Qpeak  (cms)=     .483

     PEAK FLOW       (cms)=     .172 (i)
     TIME TO PEAK    (hrs)=    2.750
     RUNOFF VOLUME    (mm)=   50.685
     TOTAL RAINFALL   (mm)=   80.310
     RUNOFF COEFFICIENT   =     .631

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------
*
*
*** Total inflow to POND 2
--------------------
| ADD HYD (000401) | ID: NHYD     AREA      QPEAK   TPEAK   R.V.      DWF
--------------------               (ha)      (cms)   (hrs)   (mm)    (cms)
```

	ID1 03:000901	7.50	.297	3.33	78.41	.000
	+ID2 05:000902	11.24	1.974	2.75	73.79	.000
	SUM 02:000401	18.74	2.237	2.75	75.64	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

001:0011

ADD HYD (000402)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
	ID1 02:000401	18.74	2.237	2.75	75.64	.000
	+ID2 06:002023	.72	.120	2.75	62.24	.000
	SUM 03:000402	19.46	2.357	2.75	75.14	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

001:0012

ADD HYD (000403)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
	ID1 01:000102	9.20	1.021	2.83	42.46	.000
	+ID2 03:000402	19.46	2.357	2.75	75.14	.000
	SUM 02:000403	28.66	3.364	2.75	64.65	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

001:0013

ADD HYD (000404)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
	ID1 02:000403	28.66	3.364	2.75	64.65	.000
	+ID2 04:000102	1.05	.172	2.75	50.69	.000
	SUM 06:000404	29.71	3.536	2.75	64.16	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

001:0014

```
*
*
*** POND 2
*** Max. 100 yr stm release rate: 0.60 cms (ex. conditions peak flow)
* Route flow through proposed pond
```

ROUTE RESERVOIR	Requested routing time step = 2.0 min.
IN>06:(000404)	
OUT<05:(000903)	========= OUTLFOW STORAGE TABLE =========

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
.000	.0000E+00	.450	.8400E+00
.060	.2800E+00	.530	.9400E+00
.290	.5900E+00	.600	.1097E+01
.360	.7000E+00	.000	.0000E+00

ROUTING RESULTS	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW >06: (000404)	29.71	3.536	2.750	64.157
OUTFLOW<05: (000903)	29.71	.600	4.357	64.155

PEAK FLOW REDUCTION [Qout/Qin](%)= 16.962
TIME SHIFT OF PEAK FLOW (min)= 96.43
MAXIMUM STORAGE USED (ha.m.)=.1097E+01

```
001:0015--------------------------------------------------------------------------
*
*
      FINISH
--------------------------------------------------------------------------------
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
 0004 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 0006 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 0008 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
   Simulation ended on 2003-07-22     at 11:29:09
================================================================================
```

Appendix B
Pond Stage-Storage-Discharge Curves

POND STAGE - STORAGE - DISCHARGE CURVES

PROJECT: C3075 - TULLAMORE INDUSTRIAL SUBDIVISION

Data:

1. Top of Permanent Pool EL.	228.80	
2. Orifice Low Flow Outlet Inv.	228.80	
3. Weir High Flow Outlet - 1 Inv.	229.40	
4. Weir High Flow Outlet - 2 Inv.	230.16	
5. Emergency Overflow Weir EL.	230.90	
Trapezoidal weir side slope	2:1	
Avg. Weir Length	L + 2*h	

Low Flow Outlet		
Orifice Diameter	0.20	m
Orifice Coefficient	0.60	
High Flow Outlet - 1		
Weir Length	0.38	m
Weir Height	0.30	m
Weir Coefficient (metric)	1.67	
Orifice Coefficient	0.60	
High Flow Outlet - 2		
Weir Length	0.28	m
Weir Height	0.29	m
Weir Coefficient (metric)	1.67	
Orifice Coefficient	0.60	
Emergency Overflow Weir		
Weir Length	6.00	m
Weir Coefficient (metric)	1.67	

Orifice Flow, Q = C*A*(2*g*H)^0.5

Weir Flow, Q = C*L*H^1.5

Sharp Crested Weir Flow, Q = C*(L-0.2H)*H^1.5

Description	EL.	Surface Area	Average Area	Detention Storage Depth	Volume	Cumulative Volume	Orifice Flow	Orifice / Weir Flow	Orifice / Weir Flow	Emergency Overflow Weir		Total Flow	Allowable Flow
							Low Outlet	High Outlet 1	High Outlet - 2	Avg. Weir Length	Weir Flow		(As per MESP Report)
	(m)	(m^2)	(m^2)	(m)	(m^3)	(ha-m)	(m^3/s)	(m^3/s)	(m^3/s)	(m)	(m^3/s)	(m^3/s)	(m^3/s)
at Bottom	227.00	1881											
			2919										
at Permanent Pool Level	228.80	3957		1.80	5254		0.0001					0.0001	
			4428										
0.5m above P.Pool	229.30	4899		0.50	2214	0.2214	0.053					0.05	
			4979										
DRC	229.42	5059		0.62	597	0.2811	0.060	0.002				0.06	**0.06**
			5222										
2 Year Level	229.66	5385		0.86	1253	0.4065	0.073	0.073				0.15	**0.19**
			5683										
5 Year Level	230.01	5980		1.21	1989	0.6054	0.088	0.205				0.29	**0.29**
			6090										
10 Year Level	230.21	6200		1.41	1218	0.7272	0.096	0.246				0.34	**0.36**
			6375										
25 Year Level	230.44	6550		1.64	1466	0.8738	0.104	0.286	0.055			0.44	**0.45**
			6625										
50 Year Level	230.59	6700		1.79	994	0.9732	0.109	0.309	0.115			0.53	**0.53**
			6895										
100 Year Level	230.77	7090		1.97	1241	1.0973	0.114	0.335	0.147			0.60	**0.60**
			7134										
Emergency Overflow Level	230.90	7177		2.10	927	1.1900	0.118	0.352	0.166			0.64	
			7291										
at Top Level	231.05	7405		2.25	1094	1.2994	0.122	0.371	0.186	6.3	0.611	1.29	

Sharp Crested Weir Flow

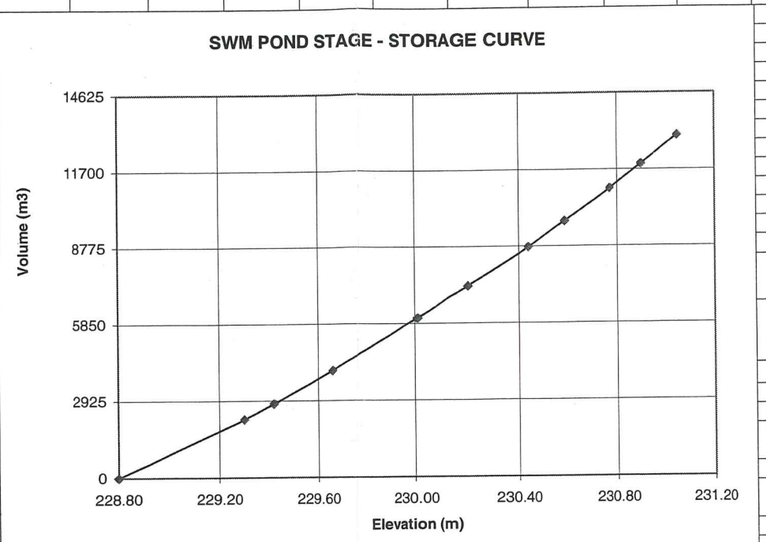
Sharp Crested Weir Flow

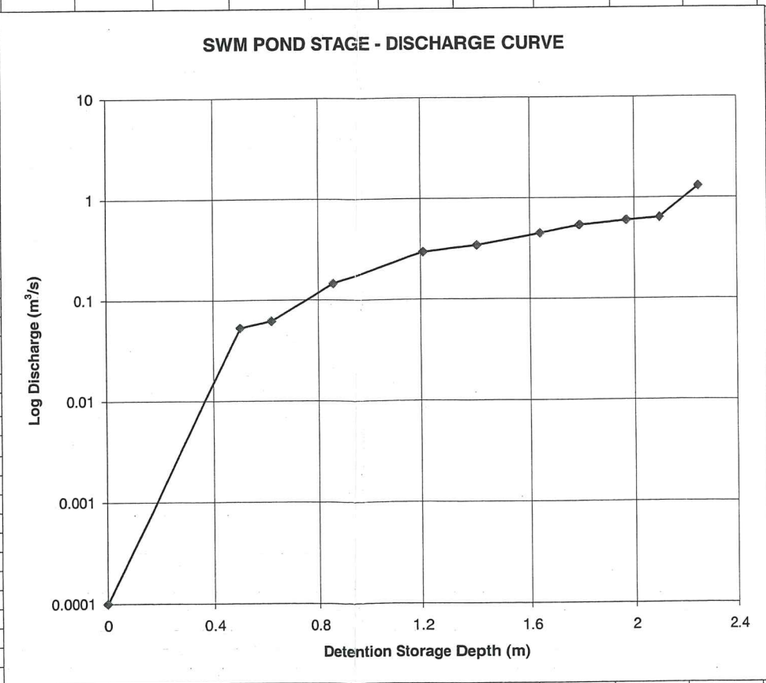
Total Weir Flow at EL 230.90 = **1.17** (For flows higher than 100 Year storm event)

(High Outlet -1 + High Outlet - 2 + Emergency Overflow)

Plot Data:

	EL.	Depth	Volume	Discharge
	(m)	(m)	(m^3)	(m^3/s)
at Permanent Pool Level	228.80	0.00	0	0.00
0.5m above P.Pool	229.30	0.50	2214	0.05
DRC	229.42	0.62	2811	0.06
2 Year	229.66	0.86	4065	0.15
5 Year	230.01	1.21	6054	0.29
10 Year	230.21	1.41	7272	0.34
25 Year	230.44	1.64	8738	0.44
50 Year	230.59	1.79	9732	0.53
100 Year	230.77	1.97	10973	0.60
Emergency Overflow Level	230.90	2.10	11900	0.64
Top of Berm	231.05	2.25	12994	1.29





Appendix C
Storm Drainage Design Charts

10 Year Storm
100 Year Storm

THE CORPORATION OF THE

TOWN OF CALEDON

Development: Tullamore Industrial Subdivision
Consultant: Cansult Ltd.
Major Drainage Area:

INFRASTRUCTURE DEPARTMENT

STORM DRAINAGE DESIGN CHART
FOR CIRCULAR PIPES FLOWING FULL - 10 YEAR STORM

Sheet No: 1 of 1
Designed By: Ravisuthan
Checked By:
Date: 7-Mar-2003

LOCATION					DRAINAGE AREA				RUNOFF				PIPE SELECTION							Minor Losses	PROFILE							NOTES / DESCRIPTION
																					UPSTREAM				DOWNSTREAM			
STREET / BLOCK	FROM		TO		A	C	CA	Cumul. CA	External Tc	Cumul. Tc	Intensity	Q	Pipe Length	Pipe Slope	Pipe Dia	Capacity (Full)	Velocity (Full)	Change in V (Max. 0.6)	Time of Flow		Fall in Sewer	Surface Elev.	Inv Elev.	Cover	Surface Elev.	Inv Elev.	Cover	
	MH No.	Sta	MH No.	Sta							I	(0.0028*CIA)																
					(ha)				(min)	(min)	(mm/h)	(m^3/s)	(m)	(m/m)	(mm)	(m^3/s)	(m/s)	(m/s)	(min)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	
Ext. Flow from North	DICB-1	0+267	STMH-1	0+260								0.420	23.8	0.50	675	0.594	1.66		0.24		0.119	236.910	235.269	0.97	237.420	235.150	1.59	Ext. Flow 70% of 600 I/s
Block 3	STMH-1C	0+280	STMH-1	0+260	2.19							0.272	27.3	0.45	525	0.288	1.33		0.34		0.123	237.730	235.423	1.78	237.420	235.300	1.59	Controlled Flow
Hewson Court	Road	0+286.5	Road	0+195	0.27	0.90	0.243	0.243	10.0		134.16	0.091																
	STMH-1	0+260	STMH-2	0+137.2								0.783	121.5	0.45	825	0.962	1.80	0.47	1.12		0.547	237.420	235.000	1.59	236.950	234.453	1.67	
Block 2	STMH-2C	0+137.2	STMH-2	0+137.2	2.33							0.290	13.0	0.50	600	0.434	1.54		0.14		0.065	237.100	234.743	1.76	236.950	234.678	1.67	Controlled Flow
Ext. Flow from North	DICB-2	0+119.0	STMH-4	0+117.4								0.180	13.6	0.90	450	0.270	1.70		0.13		0.122	236.680	235.017	1.21	236.940	234.895	1.59	Ext. Flow 30% of 600 I/s
Block 1	STMH-3C	0+108.5	STMH-4	0+117.4	1.47							0.183	15.1	0.55	450	0.211	1.33		0.19		0.083	237.110	234.978	1.68	236.940	234.895	1.59	Controlled Flow
Hewson Court	Road	0+065	Road	0+000	0.14	0.90	0.126	0.126	10.0		134.16	0.047																
	STMH-4C	0+070.4	STMH-4	0+117.4								0.047	46.0	1.00	300	0.097	1.37		0.56		0.460	237.300	235.505	1.50	236.940	235.045	1.60	
Hewson Court	STMH-4	0+117.4	STMH-3	0+130.4								0.410	15.2	0.78	600	0.542	1.92	0.59	0.13		0.119	236.940	234.745	1.59	236.600	234.626	1.37	
	Road	0+195	Road	0+065	0.31	0.90	0.279	0.279	10.0		134.16	0.105																
	STMH-2	0+137.2	STMH-3	0+130.4								1.073	11.5	0.45	900	1.214	1.91	0.11	0.10		0.052	236.950	234.378	1.67	236.650	234.326	1.42	
Easement	STMH-3	0+013 (0+130.4)	STMH-5	0+162.8								1.588	150.0	0.70	975	1.874	2.51	0.59	1.00		1.050	236.650	234.136	1.54	235.900	233.086	1.84	
Block 4 (Part)	STMH-6	0+157	STMH-5	0+162.8	3.90							0.483	11.0	1.20	600	0.672	2.38	0.53	0.08		0.132	236.300	233.593	2.11	235.900	233.461	1.84	Controlled Flow
Block 5	STMH-7	0+157	STMH-5	0+162.8	1.70							0.211	11.5	1.65	450	0.366	2.30	0.60	0.08		0.190	236.300	233.800	2.05	235.900	233.611	1.84	Controlled Flow
Ext. Flow from East	From Area A11				2.94							0.364																Controlled Flow
Easement	STMH-5	0+162.8	STMH-9	0+287.8								2.282	125.0	0.85	1050	2.516	2.91	0.40	0.72		1.063	235.900	233.011	1.84	234.300	231.948	1.30	
Block 6	From Area A12				0.61							0.076																Controlled Flow
Easement	STMH-9	0+287.8	Head Wall	0+373.5								2.722	85.0	1.10	1050	2.863	3.31		0.43		0.935	234.300	231.873	1.38	233.800	230.938	1.81	
Easement	Head Wall	0+373.5	Pond									2.722																
Block 4 (Part)	STMH-8		Head Wall	0+373.5	3.60							0.447	8.0	0.50	675	0.594	1.66		0.08		0.040	233.000	231.915	0.41	233.800	231.875	1.25	Controlled Flow
Easement	DICB MH	0+364	PIPE										8.0	0.50	600													

Revised on 07 March 2003

Q = Flow (m^3/s)
C = Runoff Coefficient
I = Rainfall Intensity (mm/h)
A = Area (Ha)
g = 9.81 m/s^2

2 Year I = 1070 / (T_d + 9.85)^0.8759
5 Year I = 1593 / (T_d + 11.0)^08789
10 Year I = 2221 / (T_d + 12.0)^0.9080
25 Year I = 3158 / (T_d + 15.0)^0.9335
50 Year I = 3886 / (T_d + 16.0)^0.9495
100 Year I = 4688 / (T_d + 17.0)^0.9624

THE CORPORATION OF THE

TOWN OF CALEDON

Development: Tullamore Industrial Subdivision
Consultant: Cansult Ltd.
Major Drainage Area:

INFRASTRUCTURE DEPARTMENT

STORM DRAINAGE DESIGN CHART
FOR CIRCULAR PIPES FLOWING FULL - 100 YEAR STORM

Sheet No: 1 of 1
Designed By: Ravisuthan
Checked By:
Date: 7-Mar-2003

LOCATION					DRAINAGE AREA				RUNOFF				PIPE SELECTION							Minor Losses	PROFILE							NOTES / DESCRIPTION
																					UPSTREAM				DOWNSTREAM			
STREET / BLOCK	FROM		TO		A	C	CA	Cumul. CA	External Tc	Cumul. Tc	Intensity I	Q (0.0028*CIA)	Pipe Length	Pipe Slope	Pipe Dia	Capacity (Full)	Velocity (Full)	Change in V (Max. 0.6)	Time of Flow		Fall in Sewer	Surface Elev.	Inv Elev.	Cover	Surface Elev.	Inv Elev.	Cover	
	MH No.	Sta	MH No.	Sta																								
					(ha)				(min)	(min)	(mm/h)	(m^3/s)	(m)	(m/m)	(mm)	(m^3/s)	(m/s)	(m/s)	(min)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	
Ext. Flow from North	DICB-1	0+267	STMH-1	0+260						DITCH - 1 →		0.700				Actual Flow through Ditch - 1 = 0.700 m^3/s (Ext. Overland Flow to DICB-1)												Ext. Flow 70% of 1000 l/s
Block 3	STMH-1C	0+280	STMH-1	0+260	2.19							0.272																Controlled Flow
Hewson Court	Road	0+286.5	Road	0+195	0.27	0.90	0.243	0.243	10.0		196.54	0.134																
	STMH-1	0+260	STMH-2	0+137.2								1.106																
Block 3	STMH-2C	0+137.2	STMH-2	0+137.2	2.33							0.290																Controlled Flow
Ext. Flow from North	DICB-2	0+119.0	STMH-4	0+117.4						DITCH - 2 →		0.300				Actual Flow through Ditch - 2 = 0.300 m^3/s (Ext. Overland Flow to DICB-2)												Ext. Flow 30% of 1000 l/s
Block 1	STMH-3C	0+108.5	STMH-4	0+117.4	1.47							0.183																Controlled Flow
Hewson Court	Road	0+065	Road	0+000	0.14	0.90	0.126	0.126	10.0		196.54	0.069																
	STMH-4C	0+070.4	STMH-4	0+117.4								0.069																
Hewson Court	STMH-4	0+117.4	STMH-3	0+130.4								0.552																
	Road	0+195	Road	0+065	0.31	0.90	0.279	0.279	10.0		196.54	0.154																
	STMH-2	0+137.2	STMH-3	0+130.4								1.396																
Easement	STMH-3	1+013 (0+130.4)	STMH-5	0+162.8						DITCH - 3 →		2.102				Actual Flow through Ditch - 3 =(2.102 - 1.588) = 0.514 m^3/s (STMH-3 to STMH-5)												
Block 4 (Part)	STMH-6	0+157	STMH-5	0+162.8	3.90							0.483																Controlled Flow
Block 5	STMH-7	0+157	STMH-5	0+162.8	1.70							0.211																Controlled Flow
Ext. Flow from East	From Area A11				2.94	0.25	0.735	0.735	10.0		196.54	0.404																Pre Dev. Flow Uncontrolled
												0.364																Post Dev. Flow Controlled
Easement	STMH-5	0+162.8	STMH-9	0+287.8								3.200																
Block 6	From Area A12				0.61							0.076																
Easement	STMH-9	0+287.8	Head Wall	0+373.5						DITCH - 4 →		3.200				Actual Flow through Ditch - 4 =(3.200 - 2.282) = 0.918 m^3/s (STMH-5 to STMH-9 to Headwall)												
Easement	Head Wall	0+373.5	Pond							DITCH-5 →		3.276				Actual Flow through Ditch - 5 = 3.276 m^3/s (Headwall to Pond)												
Block 4 (Part)	STMH-8		Head Wall	0+373.5	3.60							0.447																Controlled Flow
Easement	DICB MH	0+364	PIPE																									

Revised on 07 March 2003

Q = Flow (m^3/s)
C = Runoff Coefficient
I = Rainfall Intensity (mm/h)
A = Area (Ha)
g = 9.81 m/s^2

2 Year I = 1070 / (T_d + 9.85)^0.8759
5 Year I = 1593 / (T_d + 11.0)^08789
10 Year I = 2221 / (T_d + 12.0)^0.9080
25 Year I = 3158 / (T_d + 15.0)^0.9335
50 Year I = 3886 / (T_d + 16.0)^0.9495
100 Year I = 4688 / (T_d + 17.0)^0.9624

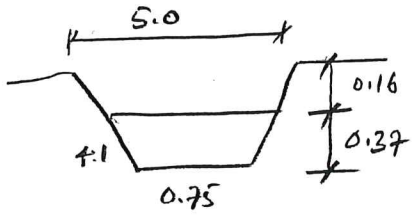
Appendix D
Ditch Size Calculations

DITCH-1A (TEMP. WORKING EASEMENT)
Worksheet for Trapezoidal Channel

Project Description	
Project File	p:\c3000 - urban engineering\c3075 tullamore\swm\mar 2003\tullamor.fm2
Worksheet	Ditch-1A (Temp. Working Easement)
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.030	
Channel Slope	0.005	m/m
Left Side Slope	4.00	H : V
Right Side Slope	4.00	H : V
Bottom Width	0.75	m
Discharge	0.70	m^3/s

Results		
Depth	0.37	m
Flow Area	0.82	m^2
Wetted Perimeter	3.80	m
Top Width	3.71	m
Critical Depth	0.28	m
Critical Slope	0.016218	m/m
Velocity	0.85	m/s
Velocity Head	0.04	m
Specific Energy	0.41	m
Froude Number	0.58	
Flow is subcritical.		

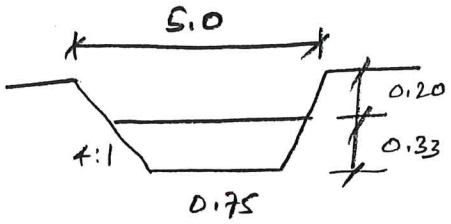


DITCH-1 (EXT. FLOW TO DICB-1)
Worksheet for Trapezoidal Channel

Project Description	
Project File	p:\c3000 - urban engineering\c3075 tullamore\swm\mar 2003\tullamor.fm2
Worksheet	Ditch-1 (Ext. Flow to DICB-1)
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.030	
Channel Slope	0.0083	m/m
Left Side Slope	4.00	H : V
Right Side Slope	4.00	H : V
Bottom Width	0.75	m
Discharge	0.70	m^3/s

Results		
Depth	0.33	m
Flow Area	0.68	m^2
Wetted Perimeter	3.47	m
Top Width	3.39	m
Critical Depth	0.28	m
Critical Slope	0.016218	m/m
Velocity	1.03	m/s
Velocity Head	0.05	m
Specific Energy	0.38	m
Froude Number	0.73	
Flow is subcritical.		

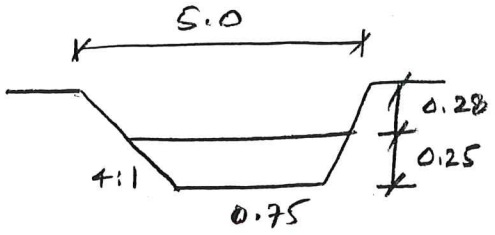


DITCH-2A (TEMP. WORKING EASEMENT)
Worksheet for Trapezoidal Channel

Project Description	
Project File	p:\c3000 - urban engineering\c3075 tullamore\swm\mar 2003\tullamor.fm2
Worksheet	Ditch-2A (Temp. Working Easment)
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.030	
Channel Slope	0.0048	m/m
Left Side Slope	4.00	H : V
Right Side Slope	4.00	H : V
Bottom Width	0.75	m
Discharge	0.30	m³/s

Results		
Depth	0.25	m
Flow Area	0.45	m²
Wetted Perimeter	2.84	m
Top Width	2.77	m
Critical Depth	0.18	m
Critical Slope	0.018232	m/m
Velocity	0.67	m/s
Velocity Head	0.02	m
Specific Energy	0.28	m
Froude Number	0.54	
Flow is subcritical.		

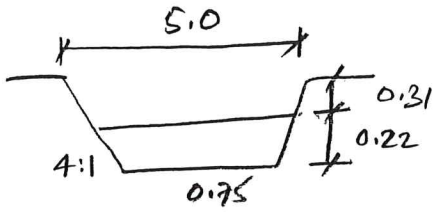


DITCH-2 (EXT. FLOW TO DICB-2)
Worksheet for Trapezoidal Channel

Project Description	
Project File	p:\c3000 - urban engineering\c3075 tullamore\swm\mar 2003\tullamor.fm2
Worksheet	Ditch-2 (Ext. Flow to DICB-2)
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.030	
Channel Slope	0.009	m/m
Left Side Slope	4.00	H : V
Right Side Slope	4.00	H : V
Bottom Width	0.75	m
Discharge	0.30	m^3/s

Results		
Depth	0.22	m
Flow Area	0.35	m^2
Wetted Perimeter	2.55	m
Top Width	2.49	m
Critical Depth	0.18	m
Critical Slope	0.018231	m/m
Velocity	0.85	m/s
Velocity Head	0.04	m
Specific Energy	0.25	m
Froude Number	0.72	
Flow is subcritical.		



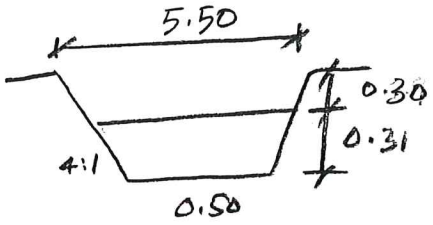
DITCH-3 (STMH-3 TO STMH-5)
Worksheet for Trapezoidal Channel

Project Description	
Project File	p:\c3000 - urban engineering\c3075 tullamore\swm\mar 2003\tullamor.fm2
Worksheet	Ditch-3 (STMH-3 to STMH-5)
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.030	
Channel Slope	0.0085	m/m
Left Side Slope	4.00	H : V
Right Side Slope	4.00	H : V
Bottom Width	0.50	m
Discharge	0.514	m³/s

100 year storm - 10 year storm
2.102 − 1.588 = 0.514 m³/s

Results		
Depth	0.31	m
Flow Area	0.53	m²
Wetted Perimeter	3.04	m
Top Width	2.96	m
Critical Depth	0.26	m
Critical Slope	0.016878	m/m
Velocity	0.96	m/s
Velocity Head	0.05	m
Specific Energy	0.36	m
Froude Number	0.73	
Flow is subcritical.		



DITCH-4 (STMH-5 TO STMH-9 TO HEADWALL)
Worksheet for Trapezoidal Channel

Project Description	
Project File	p:\c3000 - urban engineering\c3075 tullamore\swm\mar 2003\tullamor.fm2
Worksheet	Ditch-4 (STMH-5 to STMH-9 to Headwall)
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.030	
Channel Slope	0.0085	m/m
Left Side Slope	4.00	H : V
Right Side Slope	4.00	H : V
Bottom Width	0.50	m
Discharge	0.918	m³/s

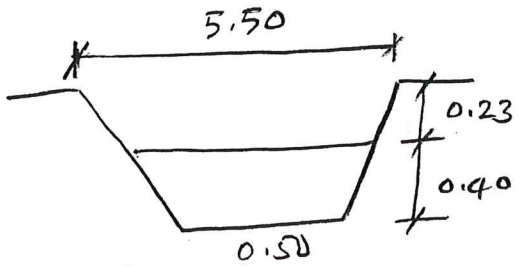
100 year Storm − 10 year Storm

(3.20 − 2.282) = 0.918 m³/s

Note:

Ditch is sized to carry Pre-Development Flow from Area A11 (0.404 m³/s)

Results		
Depth	0.40	m
Flow Area	0.82	m²
Wetted Perimeter	3.76	m
Top Width	3.66	m
Critical Depth	0.35	m
Critical Slope	0.015619	m/m
Velocity	1.12	m/s
Velocity Head	0.06	m
Specific Energy	0.46	m
Froude Number	0.75	
Flow is subcritical.		

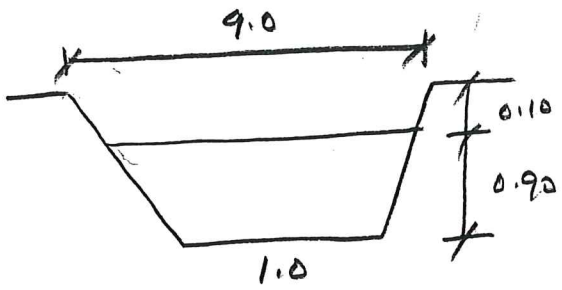


DITCH-5 (HEADWALL TO POND)
Worksheet for Trapezoidal Channel

Project Description	
Project File	p:\c3000 - urban engineering\c3075 tullamore\swm\mar 2003\tullamor.fm2
Worksheet	Ditch-5 (Headwall to Pond)
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.035	
Channel Slope	0.0020	m/m
Left Side Slope	4.00	H : V
Right Side Slope	4.00	H : V
Bottom Width	1.00	m
Discharge	3.276	m^3/s

Results		
Depth	0.90	m
Flow Area	4.12	m^2
Wetted Perimeter	8.40	m
Top Width	8.18	m
Critical Depth	0.56	m
Critical Slope	0.017945	m/m
Velocity	0.79	m/s
Velocity Head	0.03	m
Specific Energy	0.93	m
Froude Number	0.36	
Flow is subcritical.		

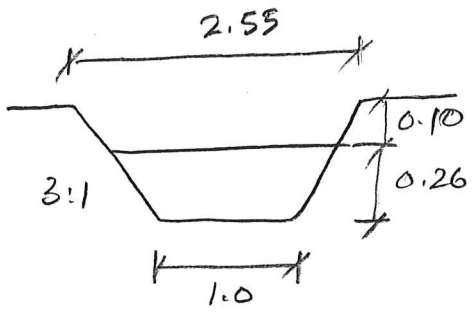


Wetland Overflow Channel
Worksheet for Trapezoidal Channel

Project Description	
Project File	p:\c3000 - urban engineering\c3075 tullamore\swm\mar 2003\tullamor.fm2
Worksheet	Wetland Overflow Channel
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.030	
Channel Slope	0.015700	m/m
Left Side Slope	3.00	H : V
Right Side Slope	3.00	H : V
Bottom Width	1.00	m
Discharge	0.60	m^3/s

Results		
Depth	0.26	m
Flow Area	0.46	m^2
Wetted Perimeter	2.64	m
Top Width	2.55	m
Critical Depth	0.26	m
Critical Slope	0.016360	m/m
Velocity	1.30	m/s
Velocity Head	0.09	m
Specific Energy	0.35	m
Froude Number	0.98	
Flow is subcritical.		



STONE PROTECTION AT INLET OF POND

From Ditch-5 Calculation, Velocity = 0.79 m/s
= 2.60 ft/s

From Chart (attached)

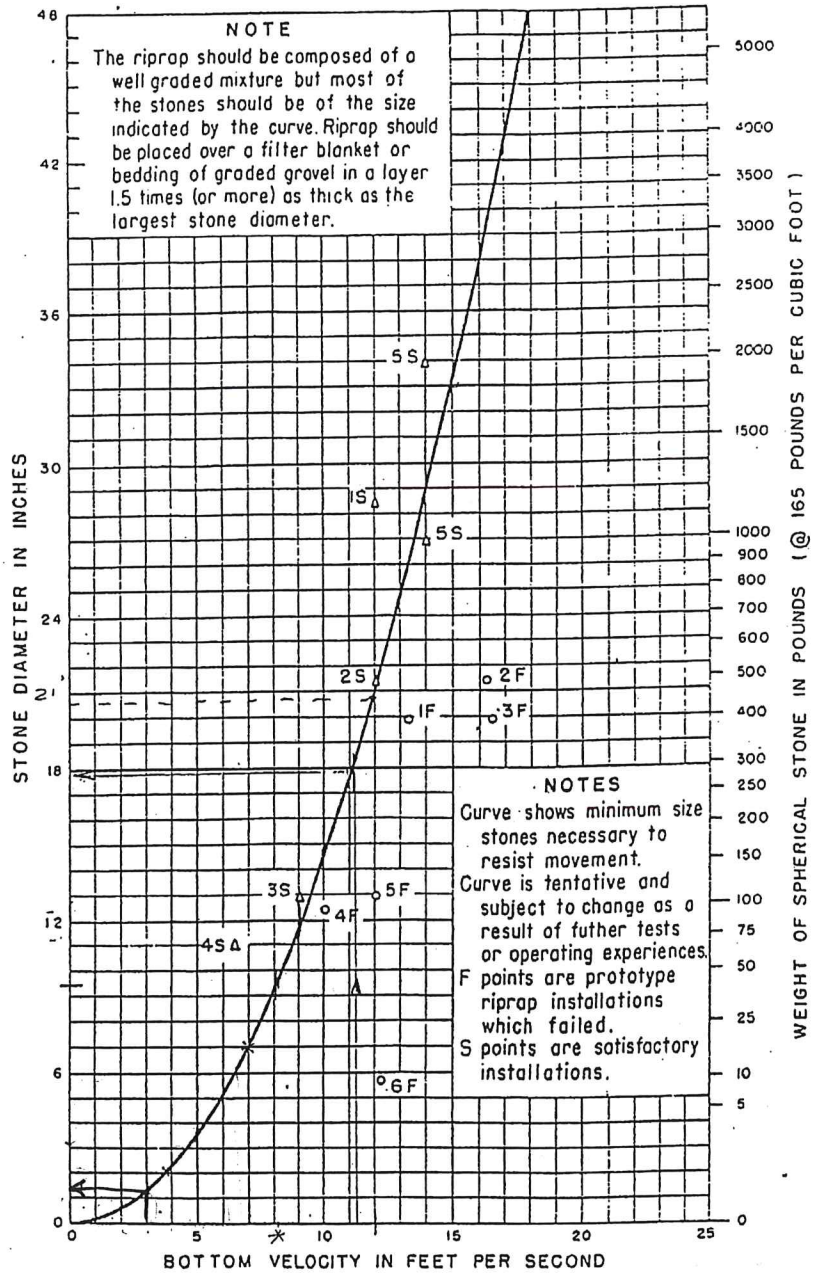
Required stone size for velocity of 2.60 ft/s = 1" dia

Provided 250mm (min.) dia stones

CANSULT	CLIENT	DATE 24 July 2003
	PROJECT Tweedmere	PREPARED BY
	SHEET TITLE	CHECKED BY
	JOB NO.	SHEET OF

Source : MOE , MEA
"Training Manual : Sewer & Watermain Design Course"

SIZE OF RIPRAP



Curve to determine maximum stone size in riprap mixture.

Ditch Inlet Manhole - Pipe Orifice Capacity Calculation

The calculated 100 year ditch flow into the ditch inlet manhole located east of the concrete headwall outfall structure is estimated to be 0.918 cms. (refer to Ditch 4 calculation) The resultant pipe orifice conveying the above flow is as follows:

- The pipe orifice calculation:
  Pipe Orifice = CA $\sqrt{2gh}$,
  C = 0.625 (submerged outlet)
  g = 9.81
  h = 1.8 metres (to springline of 600 mm pipe)
  A = 0.282 sq.m. (600 mm diameter pipe orifice)
  Q = 1.05 cms. > 0.918 cms.

- Therefore the 600 mm diameter pipe orifice is capable of conveying the estimated 100 year ditch flow of 0.918 cms under head conditions.

Ditch Inlet Manhole - Grate Size Calculation

Grate Size 1200mm x 600mm - OPSD 705.040, Type 'C'

Unobstructed inlet capacity required = $\frac{2 \times 0.918}{1.20}$

= 1.53 m^3/s/metre width of grate

From MTO Manual, Chart E4-11 (using preliminary curve for 6:1 slope)

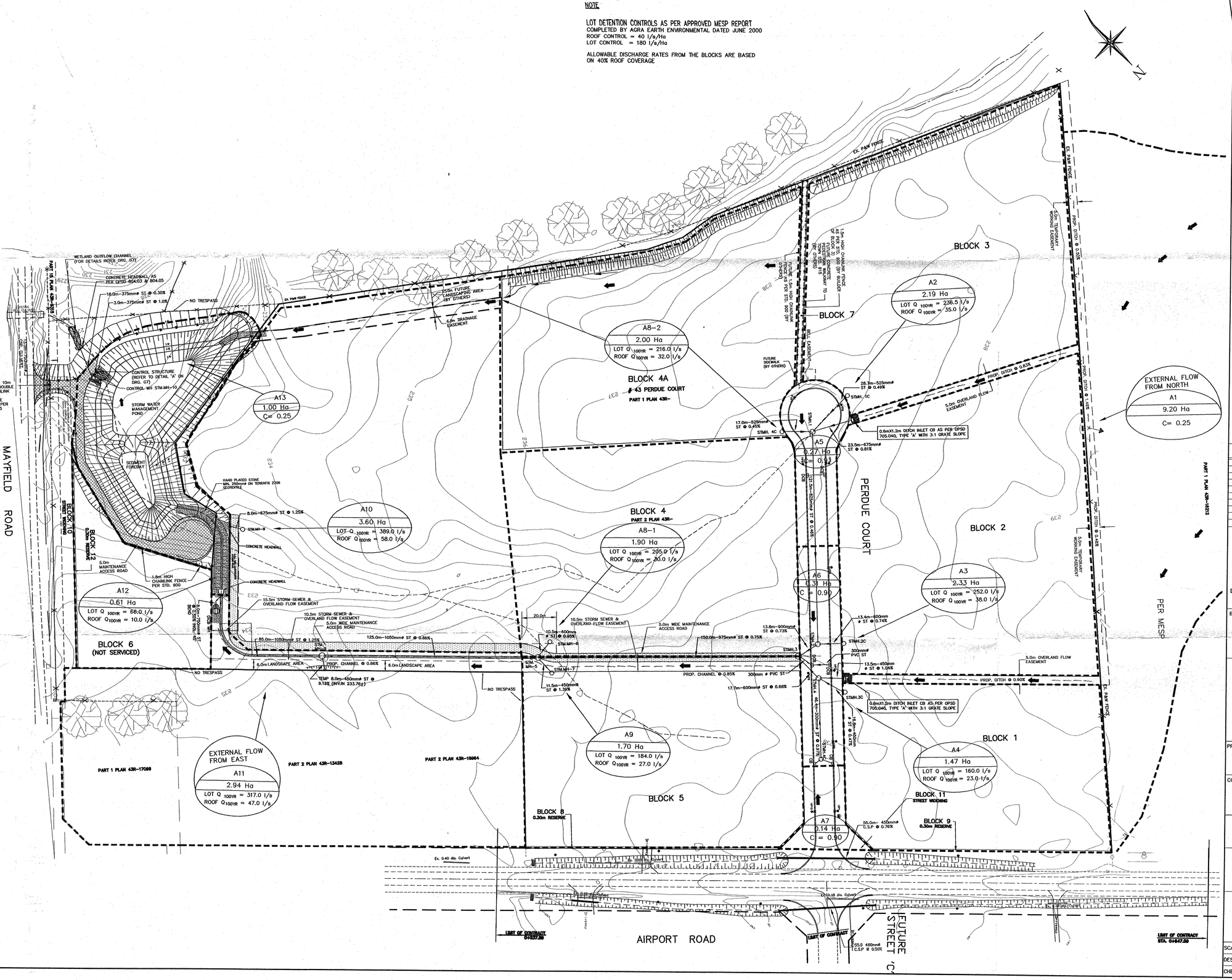
Required flow depth = 0.41m < 0.63m (depth of ditch)

Therefore the proposed grate capacity is adequate to pass the 100 year ditch flow.

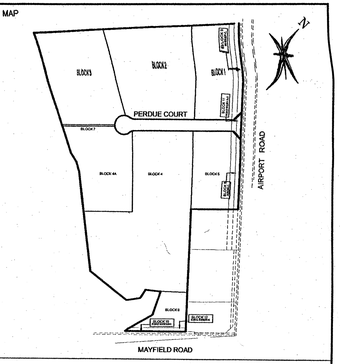
NOTE

LOT DETENTION CONTROLS AS PER APPROVED MESP REPORT
COMPLETED BY AGRA EARTH ENVIRONMENTAL DATED JUNE 2000
ROOF CONTROL = 40 l/s/Ha
LOT CONTROL = 180 l/s/Ha

ALLOWABLE DISCHARGE RATES FROM THE BLOCKS ARE BASED ON 40% ROOF COVERAGE



KEY MAP



LEGEND

- X 237.00 — PROP. ELEVATION
- 236.50 — EXISTING ELEVATION
- MIN. 3:1 SLOPE
- DOUBLE CATCH BASIN
- SINGLE CATCH BASIN
- DITCH INLET CATCH BASIN
- DOUBLE CATCH BASIN MANHOLE
- STORM MANHOLE
- OVERLAND FLOW ROUTE

A2 — AREA NO
2.47 Ha — DRAINAGE AREA (Ha)
LOT Q_{100YR} = 267.0 l/s, ROOF Q_{100YR} = 40.0 l/s — CONTROLLED RUNOFF FROM LOTS

A8 — AREA NO
0.25 Ha — DRAINAGE AREA (Ha)
C= 0.9 — RUNOFF COEFFICIENT

REFER TO DETAIL DRAWINGS FOR BLOCK SERVICE CONNECTION INVERT ELEVATIONS

NO.	BY	DATE	REVISION	CONS. CHECKED	TOWN APPR'D
2.	P.N.K	MAR 01, '05	ADDED BLOCK 4A & DRAINAGE EASEMENT TO BLOCK 4		B.A.L.
1.	S.G.	MAR 25, '04	BLOCKS 3,4&7 FRONTAGE REV. & BELL EASEMENT ADDED		B.A.L.

APPROVED FOR CONSTRUCTION

THIS APPROVAL CONSTITUTES A GENERAL REVIEW AND DOES NOT CERTIFY DIMENSIONAL ACCURACY.

THIS APPROVAL IS SUBJECT TO THE FURTHER CERTIFICATION OF THE "AS CONSTRUCTED" WORKS BY A REGISTERED PROFESSIONAL ENGINEER OF THE PROVINCE OF ONTARIO.

DATE: _____ APPROVED BY: _____
H. MUNTZ, P.ENG.
Town Engineer

BENCH MARK:
REGION OF PEEL BENCH MARK No. 2 ELEVATION = 241.702 m
ORIGINAL GROUND POINT ELEVATIONS INDICATED ON THIS PLAN ARE BASED ON 1999 FIELD SURVEYS PERFORMED BY YOUNG & YOUNG SURVEYING INC.

LICENSED PROFESSIONAL ENGINEER
P. Narendrakumar
100056087
Mar 02, 2005
PROVINCE OF ONTARIO

PROJECT NAME
I.O. INVESTMENTS INC.
TULLAMORE INDUSTRIAL SUBDIVISION
21T– 00001C

CONSULTANT
C A N S U L T
Engineers and Project Managers

Department of Public Works
Region of Peel
REGION FILE No.

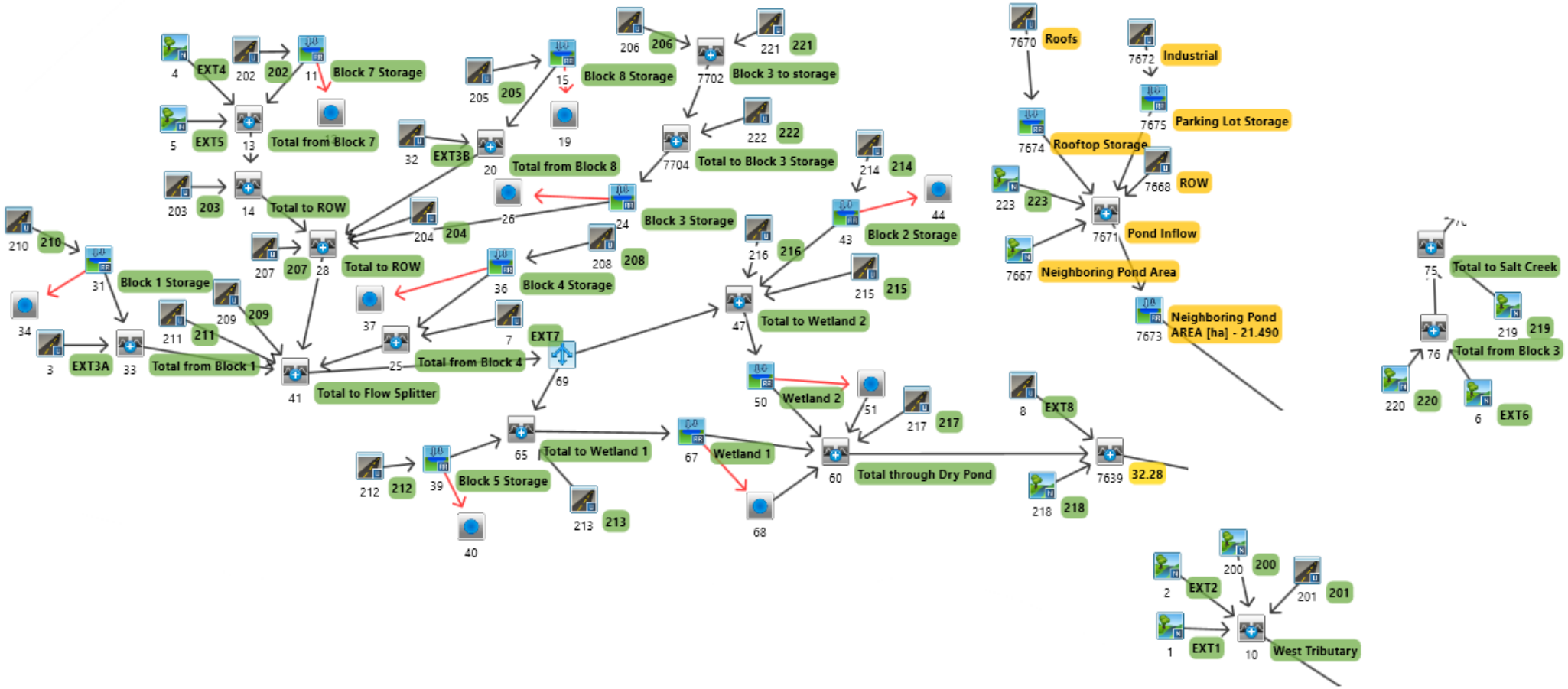
THE CORPORATION OF THE
TOWN OF CALEDON

STORM DRAINAGE AREA PLAN

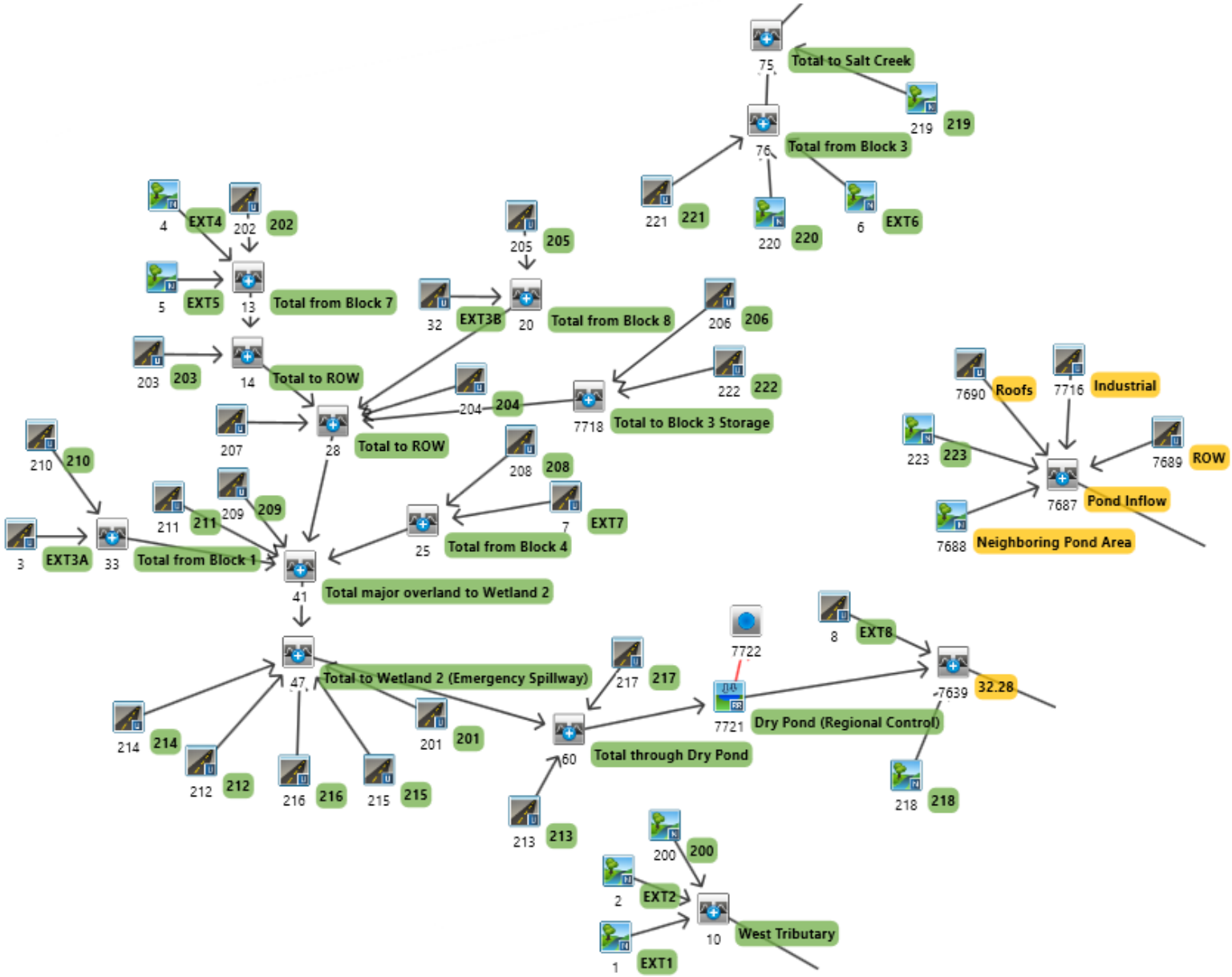
SCALE: HORIZ. 1:1000	VERT.	PROJECT No.	C3075
DESIGNED BY: G.R.	DRAWN BY: P.N.K	DRAWING No.	G3
CHECKED BY: S.G/B.A.L	DATE: MAY 06, 2003		

APPENDIX D

Post-Development Stormwater Management



VO PROPOSED MODEL SCHEMATIC (2-YEAR TO 100-YEAR STORM)
DATE: 2023-10-30
BY: IF
CHECK: RA



VO PROPOSED MODEL SCHEMATIC (REGIONAL STORM)
DATE: 2023-10-30
BY: IF
CHECK: RA

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**200**
Catchment AREA (ha)	**28.2**

Hydrologic Parameters: NASHYD Command
Post-Development Drainage Area: Catchment 200

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Chinguacousy Clay Loam	CCL	C	100	28.2
				0
Total Area Check				28.2

Impervious Landuses Present:											
	Driveway/Rooftop		Sidewalk		Gravel Driveway		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL		79				79					0.00

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL									28.2	79	28.2

CN Calculations		
	Total Area	28.2
	Composite Curve Number	79

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	28.20	0.25	0.25
Impervious	0.00	0.90	0.00
Gravel	0.00	0.60	0.00
Total Subcatchment	**28.2**	**-**	**0.25**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	28.2	(Meadow)
Impervious	1	0.00	
Total	8.0	28.2	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
813	22	2.71%	2.3	0.38	0.60	0.36	0.36	0.45	0.30	0.95	0.64

Appropriate calculated time to peak:	0.64	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**201**
Catchment AREA (ha)	**1.39**

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

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Chinguacousy Clay Loam	CCL	C	100	1.4
				0
Total Area Check				1.39

Impervious Landuses Present:											
	Industrial Land		Roadway		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL		84		84			1.4	79			1.39

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL											0.00

CN Calculations		
	Total Area	1.39
	Composite Curve Number	79

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Building	1.39	0.90	0.90
Total Subcatchment	**1.39**	**-**	**0.90**

TIMP	**0.99**
XIMP	**0.99**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	0.0
Impervious	1	1.4
Total	1.0	1.4

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	1.0	0.5	AUTO	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**EXT1**
Catchment AREA (ha)	**0.6**

Hydrologic Parameters: NASHYD Command
Post-Development Drainage Area: Catchment EXT1

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Chinguacousy Clay Loam	CCL	C	100	0.6
				0
Total Area Check				0.6

Impervious Landuses Present:											
	Driveway/Rooftop		Sidewalk		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL	0.10				0.00						0.10

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL							0.5	79			0.5

CN Calculations		
	Total Area	0.6
	Composite Curve Number	79

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
Pervious	0.50	0.25	0.21
Impervious	0.10	0.90	0.15
Total Subcatchment	**0.6**	**-**	**0.36**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	5	0.5	(Lawn)
Impervious	1	0.10	
Total	4.3	0.6	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
107	1	0.93%	2.3	0.22	0.13	0.08	0.08	0.11	0.07	0.43	0.29

Appropriate calculated time to peak:	0.29	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**EXT2**
Catchment AREA (ha)	**1.3**

Hydrologic Parameters: NASHYD Command
Post-Development Drainage Area: Catchment EXT2

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Chinguacousy Clay Loam	CCL	C	100	1.3
				0
Total Area Check				1.3

Impervious Landuses Present:											
	Driveway/Rooftop		Sidewalk		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL	0.20				0.00						0.20

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL							1.1	79			1.1

CN Calculations		
	Total Area	1.3
	Composite Curve Number	79

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	1.10	0.25	0.21
Impervious	0.20	0.90	0.14
Total Subcatchment	**1.3**	**-**	**0.35**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	5	1.1	(Lawn)
Impervious	1	0.20	
Total	4.4	1.3	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
184	11	5.98%	2.3	0.56	0.09	0.05	0.05	0.12	0.08	0.31	0.21

Appropriate calculated time to peak:	0.21	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**202**
Catchment AREA (ha)	**18.1**

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

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	55	9.96
Chinguacousy Clay Loam	CCL	C	45	8.15
Total Area Check				18.10

Impervious Landuses Present:											
	Industrial Land		Roadway		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC	9.96	84						98			9.96
CCL	8.15	79									8.15
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC											0.00

CN Calculations		
	Total Area	18.1
	Composite Curve Number	82

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
*Industrial Land**	18.1	0.84	0.84
Total Subcatchment	**18.1**	**-**	**0.84**

*Minimum landscape requirement for industrial blocks is 10%

TIMP	**0.91**
XIMP	**0.71**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	1.8
Impervious	1	16.3
Total	1.4	18.1

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	1.0	1	862	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**EXT4**
Catchment AREA (ha)	**4.9**

Hydrologic Parameters: NASHYD Command
Post-Development Drainage Area: Catchment EXT4

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Chinguacousy Clay Loam	CCL	C	100	4.9
				0
Total Area Check				4.9

Impervious Landuses Present:											
	Roadway/Rooftops		Sidewalk		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL		79			0.00						0.00

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL			4.9	79				79			4.9

CN Calculations	Total Area	4.9
	Composite Curve Number	79

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	4.90	0.25	0.25
Impervious	0.00	0.90	0.00
Total Subcatchment	**4.9**	**-**	**0.25**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	4.9	(Meadow)
Impervious	1	0.00	
Total	8.0	4.9	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
180	1	0.56%	2.3	0.17	0.29	0.17	0.17	0.16	0.11	0.75	0.50

Appropriate calculated time to peak:	0.50	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**EXT5**
Catchment AREA (ha)	**0.9**

Hydrologic Parameters: NASHYD Command
Post-Development Drainage Area: Catchment EXT5

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	100	0.9
				0
Total Area Check				0.9

Impervious Landuses Present:											
	Roadway		Sidewalk		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC	0.00				0.00						0.00
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC			0.9	84							0.9

CN Calculations		
	Total Area	0.9
	Composite Curve Number	84

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	0.90	0.25	0.25
Impervious	0.00	0.90	0.00
Total Subcatchment	**0.9**	**-**	**0.25**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	0.9	(Meadow)
Impervious	1	0.00	
Total	8.0	0.9	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
103	0.85	0.83%	2.3	0.21	0.14	0.08	0.08	0.10	0.07	0.50	0.33

Appropriate calculated time to peak:	0.33	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**203**
Catchment AREA (ha)	**0.8**

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

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	100	0.80
				0
Total Area Check				0.80

Impervious Landuses Present:											
	Industrial Land		Roadway		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC			0.8	84							0.80

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC											0.00

CN Calculations		
	Total Area	0.80
	Composite Curve Number	84

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
*Roadway**	0.8	0.72	0.72
Total Subcatchment	**0.8**	**-**	**0.72**

*Minimum 27% landscaping for typical 26.0 m right-of-way section for George Bolton Parkway

TIMP	**0.75**
XIMP	**0.55**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	0.22
Impervious	2	0.58
Total	2.8	0.80

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	2.0	1.37	287	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**204**
Catchment AREA (ha)	**1.7**

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

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	62	1.05
Chinguacousy Clay Loam	CCL	C	38	0.65
Total Area Check				1.70

Impervious Landuses Present:											
	Industrial Land		Roadway		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC		98	1.05	84				98			1.05
CCL		98	0.65	79							0.65
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC											0.00

CN Calculations		
	Total Area	1.7
	Composite Curve Number	82

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
*Roadway**	1.7	0.72	0.72
Total Subcatchment	**1.7**	**-**	**0.72**

*Minimum 27% landscaping for typical 26.0 m right-of-way section for George Bolton Parkway

TIMP	**0.75**
XIMP	**0.55**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	0.5
Impervious	2	1.2
Total	2.8	1.7

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	2.0	0.85	547	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**205**
Catchment AREA (ha)	**17.3**

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment 205

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	84	14.53
Chinguacousy Clay Loam	CCL	C	16	2.77
Total Area Check				17.30

Impervious Landuses Present:											
	Industrial Land		Roadway		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC	14.53	84						98			14.53
CCL	2.77	79									2.77
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC											0.00

CN Calculations		
	Total Area	17.3
	Composite Curve Number	83

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
*Industrial Land**	17.3	0.84	0.84
Total Subcatchment	**17.3**	**-**	**0.84**

*Minimum landscape requirement for industrial blocks is 10%

TIMP	**0.91**
XIMP	**0.71**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	1.7
Impervious	1	15.6
Total	1.4	17.3

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	1.0	1	796	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**EXTB**
Catchment AREA (ha)	**2.0**

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment EXT3B

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Chinguacousy Clay Loam	CCL	C	100	2.0
				0
Total Area Check				2.0

Impervious Landuses Present:											
	Roadway/Rooftops		Sidewalk		Gravel Area		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL	0.80	79				79					0.80
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL			0.34	79			0.86	79			1.20

CN Calculations		
	Total Area	2.00
	Composite Curve Number	79

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	1.20	0.25	0.15
Impervious	0.80	0.90	0.36
Total Subcatchment	**2.0**	**-**	**0.51**

TIMP	**0.44**
XIMP	**0.24**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Meadow	8	0.34
Pervious	5	0.86
Impervious	2	0.80
Total	4.3	2.00

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.9	-	-	0.25
Impervious	2.0	0.7	607	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**206**
Catchment AREA (ha)	**6.04**

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment 206

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	100	6.04
Chinguacousy Clay Loam	CCL	C		
Total Area Check				6.04

Impervious Landuses Present:											
	Industrial Land		Roadway		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC	6.04	84						98			6.04
CCL	0.00	79									0.00
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC											0.00

CN Calculations		
	Total Area	6.0
	Composite Curve Number	84

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
*Industrial Land**	6.0	0.71	0.71
Total Subcatchment	**6.0**	**-**	**0.71**

TIMP	**0.72**
XIMP	**0.52**

*Minimum landscape requirement for industrial blocks is 10% determined using the total area for Block 3 (18.1 ha)

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	1.8
Impervious	1	4.2
Total	2.2	6.0

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	1.0	1	478	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME **EXT7**
Catchment AREA (ha) **1.4**

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment EXT7

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	100	1.4
				0
Total Area Check				1.4

Impervious Landuses Present:											
	Roadway/Rooftops		Sidewalk		Gravel Area		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC		98			1.40	84					1.40
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC								84			0.00
					CN Calculations		Total Area				1.40
							Composite Curve Number				84

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
Pervious	0.00	0.25	0.00
Gravel	1.40	0.60	0.60
Total Subcatchment	**1.4**	**-**	**0.60**

TIMP **0.57**
XIMP **0.37**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	0.00
Gravel	2.5	1.40
Impervious	2	0.00
Total	2.5	1.40

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	2.0	1.2	74	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**207**
Catchment AREA (ha)	**1.8**

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment 207

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	100	1.80
Chinguacousy Clay Loam	CCL	C	0	0
Total Area Check				1.80

Impervious Landuses Present:											
	Industrial Land		Roadway		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC			1.80	84				98			1.80
CCL			0	79							0.00
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC											0.00

CN Calculations		
	Total Area	1.8
	Composite Curve Number	84

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
*Roadway**	1.8	0.72	0.72
Total Subcatchment	**1.8**	**-**	**0.72**

*Minimum 27% landscaping for typical 26.0 m right-of-way section for George Bolton Parkway

TIMP	**0.75**
XIMP	**0.55**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	0.5
Impervious	2	1.3
Total	2.8	1.8

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	2.0	1	694	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**208**
Catchment AREA (ha)	**19.2**

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment 208

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	100	19.2
Chinguacousy Clay Loam	CCL	C	0	0
Total Area Check				19.2

Impervious Landuses Present:											
	Industrial Land		Roadway		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC	19.2	84						98			19.20
CCL	0.00	79									0.00
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC											0.00

CN Calculations		
	Total Area	19.2
	Composite Curve Number	84

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
*Industrial Land**	19.2	0.84	0.84
Total Subcatchment	**19.2**	**-**	**0.84**

*Minimum landscape requirement for industrial blocks is 10%

TIMP	**0.91**
XIMP	**0.71**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	1.9
Impervious	1	17.3
Total	1.4	19.2

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	1.0	1	1031	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**209**
Catchment AREA (ha)	**1.8**

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment 209

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	100	1.8
Chinguacousy Clay Loam	CCL	C	0	0
Total Area Check				1.8

Impervious Landuses Present:											
	Industrial Land		Roadway		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC			1.8	84				98			1.80
CCL			0	79							0.00
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC											0.00

CN Calculations		
	Total Area	1.8
	Composite Curve Number	84

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
*Roadway**	1.8	0.72	0.72
Total Subcatchment	**1.8**	**-**	**0.72**

*Minimum 27% landscaping for typical 26.0 m right-of-way section for George Bolton Parkway

TIMP	**0.75**
XIMP	**0.55**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	0.5
Impervious	2	1.3
Total	2.8	1.8

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	2.0	0.75	662	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**210**
Catchment AREA (ha)	**36.6**

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment 210

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Chinguacousy Clay Loam	CCL	C	78	28.55
Peel Clay	PC	D	22	8.05
Total Area Check				36.60

Impervious Landuses Present:											
	Industrial Land		Roadway		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL	28.55	79						98			28.55
PC	8.05	84									8.05
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL											0.00

CN Calculations		
	Total Area	36.6
	Composite Curve Number	80

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
*Industrial Land**	36.6	0.84	0.84
Total Subcatchment	**36.6**	**-**	**0.84**

*Minimum landscape requirement for industrial blocks is 10%

TIMP	**0.91**
XIMP	**0.71**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	3.7
Impervious	1	32.9
Total	1.4	36.6

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	1.0	1	1060	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	EXT3A
Catchment AREA (ha)	1.4

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment EXT3A

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Chinguacousy Clay Loam	CCL	C	100	1.4
				0
Total Area Check				1.4

Impervious Landuses Present:											
	Roadway/Rooftops		Sidewalk		Gravel Area		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL	0.47	79				79					0.47
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL				79			0.93	79			0.93

CN Calculations		
	Total Area	1.40
	Composite Curve Number	79

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
Pervious	0.93	0.25	0.17
Impervious	0.47	0.90	0.30
Total Subcatchment	**1.4**	**-**	**0.47**

TIMP	**0.38**
XIMP	**0.18**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Meadow	8	0.00
Pervious	5	0.93
Impervious	2	0.47
Total	4.0	1.40

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	2.0	1	153	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**211**
Catchment AREA (ha)	**0.9**

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment 211

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	45	0.41
Chinguacousy Clay Loam	CCL	C	55	0.495
Total Area Check				0.90

Impervious Landuses Present:											
	Industrial Land		Roadway		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC			0.41	84				98		79	0.41
CCL			0.50	79							0.50
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC											0.00

CN Calculations		
	Total Area	0.9
	Composite Curve Number	81

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
*Roadway**	0.9	0.72	0.72
Total Subcatchment	**0.9**	**-**	**0.72**

*Minimum 27% landscaping for typical 26.0 m right-of-way section for George Bolton Parkway

TIMP	**0.75**
XIMP	**0.55**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	0.2
Impervious	2	0.7
Total	2.8	0.9

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	2.0	0.7	324	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**212**
Catchment AREA (ha)	**16.72**

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment 212

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	94	15.72
Chinguacousy Clay Loam	CCL	C	6	1.0032
Total Area Check				16.72

Impervious Landuses Present:											
	Industrial Land		Roadway		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC	15.72	84						98			15.72
CCL	1.00	79									1.00
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC											0.00

CN Calculations		
	Total Area	16.7
	Composite Curve Number	84

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
*Industrial Land**	16.7	0.84	0.84
Total Subcatchment	**16.7**	**-**	**0.84**

*Minimum landscape requirement for industrial blocks is 10%

TIMP	**0.91**
XIMP	**0.71**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	1.7
Impervious	1	15.0
Total	1.4	16.7

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	1.0	1	996	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**213**
Catchment AREA (ha)	**4.3**

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment 213 (Wetland 1)

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	0	0.00
Chinguacousy Clay Loam	CCL	C	100	4.3
Total Area Check				4.30

Impervious Landuses Present:											
	Industrial Land		Roadway		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC								98	4.30	79	4.30
											0

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC											0.00

CN Calculations		
	Total Area	4.30
	Composite Curve Number	79

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
SWM Facility	4.3	0.50	0.50
Total Subcatchment	**4.3**	**-**	**0.50**

TIMP	**0.50**
XIMP	**0.50**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	2.2
Impervious	1	2.2
Total	3.0	4.3

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	1.0	2	216	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**214**
Catchment AREA (ha)	**9.81**

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment 214

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Chinguacousy Clay Loam	CCL	C	100	9.81
Total Area Check				9.81

Impervious Landuses Present:											
	Industrial Land		Roadway		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL	9.81	79						98			9.81
											0.00
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL											0.00
					CN Calculations		Total Area				9.81
							Composite Curve Number				79

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
*Industrial Land**	9.81	0.84	0.84
Total Subcatchment	**9.81**	**-**	**0.84**

*Minimum landscape requirement for industrial blocks is 10%

TIMP	**0.91**
XIMP	**0.71**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	0.98
Impervious	1	8.83
Total	1.4	9.81

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	1.0	1	607	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**215**
Catchment AREA (ha)	**1.9**

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment 215

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	42	0.80
Chinguacousy Clay Loam	CCL	C	58	1.102
Total Area Check				1.90

Impervious Landuses Present:											
	Industrial Land		Roadway		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC			0.80	84				98		79	0.80
CCL			1.10	79							1.10
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC											0.00

CN Calculations		
	Total Area	1.9
	Composite Curve Number	81

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
*Roadway**	1.9	0.72	0.72
Total Subcatchment	**1.9**	**-**	**0.72**

*Minimum 27% landscaping for typical 26.0 m right-of-way section for George Bolton Parkway

TIMP	**0.75**
XIMP	**0.55**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	0.5
Impervious	2	1.4
Total	2.8	1.9

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	2.0	1.3	474	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**216**
Catchment AREA (ha)	**4.7**

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment 216 (Wetland 2)

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	0	0.00
Chinguacousy Clay Loam	CCL	C	100	4.7
Total Area Check				4.70

Impervious Landuses Present:											
	Industrial Land		Roadway		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC								98	4.70	79	4.70
											0

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC											0.00

CN Calculations		
	Total Area	4.70
	Composite Curve Number	79

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
SWM Facility	4.7	0.50	0.50
Total Subcatchment	**4.7**	**-**	**0.50**

TIMP	**0.50**
XIMP	**0.50**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	2.4
Impervious	1	2.4
Total	3.0	4.7

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	1.0	2	374	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**217**
Catchment AREA (ha)	**8.0**

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment 217 (Dry Pond - Regional Control)

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	0	0.00
Chinguacousy Clay Loam	CCL	C	100	8
Total Area Check				8.00

Impervious Landuses Present:											
	Industrial Land		Roadway		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC								98	8.00	79	8.00
											0
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC											0.00

CN Calculations		
	Total Area	8.00
	Composite Curve Number	79

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
Dry Pond	8.0	0.50	0.50
Total Subcatchment	**8.0**	**-**	**0.50**

TIMP	**0.50**
XIMP	**0.50**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	4.0
Impervious	1	4.0
Total	3.0	8.0

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	1.0	1	297	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**218**
Catchment AREA (ha)	**0.8**

Hydrologic Parameters: NASHYD Command
Post-Development Drainage Area: Catchment 218

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Chinguacousy Clay Loam	CCL	D	100	0.8
				0
Total Area Check				0.8

Impervious Landuses Present:											
	Roadway		Sidewalk		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL	0.00				0.00						0.00
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL			0.8	79							0.8

CN Calculations		
	Total Area	0.8
	Composite Curve Number	79

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	0.80	0.25	0.25
Impervious	0.00	0.90	0.00
Total Subcatchment	**0.8**	**-**	**0.25**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	0.8	(Meadow)
Impervious	1	0.00	
Total	8.0	0.8	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
105.5	1.1	1.04%	2.3	0.23	0.12	0.07	0.07	0.10	0.07	0.47	0.31

Appropriate calculated time to peak:	0.31	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**EXT8**
Catchment AREA (ha)	**0.9**

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment EXT8

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Chinguacousy Clay Loam	CCL	C	100	0.9
				0
Total Area Check				0.9

Impervious Landuses Present:											
	Roadway/Rooftops		Sidewalk		Gravel Area		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL	0.45	79				79					0.45

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Roadside Ditch		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL							0.45	79			0.45

CN Calculations		
	Total Area	0.90
	Composite Curve Number	79

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	0.45	0.25	0.13
Impervious	0.45	0.90	0.45
Total Subcatchment	**0.9**	**-**	**0.58**

TIMP	**0.54**
XIMP	**0.34**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	0.45
Impervious	2	0.45
Total	3.5	0.90

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	2	313	0.25
Impervious	2.0	1	309	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**219**
Catchment AREA (ha)	**7.5**

Hydrologic Parameters: NASHYD Command
Post-Development Drainage Area: Catchment 219

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	100	7.50
				0
Total Area Check				7.5

Impervious Landuses Present:											
	Driveway/Rooftop		Sidewalk		Gravel Driveway		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC											0.00

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC									7.5	84	7.5

CN Calculations		
	Total Area	7.5
	Composite Curve Number	84

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	7.50	0.25	0.25
Impervious	0.00	0.90	0.00
Total Subcatchment	**7.5**	**-**	**0.25**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	7.5	(Meadow)
Impervious	1	0.00	
Total	8.0	7.5	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
380	10	2.63%	2.3	0.37	0.28	0.17	0.17	0.24	0.16	0.65	0.44

Appropriate calculated time to peak:	0.44	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**220**
Catchment AREA (ha)	**1.4**

Hydrologic Parameters: NASHYD Command
Post-Development Drainage Area: Catchment 220

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	100	1.40
				0
Total Area Check				1.4

Impervious Landuses Present:											
	Driveway/Rooftop		Sidewalk		Gravel Driveway		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC											0.00
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC	1.7	84								84	1.7

CN Calculations		
	Total Area	1.7
	Composite Curve Number	84

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	1.70	0.25	0.25
Impervious	0.00	0.90	0.00
Total Subcatchment	**1.7**	**-**	**0.25**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	1.7	(Woodland)
Impervious	1	0.00	
Total	8.0	1.7	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
151	2.5	1.66%	2.3	0.30	0.14	0.09	0.09	0.13	0.08	0.48	0.32

Appropriate calculated time to peak:	0.32	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**EXT6**
Catchment AREA (ha)	**0.5**

Hydrologic Parameters: NASHYD Command
Post-Development Drainage Area: Catchment EXT6

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	100	0.5
				0
Total Area Check				0.5

Impervious Landuses Present:											
	Roadway		Sidewalk		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC	0.00				0.00						0.00

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC			0.5	84							0.5

CN Calculations		
	Total Area	0.5
	Composite Curve Number	84

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	0.50	0.25	0.25
Impervious	0.00	0.90	0.00
Total Subcatchment	**0.5**	**-**	**0.25**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	8	0.5	(Meadow)
Impervious	1	0.00	
Total	8.0	0.5	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
79	2	2.53%	2.3	0.37	0.06	0.04	0.04	0.07	0.04	0.30	0.20

Appropriate calculated time to peak:	0.20	Appropriate Method:	Airport

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**221**
Catchment AREA (ha)	**12.06**

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment 221

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	100	12.1
				0
Total Area Check				12.06

Impervious Landuses Present:											
	Industrial Land		Roadway		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC		84		84			12.1	84			12.06

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC											0.00

CN Calculations		
	Total Area	12.06
	Composite Curve Number	84

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
Building	12.06	0.90	0.90
Total Subcatchment	**12.06**	**-**	**0.90**

TIMP	**0.99**
XIMP	**0.99**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	0.0
Impervious	1	12.1
Total	1.0	12.1

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	1.0	1	AUTO	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**222**
Catchment AREA (ha)	**0.90**

Hydrologic Parameters: STANDHYD Command
Post-Development Drainage Area: Catchment 222

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Peel Clay	PC	D	100	0.90
Chinguacousy Clay Loam	CCL	C		
Total Area Check				0.90

Impervious Landuses Present:											
	Industrial Land		Roadway		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC	0.90	84						98			0.90
CCL	0.00	79									0.00
Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
PC											0.00

CN Calculations		
	Total Area	0.9
	Composite Curve Number	84

Runoff Coefficient Calculations

Land Use	Area (ha)	C	Weighted Average C
*Block 16**	0.9	0.72	0.72
Total Subcatchment	**0.9**	**-**	**0.72**

*Assumed 27% pervious; easement for future ROW to drain to Block 3 in the interim, over-control provided within Block 3

TIMP	**0.74**
XIMP	**0.54**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)
Pervious	5	0.2
Impervious	2	0.7
Total	2.8	0.9

Flow Length Calculations

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	-	-	0.25
Impervious	2.0	1	327	0.013

Project Name: Tullamore Lands
Project Number: 2022-5842
Date: 2023-10-30
By: IF
Check: RA

Catchment NAME	**223**
Catchment AREA (ha)	**0.98**

Hydrologic Parameters: NASHYD Command
Post-Development Drainage Area: Catchment 223

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Chinguacousy Clay Loam	CCL	C	100	0.98
				0
Total Area Check				0.98

Impervious Landuses Present:											
	Roadway		Sidewalk		Gravel Parking Lot		Building		SWMF		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL	0.00				0.00						0.00

Pervious Landuses Present:											
	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotal
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area
CCL							0.98	79			1.0

CN Calculations		
	Total Area	0.98
	Composite Curve Number	79

Runoff Coefficient Calculations

Land Use	**Area** (ha)	**C**	**Weighted Average C**
Pervious	0.98	0.25	0.25
Impervious	0.00	0.90	0.00
Total Subcatchment	**1.0**	**-**	**0.25**

Initial Abstraction Calculations

Landuse	IA (mm)	Area (ha)	
Pervious	5	1.0	(Lawn)
Impervious	1	0.00	
Total	5.0	1.0	

Time to Peak Calculations

Time to Peak Inputs					Uplands			Bransby Williams		Airport	
Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
256	0.8	0.31%	2.3	0.13	0.55	0.33	0.33	0.31	0.21	1.08	0.73

Appropriate calculated time to peak:	0.73	Appropriate Method:	Airport

```
**********************************
** SIMULATION:1. 25mm_4hr_Chicago **
**********************************
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.02  1.92   4.81 0.19   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.01  2.00   4.86 0.19   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0200  1  5.0   28.20    0.16  2.58   3.97 0.16   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.64]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0201  1  5.0    1.39    0.19  1.67  23.81 0.95   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0001+  0002]  0010  3  5.0    1.90    0.02  1.92   4.82  n/a   0.000
*
    ADD [  0010+  0200]  0010  1  5.0   30.10    0.17  2.58   4.03  n/a   0.000
*
    ADD [  0010+  0201]  0010  3  5.0   31.49    0.20  1.67   4.90  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.03  1.67   6.40 0.26   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0223  1  5.0    0.98    0.01  2.67   4.79 0.19   0.000
    [CN=80.0         ]
    [ N = 3.0:Tp 0.73]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.05  1.67  15.06 0.60   0.000
    [I%=50.0:S%= 2.00]
```

```
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    1.06  1.67  23.27 0.93   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.09  2.33  23.22  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    1.41  1.67  20.93 0.84   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    0.82  1.75  20.93  n/a   0.000
*
    ADD [  0223+  7667]  7671  3  5.0    2.03    0.03  1.67   5.62  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    2.75    0.07  1.67   8.09  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   10.25    0.14  1.83  19.16  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   21.49    0.95  1.75  20.09  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   21.49    0.07  4.67  20.03  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.03  2.42   3.97 0.16   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.01  2.17   5.60 0.22   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0202  1  5.0   18.10    1.20  1.83  20.96 0.84   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0011  1  5.0   18.10    0.33  2.50  20.95  n/a   0.000
*
    ADD [  0011+  0004]  0013  3  5.0   23.00    0.37  2.50  17.33  n/a   0.000
*
    ADD [  0013+  0005]  0013  1  5.0   23.90    0.37  2.50  16.89  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
```

```
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0203  1  5.0    0.80    0.06  1.67  17.36 0.69   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0013+  0203]  0014  3  5.0   24.70    0.38  2.42  16.91  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0207  1  5.0    1.80    0.10  1.75  17.36 0.69   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0205  1  5.0   17.30    1.17  1.83  21.07 0.84   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0015  1  5.0   17.30    0.32  2.50  21.06  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0032  1  5.0    2.00    0.05  1.75  10.56 0.42   0.000
    [I%=24.0:S%= 2.00]
*
    ADD [  0015+  0032]  0020  3  5.0   19.30    0.35  2.42  19.97  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0206  1  5.0    6.04    0.34  1.75  17.34 0.69   0.000
    [I%=52.0:S%= 2.00]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0221  1  5.0   12.06    1.43  1.67  23.83 0.95   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0206+  0221]  7702  3  5.0   18.10    1.73  1.67  21.66  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0222  1  5.0    0.90    0.06  1.67  17.17 0.69   0.000
    [I%=54.0:S%= 2.00]
*
    ADD [  0222+  7702]  7704  3  5.0   19.00    1.79  1.67  21.45  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0024  1  5.0   19.00    0.36  2.25  21.44  n/a   0.000
*
    READ STORM                10.0
```

```
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0204  1  5.0    1.70    0.09  1.75  16.82 0.67   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0014+  0020]  0028  3  5.0   44.00    0.73  2.42  18.25  n/a   0.000
*
    ADD [  0028+  0204]  0028  1  5.0   45.70    0.76  2.33  18.20  n/a   0.000
*
    ADD [  0028+  0207]  0028  3  5.0   47.50    0.80  2.33  18.17  n/a   0.000
*
    ADD [  0028+  0024]  0028  1  5.0   66.50    1.15  2.25  19.10  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0211  1  5.0    0.90    0.06  1.75  16.66 0.67   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0208  1  5.0   19.20    1.24  1.83  21.31 0.85   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0036  1  5.0   19.20    0.35  2.58  21.30  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.08  1.67  14.45 0.58   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0036+  0007]  0025  3  5.0   20.60    0.37  2.50  20.84  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0209  1  5.0    1.80    0.10  1.75  17.36 0.69   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0210  1  5.0   36.60    2.28  1.83  20.74 0.83   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0031  1  5.0   36.60    0.65  2.58  20.73  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0003  1  5.0    1.40    0.04  1.67   9.65 0.39   0.000
```

```
    [I%=18.0:S%= 2.00]
*
    ADD [  0003+  0031]  0033  3  5.0   38.00    0.66  2.50  20.33  n/a   0.000
*
    ADD [  0209+  0211]  0041  3  5.0    2.70    0.15  1.75  17.13  n/a   0.000
*
    ADD [  0041+  0025]  0041  1  5.0   23.30    0.41  2.33  20.41  n/a   0.000
*
    ADD [  0041+  0028]  0041  3  5.0   89.80    1.57  2.33  19.44  n/a   0.000
*
    ADD [  0041+  0033]  0041  1  5.0  127.80    2.21  2.33  19.70  n/a   0.000
*
    DIVERT HYD           0069  1  5.0  127.80    2.21  2.33  19.70  n/a   0.000
       Outflow           0002  2  5.0   63.90    1.10  2.33  19.70  n/a   0.000
       Outflow           0002  3  5.0   63.90    1.10  2.33  19.70  n/a   0.000
       Outflow           0002  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  5  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  6  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0214  1  5.0    9.81    0.74  1.75  20.74 0.83   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0043  1  5.0    9.81    0.18  2.33  20.72  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0216  1  5.0    4.70    0.29  1.67  14.40 0.58   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0215  1  5.0    1.90    0.11  1.75  16.66 0.67   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0215+  0216]  0047  3  5.0    6.60    0.39  1.67  15.05  n/a   0.000
*
    ADD [  0047+  0043]  0047  1  5.0   16.41    0.45  1.67  18.44  n/a   0.000
*
    ADD [  0047+  0069]  0047  3  5.0   80.31    1.38  2.33  19.45  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0050  1  5.0   80.31    0.09  7.83  18.77  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0212  1  5.0   16.72    1.26  1.75  21.31 0.85   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0039  1  5.0   16.72    0.32  2.42  21.30  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
```

```
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0213  1  5.0    4.30    0.29  1.67  14.40 0.58   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0213+  0039]  0065  3  5.0   21.02    0.38  1.67  19.89  n/a   0.000
*
    ADD [  0065+  0069]  0065  1  5.0   84.92    1.47  2.33  19.75  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0067  1  5.0   84.92    0.09  8.08  19.28  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0217  1  5.0    8.00    0.48  1.67  14.40 0.58   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0217+  0050]  0060  3  5.0   88.31    0.48  1.67  18.38  n/a   0.000
*
    ADD [  0060+  0051]  0060  1  5.0   88.31    0.48  1.67  18.38  n/a   0.000
*
    ADD [  0060+  0067]  0060  3  5.0  173.23    0.49  1.67  18.82  n/a   0.000
*
    ADD [  0060+  0068]  0060  1  5.0  173.23    0.49  1.67  18.82  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0218  1  5.0    0.80    0.01  2.08   3.97 0.16   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                 10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.04  1.67  12.76 0.51   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  0218+  0060]  7639  3  5.0  174.03    0.49  1.67  18.75  n/a   0.000
*
    ADD [  7639+  0008]  7639  1  5.0  174.93    0.52  1.67  18.72  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0219  1  5.0    7.50    0.07  2.33   5.60 0.22   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.44]
*
    READ STORM                 10.0
    [ Ptot= 25.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0220  1  5.0    1.40    0.02  2.08   5.60 0.22   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.32]
*
    READ STORM                 10.0
    [ Ptot= 25.00 mm ]
```

```
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\bd105498-defd-4c70-b97f-2e
    remark: 25mm_4hr_Chicago
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.01  1.92   5.59 0.22   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    ADD [  0220+  0006]  0076  3  5.0    1.90    0.02  2.08   5.59  n/a   0.000
*
    ADD [  0219+  0076]  0075  3  5.0    9.40    0.10  2.25   5.60  n/a   0.000
*
*********************************
** SIMULATION:2. 2 Year 6 Hour **
*********************************
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.03  2.83  10.06 0.28   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.01  2.92  10.12 0.28   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0200  1  5.0   28.20    0.36  3.50   9.36 0.26   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.64]
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0201  1  5.0    1.39    0.13  2.75  34.75 0.97   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0001+  0002]  0010  3  5.0    1.90    0.05  2.83  10.08  n/a   0.000
*
    ADD [  0010+  0200]  0010  1  5.0   30.10    0.39  3.42   9.41  n/a   0.000
*
    ADD [  0010+  0201]  0010  3  5.0   31.49    0.41  3.25  10.52  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.05  2.75  13.23 0.37   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
```

```
 *  CALIB NASHYD         0223  1  5.0    0.98    0.01  3.50  10.17 0.28   0.000
    [CN=80.0         ]
    [ N = 3.0:Tp 0.73]
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.04  2.75  23.64 0.66   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    0.69  2.75  34.21 0.95   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.13  3.33  34.17  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    0.95  2.75  31.20 0.87   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    0.85  2.75  31.20  n/a   0.000
*
    ADD [  0223+  7667]  7671  3  5.0    2.03    0.05  2.75  11.75  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    2.75    0.10  2.75  14.86  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   10.25    0.21  2.75  28.99  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   21.49    1.06  2.75  30.14  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   21.49    0.15  5.00  30.09  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.07  3.25   9.36 0.26   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.02  3.00  12.51 0.35   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0202  1  5.0   18.10    1.27  2.83  31.50 0.87   0.000
```

```
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0011  1  5.0   18.10    0.47  3.50  31.49  n/a   0.000
*
    ADD [  0011+  0004]  0013  3  5.0   23.00    0.54  3.42  26.78  n/a   0.000
*
    ADD [  0013+  0005]  0013  1  5.0   23.90    0.55  3.42  26.24  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0203  1  5.0    0.80    0.05  2.75  27.23 0.76   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0013+  0203]  0014  3  5.0   24.70    0.57  3.33  26.27  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0207  1  5.0    1.80    0.11  2.83  27.24 0.76   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0205  1  5.0   17.30    1.24  2.75  31.65 0.88   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0015  1  5.0   17.30    0.45  3.50  31.64  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0032  1  5.0    2.00    0.06  2.92  18.10 0.50   0.000
    [I%=24.0:S%= 2.00]
*
    ADD [  0015+  0032]  0020  3  5.0   19.30    0.49  3.33  30.24  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0206  1  5.0    6.04    0.36  2.75  27.07 0.75   0.000
    [I%=52.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0221  1  5.0   12.06    1.09  2.75  34.78 0.97   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0206+  0221]  7702  3  5.0   18.10    1.45  2.75  32.20  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
```

```
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0222  1  5.0    0.90    0.06  2.75  27.00 0.75   0.000
    [I%=54.0:S%= 2.00]
*
    ADD [  0222+  7702]  7704  3  5.0   19.00    1.51  2.75  31.96  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0024  1  5.0   19.00    0.49  3.25  31.95  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0204  1  5.0    1.70    0.10  2.75  26.43 0.73   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0014+  0020]  0028  3  5.0   44.00    1.07  3.33  28.01  n/a   0.000
*
    ADD [  0028+  0204]  0028  1  5.0   45.70    1.11  3.25  27.95  n/a   0.000
*
    ADD [  0028+  0207]  0028  3  5.0   47.50    1.17  3.25  27.93  n/a   0.000
*
    ADD [  0028+  0024]  0028  1  5.0   66.50    1.67  3.25  29.08  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0211  1  5.0    0.90    0.06  2.75  26.18 0.73   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0208  1  5.0   19.20    1.32  2.83  31.97 0.89   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0036  1  5.0   19.20    0.49  3.50  31.96  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.08  2.75  23.18 0.64   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0036+  0007]  0025  3  5.0   20.60    0.51  3.50  31.36  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0209  1  5.0    1.80    0.11  2.83  27.24 0.76   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0210  1  5.0   36.60    2.44  2.83  31.20 0.87   0.000
```

```
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0031  1  5.0   36.60    0.91  3.50  31.20  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    1.40    0.05  2.75  16.90 0.47   0.000
    [I%=18.0:S%= 2.00]
*
    ADD [  0003+  0031]  0033  3  5.0   38.00    0.93  3.50  30.67  n/a   0.000
*
    ADD [  0209+  0211]  0041  3  5.0    2.70    0.16  2.75  26.88  n/a   0.000
*
    ADD [  0041+  0025]  0041  1  5.0   23.30    0.59  3.25  30.84  n/a   0.000
*
    ADD [  0041+  0028]  0041  3  5.0   89.80    2.26  3.25  29.53  n/a   0.000
*
    ADD [  0041+  0033]  0041  1  5.0  127.80    3.16  3.33  29.87  n/a   0.000
*
    DIVERT HYD           0069  1  5.0  127.80    3.16  3.33  29.87  n/a   0.000
       Outflow           0002  2  5.0   63.90    1.58  3.33  29.87  n/a   0.000
       Outflow           0002  3  5.0   63.90    1.58  3.33  29.87  n/a   0.000
       Outflow           0002  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  5  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  6  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0214  1  5.0    9.81    0.73  2.75  31.20 0.87   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0043  1  5.0    9.81    0.26  3.42  31.19  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0216  1  5.0    4.70    0.24  2.75  22.58 0.63   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0215  1  5.0    1.90    0.12  2.75  26.18 0.73   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0215+  0216]  0047  3  5.0    6.60    0.36  2.75  23.62  n/a   0.000
*
    ADD [  0047+  0043]  0047  1  5.0   16.41    0.53  2.75  28.14  n/a   0.000
*
    ADD [  0047+  0069]  0047  3  5.0   80.31    1.99  3.25  29.52  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0050  1  5.0   80.31    0.21  8.17  28.61  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
```

```
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0212  1  5.0   16.72    1.23  2.75  31.97 0.89   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0039  1  5.0   16.72    0.45  3.42  31.96  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0213  1  5.0    4.30    0.23  2.75  22.58 0.63   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0213+  0039]  0065  3  5.0   21.02    0.53  3.25  30.04  n/a   0.000
*
    ADD [  0065+  0069]  0065  1  5.0   84.92    2.11  3.25  29.91  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0067  1  5.0   84.92    0.27  7.83  29.29  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0217  1  5.0    8.00    0.41  2.75  22.58 0.63   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0217+  0050]  0060  3  5.0   88.31    0.43  2.75  28.06  n/a   0.000
*
    ADD [  0060+  0051]  0060  1  5.0   88.31    0.43  2.75  28.06  n/a   0.000
*
    ADD [  0060+  0067]  0060  3  5.0  173.23    0.48  8.00  28.67  n/a   0.000
*
    ADD [  0060+  0068]  0060  1  5.0  173.23    0.48  8.00  28.67  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0218  1  5.0    0.80    0.02  2.92   9.36 0.26   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.03  2.75  20.95 0.58   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  0218+  0060]  7639  3  5.0  174.03    0.48  8.00  28.58  n/a   0.000
*
    ADD [  7639+  0008]  7639  1  5.0  174.93    0.49  8.00  28.54  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0219  1  5.0    7.50    0.16  3.17  12.52 0.35   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.44]
*
```

```
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0220  1  5.0    1.40    0.04  2.92  12.51 0.35   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.32]
*
    READ STORM                 15.0
    [ Ptot= 36.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\9d1884a2-86e3-4fd9-90fc-ca
    remark: 2 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.02  2.83  12.49 0.35   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    ADD [  0220+  0006]  0076  3  5.0    1.90    0.05  2.92  12.51  n/a   0.000
*
    ADD [  0219+  0076]  0075  3  5.0    9.40    0.21  3.08  12.51  n/a   0.000
*
*********************************
** SIMULATION:3. 5 Year 6 Hour  **
*********************************
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.06  2.83  16.96 0.35   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.02  2.92  17.04 0.36   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0200  1  5.0   28.20    0.66  3.42  16.58 0.35   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.64]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0201  1  5.0    1.39    0.17  2.75  46.51 0.97   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0001+  0002]  0010  3  5.0    1.90    0.08  2.83  16.99  n/a   0.000
*
    ADD [  0010+  0200]  0010  1  5.0   30.10    0.70  3.33  16.61  n/a   0.000
*
    ADD [  0010+  0201]  0010  3  5.0   31.49    0.74  3.25  17.93  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
```

```
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.08  2.75  21.72 0.45   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0223  1  5.0    0.98    0.02  3.50  17.24 0.36   0.000
    [CN=80.0         ]
    [ N = 3.0:Tp 0.73]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.06  2.75  33.44 0.70   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    0.91  2.75  45.98 0.96   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.17  3.33  45.94  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    1.28  2.75  42.40 0.89   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    1.15  2.75  42.40  n/a   0.000
*
    ADD [  0223+  7667]  7671  3  5.0    2.03    0.09  2.75  19.56  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    2.75    0.15  2.75  23.19  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   10.25    0.30  2.75  39.84  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   21.49    1.45  2.75  41.18  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   21.49    0.23  4.67  41.12  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.13  3.25  16.58 0.35   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
```

```
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.04  2.92  21.28 0.45   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0202  1  5.0   18.10    1.78  2.75  43.00 0.90   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0011  1  5.0   18.10    0.64  3.42  42.99  n/a   0.000
*
    ADD [  0011+  0004]  0013  3  5.0   23.00    0.77  3.33  37.36  n/a   0.000
*
    ADD [  0013+  0005]  0013  1  5.0   23.90    0.80  3.33  36.76  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0203  1  5.0    0.80    0.08  2.75  38.23 0.80   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0013+  0203]  0014  3  5.0   24.70    0.83  3.25  36.81  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0207  1  5.0    1.80    0.16  2.75  38.24 0.80   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0205  1  5.0   17.30    1.76  2.75  43.18 0.90   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0015  1  5.0   17.30    0.62  3.42  43.17  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0032  1  5.0    2.00    0.11  2.83  27.13 0.57   0.000
    [I%=24.0:S%= 2.00]
*
    ADD [  0015+  0032]  0020  3  5.0   19.30    0.69  3.25  41.51  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0206  1  5.0    6.04    0.54  2.75  37.96 0.79   0.000
    [I%=52.0:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
```

```
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0221  1  5.0   12.06    1.46  2.75  46.55 0.97   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0206+  0221]  7702  3  5.0   18.10    1.99  2.75  43.68  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0222  1  5.0    0.90    0.08  2.75  37.97 0.79   0.000
    [I%=54.0:S%= 2.00]
*
    ADD [  0222+  7702]  7704  3  5.0   19.00    2.08  2.75  43.41  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0024  1  5.0   19.00    0.68  3.25  43.40  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0204  1  5.0    1.70    0.15  2.75  37.20 0.78   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0014+  0020]  0028  3  5.0   44.00    1.51  3.25  38.87  n/a   0.000
*
    ADD [  0028+  0204]  0028  1  5.0   45.70    1.58  3.25  38.81  n/a   0.000
*
    ADD [  0028+  0207]  0028  3  5.0   47.50    1.66  3.17  38.78  n/a   0.000
*
    ADD [  0028+  0024]  0028  1  5.0   66.50    2.34  3.25  40.10  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0211  1  5.0    0.90    0.08  2.75  36.86 0.77   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0208  1  5.0   19.20    1.86  2.75  43.55 0.91   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0036  1  5.0   19.20    0.68  3.50  43.54  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.12  2.75  33.23 0.69   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0036+  0007]  0025  3  5.0   20.60    0.71  3.42  42.84  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
```

```
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0209  1  5.0    1.80    0.15  2.75  38.24 0.80   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0210  1  5.0   36.60    3.46  2.83  42.64 0.89   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0031  1  5.0   36.60    1.26  3.50  42.64  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    1.40    0.08  2.75  25.69 0.54   0.000
    [I%=18.0:S%= 2.00]
*
    ADD [  0003+  0031]  0033  3  5.0   38.00    1.29  3.42  42.01  n/a   0.000
*
    ADD [  0209+  0211]  0041  3  5.0    2.70    0.23  2.75  37.78  n/a   0.000
*
    ADD [  0041+  0025]  0041  1  5.0   23.30    0.82  3.25  42.25  n/a   0.000
*
    ADD [  0041+  0028]  0041  3  5.0   89.80    3.16  3.25  40.66  n/a   0.000
*
    ADD [  0041+  0033]  0041  1  5.0  127.80    4.42  3.25  41.06  n/a   0.000
*
    DIVERT HYD           0069  1  5.0  127.80    4.42  3.25  41.06  n/a   0.000
       Outflow           0002  2  5.0   63.90    2.21  3.25  41.06  n/a   0.000
       Outflow           0002  3  5.0   63.90    2.21  3.25  41.06  n/a   0.000
       Outflow           0002  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  5  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  6  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0214  1  5.0    9.81    1.03  2.75  42.64 0.89   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0043  1  5.0    9.81    0.35  3.33  42.63  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0216  1  5.0    4.70    0.36  2.75  32.02 0.67   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0215  1  5.0    1.90    0.17  2.75  36.87 0.77   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0215+  0216]  0047  3  5.0    6.60    0.53  2.75  33.42  n/a   0.000
```

```
*
    ADD [  0047+  0043]  0047  1  5.0   16.41    0.78  2.75  38.92  n/a   0.000
*
    ADD [  0047+  0069]  0047  3  5.0   80.31    2.78  3.25  40.63  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0050  1  5.0   80.31    0.45  7.25  39.64  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0212  1  5.0   16.72    1.74  2.75  43.55 0.91   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0039  1  5.0   16.72    0.61  3.33  43.54  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0213  1  5.0    4.30    0.33  2.75  32.02 0.67   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0213+  0039]  0065  3  5.0   21.02    0.75  2.75  41.18  n/a   0.000
*
    ADD [  0065+  0069]  0065  1  5.0   84.92    2.95  3.25  41.09  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0067  1  5.0   84.92    0.60  7.00  40.43  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0217  1  5.0    8.00    0.59  2.75  32.02 0.67   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0217+  0050]  0060  3  5.0   88.31    0.61  2.75  38.95  n/a   0.000
*
    ADD [  0060+  0051]  0060  1  5.0   88.31    0.61  2.75  38.95  n/a   0.000
*
    ADD [  0060+  0067]  0060  3  5.0  173.23    1.06  7.08  39.68  n/a   0.000
*
    ADD [  0060+  0068]  0060  1  5.0  173.23    1.06  7.08  39.68  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0218  1  5.0    0.80    0.03  2.92  16.58 0.35   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.04  2.75  30.52 0.64   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  0218+  0060]  7639  3  5.0  174.03    1.06  7.08  39.57  n/a   0.000
*
```

```
    ADD [  7639+  0008]  7639  1  5.0  174.93    1.06  7.00  39.52  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0219  1  5.0    7.50    0.29  3.08  21.29 0.45   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.44]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0220  1  5.0    1.40    0.07  2.92  21.28 0.45   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.32]
*
    READ STORM                 15.0
    [ Ptot= 47.81 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\d75c64ed-7a29-44f1-a7bd-ee225719e344\f5372bb9-33f4-4fdc-9215-1f
    remark: 5 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.03  2.83  21.25 0.44   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    ADD [  0220+  0006]  0076  3  5.0    1.90    0.09  2.83  21.27  n/a   0.000
*
    ADD [  0219+  0076]  0075  3  5.0    9.40    0.37  3.00  21.28  n/a   0.000
*
```

```
*********************************
** SIMULATION:4. 10 Year 6 Hour **
*********************************
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.03  2.92  22.20 0.40   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.07  2.83  22.11 0.40   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0200  1  5.0   28.20    0.89  3.42  21.99 0.39   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.64]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0201  1  5.0    1.39    0.20  2.75  54.37 0.98   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0001+  0002]  0010  3  5.0    1.90    0.10  2.83  22.14  n/a   0.000
*
    ADD [  0010+  0200]  0010  1  5.0   30.10    0.94  3.33  21.99  n/a   0.000
*
    ADD [  0010+  0201]  0010  3  5.0   31.49    0.98  3.25  23.42  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.10  2.75  27.82 0.50   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0223  1  5.0    0.98    0.03  3.50  22.50 0.40   0.000
    [CN=80.0         ]
    [ N = 3.0:Tp 0.73]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    1.06  2.75  53.84 0.97   0.000
    [I%=99.0:S%= 2.00]
```

```
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.20  3.33  53.80  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    1.50  2.75  49.95 0.90   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    1.36  2.75  49.95  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.07  2.75  40.22 0.72   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0223+  7667]  7671  3  5.0    2.03    0.11  2.75  25.25  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    2.75    0.19  2.75  29.17  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   10.25    0.37  2.75  47.19  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   21.49    1.73  2.75  48.63  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   21.49    0.29  4.58  48.58  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.18  3.17  21.98 0.39   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.05  2.92  27.62 0.50   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0202  1  5.0   18.10    2.17  2.75  50.73 0.91   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0011  1  5.0   18.10    0.76  3.42  50.72  n/a   0.000
*
    ADD [  0011+  0004]  0013  3  5.0   23.00    0.94  3.33  44.60  n/a   0.000
*
    ADD [  0013+  0005]  0013  1  5.0   23.90    0.97  3.25  43.96  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
```

```
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0203  1  5.0    0.80    0.09  2.75  45.71 0.82   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0013+  0203]  0014  3  5.0   24.70    1.01  3.25  44.01  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0205  1  5.0   17.30    2.10  2.75  50.92 0.91   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0015  1  5.0   17.30    0.74  3.33  50.91  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0032  1  5.0    2.00    0.13  2.83  33.29 0.60   0.000
    [I%=24.0:S%= 2.00]
*
    ADD [  0015+  0032]  0020  3  5.0   19.30    0.82  3.25  49.09  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0222  1  5.0    0.90    0.10  2.75  45.42 0.82   0.000
    [I%=54.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0206  1  5.0    6.04    0.65  2.75  45.38 0.81   0.000
    [I%=52.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0221  1  5.0   12.06    1.70  2.75  54.41 0.98   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0206+  0221]  7702  3  5.0   18.10    2.35  2.75  51.40  n/a   0.000
*
    ADD [  0222+  7702]  7704  3  5.0   19.00    2.46  2.75  51.11  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0024  1  5.0   19.00    0.80  3.25  51.11  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0204  1  5.0    1.70    0.18  2.75  44.54 0.80   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
```

```
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0207  1  5.0    1.80    0.19  2.75  45.71 0.82   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0014+  0020]  0028  3  5.0   44.00    1.83  3.25  46.24  n/a   0.000
*
    ADD [  0028+  0204]  0028  1  5.0   45.70    1.91  3.17  46.18  n/a   0.000
*
    ADD [  0028+  0207]  0028  3  5.0   47.50    2.01  3.08  46.16  n/a   0.000
*
    ADD [  0028+  0024]  0028  1  5.0   66.50    2.81  3.08  47.57  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0209  1  5.0    1.80    0.19  2.75  45.71 0.82   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0211  1  5.0    0.90    0.10  2.75  44.17 0.79   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    1.40    0.11  2.75  31.77 0.57   0.000
    [I%=18.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0210  1  5.0   36.60    4.14  2.75  50.34 0.90   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0031  1  5.0   36.60    1.49  3.50  50.34  n/a   0.000
*
    ADD [  0003+  0031]  0033  3  5.0   38.00    1.53  3.42  49.65  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0208  1  5.0   19.20    2.23  2.75  51.32 0.92   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0036  1  5.0   19.20    0.80  3.42  51.31  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.14  2.75  39.81 0.71   0.000
```

```
    [I%=37.0:S%= 2.00]
*
    ADD [  0036+  0007]  0025  3  5.0   20.60    0.84  3.42  50.53  n/a   0.000
*
    ADD [  0209+  0211]  0041  3  5.0    2.70    0.29  2.75  45.20  n/a   0.000
*
    ADD [  0041+  0025]  0041  1  5.0   23.30    0.97  3.25  49.91  n/a   0.000
*
    ADD [  0041+  0028]  0041  3  5.0   89.80    3.78  3.17  48.18  n/a   0.000
*
    ADD [  0041+  0033]  0041  1  5.0  127.80    5.28  3.25  48.62  n/a   0.000
*
    DIVERT HYD           0069  1  5.0  127.80    5.28  3.25  48.62  n/a   0.000
       Outflow           0002  2  5.0   63.90    2.64  3.25  48.62  n/a   0.000
       Outflow           0002  3  5.0   63.90    2.64  3.25  48.62  n/a   0.000
       Outflow           0002  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  5  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  6  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0216  1  5.0    4.70    0.43  2.75  38.59 0.69   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0215  1  5.0    1.90    0.20  2.75  44.17 0.79   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0214  1  5.0    9.81    1.23  2.75  50.34 0.90   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0043  1  5.0    9.81    0.42  3.33  50.32  n/a   0.000
*
    ADD [  0215+  0216]  0047  3  5.0    6.60    0.64  2.75  40.20  n/a   0.000
*
    ADD [  0047+  0043]  0047  1  5.0   16.41    0.94  2.75  46.25  n/a   0.000
*
    ADD [  0047+  0069]  0047  3  5.0   80.31    3.32  3.17  48.13  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0050  1  5.0   80.31    0.69  6.83  47.12  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0213  1  5.0    4.30    0.40  2.75  38.59 0.69   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0212  1  5.0   16.72    2.10  2.75  51.32 0.92   0.000
```

```
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0039  1  5.0   16.72    0.73  3.33  51.31  n/a   0.000
*
    ADD [  0213+  0039]  0065  3  5.0   21.02    0.92  2.75  48.71  n/a   0.000
*
    ADD [  0065+  0069]  0065  1  5.0   84.92    3.52  3.25  48.64  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0067  1  5.0   84.92    0.86  6.58  47.96  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0217  1  5.0    8.00    0.73  2.75  38.59 0.69   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0217+  0050]  0060  3  5.0   88.31    0.76  2.75  46.35  n/a   0.000
*
    ADD [  0060+  0051]  0060  1  5.0   88.31    0.76  2.75  46.35  n/a   0.000
*
    ADD [  0060+  0067]  0060  3  5.0  173.23    1.55  6.67  47.14  n/a   0.000
*
    ADD [  0060+  0068]  0060  1  5.0  173.23    1.55  6.67  47.14  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0218  1  5.0    0.80    0.04  2.92  21.98 0.39   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.05  2.75  36.87 0.66   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  0218+  0060]  7639  3  5.0  174.03    1.55  6.67  47.02  n/a   0.000
*
    ADD [  7639+  0008]  7639  1  5.0  174.93    1.55  6.67  46.97  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.04  2.75  27.57 0.50   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0220  1  5.0    1.40    0.09  2.92  27.62 0.50   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.32]
*
    ADD [  0220+  0006]  0076  3  5.0    1.90    0.12  2.83  27.61  n/a   0.000
*
```

```
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0219  1  5.0    7.50    0.38  3.08  27.62 0.50   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.44]
*
    ADD [  0219+  0076]  0075  3  5.0    9.40    0.49  3.00  27.62  n/a   0.000
*
*********************************
** SIMULATION:5. 25 Year 6 Hour **
*********************************
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.04  2.83  29.15 0.44   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.10  2.83  29.04 0.44   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0200  1  5.0   28.20    1.20  3.33  29.26 0.45   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.64]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0201  1  5.0    1.39    0.23  2.75  64.24 0.98   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0001+  0002]  0010  3  5.0    1.90    0.14  2.83  29.08  n/a   0.000
*
    ADD [  0010+  0200]  0010  1  5.0   30.10    1.26  3.33  29.25  n/a   0.000
*
    ADD [  0010+  0201]  0010  3  5.0   31.49    1.32  3.25  30.79  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.13  2.75  35.80 0.55   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
```

```
 *  CALIB NASHYD         0223  1  5.0    0.98    0.04  3.42  29.58 0.45   0.000
    [CN=80.0         ]
    [ N = 3.0:Tp 0.73]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    1.25  2.75  63.72 0.97   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.24  3.33  63.67  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    1.79  2.75  59.50 0.91   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    1.62  2.75  59.50  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.09  2.75  48.94 0.75   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0223+  7667]  7671  3  5.0    2.03    0.14  2.75  32.80  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    2.75    0.23  2.75  37.03  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   10.25    0.45  2.75  56.52  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   21.49    2.07  2.75  58.08  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   21.49    0.36  4.50  58.02  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.24  3.17  29.26 0.45   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.07  2.92  35.95 0.55   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0202  1  5.0   18.10    2.62  2.75  60.48 0.92   0.000
```

```
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0011  1  5.0   18.10    0.91  3.33  60.47  n/a   0.000
*
    ADD [  0011+  0004]  0013  3  5.0   23.00    1.14  3.25  53.82  n/a   0.000
*
    ADD [  0013+  0005]  0013  1  5.0   23.90    1.20  3.25  53.15  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0203  1  5.0    0.80    0.11  2.75  55.21 0.84   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0013+  0203]  0014  3  5.0   24.70    1.24  3.25  53.22  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0205  1  5.0   17.30    2.57  2.75  60.69 0.93   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0015  1  5.0   17.30    0.88  3.33  60.68  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0032  1  5.0    2.00    0.18  2.83  41.64 0.63   0.000
    [I%=24.0:S%= 2.00]
*
    ADD [  0015+  0032]  0020  3  5.0   19.30    0.99  3.17  58.71  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0222  1  5.0    0.90    0.13  2.75  54.90 0.84   0.000
    [I%=54.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0206  1  5.0    6.04    0.80  2.75  54.81 0.84   0.000
    [I%=52.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0221  1  5.0   12.06    2.01  2.75  64.29 0.98   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0206+  0221]  7702  3  5.0   18.10    2.80  2.75  61.13  n/a   0.000
*
    ADD [  0222+  7702]  7704  3  5.0   19.00    2.93  2.75  60.83  n/a   0.000
*
 ** Reservoir
```

```
    OUTFLOW:             0024  1  5.0   19.00    0.95  3.25  60.83  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0204  1  5.0    1.70    0.22  2.75  53.90 0.82   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0207  1  5.0    1.80    0.24  2.75  55.21 0.84   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0014+  0020]  0028  3  5.0   44.00    2.23  3.25  55.62  n/a   0.000
*
    ADD [  0028+  0204]  0028  1  5.0   45.70    2.33  3.17  55.56  n/a   0.000
*
    ADD [  0028+  0207]  0028  3  5.0   47.50    2.47  3.00  55.55  n/a   0.000
*
    ADD [  0028+  0024]  0028  1  5.0   66.50    3.41  3.08  57.06  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0209  1  5.0    1.80    0.23  2.75  55.21 0.84   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0211  1  5.0    0.90    0.12  2.75  53.47 0.82   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    1.40    0.14  2.75  39.97 0.61   0.000
    [I%=18.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0210  1  5.0   36.60    5.02  2.75  60.06 0.92   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0031  1  5.0   36.60    1.79  3.42  60.06  n/a   0.000
*
    ADD [  0003+  0031]  0033  3  5.0   38.00    1.83  3.42  59.32  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0208  1  5.0   19.20    2.69  2.75  61.12 0.93   0.000
```

```
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0036  1  5.0   19.20    0.96  3.42  61.11  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.18  2.75  48.75 0.74   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0036+  0007]  0025  3  5.0   20.60    1.01  3.25  60.27  n/a   0.000
*
    ADD [  0209+  0211]  0041  3  5.0    2.70    0.36  2.75  54.63  n/a   0.000
*
    ADD [  0041+  0025]  0041  1  5.0   23.30    1.16  3.25  59.61  n/a   0.000
*
    ADD [  0041+  0028]  0041  3  5.0   89.80    4.57  3.08  57.72  n/a   0.000
*
    ADD [  0041+  0033]  0041  1  5.0  127.80    6.36  3.25  58.19  n/a   0.000
*
    DIVERT HYD           0069  1  5.0  127.80    6.36  3.25  58.19  n/a   0.000
       Outflow           0002  2  5.0   63.90    3.18  3.25  58.19  n/a   0.000
       Outflow           0002  3  5.0   63.90    3.18  3.25  58.19  n/a   0.000
       Outflow           0002  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  5  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  6  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0216  1  5.0    4.70    0.53  2.75  47.09 0.72   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0215  1  5.0    1.90    0.26  2.75  53.48 0.82   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0214  1  5.0    9.81    1.48  2.75  60.06 0.92   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0043  1  5.0    9.81    0.50  3.33  60.04  n/a   0.000
*
    ADD [  0215+  0216]  0047  3  5.0    6.60    0.79  2.75  48.93  n/a   0.000
*
    ADD [  0047+  0043]  0047  1  5.0   16.41    1.16  2.75  55.57  n/a   0.000
*
    ADD [  0047+  0069]  0047  3  5.0   80.31    4.00  3.08  57.66  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0050  1  5.0   80.31    0.97  6.50  56.63  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
```

```
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0213  1  5.0    4.30    0.51  2.75  47.09 0.72   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0212  1  5.0   16.72    2.53  2.75  61.12 0.93   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0039  1  5.0   16.72    0.87  3.33  61.11  n/a   0.000
*
    ADD [  0213+  0039]  0065  3  5.0   21.02    1.14  2.75  58.24  n/a   0.000
*
    ADD [  0065+  0069]  0065  1  5.0   84.92    4.24  3.25  58.20  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0067  1  5.0   84.92    1.13  6.42  57.51  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0217  1  5.0    8.00    0.90  2.75  47.09 0.72   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0217+  0050]  0060  3  5.0   88.31    0.99  6.25  55.76  n/a   0.000
*
    ADD [  0060+  0051]  0060  1  5.0   88.31    0.99  6.25  55.76  n/a   0.000
*
    ADD [  0060+  0067]  0060  3  5.0  173.23    2.12  6.25  56.62  n/a   0.000
*
    ADD [  0060+  0068]  0060  1  5.0  173.23    2.12  6.25  56.62  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0218  1  5.0    0.80    0.05  2.92  29.25 0.45   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.07  2.75  45.53 0.69   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  0218+  0060]  7639  3  5.0  174.03    2.12  6.25  56.49  n/a   0.000
*
    ADD [  7639+  0008]  7639  1  5.0  174.93    2.13  6.25  56.44  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.05  2.75  35.89 0.55   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
```

```
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0220  1  5.0    1.40    0.11  2.92  35.95 0.55   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.32]
*
    ADD [  0220+  0006]  0076  3  5.0    1.90    0.16  2.83  35.94  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0219  1  5.0    7.50    0.50  3.08  35.96 0.55   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.44]
*
    ADD [  0219+  0076]  0075  3  5.0    9.40    0.64  3.00  35.95  n/a   0.000
*
*********************************
** SIMULATION:6. 50 Year 6 Hour **
*********************************
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.05  2.83  34.63 0.47   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.12  2.83  34.52 0.47   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0200  1  5.0   28.20    1.44  3.33  34.99 0.48   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.64]
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0201  1  5.0    1.39    0.26  2.75  71.63 0.98   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0001+  0002]  0010  3  5.0    1.90    0.16  2.83  34.55  n/a   0.000
*
    ADD [  0010+  0200]  0010  1  5.0   30.10    1.52  3.33  34.96  n/a   0.000
*
    ADD [  0010+  0201]  0010  3  5.0   31.49    1.58  3.25  36.58  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
```

```
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.15  2.75  41.96 0.57   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0223  1  5.0    0.98    0.05  3.42  35.16 0.48   0.000
    [CN=80.0         ]
    [ N = 3.0:Tp 0.73]
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    1.40  2.75  71.11 0.97   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.27  3.33  71.07  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    2.00  2.75  66.68 0.91   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    1.81  2.75  66.68  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.10  2.75  55.59 0.76   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0223+  7667]  7671  3  5.0    2.03    0.17  2.75  38.68  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    2.75    0.27  2.75  43.11  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   10.25    0.51  2.75  63.57  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   21.49    2.32  2.75  65.19  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   21.49    0.41  4.50  65.14  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.29  3.17  34.99 0.48   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
```

```
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.08  2.92  42.39 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0202  1  5.0   18.10    3.00  2.75  67.80 0.93   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0011  1  5.0   18.10    1.03  3.33  67.79  n/a   0.000
*
    ADD [  0011+  0004]  0013  3  5.0   23.00    1.31  3.25  60.80  n/a   0.000
*
    ADD [  0013+  0005]  0013  1  5.0   23.90    1.37  3.25  60.11  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0203  1  5.0    0.80    0.13  2.75  62.37 0.85   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0013+  0203]  0014  3  5.0   24.70    1.42  3.17  60.18  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0205  1  5.0   17.30    2.89  2.75  68.02 0.93   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0015  1  5.0   17.30    0.99  3.33  68.01  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0032  1  5.0    2.00    0.21  2.83  48.06 0.66   0.000
    [I%=24.0:S%= 2.00]
*
    ADD [  0015+  0032]  0020  3  5.0   19.30    1.11  3.08  65.94  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0222  1  5.0    0.90    0.14  2.75  62.05 0.85   0.000
    [I%=54.0:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0206  1  5.0    6.04    0.93  2.75  61.94 0.85   0.000
    [I%=52.0:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
```

```
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0221  1  5.0   12.06    2.24  2.75  71.69 0.98   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0206+  0221]  7702  3  5.0   18.10    3.17  2.75  68.44  n/a   0.000
*
    ADD [  0222+  7702]  7704  3  5.0   19.00    3.31  2.75  68.13  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0024  1  5.0   19.00    1.07  3.25  68.12  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0204  1  5.0    1.70    0.25  2.75  60.97 0.84   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0207  1  5.0    1.80    0.27  2.75  62.37 0.85   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0014+  0020]  0028  3  5.0   44.00    2.53  3.17  62.71  n/a   0.000
*
    ADD [  0028+  0204]  0028  1  5.0   45.70    2.66  3.08  62.65  n/a   0.000
*
    ADD [  0028+  0207]  0028  3  5.0   47.50    2.83  3.00  62.63  n/a   0.000
*
    ADD [  0028+  0024]  0028  1  5.0   66.50    3.89  3.00  64.20  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0209  1  5.0    1.80    0.27  2.75  62.37 0.85   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0211  1  5.0    0.90    0.14  2.75  60.52 0.83   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    1.40    0.17  2.75  46.29 0.63   0.000
    [I%=18.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0210  1  5.0   36.60    5.80  2.75  67.36 0.92   0.000
    [I%=71.0:S%= 2.00]
*
```

```
 ** Reservoir
    OUTFLOW:             0031  1  5.0   36.60    2.01  3.42  67.36  n/a   0.000
*
    ADD [  0003+  0031]  0033  3  5.0   38.00    2.07  3.33  66.58  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0208  1  5.0   19.20    3.10  2.75  68.46 0.94   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0036  1  5.0   19.20    1.08  3.42  68.45  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.21  2.75  55.55 0.76   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0036+  0007]  0025  3  5.0   20.60    1.14  3.25  67.58  n/a   0.000
*
    ADD [  0209+  0211]  0041  3  5.0    2.70    0.41  2.75  61.75  n/a   0.000
*
    ADD [  0041+  0025]  0041  1  5.0   23.30    1.35  2.92  66.90  n/a   0.000
*
    ADD [  0041+  0028]  0041  3  5.0   89.80    5.22  3.00  64.90  n/a   0.000
*
    ADD [  0041+  0033]  0041  1  5.0  127.80    7.20  3.17  65.40  n/a   0.000
*
    DIVERT HYD           0069  1  5.0  127.80    7.20  3.17  65.40  n/a   0.000
       Outflow           0002  2  5.0   63.90    3.60  3.17  65.40  n/a   0.000
       Outflow           0002  3  5.0   63.90    3.60  3.17  65.40  n/a   0.000
       Outflow           0002  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  5  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  6  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0216  1  5.0    4.70    0.61  2.75  53.58 0.73   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0215  1  5.0    1.90    0.29  2.75  60.52 0.83   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0214  1  5.0    9.81    1.66  2.75  67.36 0.92   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0043  1  5.0    9.81    0.56  3.25  67.34  n/a   0.000
*
    ADD [  0215+  0216]  0047  3  5.0    6.60    0.90  2.75  55.58  n/a   0.000
```

```
*
    ADD [  0047+  0043]  0047  1  5.0   16.41    1.32  2.75  62.61  n/a   0.000
*
    ADD [  0047+  0069]  0047  3  5.0   80.31    4.58  3.00  64.83  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0050  1  5.0   80.31    1.17  6.42  63.79  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0213  1  5.0    4.30    0.58  2.75  53.58 0.73   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0212  1  5.0   16.72    2.84  2.75  68.46 0.94   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0039  1  5.0   16.72    0.97  3.33  68.45  n/a   0.000
*
    ADD [  0213+  0039]  0065  3  5.0   21.02    1.29  2.75  65.41  n/a   0.000
*
    ADD [  0065+  0069]  0065  1  5.0   84.92    4.79  3.17  65.40  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0067  1  5.0   84.92    1.32  6.33  64.70  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0217  1  5.0    8.00    1.03  2.75  53.58 0.73   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0217+  0050]  0060  3  5.0   88.31    1.19  6.25  62.86  n/a   0.000
*
    ADD [  0060+  0051]  0060  1  5.0   88.31    1.19  6.25  62.86  n/a   0.000
*
    ADD [  0060+  0067]  0060  3  5.0  173.23    2.52  6.25  63.77  n/a   0.000
*
    ADD [  0060+  0068]  0060  1  5.0  173.23    2.52  6.25  63.77  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0218  1  5.0    0.80    0.06  2.92  34.98 0.48   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.08  2.75  52.15 0.71   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  0218+  0060]  7639  3  5.0  174.03    2.52  6.25  63.63  n/a   0.000
*
```

```
    ADD [  7639+  0008]  7639  1  5.0  174.93    2.52  6.25  63.57  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.06  2.75  42.32 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0220  1  5.0    1.40    0.13  2.92  42.39 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.32]
*
    ADD [  0220+  0006]  0076  3  5.0    1.90    0.19  2.83  42.37  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0219  1  5.0    7.50    0.59  3.00  42.40 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.44]
*
    ADD [  0219+  0076]  0075  3  5.0    9.40    0.76  3.00  42.39  n/a   0.000
*
**********
** SIMULATION:7. 100 Year 6 Hour **
**********
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.06  2.83  40.23 0.50   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.14  2.83  40.11 0.50   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0200  1  5.0   28.20    1.69  3.33  40.83 0.51   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.64]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0201  1  5.0    1.39    0.28  2.75  78.92 0.98   0.000
```

```
    [I%=99.0:S%= 2.00]
*
    ADD [  0001+  0002]  0010  3  5.0    1.90    0.19  2.83  40.15  n/a   0.000
*
    ADD [  0010+  0200]  0010  1  5.0   30.10    1.78  3.33  40.78  n/a   0.000
*
    ADD [  0010+  0201]  0010  3  5.0   31.49    1.85  3.25  42.47  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.16  2.75  48.15 0.60   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0223  1  5.0    0.98    0.05  3.42  40.86 0.51   0.000
    [CN=80.0         ]
    [ N = 3.0:Tp 0.73]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    1.54  2.75  78.41 0.98   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.30  3.33  78.37  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    2.21  2.75  73.79 0.92   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    2.00  2.75  73.79  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.12  2.75  62.23 0.77   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0223+  7667]  7671  3  5.0    2.03    0.19  2.75  44.63  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    2.75    0.31  2.75  49.24  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   10.25    0.57  2.75  70.55  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   21.49    2.57  2.75  72.24  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   21.49    0.46  4.42  72.19  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
```

```
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.34  3.17  40.83 0.51   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                 15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.10  2.92  48.88 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    READ STORM                 15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0202  1  5.0   18.10    3.33  2.75  75.04 0.93   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0011  1  5.0   18.10    1.14  3.33  75.03  n/a   0.000
*
    ADD [  0011+  0004]  0013  3  5.0   23.00    1.47  3.25  67.74  n/a   0.000
*
    ADD [  0013+  0005]  0013  1  5.0   23.90    1.55  3.17  67.03  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0203  1  5.0    0.80    0.15  2.75  69.47 0.87   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0013+  0203]  0014  3  5.0   24.70    1.60  3.17  67.11  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0205  1  5.0   17.30    3.22  2.75  75.26 0.94   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0015  1  5.0   17.30    1.10  3.33  75.26  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0032  1  5.0    2.00    0.24  2.83  54.52 0.68   0.000
    [I%=24.0:S%= 2.00]
*
    ADD [  0015+  0032]  0020  3  5.0   19.30    1.24  3.08  73.11  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0222  1  5.0    0.90    0.16  2.75  69.14 0.86   0.000
    [I%=54.0:S%= 2.00]
```

```
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0206  1  5.0    6.04    1.05  2.75  69.01 0.86   0.000
    [I%=52.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0221  1  5.0   12.06    2.46  2.75  78.99 0.98   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0206+  0221]  7702  3  5.0   18.10    3.51  2.75  75.66  n/a   0.000
*
    ADD [  0222+  7702]  7704  3  5.0   19.00    3.67  2.75  75.35  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0024  1  5.0   19.00    1.18  3.25  75.34  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0204  1  5.0    1.70    0.28  2.75  68.00 0.85   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0207  1  5.0    1.80    0.30  2.75  69.47 0.87   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0014+  0020]  0028  3  5.0   44.00    2.84  3.17  69.74  n/a   0.000
*
    ADD [  0028+  0204]  0028  1  5.0   45.70    2.98  3.08  69.68  n/a   0.000
*
    ADD [  0028+  0207]  0028  3  5.0   47.50    3.18  3.00  69.67  n/a   0.000
*
    ADD [  0028+  0024]  0028  1  5.0   66.50    4.35  3.00  71.29  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0209  1  5.0    1.80    0.30  2.75  69.47 0.87   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0211  1  5.0    0.90    0.16  2.75  67.51 0.84   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
```

```
 *  CALIB STANDHYD       0003  1  5.0    1.40    0.19  2.75  52.65 0.66   0.000
    [I%=18.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0210  1  5.0   36.60    6.47  2.75  74.58 0.93   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0031  1  5.0   36.60    2.23  3.42  74.57  n/a   0.000
*
    ADD [  0003+  0031]  0033  3  5.0   38.00    2.29  3.33  73.77  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0208  1  5.0   19.20    3.45  2.75  75.72 0.94   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0036  1  5.0   19.20    1.19  3.33  75.71  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.24  2.75  62.34 0.78   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0036+  0007]  0025  3  5.0   20.60    1.27  3.25  74.80  n/a   0.000
*
    ADD [  0209+  0211]  0041  3  5.0    2.70    0.45  2.75  68.82  n/a   0.000
*
    ADD [  0041+  0025]  0041  1  5.0   23.30    1.51  2.75  74.11  n/a   0.000
*
    ADD [  0041+  0028]  0041  3  5.0   89.80    5.82  3.00  72.02  n/a   0.000
*
    ADD [  0041+  0033]  0041  1  5.0  127.80    8.01  3.17  72.54  n/a   0.000
*
    DIVERT HYD           0069  1  5.0  127.80    8.01  3.17  72.54  n/a   0.000
       Outflow           0002  2  5.0   63.90    4.01  3.17  72.54  n/a   0.000
       Outflow           0002  3  5.0   63.90    4.01  3.17  72.54  n/a   0.000
       Outflow           0002  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  5  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  6  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0216  1  5.0    4.70    0.71  2.75  60.08 0.75   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0215  1  5.0    1.90    0.33  2.75  67.52 0.84   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
```

```
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0214  1  5.0    9.81    1.85  2.75  74.58 0.93   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0043  1  5.0    9.81    0.62  3.25  74.56  n/a   0.000
*
    ADD [  0215+  0216]  0047  3  5.0    6.60    1.04  2.75  62.22  n/a   0.000
*
    ADD [  0047+  0043]  0047  1  5.0   16.41    1.50  2.75  69.60  n/a   0.000
*
    ADD [  0047+  0069]  0047  3  5.0   80.31    5.11  2.92  71.94  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0050  1  5.0   80.31    1.35  6.25  70.88  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0213  1  5.0    4.30    0.66  2.75  60.08 0.75   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0212  1  5.0   16.72    3.16  2.75  75.72 0.94   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0039  1  5.0   16.72    1.08  3.33  75.71  n/a   0.000
*
    ADD [  0213+  0039]  0065  3  5.0   21.02    1.45  2.75  72.51  n/a   0.000
*
    ADD [  0065+  0069]  0065  1  5.0   84.92    5.33  3.08  72.53  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0067  1  5.0   84.92    1.57  6.17  71.82  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0217  1  5.0    8.00    1.20  2.75  60.08 0.75   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0217+  0050]  0060  3  5.0   88.31    1.38  6.25  69.90  n/a   0.000
*
    ADD [  0060+  0051]  0060  1  5.0   88.31    1.38  6.25  69.90  n/a   0.000
*
    ADD [  0060+  0067]  0060  3  5.0  173.23    2.95  6.25  70.85  n/a   0.000
*
    ADD [  0060+  0068]  0060  1  5.0  173.23    2.95  6.25  70.85  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0218  1  5.0    0.80    0.07  2.92  40.81 0.51   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.31]
```

```
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.09  2.75  58.77 0.73   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  0218+  0060]  7639  3  5.0  174.03    2.95  6.25  70.71  n/a   0.000
*
    ADD [  7639+  0008]  7639  1  5.0  174.93    2.96  6.17  70.65  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.07  2.75  48.80 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0220  1  5.0    1.40    0.15  2.92  48.88 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.32]
*
    ADD [  0220+  0006]  0076  3  5.0    1.90    0.22  2.83  48.86  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0219  1  5.0    7.50    0.69  3.00  48.89 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.44]
*
    ADD [  0219+  0076]  0075  3  5.0    9.40    0.88  3.00  48.88  n/a   0.000
*
```

```
*********************************
** SIMULATION:2. 2 Year 12 Hour **
*********************************
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 ** CALIB NASHYD         0002  1  5.0    1.30    0.03  5.25  13.43 0.32   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 ** CALIB NASHYD         0001  1  5.0    0.60    0.01  5.33  13.50 0.32   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 ** CALIB NASHYD         0200  1  5.0   28.20    0.38  5.67  12.88 0.31   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.64]
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0201  1  5.0    1.39    0.07  5.25  40.72 0.97   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0001+  0002]  0010  3  5.0    1.90    0.04  5.25  13.45  n/a   0.000
*
    ADD [  0010+  0200]  0010  1  5.0   30.10    0.40  5.67  12.92  n/a   0.000
*
    ADD [  0010+  0201]  0010  3  5.0   31.49    0.42  5.67  14.14  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.03  5.25  17.43 0.42   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0223  1  5.0    0.98    0.01  5.75  13.62 0.32   0.000
    [CN=80.0         ]
    [ N = 3.0:Tp 0.73]
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.03  5.25  28.56 0.68   0.000
    [I%=50.0:S%= 2.00]
```

```
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    0.40  5.25  40.19 0.96   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.13  5.33  40.15  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    0.56  5.25  36.87 0.88   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    0.55  5.25  36.87  n/a   0.000
*
    ADD [  0223+  7667]  7671  3  5.0    2.03    0.04  5.25  15.59  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    2.75    0.07  5.25  18.99  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   10.25    0.19  5.25  34.47  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   21.49    0.74  5.25  35.73  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   21.49    0.17  7.75  35.67  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.08  5.50  12.88 0.31   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.02  5.33  16.84 0.40   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0202  1  5.0   18.10    0.84  5.25  37.32 0.89   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0011  1  5.0   18.10    0.49  5.75  37.32  n/a   0.000
*
    ADD [  0011+  0004]  0013  3  5.0   23.00    0.56  5.67  32.11  n/a   0.000
*
    ADD [  0013+  0005]  0013  1  5.0   23.90    0.58  5.67  31.54  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
```

```
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0203  1  5.0    0.80    0.04  5.25  32.78 0.78   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0013+  0203]  0014  3  5.0   24.70    0.60  5.67  31.58  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0221  1  5.0   12.06    0.64  5.25  40.76 0.97   0.000
    [I%=99.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0206  1  5.0    6.04    0.25  5.25  32.56 0.78   0.000
    [I%=52.0:S%= 2.00]
*
    ADD [  0206+  0221]  7702  3  5.0   18.10    0.89  5.25  38.02  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0222  1  5.0    0.90    0.04  5.25  32.53 0.77   0.000
    [I%=54.0:S%= 2.00]
*
    ADD [  0222+  7702]  7704  3  5.0   19.00    0.93  5.25  37.76  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0024  1  5.0   19.00    0.52  5.50  37.75  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0207  1  5.0    1.80    0.08  5.25  32.79 0.78   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0205  1  5.0   17.30    0.82  5.25  37.49 0.89   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0015  1  5.0   17.30    0.47  5.67  37.49  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0032  1  5.0    2.00    0.05  5.33  22.35 0.53   0.000
    [I%=24.0:S%= 2.00]
*
    ADD [  0015+  0032]  0020  3  5.0   19.30    0.52  5.67  35.92  n/a   0.000
*
    READ STORM                15.0
```

```
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0204  1  5.0    1.70    0.07  5.25  31.85 0.76   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0014+  0020]  0028  3  5.0   44.00    1.11  5.67  33.48  n/a   0.000
*
    ADD [  0028+  0204]  0028  1  5.0   45.70    1.16  5.58  33.42  n/a   0.000
*
    ADD [  0028+  0207]  0028  3  5.0   47.50    1.21  5.58  33.40  n/a   0.000
*
    ADD [  0028+  0024]  0028  1  5.0   66.50    1.74  5.50  34.64  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0210  1  5.0   36.60    1.66  5.25  37.00 0.88   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0031  1  5.0   36.60    0.95  5.83  36.99  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    1.40    0.04  5.25  21.08 0.50   0.000
    [I%=18.0:S%= 2.00]
*
    ADD [  0003+  0031]  0033  3  5.0   38.00    0.97  5.75  36.41  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0211  1  5.0    0.90    0.04  5.25  31.56 0.75   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0208  1  5.0   19.20    0.89  5.25  37.84 0.90   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0036  1  5.0   19.20    0.52  5.83  37.83  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.05  5.25  27.85 0.66   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0036+  0007]  0025  3  5.0   20.60    0.54  5.75  37.15  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
```

```
*
 *  CALIB STANDHYD       0209  1  5.0    1.80    0.07  5.25  32.79 0.78   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0209+  0211]  0041  3  5.0    2.70    0.11  5.25  32.38  n/a   0.000
*
    ADD [  0041+  0025]  0041  1  5.0   23.30    0.61  5.58  36.60  n/a   0.000
*
    ADD [  0041+  0028]  0041  3  5.0   89.80    2.34  5.58  35.15  n/a   0.000
*
    ADD [  0041+  0033]  0041  1  5.0  127.80    3.29  5.58  35.52  n/a   0.000
*
    DIVERT HYD           0069  1  5.0  127.80    3.29  5.58  35.52  n/a   0.000
       Outflow           0002  2  5.0   63.90    1.65  5.58  35.52  n/a   0.000
       Outflow           0002  3  5.0   63.90    1.65  5.58  35.52  n/a   0.000
       Outflow           0002  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  5  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  6  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0216  1  5.0    4.70    0.16  5.25  27.31 0.65   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0214  1  5.0    9.81    0.47  5.25  37.00 0.88   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0043  1  5.0    9.81    0.27  5.67  36.98  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0215  1  5.0    1.90    0.08  5.25  31.56 0.75   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0215+  0216]  0047  3  5.0    6.60    0.24  5.25  28.53  n/a   0.000
*
    ADD [  0047+  0043]  0047  1  5.0   16.41    0.47  5.25  33.59  n/a   0.000
*
    ADD [  0047+  0069]  0047  3  5.0   80.31    2.05  5.50  35.13  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0050  1  5.0   80.31    0.32 10.08  34.12  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0213  1  5.0    4.30    0.15  5.25  27.31 0.65   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0212  1  5.0   16.72    0.81  5.25  37.84 0.90   0.000
```

```
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0039  1  5.0   16.72    0.47  5.67  37.83  n/a   0.000
*
    ADD [  0213+  0039]  0065  3  5.0   21.02    0.55  5.25  35.68  n/a   0.000
*
    ADD [  0065+  0069]  0065  1  5.0   84.92    2.19  5.58  35.56  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0067  1  5.0   84.92    0.38  9.92  34.88  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0217  1  5.0    8.00    0.27  5.25  27.31 0.65   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0217+  0050]  0060  3  5.0   88.31    0.33 10.00  33.51  n/a   0.000
*
    ADD [  0060+  0067]  0060  1  5.0  173.23    0.71  9.92  34.18  n/a   0.000
*
    ADD [  0060+  7718]  0060  3  5.0  173.23    0.71  9.92  34.18  n/a   0.000
*
    ADD [  0060+  7736]  0060  1  5.0  173.23    0.71  9.92  34.18  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0218  1  5.0    0.80    0.02  5.33  12.87 0.31   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.02  5.25  25.39 0.60   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  0218+  0060]  7639  3  5.0  174.03    0.71  9.92  34.08  n/a   0.000
*
    ADD [  7639+  0008]  7639  1  5.0  174.93    0.71  9.92  34.04  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0219  1  5.0    7.50    0.17  5.42  16.84 0.40   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.44]
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0220  1  5.0    1.40    0.04  5.33  16.84 0.40   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.32]
*
    READ STORM                 15.0
    [ Ptot= 42.00 mm ]
```

```
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\3afe2a2b-9d9d-47a3-bd9c-70
    remark: 2 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.01  5.25  16.81 0.40   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    ADD [  0220+  0006]  0076  3  5.0    1.90    0.05  5.33  16.83  n/a   0.000
*
    ADD [  0219+  0076]  0075  3  5.0    9.40    0.21  5.42  16.84  n/a   0.000
*
*********************************
** SIMULATION:3. 5 Year 12 Hour **
*********************************
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.04  5.25  21.23 0.39   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.02  5.33  21.32 0.39   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0200  1  5.0   28.20    0.64  5.67  21.06 0.39   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.64]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0201  1  5.0    1.39    0.10  5.25  53.06 0.98   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0001+  0002]  0010  3  5.0    1.90    0.06  5.25  21.25  n/a   0.000
*
    ADD [  0010+  0200]  0010  1  5.0   30.10    0.67  5.58  21.07  n/a   0.000
*
    ADD [  0010+  0201]  0010  3  5.0   31.49    0.70  5.58  22.48  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.05  5.25  26.79 0.49   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
```

```
 *  CALIB NASHYD         0223  1  5.0    0.98    0.02  5.75  21.60 0.40   0.000
    [CN=80.0         ]
    [ N = 3.0:Tp 0.73]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.04  5.25  39.08 0.72   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    0.52  5.25  52.54 0.97   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.17  5.33  52.49  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    0.73  5.25  48.69 0.90   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    0.72  5.25  48.69  n/a   0.000
*
    ADD [  0223+  7667]  7671  3  5.0    2.03    0.07  5.25  24.28  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    2.75    0.10  5.25  28.16  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   10.25    0.27  5.25  45.96  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   21.49    0.99  5.25  47.39  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   21.49    0.25  7.42  47.34  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.13  5.50  21.06 0.39   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.04  5.33  26.54 0.49   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0202  1  5.0   18.10    1.14  5.25  49.44 0.91   0.000
```

```
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0011  1  5.0   18.10    0.66  5.67  49.43  n/a   0.000
*
    ADD [  0011+  0004]  0013  3  5.0   23.00    0.78  5.58  43.39  n/a   0.000
*
    ADD [  0013+  0005]  0013  1  5.0   23.90    0.81  5.58  42.75  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0203  1  5.0    0.80    0.05  5.25  44.46 0.82   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0013+  0203]  0014  3  5.0   24.70    0.83  5.58  42.81  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0221  1  5.0   12.06    0.83  5.25  53.10 0.98   0.000
    [I%=99.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0206  1  5.0    6.04    0.35  5.25  44.14 0.81   0.000
    [I%=52.0:S%= 2.00]
*
    ADD [  0206+  0221]  7702  3  5.0   18.10    1.18  5.25  50.11  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0222  1  5.0    0.90    0.05  5.25  44.17 0.81   0.000
    [I%=54.0:S%= 2.00]
*
    ADD [  0222+  7702]  7704  3  5.0   19.00    1.24  5.25  49.83  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0024  1  5.0   19.00    0.70  5.50  49.82  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0207  1  5.0    1.80    0.10  5.25  44.46 0.82   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0205  1  5.0   17.30    1.10  5.25  49.63 0.91   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0015  1  5.0   17.30    0.64  5.67  49.63  n/a   0.000
*
```

```
    READ STORM                 15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0032  1  5.0    2.00    0.08  5.33  32.21 0.59   0.000
    [I%=24.0:S%= 2.00]
*
    ADD [  0015+  0032]  0020  3  5.0   19.30    0.70  5.58  47.82  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0204  1  5.0    1.70    0.10  5.25  43.31 0.80   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0014+  0020]  0028  3  5.0   44.00    1.54  5.58  45.01  n/a   0.000
*
    ADD [  0028+  0204]  0028  1  5.0   45.70    1.61  5.50  44.94  n/a   0.000
*
    ADD [  0028+  0207]  0028  3  5.0   47.50    1.69  5.42  44.93  n/a   0.000
*
    ADD [  0028+  0024]  0028  1  5.0   66.50    2.38  5.50  46.33  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0210  1  5.0   36.60    2.23  5.25  49.06 0.90   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0031  1  5.0   36.60    1.28  5.75  49.05  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    1.40    0.06  5.25  30.71 0.56   0.000
    [I%=18.0:S%= 2.00]
*
    ADD [  0003+  0031]  0033  3  5.0   38.00    1.31  5.75  48.38  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0211  1  5.0    0.90    0.05  5.25  42.94 0.79   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0208  1  5.0   19.20    1.20  5.25  50.03 0.92   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0036  1  5.0   19.20    0.69  5.75  50.02  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
```

```
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.07  5.25  38.64 0.71   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0036+  0007]  0025  3  5.0   20.60    0.72  5.75  49.25  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0209  1  5.0    1.80    0.10  5.25  44.46 0.82   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0209+  0211]  0041  3  5.0    2.70    0.15  5.25  43.96  n/a   0.000
*
    ADD [  0041+  0025]  0041  1  5.0   23.30    0.82  5.50  48.63  n/a   0.000
*
    ADD [  0041+  0028]  0041  3  5.0   89.80    3.20  5.50  46.92  n/a   0.000
*
    ADD [  0041+  0033]  0041  1  5.0  127.80    4.47  5.58  47.36  n/a   0.000
*
    DIVERT HYD           0069  1  5.0  127.80    4.47  5.58  47.36  n/a   0.000
       Outflow           0002  2  5.0   63.90    2.24  5.58  47.36  n/a   0.000
       Outflow           0002  3  5.0   63.90    2.24  5.58  47.36  n/a   0.000
       Outflow           0002  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  5  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  6  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0216  1  5.0    4.70    0.23  5.25  37.49 0.69   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0214  1  5.0    9.81    0.62  5.25  49.06 0.90   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0043  1  5.0    9.81    0.36  5.58  49.04  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0215  1  5.0    1.90    0.11  5.25  42.95 0.79   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0215+  0216]  0047  3  5.0    6.60    0.33  5.25  39.06  n/a   0.000
*
    ADD [  0047+  0043]  0047  1  5.0   16.41    0.65  5.25  45.03  n/a   0.000
*
    ADD [  0047+  0069]  0047  3  5.0   80.31    2.80  5.42  46.88  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0050  1  5.0   80.31    0.62  9.33  45.82  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
```

```
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0213  1  5.0    4.30    0.21  5.25  37.49 0.69   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0212  1  5.0   16.72    1.08  5.25  50.03 0.92   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0039  1  5.0   16.72    0.63  5.67  50.02  n/a   0.000
*
    ADD [  0213+  0039]  0065  3  5.0   21.02    0.75  5.25  47.46  n/a   0.000
*
    ADD [  0065+  0069]  0065  1  5.0   84.92    2.96  5.58  47.38  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0067  1  5.0   84.92    0.78  9.00  46.67  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0217  1  5.0    8.00    0.39  5.25  37.49 0.69   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0217+  0050]  0060  3  5.0   88.31    0.64  9.25  45.07  n/a   0.000
*
    ADD [  0060+  0067]  0060  1  5.0  173.23    1.42  9.17  45.85  n/a   0.000
*
    ADD [  0060+  7718]  0060  3  5.0  173.23    1.42  9.17  45.85  n/a   0.000
*
    ADD [  0060+  7736]  0060  1  5.0  173.23    1.42  9.17  45.85  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0218  1  5.0    0.80    0.03  5.33  21.05 0.39   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.03  5.25  35.74 0.66   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  0218+  0060]  7639  3  5.0  174.03    1.42  9.17  45.74  n/a   0.000
*
    ADD [  7639+  0008]  7639  1  5.0  174.93    1.43  9.17  45.69  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0219  1  5.0    7.50    0.27  5.42  26.55 0.49   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.44]
*
```

```
    READ STORM                 15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0220  1  5.0    1.40    0.06  5.33  26.54 0.49   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.32]
*
    READ STORM                 15.0
    [ Ptot= 54.38 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\ed0fcd8d-b2cd-4d72-8af3-c72f6085bfee\c761ac3e-cc09-4233-ad4b-36
    remark: 5 Year 12 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.02  5.25  26.50 0.49   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    ADD [  0220+  0006]  0076  3  5.0    1.90    0.08  5.25  26.53  n/a   0.000
*
    ADD [  0219+  0076]  0075  3  5.0    9.40    0.34  5.33  26.55  n/a   0.000
*
```

```
*********************************
** SIMULATION:4. 10 Year 6 Hour **
*********************************
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.03  2.92  22.20 0.40   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.07  2.83  22.11 0.40   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0200  1  5.0   28.20    0.89  3.42  21.99 0.39   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.64]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0201  1  5.0    1.39    0.20  2.75  54.37 0.98   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0001+  0002]  0010  3  5.0    1.90    0.10  2.83  22.14  n/a   0.000
*
    ADD [  0010+  0200]  0010  1  5.0   30.10    0.94  3.33  21.99  n/a   0.000
*
    ADD [  0010+  0201]  0010  3  5.0   31.49    0.98  3.25  23.42  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.10  2.75  27.82 0.50   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0223  1  5.0    0.98    0.03  3.50  22.50 0.40   0.000
    [CN=80.0         ]
    [ N = 3.0:Tp 0.73]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    1.06  2.75  53.84 0.97   0.000
    [I%=99.0:S%= 2.00]
```

```
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.20  3.33  53.80  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    1.50  2.75  49.95 0.90   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    1.36  2.75  49.95  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.07  2.75  40.22 0.72   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0223+  7667]  7671  3  5.0    2.03    0.11  2.75  25.25  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    2.75    0.19  2.75  29.17  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   10.25    0.37  2.75  47.19  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   21.49    1.73  2.75  48.63  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   21.49    0.29  4.58  48.58  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.18  3.17  21.98 0.39   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.05  2.92  27.62 0.50   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0202  1  5.0   18.10    2.17  2.75  50.73 0.91   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0011  1  5.0   18.10    0.76  3.42  50.72  n/a   0.000
*
    ADD [  0011+  0004]  0013  3  5.0   23.00    0.94  3.33  44.60  n/a   0.000
*
    ADD [  0013+  0005]  0013  1  5.0   23.90    0.97  3.25  43.96  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
```

```
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0203  1  5.0    0.80    0.09  2.75  45.71 0.82   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0013+  0203]  0014  3  5.0   24.70    1.01  3.25  44.01  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0205  1  5.0   17.30    2.10  2.75  50.92 0.91   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0015  1  5.0   17.30    0.74  3.33  50.91  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0032  1  5.0    2.00    0.13  2.83  33.29 0.60   0.000
    [I%=24.0:S%= 2.00]
*
    ADD [  0015+  0032]  0020  3  5.0   19.30    0.82  3.25  49.09  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0222  1  5.0    0.90    0.10  2.75  45.42 0.82   0.000
    [I%=54.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0206  1  5.0    6.04    0.65  2.75  45.38 0.81   0.000
    [I%=52.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0221  1  5.0   12.06    1.70  2.75  54.41 0.98   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0206+  0221]  7702  3  5.0   18.10    2.35  2.75  51.40  n/a   0.000
*
    ADD [  0222+  7702]  7704  3  5.0   19.00    2.46  2.75  51.11  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0024  1  5.0   19.00    0.80  3.25  51.11  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0204  1  5.0    1.70    0.18  2.75  44.54 0.80   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
```

```
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0207  1  5.0    1.80    0.19  2.75  45.71 0.82   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0014+  0020]  0028  3  5.0   44.00    1.83  3.25  46.24  n/a   0.000
*
    ADD [  0028+  0204]  0028  1  5.0   45.70    1.91  3.17  46.18  n/a   0.000
*
    ADD [  0028+  0207]  0028  3  5.0   47.50    2.01  3.08  46.16  n/a   0.000
*
    ADD [  0028+  0024]  0028  1  5.0   66.50    2.81  3.08  47.57  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0209  1  5.0    1.80    0.19  2.75  45.71 0.82   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0211  1  5.0    0.90    0.10  2.75  44.17 0.79   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    1.40    0.11  2.75  31.77 0.57   0.000
    [I%=18.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0210  1  5.0   36.60    4.14  2.75  50.34 0.90   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0031  1  5.0   36.60    1.49  3.50  50.34  n/a   0.000
*
    ADD [  0003+  0031]  0033  3  5.0   38.00    1.53  3.42  49.65  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0208  1  5.0   19.20    2.23  2.75  51.32 0.92   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0036  1  5.0   19.20    0.80  3.42  51.31  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.14  2.75  39.81 0.71   0.000
```

```
    [I%=37.0:S%= 2.00]
*
    ADD [  0036+  0007]  0025  3  5.0   20.60    0.84  3.42  50.53  n/a   0.000
*
    ADD [  0209+  0211]  0041  3  5.0    2.70    0.29  2.75  45.20  n/a   0.000
*
    ADD [  0041+  0025]  0041  1  5.0   23.30    0.97  3.25  49.91  n/a   0.000
*
    ADD [  0041+  0028]  0041  3  5.0   89.80    3.78  3.17  48.18  n/a   0.000
*
    ADD [  0041+  0033]  0041  1  5.0  127.80    5.28  3.25  48.62  n/a   0.000
*
    DIVERT HYD           0069  1  5.0  127.80    5.28  3.25  48.62  n/a   0.000
       Outflow           0002  2  5.0   63.90    2.64  3.25  48.62  n/a   0.000
       Outflow           0002  3  5.0   63.90    2.64  3.25  48.62  n/a   0.000
       Outflow           0002  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  5  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  6  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0216  1  5.0    4.70    0.43  2.75  38.59 0.69   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0215  1  5.0    1.90    0.20  2.75  44.17 0.79   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0214  1  5.0    9.81    1.23  2.75  50.34 0.90   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0043  1  5.0    9.81    0.42  3.33  50.32  n/a   0.000
*
    ADD [  0215+  0216]  0047  3  5.0    6.60    0.64  2.75  40.20  n/a   0.000
*
    ADD [  0047+  0043]  0047  1  5.0   16.41    0.94  2.75  46.25  n/a   0.000
*
    ADD [  0047+  0069]  0047  3  5.0   80.31    3.32  3.17  48.13  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0050  1  5.0   80.31    0.69  6.83  47.12  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0213  1  5.0    4.30    0.40  2.75  38.59 0.69   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0212  1  5.0   16.72    2.10  2.75  51.32 0.92   0.000
```

```
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0039  1  5.0   16.72    0.73  3.33  51.31  n/a   0.000
*
    ADD [  0213+  0039]  0065  3  5.0   21.02    0.92  2.75  48.71  n/a   0.000
*
    ADD [  0065+  0069]  0065  1  5.0   84.92    3.52  3.25  48.64  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0067  1  5.0   84.92    0.86  6.58  47.96  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0217  1  5.0    8.00    0.73  2.75  38.59 0.69   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0217+  0050]  0060  3  5.0   88.31    0.76  2.75  46.35  n/a   0.000
*
    ADD [  0060+  0051]  0060  1  5.0   88.31    0.76  2.75  46.35  n/a   0.000
*
    ADD [  0060+  0067]  0060  3  5.0  173.23    1.55  6.67  47.14  n/a   0.000
*
    ADD [  0060+  0068]  0060  1  5.0  173.23    1.55  6.67  47.14  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0218  1  5.0    0.80    0.04  2.92  21.98 0.39   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.05  2.75  36.87 0.66   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  0218+  0060]  7639  3  5.0  174.03    1.55  6.67  47.02  n/a   0.000
*
    ADD [  7639+  0008]  7639  1  5.0  174.93    1.55  6.67  46.97  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.04  2.75  27.57 0.50   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    READ STORM                 15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0220  1  5.0    1.40    0.09  2.92  27.62 0.50   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.32]
*
    ADD [  0220+  0006]  0076  3  5.0    1.90    0.12  2.83  27.61  n/a   0.000
*
```

```
    READ STORM                15.0
    [ Ptot= 55.69 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\4016ce29-72c2-431c-ab92-0f
    remark: 10 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0219  1  5.0    7.50    0.38  3.08  27.62 0.50   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.44]
*
    ADD [  0219+  0076]  0075  3  5.0    9.40    0.49  3.00  27.62  n/a   0.000
*
*********************************
** SIMULATION:5. 25 Year 6 Hour **
*********************************
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.04  2.83  29.15 0.44   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.10  2.83  29.04 0.44   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0200  1  5.0   28.20    1.20  3.33  29.26 0.45   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.64]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0201  1  5.0    1.39    0.23  2.75  64.24 0.98   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0001+  0002]  0010  3  5.0    1.90    0.14  2.83  29.08  n/a   0.000
*
    ADD [  0010+  0200]  0010  1  5.0   30.10    1.26  3.33  29.25  n/a   0.000
*
    ADD [  0010+  0201]  0010  3  5.0   31.49    1.32  3.25  30.79  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.13  2.75  35.80 0.55   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
```

```
 *  CALIB NASHYD         0223  1  5.0    0.98    0.04  3.42  29.58 0.45   0.000
    [CN=80.0         ]
    [ N = 3.0:Tp 0.73]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    1.25  2.75  63.72 0.97   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.24  3.33  63.67  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    1.79  2.75  59.50 0.91   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    1.62  2.75  59.50  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.09  2.75  48.94 0.75   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0223+  7667]  7671  3  5.0    2.03    0.14  2.75  32.80  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    2.75    0.23  2.75  37.03  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   10.25    0.45  2.75  56.52  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   21.49    2.07  2.75  58.08  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   21.49    0.36  4.50  58.02  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.24  3.17  29.26 0.45   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.07  2.92  35.95 0.55   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0202  1  5.0   18.10    2.62  2.75  60.48 0.92   0.000
```

```
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0011  1  5.0   18.10    0.91  3.33  60.47  n/a   0.000
*
    ADD [  0011+  0004]  0013  3  5.0   23.00    1.14  3.25  53.82  n/a   0.000
*
    ADD [  0013+  0005]  0013  1  5.0   23.90    1.20  3.25  53.15  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0203  1  5.0    0.80    0.11  2.75  55.21 0.84   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0013+  0203]  0014  3  5.0   24.70    1.24  3.25  53.22  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0205  1  5.0   17.30    2.57  2.75  60.69 0.93   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0015  1  5.0   17.30    0.88  3.33  60.68  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0032  1  5.0    2.00    0.18  2.83  41.64 0.63   0.000
    [I%=24.0:S%= 2.00]
*
    ADD [  0015+  0032]  0020  3  5.0   19.30    0.99  3.17  58.71  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0222  1  5.0    0.90    0.13  2.75  54.90 0.84   0.000
    [I%=54.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0206  1  5.0    6.04    0.80  2.75  54.81 0.84   0.000
    [I%=52.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0221  1  5.0   12.06    2.01  2.75  64.29 0.98   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0206+  0221]  7702  3  5.0   18.10    2.80  2.75  61.13  n/a   0.000
*
    ADD [  0222+  7702]  7704  3  5.0   19.00    2.93  2.75  60.83  n/a   0.000
*
 ** Reservoir
```

```
    OUTFLOW:             0024  1  5.0   19.00    0.95  3.25  60.83  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0204  1  5.0    1.70    0.22  2.75  53.90 0.82   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0207  1  5.0    1.80    0.24  2.75  55.21 0.84   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0014+  0020]  0028  3  5.0   44.00    2.23  3.25  55.62  n/a   0.000
*
    ADD [  0028+  0204]  0028  1  5.0   45.70    2.33  3.17  55.56  n/a   0.000
*
    ADD [  0028+  0207]  0028  3  5.0   47.50    2.47  3.00  55.55  n/a   0.000
*
    ADD [  0028+  0024]  0028  1  5.0   66.50    3.41  3.08  57.06  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0209  1  5.0    1.80    0.23  2.75  55.21 0.84   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0211  1  5.0    0.90    0.12  2.75  53.47 0.82   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    1.40    0.14  2.75  39.97 0.61   0.000
    [I%=18.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0210  1  5.0   36.60    5.02  2.75  60.06 0.92   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0031  1  5.0   36.60    1.79  3.42  60.06  n/a   0.000
*
    ADD [  0003+  0031]  0033  3  5.0   38.00    1.83  3.42  59.32  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0208  1  5.0   19.20    2.69  2.75  61.12 0.93   0.000
```

```
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0036  1  5.0   19.20    0.96  3.42  61.11  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.18  2.75  48.75 0.74   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0036+  0007]  0025  3  5.0   20.60    1.01  3.25  60.27  n/a   0.000
*
    ADD [  0209+  0211]  0041  3  5.0    2.70    0.36  2.75  54.63  n/a   0.000
*
    ADD [  0041+  0025]  0041  1  5.0   23.30    1.16  3.25  59.61  n/a   0.000
*
    ADD [  0041+  0028]  0041  3  5.0   89.80    4.57  3.08  57.72  n/a   0.000
*
    ADD [  0041+  0033]  0041  1  5.0  127.80    6.36  3.25  58.19  n/a   0.000
*
    DIVERT HYD           0069  1  5.0  127.80    6.36  3.25  58.19  n/a   0.000
       Outflow           0002  2  5.0   63.90    3.18  3.25  58.19  n/a   0.000
       Outflow           0002  3  5.0   63.90    3.18  3.25  58.19  n/a   0.000
       Outflow           0002  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  5  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  6  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0216  1  5.0    4.70    0.53  2.75  47.09 0.72   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0215  1  5.0    1.90    0.26  2.75  53.48 0.82   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0214  1  5.0    9.81    1.48  2.75  60.06 0.92   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0043  1  5.0    9.81    0.50  3.33  60.04  n/a   0.000
*
    ADD [  0215+  0216]  0047  3  5.0    6.60    0.79  2.75  48.93  n/a   0.000
*
    ADD [  0047+  0043]  0047  1  5.0   16.41    1.16  2.75  55.57  n/a   0.000
*
    ADD [  0047+  0069]  0047  3  5.0   80.31    4.00  3.08  57.66  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0050  1  5.0   80.31    0.97  6.50  56.63  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
```

```
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0213  1  5.0    4.30    0.51  2.75  47.09 0.72   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0212  1  5.0   16.72    2.53  2.75  61.12 0.93   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0039  1  5.0   16.72    0.87  3.33  61.11  n/a   0.000
*
    ADD [  0213+  0039]  0065  3  5.0   21.02    1.14  2.75  58.24  n/a   0.000
*
    ADD [  0065+  0069]  0065  1  5.0   84.92    4.24  3.25  58.20  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0067  1  5.0   84.92    1.13  6.42  57.51  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0217  1  5.0    8.00    0.90  2.75  47.09 0.72   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0217+  0050]  0060  3  5.0   88.31    0.99  6.25  55.76  n/a   0.000
*
    ADD [  0060+  0051]  0060  1  5.0   88.31    0.99  6.25  55.76  n/a   0.000
*
    ADD [  0060+  0067]  0060  3  5.0  173.23    2.12  6.25  56.62  n/a   0.000
*
    ADD [  0060+  0068]  0060  1  5.0  173.23    2.12  6.25  56.62  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0218  1  5.0    0.80    0.05  2.92  29.25 0.45   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.07  2.75  45.53 0.69   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  0218+  0060]  7639  3  5.0  174.03    2.12  6.25  56.49  n/a   0.000
*
    ADD [  7639+  0008]  7639  1  5.0  174.93    2.13  6.25  56.44  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.05  2.75  35.89 0.55   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
```

```
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0220  1  5.0    1.40    0.11  2.92  35.95 0.55   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.32]
*
    ADD [  0220+  0006]  0076  3  5.0    1.90    0.16  2.83  35.94  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 65.59 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\598cae38-214b-43d0-a8a0-a0
    remark: 25 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0219  1  5.0    7.50    0.50  3.08  35.96 0.55   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.44]
*
    ADD [  0219+  0076]  0075  3  5.0    9.40    0.64  3.00  35.95  n/a   0.000
*
*********************************
** SIMULATION:6. 50 Year 6 Hour **
*********************************
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.05  2.83  34.63 0.47   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.12  2.83  34.52 0.47   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0200  1  5.0   28.20    1.44  3.33  34.99 0.48   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.64]
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0201  1  5.0    1.39    0.26  2.75  71.63 0.98   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0001+  0002]  0010  3  5.0    1.90    0.16  2.83  34.55  n/a   0.000
*
    ADD [  0010+  0200]  0010  1  5.0   30.10    1.52  3.33  34.96  n/a   0.000
*
    ADD [  0010+  0201]  0010  3  5.0   31.49    1.58  3.25  36.58  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
```

```
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.15  2.75  41.96 0.57   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0223  1  5.0    0.98    0.05  3.42  35.16 0.48   0.000
    [CN=80.0         ]
    [ N = 3.0:Tp 0.73]
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    1.40  2.75  71.11 0.97   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.27  3.33  71.07  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    2.00  2.75  66.68 0.91   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    1.81  2.75  66.68  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.10  2.75  55.59 0.76   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0223+  7667]  7671  3  5.0    2.03    0.17  2.75  38.68  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    2.75    0.27  2.75  43.11  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   10.25    0.51  2.75  63.57  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   21.49    2.32  2.75  65.19  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   21.49    0.41  4.50  65.14  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.29  3.17  34.99 0.48   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
```

```
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.08  2.92  42.39 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0202  1  5.0   18.10    3.00  2.75  67.80 0.93   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0011  1  5.0   18.10    1.03  3.33  67.79  n/a   0.000
*
    ADD [  0011+  0004]  0013  3  5.0   23.00    1.31  3.25  60.80  n/a   0.000
*
    ADD [  0013+  0005]  0013  1  5.0   23.90    1.37  3.25  60.11  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0203  1  5.0    0.80    0.13  2.75  62.37 0.85   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0013+  0203]  0014  3  5.0   24.70    1.42  3.17  60.18  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0205  1  5.0   17.30    2.89  2.75  68.02 0.93   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0015  1  5.0   17.30    0.99  3.33  68.01  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0032  1  5.0    2.00    0.21  2.83  48.06 0.66   0.000
    [I%=24.0:S%= 2.00]
*
    ADD [  0015+  0032]  0020  3  5.0   19.30    1.11  3.08  65.94  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0222  1  5.0    0.90    0.14  2.75  62.05 0.85   0.000
    [I%=54.0:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0206  1  5.0    6.04    0.93  2.75  61.94 0.85   0.000
    [I%=52.0:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 73.00 mm ]
```

```
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0221  1  5.0   12.06    2.24  2.75  71.69 0.98   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0206+  0221]  7702  3  5.0   18.10    3.17  2.75  68.44  n/a   0.000
*
    ADD [  0222+  7702]  7704  3  5.0   19.00    3.31  2.75  68.13  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0024  1  5.0   19.00    1.07  3.25  68.12  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0204  1  5.0    1.70    0.25  2.75  60.97 0.84   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0207  1  5.0    1.80    0.27  2.75  62.37 0.85   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0014+  0020]  0028  3  5.0   44.00    2.53  3.17  62.71  n/a   0.000
*
    ADD [  0028+  0204]  0028  1  5.0   45.70    2.66  3.08  62.65  n/a   0.000
*
    ADD [  0028+  0207]  0028  3  5.0   47.50    2.83  3.00  62.63  n/a   0.000
*
    ADD [  0028+  0024]  0028  1  5.0   66.50    3.89  3.00  64.20  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0209  1  5.0    1.80    0.27  2.75  62.37 0.85   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0211  1  5.0    0.90    0.14  2.75  60.52 0.83   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0003  1  5.0    1.40    0.17  2.75  46.29 0.63   0.000
    [I%=18.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0210  1  5.0   36.60    5.80  2.75  67.36 0.92   0.000
    [I%=71.0:S%= 2.00]
*
```

```
 ** Reservoir
    OUTFLOW:             0031  1  5.0   36.60    2.01  3.42  67.36  n/a   0.000
*
    ADD [  0003+  0031]  0033  3  5.0   38.00    2.07  3.33  66.58  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0208  1  5.0   19.20    3.10  2.75  68.46 0.94   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0036  1  5.0   19.20    1.08  3.42  68.45  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.21  2.75  55.55 0.76   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0036+  0007]  0025  3  5.0   20.60    1.14  3.25  67.58  n/a   0.000
*
    ADD [  0209+  0211]  0041  3  5.0    2.70    0.41  2.75  61.75  n/a   0.000
*
    ADD [  0041+  0025]  0041  1  5.0   23.30    1.35  2.92  66.90  n/a   0.000
*
    ADD [  0041+  0028]  0041  3  5.0   89.80    5.22  3.00  64.90  n/a   0.000
*
    ADD [  0041+  0033]  0041  1  5.0  127.80    7.20  3.17  65.40  n/a   0.000
*
    DIVERT HYD           0069  1  5.0  127.80    7.20  3.17  65.40  n/a   0.000
       Outflow           0002  2  5.0   63.90    3.60  3.17  65.40  n/a   0.000
       Outflow           0002  3  5.0   63.90    3.60  3.17  65.40  n/a   0.000
       Outflow           0002  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  5  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  6  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0216  1  5.0    4.70    0.61  2.75  53.58 0.73   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0215  1  5.0    1.90    0.29  2.75  60.52 0.83   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0214  1  5.0    9.81    1.66  2.75  67.36 0.92   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0043  1  5.0    9.81    0.56  3.25  67.34  n/a   0.000
*
    ADD [  0215+  0216]  0047  3  5.0    6.60    0.90  2.75  55.58  n/a   0.000
```

```
*
    ADD [  0047+  0043]  0047  1  5.0   16.41    1.32  2.75  62.61  n/a   0.000
*
    ADD [  0047+  0069]  0047  3  5.0   80.31    4.58  3.00  64.83  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0050  1  5.0   80.31    1.17  6.42  63.79  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0213  1  5.0    4.30    0.58  2.75  53.58 0.73   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0212  1  5.0   16.72    2.84  2.75  68.46 0.94   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0039  1  5.0   16.72    0.97  3.33  68.45  n/a   0.000
*
    ADD [  0213+  0039]  0065  3  5.0   21.02    1.29  2.75  65.41  n/a   0.000
*
    ADD [  0065+  0069]  0065  1  5.0   84.92    4.79  3.17  65.40  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0067  1  5.0   84.92    1.32  6.33  64.70  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0217  1  5.0    8.00    1.03  2.75  53.58 0.73   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0217+  0050]  0060  3  5.0   88.31    1.19  6.25  62.86  n/a   0.000
*
    ADD [  0060+  0051]  0060  1  5.0   88.31    1.19  6.25  62.86  n/a   0.000
*
    ADD [  0060+  0067]  0060  3  5.0  173.23    2.52  6.25  63.77  n/a   0.000
*
    ADD [  0060+  0068]  0060  1  5.0  173.23    2.52  6.25  63.77  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0218  1  5.0    0.80    0.06  2.92  34.98 0.48   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.08  2.75  52.15 0.71   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  0218+  0060]  7639  3  5.0  174.03    2.52  6.25  63.63  n/a   0.000
*
```

```
    ADD [  7639+  0008]  7639  1  5.0  174.93    2.52  6.25  63.57  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.06  2.75  42.32 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0220  1  5.0    1.40    0.13  2.92  42.39 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.32]
*
    ADD [  0220+  0006]  0076  3  5.0    1.90    0.19  2.83  42.37  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 73.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\a350b7ad-6614-4262-8610-5f
    remark: 50 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0219  1  5.0    7.50    0.59  3.00  42.40 0.58   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.44]
*
    ADD [  0219+  0076]  0075  3  5.0    9.40    0.76  3.00  42.39  n/a   0.000
*
**********
** SIMULATION:7. 100 Year 6 Hour **
**********
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.06  2.83  40.23 0.50   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.29]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.14  2.83  40.11 0.50   0.000
    [CN=79.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0200  1  5.0   28.20    1.69  3.33  40.83 0.51   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.64]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0201  1  5.0    1.39    0.28  2.75  78.92 0.98   0.000
```

```
    [I%=99.0:S%= 2.00]
*
    ADD [  0001+  0002]  0010  3  5.0    1.90    0.19  2.83  40.15  n/a   0.000
*
    ADD [  0010+  0200]  0010  1  5.0   30.10    1.78  3.33  40.78  n/a   0.000
*
    ADD [  0010+  0201]  0010  3  5.0   31.49    1.85  3.25  42.47  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         7667  1  5.0    1.05    0.16  2.75  48.15 0.60   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0223  1  5.0    0.98    0.05  3.42  40.86 0.51   0.000
    [CN=80.0         ]
    [ N = 3.0:Tp 0.73]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7670  1  5.0    7.50    1.54  2.75  78.41 0.98   0.000
    [I%=99.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7674  1  5.0    7.50    0.30  3.33  78.37  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7672  1  5.0   11.24    2.21  2.75  73.79 0.92   0.000
    [I%=85.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             7675  1  5.0   11.24    2.00  2.75  73.79  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       7668  1  5.0    0.72    0.12  2.75  62.23 0.77   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0223+  7667]  7671  3  5.0    2.03    0.19  2.75  44.63  n/a   0.000
*
    ADD [  7671+  7668]  7671  1  5.0    2.75    0.31  2.75  49.24  n/a   0.000
*
    ADD [  7671+  7674]  7671  3  5.0   10.25    0.57  2.75  70.55  n/a   0.000
*
    ADD [  7671+  7675]  7671  1  5.0   21.49    2.57  2.75  72.24  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7673  1  5.0   21.49    0.46  4.42  72.19  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
```

```
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.34  3.17  40.83 0.51   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                 15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.10  2.92  48.88 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.33]
*
    READ STORM                 15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0202  1  5.0   18.10    3.33  2.75  75.04 0.93   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0011  1  5.0   18.10    1.14  3.33  75.03  n/a   0.000
*
    ADD [  0011+  0004]  0013  3  5.0   23.00    1.47  3.25  67.74  n/a   0.000
*
    ADD [  0013+  0005]  0013  1  5.0   23.90    1.55  3.17  67.03  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0203  1  5.0    0.80    0.15  2.75  69.47 0.87   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0013+  0203]  0014  3  5.0   24.70    1.60  3.17  67.11  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0205  1  5.0   17.30    3.22  2.75  75.26 0.94   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0015  1  5.0   17.30    1.10  3.33  75.26  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0032  1  5.0    2.00    0.24  2.83  54.52 0.68   0.000
    [I%=24.0:S%= 2.00]
*
    ADD [  0015+  0032]  0020  3  5.0   19.30    1.24  3.08  73.11  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0222  1  5.0    0.90    0.16  2.75  69.14 0.86   0.000
    [I%=54.0:S%= 2.00]
```

```
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0206  1  5.0    6.04    1.05  2.75  69.01 0.86   0.000
    [I%=52.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0221  1  5.0   12.06    2.46  2.75  78.99 0.98   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0206+  0221]  7702  3  5.0   18.10    3.51  2.75  75.66  n/a   0.000
*
    ADD [  0222+  7702]  7704  3  5.0   19.00    3.67  2.75  75.35  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0024  1  5.0   19.00    1.18  3.25  75.34  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0204  1  5.0    1.70    0.28  2.75  68.00 0.85   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0207  1  5.0    1.80    0.30  2.75  69.47 0.87   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0014+  0020]  0028  3  5.0   44.00    2.84  3.17  69.74  n/a   0.000
*
    ADD [  0028+  0204]  0028  1  5.0   45.70    2.98  3.08  69.68  n/a   0.000
*
    ADD [  0028+  0207]  0028  3  5.0   47.50    3.18  3.00  69.67  n/a   0.000
*
    ADD [  0028+  0024]  0028  1  5.0   66.50    4.35  3.00  71.29  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0209  1  5.0    1.80    0.30  2.75  69.47 0.87   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0211  1  5.0    0.90    0.16  2.75  67.51 0.84   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
```

```
 *  CALIB STANDHYD       0003  1  5.0    1.40    0.19  2.75  52.65 0.66   0.000
    [I%=18.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0210  1  5.0   36.60    6.47  2.75  74.58 0.93   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0031  1  5.0   36.60    2.23  3.42  74.57  n/a   0.000
*
    ADD [  0003+  0031]  0033  3  5.0   38.00    2.29  3.33  73.77  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0208  1  5.0   19.20    3.45  2.75  75.72 0.94   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0036  1  5.0   19.20    1.19  3.33  75.71  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.24  2.75  62.34 0.78   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0036+  0007]  0025  3  5.0   20.60    1.27  3.25  74.80  n/a   0.000
*
    ADD [  0209+  0211]  0041  3  5.0    2.70    0.45  2.75  68.82  n/a   0.000
*
    ADD [  0041+  0025]  0041  1  5.0   23.30    1.51  2.75  74.11  n/a   0.000
*
    ADD [  0041+  0028]  0041  3  5.0   89.80    5.82  3.00  72.02  n/a   0.000
*
    ADD [  0041+  0033]  0041  1  5.0  127.80    8.01  3.17  72.54  n/a   0.000
*
    DIVERT HYD           0069  1  5.0  127.80    8.01  3.17  72.54  n/a   0.000
       Outflow           0002  2  5.0   63.90    4.01  3.17  72.54  n/a   0.000
       Outflow           0002  3  5.0   63.90    4.01  3.17  72.54  n/a   0.000
       Outflow           0002  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  5  5.0    0.00    0.00  0.00   0.00  n/a   0.000
       Outflow           0002  6  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0216  1  5.0    4.70    0.71  2.75  60.08 0.75   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0215  1  5.0    1.90    0.33  2.75  67.52 0.84   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                15.0
```

```
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0214  1  5.0    9.81    1.85  2.75  74.58 0.93   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0043  1  5.0    9.81    0.62  3.25  74.56  n/a   0.000
*
    ADD [  0215+  0216]  0047  3  5.0    6.60    1.04  2.75  62.22  n/a   0.000
*
    ADD [  0047+  0043]  0047  1  5.0   16.41    1.50  2.75  69.60  n/a   0.000
*
    ADD [  0047+  0069]  0047  3  5.0   80.31    5.11  2.92  71.94  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0050  1  5.0   80.31    1.35  6.25  70.88  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0213  1  5.0    4.30    0.66  2.75  60.08 0.75   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0212  1  5.0   16.72    3.16  2.75  75.72 0.94   0.000
    [I%=71.0:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0039  1  5.0   16.72    1.08  3.33  75.71  n/a   0.000
*
    ADD [  0213+  0039]  0065  3  5.0   21.02    1.45  2.75  72.51  n/a   0.000
*
    ADD [  0065+  0069]  0065  1  5.0   84.92    5.33  3.08  72.53  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0067  1  5.0   84.92    1.57  6.17  71.82  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0217  1  5.0    8.00    1.20  2.75  60.08 0.75   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0217+  0050]  0060  3  5.0   88.31    1.38  6.25  69.90  n/a   0.000
*
    ADD [  0060+  0051]  0060  1  5.0   88.31    1.38  6.25  69.90  n/a   0.000
*
    ADD [  0060+  0067]  0060  3  5.0  173.23    2.95  6.25  70.85  n/a   0.000
*
    ADD [  0060+  0068]  0060  1  5.0  173.23    2.95  6.25  70.85  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0218  1  5.0    0.80    0.07  2.92  40.81 0.51   0.000
    [CN=82.0         ]
    [ N = 3.0:Tp 0.31]
```

```
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.09  2.75  58.77 0.73   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  0218+  0060]  7639  3  5.0  174.03    2.95  6.25  70.71  n/a   0.000
*
    ADD [  7639+  0008]  7639  1  5.0  174.93    2.96  6.17  70.65  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.07  2.75  48.80 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.20]
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0220  1  5.0    1.40    0.15  2.92  48.88 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.32]
*
    ADD [  0220+  0006]  0076  3  5.0    1.90    0.22  2.83  48.86  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 80.31 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\b4912854-bd2a-4d6e-a482-44f5d43b7c7c\da9752c1-e8e5-4068-8e45-67
    remark: 100 Year 6 Hour AES (Bloor, TRCA)
*
 *  CALIB NASHYD         0219  1  5.0    7.50    0.69  3.00  48.89 0.61   0.000
    [CN=88.0         ]
    [ N = 3.0:Tp 0.44]
*
    ADD [  0219+  0076]  0075  3  5.0    9.40    0.88  3.00  48.88  n/a   0.000
*
```

```
*******************************
** SIMULATION:Regional        **
*******************************
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0001  1  5.0    0.60    0.08 10.00 182.77 0.86   0.000
    [CN=90.0         ]
    [ N = 3.0:Tp 0.29]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0002  1  5.0    1.30    0.19 10.00 182.47 0.86   0.000
    [CN=90.0         ]
    [ N = 3.0:Tp 0.21]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0200  1  5.0   28.20    3.34 10.50 181.63 0.86   0.000
    [CN=91.0         ]
    [ N = 3.0:Tp 0.64]
*
    ADD [  0001+  0002]  0010  3  5.0    1.90    0.27 10.00 182.56  n/a   0.000
*
    ADD [  0010+  0200]  0010  1  5.0   30.10    3.55 10.50 181.69  n/a   0.000
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         7688  1  5.0    1.05    0.15 10.00 181.43 0.86   0.000
    [CN=94.0         ]
    [ N = 3.0:Tp 0.08]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0223  1  5.0    0.98    0.11 10.67 182.16 0.86   0.000
    [CN=90.0         ]
    [ N = 3.0:Tp 0.73]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       7716  1  5.0   11.24    1.65 10.00 207.00 0.98   0.000
    [I%=85.0:S%= 2.00]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       7689  1  5.0    0.72    0.10 10.00 198.99 0.94   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                 60.0
```

```
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       7690  1  5.0    7.50    1.10 10.00 210.20 0.99   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0223+  7688]  7687  3  5.0    2.03    0.24 10.00 181.78  n/a   0.000
*
    ADD [  7687+  7689]  7687  1  5.0    2.75    0.34 10.00 186.29  n/a   0.000
*
    ADD [  7687+  7690]  7687  3  5.0   10.25    1.45 10.00 203.79  n/a   0.000
*
    ADD [  7687+  7716]  7687  1  5.0   21.49    3.10 10.00 205.47  n/a   0.000
*
    READ STORM                60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0004  1  5.0    4.90    0.62 10.25 181.62 0.86   0.000
    [CN=91.0         ]
    [ N = 3.0:Tp 0.50]
*
    READ STORM                60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0005  1  5.0    0.90    0.13 10.08 188.93 0.89   0.000
    [CN=94.0         ]
    [ N = 3.0:Tp 0.33]
*
    READ STORM                60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0202  1  5.0   18.10    2.63 10.00 208.66 0.98   0.000
    [I%=71.0:S%= 2.00]
*
    ADD [  0202+  0004]  0013  3  5.0   23.00    3.21 10.00 202.90  n/a   0.000
*
    ADD [  0013+  0005]  0013  1  5.0   23.90    3.34 10.00 202.37  n/a   0.000
*
    READ STORM                60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0203  1  5.0    0.80    0.12 10.00 205.09 0.97   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0013+  0203]  0014  3  5.0   24.70    3.45 10.00 202.46  n/a   0.000
*
    READ STORM                60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0032  1  5.0    2.00    0.28 10.00 193.84 0.91   0.000
    [I%=24.0:S%= 2.00]
*
    READ STORM                60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0205  1  5.0   17.30    2.51 10.00 208.91 0.99   0.000
```

```
    [I%=71.0:S%= 2.00]
*
    ADD [  0205+  0032]  0020  3  5.0   19.30    2.79 10.00 207.35  n/a   0.000
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0206  1  5.0    6.04    0.87 10.00 205.00 0.97   0.000
    [I%=52.0:S%= 2.00]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0222  1  5.0    0.90    0.13 10.00 204.88 0.97   0.000
    [I%=54.0:S%= 2.00]
*
    ADD [  0206+  0222]  7718  3  5.0    6.94    1.00 10.00 204.98  n/a   0.000
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0204  1  5.0    1.70    0.24 10.00 203.76 0.96   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0207  1  5.0    1.80    0.26 10.00 205.10 0.97   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0014+  0020]  0028  3  5.0   44.00    6.25 10.00 204.61  n/a   0.000
*
    ADD [  0028+  0204]  0028  1  5.0   45.70    6.49 10.00 204.58  n/a   0.000
*
    ADD [  0028+  0207]  0028  3  5.0   47.50    6.75 10.00 204.60  n/a   0.000
*
    ADD [  0028+  7718]  0028  1  5.0   54.44    7.76 10.00 204.64  n/a   0.000
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0208  1  5.0   19.20    2.76 10.00 209.17 0.99   0.000
    [I%=71.0:S%= 2.00]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0007  1  5.0    1.40    0.20 10.00 200.19 0.94   0.000
    [I%=37.0:S%= 2.00]
*
    ADD [  0208+  0007]  0025  3  5.0   20.60    2.97 10.00 208.56  n/a   0.000
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
```

```
 *  CALIB STANDHYD       0003  1  5.0    1.40    0.20 10.00 192.66 0.91   0.000
    [I%=18.0:S%= 2.00]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0210  1  5.0   36.60    5.26 10.00 208.40 0.98   0.000
    [I%=71.0:S%= 2.00]
*
    ADD [  0210+  0003]  0033  3  5.0   38.00    5.46 10.00 207.82  n/a   0.000
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0209  1  5.0    1.80    0.26 10.00 205.10 0.97   0.000
    [I%=55.0:S%= 2.00]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0211  1  5.0    0.90    0.13 10.00 203.75 0.96   0.000
    [I%=55.0:S%= 2.00]
*
    ADD [  0209+  0211]  0041  3  5.0    2.70    0.39 10.00 204.65  n/a   0.000
*
    ADD [  0041+  0025]  0041  1  5.0   23.30    3.36 10.00 208.10  n/a   0.000
*
    ADD [  0041+  0028]  0041  3  5.0   77.74   11.11 10.00 205.68  n/a   0.000
*
    ADD [  0041+  0033]  0041  1  5.0  115.74   16.58 10.00 206.38  n/a   0.000
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0212  1  5.0   16.72    2.44 10.00 209.17 0.99   0.000
    [I%=71.0:S%= 2.00]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0216  1  5.0    4.70    0.67 10.00 196.58 0.93   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0214  1  5.0    9.81    1.43 10.00 208.40 0.98   0.000
    [I%=71.0:S%= 2.00]
*
    READ STORM                 60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0215  1  5.0    1.90    0.28 10.00 203.76 0.96   0.000
    [I%=55.0:S%= 2.00]
*
```

```
    READ STORM                60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0201  1  5.0    1.39    0.20 10.00 210.71 0.99   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0201+  0212]  0047  3  5.0   18.11    2.65 10.00 209.28  n/a   0.000
*
    ADD [  0047+  0214]  0047  1  5.0   27.92    4.08 10.00 208.97  n/a   0.000
*
    ADD [  0047+  0215]  0047  3  5.0   29.82    4.36 10.00 208.64  n/a   0.000
*
    ADD [  0047+  0216]  0047  1  5.0   34.52    5.03 10.00 207.00  n/a   0.000
*
    ADD [  0047+  0041]  0047  3  5.0  150.26   21.60 10.00 206.53  n/a   0.000
*
    READ STORM                60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0213  1  5.0    4.30    0.62 10.00 196.58 0.93   0.000
    [I%=50.0:S%= 2.00]
*
    READ STORM                60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0217  1  5.0    8.00    1.14 10.00 196.58 0.93   0.000
    [I%=50.0:S%= 2.00]
*
    ADD [  0213+  0217]  0060  3  5.0   12.30    1.76 10.00 196.58  n/a   0.000
*
    ADD [  0060+  0047]  0060  1  5.0  162.56   23.37 10.00 205.77  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             7721  1  5.0  162.56   14.84 11.08 205.77  n/a   0.000
*
    READ STORM                60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0218  1  5.0    0.80    0.11 10.00 181.57 0.86   0.000
    [CN=91.0         ]
    [ N = 3.0:Tp 0.31]
*
    READ STORM                60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0008  1  5.0    0.90    0.11 10.00 197.14 0.93   0.000
    [I%=34.0:S%= 2.00]
*
    ADD [  0218+  7721]  7639  3  5.0  163.36   14.92 11.08 205.65  n/a   0.000
*
    ADD [  7639+  0008]  7639  1  5.0  164.26   15.01 11.08 205.60  n/a   0.000
*
    READ STORM                60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0006  1  5.0    0.50    0.07 10.00 188.62 0.89   0.000
    [CN=94.0         ]
```

```
    [ N = 3.0:Tp 0.20]
*
    READ STORM                60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0220  1  5.0    1.40    0.20 10.00 188.92 0.89   0.000
    [CN=94.0         ]
    [ N = 3.0:Tp 0.32]
*
    READ STORM                60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB STANDHYD       0221  1  5.0   12.06    1.78 10.00 210.78 0.99   0.000
    [I%=99.0:S%= 2.00]
*
    ADD [  0220+  0221]  0076  3  5.0   13.46    1.97 10.00 208.51  n/a   0.000
*
    ADD [  0076+  0006]  0076  1  5.0   13.96    2.04 10.00 207.80  n/a   0.000
*
    READ STORM                60.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\iforsyth\AppData\Local\Temp\a97054f0-59cf-46ee-aa80-6f255686a6e1\192d2bf7-6a11-4a39-b594-19
    remark: Hurricane Hazel for the last 12 hrs of the storm -INTENSITIE
*
 *  CALIB NASHYD         0219  1  5.0    7.50    1.00 10.17 188.96 0.89   0.000
    [CN=94.0         ]
    [ N = 3.0:Tp 0.44]
*
    ADD [  0219+  0076]  0075  3  5.0   21.46    3.01 10.00 201.22  n/a   0.000
*
```

Summary of Post-Development Peak Flow VO Results

Post-Development Peak Runoff Directed to the West Tributary (6-Hour)

Design Storm Event	Post-Development Uncontrolled Flow Rate (m^3/s)						
	200	201	Total Site	EXT1	EXT2	Total External	Total[1]
2-year	0.365	0.127	**0.492**	0.013	0.034	**0.047**	**0.409**
5-year	0.664	0.169	**0.833**	0.023	0.057	**0.080**	**0.737**
10-year	0.889	0.197	**1.086**	0.030	0.075	**0.105**	**0.984**
25-year	1.195	0.232	**1.427**	0.040	0.099	**0.139**	**1.319**
50-year	1.438	0.258	**1.696**	0.047	0.117	**0.164**	**1.583**
100-year	1.685	0.284	**1.969**	0.055	0.136	**0.191**	**1.852**
Regional	3.341	-	**3.341**	0.084	0.185	**0.269**	**3.549**

1. Total internal and external flows directed to the west tributary.

Post-Development Peak Runoff Directed to the West Tributary (12-Hour)

Design Storm Event	Post-Development Uncontrolled Flow Rate (m^3/s)						
	200	201	Total Site	EXT1	EXT2	Total External	Total[1]
2-year	0.378	0.074	**0.452**	0.012	0.028	**0.040**	**0.421**
5-year	0.637	0.096	**0.733**	0.019	0.044	**0.063**	**0.701**
10-year	0.828	0.111	**0.939**	0.024	0.056	**0.080**	**0.909**
25-year	1.085	0.129	**1.214**	0.031	0.071	**0.102**	**1.183**
50-year	1.282	0.143	**1.425**	0.036	0.083	**0.119**	**1.395**
100-year	1.486	0.157	**1.643**	0.041	0.095	**0.136**	**1.615**

1. Total internal and external flows directed to the west tributary.

Site Post-Development Peak Uncontrolled Runoff to the Flow Splitter (6-Hour Storm)

Design Storm Event	Post-Development Uncontrolled Flow Rate (m^3/s)												
	202	203	204	205	206	207	208	209	210	211	221	222	Total
2-year	1.270	0.054	0.101	1.235	0.363	0.107	1.319	0.106	2.440	0.057	1.091	0.059	**8.202**
5-year	1.780	0.079	0.148	1.762	0.538	0.159	1.864	0.153	3.458	0.081	1.456	0.084	**11.562**
10-year	2.170	0.095	0.180	2.101	0.652	0.193	2.229	0.191	4.145	0.097	1.700	0.104	**13.857**
25-year	2.617	0.115	0.220	2.568	0.798	0.236	2.694	0.234	5.023	0.122	2.007	0.127	**16.761**
50-year	2.996	0.130	0.251	2.895	0.933	0.269	3.103	0.266	5.798	0.139	2.236	0.144	**19.160**
100-year	3.334	0.145	0.281	3.218	1.050	0.301	3.455	0.298	6.466	0.156	2.462	0.161	**21.327**

Note: Regional flows are conveyed overland (major overland) and are therefore not directed to the flow splitter

Site Post-Development Peak Uncontrolled Runoff into the Flow Splitter (12-Hour Storm)

Design Storm Event	Post-Development Uncontrolled Flow Rate (m^3/s)												
	202	**203**	**204**	**205**	**206**	**207**	**208**	**209**	**210**	**211**	**221**	**222**	**Total**
2-year	0.843	0.035	0.069	0.819	0.250	0.075	0.894	0.075	1.657	0.037	0.643	0.039	**5.436**
5-year	1.142	0.048	0.096	1.101	0.349	0.104	1.197	0.102	2.230	0.051	0.834	0.054	**7.308**
10-year	1.336	0.057	0.114	1.287	0.413	0.123	1.417	0.123	2.648	0.061	0.962	0.064	**8.605**
25-year	1.596	0.068	0.137	1.535	0.500	0.148	1.685	0.147	3.159	0.074	1.123	0.076	**10.248**
50-year	1.778	0.076	0.155	1.709	0.561	0.166	1.885	0.165	3.525	0.083	1.242	0.085	**11.430**
100-year	1.959	0.085	0.173	1.882	0.622	0.184	2.077	0.183	3.908	0.092	1.361	0.094	**12.620**

External Post-Development Peak Uncontrolled Runoff to the Flow Splitter (6-Hour Storm)

Design Storm Event	Post-Development Uncontrolled Flow Rate (m^3/s)						
	EXT3A	**EXT3B**	**EXT4**	**EXT5**	**EXT7**	**Total External**	**Total[1]**
2-year	0.050	0.065	0.073	0.023	0.081	**0.292**	**3.158**
5-year	0.080	0.106	0.133	0.041	0.118	**0.478**	**4.420**
10-year	0.109	0.134	0.178	0.054	0.145	**0.620**	**5.276**
25-year	0.141	0.181	0.240	0.071	0.179	**0.812**	**6.359**
50-year	0.165	0.212	0.289	0.084	0.205	**0.955**	**7.200**
100-year	0.190	0.244	0.339	0.098	0.238	**1.109**	**8.014**

Note: Regional flows are conveyed overland (major overland) and are therefore not directed to the flow splitter

1. Total internal and external flows directed to the flow splitter (with Block controls).

External Post-Development Peak Uncontrolled Runoff to the Flow Splitter (12-Hour Storm)

Design Storm Event	Post-Development Uncontrolled Flow Rate (m^3/s)						
	EXT3A	**EXT3B**	**EXT4**	**EXT5**	**EXT7**	**Total External**	**Total[1]**
2-year	0.039	0.052	0.075	0.023	0.054	**0.243**	**3.295**
5-year	0.059	0.079	0.127	0.036	0.075	**0.376**	**4.472**
10-year	0.074	0.098	0.164	0.045	0.091	**0.472**	**5.304**
25-year	0.092	0.124	0.214	0.057	0.110	**0.597**	**6.365**
50-year	0.106	0.144	0.253	0.066	0.124	**0.693**	**7.122**
100-year	0.122	0.163	0.292	0.075	0.138	**0.790**	**7.882**

1. Total internal and external flows directed to the flow splitter (with Block controls).

Post-Development Peak Runoff to Wetland 1 (6-Hour)

Design Storm Event	Post-Development Uncontrolled Flow Rate (m^3/s)				
	Flow Splitter[1]	212	213	Total Site[2]	Total[3]
2-year	1.579	1.228	0.227	**1.455**	**2.106**
5-year	2.210	1.743	0.331	**2.074**	**2.949**
10-year	2.638	2.104	0.401	**2.505**	**3.521**
25-year	3.180	2.527	0.508	**3.035**	**4.235**
50-year	3.600	2.845	0.582	**3.427**	**4.791**
100-year	4.007	3.159	0.657	**3.816**	**5.332**
Regional[4]	-	-	0.620	**0.620**	**0.620**

Note: Regional flows are conveyed overland (major overland) and are therefore not directed to the flow splitter

1. Half of total internal and external flows directed to the flow splitter (with Block controls).
2. Catchment 213 + Catchment 214
3. Total internal and external flows directed to Wetland 1 (with Block controls).
4. Only flows from Catchment 213 (Wetland 1 area) is directed to Wetland 1 during the Regional event (all major overland flow directed to Wetland 2).

Post-Development Peak Runoff to Wetland 1 (12-Hour)

Design Storm Event	Post-Development Uncontrolled Flow Rate (m^3/s)				
	Flow Splitter[1]	212	213	Total Site[2]	Total[3]
2-year	1.647	0.811	0.149	**0.960**	**2.187**
5-year	2.236	1.079	0.209	**1.288**	**2.964**
10-year	2.652	1.259	0.254	**1.513**	**3.509**
25-year	3.183	1.499	0.309	**1.808**	**4.215**
50-year	3.561	1.669	0.350	**2.019**	**4.724**
100-year	3.941	0.811	0.149	**0.960**	**5.237**

1. Half of total internal and external flows directed to the flow splitter (with block controls).
2. Catchment 213 + Catchment 214
3. Total internal and external flows directed to Wetland 1 (with block controls).

Post-Development Peak Runoff to Wetland 2 (6-Hour)

Design Storm Event	Post-Development Uncontrolled Flow Rate (m^3/s)						
	Flow Splitter[1]	214	215	216	217	Total Site	Total[2]
2-year	1.579	0.730	0.116	0.244	0.412	**1.746**	**1.985**
5-year	2.210	1.031	0.169	0.356	0.589	**2.501**	**2.780**
10-year	2.638	1.227	0.205	0.433	0.733	**3.031**	**3.319**
25-year	3.180	1.476	0.257	0.532	0.903	**3.700**	**4.004**
50-year	3.600	1.662	0.293	0.610	1.035	**4.210**	**4.584**
100-year	4.007	1.847	0.328	0.708	1.201	**4.792**	**5.112**

1. Half of total internal and external flows directed to the flow splitter (with Block controls).
2. Total internal and external flows directed to Wetland 2 (with Block controls).

Post-Development Peak Runoff to Wetland 2 (12-Hour)

Design Storm Event	Post-Development Uncontrolled Flow Rate (m^3/s)						
	Flow Splitter[1]	214	215	216	217	Total Site	Total[2]
2-year	1.647	0.468	0.079	0.161	0.273	**1.142**	**2.052**
5-year	2.236	0.624	0.108	0.227	0.385	**1.571**	**2.801**
10-year	2.652	0.735	0.129	0.272	0.462	**1.870**	**3.349**
25-year	3.183	0.872	0.155	0.330	0.561	**2.248**	**4.002**
50-year	3.561	0.970	0.174	0.379	0.643	**2.545**	**4.495**
100-year	3.941	1.069	0.193	0.424	0.720	**2.830**	**4.998**

1. Half of total internal and external flows directed to the flow splitter (with Block controls).
2. Total internal and external flows directed to Wetland 2 (with Block controls).

Post-Development Peak Runoff to Wetland 2 (Regional)

Design Storm Event	Post-Development Uncontrolled Flow Rate (m^3/s)									
	201	**202**	**203**	**204**	**205**	**206**	**207**	**208**	**209**	**Total[1]**
Regional	0.205	2.625	0.117	0.245	2.515	0.873	0.259	2.765	0.258	**23.367**
	210	**211**	**212**	**214**	**215**	**216**	**217**	**222**	**-**	
	5.261	0.131	2.441	1.434	0.276	0.673	1.143	0.131		

Note: Regional flows are conveyed overland (major overland) towards Wetland 2

1. Total internal and external flows directed to Wetland 2 during the Regional event (no flow splitter).

Post-Development Peak Runoff Directed to the East Tributary (6-Hour)

Design Storm Event	Post-Development Uncontrolled Flow Rate (m^3/s)			
	217	218	EXT8	Total[1]
2-year	0.412	0.015	0.030	**0.485**
5-year	0.589	0.029	0.043	**1.060**
10-year	0.733	0.039	0.053	**1.552**
25-year	0.903	0.052	0.068	**2.128**
50-year	1.035	0.062	0.078	**2.523**
100-year	1.201	0.073	0.092	**2.957**
Regional	1.143	0.112	0.112	**15.009**

1. Total internal and external flows directed to the east tributary (with controls)

Post-Development Peak Runoff Directed to the East Tributary (12-Hour)

Design Storm Event	Post-Development Uncontrolled Flow Rate (m^3/s)			
	217	218	EXT8	Total[1]
2-year	0.273	0.015	0.021	**0.714**
5-year	0.385	0.025	0.031	**1.426**
10-year	0.462	0.032	0.038	**1.910**
25-year	0.561	0.042	0.048	**2.465**
50-year	0.643	0.049	0.056	**2.898**
100-year	0.720	0.057	0.063	**3.385**

1. Total internal and external flows directed to the east tributary (with controls)

Post-Development Peak Runoff Directed to Salt Creek (6-Hours)

Design Storm Event	Post-Development Uncontrolled Flow Rate (m^3/s)					
	219	220	221	EXT6	Total Site	Total
2-year	0.163	0.037	-	0.017	**0.200**	**0.209**
5-year	0.289	0.065	-	0.029	**0.354**	**0.369**
10-year	0.380	0.086	-	0.038	**0.466**	**0.487**
25-year	0.499	0.113	-	0.050	**0.612**	**0.641**
50-year	0.592	0.133	-	0.059	**0.725**	**0.760**
100-year	0.686	0.154	-	0.068	**0.840**	**0.880**
Regional	0.996	0.197	1.775	0.073	**2.968**	**3.012**

Post-Development Peak Runoff Directed to Salt Creek (12-Hour)

Design Storm Event	Post-Development Uncontrolled Flow Rate (m^3/s)				
	219	220	EXT6	Total Site	Total
2-year	0.167	0.036	0.014	**0.203**	**0.213**
5-year	0.268	0.056	0.022	**0.324**	**0.341**
10-year	0.339	0.071	0.028	**0.410**	**0.432**
25-year	0.429	0.089	0.035	**0.518**	**0.549**
50-year	0.498	0.103	0.040	**0.601**	**0.637**
100-year	0.567	0.117	0.045	**0.684**	**0.725**

Post-Development Peak Runoff Directed to Neighbouring Property

Design Storm Event	Post-Development Uncontrolled Flow Rate (m^3/s)	
	Catchment 223	
	6-Hour	12-Hour
2-year	0.013	0.013
5-year	0.022	0.021
10-year	0.029	0.027
25-year	0.039	0.035
50-year	0.046	0.041
100-year	0.054	0.047
Regional	0.112	

CROZIER
CONSULTING ENGINEERS

Project: Tullamore Lands
Project No.: 2022-5842
Design by: IF/RA
Date: 2023-10-30

SWM Pond Stage - Storage - Discharge Table - Wetland 1

	c	Diameter / Length	Diameter / Height	Control Elevation	Invert Elevation	Number of Contractions
Circular Orifice Control	0.62	0.250	0.250	232.625	232.50	
Rectangular Orifice Control	0.62	1.200	0.500	233.400	233.15	2
Rectangular Orifice Control	0.62	1.500	0.500	234.050	233.80	2

Weir Coefficient	1.56	
Emergency Spillway Invert Elevation	234.50	m
Emergency Spillway Bottom Width	25	m
Side Slopes	33%	

Operating Level	Elevation (m)	Depth Above Permanent Pool (m)	Area (m^2)	Storage Volume (m^3)	Storage Volume (ha-m)	Circular Orifice Control Discharge (cms)	Rectangular Orifice Control Discharge (cms)	Rectangular Orifice Control Discharge (cms)	Emergency Spillway Weir Average Width (m)	Emergency Spillway Weir Discharge (cms)	Total Outflow (cms)
Top of Permanent Pool	232.50	0.00	22,572	0.00	0.0000	0.000					0.000
	232.55	0.05	22,798	1,134	0.1134	0.000					0.000
	232.60	0.10	23,024	2,280	0.2280	0.000					0.000
	232.65	0.15	23,250	3,437	0.3437	0.021					0.021
	232.70	0.20	23,475	4,605	0.4605	0.037					0.037
	232.75	0.25	23,700	5,784	0.5784	0.048					0.048
	232.80	0.30	24,769	6,996	0.6996	0.056					0.056
	232.85	0.35	26,035	8,266	0.8266	0.064					0.064
	232.90	0.40	26,463	9,578	0.9578	0.071					0.071
	232.95	0.45	26,856	10,911	1.0911	0.077					0.077
	233.00	0.50	27,237	12,264	1.2264	0.083					0.083
	233.05	0.55	27,607	13,635	1.3635	0.088					0.088
	233.10	0.60	27,992	15,025	1.5025	0.093					0.093
Top of Extended Detention	233.15	0.65	28,101	16,427	1.6427	0.098	0.000				0.098
	233.20	0.70	28,210	17,835	1.7835	0.102	0.024				0.127
	233.25	0.75	28,320	19,248	1.9248	0.107	0.069				0.175
	233.30	0.80	28,430	20,667	2.0667	0.111	0.125				0.236
	233.35	0.85	28,541	22,091	2.2091	0.115	0.191				0.306
	233.40	0.90	28,651	23,521	2.3521	0.119	0.265				0.383
	233.45	0.95	28,762	24,956	2.4956	0.122	0.345				0.467
	233.50	1.00	28,872	26,397	2.6397	0.126	0.431				0.557
	233.55	1.05	28,983	27,843	2.7843	0.130	0.521				0.651
	233.60	1.10	29,095	29,295	2.9295	0.133	0.617				0.750
	233.65	1.15	29,206	30,753	3.0753	0.136	0.824				0.960
	233.70	1.20	29,317	32,216	3.2216	0.140	0.903				1.042
	233.75	1.25	29,429	33,685	3.3685	0.143	0.975				1.118
	233.80	1.30	29,540	35,159	3.5159	0.146	1.042	0.000			1.188
	233.85	1.35	29,652	36,639	3.6639	0.149	1.105	0.031			1.285
	233.90	1.40	29,764	38,124	3.8124	0.152	1.165	0.086			1.403
	233.95	1.45	29,876	39,615	3.9615	0.155	1.222	0.157			1.534
	234.00	1.50	29,988	41,112	4.1112	0.158	1.276	0.240			1.675
100-Year Water Level (234.04)	234.05	1.55	30,100	42,614	4.2614	0.161	1.328	0.334			1.823
	234.10	1.60	30,212	44,122	4.4122	0.164	1.379	0.435			1.978
	234.15	1.65	30,325	45,635	4.5635	0.166	1.427	0.545			2.138
	234.20	1.70	30,437	47,154	4.7154	0.169	1.474	0.661			2.304
	234.25	1.75	30,549	48,679	4.8679	0.172	1.519	0.783			2.474
	234.30	1.80	30,662	50,209	5.0209	0.174	1.563	1.030			2.768
	234.35	1.85	30,776	51,745	5.1745	0.177	1.606	1.128			2.911
	234.40	1.90	30,889	53,287	5.3287	0.180	1.648	1.219			3.046
	234.45	1.95	31,004	54,834	5.4834	0.182	1.688	1.303			3.173
Top of Active Storage	234.50	2.00	31,120	56,387	5.6387	0.185	1.728	1.382	25.0	0.000	3.294
	234.55	2.05	31,254	57,946	5.7946	0.187	1.767	1.456	25.2	0.439	3.849
	234.60	2.10	31,389	59,513	5.9513	0.189	1.805	1.528	25.3	1.248	4.770
	234.65	2.15	31,524	61,085	6.1085	0.192	1.842	1.595	25.5	2.307	5.936
	234.70	2.20	31,659	62,665	6.2665	0.194	1.879	1.661	25.6	3.573	7.306
	234.75	2.25	31,794	64,251	6.4251	0.197	1.915	1.723	25.8	5.023	8.857
Top of Pond	234.80	2.30	32,073	65,848	6.5848	0.199	1.950	1.784	25.9	6.641	10.574

CROZIER
CONSULTING ENGINEERS

Project: Tullamore Lands
Project No.: 2022-5842
Design by: IC/RA
Date: 2023-10-30

SWM Pond Stage - Storage - Discharge Table - Wetland 2

	c	Diameter / Length	Diameter / Height	Control Elevation	Invert Elevation	Number of Contractions
Circular Orifice Control	0.62	0.250	0.250	231.125	231.00	
Rectangular Orifice Control	0.62	1.200	0.500	231.850	231.60	2
Rectangular Orifice Control	0.62	1.500	0.500	232.500	232.25	2

Weir Coefficient	1.56	
Emergency Spillway Invert Elevation	232.90	m
Emergency Spillway Bottom Width	70	m
Side Slopes	33%	

Operating Level	Elevation (m)	Depth Above Permanent Pool (m)	Area (m²)	Storage Volume (m^3)	Storage Volume (ha-m)	Circular Orifice Control Discharge (cms)	Rectangular Orifice Control Discharge (cms)	Rectangular Orifice Control Discharge (cms)	Emergency Spillway Weir Average Width (m)	Emergency Spillway Weir Discharge (cms)	Total Outflow (cms)
Top of Permanent Pool	231.00	0.00	24,800	0.00	0.0000	0.000					0.000
	231.05	0.05	25,183	1,347	0.1347	0.000					0.000
	231.10	0.10	25,440	2,613	0.2613	0.000					0.000
	231.15	0.15	25,695	3,891	0.3891	0.021					0.021
	231.20	0.20	25,948	5,182	0.5182	0.037					0.037
	231.25	0.25	26,203	6,486	0.6486	0.048					0.048
	231.30	0.30	26,918	7,814	0.7814	0.056					0.056
	231.35	0.35	27,656	9,178	0.9178	0.064					0.064
	231.40	0.40	28,329	10,578	1.0578	0.071					0.071
	231.45	0.45	28,939	12,010	1.2010	0.077					0.077
	231.50	0.50	29,486	13,470	1.3470	0.083					0.083
	231.55	0.55	29,970	14,957	1.4957	0.088					0.088
Top of Extended Detention	231.60	0.60	30,397	16,466	1.6466	0.093	0.000				0.093
	231.65	0.65	30,525	17,989	1.7989	0.098	0.024				0.122
	231.70	0.70	30,653	19,518	1.9518	0.102	0.069				0.171
	231.75	0.75	30,782	21,054	2.1054	0.107	0.125				0.232
	231.80	0.80	30,911	22,596	2.2596	0.111	0.191				0.302
	231.85	0.85	31,041	24,145	2.4145	0.115	0.265				0.379
	231.90	0.90	31,169	25,701	2.5701	0.119	0.345				0.463
	231.95	0.95	31,299	27,262	2.7262	0.122	0.431				0.553
	232.00	1.00	31,428	28,830	2.8830	0.126	0.521				0.647
	232.05	1.05	31,558	30,405	3.0405	0.130	0.617				0.746
	232.10	1.10	31,688	31,986	3.1986	0.133	0.824				0.957
	232.15	1.15	31,818	33,574	3.3574	0.136	0.903				1.039
	232.20	1.20	31,947	35,168	3.5168	0.140	0.975				1.115
	232.25	1.25	32,078	36,769	3.6769	0.143	1.042	0.000			1.185
	232.30	1.30	32,207	38,376	3.8376	0.146	1.105	0.031			1.282
	232.35	1.35	32,337	39,989	3.9989	0.149	1.165	0.086			1.400
100-Year Water Level (232.39)	232.40	1.40	32,467	41,609	4.1609	0.152	1.222	0.157			1.531
	232.45	1.45	32,598	43,236	4.3236	0.155	1.276	0.240			1.672
	232.50	1.50	32,727	44,869	4.4869	0.158	1.328	0.334			1.820
	232.55	1.55	32,858	46,509	4.6509	0.161	1.379	0.435			1.975
	232.60	1.60	32,988	48,155	4.8155	0.164	1.427	0.545			2.136
	232.65	1.65	33,118	49,808	4.9808	0.166	1.474	0.661			2.301
	232.70	1.70	33,246	51,467	5.1467	0.169	1.519	0.783			2.472
	232.75	1.75	33,379	53,132	5.3132	0.172	1.563	1.030			2.765
	232.80	1.80	33,509	54,805	5.4805	0.174	1.606	1.128			2.909
	232.85	1.85	33,640	56,483	5.6483	0.177	1.648	1.219			3.043
Top of Active Storage	232.90	1.90	33,771	58,169	5.8169	0.180	1.688	1.303	70.0	0.000	3.171
	232.95	1.95	33,903	59,860	5.9860	0.182	1.728	1.382	70.2	1.224	4.516
	233.00	2.00	34,035	61,559	6.1559	0.185	1.767	1.456	70.3	3.468	6.876
	233.05	2.05	34,188	63,264	6.3264	0.187	1.805	1.528	70.5	6.385	9.905
	233.10	2.10	34,342	64,978	6.4978	0.189	1.842	1.595	70.6	9.852	13.479
	233.15	2.15	34,496	66,699	6.6699	0.192	1.879	1.661	70.8	13.798	17.529
	233.20	2.20	34,648	68,427	6.8427	0.194	1.915	1.723	70.9	18.176	22.008
	233.25	2.25	34,801	70,164	7.0164	0.197	1.950	1.784	71.1	22.954	26.884
Top of Pond	233.30	2.30	34,400	71,894	7.1894	0.199	1.984	1.842	71.2	28.104	32.129

Project: Tullamore Lands
Project No.: 2022-5842
Design by: IF/RA
Date: 2023-10-30

SWM Pond Stage - Storage - Discharge Table - Regional Control Dry Pond

	c	Diameter / Length	Diameter / Height	Control Elevation	Invert Elevation	
Two (2) Culverts Control	-	2.130	1.220	229.610	229.00	*Controlled discharge per rating table calculated in Culvert Master

Operating Level	Elevation (m)	Depth Above Permanent Pool (m)	Area (m^2)	Storage Volume (m^3)	Storage Volume (ha-m)	Culvert Control Discharge (cms)	Total Outflow (cms)
Bottom of Pond	229.00	0.00	56,756	0.00	0.0000	0.000	0.000
	229.05	0.05	56,955	2,843	0.2843	0.074	0.074
	229.10	0.10	57,155	5,696	0.5696	0.209	0.209
	229.15	0.15	57,356	8,558	0.8558	0.384	0.384
	229.20	0.20	57,556	11,431	1.1431	0.591	0.591
	229.25	0.25	57,757	14,314	1.4314	0.825	0.825
	229.30	0.30	57,958	17,207	1.7207	1.085	1.085
	229.35	0.35	58,160	20,110	2.0110	1.367	1.367
	229.40	0.40	58,361	23,023	2.3023	1.670	1.670
	229.45	0.45	58,563	25,946	2.5946	1.993	1.993
	229.50	0.50	58,765	28,879	2.8879	2.334	2.334
	229.55	0.55	58,967	31,822	3.1822	2.693	2.693
	229.60	0.60	59,170	34,776	3.4776	3.069	3.069
	229.65	0.65	59,373	37,739	3.7739	3.460	3.460
	229.70	0.70	59,576	40,713	4.0713	3.867	3.867
	229.75	0.75	59,779	43,697	4.3697	4.289	4.289
	229.80	0.80	59,982	46,691	4.6691	4.725	4.725
	229.85	0.85	60,186	49,695	4.9695	5.174	5.174
	229.90	0.90	60,390	52,710	5.2710	5.638	5.638
	229.95	0.95	60,594	55,734	5.5734	6.114	6.114
	230.00	1.00	60,799	58,769	5.8769	6.603	6.603
	230.05	1.05	61,004	61,814	6.1814	7.104	7.104
	230.10	1.10	61,208	64,869	6.4869	7.618	7.618
	230.15	1.15	61,414	67,935	6.7935	8.143	8.143
	230.20	1.20	61,619	71,011	7.1011	8.680	8.680
	230.25	1.25	61,825	74,097	7.4097	9.228	9.228
	230.30	1.30	62,031	77,193	7.7193	9.787	9.787
	230.35	1.35	62,237	80,300	8.0300	10.357	10.357
	230.40	1.40	62,443	83,417	8.3417	10.937	10.937
	230.45	1.45	62,650	86,544	8.6544	11.529	11.529
	230.50	1.50	62,857	89,682	8.9682	11.902	11.902
	230.55	1.55	63,064	92,830	9.2830	12.272	12.272
	230.60	1.60	63,271	95,988	9.5988	12.643	12.643
	230.65	1.65	63,479	99,157	9.9157	13.135	13.135
	230.70	1.70	63,687	102,336	10.2336	13.626	13.626
	230.75	1.75	63,895	105,526	10.5526	14.100	14.100
	230.80	1.80	64,103	108,726	10.8726	14.558	14.558
Regional Storm Water Level (230.83)	230.85	1.85	64,312	111,936	11.1936	15.003	15.003
	230.90	1.90	64,522	115,157	11.5157	15.434	15.434
	230.95	1.95	64,731	118,388	11.8388	15.854	15.854
Top of Active Storage	231.00	2.00	64,942	121,630	12.1630	16.263	16.263
	231.05	2.05	65,152	124,882	12.4882	16.662	16.662
	231.10	2.10	65,362	128,145	12.8145	17.052	17.052
	231.15	2.15	65,572	131,419	13.1419	17.433	17.433
	231.20	2.20	65,783	134,703	13.4703	17.806	17.806
	231.25	2.25	65,994	137,997	13.7997	18.171	18.171
Top of Pond	231.30	2.30	66,229	141,303	14.1303	18.529	18.529

CROZIER CONSULTING ENGINEERS

Project: Tullamore
File: 2022-5842
Designed by: IF
Checked by: RA
Date: 30-Oct-23

Permanent Pool Volume Calculations - Wetland 1

Area Name	Drainage Area			
$A_{to\text{-}pond}$ =	79.62	ha	Percent Impervious	90.0%
$V_{permanent\ pool}$ =	8,683	m^3	Percent Pervious	10.0%
$V_{extended\ detention\ (MECP)}$ =	3,185	m^3		
$V_{extended\ detention\ (25\ mm\ event)}$ =	15,725	m^3		

Storage Volume:	V =	149	m^3 / ha
Extended Detention:	V =	40	m^3 / ha
Permanent Pool:	V =	109	m^3 / ha
Base Runoff:	V =	19.75	mm

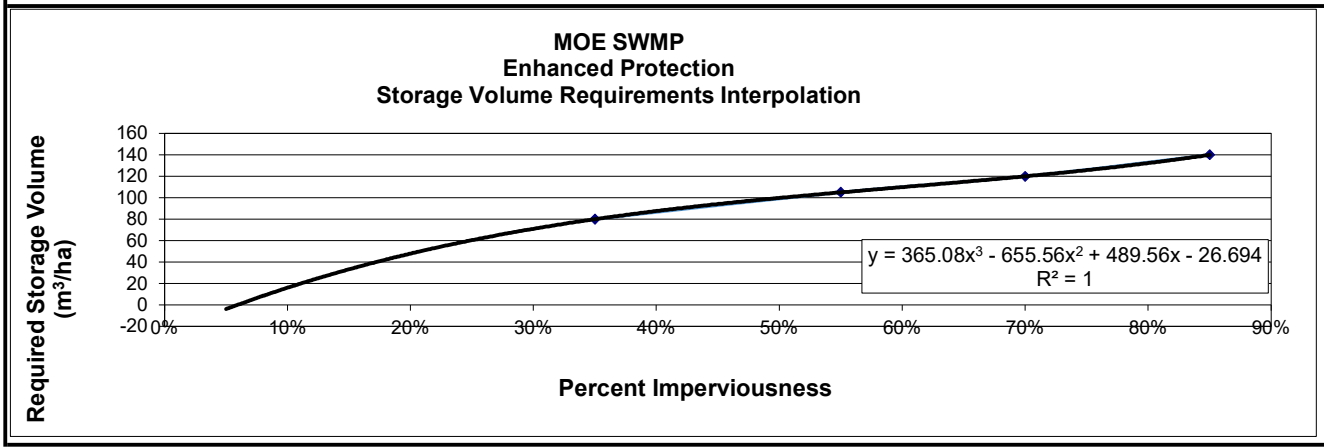
Runoff volume from 25mm VO Model for 84.92 ha upstream drainage area

therefore, require extended detention storage of 15,725 m^3
and permanent pool volume of 8,683 m^3

MOE 2003 SWMP Manual: Water Quality Storage Requirements based on Receiving Waters *

PROTECTION LEVEL	SWMP Type	STORAGE VOLUME (m^3 / ha) FOR IMPERVIOUS LEVEL				
		35%	55%	70%	85%	90%
Enhanced	Wetland	80	105	120	140	**149**
Normal	Wetland	60	70	80	90	
Basic	Wetland	60	60	60	60	

* Table 3.2 from the MOE SWMP Planning & Design Manual, 2004, pg 3-10



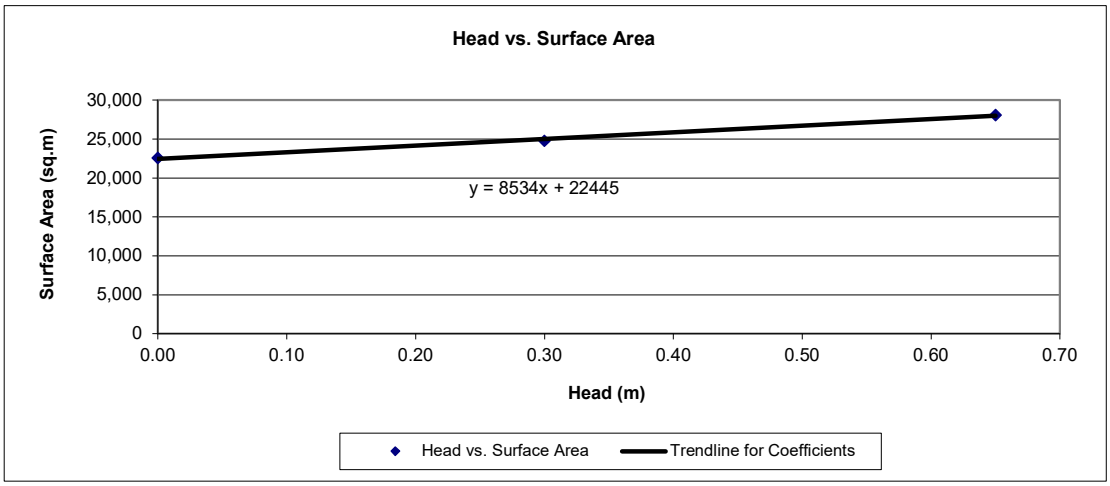
Project: Tullamore
File: 2022-5842
Designed by: IF
Checked by: RA
Date: 30-Oct-23

Extended Detention Drawdown Calculations - Wetland 1

MOE Detention Time Calculation:

Active Storage:

	Elevation (m)	Head (m)	Surface Area (m^2)
NWL	232.50	0.00	22,572
	232.80	0.30	24,769
Ext. Det.	233.15	0.65	28,101



D_o= 250 mm
A_o= 0.0491 m^2
C_1= 8,534.0
C_2= 22,445
t= $((0.66*C_1*h^{1.5})+(2*C_2*h^{0.5}))/2.75A_o$
t= ((0.66*(8534)*h^1.5)+(2*(22445)*h^0.5))/2.75Ao
h= 0.65 m
t= 256821.9 s
Ext. Det. = **71.3 hr**

CROZIER CONSULTING ENGINEERS

Project: Tullamore
File: 2022-5842
Designed by: IF
Checked by: RA
Date: 30-Oct-23

Forebay Sizing Calculations - Wetland 1

Settling Calculations

Proposed Forebay Length	115	m	
Proposed Forebay Width	40	m	

$$Dist = \sqrt{\frac{rQ_P}{V_S}}$$

Eq. 4.5 MOE SWM Planning and Design Manual, 2003

Water Quality Design Flow Rate from Pond (Q_p)	0.091	m^3/s	(25 mm, 4 hour Chicago)
Length to Width Ratio of Forebay (r)	2.9	:1	
Settling Velocity (V_s)	0.0003	m/s	
Minimum Forebay Length for Settling	**30**	**m**	

Dispersion Length Calculations

$$Dist = \frac{8Q}{dV_F}$$

Eq. 4.6 MOE SWM Planning and Design Manual, 2003

Inlet Flowrate (Q)	2.96	m^3/s	(5-year inlet flow)
Permanent Pool Depth in Forebay	1.5	m	
Desired velocity in forebay (V_f)	0.5	m/s	
Minimum Dispersion Length	**32**	**m**	
Minimum Bottom Width	**4.0**	**m**	

The proposed forebay meets all minimum size requirements

CROZIER CONSULTING ENGINEERS

Project: Tullamore
File: 2022-5842
Designed by: IF
Checked by: RA
Date: 30-Oct-23

Permanent Pool Volume Calculations - Wetland 2

Area Name	Drainage Area			
$A_{to\text{-}pond}$ =	75.01	ha	Percent Impervious	90.0%
$V_{permanent\ pool}$ =	8,180	m^3	Percent Pervious	10.0%
$V_{extended\ detention\ (MECP)}$ =	3,000	m^3		
$V_{extended\ detention\ (25\ mm\ event)}$ =	14,589	m^3		

Storage Volume:	V =	149	m^3 / ha
Extended Detention:	V =	40	m^3 / ha
Permanent Pool:	V =	109	m^3 / ha
Base Runoff:	V =	19.45	mm

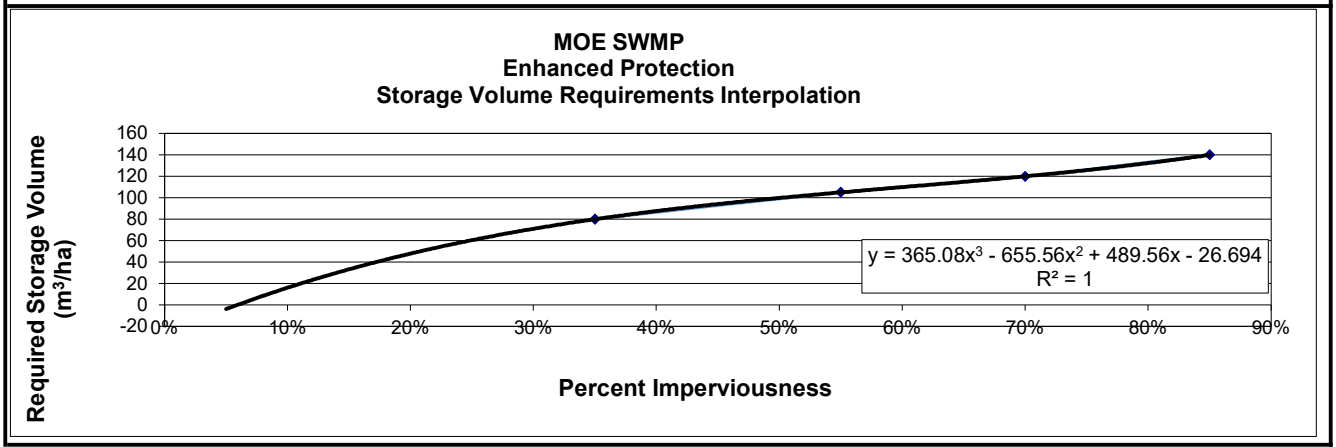
Runoff volume from 25mm VO Model for 80.31 ha upstream drainage area

therefore, require extended detention storage of 14,589 m^3
and permanent pool volume of 8,180 m^3

MOE 2003 SWMP Manual: Water Quality Storage Requirements based on Receiving Waters *

PROTECTION LEVEL	SWMP Type	STORAGE VOLUME (m^3 / ha) FOR IMPERVIOUS LEVEL				
		35%	55%	70%	85%	90%
Enhanced	Wetland	80	105	120	140	**149**
Normal	Wetland	60	70	80	90	
Basic	Wetland	60	60	60	60	

* Table 3.2 from the MOE SWMP Planning & Design Manual, 2004, pg 3-10



CROZIER CONSULTING ENGINEERS

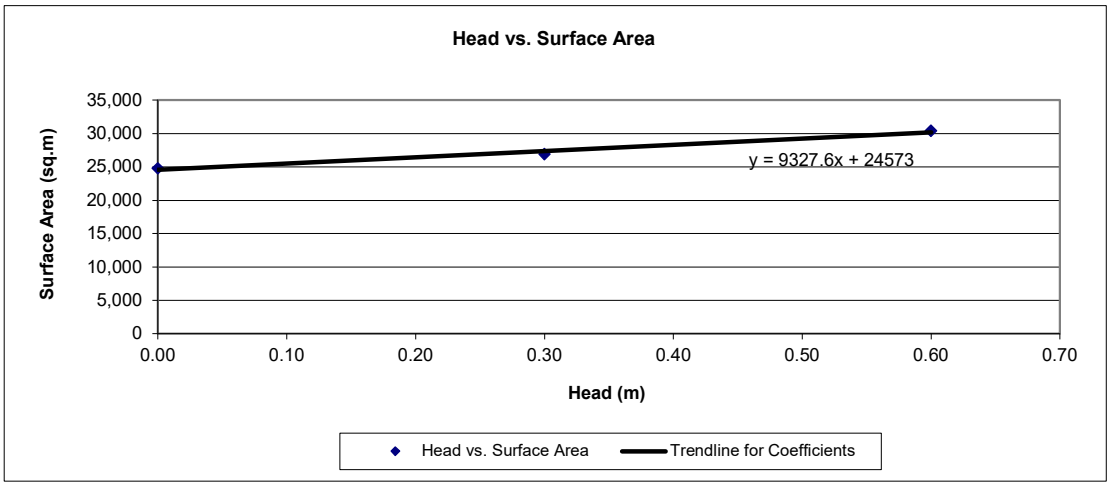
Project: Tullamore
File: 2022-5842
Designed by: IF
Checked by: RA
Date: 30-Oct-23

Extended Detention Drawdown Calculations - Wetland 2

MOE Detention Time Calculation:

Active Storage:

	Elevation (m)	Head (m)	Surface Area (m^2)
NWL	231.00	0.00	24,800
	231.30	0.30	26,918
Ext. Det.	231.60	0.60	30,397



D_o= 250 mm
A_o= 0.0491 m^2
C_1= 9,327.6
C_2= 24,573

t= $((0.66*C_1*h^{1.5})+(2*C_2*h^{0.5}))/2.75A_o$
t= ((0.66*(9327.6)*h^1.5)+(2*(24573)*h^0.5))/2.75Ao
h= 0.60 m
t= 265848.1 s
Ext. Det. = **73.8 hr**

CROZIER CONSULTING ENGINEERS

Project: Tullamore
File: 2022-5842
Designed by: IF
Checked by: RA
Date: 30-Oct-23

Forebay Sizing Calculations - Wetland 2

Settling Calculations

Proposed Forebay Length	130	m	
Proposed Forebay Width	31	m	

$$Dist = \sqrt{\frac{rQ_P}{V_S}}$$ Eq. 4.5 MOE SWM Planning and Design Manual, 2003

Water Quality Design Flow Rate from Pond (Q_p)	0.091	m^3/s	(25 mm, 4 hour Chicago)
Length to Width Ratio of Forebay (r)	4.2	:1	
Settling Velocity (V_s)	0.0003	m/s	

Minimum Forebay Length for Settling **36 m**

Dispersion Length Calculations

$$Dist = \frac{8Q}{dV_F}$$ Eq. 4.6 MOE SWM Planning and Design Manual, 2003

Inlet Flowrate (Q)	2.80	m^3/s	(5-year inlet flow)
Permanent Pool Depth in Forebay	1.5	m	
Desired velocity in forebay (V_f)	0.5	m/s	

Minimum Dispersion Length **30 m**

Minimum Bottom Width **3.7 m**

The proposed forebay meets all minimum size requirements

Worksheet for Broad Crested Weir - Wetland 1 Forebay Spillway

Project Description

Solve For	Headwater Elevation

Input Data

Discharge		1.47	m³/s
Crest Elevation		232.50	m
Tailwater Elevation		0.00	m
Crest Surface Type	Gravel		
Crest Breadth		3.00	m
Crest Length		75.00	m

Results

Headwater Elevation	232.56	m
Headwater Height Above Crest	0.06	m
Tailwater Height Above Crest	-232.50	m
Weir Coefficient	1.43	SI
Submergence Factor	1.00	
Adjusted Weir Coefficient	1.43	SI
Flow Area	4.31	m²
Velocity	0.34	m/s
Wetted Perimeter	75.12	m
Top Width	75.00	m

Worksheet for Broad Crested Weir - Wetland 2 Forebay Spillway

Project Description

Solve For	Headwater Elevation

Input Data

Discharge		1.38	m³/s
Crest Elevation		231.00	m
Tailwater Elevation		0.00	m
Crest Surface Type	Gravel		
Crest Breadth		3.00	m
Crest Length		32.50	m

Results

Headwater Elevation	231.09	m
Headwater Height Above Crest	0.09	m
Tailwater Height Above Crest	-231.00	m
Weir Coefficient	1.45	SI
Submergence Factor	1.00	
Adjusted Weir Coefficient	1.45	SI
Flow Area	3.08	m²
Velocity	0.45	m/s
Wetted Perimeter	32.69	m
Top Width	32.50	m

Worksheet for Broad Crested Weir - Wetland 1 Emergency Spillway

Project Description

Solve For	Headwater Elevation

Input Data

Discharge		5.33	m³/s
Crest Elevation		234.50	m
Tailwater Elevation		0.00	m
Crest Surface Type	Gravel		
Crest Breadth		3.00	m
Crest Length		25.00	m

Results

Headwater Elevation	234.77	m
Headwater Height Above Crest	0.27	m
Tailwater Height Above Crest	-234.50	m
Weir Coefficient	1.55	SI
Submergence Factor	1.00	
Adjusted Weir Coefficient	1.55	SI
Flow Area	6.67	m²
Velocity	0.80	m/s
Wetted Perimeter	25.53	m
Top Width	25.00	m

Worksheet for Broad Crested Weir - Wetland 2 Emergency Spillway

Project Description

Solve For	Headwater Elevation

Input Data

Discharge		21.61	m³/s
Crest Elevation		232.90	m
Tailwater Elevation		0.00	m
Crest Surface Type	Gravel		
Crest Breadth		3.00	m
Crest Length		70.00	m

Results

Headwater Elevation	233.24	m
Headwater Height Above Crest	0.34	m
Tailwater Height Above Crest	-232.90	m
Weir Coefficient	1.57	SI
Submergence Factor	1.00	
Adjusted Weir Coefficient	1.57	SI
Flow Area	23.63	m²
Velocity	0.91	m/s
Wetted Perimeter	70.68	m
Top Width	70.00	m

Worksheet for Broad Crested Weir - Wet Pond Emergency Spillway

Project Description

Solve For	Headwater Elevation

Input Data

Discharge		23.37	m³/s
Crest Elevation		231.00	m
Tailwater Elevation		0.00	m
Crest Surface Type	Gravel		
Crest Breadth		3.00	m
Crest Length		100.00	m

Results

Headwater Elevation	231.28	m
Headwater Height Above Crest	0.28	m
Tailwater Height Above Crest	-231.00	m
Weir Coefficient	1.55	SI
Submergence Factor	1.00	
Adjusted Weir Coefficient	1.55	SI
Flow Area	28.30	m²
Velocity	0.83	m/s
Wetted Perimeter	100.57	m
Top Width	100.00	m

OUTPUT DATA:

STORM SEWER DESIGN SHEET: (5 Year Storm)

Tullamore, Town of Caledon

CROZIER CONSULTING ENGINEERS

Project #: 2022-5842
Date: 30-Oct-23
Designed: AS
Checked: JS/ADF

Min. Diameter = 300 mm
Mannings 'n'= 0.013
Starting Tc = 10 min
Factor of Safety = 10 %

Rainfall Intensity = $\frac{A}{(Tc+B)^c}$ *where Tc is in minutes*

A = 1593
B = 11
C = 0.8789
(5 Yr)

NOMINAL PIPE SIZE USED

DESCRIPTION	FROM MH	TO MH	AREA (ha)	RUNOFF COEFFICIENT "R"	'AR'	ACCUM. 'AR'	RAINFALL INTENSITY (mm/hr)	FLOW (m3/s)	CONSTANT FLOW (m3/s)	ACCUM. CONSTANT FLOW (m3/s)	TOTAL FLOW (m3/s)	LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)	INITIAL Tc (min)	TIME OF CONCENTRATION (min)	ACC. TIME OF CONCENTRATION (min)	PERCENT FULL (%)
STREET C																				
	MH1	MH2	0.39	0.90	0.35	0.35	109.7	0.107			0.107	54.9	1.00	375	0.175	1.59	10.00	0.58	10.58	61%
	MH2	MH3	0.16	0.90	0.14	0.50	107.1	0.147			0.147	55.1	1.00	375	0.175	1.59	10.58	0.58	11.15	84%
	MH3	MH4	0.31	0.90	0.28	0.77	104.6	0.225			0.225	118.9	1.00	450	0.285	1.79	11.15	1.11	12.26	79%
	MH4	MH5	0.30	0.90	0.27	1.04	100.3	0.291			0.291	115.6	1.00	525	0.430	1.99	12.26	0.97	13.23	68%
	MH5	MH6	0.31	0.90	0.28	1.32	96.7	0.355			0.355	118.6	1.00	525	0.430	1.99	13.23	0.99	14.23	83%
TO STREET B	MH6	MH7	0.23	0.90	0.21	1.53	93.4	0.397			0.397	102.6	1.00	525	0.430	1.99	14.23	0.86	15.09	92%
STREET A																				
	MH50	MH51	0.28	0.90	0.25	0.25	109.7	0.077			0.077	66.8	0.50	375	0.124	1.12	10.00	0.99	10.99	62%
	MH51	MH52	0.20	0.90	0.18	0.43	105.3	0.126			0.126	76.7	0.50	450	0.202	1.27	10.99	1.01	12.00	63%
	MH52	MH53	0.30	0.90	0.27	0.70	101.2	0.197			0.197	115.8	0.50	525	0.304	1.40	12.00	1.37	13.37	65%
	MH53	MH54	0.20	0.90	0.18	0.88	96.2	0.236			0.236	77.7	0.50	525	0.304	1.40	13.37	0.92	14.30	78%
	MH54	MH55	0.20	0.90	0.18	1.06	93.1	0.275			0.275	77.7	0.50	525	0.304	1.40	14.30	0.92	15.22	90%
	MH55	MH56	0.28	0.90	0.25	1.31	90.2	0.329			0.329	108.3	0.50	600	0.434	1.54	15.22	1.18	16.39	76%
TO STREET B	MH56	MH19	0.26	0.90	0.23	1.55	86.8	0.373			0.373	107.1	0.50	600	0.434	1.54	16.39	1.16	17.56	86%
STREET B																				
	MH8	MH9	0.44	0.90	0.40	0.40	109.7	0.121			0.121	97.1	1.00	375	0.175	1.59	10.00	1.02	11.02	69%
	MH9	MH10	0.31	0.90	0.28	0.68	105.2	0.197			0.197	115.5	1.00	450	0.285	1.79	11.02	1.07	12.09	69%
	MH10	MH11	0.10	0.90	0.09	0.77	100.9	0.214			0.214	38.7	1.00	450	0.285	1.79	12.09	0.36	12.45	75%
EXT4		MH100	4.90	0.25	1.23	1.23														
EXT5		MH100	0.90	0.25	0.23	0.23														
C202 (BLOCK 7)	MH100	MH11				1.45	109.7	0.442	1.142	1.142	1.584	24.3	0.65	975	1.807	2.42	10.00	0.17	10.17	88%
	MH11	MH7	0.07	0.90	0.06	2.28	99.5	0.630		1.142	1.772	28.1	1.00	975	2.241	3.00	12.45	0.16	12.61	79%
Contribution from Street C	MH7	MH12	0.20	0.90	0.18	3.99	90.6	1.004		1.142	2.146	75.6	1.00	1050	2.731	3.15	15.09	0.40	15.49	79%
	MH12	MH13	0.26	0.90	0.23	4.22	89.4	1.049		1.142	2.191	101.7	1.00	1200	3.899	3.45	15.49	0.49	15.98	56%
	MH13	MH14	0.25	0.90	0.23	4.45	88.0	1.087		1.142	2.229	96.4	1.00	1200	3.899	3.45	15.98	0.47	16.44	57%
EXT3B		MH101	2.00	0.51	1.02	1.02														
C205 (BLOCK 8)	MH101	MH14				1.02	109.7	0.311	1.101	1.101	1.412	24.4	1.00	900	1.810	2.85	10.00	0.14	10.14	78%
	MH14	MH15	0.30	0.90	0.27	5.74	86.7	1.382		2.243	3.625	114.7	0.40	1500	4.471	2.53	16.44	0.76	17.20	81%
EXT6		MH102	0.50	0.25	0.13	0.13														
EXT7		MH102	1.40	0.25	0.35	0.35														
C206 (BLOCK 3)	MH102	MH15				0.48	109.7	0.145	1.183	1.183	1.328	21.4	0.50	975	1.585	2.12	10.00	0.17	10.17	84%
	MH15	MH16	0.18	0.90	0.16	6.37	84.6	1.499		3.426	4.925	70.3	1.00	1500	7.069	4.00	17.20	0.29	17.49	70%
	MH16	MH17	0.31	0.90	0.28	6.65	83.9	1.550		3.426	4.976	119.3	1.00	1500	7.069	4.00	17.49	0.50	17.99	70%
	MH17	MH18	0.24	0.90	0.22	6.87	82.6	1.576		3.426	5.002	91.4	1.00	1500	7.069	4.00	17.99	0.38	18.37	71%
C208 (BLOCK 4)	MH103	MH18					109.7		1.197	1.197	1.197	22.1	0.50	975	1.585	2.12	10.00	0.17	10.17	76%
	MH18	MH19	0.06	0.90	0.05	6.92	81.7	1.571		4.623	6.194	24.9	1.00	1500	7.069	4.00	18.37	0.10	18.47	88%
Contribution from Street A	MH19	MH20	0.23	0.90	0.21	8.68	81.4	1.963		4.623	6.586	90.0	0.40	1500x2400 (BOX)	10.460	2.91	18.47	0.52	18.99	63%
EXT3A		MH104	1.40	0.80	1.12	1.12														

OUTPUT DATA:

STORM SEWER DESIGN SHEET: (5 Year Storm)

Tullamore, Town of Caledon

CROZIER CONSULTING ENGINEERS

Project #: 2022-5842
Date: 30-Oct-23
Designed: AS
Checked: JS/ADF

Min. Diameter = 300 mm
Mannings 'n'= 0.013
Starting Tc = 10 min
Factor of Safety = 10 %

Rainfall Intensity = $\frac{A}{(Tc+B)^c}$ *where Tc is in minutes*

A = 1593
B = 11
C = 0.8789
(5 Yr)

NOMINAL PIPE SIZE USED

DESCRIPTION	FROM MH	TO MH	AREA (ha)	RUNOFF COEFFICIENT "R"	'AR'	ACCUM. 'AR'	RAINFALL INTENSITY (mm/hr)	FLOW (m3/s)	CONSTANT FLOW (m3/s)	ACCUM. CONSTANT FLOW (m3/s)	TOTAL FLOW (m3/s)	LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)	INITIAL Tc (min)	TIME OF CONCENTRATION (min)	ACC. TIME OF CONCENTRATION (min)	PERCENT FULL (%)
C210 (BLOCK 1)	MH104	MH21				1.12	109.7	0.341	2.230	2.230	2.571	20.0	0.50	1200	2.757	2.44	10.00	0.14	10.14	93%
	MH20	MH21	0.32	0.90	0.29	8.97	80.2	1.997		4.623	6.620	121.4	0.40	1500x2400 (BOX)	10.460	2.91	18.99	0.70	19.69	63%
FLOW SPLITTER AT MH22	MH21	MH22	0.24	0.90	0.22	10.30	78.6	2.249		6.853	9.102	105.5	0.40	1500x2400 (BOX)	10.460	2.91	19.69	0.61	20.29	87%
TO WETLAND 1																				
50% FLOW FROM MH 22	MH22	MH29					109.7		4.551	4.551	4.551	45.1	1.34	1500x2400 (BOX)	19.145	5.32	10.00	0.14	10.14	24%
C212 (BLOCK 5)	MH106	MH29					109.7		1.079	1.079	1.079	50.6	1.00	900	1.810	2.85	10.00	0.30	10.30	60%
	MH29	HW1					108.3			5.630	5.630	8.9	1.12	1500x2400 (BOX)	17.503	4.86	10.30	0.03	10.33	32%
TO WETLAND 2																				
C214(BLOCK 2)	MH105	MH23					109.7		0.608	0.608	0.608	20.0	0.50	750	0.787	1.78	10.00	0.19	10.19	77%
50% FLOW FROM MH 22	MH 22	MH23	0.30	0.90	0.27	0.27	109.7	0.082	4.551	4.551	4.633	99.0	0.40	1500x2400 (BOX)	10.460	2.91	10.00	0.57	10.57	44%
	MH23	MH24	0.38	0.90	0.34	0.61	107.1	0.182		5.159	5.341	145.4	0.40	1500x2400 (BOX)	10.460	2.91	10.57	0.83	11.40	51%
	MH24	MH25	0.17	0.90	0.15	0.77	103.6	0.220		5.159	5.379	88.5	0.40	1500x2400 (BOX)	10.460	2.91	11.40	0.51	11.91	51%
	MH25	MH26	0.24	0.90	0.22	0.98	101.6	0.277		5.159	5.436	85.5	0.40	1500x2400 (BOX)	10.460	2.91	11.91	0.49	12.40	52%
	MH26	MH27	0.41	0.90	0.37	1.35	99.7	0.374		5.159	5.533	84.1	0.40	1500x2400 (BOX)	10.460	2.91	12.40	0.48	12.88	53%
	MH27	MH28				1.35	98.0	0.367		5.159	5.526	25.0	0.40	1500x2400 (BOX)	10.460	2.91	12.88	0.14	13.03	53%
	MH28	HW2				1.35	97.4	0.365		5.159	5.524	17.4	0.40	1500x2400 (BOX)	10.460	2.91	13.03	0.10	13.13	53%

CROZIER CONSULTING ENGINEERS

Project Name: Tullamore Lands
Project No: 2022-5842
Modelled By: IF
Checked By: RA
Date: 26-Oct-2023

Climatic Water Budget - Thornthwaite Method
Project Name: Tullamore Lands
*RICHMOND HILL - Climate Normals 1971-2000 Station Data

	Degrees	Minutes	Seconds	
Insert Latitude:	43	47	24	*Only Applicable Between Latitudes 40° - 50°

Month	Mean Temperature (◦C)	Heat index	" a "	PET - Potential Evapotranspiration (mm)	Daily Correction Value	Adjusted PET - Potential Evapotranspiration (mm)	Total Precipitation (mm)	Surplus (mm)	Deficit (mm)
January	-6.7	0.0	0.49	0.0	0.77	0.0	51.8	51.8	0.0
February	-5.6	0.0	0.49	0.0	0.87	0.0	47.7	47.7	0.0
March	-0.5	0.0	0.49	0.0	0.99	0.0	49.8	49.8	0.0
April	6.5	1.5	0.52	28.7	1.12	32.0	68.5	36.5	0.0
May	13.4	4.4	0.57	63.8	1.23	74.3	74.3	0.0	0.0
June	18.2	7.1	0.62	89.4	1.29	71.5	71.5	0.0	0.0
July	21.0	8.8	0.64	104.7	1.27	75.7	75.7	0.0	0.0
August	20.0	8.2	0.63	99.2	1.17	78.1	78.1	0.0	0.0
September	15.4	5.5	0.59	74.3	1.05	74.5	74.5	0.0	0.0
October	8.9	2.4	0.53	40.6	0.92	37.3	61.1	23.8	0.0
November	2.8	0.4	0.50	11.3	0.80	9.1	75.1	66.0	0.0
December	-3.4	0.0	0.49	0.0	0.74	0.0	57.9	57.9	0.0
Totals		**38.2**	**1.10**			**452.5**	**786.0**	**333.5**	**0.0**

TOTAL WATER DEFICIT = **0.0 mm**
TOTAL WATER SURPLUS (SURPLUS - DEFICIT) = **333.5 mm**
Precipitation Adjustment Factor : **none**

NOTES:
1. Water budget adjusted for latitude and daylight.
2. (◦C) - Represents calculated mean of daily temperatures for the month.
3. Precipitation and Temperature data from the *RICHMOND HILL (Station No. 6157012) Environment Canada Station Data
4. Total Water Surplus (Thornthwaite, 1948) is calculated as total precipitation minus adjusted potential evapostranspiration.

CROZIER CONSULTING ENGINEERS

Project Name: Tullamore Lands
Project No: 2022-5842
Modelled By: IF
Checked By: RA
Date: 26-Oct-2023

Water Budget - Pre-Development, Private Blocks 1-8
*RICHMOND HILL - Climate Normals 1971-2000 Station Data
Water Balance/Water Budget Assessment

Catchment Designation	Site - Post-Development			
	Pervious	Impervious	Totals	
Area (m^2)	1371275	7315	1378590	
Pervious Area (m^2)	1371275	0	1371275	
Impervious Area (m^2)	0	7315	7315	
Infiltration Factors				
Topography Infiltration Factor	0.1	0.1		Hilly lands (average slope between 2.8%-4.7%)
Soil Infiltration Factor	0.2	0.2		Combination of clay and loam
Land Cover Infiltration Factor	0.1	0.1		Cultivated Land
MOE Infiltration Factor	0.4	0.4		
Actual Infiltration Factor	0.4	0		
Run-off Coefficient	0.25	0.95		
Runoff from Impervious Surfaces *	0	0.8		
Inputs (per Unit Area)				
Precipitation (mm/yr)	786	786	786	
Run-On (mm/yr)	0	0	0	
Other Inputs (mm/yr)	0	0	0	
Total Inputs (mm/yr)	**786**	**786**	**786**	
Outputs (per Unit Area)				
Precipitation Surplus (mm/yr)	333	629	335	
Net Surplus (mm/yr)	333	629	335	
Evapotranspiration (mm/yr) *	453	157	451	
Infiltration (mm/yr)	133	0	133	
Mitigation Infiltration (mm/yr)	0	0	0	
Total Infiltration (mm/yr)	133	0	133	
Runoff Pervious Areas (mm/yr)	200	0	199	
Runoff Impervious Areas (mm/yr)	0	629	3	
Total Runoff (mm/yr)	200	629	202	
Total Outputs (mm/yr)	**786**	**786**	**786**	
Difference (Inputs- Outputs)	**0**	**0**	**0**	
Inputs (Volumes)				
Precipitation (m^3/yr)	1077822	5750	1083572	
Run-On (m^3/yr)	0	0	0	
Other Inputs (m^3/yr)	0	0	0	
Total Inputs (m^3/yr)	**1077822**	**5750**	**1083572**	
Outputs (Volumes)				
Precipitation Surplus (m^3/yr)	457267	4600	461867	
Net Surplus (m^3/yr)	457267	4600	461867	
Evapotranspiration (m^3/yr) *	620555	1150	621705	
Infiltration (m^3/yr)	182907	0	182907	
Soakaway Infiltration (m^3/yr)	0	0	0	
Total Infiltration (m^3/yr)	182907	0	182907	
Runoff Pervious Areas (m^3/yr)	274360	0	274360	
Runoff Impervious Areas (m^3/yr)	0	4600	4600	
Total Runoff (m^3/yr)	274360	4600	278960	
Total Outputs (m^3/yr)	**1077822**	**5750**	**1083572**	
Difference (Inputs- Outputs)	**0**	**0**	**0**	

NOTES:

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

CROZIER CONSULTING ENGINEERS

Project Name: Tullamore Lands
Project No: 2022-5842
Modelled By: IF
Checked By: RA
Date: 26-Oct-2023

Water Budget - Post-Development *without Mitigation* , Private Blocks 1-8
*RICHMOND HILL - Climate Normals 1971-2000 Station Data
Water Balance/Water Budget Assessment

Post-development area available for infiltration (landscaped/lawn area considered to infiltrate)
Post-development area not available for infiltration (total site area less landscaped area noted above)

Note: site land use areas consistent with Post-Development SWM hydrologic modeling & calculations

Catchment Designation	Site - Post-Development			
	Pervious	Impervious	Totals	
Area (m^2)	137859	1240731	1378590	
Pervious Area (m^2)	137859	0	137859	
Impervious Area (m^2)	0	1240731	1240731	
Infiltration Factors				
Topography Infiltration Factor	0.1	0.1		Hilly lands (average slope between 2.8%-4.7%)
Soil Infiltration Factor	0.2	0.2		Combination of clay and loam
Land Cover Infiltration Factor	0.1	0.1		Cultivated Land (under existing conditions)
MOE Infiltration Factor	0.4	0.4		
Actual Infiltration Factor	0.4	0		
Run-off Coefficient	0.25	0.95		
Runoff from Impervious Surfaces *	0	0.8		
Inputs (per Unit Area)				
Precipitation (mm/yr)	786	786	786	
Run-On (mm/yr)	0	0	0	
Other Inputs (mm/yr)	0	0	0	
Total Inputs (mm/yr)	**786**	**786**	**786**	
Outputs (per Unit Area)				
Precipitation Surplus (mm/yr)	333	629	599	
Net Surplus (mm/yr)	333	629	599	
Evapotranspiration (mm/yr) *	453	157	187	
Infiltration (mm/yr)	133	0	13	
Mitigation Infiltration (mm/yr)	0	0	0	
Total Infiltration (mm/yr)	133	0	13	
Runoff Pervious Areas (mm/yr)	200	0	20	
Runoff Impervious Areas (mm/yr)	0	629	566	
Total Runoff (mm/yr)	200	629	586	
Total Outputs (mm/yr)	**786**	**786**	**786**	
Difference (Inputs- Outputs)	**0**	**0**	**0**	
Inputs (Volumes)				
Precipitation (m^3/yr)	108357	975215	1083572	
Run-On (m^3/yr)	0	0	0	
Other Inputs (m^3/yr)	0	0	0	
Total Inputs (m^3/yr)	**108357**	**975215**	**1083572**	
Outputs (Volumes)				
Precipitation Surplus (m^3/yr)	45971	780172	826142	
Net Surplus (m^3/yr)	45971	780172	826142	
Evapotranspiration (m^3/yr) *	62386	195043	257429	
Infiltration (m^3/yr)	18388	0	18388	
Soakaway Infiltration (m^3/yr)	0	0	0	Pre-Development Total Infiltration:
Total Infiltration (m^3/yr)	18388	0	18388	182907 m^3/yr
Runoff Pervious Areas (m^3/yr)	27582	0	27582	
Runoff Impervious Areas (m^3/yr)	0	780172	780172	
Total Runoff (m^3/yr)	27582	780172	807754	
Total Outputs (m^3/yr)	**108357**	**975215**	**1083572**	
Difference (Inputs- Outputs)	**0**	**0**	**0**	

NOTES:

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

Project: Tullamore Lands
Project No: 2022-5842
Modelled By: IF
Date: 10-26-2023

Design Storm Determination - Block 1
*RICHMOND HILL - Climate Normals 1971-2000 Station Data
Water Balance/Water Budget Assessment

Days with Precipitation (From Climate Data)

	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
>= 0.2 mm	11	13	12.2	10.8	11.5	12.3	12.5	**83**
>= 5 mm	4.2	5.1	5.4	4.4	5	4.9	4.3	**33**
>= 10 mm	1.9	2.8	2.8	2.6	2.9	2.7	2.2	**18**
>= 25 mm	0.28	0.24	0.47	0.77	0.77	0.6	0.33	**3**

Available Precipitation

Storm Event (mm)	Total Days Per Year	Incremental Precipitation (mm/yr)	Cummulative Precipitation (mm/yr)
0.2	83	16.7	16.7
5	33	166.5	183.2
10	18	179.0	362.2
25	3	86.5	448.7
Total	**138**	**448.7**	

Infiltration Deficit Target:	43450	m^3/yr	Target for Block 2
Area contributing to mitigation:	294913	m^2	assuming 90% of impervious area can be used for ponding
	147	mm/yr	
Runoff Coefficient for Impervious Area:	0.95		
Design Precipitation:	155	mm/yr	(Design Infiltration / Contributing RC)
Therefore Design Storm:	4.2	mm	

Project: Tullamore Lands
Project No: 2022-5842
Modelled By: IF
Date: 10-26-2023

Design Storm Determination - Block 2
*RICHMOND HILL - Climate Normals 1971-2000 Station Data
Water Balance/Water Budget Assessment

Days with Precipitation (From Climate Data)

	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
>= 0.2 mm	11	13	12.2	10.8	11.5	12.3	12.5	**83**
>= 5 mm	4.2	5.1	5.4	4.4	5	4.9	4.3	**33**
>= 10 mm	1.9	2.8	2.8	2.6	2.9	2.7	2.2	**18**
>= 25 mm	0.28	0.24	0.47	0.77	0.77	0.6	0.33	**3**

Available Precipitation

Storm Event (mm)	Total Days Per Year	Incremental Precipitation (mm/yr)	Cummulative Precipitation (mm/yr)
0.2	83	16.7	16.7
5	33	166.5	183.2
10	18	179.0	362.2
25	3	86.5	448.7
Total	**138**	**448.7**	

Infiltration Deficit Target:	13930	m^3/yr	Target for Block 2
Area contributing to mitigation:	79461	m^2	assuming 90% of impervious area can be used for ponding
	175	mm/yr	
Runoff Coefficient for Impervious Area:	0.95		
Design Precipitation:	185	mm/yr	(Design Infiltration / Contributing RC)
Therefore Design Storm:	5.0	mm	

Project: Tullamore Lands
Project No: 2022-5842
Modelled By: IF
Date: 10-26-2023

Design Storm Determination - Block 3
*RICHMOND HILL - Climate Normals 1971-2000 Station Data
Water Balance/Water Budget Assessment

Days with Precipitation (From Climate Data)

	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
>= 0.2 mm	11	13	12.2	10.8	11.5	12.3	12.5	**83**
>= 5 mm	4.2	5.1	5.4	4.4	5	4.9	4.3	**33**
>= 10 mm	1.9	2.8	2.8	2.6	2.9	2.7	2.2	**18**
>= 25 mm	0.28	0.24	0.47	0.77	0.77	0.6	0.33	**3**

Available Precipitation

Storm Event (mm)	Total Days Per Year	Incremental Precipitation (mm/yr)	Cummulative Precipitation (mm/yr)
0.2	83	16.7	16.7
5	33	166.5	183.2
10	18	179.0	362.2
25	3	86.5	448.7
Total	**138**	**448.7**	

Infiltration Deficit Target:	21604	m^3/yr	Target for Block 3
Area contributing to mitigation:	146634	m^2	assuming 90% of impervious area can be used for ponding
	147	mm/yr	
Runoff Coefficient for Impervious Area:	0.95		
Design Precipitation:	155	mm/yr	(Design Infiltration / Contributing RC)
Therefore Design Storm:	4.2	mm	

Project: Tullamore Lands
Project No: 2022-5842
Modelled By: IF
Date: 10-26-2023

Design Storm Determination - Block 4
*RICHMOND HILL - Climate Normals 1971-2000 Station Data
Water Balance/Water Budget Assessment

Days with Precipitation (From Climate Data)

	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
>= 0.2 mm	11	13	12.2	10.8	11.5	12.3	12.5	**83**
>= 5 mm	4.2	5.1	5.4	4.4	5	4.9	4.3	**33**
>= 10 mm	1.9	2.8	2.8	2.6	2.9	2.7	2.2	**18**
>= 25 mm	0.28	0.24	0.47	0.77	0.77	0.6	0.33	**3**

Available Precipitation

Storm Event (mm)	Total Days Per Year	Incremental Precipitation (mm/yr)	Cummulative Precipitation (mm/yr)
0.2	83	16.7	16.7
5	33	166.5	183.2
10	18	179.0	362.2
25	3	86.5	448.7
Total	**138**	**448.7**	

Infiltration Deficit Target:	22662	m^3/yr	Target for Block 4
Area contributing to mitigation:	153819	m^2	assuming 90% of impervious area can be used for ponding
	147	mm/yr	
Runoff Coefficient for Impervious Area:	0.95		
Design Precipitation:	155	mm/yr	(Design Infiltration / Contributing RC)
Therefore Design Storm:	4.2	mm	

Project: Tullamore Lands
Project No: 2022-5842
Modelled By: IF
Date: 10-26-2023

Design Storm Determination - Block 5
*RICHMOND HILL - Climate Normals 1971-2000 Station Data
Water Balance/Water Budget Assessment

Days with Precipitation (From Climate Data)

	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
>= 0.2 mm	11	13	12.2	10.8	11.5	12.3	12.5	**83**
>= 5 mm	4.2	5.1	5.4	4.4	5	4.9	4.3	**33**
>= 10 mm	1.9	2.8	2.8	2.6	2.9	2.7	2.2	**18**
>= 25 mm	0.28	0.24	0.47	0.77	0.77	0.6	0.33	**3**

Available Precipitation

Storm Event (mm)	Total Days Per Year	Incremental Precipitation (mm/yr)	Cummulative Precipitation (mm/yr)
0.2	83	16.7	16.7
5	33	166.5	183.2
10	18	179.0	362.2
25	3	86.5	448.7
Total	**138**	**448.7**	

Infiltration Deficit Target:	20831	m^3/yr	Target for Block 5
Area contributing to mitigation:	141386	m^2	assuming 90% of impervious area can be used for ponding
	147	mm/yr	
Runoff Coefficient for Impervious Area:	0.95		
Design Precipitation:	155	mm/yr	(Design Infiltration / Contributing RC)
Therefore Design Storm:	4.2	mm	

Project: Tullamore Lands
Project No: 2022-5842
Modelled By: IF
Date: 10-26-2023

Design Storm Determination - Block 7
*RICHMOND HILL - Climate Normals 1971-2000 Station Data
Water Balance/Water Budget Assessment

Days with Precipitation (From Climate Data)

	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
>= 0.2 mm	11	13	12.2	10.8	11.5	12.3	12.5	**83**
>= 5 mm	4.2	5.1	5.4	4.4	5	4.9	4.3	**33**
>= 10 mm	1.9	2.8	2.8	2.6	2.9	2.7	2.2	**18**
>= 25 mm	0.28	0.24	0.47	0.77	0.77	0.6	0.33	**3**

Available Precipitation

Storm Event (mm)	Total Days Per Year	Incremental Precipitation (mm/yr)	Cummulative Precipitation (mm/yr)
0.2	83	16.7	16.7
5	33	166.5	183.2
10	18	179.0	362.2
25	3	86.5	448.7
Total	**138**	**448.7**	

Infiltration Deficit Target:	21477	m^3/yr	Target for Block 7
Area contributing to mitigation:	145776	m^2	assuming 90% of impervious area can be used for ponding
	147	mm/yr	
Runoff Coefficient for Impervious Area:	0.95		
Design Precipitation:	155	mm/yr	(Design Infiltration / Contributing RC)
Therefore Design Storm:	4.2	mm	

Project: Tullamore Lands
Project No: 2022-5842
Modelled By: IF
Date: 10-26-2023

Design Storm Determination - Block 8
*RICHMOND HILL - Climate Normals 1971-2000 Station Data
Water Balance/Water Budget Assessment

Days with Precipitation (From Climate Data)

	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
>= 0.2 mm	11	13	12.2	10.8	11.5	12.3	12.5	**83**
>= 5 mm	4.2	5.1	5.4	4.4	5	4.9	4.3	**33**
>= 10 mm	1.9	2.8	2.8	2.6	2.9	2.7	2.2	**18**
>= 25 mm	0.28	0.24	0.47	0.77	0.77	0.6	0.33	**3**

Available Precipitation

Storm Event (mm)	Total Days Per Year	Incremental Precipitation (mm/yr)	Cummulative Precipitation (mm/yr)
0.2	83	16.7	16.7
5	33	166.5	183.2
10	18	179.0	362.2
25	3	86.5	448.7
Total	**138**	**448.7**	

Infiltration Deficit Target:	20564	m^3/yr	Target for Block 8
Area contributing to mitigation:	139579	m^2	assuming 90% of impervious area can be used for ponding
	147	mm/yr	
Runoff Coefficient for Impervious Area:	0.95		
Design Precipitation:	155	mm/yr	(Design Infiltration / Contributing RC)
Therefore Design Storm:	4.2	mm	

CROZIER CONSULTING ENGINEERS

Project Name: Tullamore Lands
Project No: 2022-5842
Modelled By: IF
Checked By: RA
Date: 26-Oct-2023

Water Budget - Pre-Development, Private Block 10
*RICHMOND HILL - Climate Normals 1971-2000 Station Data
Water Balance/Water Budget Assessment

Catchment Designation	Site - Post-Development			
	Pervious	Impervious	Totals	
Area (m^2)	21350	0	21350	
Pervious Area (m^2)	21350	0	21350	
Impervious Area (m^2)	0	0	0	
Infiltration Factors				
Topography Infiltration Factor	0.1	0.1		Hilly lands (average slope between 2.8%-4.7%)
Soil Infiltration Factor	0.2	0.2		Combination of clay and loam
Land Cover Infiltration Factor	0.1	0.1		Cultivated lands
MOE Infiltration Factor	0.4	0.4		
Actual Infiltration Factor	0.4	0		
Run-off Coefficient	0.25	0.95		
Runoff from Impervious Surfaces *	0	0.8		
Inputs (per Unit Area)				
Precipitation (mm/yr)	786	786	786	
Run-On (mm/yr)	0	0	0	
Other Inputs (mm/yr)	0	0	0	
Total Inputs (mm/yr)	**786**	**786**	**786**	
Outputs (per Unit Area)				
Precipitation Surplus (mm/yr)	333	629	333	
Net Surplus (mm/yr)	333	629	333	
Evapotranspiration (mm/yr) *	453	157	453	
Infiltration (mm/yr)	133	0	133	
Mitigation Infiltration (mm/yr)	0	0	0	
Total Infiltration (mm/yr)	133	0	133	
Runoff Pervious Areas (mm/yr)	200	0	200	
Runoff Impervious Areas (mm/yr)	0	629	0	
Total Runoff (mm/yr)	200	629	200	
Total Outputs (mm/yr)	**786**	**786**	**786**	
Difference (Inputs- Outputs)	**0**	**0**	**0**	
Inputs (Volumes)				
Precipitation (m^3/yr)	16781	0	16781	
Run-On (m^3/yr)	0	0	0	
Other Inputs (m^3/yr)	0	0	0	
Total Inputs (m^3/yr)	**16781**	**0**	**16781**	
Outputs (Volumes)				
Precipitation Surplus (m^3/yr)	7119	0	7119	
Net Surplus (m^3/yr)	7119	0	7119	
Evapotranspiration (m^3/yr) *	9662	0	9662	
Infiltration (m^3/yr)	2848	0	2848	
Soakaway Infiltration (m^3/yr)	0	0	0	
Total Infiltration (m^3/yr)	2848	0	2848	
Runoff Pervious Areas (m^3/yr)	4272	0	4272	
Runoff Impervious Areas (m^3/yr)	0	0	0	
Total Runoff (m^3/yr)	4272	0	4272	
Total Outputs (m^3/yr)	**16781**	**0**	**16781**	
Difference (Inputs- Outputs)	**0**	**0**	**0**	

NOTES:

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

CROZIER CONSULTING ENGINEERS

Project Name: Tullamore Lands
Project No: 2022-5842
Modelled By: IF
Checked By: RA
Date: 26-Oct-2023

Water Budget - Post-Development *without Mitigation* , Private Block 10
*RICHMOND HILL - Climate Normals 1971-2000 Station Data
Water Balance/Water Budget Assessment

Post-development area available for infiltration (landscaped/lawn area considered to infiltrate)
Post-development area not available for infiltration (total site area less landscaped area noted above)

Note: site land use areas consistent with Post-Development SWM hydrologic modeling & calculations

Catchment Designation	Site - Post-Development			
	Pervious	Impervious	Totals	
Area (m^2)	21350	0	21350	
Pervious Area (m^2)	21350	0	21350	
Impervious Area (m^2)	0	0	0	
Infiltration Factors				
Topography Infiltration Factor	0.1	0.1		Hilly lands (average slope between 2.8%-4.7%)
Soil Infiltration Factor	0.2	0.2		Combination of clay and loam
Land Cover Infiltration Factor	0.1	0.1		Cultivated lands
MOE Infiltration Factor	0.4	0.4		
Actual Infiltration Factor	0.4	0		
Run-off Coefficient	0.25	0.95		
Runoff from Impervious Surfaces *	0	0.8		
Inputs (per Unit Area)				
Precipitation (mm/yr)	786	786	786	
Run-On (mm/yr)	0	0	0	
Other Inputs (mm/yr)	0	0	0	
Total Inputs (mm/yr)	**786**	**786**	**786**	
Outputs (per Unit Area)				
Precipitation Surplus (mm/yr)	333	629	333	
Net Surplus (mm/yr)	333	629	333	
Evapotranspiration (mm/yr) *	453	157	453	
Infiltration (mm/yr)	133	0	133	
Mitigation Infiltration (mm/yr)	0	0	0	
Total Infiltration (mm/yr)	133	0	133	
Runoff Pervious Areas (mm/yr)	200	0	200	
Runoff Impervious Areas (mm/yr)	0	629	0	
Total Runoff (mm/yr)	200	629	200	
Total Outputs (mm/yr)	**786**	**786**	**786**	
Difference (Inputs- Outputs)	**0**	**0**	**0**	
Inputs (Volumes)				
Precipitation (m^3/yr)	16781	0	16781	
Run-On (m^3/yr)	0	0	0	
Other Inputs (m^3/yr)	0	0	0	
Total Inputs (m^3/yr)	**16781**	**0**	**16781**	
Outputs (Volumes)				
Precipitation Surplus (m^3/yr)	7119	0	7119	
Net Surplus (m^3/yr)	7119	0	7119	
Evapotranspiration (m^3/yr) *	9662	0	9662	
Infiltration (m^3/yr)	2848	0	2848	
Soakaway Infiltration (m^3/yr)	0	0	0	Pre-Development Total Infiltration:
Total Infiltration (m^3/yr)	2848	0	2848	2848 m^3/yr
Runoff Pervious Areas (m^3/yr)	4272	0	4272	
Runoff Impervious Areas (m^3/yr)	0	0	0	
Total Runoff (m^3/yr)	4272	0	4272	
Total Outputs (m^3/yr)	**16781**	**0**	**16781**	
Difference (Inputs- Outputs)	**0**	**0**	**0**	

NOTES:

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

CROZIER
CONSULTING ENGINEERS

Project Name: Tullamore Lands
Project No: 2022-5842
Modelled By: IF
Checked By: RA
Date: 26-Oct-2023

Water Budget - Pre-Development, Public Blocks
*RICHMOND HILL - Climate Normals 1971-2000 Station Data
Water Balance/Water Budget Assessment

Catchment Designation	Site - Post-Development			
	Pervious	Impervious	Totals	
Area (m^2)	624968	4232	629200	
Pervious Area (m^2)	624968	0	624968	
Impervious Area (m^2)	0	4232	4232	
Infiltration Factors				
Topography Infiltration Factor	0.1	0.1		Hilly lands (average slope between 2.8%-4.7%)
Soil Infiltration Factor	0.2	0.2		Combination of clay and loam
Land Cover Infiltration Factor	0.1	0.1		Cultivated Land
MOE Infiltration Factor	0.4	0.4		
Actual Infiltration Factor	0.4	0		
Run-off Coefficient	0.25	0.95		
Runoff from Impervious Surfaces *	0	0.8		
Inputs (per Unit Area)				
Precipitation (mm/yr)	786	786	786	
Run-On (mm/yr)	0	0	0	
Other Inputs (mm/yr)	0	0	0	
Total Inputs (mm/yr)	**786**	**786**	**786**	
Outputs (per Unit Area)				
Precipitation Surplus (mm/yr)	333	629	335	
Net Surplus (mm/yr)	333	629	335	
Evapotranspiration (mm/yr) *	453	157	451	
Infiltration (mm/yr)	133	0	132	
Mitigation Infiltration (mm/yr)	0	0	0	
Total Infiltration (mm/yr)	133	0	132	
Runoff Pervious Areas (mm/yr)	200	0	199	
Runoff Impervious Areas (mm/yr)	0	629	4	
Total Runoff (mm/yr)	200	629	203	
Total Outputs (mm/yr)	**786**	**786**	**786**	
Difference (Inputs- Outputs)	**0**	**0**	**0**	
Inputs (Volumes)				
Precipitation (m^3/yr)	491225	3326	494551	
Run-On (m^3/yr)	0	0	0	
Other Inputs (m^3/yr)	0	0	0	
Total Inputs (m^3/yr)	**491225**	**3326**	**494551**	
Outputs (Volumes)				
Precipitation Surplus (m^3/yr)	208403	2661	211064	
Net Surplus (m^3/yr)	208403	2661	211064	
Evapotranspiration (m^3/yr) *	282822	665	283487	
Infiltration (m^3/yr)	83361	0	83361	
Soakaway Infiltration (m^3/yr)	0	0	0	
Total Infiltration (m^3/yr)	83361	0	83361	
Runoff Pervious Areas (m^3/yr)	125042	0	125042	
Runoff Impervious Areas (m^3/yr)	0	2661	2661	
Total Runoff (m^3/yr)	125042	2661	127703	
Total Outputs (m^3/yr)	**491225**	**3326**	**494551**	
Difference (Inputs- Outputs)	**0**	**0**	**0**	

NOTES:

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

CROZIER CONSULTING ENGINEERS

Project Name: Tullamore Lands
Project No: 2022-5842
Modelled By: IF
Checked By: RA
Date: 26-Oct-2023

Water Budget - Post-Development *without Mitigation* , Public Blocks
*RICHMOND HILL - Climate Normals 1971-2000 Station Data
Water Balance/Water Budget Assessment

Post-development area available for infiltration (landscaped/lawn area considered to infiltrate)
Post-development area not available for infiltration (total site area less landscaped area noted above)

Note: site land use areas consistent with Post-Development SWM hydrologic modeling & calculations

Catchment Designation	Site - Post-Development			
	Pervious	Impervious	Totals	
Area (m^2)	550930	78271	629200	
Pervious Area (m^2)	550930	0	550930	
Impervious Area (m^2)	0	78271	78271	
Infiltration Factors				
Topography Infiltration Factor	0.1	0.1		Hilly lands (average slope between 2.8%-4.7%)
Soil Infiltration Factor	0.2	0.2		Combination of clay and loam
Land Cover Infiltration Factor	0.1	0.1		Cultivated Land (under existing conditions)
MOE Infiltration Factor	0.4	0.4		
Actual Infiltration Factor	0.4	0		
Run-off Coefficient	0.25	0.95		
Runoff from Impervious Surfaces *	0	0.8		
Inputs (per Unit Area)				
Precipitation (mm/yr)	786	786	786	
Run-On (mm/yr)	0	0	0	
Other Inputs (mm/yr)	0	0	0	
Total Inputs (mm/yr)	**786**	**786**	**786**	
Outputs (per Unit Area)				
Precipitation Surplus (mm/yr)	333	629	370	
Net Surplus (mm/yr)	333	629	370	
Evapotranspiration (mm/yr) *	453	157	416	
Infiltration (mm/yr)	133	0	117	
Mitigation Infiltration (mm/yr)	0	0	0	
Total Infiltration (mm/yr)	133	0	117	
Runoff Pervious Areas (mm/yr)	200	0	175	
Runoff Impervious Areas (mm/yr)	0	629	78	
Total Runoff (mm/yr)	200	629	253	
Total Outputs (mm/yr)	**786**	**786**	**786**	
Difference (Inputs- Outputs)	**0**	**0**	**0**	
Inputs (Volumes)				
Precipitation (m^3/yr)	433031	61521	494551	
Run-On (m^3/yr)	0	0	0	
Other Inputs (m^3/yr)	0	0	0	
Total Inputs (m^3/yr)	**433031**	**61521**	**494551**	
Outputs (Volumes)				
Precipitation Surplus (m^3/yr)	183714	49216	232930	
Net Surplus (m^3/yr)	183714	49216	232930	
Evapotranspiration (m^3/yr) *	249317	12304	261621	
Infiltration (m^3/yr)	73486	0	73486	
Soakaway Infiltration (m^3/yr)	0	0	0	Pre-Development Total Infiltration:
Total Infiltration (m^3/yr)	73486	0	73486	83361 m^3/yr
Runoff Pervious Areas (m^3/yr)	110228	0	110228	
Runoff Impervious Areas (m^3/yr)	0	49216	49216	
Total Runoff (m^3/yr)	110228	49216	159445	
Total Outputs (m^3/yr)	**433031**	**61521**	**494551**	
Difference (Inputs- Outputs)	**0**	**0**	**0**	

NOTES:

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

Project: Tullamore Lands
Project No: 2022-5842
Modelled By: IF
Date: 10-26-2023

Design Storm Determination - ROW
*RICHMOND HILL - Climate Normals 1971-2000 Station Data
Water Balance/Water Budget Assessment

Days with Precipitation (From Climate Data)

	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
>= 0.2 mm	11	13	12.2	10.8	11.5	12.3	12.5	**83**
>= 5 mm	4.2	5.1	5.4	4.4	5	4.9	4.3	**33**
>= 10 mm	1.9	2.8	2.8	2.6	2.9	2.7	2.2	**18**
>= 25 mm	0.28	0.24	0.47	0.77	0.77	0.6	0.33	**3**

Available Precipitation

Storm Event (mm)	Total Days Per Year	Incremental Precipitation (mm/yr)	Cummulative Precipitation (mm/yr)
0.2	83	16.7	16.7
5	33	166.5	183.2
10	18	179.0	362.2
25	3	86.5	448.7
Total	**138**	**448.7**	

Infiltration Deficit Target:	9876	m^3/yr	Target for ROW
Area contributing to mitigation:	61159	m^2	Assuming all impervious area within the ROW can be directed to LIDs
	161	mm/yr	
Runoff Coefficient for Impervious Area:	0.95		
Design Precipitation:	170	mm/yr	(Design Infiltration / Contributing RC)
Therefore Design Storm:	4.5	mm	

Project:	**Tullamore**
Project #:	2022-5842
Designed By:	J.Scott
Date:	30-Oct-2023

Infiltration Gallery - LID

Infiltration Rate

Clayey 3.55 mm/hr

*Infiltration trench will penetrate the soils

Infiltration rate at the proposed bottom elevation of the infiltration gallery must be divided by a safety correction factor:

Ratio of mean measured infiltration rates = 3.55 / 3.55

= 1 therefore, safety correction factor is ----------> **0**

(Table C 3, Appendix C, Stormwater Management Criteria, TRCA, August 2012)

Design infiltration Rate determined by dividing mean infiltration rate at bottom of infiltration gallery by the safety correction factor:

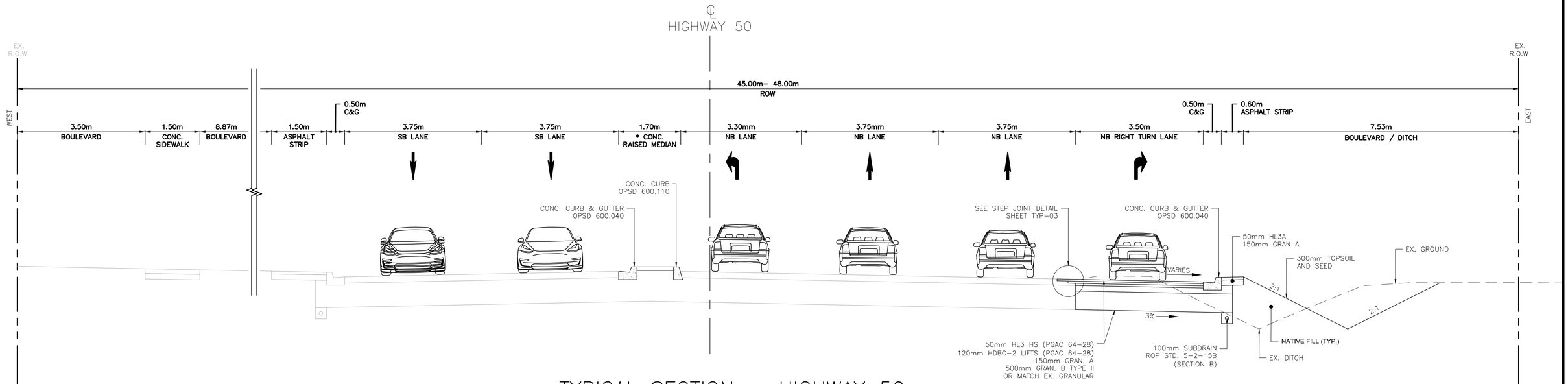
Design Infiltration Rate = 3.6 mm/hr

0.00010 cm/s

Maximum depth of storage determined by multiplying design infiltration rate desired drawdown time of 48hr divided by void ratio of 40%:

Maximum depth of storage= 0.43 m

Depth used for facility sizing= 0.40 m

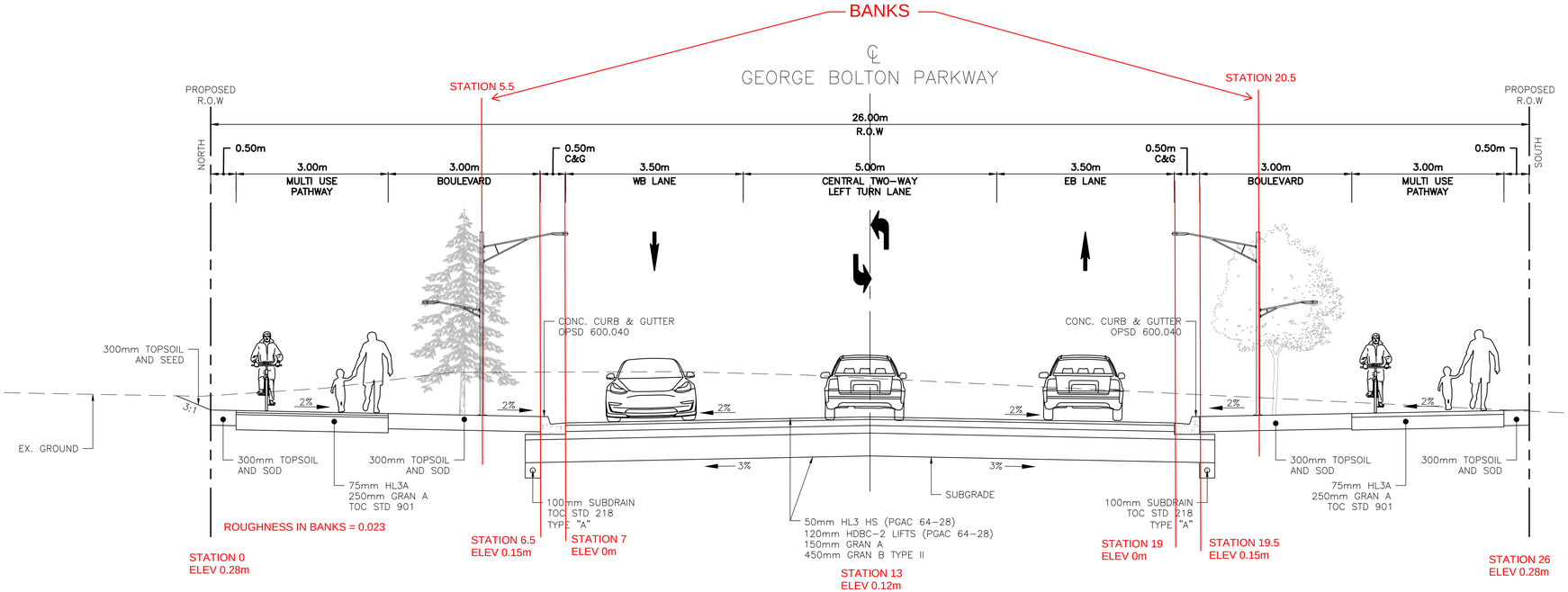


TYPICAL SECTION – HIGHWAY 50

STA. 9+821.457 TO STA. 10+067.327

* SOUTH = STA. 9+947.938 TO STA. 9+978.688

* NORTH = STA. 10+020.177 TO STA. 10+067.327



TYPICAL SECTION – GEORGE BOLTON PARKWAY

STA. 1+026.81 TO STA. 1+541.60

LANDSCAPING = 27%

NOTE: ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE NOTED.

NO.	BY	DATE	REVISION	CONS. CHECKED	TOWN APPR'D
1	A.I.	22/04/22	60% DESIGN REVIEW SUBMISSION		

APPROVED FOR CONSTRUCTION

THIS APPROVAL CONSTITUTES A GENERAL REVIEW AND DOES NOT CERTIFY DIMENSIONAL ACCURACY.

THIS APPROVAL IS SUBJECT TO THE FURTHER CERTIFICATION OF THE "AS RECORDED" WORKS BY A REGISTERED PROFESSIONAL ENGINEER OF THE PROVINCE OF ONTARIO.

DATE :_____ APPROVED BY:_____

MANAGER OF ENGINEERING SERVICES

BENCH MARK:

ENGINEER'S STAMP

PROJECT NAME

GEORGE BOLTON PARKWAY EXTENSION

CONSULTANT

BURNSIDE

R.J. Burnside & Associates Limited
6990 Creditview Road, Unit 2
Mississauga, Ontario, L5N 8R9
telephone (905) 821-1800
fax (905) 821-1809
web www.rjburnside.com

REGION OF PEEL

TOWN OF CALEDON

GEORGE BOLTON PARKWAY / HIGHWAY 50

TYPICAL CROSS SECTIONS

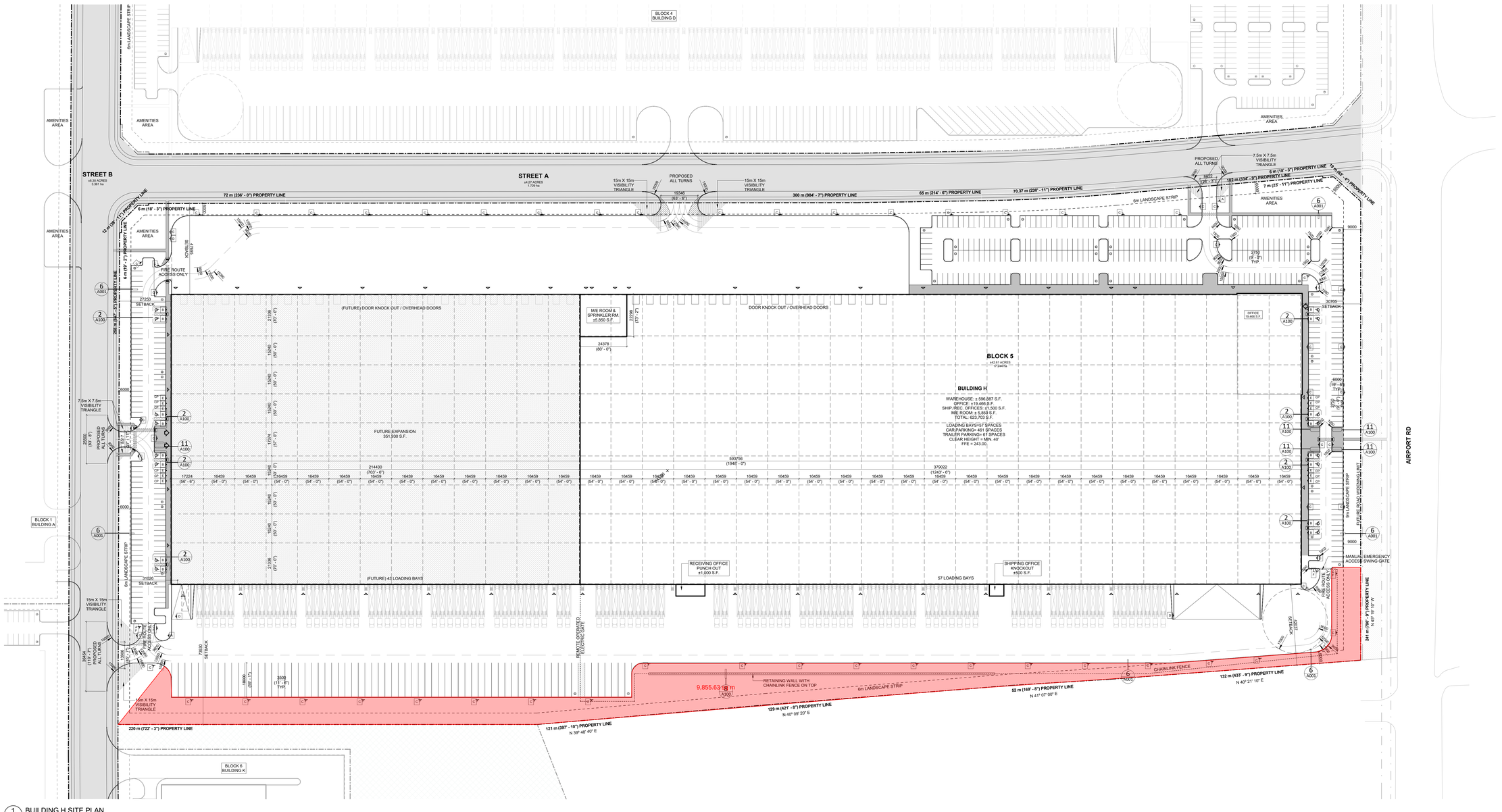
SCALE: N.T.S.			PROJECT No. 300052765
DESIGNED BY: R.B.	DRAWN BY: R.B.		DRAWING No. TYP–01
CHECKED BY: A.I.	DATE: 2021/05/19		SHEET No. 46 OF 94

Plotted – April 21, 2022 File: \\moniy\Shared Work Areas\052765 George Bolton Ext\03_Production\dwg\10–052765–Typical_Cross_Sections.dwg



KEY MAP

N.T.S.



1 BUILDING H SITE PLAN
BH-A101 1 : 750

2023-10-05 3:22:27 PM

TURNER FLEISCHER

Turner Fleischer Architects Inc.

67 Lesmill Road
Toronto, ON, M3B 2T8
T 416 425 2222
turnerfleischer.com

This drawing, as an instrument of service, is provided by and is the property of Turner Fleischer Architects Inc. The contractor must verify and accept responsibility for all dimensions and conditions on site and must notify Turner Fleischer Architects Inc. of any variations from the supplied information. This drawing is not to be scaled. The architect is not responsible for the accuracy of any reproduction, electrical, mechanical, electronic, etc., information shown on this drawing. Refer to the appropriate consultant's drawings before proceeding with the work. Construction must conform to all applicable codes and requirements of authorities having jurisdiction. The contractor working from drawings not specifically marked for Construction must assume full responsibility and bear costs for any corrections or damages resulting from his work.

LEGEND

- PROPOSED ENTRANCE ARROW
- PROPOSED EXIT ARROW
- PROPOSED FIRE HYDRANT
- PROPOSED SIAMESE CONNECTION
- PROPOSED SIGN
- PROPOSED FIRE & TRUCK ROUTE (HEAVY DUTY ASPHALT)
- PROPOSED CONCRETE SIDEWALK

#	DATE	DESCRIPTION	BY
6	2023-09-29	ISSUED FOR COORDINATION (A1-108-SPA)	RLA
5	2023-09-07	ISSUED FOR COORDINATION (A1-104-SPA)	RLA
3	2023-02-27	ISSUED FOR COORDINATION (A1-82-SPA)	RLA
2	2023-02-02	ISSUED FOR COORDINATION (A1-81)	RLA
1	2023-01-03	ISSUED FOR COORDINATION (A1-79)	RLA

RICE GROUP

PROJECT
PROPOSED WAREHOUSE
TULLAMORE LANDS, CALEDON, ON

DRAWING
BUILDING H - SPA SITE PLAN

PROJECT NO. 20.302
PROJECT DATE 2022-12-05
DRAWN BY RLA
CHECKED BY JJJ
SCALE As indicated

DRAWING NO. BH-A101

FIGURES



LEGEND

- PROPERTY LINE
- GREENBELT BOUNDARY
- PROPOSED SANITARY DRAINAGE CATCHMENT
- EXISTING SANITARY SEWER & MANHOLE
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY SEWER (BY OTHERS)
- WOODLOT PER GEI
- WOODLOT PER + 30m PER GEI
- CREST OF SLOPE PER GEI
- CREST OF SLOPE + 10m PER GEI
- LONG TERM STABLE SLOPE+10m SETBACK PER GEI
- SANITARY BLOCK OUTLET
- ID / A P — CATCHMENT I.D. / AREA (ha) / POPULATION PER BUILDING AREA

SCALE: 1:2500

No.	ISSUE / REVISION	YYYY/MMM/DD
2	RE-ISSUED FOR DPOS & OPA	2023/OCT/30
1	RE-ISSUED FOR DPOS & OPA	2023/APR/06
0	ISSUED FOR DPOS, OPA & ZBA	2021/JUN/29

Stamp

FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

BEARING NOTE:

BEARINGS ARE UTM GRID, DERIVED FROM GPS OBSERVATION USING THE "TOPNET" GPS NETWORK OBSERVATIONS, UTM ZONE 17, NAD83 (CSRS) (2010.0) & (1997.0).

SURVEY COMPLETED BY YOUNG & YOUNG SURVEYING INC. & J.G.BARNES LIMITED DATED 2021/OCT/07, 2021/OCT/14 & 2018/NOV/28, PROJECT Nos. 21-B7601-4, 21-B7601-5 & 18-30-308-00-A.

EXISTING GROUND CONTOURS OUTSIDE OF SITE LIMITS AND INSIDE EXISTING FLOOD PLAIN BASED ON LIDAR SURVEY FROM EQUATORSTUDIOS.

ELEVATION NOTE:

ELEVATIONS HEREON ARE GEODETIC IN ORIGIN AND WERE DERIVED FROM GPS OBSERVATIONS USING THE "TOPNET" GPS NETWORK AND ARE REFERRED TO THE CGVD-1928: 1978 DATUM.

ELEVATION HEREON ARE GEODETIC IN ORIGIN AND WERE DERIVED FROM CITY OF BRAMPTON MONUMENT No. 042200365 (NAD ADJUSTMENT) HAVING A PUBLISHED ELEVATION OF 242.135m.

SITE BENCHMARK:

A NAIL HAVING ELEVATION 241.24m WAS SET 12.12m EAST OF THE SOUTHEAST CORNER OF THE PROPERTY ALONG AIRPORT ROAD.

A CUT CROSS HAVING ELEVATION 242.51m WAS SET ON THE NORTHEAST CORNER OF THE INTERSECTION BETWEEN MAYFIELD ROAD AND TORBRAM ROAD

DRAFT PLAN NOTES:

DESIGN ELEMENTS ARE BASED ON DRAFT PLAN BY WESTON CONSULTING INC.
DRAWING No.: D3
FILE No.: 10208

DRAWING NOTES:

THIS DRAWING IS THE EXCLUSIVE PROPERTY OF C.F. CROZIER & ASSOCIATES INC. AND THE REPRODUCTION OF ANY PART OF IT WITHOUT PRIOR WRITTEN CONSENT OF THIS OFFICE IS STRICTLY PROHIBITED.

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LEVELS, AND DATUMS ON SITE AND REPORT ANY DISCREPANCIES OR OMISSIONS TO THIS OFFICE PRIOR TO CONSTRUCTION.

THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT. DO NOT SCALE THIS DRAWING.

ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

Project

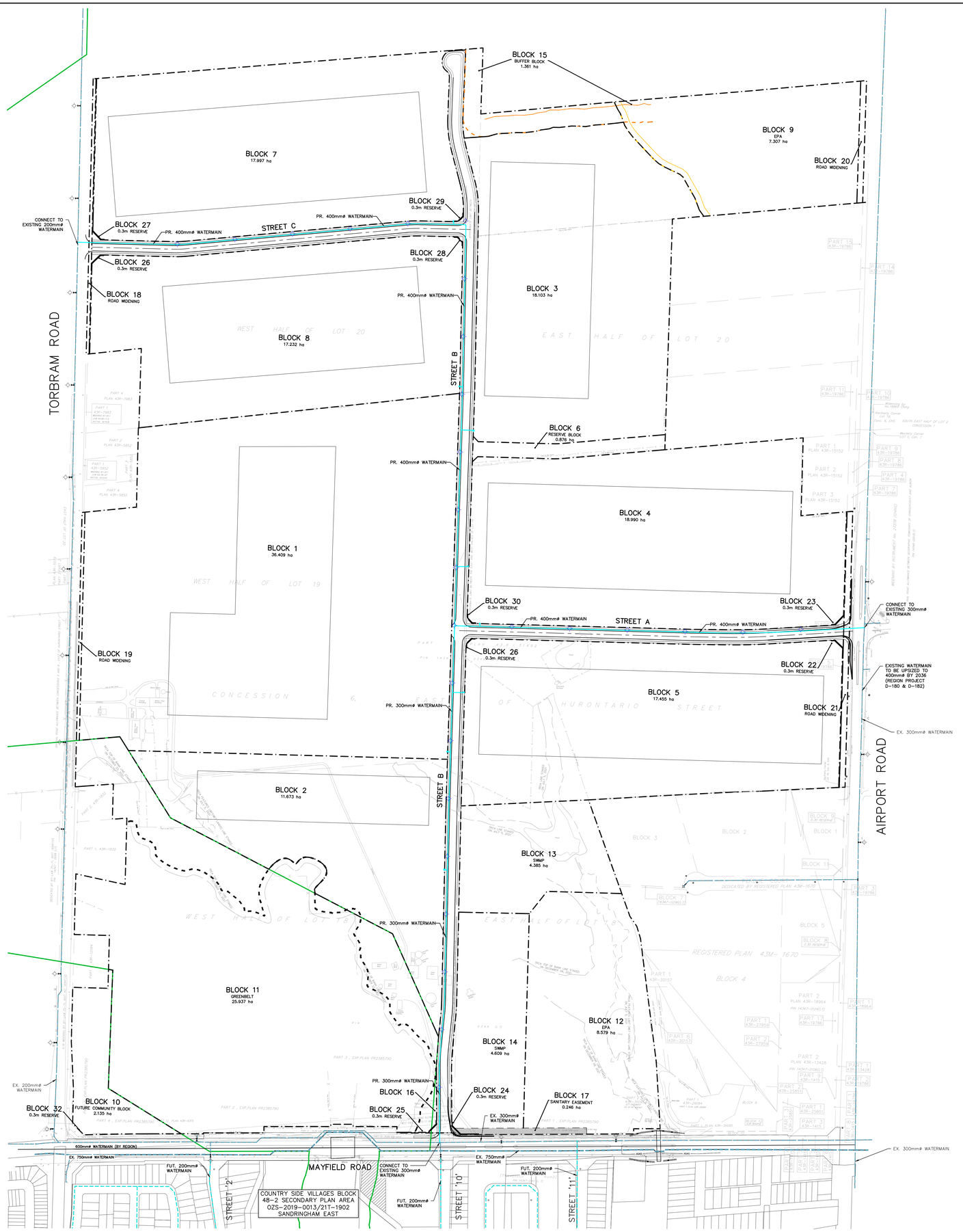
TULLAMORE LANDS
TOWN OF CALEDON

Drawing

SANITARY DRAINAGE AREA PLAN

CROZIER CONSULTING ENGINEERS
2800 High Point Drive
Suite 100
Milton, ON L9T 6P4
905-875-0026 T
905-875-4915 F
www.cfcrozier.ca

Drawn	V.M./L.E.	Design	A.S./A.D.F.	Project No.	2022-5842
Check	J.S.	Check	R.S.A.	Scale	1:2500
				Dwg.	FIG-1





LEGEND

- PROPERTY LINE
- GREENBELT BOUNDARY
- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- WOODLOT PER GEI
- WOODLOT PER + 30m PER GEI
- CREST OF SLOPE PER GEI
- CREST OF SLOPE + 10m PER GEI
- LONG TERM STABLE SLOPE+10m SETBACK PER GEI

SCALE: 1:2500

No.	ISSUE / REVISION	YYYY/MMM/DD
2	RE-ISSUED FOR DPOS & OPA	2023/OCT/30
1	RE-ISSUED FOR DPOS & OPA	2023/APR/06
0	ISSUED FOR DPOS, OPA & ZBA	2021/JUN/29

Stamp

FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

BEARING NOTE:

BEARINGS ARE UTM GRID, DERIVED FROM GPS OBSERVATION USING THE "TOPNET" GPS NETWORK OBSERVATIONS, UTM ZONE 17, NAD83 (CSRS) (2010.0) & (1997.0).

SURVEY COMPLETED BY YOUNG & YOUNG SURVEYING INC. & J.D.BARNES LIMITED DATED 2021/OCT/07, 2021/OCT/14 & 2018/NOV/28. PROJECT Nos. 21-B7601-4, 21-B7601-5 & 18-30-308-00-A.

EXISTING GROUND CONTOURS OUTSIDE OF SITE LIMITS AND INSIDE EXISTING FLOOD PLAIN BASED ON LIDAR SURVEY FROM EQUATORSTUDIOS.

ELEVATION NOTE:

ELEVATIONS HEREON ARE GEODETIC IN ORIGIN AND WERE DERIVED FROM GPS OBSERVATIONS USING THE "TOPNET" GPS NETWORK AND ARE REFERRED TO THE CGVD-1928: 1978 DATUM.

ELEVATION HEREON ARE GEODETIC IN ORIGIN AND WERE DERIVED FROM CITY OF BRAMPTON MONUMENT No. 042200365 (NAD ADJUSTMENT) HAVING A PUBLISHED ELEVATION OF 242.135m.

SITE BENCHMARK:

A NAIL HAVING ELEVATION 241.24m WAS SET 12.12m EAST OF THE SOUTHEAST CORNER OF THE PROPERTY ALONG AIRPORT ROAD.

A CUT CROSS HAVING ELEVATION 242.51m WAS SET ON THE NORTHEAST CORNER OF THE INTERSECTION BETWEEN MAYFIELD ROAD AND TORBRAM ROAD

DRAFT PLAN NOTES:

DESIGN ELEMENTS ARE BASED ON DRAFT PLAN BY WESTON CONSULTING INC.
DRAWING No.: 13
FILE No.: 10208

DRAWING NOTES:

THIS DRAWING IS THE EXCLUSIVE PROPERTY OF C.F. CROZIER & ASSOCIATES INC. AND THE REPRODUCTION OF ANY PART OF IT WITHOUT PRIOR WRITTEN CONSENT OF THIS OFFICE IS STRICTLY PROHIBITED.

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LEVELS, AND DATUMS ON SITE AND REPORT ANY DISCREPANCIES OR OMISSIONS TO THIS OFFICE PRIOR TO CONSTRUCTION.

THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT. DO NOT SCALE THIS DRAWING.

ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

Project

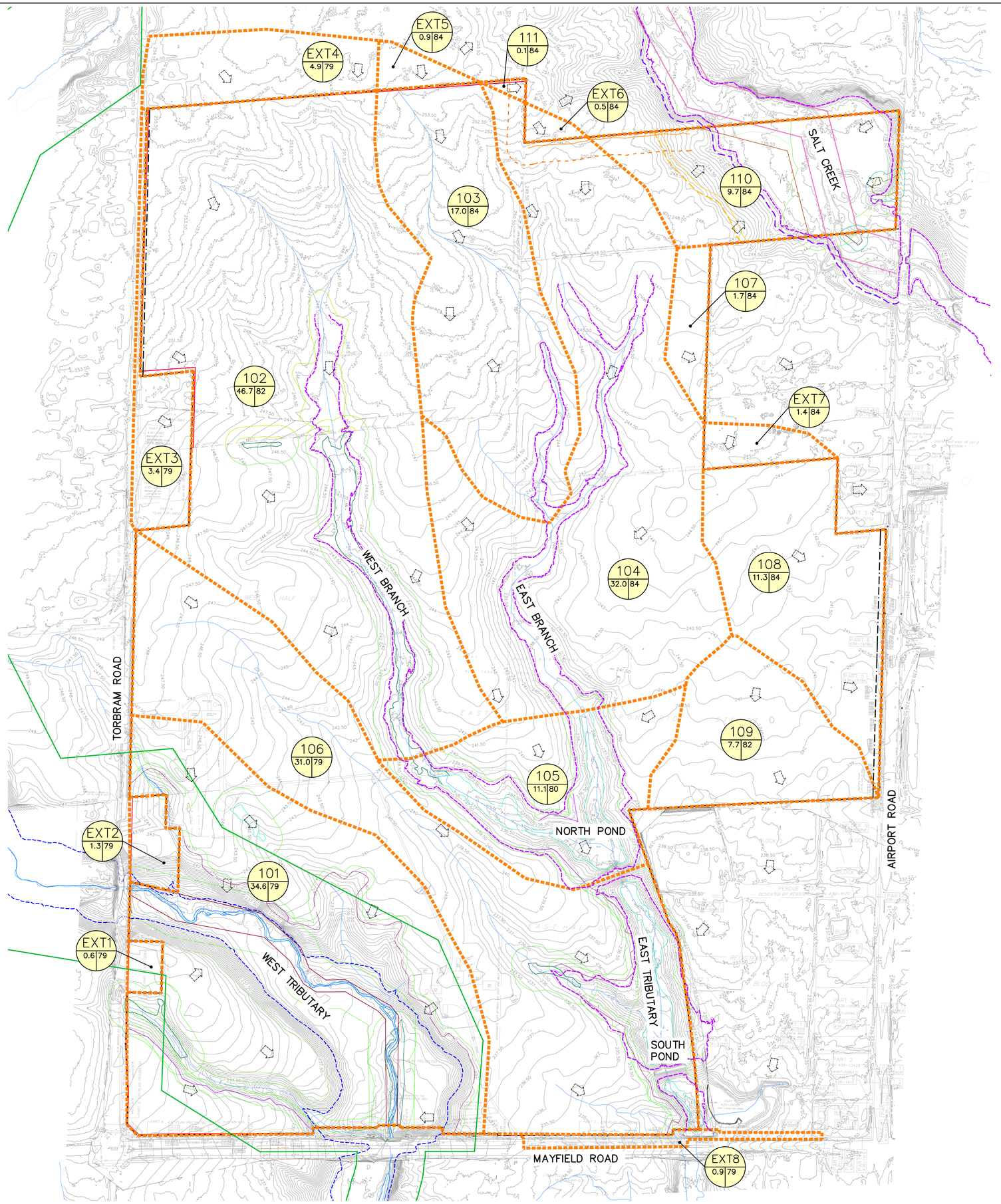
TULLAMORE LANDS
TOWN OF CALEDON

Drawing

WATER DISTRIBUTION PLAN

CROZIER
CONSULTING ENGINEERS
2800 High Point Drive
Suite 100
Milton, ON L9T 6P4
905-875-0026 T
905-875-4915 F
www.cfcrozier.ca

Drawn	V.M./L.E.	Design	A.S./A.D.F	Project No.	2022-5842
Check	D.L./J.S.	Check	D.L./J.S.	Scale	1:3000
				Dwg	FIG-2





LEGEND

- PROPERTY LINE
- EXISTING CONTOUR (0.5m)
- EXISTING STORM DRAINAGE CATCHMENT
- GREENBELT BOUNDARY
- WATER FEATURE AND DRAINAGE
- REGIONAL ENGINEERED FLOODPLAIN (TRCA, 2021)
- REGIONAL STORM FLOOD LINE (CROZIER, 2023)
- REGIONAL FLOODPLAIN 10m BUFFER (CROZIER, 2023)
- STAKED DRIPLINE (GEI, 2023)
- WETLAND +30m (GEI, 2023)
- WETLAND LIMIT, NOT STAKED (GEI 2023)
- STAKED WETLAND (GEI 2023)
- MEANDER BELT (GEI, 2023)
- MEANDER BELT +30m (GEI 2023)
- TRCA STAKED NATURAL FEATURES/STABLE TOP OF SLOPE (GEI, 2023)
- STAKED NATURAL FEATURES +30m (GEI 2023)
- WOODLOT PER GEI
- WOODLOT PER + 30m PER GEI
- CREST OF SLOPE PER GEI
- CREST OF SLOPE + 10m PER GEI
- LONG TERM STABLE SLOPE+10m SETBACK PER GEI
- EXISTING OVERLAND FLOW DIRECTION
- ID — CATCHMENT I.D.
- AREA (Ha) | SCS CURVE NUMBER

50 0 50 100 150 200
SCALE: 1:2500

No.	ISSUE / REVISION	YYYY/MMM/DD
2	RE-ISSUED FOR DPOS & OPA	2023/OCT/30
1	RE-ISSUED FOR DPOS & OPA	2023/APR/06
0	ISSUED FOR DPOS, OPA & ZBA	2021/JUN/29

Stamp

FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

Stamp

BEARING NOTE:

BEARINGS ARE UTM GRID, DERIVED FROM GPS OBSERVATION USING THE "TOPNET" GPS NETWORK OBSERVATIONS, UTM ZONE 17, NAD83 (CSRS) (2010.0) & (1997.0).

SURVEY COMPLETED BY YOUNG & YOUNG SURVEYING INC. & J.D.BARNES LIMITED DATED 2021/OCT/07, 2021/OCT/14 & 2018/NOV/28, PROJECT Nos. 21-87601-4, 21-87601-5 & 18-30-308-00-A.

EXISTING GROUND CONTOURS OUTSIDE OF SITE LIMITS AND INSIDE EXISTING FLOOD PLAIN BASED ON LIDAR SURVEY FROM EQUATORSTUDIOS.

ELEVATION NOTE:

ELEVATIONS HEREON ARE GEODETIC IN ORIGIN AND WERE DERIVED FROM GPS OBSERVATIONS USING THE "TOPNET" GPS NETWORK AND ARE REFERRED TO THE CGVD-1928: 1978 DATUM.

ELEVATION HEREON ARE GEODETIC IN ORIGIN AND WERE DERIVED FROM CITY OF BRAMPTON MONUMENT No. 042200365 (NAD ADJUSTMENT) HAVING A PUBLISHED ELEVATION OF 242.135m.

SITE BENCHMARK:

A NAIL HAVING ELEVATION 241.24m WAS SET 12.12m EAST OF THE SOUTHEAST CORNER OF THE PROPERTY ALONG AIRPORT ROAD.

A CUT CROSS HAVING ELEVATION 242.51m WAS SET ON THE NORTHEAST CORNER OF THE INTERSECTION BETWEEN MAYFIELD ROAD AND TORBRAM ROAD

DRAFT PLAN NOTES:

DESIGN ELEMENTS ARE BASED ON DRAFT PLAN BY WESTON CONSULTING INC.
DRAWING No.: D3
FILE No.: 10208

DRAWING NOTES:

THIS DRAWING IS THE EXCLUSIVE PROPERTY OF C.F. CROZIER & ASSOCIATES INC. AND THE REPRODUCTION OF ANY PART OF IT WITHOUT PRIOR WRITTEN CONSENT OF THIS OFFICE IS STRICTLY PROHIBITED.

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LEVELS, AND DATUMS ON SITE AND REPORT ANY DISCREPANCIES OR OMISSIONS TO THIS OFFICE PRIOR TO CONSTRUCTION.

THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT. DO NOT SCALE THIS DRAWING.

ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

Project

TULLAMORE LANDS
TOWN OF CALEDON

Drawing

PRE-DEVELOPMENT DRAINAGE PLAN

CROZIER CONSULTING ENGINEERS
2800 High Point Drive
Suite 100
Milton, ON L9T 6P4
905-875-0026 T
905-875-4915 F
www.cfcrozier.ca

Drawn	L.E.	Design	I.F.	Project No.	2022-5842
Check	I.F.	Check	R.S.A.	Scale	1:2500
				Dwg.	FIG 3

EXT5 0.9 | 84
EXT4 4.9 | 79
203 0.8 | 84
220 1.4 | 84
BLOCK 15 BUFFER BLOCK 0.788 ha
EXT6 0.5 | 84
219 7.5 | 84
BLOCK 9 EPA
SALT CREEK
BLOCK 20 ROAD WIDENING
202 18.1 | 82 1142
BLOCK 7
204 1.7 | 82
BLOCK 27 0.3m RESERVE
BLOCK 26 0.3m RESERVE
BLOCK 18 ROAD WIDENING
STREET C
BLOCK 29 0.3m RESERVE
BLOCK 28 0.3m RESERVE
206 6.04 | 84 1183
BLOCK 3
205 17.3 | 83 1101
WEST HALF OF LOT 20
BLOCK 8
EAST HALF OF LOT 20
CATCHMENT 221 (PARKING LOT AND/OR ROOF AREA REDIRECTED TO SALT CREEK DURING THE REGIONAL STORM EVENT ONLY)
AREA REQUIRED: 12.06 ha
CN = 84
NOTE: TOTAL AREA (PARKING LOT AND/OR ROOF) REDIRECTED TO SALT CREEK DURING THE REGIONAL EVENT TO BE CONFIRMED DURING DETAILED DESIGN OF BLOCK 3
EXT3B 2.0 | 79
STREET B
222 0.9 | 84
EXT7 1.4 | 84
207 1.8 | 84
EXT3A 1.4 | 79
210 36.6 | 80 2230
BLOCK 1
208 19.2 | 84 1197
BLOCK 4
TORBRAM ROAD
BLOCK 31 0.3m RESERVE
BLOCK 23 0.3m RESERVE
STREET A
BLOCK 19 ROAD WIDENING
CATCHMENT 201 (ROOF REDIRECTION TO THE WEST TRIBUTARY DURING THE 2-YEAR TO 100-YEAR EVENTS ONLY, AREA DIRECTED TO POND DURING THE REGIONAL STORM)
MINIMUM AREA REQUIRED = 1.39ha
CN = 79
NOTE: ROOF AREA REDIRECTED TO THE WEST TRIBUTARY TO BE CONFIRMED DURING DETAILED DESIGN OF BLOCK 2
211 0.9 | 81
BLOCK 26 0.3m RESERVE
BLOCK 22 0.3m RESERVE
209 1.8 | 84
BLOCK 1
CONCESSION 6, EAST OF HURONTARIO STREET
BLOCK 5
212 16.72 | 84 1079
BLOCK 21 ROAD WIDENING
AIRPORT ROAD
CLEAN WATER FROM THE ROOFTOP IN BLOCK 5 MAY OUTLET DIRECTLY TO EPA BLOCK 12. ROOFTOP OUTLETS FOR BLOCK 5 WILL BE FURTHER REFINED DURING DETAILED DESIGN.
EXT2 1.3 | 79
BLOCK 2
STREET B
214 9.81 | 79 624
BLOCK 13 SWMP
WETLAND 1
213 4.3 | 79
CATCHMENT 223
0.98 ha OF LANDSCAPE AREA TO DRAIN NORTH INTO THE NEIGHBORING PROPERTY (MIMICKING EX CONDITIONS) APPROX. AREA BASED ON CURRENT SITE PLAN TO BE REFINED AT DETAILED DESIGN.
CN = 79
WEST TRIBUTARY
EXT1 0.6 | 79
BLOCK 11 GREENBELT
200 28.2 | 79
215 1.9 | 81
216 4.7 | 79
217 8.0 | 79
BLOCK 12 EPA
BLOCK 14 SWMP
DRY POND
WETLAND 2
BLOCK 16
BLOCK 32 0.3m RESERVE
BLOCK 10 HERITAGE HOUSE
BLOCK 25 0.3m RESERVE
BLOCK 24 0.3m RESERVE
218 0.8 | 79
EAST TRIBUTARY
BLOCK 17 SANITARY EASEMENT
EXT9 0.9 | 79
MAYFIELD ROAD
STREET 2
STREET 10
STREET 11
COUNTRY SIDE VILLAGES BLOCK 48-2 SECONDARY PLAN AREA OZS-2019-0013/21T-1902 SANDRINGHAM EAST



LEGEND

- PROPERTY LINE
- GREENBELT BOUNDARY
- REGIONAL ENGINEERED FLOODPLAIN (TRCA, 2021)
- REGIONAL PROPOSED FLOODPLAIN (CROZIER, 2023)
- WOODLOT PER GEI
- WOODLOT PER + 30m PER GEI
- CREST OF SLOPE PER GEI
- CREST OF SLOPE + 10m PER GEI
- LONG TERM STABLE SLOPE+10m SETBACK PER GEI
- EXISTING OVERLAND FLOW DIRECTION
- PROPOSED OVERLAND FLOW DIRECTION
- INTERNAL PROPOSED DRAINAGE AREA
- EXISTING EXTERNAL DRAINAGE AREA
- ID / A | CN — CATCHMENT I.D. / AREA (Ha) | SCS CURVE NUMBER
- ID / A | CN / Q — CATCHMENT I.D. / AREA (Ha) | SCS CURVE NUMBER / ALLOWABLE RELEASE RATE (L/s)

THIS DRAINAGE PLAN WAS CREATED WITH THE ASSUMPTION THAT THE EXISTING PONDS IN THE EAST TRIBUTARY CAN BE REMOVED/REPLACED.

*NOTE: THE ALLOWABLE RELEASE RATE FOR BLOCK 3 IS BASED ON THE TOTAL AREA FOR BLOCK 3 (CATCHMENT 206 + CATCHMENT 221 = 18.1 ha) SINCE CATCHMENT 221 IS CAPTURED BY THE STORM SEWER SYSTEM WITIN THE BLOCK DURING THE DESIGN STORM EVENTS (2-YEAR TO 100-YEAR STORMS) AND DIRECTED TO THE SWM FACILITIES. FLOWS FROM CATCHMENT 221 ARE ONLY DIRECTED TO SALT CREEK DURING THE REGIONAL STORM EVENT.

50 0m 50 100 150 200
SCALE 1:2500

No.	ISSUE / REVISION	YYYY/MMM/DD
2	RE-ISSUED FOR DPOS & OPA	2023/OCT/30
1	RE-ISSUED FOR DPOS & OPA	2023/APR/05
0	ISSUED FOR DPOS, OPA & ZBA	2021/JUN/29

Stamp: FOR REVIEW — NOT TO BE USED FOR CONSTRUCTION

BEARING NOTE:
BEARINGS ARE UTM GRID, DERIVED FROM GPS OBSERVATION USING THE "TOPNET" GPS NETWORK OBSERVATIONS, UTM ZONE 17, NAD83 (CSRS) (2010.0) & (1997.0).

SURVEY COMPLETED BY YOUNG & YOUNG SURVEYING INC. & J.D.BARNES LIMITED DATED 2021/OCT/07, 2021/OCT/14 & 2018/NOV/28, PROJECT Nos. 21-87601-4, 21-87601-5 & 18-30-308-00-A.

EXISTING GROUND CONTOURS OUTSIDE OF SITE LIMITS AND INSIDE EXISTING FLOOD PLAIN BASED ON LIDAR SURVEY FROM EQUATORSTUDIOS.

ELEVATION NOTE:
ELEVATIONS HEREON ARE GEODETIC IN ORIGIN AND WERE DERIVED FROM GPS OBSERVATIONS USING THE "TOPNET" GPS NETWORK AND ARE REFERRED TO THE CGVD-1928: 1978 DATUM.

ELEVATION HEREON ARE GEODETIC IN ORIGIN AND WERE DERIVED FROM CITY OF BRAMPTON MONUMENT No. 042200365 (NAD ADJUSTMENT) HAVING A PUBLISHED ELEVATION OF 242.135m.

SITE BENCHMARK:
A NAIL HAVING ELEVATION 241.24m WAS SET 12.12m EAST OF THE SOUTHEAST CORNER OF THE PROPERTY ALONG AIRPORT ROAD.

A CUT CROSS HAVING ELEVATION 242.51m WAS SET ON THE NORTHEAST CORNER OF THE INTERSECTION BETWEEN MAYFIELD ROAD AND TORBRAM ROAD

DRAFT PLAN NOTES:
DESIGN ELEMENTS ARE BASED ON DRAFT PLAN BY WESTON CONSULTING INC.
DRAWING No.: 03
FILE No.: 10208

DRAWING NOTES:
THIS DRAWING IS THE EXCLUSIVE PROPERTY OF C.F. CROZIER & ASSOCIATES INC. AND THE REPRODUCTION OF ANY PART OF IT WITHOUT PRIOR WRITTEN CONSENT OF THIS OFFICE IS STRICTLY PROHIBITED.
THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LEVELS, AND DATUMS ON SITE AND REPORT ANY DISCREPANCIES OR OMISSIONS TO THIS OFFICE PRIOR TO CONSTRUCTION.
THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT. DO NOT SCALE THIS DRAWING.
ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

Project: TULLAMORE LANDS
TOWN OF CALEDON

Drawing: POST-DEVELOPMENT DRAINAGE PLAN

CROZIER CONSULTING ENGINEERS
2800 HIGH POINT DRIVE
SUITE 100
MILTON, ON L9T 6P4
905-875-0026 T
905-875-4915 F
WWW.CFCROZIER.CA

Drawn	L.E	Design	I.F	Project No.	2022-5842
Check	I.F	Check	R.S.A	Scale	1:2500
				Dwg	FIG 4



LEGEND

- PROPERTY LINE
- GREENBELT BOUNDARY
- WOODLOT PER GEI
- WOODLOT PER + 30m PER GEI
- CREST OF SLOPE PER GEI
- CREST OF SLOPE + 10m PER GEI
- LONG TERM STABLE SLOPE+10m SETBACK PER GEI
- IMPERVIOUS AREA (PRIVATELY OWNED)
- PERVIOUS AREA (PRIVATELY OWNED)
- IMPERVIOUS AREA (PUBLICLY OWNED)
- PERVIOUS AREA (PUBLICLY OWNED)

SUMMARY OF AREAS

PUBLIC LAND
IMPERVIOUS = 4,232 m2
PERVIOUS = 624,968 m2
TOTAL = 629,200 m2

PRIVATE LAND*
IMPERVIOUS = 7315 m2
PERVIOUS = 1,371,275 m2
TOTAL = 1,378,590 m2

*EXCLUDES BLOCK 10 AREA (21,350 m^2)
SINCE NO CHANGES ARE PROPOSED TO
THIS BLOCK AT THIS TIME

SCALE 1:2500 — 50 0m 50 100 150 200

No.	ISSUE / REVISION	YYYY/MM/DD
2	RE-ISSUED FOR DPOS & OPA	2023/OCT/30
1	RE-ISSUED FOR DPOS & OPA	2023/APR/06
0	ISSUED FOR DPOS, OPA & ZBA	2021/JUN/29

Stamp

FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

Stamp

BEARING NOTE:

BEARINGS ARE UTM GRID, DERIVED FROM GPS OBSERVATION USING THE "TOPNET" GPS NETWORK OBSERVATIONS, UTM ZONE 17, NAD83 (CSRS) (2010.0) & (1997.0).

SURVEY COMPLETED BY YOUNG & YOUNG SURVEYING INC. & J.D.BARNES LIMITED DATED 2021/OCT/07, 2021/OCT/14 & 2018/NOV/28, PROJECT Nos. 21-B7601-4, 21-B7601-5 & 18-30-308-00-A.

EXISTING GROUND CONTOURS OUTSIDE OF SITE LIMITS AND INSIDE EXISTING FLOOD PLAIN BASED ON LIDAR SURVEY FROM EQUATORSTUDIOS.

ELEVATION NOTE:

ELEVATIONS HERON ARE GEODETIC IN ORIGIN AND WERE DERIVED FROM GPS OBSERVATIONS USING THE "TOPNET" GPS NETWORK AND ARE REFERED TO THE CGVD-1928: 1978 DATUM.

ELEVATIONS HEREON ARE GEODETIC IN ORIGIN AND WERE DERIVED FROM CITY OF BRAMPTON MONUMENT No. 042200365 (NAD ADJUSTMENT) HAVING A PUBLISHED ELEVATION OF 242.135m.

SITE BENCHMARK:

A NAIL HAVING ELEVATION 241.24m WAS SET 12.12m EAST OF THE SOUTHEAST CORNER OF THE PROPERTY ALONG AIRPORT ROAD.

A CUT CROSS HAVING ELEVATION 242.51m WAS SET ON THE NORTHEAST CORNER OF THE INTERSECTION BETWEEN MAYFIELD ROAD AND TORBRAM ROAD

DRAFT PLAN NOTES:

DESIGN ELEMENTS ARE BASED ON DRAFT PLAN BY WESTON CONSULTING INC.
DRAWING No.: D3
FILE No.: 10208

DRAWING NOTES:

THIS DRAWING IS THE EXCLUSIVE PROPERTY OF C.F. CROZIER & ASSOCIATES INC. AND THE REPRODUCTION OF ANY PART OF IT WITHOUT PRIOR WRITTEN CONSENT OF THIS OFFICE IS STRICTLY PROHIBITED.

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LEVELS, AND DATUMS ON SITE AND REPORT ANY DISCREPANCIES OR OMISSIONS TO THIS OFFICE PRIOR TO CONSTRUCTION.

THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT. DO NOT SCALE THIS DRAWING.

ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

Project

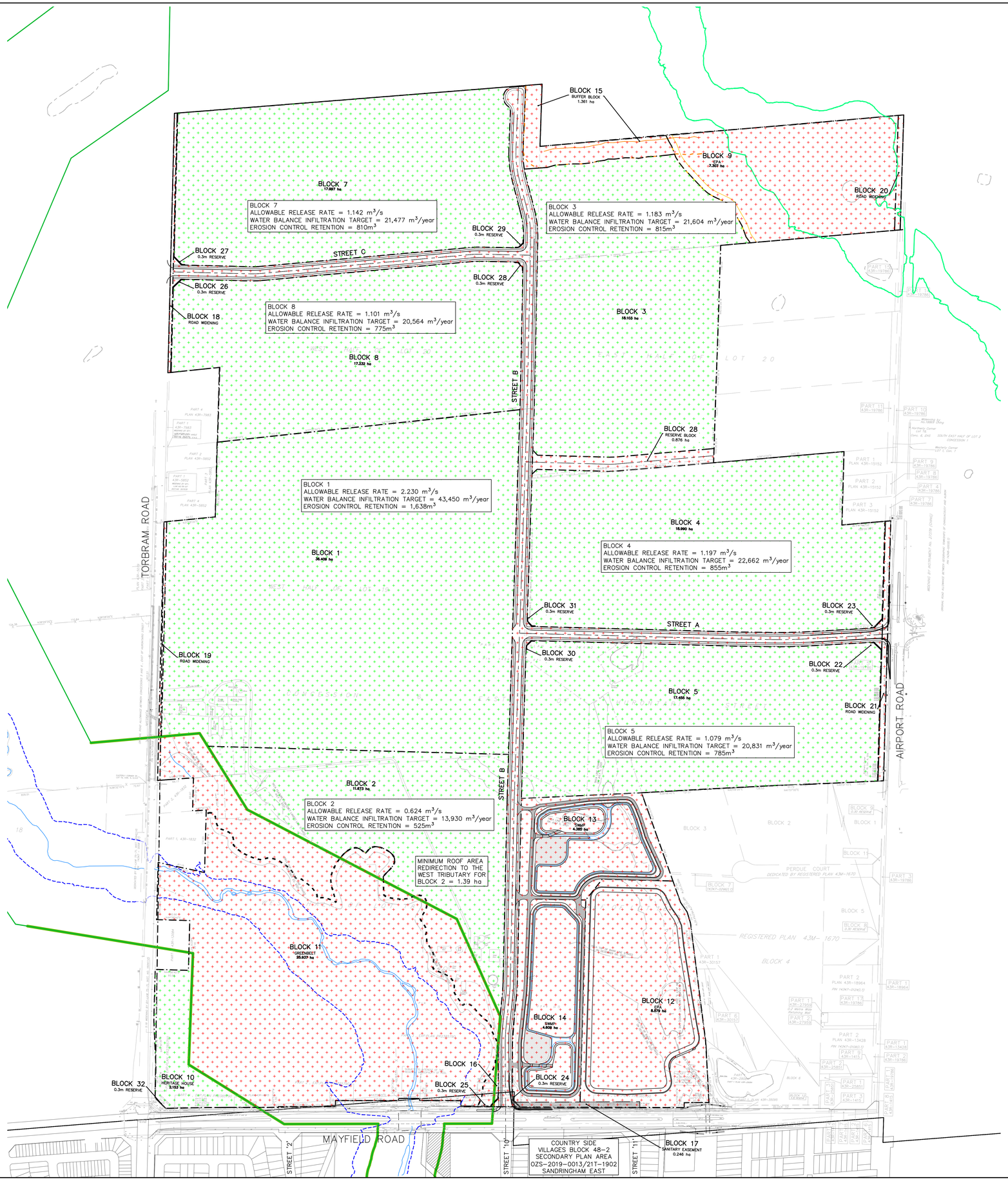
TULLAMORE LANDS
TOWN OF CALEDON

Drawing

PRE-DEVELOPMENT LAND COVER

CROZIER CONSULTING ENGINEERS
2800 High Point Drive
Suite 100
Milton, ON L9T 6P4
905-875-0026 T
905-875-4915 F
www.cfcrozier.ca

Drawn	A.B.	Design	I.F.	Project No.	2022-5842
Check	I.F.	Check	R.S.A.	Scale	1:2500
				Dwg.	FIG 5





LEGEND

- PROPERTY LINE
- GREENBELT BOUNDARY
- REGIONAL ENGINEERED FLOODPLAIN (TRCA, 2021)
- WOODLOT PER GEI
- WOODLOT PER + 30m PER GEI
- CREST OF SLOPE PER GEI
- CREST OF SLOPE + 10m PER GEI
- LONG TERM STABLE SLOPE+10m SETBACK PER GEI
- REGIONAL PROPOSED FLOODPLAIN (CROZIER, 2023)
- PUBLIC LANDS
- PRIVATE LANDS

LIST OF ASSUMPTIONS

PUBLIC LANDS
- THE ROWs AND ROAD WIDENINGS ARE ASSUMED TO BE 27% LANDSCAPE PER THE STANDARD 26.0m MUNICIPAL ROW FOR GEORGE BOLTON PARKWAY PROVIDED BY THE TOWN.
- THE 0.3m RESERVE ARE FULLY LANDSCAPED.
- ALL AREAS USED ARE PER THE DRAFT PLAN BY WESTON CONSULTING (OCTOBER 2023)

PRIVATE LANDS
- THE BLOCKS ARE ASSUMED TO BE 10% LANDSCAPED PER THE STANDARD MINIMUM REQUIRED FOR INDUSTRIAL PROPERTIES.
- THERE ARE NO CURRENT PLANS TO DEVELOP BLOCK 10 THEREFORE THE WATER BALANCE FOR THIS BLOCK IS ACHIEVED AS THE TOTAL PERVIOUS AREA IS MAINTAINED POST-DEVELOPMENT.
- TOTAL BLOCK AREAS PER THE DRAFT PLAN BY WESTON CONSULTING (OCTOBER 2023)

PUBLIC LANDS STORMWATER REQUIREMENTS

TOTAL AREA = 62.96 ha

QUANTITY AND QUALITY CONTROL: PROVIDED THROUGH THE PROPOSED SWM WETLANDS

WATER BALANCE INFILTRATION TARGET = 9,876 m³/year

EROSION CONTROL REQUIREMENT = RETENTION OF 5mm OVER IMPERVIOUS AREAS
IMPERVIOUS AREA WITHIN PUBLIC LANDS = 78,271m²
EROSION CONTROL RETENTION = 391m³

NOTE: WATER BALANCE/EROSION CONTROL FOR PUBLIC LANDS TO BE PROVIDED WITHIN THE PROPOSED RIGHT-OF-WAYS WITHIN THE SITE (STREETS A, B AND C)

NOTE: WATER QUALITY CONTROL FOR THE INDUSTRIAL BLOCKS IS PROVIDED THROUGH THE PROPOSED SWM WETLANDS. PRE-TREATMENT WILL BE REQUIRED FOR ANY SURFACE RUNOFF DIRECTED TO THE INFILTRATION FACILITIES TO MEET THE WATER BALANCE TARGET

NOTE: THERMAL MITIGATION IS REQUIRED FOR ANY ROOFTOP RUNOFF REDIRECTED TO THE TRIBUTARIES OR SALT CREEK. THERMAL MITIGATION FOR THE REMAINDER OF THE SITE IS PROVIDED THROUGH THE PROPOSED SWM WETLANDS.

REFER TO FIGURE 7 FOR INFORMATION RELATED TO POTENTIAL LID LOCATIONS AND AREA REQUIREMENTS TO ADDRESS WATER BALANCE/EROSION CONTROL

50 0m 50 100 150 200
SCALE: 1:2500

No.	ISSUE / REVISION	YYYY/MMM/DD
2	RE-ISSUED FOR DPOS & OPA	2023/OCT/30
1	RE-ISSUED FOR DPOS & OPA	2023/APR/06
0	ISSUED FOR DPOS, OPA & ZBA	2021/JUN/29

Stamp

FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

BEARING NOTE:

BEARINGS ARE UTM GRID, DERIVED FROM GPS OBSERVATION USING THE "TOPNET" GPS NETWORK OBSERVATIONS, UTM ZONE 17, NAD83 (CSRS) (2010.0) & (1997.0).

SURVEY COMPLETED BY YOUNG & YOUNG SURVEYING INC. & J.D.BARNES LIMITED DATED 2021/OCT/07, 2021/OCT/14 & 2018/NOV/28. PROJECT Nos. 21-B7601-4, 21-B7601-5 & 18-30-308-001-A.

EXISTING GROUND CONTOURS OUTSIDE OF SITE LIMITS AND INSIDE EXISTING FLOOD PLAIN BASED ON LIDAR SURVEY FROM EQUATORSTUDIOS.

ELEVATION NOTE:

ELEVATIONS HEREON ARE GEODETIC IN ORIGIN AND WERE DERIVED FROM GPS OBSERVATIONS USING THE "TOPNET" GPS NETWORK AND ARE REFERRED TO THE CGVD-1928: 1978 DATUM.

ELEVATION HEREON ARE GEODETIC IN ORIGIN AND WERE DERIVED FROM CITY OF BRAMPTON MONUMENT No. 042200365 (NAD ADJUSTMENT) HAVING A PUBLISHED ELEVATION OF 242.135m.

SITE BENCHMARK:

A NAIL HAVING ELEVATION 241.24m WAS SET 12.12m EAST OF THE SOUTHEAST CORNER OF THE PROPERTY ALONG AIRPORT ROAD.

A CUT CROSS HAVING ELEVATION 242.51m WAS SET ON THE NORTHEAST CORNER OF THE INTERSECTION BETWEEN MAYFIELD ROAD AND TORBRAM ROAD

DRAFT PLAN NOTES:

DESIGN ELEMENTS ARE BASED ON DRAFT PLAN BY WESTON CONSULTING INC.
DRAWING No.: D3
FILE No.: 10208

DRAWING NOTES:

THIS DRAWING IS THE EXCLUSIVE PROPERTY OF C.F. CROZIER & ASSOCIATES INC. AND THE REPRODUCTION OF ANY PART OF IT WITHOUT PRIOR WRITTEN CONSENT OF THIS OFFICE IS STRICTLY PROHIBITED.

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LEVELS, AND DATUMS ON SITE AND REPORT ANY DISCREPANCIES OR OMISSIONS TO THIS OFFICE PRIOR TO CONSTRUCTION.

THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT. DO NOT SCALE THIS DRAWING.

ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

Project

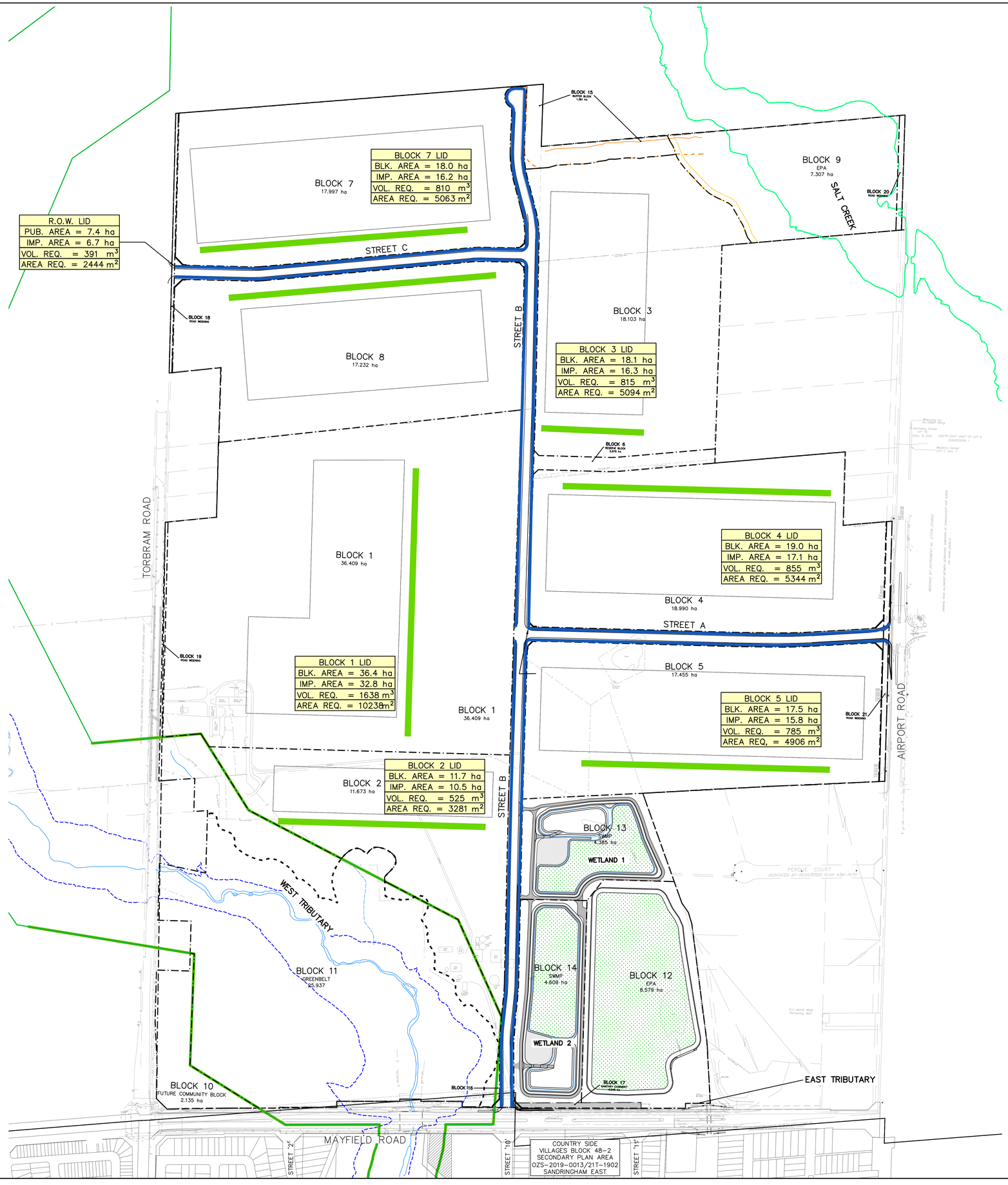
TULLAMORE LANDS
TOWN OF CALEDON

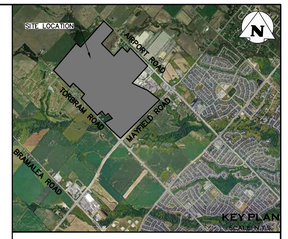
Drawing

SUMMARY OF STORMWATER CONTROL REQUIREMENTS

CROZIER CONSULTING ENGINEERS
2800 High Point Drive
Suite 100
Milton, ON L9T 6P4
905-875-0026 T
905-875-4915 F
www.cfcrozier.ca

Drawn	L.F.	Design	I.F	Project No.	2022-5842
Check	I.F.	Check	R.S.A	Scale	1:2500
				Dwg.	FIG 6





LEGEND

- PROPERTY LINE
- GREENBELT BOUNDARY
- REGIONAL ENGINEERED FLOODPLAIN (TRCA, 2021)
- REGIONAL PROPOSED FLOODPLAIN (CROZIER, 2023)
- LONG TERM SLOPE STABILITY +10 m (TRCA, 2021)
- CREST OF SLOPE (TRCA, 2021)
- CREST OF SLOPE +10 m (TRCA, 2021)
- STAKED DRIPLINE (GEI, 2023)
- WOODLAND +30 m (GEI, 2023)
- PROPOSED INFILTRATION GALLERY AREA
- PROPOSED BIOSWALE/BIORETENTION AREA

ID	BLOCK ID
BA	BLOCK AREA
IA	IMPERVIOUS AREA (APPROX.)
VR	LID VOLUME REQUIRED (m^3)
AR	LID AREA REQUIRED (m^2)

LID DESIGNS SHOWN ON THIS FIGURE ARE PRELIMINARY AND WILL BE REFINED DURING DETAILED DESIGN / AT THE SITE PLAN STAGE FOR EACH BLOCK.

LID TO HAVE MINIMUM 1.0m SEPARATION FROM THE SEASONALLY HIGH GROUNDWATER LEVEL AND TO BE A MINIMUM OF 5.0m AWAY FROM BUILDINGS.

THE LID DESIGNS SHOWN ON THIS FIGURE HAVE BEEN DESIGNED PER AN INFILTRATION RATE OF 3.55 mm/hr BASED ON THE HYDROGEOLOGICAL REPORT BY TORONTO INSPECTIONS. TO ENSURE DRAWDOWN WITHIN 48 HOURS, THE LIDs ARE TO HAVE A MAXIMUM DEPTH OF 0.40m.THE AREA REQUIRED FOR THE LID WAS DETERMINED ASSUMING A VOID RATIO OF 0.40 FOR ALL PROPSOED LIDs.

WATER BALANCE/EROSION CONTROL FOR ALL PUBLIC LANDS PROVIDED WITHIN THE PROPOSED ROWs INTERNAL TO THE SITE (STREETS A, B & C). VOLUME REQUIRED = $391m^3$

REFER TO FIGURE 6 FOR MORE DETAILS RELATED TO WATER BALANCE AND EROSION CONTROL REQUIREMENTS.

50 0m 50 100 150 200
SCALE: 1:2500

No.	ISSUE / REVISION	YYYY/MMM/DD
2	RE-ISSUED FOR DPOS & OPA	2023/OCT/30
1	RE-ISSUED FOR DPOS & OPA	2023/APR/06
0	ISSUED FOR DPOS, OPA & ZBA	2021/JUN/29

Stamp

FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

BEARING NOTE:

BEARINGS ARE UTM GRID, DERIVED FROM GPS OBSERVATION USING THE "TOPNET" GPS NETWORK OBSERVATIONS, UTM ZONE 17, NAD83 (CSRS) (2010.0) & (1997.0).

SURVEY COMPLETED BY YOUNG & YOUNG SURVEYING INC. & J.D.BARNES LIMITED DATED 2021/OCT/07, 2021/OCT/14 & 2018/NOV/28, PROJECT Nos. 21-B7601-4, 21-B7601-5 & 18-30-308-00-A.

EXISTING GROUND CONTOURS OUTSIDE OF SITE LIMITS AND INSIDE EXISTING FLOOD PLAIN BASED ON LIDAR SURVEY FROM EQUATORSTUDIOS.

ELEVATION NOTE:

ELEVATIONS HEREON ARE GEODETIC IN ORIGIN AND WERE DERIVED FROM GPS OBSERVATIONS USING THE "TOPNET" GPS NETWORK AND ARE REFERRED TO THE COVD-1928: 1978 DATUM.

ELEVATION HEREON ARE GEODETIC IN ORIGIN AND WERE DERIVED FROM CITY OF BRAMPTON MONUMENT No. 042200365 (NAD ADJUSTMENT) HAVING A PUBLISHED ELEVATION OF 242.15m.

SITE BENCHMARK:

A NAIL HAVING ELEVATION 241.24m WAS SET 12.12m EAST OF THE SOUTHEAST CORNER OF THE PROPERTY ALONG AIRPORT ROAD.

A CUT CROSS HAVING ELEVATION 242.51m WAS SET ON THE NORTHEAST CORNER OF THE INTERSECTION BETWEEN MAYFIELD ROAD AND TORBRAM ROAD

DRAFT PLAN NOTES:

DESIGN ELEMENTS ARE BASED ON DRAFT PLAN BY WESTON CONSULTING INC.
DRAWING No.: D3
FILE No.: 10208

DRAWING NOTES:

THIS DRAWING IS THE EXCLUSIVE PROPERTY OF C.F. CROZIER & ASSOCIATES INC. AND THE REPRODUCTION OF ANY PART OF IT WITHOUT PRIOR WRITTEN CONSENT OF THIS OFFICE IS STRICTLY PROHIBITED.

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LEVELS, AND DATUMS ON SITE AND REPORT ANY DISCREPANCIES OR OMISSIONS TO THIS OFFICE PRIOR TO CONSTRUCTION.

THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT. DO NOT SCALE THIS DRAWING.

ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

Project

TULLAMORE LANDS
TOWN OF CALEDON

Drawing

PRELIMINARY LID LOCATIONS

CROZIER CONSULTING ENGINEERS
2800 High Point Drive
Suite 100
Milton, ON L9T 6P4
905-875-0026 T
905-875-4915 F
www.cfcrozier.ca

Drawn	Design	Project No.	
L.E.	I.F.	2022-5842	
Check	Check	Scale	Dwg
I.F./J.S.	R.S.A.	1:2500	FIG 7