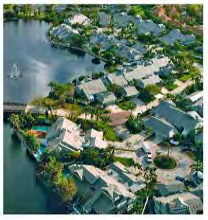

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Servicing & Stormwater Management Report

Fernbrook Homes (Parkside) Ltd.

Pioneer Trail Residential Condominium

70 Pioneer Trail, Barrie, Ontario

August 2022

The Jones Consulting Group Ltd.
#1-229 Mapleview Drive East, Barrie, ON, L4N 0W5

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Table of Contents

Page

1. Introduction 1

1.1 Appointment 1
1.2 Property Description 1
1.3 Existing Land Use 2
1.4 Proposed Land Use 2
1.5 Supporting Documents 3

2. Stormwater Management Plan 5

2.1 Introduction 5
2.2 Site Physiography 6
2.2.1 Existing Soils Conditions 6
2.2.2 Existing Drainage Conditions 8
2.2.3 Proposed Drainage Conditions 9
2.3 Hydrology 9
2.3.1 OTTHYMO Model 9
2.3.2 Design Storms & Climatology 10
2.3.3 Modeling Approach and Rationale 10
2.3.4 Discretization 11
2.4 Low Impact Development & Pre-Treatment Devices 15
2.4.1 Up-Flo Filter 16
2.4.2 Infiltration Gallery 17
2.4.3 Other Lot-Level LIDs 18
2.4.4 LID Sizing 18
2.5 Stormwater Quantity Control 19
2.5.1 Peak Flow Control 19
2.5.2 Runoff Volume Control 20
2.5.3 Minor-Major System Conveyance 22
2.5.4 Summary of Quantity Control Performance 23
2.6 Stormwater Quality Control 23
2.6.1 LID Pollutant Removal Efficiencies 24
2.6.2 TSS Loading & Removal – Treatment Train Calculations 24
2.6.3 Phosphorous Loading & Removal – Treatment Train Calculations 26
2.6.4 Summary of Quality Control Performance 28
2.7 Water Balance 28
2.8 Erosion and Sediment Control 29

3. Sanitary Servicing 31

3.1 General 31
3.2 Projected Sanitary Flows 31

4. Water Servicing 33

4.1 General 33
4.2 Domestic Water Service Design Flows 34
4.3 Fire Water Supply Design Flows 34
Fire Underwriters Survey 34
4.4 Water System Analysis 36

5. Secondary Utilities 38

6. Conclusions 38

List of Tables

Table 1 - Stormwater Management Design Criteria 6
Table 2 - Soil Type Distribution 7
Table 3 – Ground Water Level Measurements 8
Table 4 – Summary of LID Sizing – Park Infiltration Gallery 17
Table 5 – Stormwater Management Quantity Control Design Criteria 19
Table 6 - Hydrologic Model Results: *Pre-Dev-PF – AddHyd 1* 20
Table 7 - Hydrologic Model Results: *Post-Dev-PF – AddHyd 1* 20
Table 8 - Runoff Volume Control Targets 21
Table 9 - Hydrologic Model Results: *Post-Dev-PF* - 25mm Water Quality Event 22
Table 10 – Stormwater Management Quantity Control Performance 23
Table 11 – Stormwater Management Quality Control Design Criteria 23
Table 12 - BMP Published Removal Efficiencies 24
Table 13 – TSS Concentration Removal Efficiency 25
Table 14 – 70 Pioneer Trail: TP Concentration Removal Efficiency 27
Table 15 - SWM Quality Control Performance 28
Table 16 – Summary of Water Balance (without mitigation) by Azimuth 29
Table 17 – Summary of Water Balance (with mitigation) by Azimuth 29
Table 18 – Summary of WaterCAD Model Pressures Hydrant Test 37

List of Figures

Figure 1 – Site Location Plan 2
Figure 2 – Site Soils Identification 7
Figure 3 - *Pre-Dev-PF* OTTHYMO model schematic 12
Figure 4 - *Post-Dev-PF* OTTHYMO model schematic 13
Figure 5 - *Post-Dev-PF Channel* OTTHYMO model schematic 15

List of Appendices

Appendix A Planning and External Reference Information
Appendix B Reduced Engineering Submission Drawings
Appendix C Supporting Stormwater Management Calculations and Design Charts
Appendix D OTTHYMO Schematics and Model Outputs
Appendix E Supporting Sanitary Servicing Calculations
Appendix F Supporting Water Servicing Calculations

Disclaimer

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Servicing & Stormwater Management Report

Fernbrook Homes (Parkside) Ltd.
70 Pioneer Trail, City of Barrie

1. Introduction

1.1 Appointment

The Jones Consulting Group Ltd. (TJCG) was retained by Fernbrook Homes (Parkside) Ltd. (Client) to prepare this Servicing and Stormwater Management Report (S&SWMR) for the proposed Pioneer Trail Residential Condominium located at 70 Pioneer Trail in the City of Barrie (City).

This report examines the existing and proposed servicing infrastructure in relation to:

- Stormwater Servicing
- Water Servicing
- Sanitary Servicing
- Roads and Grading
- Utility servicing

The design information presented herein, as well as within the design drawing set, has been completed in accordance with City, LSRCA, MOECP, and MTO design standards in support of the required Site Plan Control approval.

1.2 Property Description

The subject lands are irregularly shaped and comprised of 2.89 hectares (ha) of land. The site was created as part of the Fernbrook Homes (Parkside) Ltd. Subdivision. The subject property is municipally known as 70 Pioneer Trail, in the City of Barrie and legally described as Block 113, Plan 51M-986. The Site is bounded to the west by existing residential and the Pioneer Trail cul-de-sac, to the north by Kempenfelt Bay and environmental protection lands, to the south by environmental protection lands, and to the east by existing residential and the Innisfil/Barrie limits. The location of the subject property is shown below in **Figure 1**.

Figure 1 – Site Location Plan

1.3 Existing Land Use

The site is currently vacant and predominately vegetated with forested type land cover. The lands were previously occupied by an existing residential dwelling and shop which were demolished in 2015. Access to the demolished buildings was provided via a gravel driveway that is still in place and connects to the Pioneer Trail right of way. Topography of the main developable area of the site generally ranges in elevation from 230.00 to 226.00m and slopes northerly to Kempenfelt Bay at an approximate gradient of 3% to 4%. South of the development lands is a relatively steep bluff known as the Algonquin Ridge, which slopes toward the site at an approximate gradient of 10% to 12%. Similarly, north of the development lands, the topography slopes steeply to Kempenfelt Bay.

Existing municipal services are located within the Pioneer Trail Right of Way and include sanitary (low pressure force main), water and secondary utilities such as electrical, gas, telephone and cable.

1.4 Proposed Land Use

The current Condominium Plan proposes 18 single detached units, on a private roadway connecting to Pioneer Trail. An internal roadway terminates at a cul-de-sac loop within the subject lands. In

addition, open space, amenity / stormwater management, and landscape blocks are also included in the Condominium Plan. A copy of the *Common Element Condominium* Plan, dated January 24, 2022, has been provided in **Appendix A**.

Sanitary and water servicing of the site will be accomplished by extending existing municipal infrastructure located on Pioneer Trail into the development. This infrastructure will be privately owned within the development block. In addition, on site stormwater management will be employed to provide quality control of storm run-off and provide best efforts in achieving water balance & phosphorous budget requirements.

1.5 Supporting Documents

The following documents have been referenced in preparation of this report:

- City of Barrie, *Sanitary Sewage Collection System Policies and Design Guidelines*, dated October 2017,
- City of Barrie, *Water Transmission and Distribution Standard*, dated August 2021,
- City of Barrie, *Storm Drainage and Stormwater Management Policies and Design Guidelines*, dated October 22nd, 2020,
- Lake Simcoe Region Conservation Authority, *Technical Guidelines for Stormwater Management Submissions*, dated September 2016
- Lake Simcoe Region Conservation Authority, *Innisfil Creeks Subwatershed Plan*, dated 2012,
- Credit Valley Conservation Authority & Toronto Region Conservation Authority, *Low Impact Development Stormwater Management Planning and Design Guide*, 2010
- *Low Impact Development Stormwater Management Planning & Design Guide Wiki*, Sustainable Technologies Evaluation Program, 2018
- Ministry of the Environment, *Lake Simcoe Protection Plan*, July 2009
- Ministry of the Environment, *Stormwater Management Planning and Design Manual*, March 2003
- Ministry of the Environment, *Design Guidelines for Drinking Water Systems*, dated 2008,
- Ministry of the Environment, *Design Guidelines for Sewage Works*, dated 2008,
- GEI Consultants, *Geotechnical Update Report for Proposed Residential Development*, dated August 14th, 2022 (Revision 1),
- Terraprobe, *Geotechnical Investigation Proposed Residential Development*, dated September 13th, 2016,
- Terraprobe, *Development Setbacks and Slope Stability Requirements*, dated September 13th, 2016,

- Terraprobe, *Assessment of Groundwater Levels February 2015 to August 2016 Monitoring*, dated September 13th, 2016,
- Azimuth Environmental Consulting, *Revised Hydrogeological Assessment*, dated August 2022.

2. Stormwater Management Plan

2.1 Introduction

The stormwater management plan is intended to provide an environmentally sound approach to stormwater and drainage issues. The issues can be divided into four categories: stormwater quality control, stormwater quantity control, water balance, and erosion & sediment control.

This report outlines a proposed design for the Condominium Plan stormwater management system to meet the compulsory post-development quantity and quality control requirements of the City, MOECP and LSRCA. Due to the proximity of the development lands to Kempenfelt Bay, peak flow control of stormwater run-off will not be required.

The City, MOECP and the LSRCA require Level 1 (Enhanced) quality control for the stormwater runoff generated from this site. The proposed facilities have been sized to provide quantity control for the 25mm storm event. The development is proposed to implement pre-treatment devices and site-specific LIDs to provide best-efforts in achieving Enhanced (Level 1) quality control.

In general, a treatment train approach is proposed to meet the subject lands' quality control requirements. This system will utilize lot level/source, conveyance, and end-of-pipe controls to meet the objectives set out by the City and LSRCA. Treatment will be provided through a combination of Manufactured Treatment Devices (MTD's) and infiltration / filtration-based LID practices.

Refer to **Table 1** below for a list of the Stormwater Management Design Criteria to be addressed in the proposed Stormwater Management Plan.

Table 1 - Stormwater Management Design Criteria

70 Pioneer Trail – Stormwater Management Design Criteria		
Category	**Sub-Category**	**Target**
Quantity Control	Peak Flow Control	Due to proximity to Kempenfelt Bay Peak flow control is not required for this development.
	Runoff Volume Control	In accordance with *'Sites With Restrictions'* criteria *(LSRCA)*, targets established by SWMF catchment based on constraints, see Section 2.2.2.2.
	Minor-Major System Conveyance	Minor System to convey 5-year event, Major System to convey 100-year event *(CoB & LSRCA)*
	Regulatory Storm Conveyance	Convey the Regional Event to a *sufficient outlet (CoB & LSRCA)*
Quality Control	Total Suspended Soils	SWM facilities shall provide Level 1 (Enhanced) Protection, 80% Long Term Removal *(CoB, MOE, LSRCA)*
	Total Phosphorus	SWM Facilities shall provide Enhanced level of protection *(COB, MOE & LSRCA)*
		Reduce overall site post-development phosphorous loadings to pre-development levels *(CoB, MOE & LSRCA)*
		All new developments must control 100% of phosphorous leaving the property to achieve a Zero Export Target. *(LSPOP)*
Water Balance		Minimize changes in water balance between pre- and post-development conditions, provide a minimum infiltration equivalent to the first 5mm of any given rainfall event (*CoB & LSRCA*)
Erosion & Sediment Control		Protect the site from first disturbance through to reinstatement from erosion and sediment wash-off to mitigate impacts on natural systems *(CoB, LSRCA)*

The site falls within the Innisfil Creeks Subwatershed of the larger Lake Simcoe watershed. A portion of the site is regulated pursuant to Ontario Regulation 179/06 by the LSRCA, as such, a permit from the Authority will be required for this development proposal.

As previously noted, the development lands were created as part of the Fernbrook Homes (Parkside) Ltd. Subdivision. Due to the proximity of the development lands to Kempenfelt Bay, quantity control of stormwater run-off will not be required; however, safe conveyance of regulatory flows to Kempenfelt Bay will be necessary. In addition, quality control ("Enhanced" level of treatment) will be required in accordance with current Ministry of Environment (MOE), LSRCA and City standards.

2.2 Site Physiography

2.2.1 Existing Soils Conditions

The soils found on the subject site are entirely represented by Sargent Gravelly Sandy Loam (Stsl), corresponding to Group A of the SCS Hydrological Soils Group Classification system. Soil Series are determined from the *Soil Map of Simcoe County, Report No. 29* of the *Ontario Soil Survey* produced by the Canada Department of Agriculture with the Ontario Department of Agriculture. Soil series and

hydrological soils group are shown below in **Figure 2** and **Table 2.** An excerpt from the Soils Map is provided in **Appendix A**.

Table 2 - Soil Type Distribution

Soil Type	Soil Name	SCS Group	Total Area (ha)	Percentage Area (%)
Stsl	Sargent Gravelly Sandy Loam	Group A	2.89	100.00

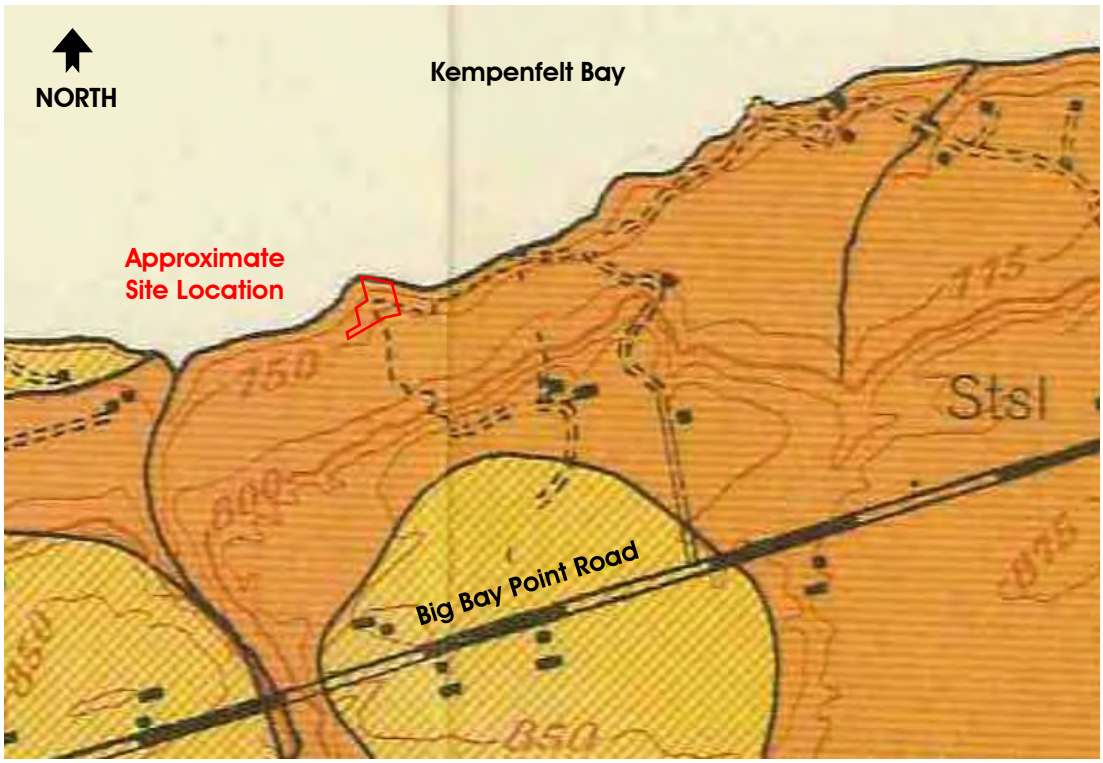


Figure 2 – Site Soils Identification

A geotechnical report has been completed specific to the subject property. Information obtained from the *Geotechnical Investigation* was used in the initial design of proposed Low Impact Development measures. Additional Guelph Permeameter testing has been completed by Azimuth Environmental Consulting in the vicinity of the underground LID to assess the infiltration capacity of the underlying soils. A *Revised Hydrogeological Assessment* dated August 2022 has been created by Azimuth Environmental Consulting and has been provided in Appendix A for reference. A unfactored average infiltration rate of **95mm/hr** and factored infiltration rate of **38mm/hr** was determined through Guelph Permeameter testing. A **2.5 times safety correction factor** was applied. The proposed design has been updated using the site-specific Design Infiltration Rate.

A 19-month long ground water monitoring program has been completed by Terraprobe to provide a better understanding of seasonal groundwater fluctuations within the subject site. An additional 4-month long ground water monitoring program was conducted by Azimuth Environmental Consulting. According to the findings of these studies, seasonal groundwater ranges up to 6.5m below ground elevation. Figure 2 of the report shows the location of the Boreholes in relation to the Condominium Plan, for convenience figure 2 and the borehole logs have been provided in **Appendix A**. A closer look reveals that Borehole 201 is a suitable borehole to describe anticipated groundwater elevations in the vicinity of the proposed LID facility. **Table 3** below summarizes the observed groundwater level measurements for Borehole 201 outlined in the Terraprobe *Assessment of Groundwater Levels* report dated September 13th, 2016 and Azimuth Environmental Consultant's *Revised Hydrogeological Assessment* dated August 2022.

Table 3 – Ground Water Level Measurements

Borehole/ Monitoring Well ID	Ground Surface Elevation	Observed Groundwater Depth and Elevation (m) by date					
		2015-02	**2015-03**	**2015-04**	**2015-05**	**2015-06**	**2015-07**
201	226.50	6.50 / 220.00	6.50 / 220.00	6.50 / 220.00	6.00 / 220.50	6.20 / 220.30	6.30 / 220.20
		2015-08	**2015-11**	**2015-12**	**2016-01**	**2016-02**	**2016-03**
		6.30 / 220.20	6.30 / 220.20	6.40 / 220.10	6.40 / 220.10	6.40 / 220.10	6.40 / 220.10
		2016-04	**2016-05**	**2016-06**	**2016-07**	**2016-08**	**2022-03**
		5.00 / 221.50	**4.70 / 221.80**	5.20 / 221.30	6.30 / 220.20	6.30 / 220.20	5.90 / 220.60
		2022-04	**2022-05**	**2022-06**			
		5.34 / 221.16	5.35 / 221.15	5.56 / 220.94			

2.2.2 Existing Drainage Conditions

The subject lands consist of approximately 2.89 hectares (ha) of land which was predominately vegetated with forested type land cover. The existing site was previously occupied by a residential dwelling and shop, which were demolished in 2015. The gravel driveway and grassed areas around the demolished buildings remain. The land's topography generally ranges in elevation from 230.00 to 226.00m at the main developable area sloping northerly to Kempenfelt Bay at an approximate gradient of 3% to 4%. South of the development lands is a relatively steep bluff known as the Algonquin Ridge, which slopes toward the site at an approximate gradient of 10% to 12%. Similarly, north of the development lands, the topography slopes steeply to Kempenfelt Bay.

There are no existing stormwater management facilities on the subject lands and all flows are released uncontrolled to Kempenfelt Bay. The existing drainage conditions are shown in the *Stormwater Management Pre-Development Areas,* **Drawing SWM-1** in **Appendix B.**

2.2.3 Proposed Drainage Conditions

Development of the subject lands will consist of 18 single detached units and a privately owned internal cul-de-sac looped roadway, as well as open space, amenity / stormwater management, and landscape blocks.

The grading of the site will direct stormwater runoff to the internal roadway where it is captured by underground infrastructure and sent towards the proposed LID facilities. Underground infrastructure has been appropriately sized to capture and convey minor flows (≤5-year event). The roads will also be utilized to convey the major overland flow (>5-year event) within the right-of-way to the Overland Flow Channel. All captured stormwater will be discharged to a conveyance channel located along the eastern property limits before being released to Kempenfelt Bay. Supporting conveyance capacity and channel lining calculations have been provided in **Appendix C** for reference.

The proposed drainage system will also include Low Impact Development (LID) source and conveyance control measures to provide controls that reduce peak flows and run-off volumes, provide upstream treatment for contaminants, promote groundwater recharge and assist in maintaining water balance to pre-development levels. Further design details are provided in subsequent sections of this report, as well on **Drawing PP-2 and DET-11** provided in **Appendix B**.

The proposed works will require an *Erosion and Sediment Control (ESC) Plan* in order to provide adequate protection of downstream receiver systems throughout construction. The *Erosion & Sediment Control Plans* as well as *Stormwater Management Post-Development Areas* have been included in **Appendix B** as **Drawings ESC-1, ESC-2** and **SWM-2** for reference.

2.3 Hydrology

2.3.1 OTTHYMO Model

The development was hydrologically modeled using the latest version of the Visual OTTHYMO (VO6) computer program by Smart City Water (SCW) Inc. OTTHYMO is a GIS-based hydrologic and hydraulic modelling software capable of performing both event-based and continuous rainfall simulations for Stormwater Management Facility and Low Impact Development design, Water Quality Modelling, Water Balance and Erosion Threshold calculations, respectively. Furthermore, the OTHYMO model developed for the subject lands utilizes the Green-Ampt Method for determining infiltration losses,

which allows for the direct incorporation of field-tested infiltration rates, providing a higher level of accuracy to reflect field conditions. Representative Infiltration rates have been obtained through Guelph Permeameter testing and coded into the OTTHYMO modeling with an appropriate factor of safety for sizing of the LID's. The model input parameters (e.g. catchment area, flow lengths, proposed imperviousness) have been carefully selected to reflect the proposed condominium plan design and can be found in **Appendix C**.

2.3.2 Design Storms & Climatology

In accordance with the City of Barrie's SWM Guidelines the following events have been modeled:

- 4-hour Chicago rainfall distribution for the 2, 5, 10, 25, 50 and 100-year storm events,
- 6-hour SCS Type II rainfall distribution for the 2, 5, 10, 25, 50 and 100-year storm events,
- 12-hour SCS Type II rainfall distribution for the 2, 5, 10, 25, 50 and 100-year storm events,
- 24-hour SCS Type II rainfall distributions for the 2, 5, 10, 25, 50 and 100-year storm events;
- 25 mm 4-hour Chicago Water Quality rainfall event, and
- Hurricane Hazel Regional Storm Event.

Runoff Coefficients used during the Hurricane Hazel Regional Storm event have been adjusted to account for Antecedent Moisture Conditions (AMC III) in accordance with City and LSRCA standards.

2.3.3 Modeling Approach and Rationale

There are two (2) Pre-Development Condition models and four (4) Post-Development Condition models run under a range of discrete storm simulations to assess the performance of proposed LIDs. The Pre-Development models evaluated are listed below:

- *Pre-Dev-PF:* Pre-Development Peak Flow model, including a simulation for the 25mm water quality event and 2, 5, 10, 25, 50 and 100-year storms.
- *Pre-Dev-PF, Hazel AMCIII:* Pre-Development Peak Flow model simulating the Hurricane Hazel Regional Storm event using AMC III moisture conditions.

The Post-Development models evaluated are listed below:

- *Post-Dev-PF:* Post-Development Peak Flow model including a simulation for the 25mm water quality event and 2, 5, 10, 25, 50 and 100-year storms.
- *Post-Dev-PF, Channel:* Post Development Peak Flow model including a simulation for the 25mm water quality event and 2, 5, 10, 25, 50 and 100-year storms used to size conveyance channels, channel linings and erosion protection.

- *Post-Dev-PF, Hazel AMCIII:* Post-Development Peak Flow model simulating the Hurricane Hazel Regional Storm event using AMC III moisture conditions.
- *Post-Dev-PF, Channel Hazel AMCIII:* Post Development Peak Flow simulating the Hurricane Hazel Regional Storm event using AMC III moisture conditions used to size conveyance channels, channel linings and erosion protection.

Pre- and Post-Development models were initially created at the storm sewer subcatchments level of special detail, with parameters determined by the existing and proposed grading and a detailed land-use breakdown for each subcatchment. Geometric parameters such as a catchment area, total impervious, directly connected impervious, width, slope, flow lengths, curve numbers, initial abstractions, depression storage, time to peak, pervious / impervious roughness coefficients and infiltration parameters were assigned. Underlying soil data was incorporated based on soil textural class and infiltration rate.

All Hazel AMCIII models were created by duplicating their respective peak flow models and converting all AMCII Curve numbers to AMCIII Curve numbers. This was done to account for saturated soil conditions experienced preceding and during the Hurricane Hazel Regional storm event.

2.3.4 Discretization

Model discretization for the *Pre-Dev-PF, Post-Dev-PF* and *Post-Dev-PF Channel* models, developed under the approach described previously, is summarized herein. Corresponding OTTHYMO model input parameters are provided in **Appendix C.**

Pre-Development Modeling

The *Stormwater Management Pre-Development Areas* Plan illustrates the pre-development drainage conditions (**Drawing SWM-1**, provided in **Appendix B**). **Figure 3** below shows the model schematic.

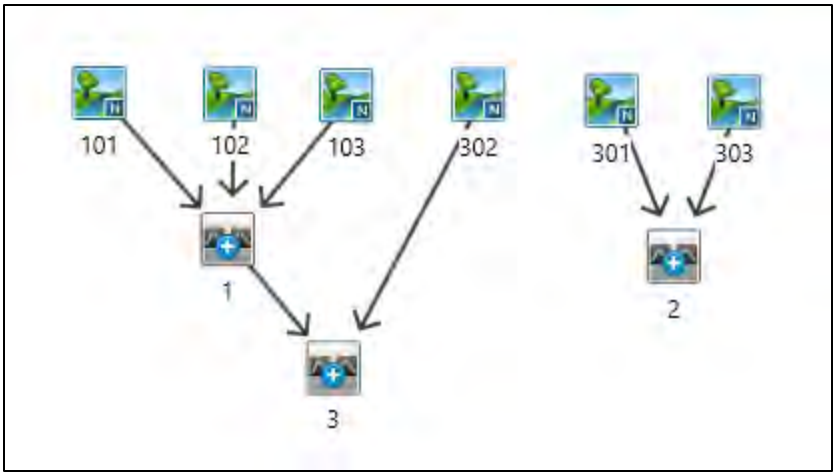


Figure 3 - *Pre-Dev-PF* OTTHYMO model schematic

The OTTHYMO model for the subject lands includes six (6) discrete catchments.

- Catchment 101 is approximately 2.25 ha in size and represents internal developable drainage areas of the subject lands draining primarily northwards towards Kempenfelt Bay. This catchment mostly consists of vegetated areas of both trees and brush with some grassed areas and encompasses the entire proposed development area.
- Catchment 102 is approximately 0.42 ha in size and represents internal drainage area of the subject lands draining northwards to Kempenfelt Bay. This catchment mostly consists of vegetated areas with some grassed areas. It is anticipated that this catchment will remain unchanged from the pre- to post-development scenarios and ultimately be an open space area.
- Catchment 103 is approximately 0.21 ha in size and represents internal drainage area of the subject lands draining in a north-eastern direction directly towards Kempenfelt Bay. This catchment mostly consists of grassed areas with some vegetation. It is anticipated that this catchment will remain unchanged from the pre- development to post-development scenarios and ultimately be an open space area.
- Catchments 301 and 302 are approximately 6.32 ha and 1.68 ha in size and represent external area that drains northwards to the subject property. Catchment 303 is approximately 0.33 ha in size and receives flow from area 301. These areas are mainly mature vegetated area associated with the Algonquin Ridge Bluff and have been made identical to catchments 301 through 303 in the post-development scenario.

This provides for a total catchment area of approximately 11.22 ha, of which 8.33 ha is external areas and 0.63 ha is internal areas remaining unchanged.

Post-Development Peak Flow Modeling

The *Stormwater Management Post-Development Areas* Plan illustrates the post-development drainage conditions (**Drawing SWM-2**, provided in **Appendix B**). **Figure 4** below shows the model schematic.

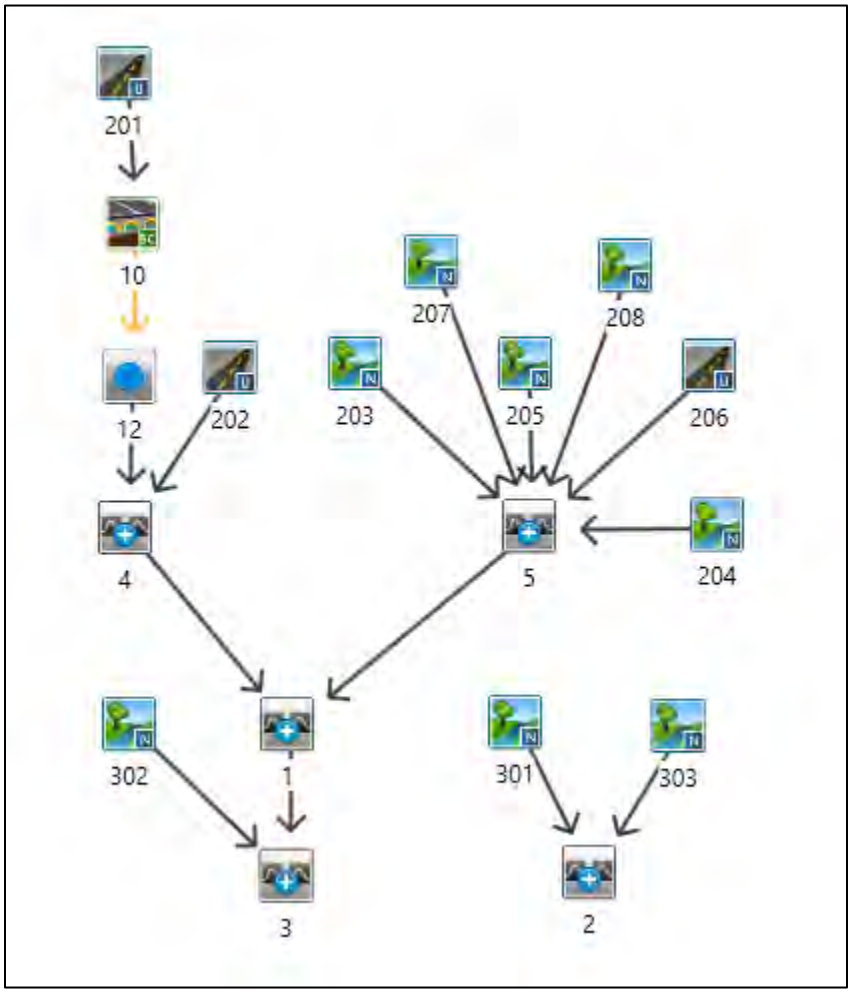


Figure 4 - *Post-Dev-PF* OTTHYMO model schematic

The OTTHYMO model for the subject land includes eleven (11) discrete catchments.

- Catchment 201 is approximately 0.88 ha in size and represents internal developable area that is captured by underground infrastructure prior to being released to Kempenfelt Bay. This catchment area is comprised of rooftops, driveways, roadways, and landscaped areas. Flows generated in this area receive treatment by the Up-Flo Filter and Underground Infiltration Gallery.

- Catchment 202 is approximately 0.63 ha in size and represents internal developable area that is ultimately captured by the eastern drainage channel and discharged uncontrolled and untreated to Kempenfelt Bay. This catchment area is comprised of rooftops and landscaped areas. Stormwater can not be captured by existing infrastructure due to grading constraints.
- Catchment 203 is approximately 0.13 ha in size and represents internal developable area that drains in a north-eastern direction uncontrolled through sheet flow towards Kempenfelt Bay. This catchment area is an open space block composed of landscaped areas which can not be captured by proposed infrastructure due to grading constraints.
- Catchments 204 and 205 are approximately 0.21 and 0.42 ha in size and represent internal developable area that drains uncontrolled directly towards Kempenfelt Bay through sheet flow. Both catchments are open space blocks and are anticipated to remain unchanged between pre- and post-development conditions.
- Catchment 206 is approximately 0.50 ha in size and represents internal developable area that drains northwards uncontrolled through sheet flow to neighbouring environmentally protected lands before discharging to Kempenfelt Bay. This catchment area is composed of primarily rooftop and landscaped areas and can not be captured by proposed infrastructure due to grading constraints.
- Catchment 207 is approximately 0.10 ha in size and represents internal developable area that drains uncontrolled towards the roadway culverts near the western site entrance. This catchment is composed of primarily landscaped areas. Stormwater can not be captured by the proposed infrastructure due to grading constraints
- Catchment 208 is approximately 0.03 ha in size and represents internal developable area that drains uncontrolled towards environmentally protected lands. This area consists of landscaped and sidewalk areas. Stormwater can not be captured by the proposed infrastructure due to grading constraints.
- Catchments 301 through 303 are approximately 6.32, 1.68 and 0.33 ha in size and are identical to the catchments previously described for the pre-development peak flow model.

This provides for a total catchment area of approximately 11.22 ha, of which 8.33 ha is external areas and 0.63 ha is internal areas remaining unchanged.

Figure 5 below shows the *Post-Dev-PF Channel* OTTHYMO model schematic.

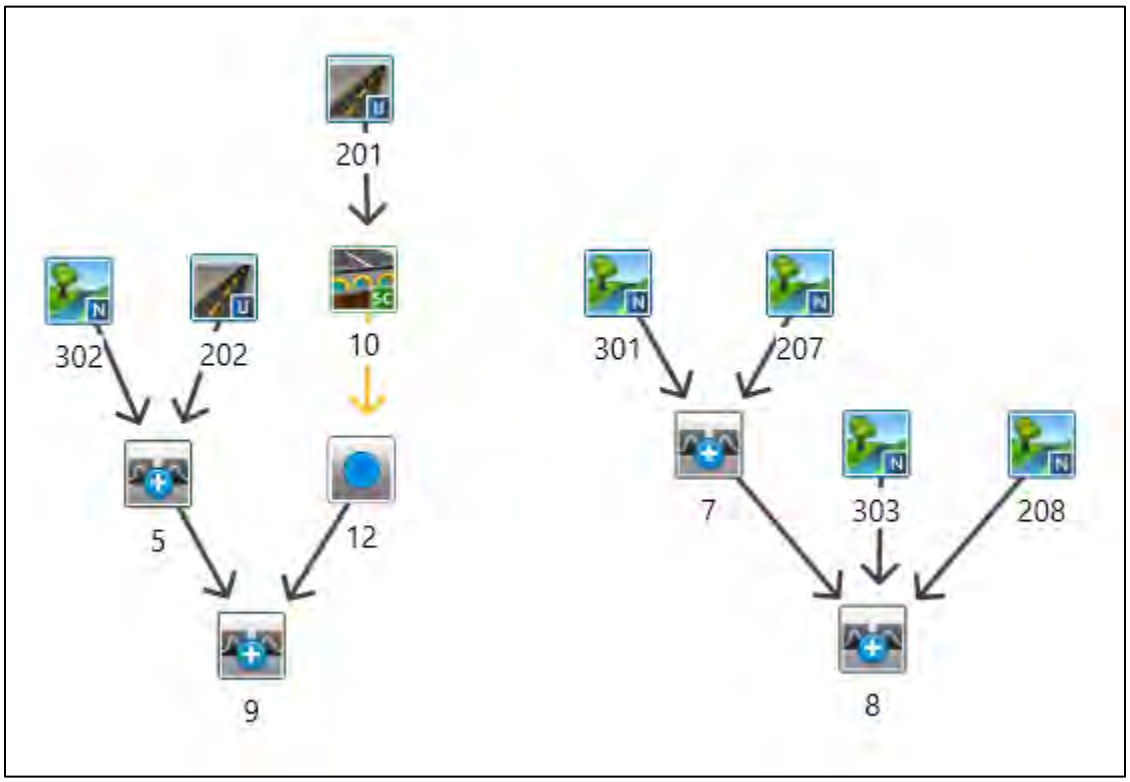


Figure 5 - *Post-Dev-PF Channel* OTTHYMO model schematic

The OTTHYMO model for the subject lands includes seven (7) discrete catchments. Post-development drainage conditions used in the *Post-Dev-PF Channel* OTTHYMO model are identical to those described previously for the *Post-Dev-PF* OTTHYMO model.

2.4 Low Impact Development & Pre-Treatment Devices

Low Impact Development (LID) is a stormwater management strategy that seeks to mitigate the impacts of increased runoff and stormwater pollution by managing runoff as close to its source as possible. LID compromises a set of site design strategies that minimize runoff using a variety of SWM features that mimic natural or pre-development hydrology through the processes of infiltration, evapotranspiration, harvesting, filtration and detention of stormwater. These practices can effectively remove nutrients, pathogens and metals from runoff, and reduce the volume and intensity of stormwater flows.

As per City of Barrie, LSRCA and MOE guidelines, Low Impact Development measures are being proposed throughout the development to better mimic the natural hydrologic cycle. The subject lands

will have an Up-Flo Filter and Underground Infiltration Gallery designed in accordance with the *Credit Valley Conservation Authority & Toronto and Region Conservation Authority – Low Impact Development Stormwater Management Planning and Design Guide (2010)*.

Infiltration rates used throughout the design and modeling utilize a factor of safety of 2.5.

The *Ratio of Impervious Drainage Area to Footprint Surface Area of the Practice,* otherwise referred to as the *Imperviousness Ratio (I/P Ratio),* for each proposed LID was determined comparing the directly connected upstream drainage area (i.e. rooftop areas excluded) to the area of the proposed practice to ensure each facility meets the footprint surface area sizing criteria to provide the anticipated levels of water quality treatment.

Further description of the LID's proposed for the site is provided in the subsections below. Plan, section and detail drawings have been provided for all LID facilities. The catchment areas for the proposed LID's are shown on **Drawings SWM-2**, and LID Sections are shown on **Drawing PP-2 and DET-11** in **Appendix B**.

2.4.1 Up-Flo Filter

An Up-Flo Filter is proposed upstream of the SWMF Infiltration Gallery. *Up-Flo Filter Unit UFF-10* (10-module) was selected for use in the subject lands with sizing provided by the manufacturer to meet the ETV particle size distribution and assist the treatment train in providing an *Enhanced Level* of quality control, removing TSS, TP and hydrocarbons. Up-Flo Filter ETV Performance Verification documents have been included in **Appendix C**. The unit will treat stormwater captured by the 5-year storm sewer before discharging to the downstream infrastructure.

An Up-Flow Filter's TSS and TP Removal efficiencies are based on two key parameters: the size of the upstream drainage area and its corresponding imperviousness. The removal efficiencies of the unit have been estimated by the manufacturer and is summarized below:

	Up-Flo Filter
Area, Imperviousness %	0.88 ha, 77%
Proposed Unit	UFF-10 (10-modules)
TSS Removal	81.9%
TP Removal	48%
% Annual RV	90.9%

Detailed calculations pertaining to sizing and overall removal efficiency of the devices have been provided in **Appendix C.** The location of the proposed Up-Flo Filter unit is shown on **Drawings STM-1,**

SWM-2 and **GS-1** in **Appendix B**. Specifications are provided on the detail sheets within the overall Civil Engineering Design drawing set and in **Appendix C**.

2.4.2 Infiltration Gallery

A centralized LID measure, elsewhere referred to as an Infiltration Gallery, is proposed as a subsurface detention and infiltration system in the common elements amenity space block within the site. This measure is also part of a treatment train, promoting infiltration of collected runoff. This facility has been sized to capture and infiltrate the full runoff volume from the 25 mm storm generated from Catchment 201, with full facility drawdown occurring within 48 hours. Site specific infiltration rates have been determined through Guelph Permeameter testing and used in the design. As previously stated, the assigned factored infiltration rate is **38 mm/hr.** A summary of the Infiltration Gallery LID sizing is provided in **Table 4** below.

Table 4 – Summary of LID Sizing – Park Infiltration Gallery

Park Infiltration Gallery	
Drainage Area ID	201
Drainage Area (ha)	0.88 ha
25mm Storm Runoff Volume (mm)	12.93 mm
Water Quality Volume (m^3)	113.8 m^3
*MOE Volume Required (based on 40 m^3/ha)	35.2 m^3
Provided LID Storage Volume (m^3)	128.1 m^3
**Drawdown Time (hr)	26.4 hr
***Drawdown Time (hr)	29.8 hr

* MOE Required Volume is based on the largest volume requirement for an Infiltration SWMP Type in MOE Table 3.2
** Drawdown time is extracted from Post-Dev-PF OTTHYMO model detail results for chamber 10 during the 25mm storm scenario. Refer to Post-Dev-PF OTTHYMO model 25mm WQE Detailed Report in **Appendix D**.
***Refer to *LID Facility Drawdown Time Calculations* (MOE SWMP&DM) in **Appendix C**.

The system is proposed in a partial inline configuration. Runoff captured is conveyed via the minor system directly to the facility. Storm events in excess of the 25mm event will have the initial portion of runoff captured by the facility, with larger flows by-passing the LID through an elevated overflow sewer. The system configuration will include an isolator row complete with a clean-out structure and sump. The system is proposed to have a footprint of approximately 101 m^2 and will be comprised of ADS StormTech MC-4500 PVC Modular Storage units with a 300 mm thick stone base and 300 mm of stone cover before native backfill is placed. All stone fill is to be 50 mm clear stone and will be wrapped completely with a woven geotextile.

This proposed system has an *I/P* ratio of **44.4:1**, exceeding the required criteria. It is worth noting that the footprint of the LID facility is limited in size due to drawdown time requirements. A smaller I/P ratio is not feasible with the existing site-specific constraints. Pre-treatment devices (Up-Flo Filter) are proposed to reduce the concentration of pollutants entering the practice, thereby lowering the overall pollutant load the practice is required to treat and provide additional levels of protection against sediment buildup. Refer to **Drawing SWM-2** for the location of the proposed Infiltration Gallery and **Drawing PP-2 and DET-11** for sections and details of the system in **Appendix B.**

2.4.3 Other Lot-Level LIDs

It is recommended that all catchments should incorporate an increased depth of absorbent topsoil of at least 300mm thick to promote at-source infiltration on pervious surfaces on lots. It is further recommended that any absorbent topsoil be amended with organic content (compost) as recommended in the *CVC/TRCA Design Guidelines* while scarifying subsoils and remaining as unconsolidated as reasonably possible to maintain void spaces. A study conducted in BC has asserted reductions in runoff volume and peak flows up to 50% from the placement of 300mm of absorbent landscaping (British Columbia Ministry of Land, Water and Air Protection, May 2002). Another study conducted in Ontario through the *Sustainable Technologies Evaluation Program (STEP)* has confirmed similar findings with a reduction in runoff of up to 27% (STEP, Residential Lot Level SWM Practices, 2013).

Other recommendations include downspout disconnection, where roof leaders are directed away from impervious surfaces. To implement downspout disconnection the low path must be at least 5m long and appropriately graded. Additionally, it is recommended to incorporate rain barrels at the lot level where possible, to further reduce runoff volumes to downstream systems.

It should be noted that although the measures in this subsection are recommended, to remain conservative, they are not included in any of the SWM calculations.

2.4.4 LID Sizing

Low Impact Development BMP's selected to be implemented on the subject lands have been sized in accordance with the MOE *Stormwater Management Planning and Design Guidelines* and the CVC & TRCA *Low Impact Development Stormwater Management Planning and Design Guide.* Each of the units have been sized in an effort to meet the following objectives:

1. Capture & retain onsite the runoff from the 25mm event over the total impervious area.
2. Provide Enhanced (Level 1) Quality Control.

3. Best Efforts to maintain pre-development water balance by promoting groundwater recharge through infiltration practices.
4. Best Efforts to reduce post-development Phosphorus loading to pre-development levels.

Each LID has been sized to adequately achieve the Runoff Volume Control target (Objective 1 above), and subsequently aids in achieving the remaining objectives for the overall site also listed above.

2.5 Stormwater Quantity Control

In order to provide the required stormwater quantity control, the site will utilize a combination of source and conveyance controls. The combination of LID measures will provide the required level of runoff volume control as well as reduce post development stormwater peak runoff. A summary of the W*ater Quantity Control Design Criteria* is summarized below in **Table 5**.

Table 5 – Stormwater Management Quantity Control Design Criteria

70 Pioneer Trail - Stormwater Management Design Criteria		
Category	**Sub-Category**	**Target**
Quantity Control	Peak Flow Control	Due to proximity to Kempenfelt Bay Peak flow control is not required for this development.
	Runoff Volume Control	5mm infiltration target
	Minor-Major System Conveyance	Minor System to convey 5-year event Major System to convey Regulatory event
	Regulatory Storm Conveyance	Convey the Regional Event to a sufficient outlet

2.5.1 Peak Flow Control

Due to the proximity of the site to Kempenfelt Bay Peak flow control is not required for this development. The following **tables 6 and 7** summarize anticipated pre-development and post-development discharge rates for the subject site. From a review of the model output, it was determined that the 24-Hour SCS Type II Storm distribution would generally govern for Volume and Peak Flow Control.

Table 6 - Hydrologic Model Results: *Pre-Dev-PF – AddHyd 1*

Storm Peak Event Flow (m^3/s)							
Storm Distribution	**Area (ha)**	**Return Period (years)**					
		2	**5**	**10**	**25**	**50**	**100**
Pre-Development Condition							
CHI 4-Hr Storm Distribution	2.89	0.008	0.018	0.027	0.041	0.052	0.065
SCS 6-hr Storm Distribution	2.89	0.015	0.034	0.050	0.075	0.096	0.119
SCS 12-hr Storm Distribution	2.89	0.016	0.034	0.050	0.073	0.093	0.114
SCS 24-hr Storm Distribution	2.89	**0.020**	**0.043**	**0.061**	**0.089**	**0.112**	**0.138**
25mm 4hr Chicago Storm	2.89	**0.002**					
Hazel Storm	2.89	**0.245**					

Table 7 - Hydrologic Model Results: *Post-Dev-PF – AddHyd 1*

Storm Peak Event Flow (m^3/s)							
Storm Distribution	**Area (ha)**	**Return Period (years)**					
		2	**5**	**10**	**25**	**50**	**100**
Post-Development Condition							
CHI 4-Hr Storm Distribution	2.89	0.020	0.043	0.061	0.090	**0.305**	0.378
SCS 6-hr Storm Distribution	2.89	0.033	0.072	0.106	0.155	0.196	0.453
SCS 12-hr Storm Distribution	2.89	0.034	0.071	0.101	0.146	0.182	0.221
SCS 24-hr Storm Distribution	2.89	**0.043**	**0.087**	**0.124**	**0.177**	0.221	**0.504**
25mm 4hr Chicago Storm	2.89	**0.007**					
Hazel Storm	2.89	**0.224**					

2.5.2 Runoff Volume Control

Runoff Volume control is provided by the Infiltration Gallery previously described in **section 2.4**. Refer to the above-mentioned sections for corresponding facility details. The subject lands are deemed to be a *Major Development* under the *Lake Simcoe Protection Plan* and are required to provide runoff volume control. Several constraints have been identified within the subject lands which limit the implementation of LID measures. Based on the current design, completed background investigations and studies, the following constraints restrict the implementation of LID's:

- High Groundwater Condition – Soil Report indicates that groundwater is located as close as 0.9m to the existing ground surface.

- Intake Protection Zone – Site is located in an Intake Protection Zone in accordance with the South Georgian Bay Lake Simcoe Source Water Protection Plan.
- Property/Infrastructure Restrictions – The existing boundary grading and proposed grading to match into these boundaries, limit the ability to implement LID's.

The factors identified above limit the location and effectiveness of infiltration-based LID practices throughout the subject lands. Alternative #2 was selected, which is to achieve the maximum volume reduction practicable through a best-efforts approach (minimum 5mm from all impervious surfaces). While the ability to infiltrate is limited within this development, infiltration and filtration is realized from the proposed treatment train. The following target was established for Runoff Volume Control (RVC_T) based on the LSRCA *Technical Guidelines for Stormwater Management Submissions – Section 2.2.2.2. Flexible Treatment Alternatives for Sites with Restrictions*:

Table 8 - Runoff Volume Control Targets

Runoff Volume Control Targets (RVCt)	
RVCT (mm)	5
Area (ha)	2.89
Imp (%)	44.1%
Volume (m^3)	**63.72**

The performance of the catchments for RVC_T for discrete events as well as the resulting discrete event capture has been summarized in **Table 9** below. Please refer to the OTTHYMO *Post-Dev-PF* model results in **Appendix D.**

Table 9 - Hydrologic Model Results: *Post-Dev-PF* - 25mm Water Quality Event

LID Performance - 25mm Event				
LID Name	**Catchment OTTHYMO ID#**	**Contributing Area (ha)**	**Total Runoff Volume (cu.m)**	**Infiltration Volume (cu.m)**
LID-1	201	0.88	113.82	101.38
No LID	202	0.63	15.49	0.00
No LID	203	0.13	1.69	0.00
No LID	204	0.21	2.02	0.00
No LID	205	0.42	1.63	0.00
No LID	206	0.50	11.23	0.00
No LID	207	0.10	0.78	0.00
No LID	208	0.03	0.22	0.00
Sub-Totals		**2.89**	**146.88**	**101.38**

The results demonstrate that the proposed LID practice will exceed the RVC_T of infiltration 5mm runoff from the impervious surfaces of the upstream drainage areas. A volume of **101.38 m³**, corresponding to an equivalent depth of **8.25 mm** is captured and infiltrated during the Water Quality Event, exceeding the RVC_T volume of **63.72 m³**, as outlined in **Table 8.**

2.5.3 Minor-Major System Conveyance

All collectable minor stormwater runoff (up to the 5-year event) will be conveyed to the proposed stormwater management facilities via a network of storm sewers. The storm sewer system has been designed for the 5-year event using the Rational Method. Storm Sewer sizing calculations have been completed as part of the detailed design phase of the project. Refer to **Drawings STM-1** for further details. If a blockage to the storm sewer network was to occur, site grading has been completed to safely direct flows to the same drainage channel without causing flooding to the proposed buildings or adjacent properties.

The major stormwater runoff will be conveyed along property lines to the roadway where grading permits and directed to the proposed stormwater management facilities and/or designated outlets. All channel sizing calculations have been completed to ensure they are adequately sized to convey the regulatory event. In addition, three twin street crossing culverts have been provided along the western portion of Street A to convey stormwater generated south of the project site towards Kempenfelt Bay. Peak flows used to size the crossing culverts have been extracted from the *Post-Dev-PF Channel* and *Post-Dev-PF Channel Hazel AMCIII* OTTHYMO modeling at AddHyd7. Supporting

Hydraulic Conveyance Calculations are provided in **Appendix C** and OTTHYMO AddHyd7 Node Detail Summary Outputs are provided in **Appendix D**.

2.5.4 Summary of Quantity Control Performance

The foregoing sections affirm that the proposed measures have met all of the requirements under the *Quantity Control* site target categories.

Table 10 – Stormwater Management Quantity Control Performance

70 Pioneer Trail - Stormwater Management Design Criteria			
Category	**Sub-Category**	**Targets**	**Targets Achieved**
Quantity Control	Peak Flow Control	Due to proximity to Kempenfelt Bay peak flow control is not required for this development.	**Yes**
	Runoff Volume Control	5mm infiltration target	**Yes**
	Minor-Major System Conveyance	Minor System to convey 5-year event Major System to convey Regulatory event	**Yes**
	Regulatory Storm Conveyance	Convey the Regional Event to a sufficient outlet	**Yes**

2.6 Stormwater Quality Control

As per the City, LSRCA and MOE requirements, *Enhanced* (Level 1) stormwater quality control is required for the subject lands. An integrated treatment train approach is proposed, utilizing the Up-Flo filter and infiltration gallery to filter storm water from the Water Quality Event prior to infiltration and reduce sediment loadings in the infiltration gallery. An overview of the treatment trains and catchment-based performance are provided in the following subsections.

A summary of the SWMF *Water Quality Control Targets* is summarized below in **Table 11**.

Table 11 – Stormwater Management Quality Control Design Criteria

70 Pioneer Trail - Stormwater Management Design Criteria		
Category	**Sub-Category**	**Criteria**
Quality Control	Total Suspended Soils	SWM Facilities shall provide Level 1 (Enhanced) Protection, 80% Long Term Removal *(CoB, MOE & LSRCA)*
	Total Phosphorus	SWM Facilities shall provide Enhanced level of protection *(COB, MOE & LSRCA)*
		Reduce overall site post-development phosphorous loadings to pre-development levels *(CoB, MOE & LSRCA)*
		All new developments must control 100% of phosphorous leaving the property to achieve a Zero Export Target. *(LSPOP)*

In addition to the quality control requirements, the incorporation of LID measures will provide phosphorous removal benefits to ensure that best efforts are taken to reduce post-development phosphorous loadings to pre-development levels (or a minimum 80% removal of TP from post-development). Phosphorous loading calculations are detailed within **section 2.6.3** below.

2.6.1 LID Pollutant Removal Efficiencies

An Up-Flo Filter and Infiltration Gallery are proposed to assist the site in achieving the Water Quality targets. These facilities have been sited and form a treatment train. A summary of the proposed measures and their corresponding removal efficiencies are provided below in **Table 12**. Concentration-based removal efficiency values used are taken from the *Low Impact Development Treatment Train Tool (LIDTTT), Version 1.2.1., April 2018.*

Table 12 - BMP Published Removal Efficiencies

LID BMP Concentration Based Removal Efficiencies		
LID Practice	**TSS Removal Efficiency (%)**	**TP Removal Efficiency (%)**
Infiltration Gallery	75	25
Up-Flo Filter*	81.9	48

*Removal Efficiencies referenced from manufacturer specifications.

The sites pollutant removal efficiencies have been adjusted according to site specific constraints. All infiltrated flows have been awarded a 100% TSS and TP removal efficiency, whereas flows bypassing LID facilities have been awarded 0% TSS and TP removal efficiency. Normally a 75% TSS and 25% TP removal efficiency would be awarded for LID outflows if the system utilizes an underdrain outlet for filtered runoff. Given the nature of the LID design it is anticipated that this bypass is only active during events greater than the 25mm Water Quality Event. Stormwater that is not able to be captured by the proposed facilities are not granted a removal efficiency.

2.6.2 TSS Loading & Removal – Treatment Train Calculations

The removal efficiency of a series of BMP devices in a treatment train can be expressed as follows:

$$R = A + B - [(A \times B)/100]$$

Where: R = Total Treatment Train Removal Efficiency (%)

A = Removal Efficiency of 1st (Upstream) BMP (%)

B = Removal Efficiency of 2nd (Downstream) BMP (%)

This approach to calculating treatment train removal efficiencies can be extended to include more than two devices.

The predicted water quality performance of the site LID facilities has been established using a weighted average of the upstream catchment area size and corresponding treatment train removal efficiency. The removal efficiencies of each of the discrete treatment trains and overall catchment performance is summarized below in **Table 13.**

There are three (3) treatment trains established within the site, as described below:

Table 13 – TSS Concentration Removal Efficiency

Contributing OTTHYMO Area ID#	Treatment Train	Area (ha)	Removal (%)
201	Up-Flo Filter > Infiltration Gallery (Infiltrated)	0.88	100.0
201	Up-Flo Filter > Infiltration Gallery (Bypass)	0.88	81.9
202, 203, 206 - 208*	Uncontrolled	1.37	0.0

*Catchments 204 and 205 have been excluded from the calculations because it is expected that there will be no change between pre- and post-development scenarios for these areas.

Upon review of the *Environment Canada Daily Climate Normals* for the *Barrie WPCC* from the years 1979 to 2008, a statistical analysis of rainfall data was completed. We have estimated that the rain gauge experiences approximately **947.7mm** of precipitation on an annual average over the 30-year time-period, comparable to the published mean average annual precipitation of **932.9mm** for the *Barrie WPCC* from 1981 to 2010.

The daily precipitation recordings were truncated following recommendations provided by the Environment Climate Change Canada, removing any precipitation occurring during winter months (December, January, and February) as they have been assumed to not directly produce runoff. This leaves a period of nine (9) continuous months in a given calendar year, which are described as *effective precipitation*, or precipitation events expected to produce runoff. In the nine (9) month period, there are on average 112.7 days of rainfall recorded, with 3.9 of those instances having a total depth of precipitation greater than 25mm. There are, on average, 63.6 instances with a depth of precipitation greater than 2.0mm but not greater than 25mm, and 45.2 instances of precipitation events with a depth 2.0mm or less. Events with recorded depth of 2.0mm or less were removed from the data set as this is the lower limit of *Initial Abstractions* typically used in hydrologic modeling of urbanized areas. These two ranges encapsulate 96.6% of all recorded precipitation events on an annual basis.

Of key interest are the 63.6 recorded instances of precipitation events with a recorded depth between 2.1 and 25mm, as these events represent the lower and upper bounds of the *Water Quality Event* (WQE). These events were sorted and tallied for each given year of recorded data and represent on an annual average over the 30-year period, 73.0% of the total precipitation received in a calendar

year. This *effective precipitation* driven by *Water Quality Events*, totalling 692.1mm on average, is the subset of precipitation events deemed to be producing runoff, for which the LID facilities have been sized to treat. Effectively, all runoff generated from this subset of the annual precipitation is captured, treated, and infiltrated for the LID Catchment. Assuming hydrologic losses remain constant across these *Water Quality Events,* it can be inferred that if 73.0% of the total average annual precipitation is produced by events less than or equal to the design event of the facility, then 73.0% of the average annual runoff would therefore be captured by the LID facility. Furthermore, events exceeding the design event (25mm 4-hour storm) for the facility do not by-pass the LID in their entirety, as the by-pass is only engaged above a certain ponding depth. All stormwater collected by the Infiltration Gallery below this ponding depth is treated and infiltrated. On average there are 3.9 events per year that produce greater than 25mm of precipitation. These events account for 20.3% (192.37mm) of the annual precipitation per year. Of this only the first 25mm precipitation is captured equating to 13.7% (129.55mm) of the annual precipitation. This additional volume thereby increases the annual LID runoff capture from 692.1mm to 821.6mm on average equating to a total average annual precipitation capture rate of **86.7%.** An electronic file with the *Barrie WPCC 1979 to 2008 Historical Climatology Data* has been provided with this submission. Supporting calculations have also been provided in **Appendix C** for reference.

Supported by the rational above we estimate that the weighted average TSS removal efficiency of the LID treatment train is **97.6%** on an average annual basis.

2.6.3 Phosphorous Loading & Removal – Treatment Train Calculations

A pre-to post-development phosphorous balance has been estimated for the site to address the LSRCA policy requirements.

The predicted water quality performance has been established using a weighted average of the upstream catchment area size and corresponding treatment train removal efficiency. The phosphorus removal efficiencies of each of the treatment trains and overall catchment performance is summarized below in **Table 14**.

There are three (3) treatment trains established within the site, as described below:

Table 14 – 70 Pioneer Trail: TP Concentration Removal Efficiency

Contributing OTTHYMO Area ID#	Treatment Train	Area (ha)	Removal (%)
201	Up-Flo Filter > Infiltration Gallery (Infiltrated)	0.88	100.0
201	Up-Flo Filter > Infiltration Gallery (Bypass)	0.88	48.0
202, 203, 206 - 208*	Uncontrolled	1.37	0.0

*Catchments 204 and 205 have been excluded from the calculations because it is expected that there will be no change between pre- and post-development scenarios for these areas.

Supported by the climatology rational above in **Section 2.6.2,** we estimate that the weighted average TP removal efficiency of the LID treatment train is **93.1%** on an average annual basis.

Further, the pre-development and post-development total phosphorous loading was estimated using a mass balance approach, utilizing land use breakdown statistics provided in **Appendix C**. The *MOE Pre- and Post-Development Phosphorous Loading* calculations have been provided in **Appendix C**.

Supporting calculations are provided below:

Pre-Development Annual TP Estimate

Drainage Area: 2.89 ha

Annual Load: 0.23 kg/yr – *from MOE Pre-Development Phosphorous Load*

Post-Development Annual TP Estimate (without mitigation)

Drainage Area: 2.89 ha

Annual Load: 0.32 kg/yr – *from MOE Post-Development Phosphorous Load*

Post-Development Annual TP Estimate (with mitigation)

Drainage Area: 2.89 ha

Annual Load: 0.22 kg/yr – *from MOE Post-Development Phosphorous Load*

Pre- and post-development annual loading of **0.23 kg/yr** and **0.32 kg/yr** were respectively estimated, indicating the site has **increased** the annual total phosphorous load in the post-development condition by **0.09 kg/yr** without the implementation of LIDs. The addition of LIDs will reduce the post-development annual total phosphorous load to **0.22 kg/yr.** A net **decrease** of **0.01 kg/yr** has been estimated between pre- and post-development conditions.

This development will be subject to the *Lake Simcoe Phosphorous Offsetting Policy* and as such, will pay a phosphorous offsetting fee to the LSRCA. The Phosphorous offsetting Fee is calculated as follows:

Offsetting Calculation = 1.15 x (2.5 x P load in kg x $35,770)

The developer is required to pay an estimated **$22,624.53** in offsetting costs.

2.6.4 Summary of Quality Control Performance

The foregoing sections demonstrate that the proposed LID measures provide **best efforts** in achieving all the requirements under the *Quality Control* site target categories. Site constraints outlined under **Section 2.5.2** have dramatically affected the implementation of LID facilities.

Table 15 - SWM Quality Control Performance

70 Pioneer Trail – Quality Control Performance			
Category	**Sub-Category**	**Criteria**	**Target**
Quality Control	Total Suspended Soils	SWM facilities shall provide Level 1 (Enhanced) Protection, 80% Long Term Removal *(CoB, MOE & LSRCA)*	**Yes**
	Total Phosphorus	SWM facilities shall provide Enhanced level of protection *(CoB, MOE & LSRCA)*	**Yes**
		Reduce overall site post-development phosphorous loadings to pre-development levels *(CoB, MOE & LSRCA)*	**Yes**
		All new developments must control 100% of phosphorous leaving the property to achieve a Zero Export Target. *(LSPOP)*	**No, a fee will be paid to the LSRCA to achieve the Zero Export Target.**

2.7 Water Balance

The primary objective of the LSRCA's water balance target is to capture and manage annual rainfall on the development site to preserve the pre-development hydrology (water balance) through a combination of infiltration, evapotranspiration, absorbent landscaping, rainwater reuse and/or other LID practices. Various site-specific characteristics contribute to the ability to achieve water balance. They include, but are not limited to: soil permeability, the ability to collect and direct drainage into the ground, groundwater table elevations and seasonal fluctuations. Best efforts will be made via the SWM Plan to maintain groundwater recharge while considering site specific characteristics.

A site-specific water balance has been completed by Azimuth Environmental Consulting and is detailed in the *Revised Hydrogeological Assessment,* dated August 2022. Azimuth completed a pre- to post-development water balance to estimate the infiltration volume deficit that would need to be mitigated via the proposed SWM Plan. The infiltration and runoff volumes as calculated in the Azimuth Water Balance Assessment are presented in **Table 16** below. Excerpts from Azimuth Environmental Consulting's *Revised Hydrogeological Assessment,* have been provided in **Appendix A**.

Table 16 – Summary of Water Balance (without mitigation) by Azimuth

Water Balance Runoff & Infiltration Volumes			
	Pre-Development	**Post-Development (without mitigation)**	**Difference**
Impervious Area Runoff Volume (m^3/a)	0	9,252	+9,252
Pervious Area Runoff Volume (m^3/a)	4,023	2,573	-1,450
Total Runoff Volume (m^3/a)	4,023	11,825	+7,802
Total Infiltration Volume from Pervious Surfaces (m^3/a)	8,391	4,370	-4,021

The results summarized in the table above indicate that there is an increase in total runoff volume and a deficit in infiltration volume from pre- to post-development without accounting for LID's. The SWM Plan herein is intended to mitigate the water balance deficit as outlined above. Runoff generated from this development is directed to the proposed Low Impact Development (LID) measures. The LID's and their contributing drainage areas are shown on **Drawing SWM-2** in **Appendix B.** In addition, runoff generated from rooftop areas not captured by the proposed LIDs are discharged to grassed areas via rooftop downspout disconnection. Downspout disconnection allows for additional infiltration to occur. The following table summarizes the post-development water balance inclusive of LID facilities.

Table 17 – Summary of Water Balance (with mitigation) by Azimuth

Water Balance Runoff & Infiltration Volumes			
	Pre-Development	**Post-Development (with mitigation)**	**Difference**
Impervious Area Runoff Volume (m^3/a)	0	4,445	+4,445
Pervious Area Runoff Volume (m^3/a)	4,023	2,296	-1,727
Total Runoff Volume (m^3/a)	4,023	6,741	+2,718
Total Infiltration Volume from Pervious Surfaces (m^3/a)	8,391	9,454	+1,063

The addition of LIDs has eliminated the post-development infiltration deficit entirely and provides a surplus of **1,063 m^3** annually. In summary, the proposed stormwater management plan has undertaken a best-efforts approach in **achieving pre- to post-development water balance targets** for the subject lands.

2.8 Erosion and Sediment Control

During construction, the majority of the development's natural features will be removed, and the topsoil stripped within the development area. The exposed surface will be susceptible to erosion,

increasing the potential for sediment runoff. To minimize local and downstream impacts from erosion and sedimentation during construction, the following measures have been recommended:

- Excess earth and topsoil is to be stockpiled away from the site limits and/or removed from site. Stockpiles shall be seeded or covered with erosion control if left for periods of greater than 30 days.
- Temporary sediment control fencing should be erected around the perimeter of all grading activities, including double silt fence along the north and eastern boundaries.
- Temporary sediment fabric and stone filters should be installed on catch basins until surface cover has been stabilized.
- Temporary rock flow check dams should be installed within drainage cut-off swales.
- A temporary construction access mud mat shall be installed at the construction accesses to reduce transmission of materials off site.
- Temporary erosion and sediment control basins are to be constructed, complete with a Hickenbottom outlet control structure and overflow weir. The basins' purpose is to detain runoff long enough to allow soil particles to settle out of suspension.
- Construction during drier months should be monitored for wind-borne transport of sediments. At the direction of the engineer, the contractor may be directed to water down exposed earth areas with an aqueous solution of calcium chloride.
- A weekly monitoring program to ensure all ESC measures are in place and not damaged by vandalism or a significant storm event.

The erosion and sediment control plan for the development is shown on **Drawing ESC-1** and the corresponding details are provided on **Drawing ESC-2**. Through proper implementation of the detailed erosion and sediment control measures, off-site impacts are expected to be minimized during the construction phase of the project.

All of the proposed ESC practices have been designed in accordance with guidelines provides by the *Greater Golden Horseshoe Conservation Authority Erosion & Sediment Control Guidelines for Urban Construction,* as well as the LSRCA and City of Barrie *Stormwater Management Guidelines.* Permits for *Site Alteration* and *Interference with* Wetlands *and Alterations to Shorelines and Watercourses* from the City of Barrie and LSRCA, will be obtained prior to construction of the site.

In summary, the proposed erosion and sediment control plan has undertaken a best-efforts approach in reducing the transmission of sediment off-site.

3. Sanitary Servicing

3.1 General

In terms of sanitary servicing, the proposed site will utilize individual Grinder Pumps (Environmental-One System) at each of the proposed units and a 75mm diameter HDPE SDR 11 forcemain to convey effluent. The proposed sanitary servicing is detailed on **Drawing GS-1**, refer to **Appendix B**. A 75mm diameter HDPE SDR-11 sanitary forcemain, currently exists at the east limit of Pioneer Trail and will be extended into the development to service the site. A copy of the As-Recorded Plan and Profile Drawings (P-14B and P-15B) is included in **Appendix A** for reference.

The individual grinder pumps will collect sanitary flows from each residential unit. The pumps will then direct flows to the sanitary forcemain and subsequently pump the effluent through the forcemain to the existing gravity sanitary sewer located at the intersection of Pioneer Trail and Camelot Square. The Environmental-One Grinder Pump System is a low-pressure sewer system and is already in use for the existing subdivision along Pioneer Trail. The original hydraulic analysis for the existing E-One system was carried out by John Brooks Company Limited. Accordingly, John Brooks Company Limited has been retained to complete a hydraulic analysis to confirm the existing/proposed sanitary system is sufficient to service the proposed development. At the time of report preparation, John Brooks completed the preliminary updated analysis. A copy of the *Pressure Sewer Preliminary Cost and Design Analysis* dated April 12, 2021, is included in **Appendix E** for reference. This report confirms there is no capacity concerns with the proposed 18-unit development. Email correspondence with Patrick Kelly from John Brooks Company Limited has been included in **Appendix E** for reference.

3.2 Projected Sanitary Flows

The City of Barrie Sanitary Sewage Collection System Policies and Design Guidelines provide theoretical design criteria for future developments and their projected sanitary loading demands. Specifically, the Guidelines provide average estimated daily sewage flow rates based on the building unit types and the projected person per unit (PPU). The single detached residential buildings have been assigned a PPU of 3.25. Utilizing an average daily demand of 225L/day/person the corresponding unit demand can be calculated as 731.25L/day/unit.

Based on the proposed development plan the analytical sanitary load forecast can be calculated with the following equation based on the total number of units and the estimated population of 59 people (18 units x 3.25 PPU).

$$Q_d = Q_p + Q_i = \left[\frac{PQM}{86400}\right] + IA$$

Where: Qd = Total peak sewage flow (L/s)

Qp = Peak domestic sewage flow (L/s)

Qi = Extraneous sewage flow (L/s)

P = Design population (59 people)

Q = Average daily flow (225 L/person/day)

A = Area of Development (Ha)

I = Units of extraneous flow (0.1L/s/Ha -> includes peaking factor)

M = Harmon Peaking Factor;

$$M = 1 + \frac{14}{\frac{P^{0.5}}{1{,}000}+4} \qquad (2.0<M<4.0)$$

Therefore: $$M = 1 + \frac{14}{\frac{59^{0.5}}{1{,}000}+4}$$

M = 4.49, use 4.0

$$Q_d = \frac{59 \times 225 \times 4.0}{86{,}400} + (2.03 \times 0.1)$$

Qd = 0.818 L/s ← total peak sewage flow

To confirm downstream infrastructure is appropriately sized to convey flow from the proposed development, a review of the Simcoe Shores Phase 2 sanitary sewer design sheet was completed at the proposed connection point at Camelot Square. A copy of the Simcoe Shores sanitary sewer design sheet is included in **Appendix E** for reference. The local sewers along Camelot Square have a percent utilization range of **4.2% to 6.2%** in the existing condition. By adding the peak flow of **0.818L/s** from the proposed development the local sanitary sewers percent utilization range would **increase to 6.3% and 8.4%** respectively, once buildout of the development was completed. Similarly, the downstream trunk sewer has a percent utilization of **59.6%.** By adding the flows from the development, the percent utilization would **increase to 60.3%.** Based on the above analysis it is anticipated that the **downstream infrastructure has sufficient capacity to service the proposed development.**

4. Water Servicing

4.1 General

This proposed development is located entirely within the City's Zone – 1 Pressure Area. This pressure zone is supplied water from several wells located around the lake shore and specifically the Anne Street reservoir.

The pressure in the zone is controlled by the water elevation in the Anne Street reservoir and given normal system operating pressures of 40psi minimum to 100psi maximum. The zone boundary generally falls within the elevations 245m and 219m. The elevations at the site are well within the required parameters so it is anticipated that the lands can be adequately serviced with municipal water, at acceptable pressure ranges.

External to the site there is an existing 200mm diameter watermain located within the Pioneer Trail right-of-way that services the existing residential dwellings. Currently the existing watermain within Pioneer Trail ends at valve #V5778 located at the eastern limit of right of way. This watermain will be extended into the proposed development lands to service the proposed development.

Based on pre-consultation discussions, the City is recommending that the existing 200mm watermain on Pioneer Trail be looped to the existing 150mm diameter watermain on Loyalist Court. The looping requirement is due to the distance (approximately 535m) of the single feed from Camelot Square to the proposed development, as well as the number of units the single feed will be servicing. By providing the recommended loop, the proposed water system will be more redundant and less susceptible to failures. In addition, pressures throughout the development lands will increase improving serviceability of the site. The loop will connect City pressure zones 1 and 2 South, as such, a Pressure Reducing Valve (PRV) will be required to be installed between Loyalist Court and Pioneer Trail. The design plan and profile drawings showing the proposed watermain connection between Pioneer Trail and Loyalist Court are in **Appendix B**. Refer to **drawing PP-3**. The PVR details are included on **drawings 25-92496-F-001** and **25-92496-F-002** in **Appendix B**.

The internal watermain will be 200mm diameter PVC DR-18 with a 50mm diameter copper watermain loop. Each residential unit will be serviced with a 25mm diameter copper water service. Fire hydrants, service connections and appurtenances will be installed in accordance with the current City standards and Ontario Building Code. Appropriate valves will be added to ensure watermain isolation and shut down procedures can be appropriately achieved. The proposed water servicing is detailed on **Drawings GS-1** and **WM-1**, refer to **Appendix B**.

4.2 Domestic Water Service Design Flows

Similar to Section 3.2, the Average Daily Demand (ADD) of 13,162 L/day or 0.152L/s for the proposed development is based on the projected population and the average daily flow per person (59 people x 225L/day/person). To determine the appropriate water distribution design flows for the Maximum Daily Demand (MDD) and Peak Hourly Demand (PHD), the ADD is multiplied by the Ministry of Environment standard peaking factors. Refer to Table 3-1, Design Guidelines for Drinking-Water Systems 2008, prepared by the Ministry of Environment. The peaking factor and corresponding flows are summarized as follows:

Maximum Daily Demand Factor:		2.75
Maximum Daily Demand:	0.152 L/s x 2.75 =	0.419 L/s
Peak Hourly Demand Factor:		4.13
Peak Hourly Demand:	0.152 L/s x 4.13 =	0.629 L/s

4.3 Fire Water Supply Design Flows

The City of Barrie Water Transmission and Distribution Design Standard **Section 4.3.1 Flow Calculations** outlines the minimum fire flow targets to be applied to the hydraulic network. The City's minimum fire flow for the type of unit proposed in the development equals to 100 L/s. However, the city also indicates that a specific fire flow demand shall be calculated in accordance with the Fire Underwriters Survey (FUS 1999.), and the greater of the FUS or city standard shall be used in the hydraulic model.

Fire Underwriters Survey

The Fire Underwriters Survey Equation is used to determine the required fire flow for a proposed development based on the total gross floor area and the following factors:

1. Type of construction;
2. Sprinklered versus non-sprinklered buildings, and
3. Exposure (building setbacks and proximity to the neighboring buildings).

Depending on the exposure distance to the proximity of the neighboring buildings a charge is applied to the fire flow to a max of 75%.

Exposure distance:

0 - 3m = 25%

3.1 - 10m = 20%

10.1 - 20m = 15%

20.1 - 30m = 10%

30.1 – 45m = 5%

45 - > = No charge

In addition to the charge applied to the fire flow based on the exposure distance there is also an adjusted charge based on the assumption that a fire in building (x) exposing another building (y) does not equate to a fire in building (y) exposing building (x). The following criteria below outlines the following conditions:

a) Same of poorer type of construction than fire building

b) Same of greater height than the fire building

c) Contains unprotected exposed openings

d) Unsprinklered

For each condition a ¼ of the max charge is applied to the calculated fire flow. In the condition with a fire rated wall between adjacent units an adjusted charge of 10% is applied to the exposure distance.

The following formula uses all the contributing factors to determine a development's fire flow requirements:

Fire Underwriters Equation: F = 220 x C x sqrt(A)

Where: F = The required fire flow (L/min),

C = coefficient related to the type of construction,

A = the total floor area (including all storeys, but excluding basements at least 50 percent below grade) in the building being considered (square metres)

Notes for the Coefficient (C) related to the type of construction:

C = 1.5 for wood frame construction (structure essentially all combustible);

C = 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior);

C= 0.8 for non-combustible construction (unprotected metal structural components, masonry or metal walls), and

C= 0.6 for fire-resistive construction (fully protected frame, floors, roof).

To determine the developments fire flow requirements the FUS Equation was used with the proposed buildings total floor area (4,499 sq. ft (418 sq. m)) and applied to the above formula;

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

$$F = 220 \times 1.5 \times \sqrt{418\ sq.m}$$

$$F = \mathbf{150\ L/s}$$

The total floor area was provided by Hunt Design Associates Inc.

It is noted that the building material was not known and as such the coefficient of 1.5 **(Wood frame construction)** was applied to the calculation to provide a more conservative fire flow. Refer to **Appendix F** for detailed calculations.

The following fire flow on residential street hydrants. The noted flow is more than the minimum required flow stipulated by the Ministry of Environment.

FUS Fire Flow: 150 L/s

4.4 Water System Analysis

The City of Barrie and Ministry of Environment require that the proposed water servicing be designed to ensure the following operating pressures are always maintained throughout the system:

Minimum Operating Pressure during MDD: 40 Psi

Minimum Operating Pressure during MDD + Fire Flow: 20 Psi

Maximum Operating Pressure: 100 Psi

To ensure the above noted targets are achieved, the proposed water distribution system was skeletonized and modeled using the Bentley WaterCAD software. A digital copy of the model is

included in **Appendix F**. The water usage demands (refer to section 4.2 and 4.3) were placed at the proposed locations of water services, and hydrants.

Existing distribution system flows/pressures were determined through field investigations (hydrant flow tests) undertaken by VIPOND Inc. on June 30th, 2022. A copy of the flow test results can be found in **Appendix F**. Two hydrant flow tests were carried out for this development. The first was based on hydrants H3031 (residual pressure) and H3032 (pilot pressure) on Loyalist Court where the proposed watermain looping for the development will connect. The second test was based on hydrants H3037 (residual pressure) and H3038 (pilot pressure) on Pioneer Trail near the connection point to the proposed Pioneer Trail works. The hydrant test results were used to simulate the existing flow/pressure patterns at the connection point of the system by assigning a pump and reservoir model. A schematic of the water distribution model is shown on **Drawing WAT-1**, refer to **Appendix F**.

A total of five (5) scenarios were created to ensure the appropriate operating pressures were maintained. The scenarios included Maximum Daily Demand (MDD), Peak Hour Demand (PHD) and MDD + Fire Flow at each of the three (3) proposed hydrants. The Hydrant Test derived from the Loyalist Court and Jewel House Lane intersection utilized a fire flow of 150L/s in accordance with the calculated FUS formula. Due to the elevation difference between this connection point and Pioneer Trail (approximately 26m) a Pressure Reducing Valve (PRV) will be required to ensure maximum operation pressures are achieved. The modelled results from the Hydrant Test are outlined in **Table 18**, below.

Table 18 – Summary of WaterCAD Model Pressures Hydrant Test

Scenario Name	Pressure Range (PSI)
MDD	88 to 100
PHD	88 to 100
MDD + Fire Flow Hydrant 1	31 to 57
MDD + Fire Flow Hydrant 2	27 to 57
MDD + Fire Flow Hydrant 3	20 to 57

The model reveals that during the MDD and PHD condition, the resultant pressure within the distribution system ranged from 88 to 100 Psi. During the MDD plus Fire Flow scenarios, the lowest system pressure within the proposed development corresponded to 20 Psi. Under no scenario did the pressure in the system exceed 100 Psi. All targeted pressures within the development have been achieved in the

model. Note that individual PRV's may be required on the individual dwellings dependent on final pressures of the system.

A schematic of the model and summary of the modelled pipe and nodal data (Flex Tables) are included in **Appendix F**. The analysis verifies that the appropriate system flows and required operating pressures will be maintained in the system at all times.

5. Secondary Utilities

All secondary utility services will be coordinated, and a Utility Servicing Plan created to indicate all underground locations once feedback from each utility company is provided. Electrical (Alectra), Natural Gas (Enbridge Consumer Gas), Telephone (Bell Canada) and Cable (Rogers Cable) are all available within the adjacent Municipal Right of Way. At this time, we do not foresee any limitations in servicing the development with secondary utilities; however, formal designs from each service provider are still required.

6. Conclusions

The proposed Pioneer Trail Residential Condominium Development has been fully examined for serviceability in this Report. The development lands can be appropriately serviced with existing and proposed municipal sanitary and water infrastructure and on-site stormwater management. Through proper execution of the proposed site servicing described herein and on the accompanying drawings, it is evident that the proposed development can become a functional part of the City of Barrie.

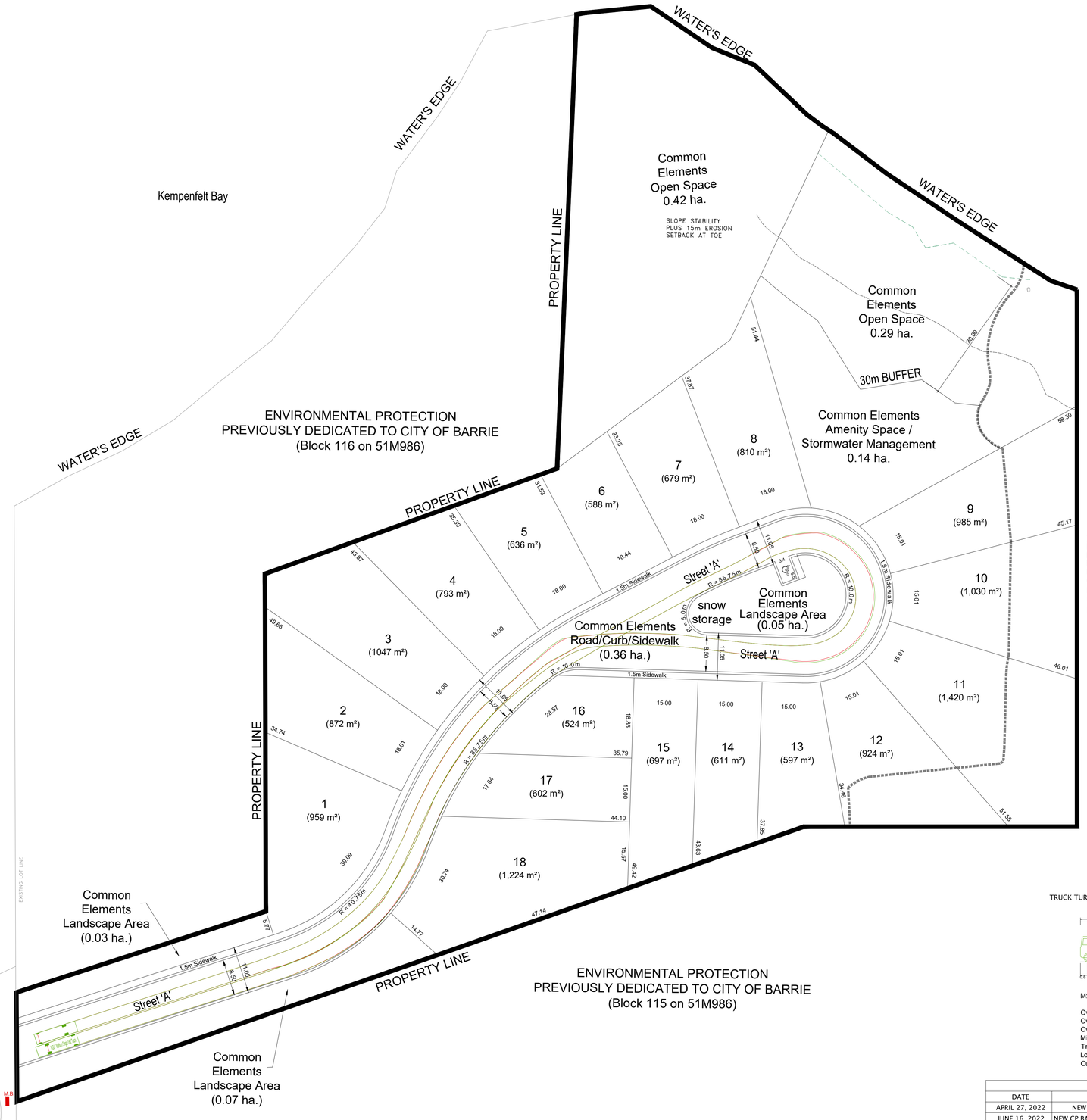
This Servicing and Stormwater Management Report is respectfully submitted,

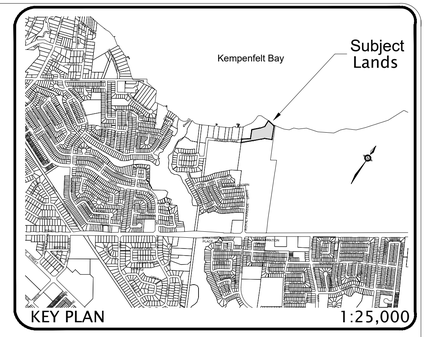
THE JONES CONSULTING GROUP LTD.

Appendix A

Planning and External Reference Information

- Parkside - *Common Element Condominium*, The Jones Consulting Group Ltd., January 24, 2022
- Soil Classification Information
    - Excerpt from the Ontario Department of Agriculture, *Soil Map of Simcoe County, Report No. 29*, dated 1962,
    - Excerpts from Terraprobe, *Assessment of Groundwater Levels February 2015 to August 2016 Monitoring,* dated September 13th, 2016,
- Water Balance, Guelph Permeameter Testing Results and Groundwater Monitoring Levels
    - Excerpts from Azimuth Environmental *Revised Hydrogeological Assessment* dated August 2022,
- *Simcoe Shores – Phase 2 Subdivision*, The Jones Consulting Group – Project # ROY-99151, As Recorded Plan Drawings,
    - P-14 B Plan and Profile Pioneer Trail STA. 0+000 to STA. 0+260
    - P-15 B Plan and Profile Pioneer Trail STA. 0+260 to STA. 0+530





Plan of Condominium

Part of Lot 16, Concession 13
Geographic Township of Innisfil
Now in the
City of Barrie
2022

STATISTICS

Zoning per By-Law 2009-141	R2 (SP-442) EP (SP-444) OS (SP-444)
Site Area	2.88 ha.
Total Number Of Residential Units	18 Units
Lot Area (min)	500 m²
Lot Frontage (min)	15.0 m
Front Yard to Dwelling (min)	4.5 m
Front Yard to Attached Garage (min)	7.0 m
Interior Side Yard (min)	1.2 m
Interior Side Yard to Attached Garage (min)	0.6 m
Rear Yard (min)	7.0 m
Dwelling unit floor area (min)	90.0 m
Lot Coverage (max of lot area)	45 %
Building Height (max)	10.0m

Site Details	
Site Area	2.88 ha.
Proposed Residential Lots (Lots 1-18)	18 Lots
Area of Residential Lots	1.50 ha. (52%)
Common Elements Breakdown	
Road, Curb and Sidewalk	0.36 ha.
Landscape Area	0.17 ha.
Amenity Area / Stormwater Management	0.14 ha.
Open Space	0.71 ha.
Total Common Elements	1.38 ha.

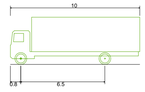
Subject Lands (Common Element Condominium)

Drainage Channel Buffer

M.B. Proposed Community Mailbox (nts)

0 5 10 20 30M
SCALE 1 : 500 (A1)

TRUCK TURNING TEMPLATE VEHICLE WITH DETAILS



MSU - Medium Single Unit Truck

Overall Length 10.000m
Overall Width 2.600m
Overall Body Height 3.650m
Min Body Ground Clearance 0.445m
Track Width 2.600m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 11.100m

SCHEDULE OF REVISIONS		
DATE	DESCRIPTION	DRAWN
APRIL 27, 2022	NEW CP BASED ON 8.5m ASPHALT PRIVATE ROAD	m.c.r.
JUNE 16, 2022	NEW CP BASED ON 8.5m ASPHALT PRIVATE ROAD ENTRANCE	m.c.r.
JUNE 20, 2022	REVISION TO CP REQUEST BY ARCHITECT	m.c.r.
JUNE 21, 2022	REVISION TO CP REQUEST BY ARCHITECT	m.c.r.
JUNE 29, 2022	REVISE CURBING TO BSD-313 STANDARD	m.c.r.
JULY 21, 2022	REVISE LOTTING BETWEEN LOTS 16-18	m.c.r.
JULY 21, 2022	SHOW TRUCK TURNING AND WIDEN CROSS WALK	m.c.r.
AUG. 2, 2022	REVISIONS AS PER CLIENT REQUEST	m.c.r.

PARKSIDE

Common Element Condominium

Brandi L. Clement
REGISTERED PROFESSIONAL PLANNER
R.P.P.

Date Issued:	JAN. 24, 2022
Checked By:	BC
Project No.:	FER-15101
Drawn By:	m.c.r.
Drawing Name:	FER-15101-POC-9.dwg

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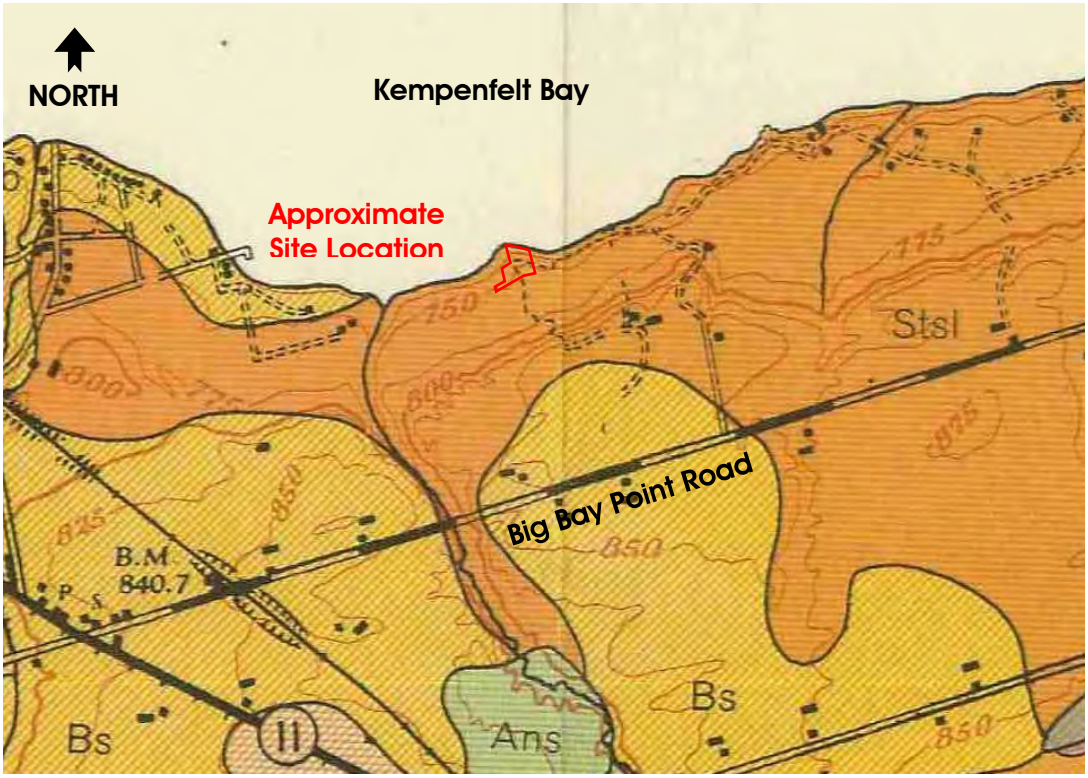
www.jonesconsulting.com

PARKSIDE (FERBROOK LTD.)
COMMON ELEMENT CONDOMINIUM
CITY OF BARRIE

G:\Planning Drawings\FER-15101(70 Pioneer Trail)\dwg\FER-15101-POC-9.dwg Layout:CE Plotted Aug 02, 2022 @ 12:15pm by marichards The Jones Consulting Group Ltd.

Soil Map of Simcoe County

Ontario – South Sheet – Soil Survey report No. 29



SERIES	SARGENT	GWILLIMBURY	GILFORD
TYPE, SYMBOL ACREAGE	gravelly sandy loam Stsl 27,100 gravelly sandy loam—steep phase Stsl-s 1,200	gravelly sandy loam Gg 1,900 gravelly sandy loam—stony phase Gg-b 400	gravelly loam Gil 800
COLOUR			
SOIL MATERIALS	Pale brown, calcareous outwash gravel.		
DRAINAGE	Good.	Imperfect.	Poor.
TOPOGRAPHY	Smooth, gently sloping.	Smooth, very gently sloping.	Level to depressional.
SURFACE STONINESS	Stonefree.	Moderate to very stony.	Stonefree.
SURFACE REACTION	Neutral to alkaline.	Alkaline.	
GREAT SOIL GROUP	Brown Forest.		Dark Grey Gleisolic.

Terraprobe

LOG OF BOREHOLE ..201..

PROJECT NAME: 70 Pioneer Trail Subdivision
PROJECT No.: 31-15-2003
CLIENT: Richwood Estates Inc.
BORING DATE: February 24, 2015
LOCATION: Barrie, Ontario
ELEVATION DATUM: Geodetic

BORING METHOD: D-50T Crawler-mounted Drill Rig / Solid Stem Augers

DEPTH SCALE IN METRES

DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	"N" VALUE
GROUND SURFACE		226.5			
175mm – TOPSOIL 500mm – SILTY SAND FILL, trace organics Brown Compact Moist		0.0	1	SS	24
			2	SS	14
SAND, trace to some silt, trace gravel			3	SS	22
			4	SS	15
		223.5			
Grey Hard Moist		3.0	5	SS	33
SILT & CLAY, to clayey, trace sand			6	SS	36
			7	SS	37
		219.9			
End of Borehole		6.6			

PENETRATION RESISTANCE PLOT
20 40 60 80
SHEAR STRENGTH kPa
nat.V – + Q – ●
rem.V – ⊕ U – ○
20 40 60 80

WATER CONTENT (%)
wP w wL
10 20 30

INSTALLATION INFORMATION

1. Borehole remained open and dry upon completion of drilling.

2. Water level on March 10, 2015 measured dry to 6.5m.

Terraprobe

LOG OF BOREHOLE ..202..

PROJECT NAME: 70 Pioneer Trail Subdivision
PROJECT No.: 31-15-2003
CLIENT: Richwood Estates Inc.
BORING DATE: February 24, 2015
LOCATION: Barrie, Ontario
ELEVATION DATUM: Geodetic

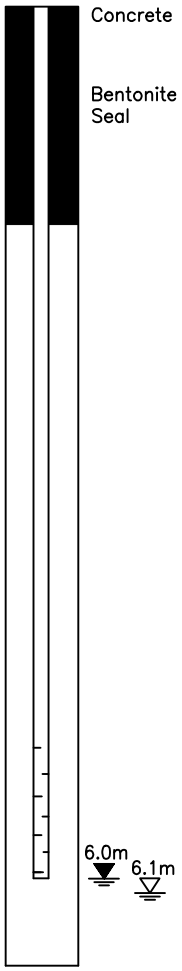
BORING METHOD: D-50T Crawler-mounted Drill Rig / Solid Stem Augers

DEPTH SCALE IN METRES	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	"N" VALUE
	GROUND SURFACE		224.9			
0	100mm - TOPSOIL		0.0			
	Brown Compact to Very Dense Moist to Wet			1	SS	36
1	SAND, trace to some silt, trace gravel, medium to fine			2	SS	22
2				3	SS	31
3				4	SS	43
				5	SS	36
4						
				6	SS	42
5						
6				7	SS	52
			218.3			
7	End of Borehole		6.6			
8						
9						

PENETRATION RESISTANCE PLOT
20 40 60 80
SHEAR STRENGTH kPa
nat.V - + Q - ●
rem.V - ⊕ U - ○
20 40 60 80

WATER CONTENT (%)
wP w wL
10 20 30

INSTALLATION INFORMATION



1. Borehole caved and water level noted at 6.1m upon completion of drilling.

2. Water level on March 10, 2015 measured at 6.0m (elev. 218.9m).

Terraprobe

LOG OF BOREHOLE ..203..

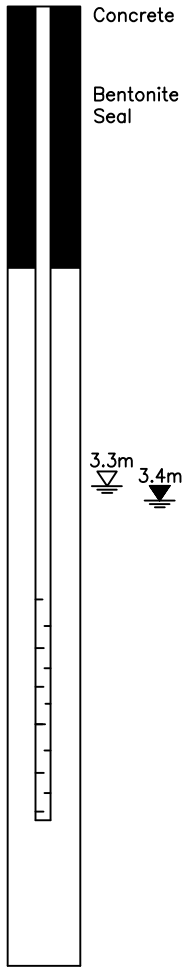
PROJECT NAME: 70 Pioneer Trail Subdivision
PROJECT No.: 31-15-2003
CLIENT: Richwood Estates Inc.
BORING DATE: February 24, 2015
LOCATION: Barrie, Ontario
ELEVATION DATUM: Geodetic

BORING METHOD: D-50T Crawler-mounted Drill Rig / Solid Stem Augers

DEPTH SCALE IN METRES

SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUE	PENETRATION RESISTANCE PLOT (20 40 60 80) / SHEAR STRENGTH kPa (nat.V - +, rem.V - ⊕, Q - ●, U - ○) (20 40 60 80)	WATER CONTENT (%) (WP, W, WL) (10 20 30)
GROUND SURFACE		229.3					
175mm - TOPSOIL		0.0					
Brown Loose to Dense Moist to Wet			1	SS	54	x	
SAND, trace to some silt, trace gravel			2	SS	6	x	
			3	SS	6	x	
			4	SS	6	x	
			5	SS	25	x	
			6	SS	37	x	
		222.7	7	SS	29	x	
End of Borehole		6.6					

INSTALLATION INFORMATION



1. Borehole caved and water level noted at 3.3m upon completion of drilling.

2. Water level on March 10, 2015 measured at 3.4m (elev. 225.9m).

Terraprobe

LOG OF BOREHOLE ..204..

PROJECT NAME: 70 Pioneer Trail Subdivision
PROJECT No.: 31-15-2003
CLIENT: Richwood Estates Inc.
BORING DATE: February 24, 2015
LOCATION: Barrie, Ontario
ELEVATION DATUM: Geodetic

BORING METHOD: D-50T Crawler-mounted Drill Rig / Solid Stem Augers

DEPTH SCALE IN METRES	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	"N" VALUE
	GROUND SURFACE		230.3			
0	Dark Brown Compact Moist SAND, some silt to silty, some organics, trace gravel, FILL		0.0	1	SS	17
1				2	SS	15
			229.0			
	Dark Brown Loose Moist ORGANIC PEAT, FILL		1.3	3	SS	6
2			227.9			
	Brown Loose to Very Loose Moist to Wet SAND, trace to some silt, trace gravel		2.4	4	SS	5
3				5	SS	4
4						
5				6	SS	2
6				7	SS	2
			223.7			
	End of Borehole		6.6			
7						
8						
9						

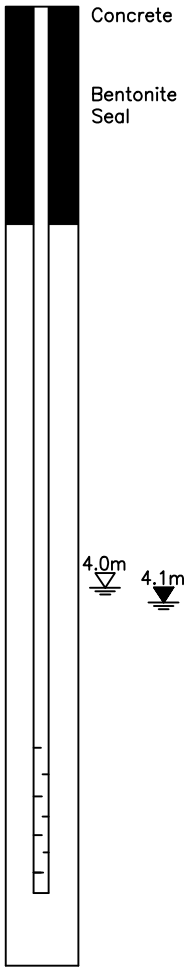
SAMPLES

PENETRATION RESISTANCE PLOT
20 40 60 80

SHEAR STRENGTH kPa
nat.V – + Q – ●
rem.V – ⊕ U – ○
20 40 60 80

WATER CONTENT (%)
wP w wL
10 20 30

INSTALLATION INFORMATION



1. Borehole caved and water level noted at 4m upon completion of drilling.

2. Water level on March 10, 2015 measured at 4.1m (elev. 226.2m).

Terraprobe

LOG OF BOREHOLE ..205..

PROJECT NAME: 70 Pioneer Trail Subdivision
PROJECT No.: 31-15-2003
CLIENT: Richwood Estates Inc.
BORING DATE: February 24, 2015
LOCATION: Barrie, Ontario
ELEVATION DATUM: Geodetic

BORING METHOD: D-50T Crawler-mounted Drill Rig / Solid Stem Augers

DEPTH SCALE IN METRES	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	"N" VALUE
0	GROUND SURFACE		230.6			
0	Brown Compact Moist SAND, some gravel to gravelly, trace to some silt		0.0	1	SS	27
1				2	SS	14
2				3	SS	32
2			228.5			
2	Brown Dense to Very Dense Moist to Wet SAND, fine to medium, silty to trace silt, trace gravel		2.1	4	SS	33
3				5	SS	39
4						
5				6	SS	54
6						
6				7	SS	36
			224.0			
6	End of Borehole		6.6			
7						
8						
9						

SAMPLES

PENETRATION RESISTANCE PLOT
20 40 60 80
SHEAR STRENGTH kPa
nat.V – + Q – ●
rem.V – ⊕ U – ○
20 40 60 80

WATER CONTENT (%)
wP w wL
10 20 30

INSTALLATION INFORMATION

1. Borehole caved and water level noted at 4.2m upon completion of drilling.

2. Water level on March 10, 2015 measured at 4.6m (elev. 226.0m).

Terraprobe

LOG OF BOREHOLE ..206..

PROJECT NAME: 70 Pioneer Trail Subdivision
PROJECT No.: 31-15-2003
CLIENT: Richwood Estates Inc.
BORING DATE: February 25, 2015
LOCATION: Barrie, Ontario
ELEVATION DATUM: Geodetic

BORING METHOD: D-50T Crawler-mounted Drill Rig / Solid Stem Augers

DEPTH SCALE IN METRES

DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	"N" VALUE
GROUND SURFACE		229.5			
500mm - Organic stained Sand		0.0			
Brown Loose to Dense Moist to Wet			1	AS	
SAND, trace to some silt, trace gravel			2	SS	4
			3	SS	3
			4	SS	4
			5	SS	19
			6	SS	44
		224.0			
Grey Very Stiff Moist		5.5			
SILT, some clay to clayey, trace sand			7	SS	18
		222.9			
End of Borehole		6.6			

PENETRATION RESISTANCE PLOT
20 40 60 80
SHEAR STRENGTH kPa
nat.V - + Q - ●
rem.V - ⊕ U - ○
20 40 60 80

WATER CONTENT (%)
WP W WL
10 20 30

INSTALLATION INFORMATION

1. Borehole caved and water level noted at 1.8m upon completion of drilling.

2. Water level on March 10, 2015 measured at 1.8m (elev. 227.7m).

Terraprobe

LOG OF BOREHOLE ..207..

PROJECT NAME: 70 Pioneer Trail Subdivision
PROJECT No.: 31-15-2003
CLIENT: Richwood Estates Inc.
BORING DATE: February 25, 2015
LOCATION: Barrie, Ontario
ELEVATION DATUM: Geodetic

BORING METHOD: D-50T Crawler-mounted Drill Rig / Solid Stem Augers

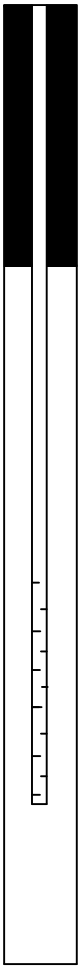
DEPTH SCALE IN METRES

DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	"N" VALUE
GROUND SURFACE		228.7			
Brown Compact Moist SAND, some organics, trace silt, trace gravel, FILL		0.0 228.0	1	SS	11
Brown Compact Moist to Wet SAND, trace to some silt, trace gravel		0.7 225.9	2 3 4	SS SS SS	16 28 28
Grey Very Stiff to Hard Moist SILT & CLAY to CLAYEY, trace sand		2.8 222.1	5 6 7	SS SS SS	26 40 47
End of Borehole		6.6			

PENETRATION RESISTANCE PLOT
20 40 60 80
SHEAR STRENGTH kPa
nat.V – + Q – ●
rem.V – ⊕ U – ○
20 40 60 80

WATER CONTENT (%)
wP w wL
10 20 30

INSTALLATION INFORMATION



1. Borehole caved and water level noted at 1.2m upon completion of drilling.

2. Water level on March 10, 2015 measured at 1.6m (elev. 227.1m).

Terraprobe

LOG OF BOREHOLE ..208..

PROJECT NAME: 70 Pioneer Trail Subdivision
PROJECT No.: 31–15–2003
CLIENT: Richwood Estates Inc.
BORING DATE: February 25, 2015
LOCATION: Barrie, Ontario
ELEVATION DATUM: Geodetic

BORING METHOD: D–50T Crawler–mounted Drill Rig / Solid Stem Augers

DEPTH SCALE IN METRES

SOIL PROFILE

DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)
GROUND SURFACE		227.6
300mm – TOPSOIL		0.0
Brown to Grey; Compact to Very Dense; Moist to Wet		
SAND, trace to some silt, trace gravel		
Grey		
		221.0
End of Borehole		6.6

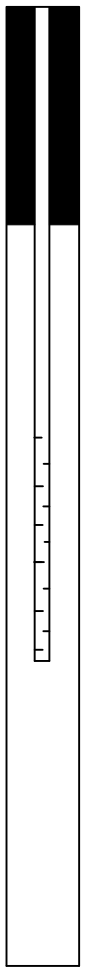
SAMPLES

NUMBER	TYPE	"N" VALUE
1	AS	
2	SS	22
3	SS	19
4	SS	22
5	SS	39
6	SS	52
7	SS	50/150mm

PENETRATION RESISTANCE PLOT
20 40 60 80
SHEAR STRENGTH kPa
nat.V – + Q – ●
rem.V – ⊕ U – ○
20 40 60 80

WATER CONTENT (%)
WP w WL
10 20 30

INSTALLATION INFORMATION



1. Borehole caved and water level noted at 1.5m upon completion of drilling.

2. Water level on March 10, 2015 measured at 1.1m (elev. 226.5m).

Terraprobe

LOG OF BOREHOLE ..209..

PROJECT NAME: 70 Pioneer Trail Subdivision
PROJECT No.: 31-15-2003
CLIENT: Richwood Estates Inc.
BORING DATE: February 25, 2015
LOCATION: Barrie, Ontario
ELEVATION DATUM: Geodetic

BORING METHOD: D-50T Crawler-mounted Drill Rig / Solid Stem Augers

DEPTH SCALE IN METRES	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	"N" VALUE
0	GROUND SURFACE		226.6			
	450mm - TOPSOIL		0.0			
	Brown Compact to Dense Moist to Wet			1	AS	
1	SAND, medium to fine, trace to some silt, trace gravel			2	SS	11
2				3	SS	27
				4	SS	35
3				5	SS	24
4						
				6	SS	46
5						
6			220.0	7	SS	35
	End of Borehole		6.6			
7						
8						
9						

PENETRATION RESISTANCE PLOT
20 40 60 80
SHEAR STRENGTH kPa
nat.V - + Q - ●
rem.V - ⊕ U - ○
20 40 60 80

WATER CONTENT (%)
WP W WL
10 20 30

INSTALLATION INFORMATION

1. Borehole caved and water level noted at 1.5m upon completion of drilling.

2. Water level on March 10, 2015 measured at 1.7m (elev. 224.9m).

Terraprobe

LOG OF BOREHOLE ..106..

PROJECT NAME:Ontario Mission of the Deaf Subdivision PROJECT No.: 3-07-3012

CLIENT: Ontario Mission of the Deaf BORING DATE: February 20, 2007

LOCATION: Barrie, Ontario ELEVATION DATUM: Geodetic

BORING METHOD: D50 Crawler-mounted Drill Rig / 108mm Diameter Solid Stem Augers

DEPTH SCALE IN METRES

DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	"N" VALUE
GROUND SURFACE		229.4			
150mm – TOPSOIL		0.0			
Brown Loose Moist to Wet			1	SS	9
			2	SS	8
SAND, trace to some silt			3	SS	9
			4	SS	3
			5	SS	6
			6	SS	10
		224.4			
End of Borehole		5.0			

SOIL PROFILE

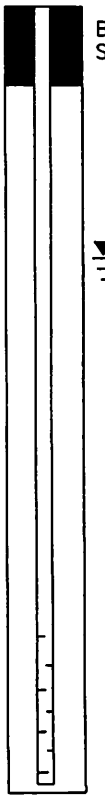
SAMPLES

PENETRATION RESISTANCE PLOT
20 40 60 80

SHEAR STRENGTH kPa
nat.V – + Q – ●
rem.V – ⊕ U – ○
20 40 60 80

WATER CONTENT (%)
P 10 20 30

INSTALLATION INFORMATION



1. Borehole caved at 2m upon completion of drilling.

2. Water level noted at 1.2m during drilling.

3. Water level on February 26, 2007 measured at 1.6m (elev. 227.8m).

Terraprobe

LOG OF BOREHOLE ..107..

PROJECT NAME:Ontario Mission of the Deaf Subdivision PROJECT No.: 3-07-3012

CLIENT: Ontario Mission of the Deaf BORING DATE: February 20, 2007

LOCATION: Barrie, Ontario ELEVATION DATUM: Geodetic

BORING METHOD: D50 Crawler-mounted Drill Rig / 108mm Diameter Solid Stem Augers

DEPTH SCALE IN METRES

DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	"N" VALUE
GROUND SURFACE		226.9			
Brown to Black — Loose to Compact — Moist		0.0	1	SS	5
SAND, trace to some organics, FILL			2	SS	27
		225.6			
Light Brown — Compact to Very Dense — Moist		1.3	3	SS	16
SILTY SAND, fine, with sandy silt, inclusions/layers			4	SS	43
			5	SS	50/125mm
		221.9	6	SS	50/150mm
End of Borehole		5.0			

SOIL PROFILE; SAMPLES

PENETRATION RESISTANCE PLOT

20 40 60 80

SHEAR STRENGTH kPa

nat.V - + Q - ●

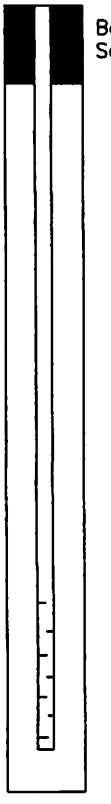
rem.V - ⊕ U - ○

20 40 60 80

WATER CONTENT (%)

10 20 30

INSTALLATION INFORMATION



1. Borehole remained open and dry upon completion of drilling.

2. Water level on February 26, 2007 measured dry to 4.7m.

MARCH 2015

BOREHOLE LOCATION PLAN

31-15-2003

Terraprobe

FIGURE 2

REVISED

Hydrogeological Assessment

70 Pioneer Trail

Barrie, Ontario

Prepared for:
Fernbrook Homes (Parkside) Limited

Prepared by:
Azimuth Environmental
Consulting, Inc.

August 2022

AEC 15-010

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Environmental Assessments & Approvals

August 15th, 2022 AEC 15-010

Fernbrook Homes (Parkside) Limited
c/o Mike Riccardi
2220 Highway 7 West, Unit 5
Concord, ON L4K 1W7

Re: **REVISED Hydrogeological Assessment**
70 Pioneer Trail, City of Barrie, ON

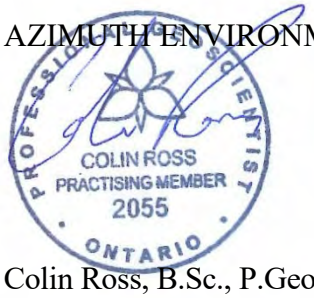
Dear Mr. Riccardi:

Azimuth Environmental Consulting, Inc. (Azimuth) is pleased to provide our Revised Hydrogeological Assessment for the property located at 70 Pioneer Trail within the City of Barrie, ON (the "Site"). This evaluation focused on the existing soil and ground water regime underlying the Site and the potential for the proposed development to impact the existing conditions. A water balance was previously included as part of an Environmental Impact Study (EIS) completed by Azimuth for the site dated June 30th 2017. This current report includes an additional dewatering assessment and has been updated to include the revised Site Plan. This report also includes revisions based on Lake Simcoe Region Conservation Authority (LSRCA) review comments (March 24, 2022) from previous submissions.

Should you have any questions or wish to discuss the report in greater detail, please do not hesitate to contact the undersigned.

Yours truly,

AZIMUTH ENVIRONMENTAL CONSULTING, INC.



Colin Ross, B.Sc., P.Geo.
Senior Hydrogeologist

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telephone: (705) 721-8451 • fax: (705) 721-8926 • info@azimuthenvironmental.com • www.azimuthenvironmental.com

Table of Contents

page

1.0 INTRODUCTION 1

2.0 ENVIRONMENTAL SETTING 1

2.1 Soil 1
2.2 Physiography 2
2.3 Topography and Drainage 2
2.3.1 Regional Geology 2
2.4 Hydrogeology 3

3.0 SOURCE WATER PROTECTION 3

4.0 MONITORING 4

4.1 Geotechnical 4
4.2 Ground Water Monitoring 4
4.3 Infiltration Testing 4
4.3.1 Methodology 5
4.3.2 Test Results 6
4.3.3 Recommendations 7

5.0 WATER BALANCE 8

5.1 Land Use 8
5.1.1 Pre-Development 8
5.1.2 Post-Development 8
5.2 Infiltration 9
5.2.1 Pre-Development Infiltration 10
5.2.2 Post-Development Infiltration 10
5.3 Water Balance Summary 11

6.0 DEWATERING AND IMPACT ASSESSMENT 11

6.1 Drawdown Conditions 12
6.2 Approximate Dewatering Volumes 12
6.3 Impact Assessment 14

7.0 SUMMARY AND CONCLUSIONS 14

8.0 REFERENCES 17

List of In-Text Tables

Table 1: MECP Water Well Database Summary[1] 3
Table 2: Summary of Test Pit Location Details 6
Table 3: Results of Infiltration Assessment 7
Table 4: Summary of Design Infiltration Rate 7
Table 5: Pre Development Area Classification 8
Table 6: Post Development Area Classification 9
Table 7: Summary of Pervious Land Infiltration Factor 9
Table 8: Summary of Dewatering Conditions 14

List of Figures

Figure 1 Study Area Location
Figure 2 Site Layout & Existing Conditions
Figure 3 Surrounding Well Records
Figure 4 Ground Water Information

List of Appendices

Appendix A: Figures
Appendix B: Site Plan
Appendix C: MECP Well Records
Appendix D: Borehole Logs
Appendix E: Ground Water Elevation Data
Appendix F: Water Balance Information
Appendix G: Dewatering Details
Appendix H: Source Water Protection Mapping
Appendix I: Infiltration Testing Data

1.0 INTRODUCTION

Azimuth Environmental Consulting Inc. (Azimuth) has been retained by Fernbrook Homes (Parkside) Limited C/O Mike Riccardi to conduct a Revised Hydrogeological Assessment for the property located at 70 Pioneer Trail within the City of Barrie, Ontario (the "Site")(Figure 1). The Site is irregular in shape and is approximately 28,858 square meters (m^2) in size. The Site is located at the eastern terminus of Pioneer Drive, and represents the eastern extent of the City of Barrie. Land immediately east is located within the Town of Innisfil.

Access to the study area from Pioneer Trail is currently possible by a single lane private driveway with no visible culvert or crossing structures. The Site previously contained a house and shed structure; however theses were both demolished in 2015 due to safety and vandalism concerns. A limited section of meadow is located adjacent to the former house structure, assumed to have once been a maintained lawn. The north extent of the Site is a composed of the shore of Lake Simcoe (Figure 2). A small portion of the shoreline has been historically cleared for an apparent boat launch, with the remaining shoreline unused.

It is our understanding that the Site will be developed into eighteen (18) single lot residential homes within a Common Element Condominium development. The Site will contain amenity space and a storm water management block (Site Plan - Appendix B / Figure 4). The purpose of this assessment is to characterize the existing hydrogeological conditions at the Site and the potential for the proposed development to impact the existing environmental conditions.

2.0 ENVIRONMENTAL SETTING

2.1 Soil

The soil map of Simcoe County (Soil Survey Report No. 29, Scale 1:63,360) shows the uppermost soil to be composed of Sargent gravelly sandy loam. This soil is described as pale brown, calcareous outwash gravel with good drainage and is stone free (Hoffman & Richards, 1962). Sargent gravelly sandy loam is classified within hydrologic soil group "A". Group A represent soils which have low runoff potential and high infiltration rates even when thoroughly wet. They consist of deep, well to excessively drained sand or gravel and have a high rate of water transmission.

2.2 Physiography

The Ontario Geological Survey (Chapman & Putnam, 1984) describes the study area as being located in the Simcoe Lowlands physiographic region, which lies around the east side of Lake Simcoe, through the shores of Kempenfelt Bay, and up toward Georgian Bay. The Simcoe Lowlands represent the area previously flooded by Lake Algonquin and are bordered by shore cliffs, beaches, and boulder terraces.

2.3 Topography and Drainage

According to regional contour mapping, the study area varies in elevation between about 232 metres above sea level (masl) along the southern property line and 219 masl along the shore of Lake Simcoe to the north. Topography of the study area therefore displays a continuous slope toward the north, however a steeper slope is observed immediately adjacent to the shoreline. Drainage from the pre-development site is expected to follow the local topography, and drain north by sheet flow into Lake Simcoe. Pre-development drainage is also expected to include runoff from the Algonquin Ridge to the south, which is a steeply sloped forest sloping north toward the site and Lake Simcoe. According to the Pre-Development Storm Drainage Plan (Jones, 2022) about 0.80 ha of the up-gradient land area drains through the Site via an existing channel along the eastern Site boundary, which will be maintained as part of the proposed development. The remaining 5.56 ha of up-gradient land area flows north into the Site until the existing gravel driveway, at which point it flows west and collects near the western Site boundary. Runoff is assumed to seep through the gravel driveway toward Lake Simcoe. There is a slight depression existing as a vegetated swale along the western EP lands boundary which may convey flow from the western woodland feature toward the Lake during periods of high flow. It is noted that this external flow will also be maintained post development as per the Jones, 2022 storm water plans.

The City collects raw water from Lake Simcoe for use as a potable water supply after treatment. The intake is located approximately 600 m east of the Site (SGBLS, 2015). The site is located within the Intake Protection Zone (IPZ-1), which is defined as a 1 km radius and/or a 120 m setback from the shoreline from the surface water intake.

2.3.1 Regional Geology

The regional geology reportedly consists of sand, gravel, with minor silt and clay associated with littoral deposits. The study area is intersected by a beach ridge which transverses the study area in an east to west direction, roughly parallel to the Lake Simcoe shoreline. A second, more prominent shore bluff is located immediately south of the Site and is locally referred to as the Algonquin Ridge. The Ontario Geological Survey (OGS) Earth Database shows that the uppermost bedrock at the study area consists of limestone and shale of the Simcoe Group and the Verulam Unit (OGS, 2021).

2.4 Hydrogeology

The Ontario Ministry of Environment, Conservation, and Parks (MECP) Water Well Records were referenced for any recorded well information within the vicinity of the Site (approximately 300 m)(GIN, 2021). The well records found in the vicinity of the Site are summarized in Table 1 and are shown on Figure 3:

Table 1: MECP Water Well Database Summary[1]

Well No.	Distance from site[2] (m)	Direction from site[2]	Elevation (masl)	Date Drilled	Static Water Level (mbgs)	Total Depth (m)	Well Type	Primary Use
5716766	35	E	236	1980-03-06	0.3	84.4	Overburden	Observation
5716044	65	E	229	1978-09-29	6.4	22.6	Overburden	Domestic
5719214	170	E	229	1983-05-14	1.8	23.8	Overburden	Domestic
5701627	195	SE	244	1966-02-28	15.2	36.0	Overburden	Domestic
5701626	195	SE	251	1966-02-28	15.2	36.0	Overburden	Domestic
5708962	260	E	232	1972-06-13	4.8	24.4	Overburden	Domestic
5706083	280	E	232	1968-12-21	9.1	21.6	Overburden	Domestic
5717366	240	W	229	1980-11-03	0.3	20.4	Overburden	Domestic
5701624	190	W	219	1967-11-25	0.3	27.7	Overburden	Domestic
5716767	275	SW	236	1980-03-19	1.2	73.2	Overburden	Observation
5705726	245	SW	233	1968-08023	0.6	45.7	Overburden	Domestic

Notes: [1] - values rounded for presentation purposes

[2] – values measured based on latitude and longitude recorded within the well record as displayed on Google Earth Pro (2015)

The surrounding wells in the MECP database were drilled primarily for domestic use, and ranged in depth between 20.4 m and 45.7 m. Two additional wells were drilled for observation use, and were 84.4 m and 73.2 m deep. None of the wells encountered bedrock, so the depth to bedrock is assumed to be greater than 84 meters below ground surface (mbgs). Further OGS bedrock mapping indicates it is approximately 125 m from surface. The static water levels ranged between 0.3 mbgs and 15.2 mbgs, however was typically less than 5 mbgs. The wells were drilled primarily into surficial sand, overlying clay, overlying a second sand unit. All of the wells obtained water from a confined sand unit. The observation wells were advanced through interbedded layers of sand and clay, representing the multiple aquifer units present in the overburden in the Barrie area. Well records for the immediate area are included in Appendix E.

3.0 SOURCE WATER PROTECTION

A review of the Source Water Protection Areas as identified on the MECP Source Protection Information Atlas website indicates the Site is considered a Significant Ground Water Recharge Area (SGRA); however it is not considered a Highly Vulnerable Aquifer (HVA). It is not located within a Wellhead Protection Area (WHPA) Q1 or Q2.

The site is located within the Intake Protection Zone (IPZ-1), which is defined as a 1 km radius and/or a 120 m setback from the shoreline from the surface water intake. The mapping is illustrated in Appendix K

4.0 MONITORING

4.1 Geotechnical

A geotechnical investigation was completed at the study in August of 2015 (Terraprobe, 2015). The scope of this investigation included advancing nine (9) boreholes across the study area to a maximum depth of 6.6 mbgs. Each borehole was also instrumented with a piezometer for ground water measurement.

In general, the subsurface conditions included 0.1 to 2.4 m of surficial organics and/or silty sand fill. Beneath this was a native layer of primarily loose to dense sand to silty sand with trace to some gravel and trace clay. Three boreholes (one at the north east corner of the Site and two at the south east corner) encountered very stiff to hard clayey silt to silt and clay below 2.8 m to a depth of 5.5 m. Occasional cobbles/boulders were also noted. This description of the shallow overburden is consistent with regional geologic mapping.

4.2 Ground Water Monitoring

Ground water was measured as part of the geotechnical program in each of the nine piezometers on a monthly basis between February, 2015 and August, 2016 (Terraprobe, 2016), while additional monitoring was also completed by GEI Consultants (2021). The water levels at the site varied seasonally, displaying the highest elevation in the spring (April 2016), at which point the water table elevation ranged between 0 –5 mbgs. This is expected to represent the high water table for the Site, and should be considered in the detailed design of basements, utilities, and any stormwater low impact design (LID). The complete record of ground water monitoring is provided in Appendix E. The high ground water condition is shown on Figure 4. It is noted that the ground water elevations from the February 2022 submission have been updated as it was noted that the reference elevations for the historical Terraprobe, 2016 dataset were incorrect. Ground surface was resurveyed in 2022 and the values have been updated based on the Terraprobe water levels relative to ground surface.

4.3 Infiltration Testing

The current Infiltration Assessment focused on the proposed subsurface infiltration chamber is sized to capture up to the 25 mm rainfall event runoff from the entire 201 catchment area (SWM-2, Appendix B). The purpose of this assessment was to assess the

existing soil beneath the proposed LID location, and determine a suitable infiltration rate for use in detailed design.

4.3.1 Methodology

A field program was conducted by Azimuth staff on June 23rd, 2022 between the hours of 8:00 am and 4:30 pm during which the weather was 25°C and overcast. Two test pits were advanced at the Site, at the eastern and western ends of the proposed the proposed LID system as tree cover limited access to the centre area. The test pits were advanced using a backhoe excavator contracted through Fernbrook Homes. The location of the test pit was marked in the field and located via a hand held GPS device. The test pit base elevation was therefore determined based on the ground elevation and test pit depth.

The Infiltration Assessment was completed in accordance with Appendix C of the *Low Impact Development Stormwater Management Planning and Design Guide* (TRCA 7 CVC, 2010). The test pits were advanced to an elevation approximately 0.2-0.3 m above the base of the LID. A hand auger was then used within the test pit to remove approximately 0.2-0.3 m of additional soil. The infiltration assessment was therefore completed at the base of the proposed LID. Information on the proposed LID design in included in Appendix B. The test pits were approximately about 3 m wide and 6 m long. An additional 1.5 m was excavated after the testing was complete to confirm the underlying material for each test pit.

The Guelph Permeameter Model 2800K1 (Soil Moisture Equipment Corp.) was used to measure the in-situ hydraulic conductivity as per the *Guelph Permeameter Operating Instructions* (Soil Moisture, 2012). Due to the dominance of granular material encountered, the single head method using the combined reservoir was utilized. Two tests were completed within each end at the base of the TP-1 due to variability in the soils (sand and clayey silt) for a total of four tests, while TP-1 had two tests completed. Each test was within an independent augered holes with varying well head heights for each of the three testing locations. The geometric mean from each of the two tests for each location were averaged to determine a representative value for the soil type.

Table 2: Summary of Test Pit Location Details

Test Pit ID (masl) [1]	Base of Test Pit Elevation (masl)[1]	Depth (mbgs)[2]	Approximate Coordinates[3]	
			Easting	Northing
TP-1 (226.5)	225.1	1.4	609643	4914043
TP-1A (226.5)	225.1	1.4		
TP-2 (226.5)	225.1	1.4	609631	4914019

NOTES:

[1] Ground surface elevation taken from site survey information and includes the depth of the augered holes
[2] Depth below surface level is the target depth of proposed LID systems at the location of each test pit.
[3] +/- 5 m accuracy based on tree cover

Soil samples were collected from the test pits at the approximate LID base elevation of infiltration testing for laboratory grain size and T-Time analysis. Three samples were completed representing each soil type (medium to coarse sand, medium to find sand and clayey silt). The soil sample analysis was used to confirm the in-situ results. After the infiltration tests were completed, the test pits were advanced an additional 1.5 m to confirm the underlying material, and then backfilled with the original soil material.

4.3.2 Test Results

The material encountered within the test pits was composed of 1.1 m of fill in TP-1 underlain by clayey silt in one section of the pit and medium to find sand in the other up to a depth of 2.9 mbgs. This variance is likely attributed to the shoreline terrace in close proximity to this location. This test pit was located at the northeastern end of the LID area. TP-2, which is located at the southwestern end of the LID area was comprised of native medium to coarse sand to a depth of 2.7 m. Ground water was not encountered in TP-1, but was noted at a depth of 2.4 mbgs in TP-2, 1 m below the base of the proposed LID. The complete test pit logs, grain size analysis and infiltration testing summary tables have been included in Appendix I.

The Guelph Permeameter generates a result as a hydraulic conductivity (K_{fs}) value. As per Table C1 from CVC & TRCA (2010), the K_{fs} values from the Guelph Permeameter and percolation rate (T-Time) values from the grain size analysis have been converted to an infiltration rate (1/T).

Based on the information provided in Table 3, the measured in-situ infiltration rate at the Site ranged between 29 and 219 mm/hr. These rates are consistent with values expected from a silt or clayey silt and granular sand material. The in-situ testing results and the estimate based on the grain size analysis appear to be generally correlated.

Table 3: Results of Infiltration Assessment

Test Pit ID	Soil Type at Depth[1]	Guelph Permeameter Results			Estimated Infiltration Rate from Soil Sample [1,3] (mm/hr)
		Test # 1 Infiltration Rate[2] (mm/hr)	Test # 2 Infiltration Rate[2] (mm/hr)	Geometric Mean Infiltration Rate (mm/hr)	
TP-1	Clayey Silt	27	30	29	<12
TP-1A	Medium to Fine Sand, Trace silt & Gravel	154	121	137	75
TP-2	Medium to Coarse Sand, Trace silt & Gravel	223	215	219	200
Geometric Mean (all tested soils)				95	56

NOTES:

1 As per Central Earth Engineering Letter Report dated June 30th, 2022 titled T-Time Analyses, Ref. No. 15-010

2 Guelph Permeameter results are converted from K_{fs} to 1/T according to Table C1 from TRCA & CVC (2010)

3 Soil sample collection results are converted from T-Time to 1/T according to Table C1 from TRCA & CVC (2010)

4.3.3 Recommendations

As per TRCA & CVC (2010), the infiltration rate used to design infiltration LIDs must incorporate a safety correction factor that compensates for potential reductions in soil permeability due to compaction or smearing during construction, gradual accumulation of fine sediments over the lifespan of the LID, and an uncertainty in measured values when less permeable soil horizons exist. A safety correction factor of 2.5 was used along with the geometric mean for infiltration rate as per TRCA & CVC (2010). Table 4 summarizes the recommended design infiltration rate for the location investigated:

Table 4: Summary of Design Infiltration Rate

Geometric Mean Infiltration Rate* (mm/hr)	Safety Correction Factor	Design Infiltration Rate (mm/hr)
95	2.5	38

* - geometric mean of three tested soil types beneath the LID facility

After applying a correction factor of 2.5, the design infiltration rate for the LID area is 38 mm/hr. The results for the Site indicate that the infiltration rate for the material at the base of the LID is variable but feasible given the mean infiltration values.

5.0 WATER BALANCE

In order to determine the potential changes to the natural ground water recharge conditions, a pre- and post-development water balance assessment has been completed using the Thornthwaite and Mather method (1957). This method evaluates evapotranspiration based on precipitation and temperature. Residual soil saturation is a function of topography and soil type. Monthly data are tabulated from daily average temperature and precipitation, and the water budget is a continuous calculation over the period of record. To clarify, the method and the approach used by many individuals in examining infiltration resets annual conditions (moisture deficit, snow storage, etc) over the winter months because of the general lack of infiltration during the frost period. However, we maintain those records and carry them forward from month to month during the entire period of record.

Values were determined on a monthly basis, compiled from daily Environment Canada meteorological data station located in Barrie, Ontario between 1970 and 2020 (Barrie Climate Station – Station ID 6110557 / 6110556). The calculations are based on the average conditions during this period. The average precipitation was 909 millimeters (mm), rainfall was 655 mm, evapotranspiration was 479 mm, and the surplus was 430 mm per year.

5.1 Land Use

5.1.1 Pre-Development

The pre-development Site area was classified according to land use/vegetation type. Land within the pre-development area is provided in Table 5.

Table 5: Pre Development Area Classification

Land Use	Land Area (m^2)
Forest	21,929
Bare Ground	6,940
TOTAL	28,869

Land within the pre-development scenario is considered 0% impervious. The pre-development areas are shown on Figure 2.

5.1.2 Post-Development

The land classification in the post-development scenario was classified based on the Site Plan (Appendix B / Figure 4). Land within the post-development Site is summarized in the below Table 6:

Table 6: Post Development Area Classification

Land Use	Land Area (m^2)
Forest	4,746
Landscaped Grass	9,386
Landscaped Grass (LID)	2,014
Road / Driveway / Sidewalk	315
Road / Driveway / Sidewalk (LID)	4,466
Rooftop	5,618
Rooftop (LID)	2,324
TOTAL	**28,869**

(LID) – areas represent catchment 201 (including all 201 subcatchments), which is being directed into LID infiltration gallery

Land within the post-development scenario is considered 42% impervious.

5.2 Infiltration

Infiltration is generated one of two ways: (1) directly from rainfall impact or snowmelt on pervious surfaces; and (2) indirectly when runoff from impervious surfaces is diverted into adjacent naturalized areas.

Infiltration factors for the Site were estimated based on the underlying soil, local topography, and ground cover as per Table 2 of the Ministry of Environment and Energy (MOEE) Hydrogeological Technical Information Requirements for Land Development Applications (1995).

The soil variable factor was determined by taking into account information obtained from the regional geologic mapping and the geotechnical program completed for the Site. This information suggests that the surficial material at the Site is primarily composed of silty sand to sand, however some areas with surficial silt to silt and clay was noted. The infiltration factors utilized in the water balance assessment are summarized in Table 7 below.

Table 7: Summary of Pervious Land Infiltration Factor

Scenario	Land Use	Infiltration Factor	Assumption
Pre-Development	Forest	0.70	Rolling land (0.2), sandy soil (0.3), woodland vegetation (0.2)
Post-Development	Landscaped / Grassed	0.60	Rolling land (0.2), sandy soil (0.3), lawn (0.1)

5.2.1 Pre-Development Infiltration

Pre-development direct infiltration was determined by multiplying the annual average surplus amount, the area of each land use, and the infiltration factor for each land use. The pre-development annual infiltration is therefore 8,391 m^3/year (Appendix F).

5.2.2 Post-Development Infiltration

Post-development infiltration (without mitigation) was determined by multiplying the annual average surplus amount, the area of each land use, and the infiltration factor for each land use. The post-development annual direct infiltration is therefore 4,370 m^3/year. There is therefore a decrease in infiltration of 4,021 m^3/year from pre- to post-development without mitigation measures employed.

The post-development drainage plan includes low impact development (LID) to promote infiltration. An infiltration gallery will be included in the storm water design to collect runoff from the entire 201 catchment (including all subcatchments) area (SWM-2, Appendix B). The details for this feature are outlined in the Jones, 2022 Storm Water Management Plan Report, which indicate it is designed for capture of a 25 mm rainfall event. In order to correlate event based rainfall data, for which the LID's are designed (i.e. 25 mm rainfall event), to annual averages, as is what is utilized in water balances, an event based assessment has been completed for the Barrie Climate station. Rainfall events over an 8 year period (2012-2019) were broken down by event size, such that total volumes for each of these events could be calculated for capture from hard surface area (road, rooftop). These totals were then related to the total volume over the same period to obtain a percentage. This percentage is then multiplied by the annual average value (655 mm) utilized in the overall water balance to obtain an annual average amount / depth for the various intervals. It was determined that an event rainfall depth of 25 mm represented an average annual rainfall total of 614 mm or 94% of the rainfall events over this period of record. It is noted that these represent cumulative amounts for all rainfall amounts less than the stated event size. In order to quantify the annual infiltration volumes for the LID, the annual rainfall depth (event equivalent) discussed above is multiplied by the areas within catchment 201, which have the "LID" designation in water balance summary table (Appendix F). Similarly, this designation is used for pervious (landscaped) areas as well. These areas will have infiltration such that the difference between the surplus and infiltration volumes was utilized for contribution into the LID for catchment 201. This results in an overall increase in infiltration of 3,612 m^2.

Additional infiltration will be gained by directing rooftop runoff outside of the LID capture area toward the adjacent grass surface, which essentially encompasses the rear of residential lots. There is approximately 5,618 m^2 of rooftop area which will contribute to indirect infiltration. The infiltration volume for rooftop downspouts is determined by

multiplying the area (5,618 m^2) by the annual rainfall (655 mm) by the by 50% as per the CVC LID Manual for HSG A & B soils and by 80% to account for a 20% evapotranspiration factor. The total infiltration gained through this method is 1,472 m^3/year.

It is noted that added conservancy is reflected in these numbers through discounting of snow melt. Although difficult to quantify due to seasonal storage and movement (i.e. snow banks, snow dumps), it can provide a potential meaningful contribution as it represents ~28% of total precipitation.

5.3 Water Balance Summary

Using the climate model data and calculations mentioned above, the water balance was completed for pre-development, post-development, and post-development with mitigation (Appendix F).

The pre-development infiltration volume is 8,391 m^3/year. This assumes the Site is composed of forested and grassed areas. The post-development without mitigation infiltration volume is 4,370 m^3/year, which is a deficit of 4,021 m^3/year. This assumes the Site is composed of the above noted residential development. An additional 3,612 m^3/year of infiltration can be obtained through LID capture (infiltration gallery), as well as 1,472 m^3/year from downspout disconnection on the rear roof components outside of the LID capture area. As a result of these mitigation measures, the post-development with mitigation volume is therefore 9,454 m^3/year which represents an increase of 1,063 m^3/year (+13%) from the pre-development configuration.

6.0 DEWATERING AND IMPACT ASSESSMENT

The proposed development will include the construction of 18 residential lots, which will be serviced with municipal water and sanitary services. This servicing will be connected to existing municipal infrastructure at the west end of the Site at the current terminus of Pioneer Trail and will extend along the proposed road alignment. Due to the presence of shallow ground water at the Site, dewatering will likely be required to maintain dry conditions during construction.

Shallow excavations into the ground water table can typically be controlled by conventional sump pump technologies and will likely be appropriate for use at the Site. If the required drawdown is greater than 1.5m, or the servicing alignments are in close proximity to surface water bodies, the use of shallow well points or eductor systems may be required. The exact dewatering methodology will depend on Site specific conditions and will be determined by a specialist contractor.

LAKE SIMCOE

PIONEER TRAIL

GROUND WATER INFILTRATION LID

4m WIDE ACCESS ROAD

BH208 226.57

BH209 226.50

BH107 223.30

BH201 221.50

BH202 219.30

BH207 227.09

BH203 226.68

BH205 227.29

BH204 227.08

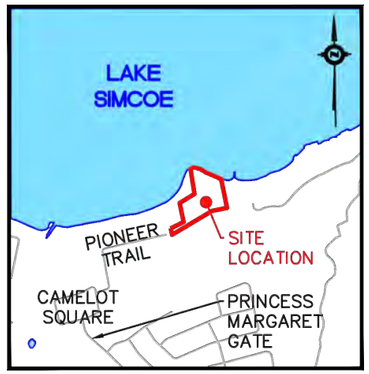
BH206 228.81

BH106 228.88

220.00 220.50 221.00 221.50 222.00 222.50 223.00 223.50 224.00 224.50 225.00 225.50 226.00 226.50 227.00 227.50 228.00 228.50

LEGEND:

- APPROX. PROPERTY BOUNDARY
- APPROX. BOREHOLE /MONITORING WELL LOCATION
- 186.00 — GROUND WATER CONTOURS (masl; BASED ON DATA PROVIDED BY TERRAPROBE, APRIL 2016)
- INFERRED DIRECTION OF GROUND WATER FLOW



LOCATION PLAN

0 25.00 50.0

HORIZONTAL SCALE 1:1000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
ENVIRONMENTAL ASSESSMENTS & APPROVALS

GROUND WATER INFORMATION

70 PIONEER TRAIL BARRIE, ON

DATE ISSUED:	*AUGUST 2022*	Figure No.
CREATED BY:	*A.L.*	4
PROJECT NO.:	*15-010*	
REFERENCE:	*SIMCOE COUNTY*	

Plotted by: ALU on August 15, 2022 at 10:37am
File: P:\15 projects\15-010_70 pioneer trail sp\04.0 - drafting\15-010_Site Layout.dwg Layout: Groundwater Information Plotscale: 1

Ground Water Level Data

Monitoring Well	Ground Surface Eelvation (masl)	Stickup (m)	Water Level (mbtop)																					
			25-Feb-15	10-Mar-15	16-Apr-15	14-May-15	10-Jun-15	14-Jul-15	24-Aug-15	15-Sep-15	16-Oct-15	16-Nov-15	11-Dec-15	04-Jan-16	11-Feb-16	10-Mar-16	08-Apr-16	24-May-16	17-Jun-16	19-Jul-16	16-Aug-16	31-Mar-22	29-Apr-22	31-May-22	23-Jun-22
BH201	226.50	0.75	5.75	5.75	5.75	5.25	5.45	5.55	5.55	-0.75	-0.75	5.55	5.65	5.65	5.65	5.65	4.25	3.95	4.45	5.55	5.55	6.65	6.09	6.10	6.31
BH202	225.00																					Obstructed			
BH203	228.38	0.65	2.65	2.75	1.65	1.85	2.35	2.35	2.85	2.85	3.25	3.15	2.95	2.75	2.15	2.05	1.05	1.85	2.35	2.75	3.05	2.76	3.02	4.28	3.63
BH204	229.28	0.81	3.19	3.29	1.89	2.29	2.99	2.89	3.49	3.49	3.79	3.49	3.19	2.89	2.29	2.19	1.39	2.19	2.89	3.39	3.59	3.22	3.57	4.67	NA
BH205	229.89	0.70	3.50	3.90	2.70	3.00	3.50	3.50	4.10	3.90	4.40	4.40	4.20	4.00	3.30	3.30	1.90	3.00	3.40	4.00	4.30	3.71	4.10	4.67	4.80
BH206	229.51	0.90	0.90	1.00	-0.30	0.30	0.90	0.40	1.10	1.10	1.50	1.20	0.80	0.30	-0.10	-0.20	-0.20	0.10	0.80	1.30	1.50	1.62	1.60	2.18	2.00
BH207	227.89	0.85	0.35	0.75	-0.05	0.15	0.45	0.45	0.75	0.75	1.05	0.95	0.75	0.45	0.05	-0.05	-0.05	0.05	0.55	0.95	0.65	1.52	1.53	1.77	1.71
BH208	226.57																					Destroyed			
BH209	226.70	1.09	0.41	0.61	-0.49	-0.29	0.21	0.21	0.71	0.71	1.11	1.11	0.81	0.71	0.01	-0.09	-0.89	-0.29	0.11	0.61	0.91	1.09	1.33	1.85	1.98
BH106	229.58																					Not Located			
BH107	226.90	0.90		3.70	3.70	3.70	3.70	3.70	3.70	3.60	-0.90	3.70	3.70	3.70	3.70	3.70	2.70	3.50	3.70	3.70	3.70	Obstructed	5.64	NA	NA

* - stickup values not available for wells which were not found in 2021 (assumed destroyed) so metres below top of pipe values not reported

Monitoring Well	Ground Surface Eelvation (masl)	Stickup (m)	Water Level (mbgs)																					
			25-Feb-15	10-Mar-15	16-Apr-15	14-May-15	10-Jun-15	14-Jul-15	24-Aug-15	15-Sep-15	16-Oct-15	16-Nov-15	11-Dec-15	04-Jan-16	11-Feb-16	10-Mar-16	08-Apr-16	24-May-16	17-Jun-16	19-Jul-16	16-Aug-16	31-Mar-22	29-Apr-22	31-May-22	23-Jun-22
BH201	226.50	0.75	6.50	6.50	6.50	6.00	6.20	6.30	6.30			6.30	6.40	6.40	6.40	6.40	5.00	4.70	5.20	6.30	6.30	5.90	5.34	5.35	5.56
BH202	225.00		6.10	6.00	5.80	5.80	5.90	5.90	5.90	5.70	5.90	5.90	5.90	5.90	5.90	5.90	5.70	5.90	5.90	5.90	5.90	Obstructed			
BH203	228.38	0.65	3.30	3.40	2.30	2.50	3.00	3.00	3.50	3.50	3.90	3.80	3.60	3.40	2.80	2.70	1.70	2.50	3.00	3.40	3.70	2.11	2.37	3.63	2.98
BH204	229.28	0.81	4.00	4.10	2.70	3.10	3.80	3.70	4.30	4.30	4.60	4.30	4.00	3.70	3.10	3.00	2.20	3.00	3.70	4.20	4.40	2.41	2.76	3.86	NA
BH205	229.89	0.70	4.20	4.60	3.40	3.70	4.20	4.20	4.80	4.60	5.10	5.10	4.90	4.70	4.00	4.00	2.60	3.70	4.10	4.70	5.00	3.01	3.40	3.97	4.10
BH206	229.51	0.90	1.80	1.90	0.60	1.20	1.80	1.30	2.00	2.00	2.40	2.10	1.70	1.20	0.80	0.70	0.70	1.00	1.70	2.20	2.40	0.72	0.70	1.28	1.10
BH207	227.89	0.85	1.20	1.60	0.80	1.00	1.30	1.30	1.60	1.60	1.90	1.80	1.60	1.30	0.90	0.80	0.80	0.90	1.40	1.80	1.50	0.67	0.68	0.92	0.86
BH208	226.57		1.50	1.10	0.10	0.30	0.70	0.60	1.00	1.20	1.50	1.50	1.40	1.10	0.30	0.10	0.00	0.30	0.70	1.20	1.20	Destroyed			
BH209	226.70	1.09	1.50	1.70	0.60	0.80	1.30	1.30	1.80	1.80	2.20	2.20	1.90	1.80	1.10	1.00	0.20	0.80	1.20	1.70	2.00	0.00	0.24	0.76	0.89
BH106	229.58			1.90	0.70	1.20	1.80	1.40	2.00	2.10	2.40	2.10	1.70	1.30	0.90	0.70	0.70	1.10	1.70	2.20	2.40	Not Located			
BH107	226.90	0.90		4.60	4.60	4.60	4.60	4.60	4.60	4.50		4.60	4.60	4.60	4.60	4.60	3.60	4.40	4.60	4.60	4.60	Obstructed	4.74	NA	NA

* - Water levels values from Terraprobe 2016 report.

Monitoring Well	Ground Surface Eelvation (masl)	Stickup (m)	Ground Water Elevation (masl)																					
			25-Feb-15	10-Mar-15	16-Apr-15	14-May-15	10-Jun-15	14-Jul-15	24-Aug-15	15-Sep-15	16-Oct-15	16-Nov-15	11-Dec-15	04-Jan-16	11-Feb-16	10-Mar-16	08-Apr-16	24-May-16	17-Jun-16	19-Jul-16	16-Aug-16	31-Mar-22	29-Apr-22	31-May-22	23-Jun-22
BH201	226.50	0.75	220.00	220.00	220.00	220.50	220.30	220.20	220.20			220.20	220.10	220.10	220.10	220.10	221.50	221.80	221.30	220.20	220.20	220.60	221.16	221.15	220.94
BH202	225.00		218.90	219.00	219.20	219.20	219.10	219.10	219.10	219.30	219.10	219.10	219.10	219.10	219.10	219.10	219.30	219.10	219.10	219.10	219.10	Obstructed			
BH203	228.38	0.65	225.08	224.98	226.08	225.88	225.38	225.38	224.88	224.88	224.48	224.58	224.78	224.98	225.58	225.68	226.68	225.88	225.38	224.98	224.68	226.27	226.01	224.75	225.40
BH204	229.28	0.81	225.28	225.18	226.58	226.18	225.48	225.58	224.98	224.98	224.68	224.98	225.28	225.58	226.18	226.28	227.08	226.28	225.58	225.08	224.88	226.87	226.52	225.42	NA
BH205	229.89	0.70	225.69	225.29	226.49	226.19	225.69	225.69	225.09	225.29	224.79	224.79	224.99	225.19	225.89	225.89	227.29	226.19	225.79	225.19	224.89	226.88	226.49	225.92	225.79
BH206	229.51	0.90	227.71	227.61	228.91	228.31	227.71	228.21	227.51	227.51	227.11	227.41	227.81	228.31	228.71	228.81	228.81	228.51	227.81	227.31	227.11	228.79	228.81	228.23	228.41
BH207	227.89	0.85	226.69	226.29	227.09	226.89	226.59	226.59	226.29	226.29	225.99	226.09	226.29	226.59	226.99	227.09	227.09	226.99	226.49	226.09	226.39	227.22	227.21	226.97	227.03
BH208	226.57		225.07	225.47	226.47	226.27	225.87	225.97	225.57	225.37	225.07	225.07	225.17	225.47	226.27	226.47	226.57	226.27	225.87	225.37	225.37	Destroyed			
BH209	226.70	1.09	225.20	225.00	226.10	225.90	225.40	225.40	224.90	224.90	224.50	224.50	224.80	224.90	225.60	225.70	226.50	225.90	225.50	225.00	224.70	226.70	226.46	225.94	225.81
BH106	229.58			227.68	228.88	228.38	227.78	228.18	227.58	227.48	227.18	227.48	227.88	228.28	228.68	228.88	228.88	228.48	227.88	227.38	227.18	Not Located			
BH107	226.90	0.90		222.30	222.30	222.30	222.30	222.30	222.30	222.40		222.30	222.30	222.30	222.30	222.30	223.30	222.50	222.30	222.30	222.30	Obstructed	222.16	NA	NA

* - Ground water elevations revised from 2016 Terraprobe report as reference ground elevations noted to be incorrect with recent site survey

Table A: Pre-Development

Catchment Designation	Grassed	Forest	Total
Area (m^2)	6,940	21,929	28,869
Pervious Area (m^2)	6,940	21,929	28,869
Impervious Area (m^2)	0	0	0
Infiltration Factors			
Topography Infiltration Factor	0.2	0.2	
Soil Infiltration Factor	0.3	0.3	
Land Cover Infiltration Factor	0.1	0.2	
Infiltration Factor	0.6	0.7	
Run-Off Coefficient	0.4	0.3	
Run-Off From Impervious Surfaces	0.8	0.8	
Inputs (Per Unit Area)			
Precipitation (mm/yr)	909	909	909
Rainfall (mm/yr)	655	655	655
Run-On (mm/yr)	0	0	0
Other Inputs (mm/yr)	0	0	0
Total Inputs (mm/yr)	**909**	**909**	909
Outputs (Per Unit Area)			
Precipitation Surplus (mm/yr)	430	430	430
Net Surplus (mm/yr)	430	430	430
Evapotranspiration (mm/yr)	479	479	479
Infiltration (mm/yr)	258	301	291
Surplus Infiltration (mm/yr)	0	0	0
Total Infiltration (mm/yr)	258	301	291
Run-Off Pervious Areas (mm/yr)	172	129	139
Run-Off Impervious Areas (mm/yr)	0	0	0
Total Run-Off (mm/yr)	172	129	139
Total Outputs (mm/yr)	**909**	**909**	**909**
Difference (Inputs - Outputs)	**0**	**0**	**0**
Inputs (Volumes)			
Precipitation (m^3/yr)	6,308	19,933	26,242
Run-On (m^3/yr)	0	0	0
Other Inputs (m^3/yr)	0	0	0
Total Inputs (m^3/yr)	**6,308**	**19,933**	**26,242**
Outputs (Volumes)			
Precipitation Surplus (m^3/yr)	2,984	9,429	12,414
Net Surplus (m^3/yr)	2,984	9,429	12,414
Evapotranspiration (m^3/yr)	3,324	10,504	13,828
Infiltration (m^3/yr)	1,791	6,601	8,391
Surplus Infiltration (m^3/yr)	0	0	0
Total Infiltration (m^3/yr)	**1,791**	**6,601**	**8,391**
Run-Off Pervious Areas (m^3/yr)	1,194	2,829	4,023
Run-Off Impervious Areas (m^3/yr)	0	0	0
Total Run-Off (m^3/yr)	1,194	2,829	4,023
Total Outputs (m^3/yr)	6,308	19,933	26,242
Difference (Inputs - Outputs)	**0**	**0**	**0**

Table B: Post-Development (no mit)

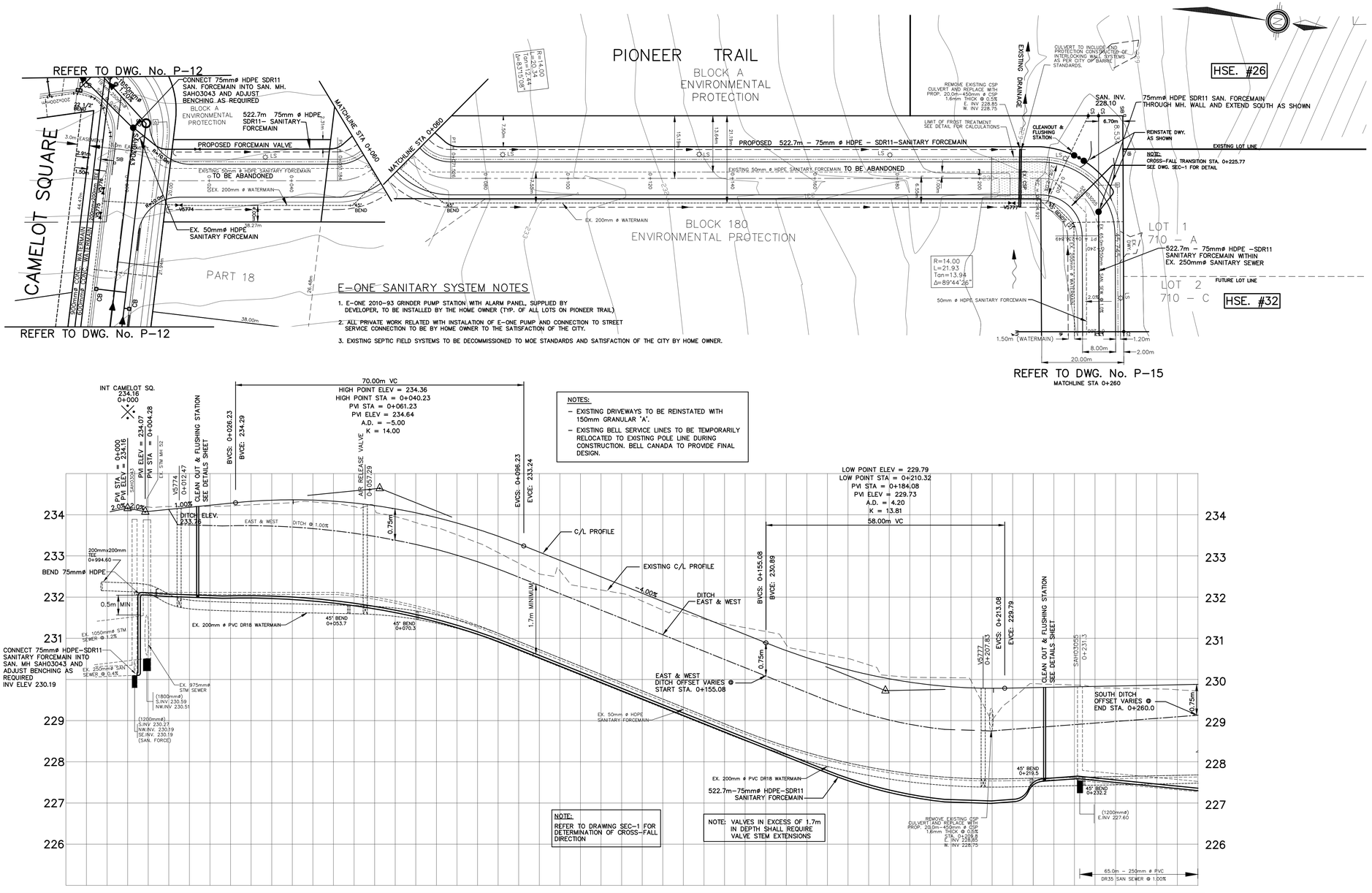
Catchment Designation	Forest	Landscaped Grass	Road / Driveway / Sidewalk	Rooftop	Total
Area (m^2)	4,746	11,400	4,781	7,942	28,869
Pervious Area (m^2)	4,746	11,400	0	0	16,146
Impervious Area (m^2)	0	0	4,781	7,942	12,723
Infiltration Factors					
Topography Infiltration Factor	0.2	0.2	0	0	
Soil Infiltration Factor	0.3	0.3	0	0	
Land Cover Infiltration Factor	0.2	0.1	0	0	
Infiltration Factor	0.7	0.6	0	0	
Run-Off Coefficient	0.3	0.4	1	1	
Run-Off From Impervious Surfaces	0.8	0.8	0.8	0.8	
Inputs (Per Unit Area)					
Precipitation (mm/yr)	909	909	909	909	909
Rainfall (mm/yr)	655	655	655	655	655
Run-On (mm/yr)	0	0	0	0	0
Other Inputs (mm/yr)	0	0	0	0	0
Total Inputs (mm/yr)	**909**	**909**	**909**	**909**	909
Outputs (Per Unit Area)					
Precipitation Surplus (mm/yr)	430	430	727	727	561
Net Surplus (mm/yr)	430	430	727	727	561
Evapotranspiration (mm/yr)	479	479	182	182	348
Infiltration (mm/yr)	301	258	0	0	151
Surplus Infiltration (mm/yr)	0	0	0	0	0
Total Infiltration (mm/yr)	301	258	0	0	151
Run-Off Pervious Areas (mm/yr)	129	172	0	0	89
Run-Off Impervious Areas (mm/yr)	0	0	727	727	320
Total Run-Off (mm/yr)	129	172	727	727	410
Total Outputs (mm/yr)	**909**	**909**	**909**	**909**	**909**
Difference (Inputs - Outputs)	**0**	**0**	**0**	**0**	**0**
Inputs (Volumes)					
Precipitation (m^3/yr)	4,314	10,363	4,346	7,219	26,242
Run-On (m^3/yr)	0	0	0	0	0
Other Inputs (m^3/yr)	0	0	0	0	0
Total Inputs (m^3/yr)	**4,314**	**10,363**	**4,346**	**7,219**	**26,242**
Outputs (Volumes)					
Precipitation Surplus (m^3/yr)	2,041	4,902	3,477	5,775	16,195
Net Surplus (m^3/yr)	2,041	4,902	3,477	5,775	16,195
Evapotranspiration (m^3/yr)	2,273	5,461	869	1,444	10,047
Infiltration (m^3/yr)	1,429	2,941	0	0	4,370
Surplus Infiltration (m^3/yr)	0	0	0	0	0
Total Infiltration (m^3/yr)	**1,429**	**2,941**	**0**	**0**	**4,370**
Run-Off Pervious Areas (m^3/yr)	612	1,961	0	0	2,573
Run-Off Impervious Areas (m^3/yr)	0	0	3,477	5,775	9,252
Total Run-Off (m^3/yr)	612	1,961	3,477	5,775	11,825
Total Outputs (m^3/yr)	4,314	10,363	4,346	7,219	26,242
Difference (Inputs - Outputs)	**0**	**0**	**0**	**0**	**0**

Table C: Post-Development (with mitigation)

Catchment Designation	Forest	Landscaped Grass	Landscaped Grass (LID)	Road / Driveway / Sidewalk	Road / Driveway / Sidewalk (LID)	Rooftop	Rooftop (LID)	Total
Area (m^2)	4,746	9,386	2,014	315	4,466	5,618	2,324	28,869
Pervious Area (m^2)	4,746	9,386	2,014	0	0	0	0	16,146
Impervious Area (m^2)	0	0	0	315	4,466	5,618	2,324	12,723
Infiltration Factors								
Topography Infiltration Factor	0.2	0.2	0.2	0	0	0	0	
Soil Infiltration Factor	0.3	0.3	0.3	0	0	0	0	
Land Cover Infiltration Factor	0.2	0.1	0.1	0	0	0	0	
Infiltration Factor	0.7	0.6	0.6	0	0	0	0	
Run-Off Coefficient	0.3	0.4	0.4	1	1	1	1	
Run-Off From Impervious Surfaces	0.8	0.8	0.8	0.8	0.8	0.8	0.8	
Inputs (Per Unit Area)								
Precipitation (mm/yr)	909	909	909	909	909	909	909	909
Rainfall (mm/yr)	655	655	655	655	655	655	655	655
Run-On (mm/yr)	0	0	0	0	0	0	0	0
Other Inputs (mm/yr)	0	0	0	0	0	0	0	0
Total Inputs (mm/yr)	**909**	**909**	**909**	**909**	**909**	**909**	**909**	909
Outputs (Per Unit Area)								
Precipitation Surplus (mm/yr)	430	430	430	727	727	727	727	561
Net Surplus (mm/yr)	430	430	430	727	727	727	727	561
Evapotranspiration (mm/yr)	479	479	479	182	182	182	182	348
Infiltration (mm/yr)	301	258	258	0	0	0	0	151
Surplus Infiltration (mm/yr)	0	0	138	0	491	262	491	176
Total Infiltration (mm/yr)	301	258	396	0	491	262	491	327
Run-Off Pervious Areas (mm/yr)	129	172	34	0	0	0	0	80
Run-Off Impervious Areas (mm/yr)	0	0	0	727	236	465	236	154
Total Run-Off (mm/yr)	129	172	34	727	236	465	236	233
Total Outputs (mm/yr)	**909**	**909**	**909**	**909**	**909**	**909**	**909**	**909**
Difference (Inputs - Outputs)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Inputs (Volumes)								
Precipitation (m^3/yr)	4,314	8,532	1,831	286	4,060	5,107	2,113	26,242
Run-On (m^3/yr)	0	0	0	0	0	0	0	0
Other Inputs (m^3/yr)	0	0	0	0	0	0	0	0
Total Inputs (m^3/yr)	**4,314**	**8,532**	**1,831**	**286**	**4,060**	**5,107**	**2,113**	**26,242**
Outputs (Volumes)								
Precipitation Surplus (m^3/yr)	2,041	4,036	866	229	3,248	4,085	1,690	16,195
Net Surplus (m^3/yr)	2,041	4,036	866	229	3,248	4,085	1,690	16,195
Evapotranspiration (m^3/yr)	2,273	4,496	965	57	812	1,021	423	10,047
Infiltration (m^3/yr)	1,429	2,422	520	0	0	0	0	4,370
Surplus Infiltration (m^3/yr)	0	0	277	0	2,194	1,472	1,142	5,084
Total Infiltration (m^3/yr)	**1,429**	**2,422**	**797**	**0**	**2,194**	**1,472**	**1,142**	**9,454**
Run-Off Pervious Areas (m^3/yr)	612	1,614	69	0	0	0	0	2,296
Run-Off Impervious Areas (m^3/yr)	0	0	0	229	1,054	2,613	548	4,445
Total Run-Off (m^3/yr)	612	1,614	69	229	1,054	2,613	548	6,741
Total Outputs (m^3/yr)	4,314	8,532	1,831	286	4,060	5,107	2,113	26,242
Difference (Inputs - Outputs)	0	0	0	0	0	0	0	0

Table D: Water Balance Summary Table

Characteristic	Site						
	Pre-Development	Post-Development	Change (Pre to Post)		Post-Development with Mitigation	Change (Pre to Post with Mitigation)	
Inputs (Volume)							
Precipitation (m^3/yr)	26,242	26,242	0	0%	26,242	0	0%
Run-On (m^3/yr)	0	0	0	NA	0	0	NA
Other Inputs (m^3/yr)	0	0	0	NA	0	0	NA
Total Inputs (m^3/yr)	26,242	26,242	0	0%	26,242	0	0%
Outputs (Volume)							
Precipitation Surplus (m^3/yr)	12,414	16,195	3,781	30%	16,195	3,781	30%
Net Surplus (m3/yr)	12,414	16,195	3,781	30%	16,195	3,781	30%
Evapotranspiration (m^3/yr)	13,828	10,047	-3,781	-27%	10,047	-3,781	-27%
Infiltration (m^3/yr)	8,391	4,370	-4,021	-48%	4,370	-4,021	-48%
Rooftop Infiltration (m^3/yr)	0	0	0	NA	5,084	5,084	NA
Total Infiltration (m^3/yr)	**8,391**	**4,370**	**-4,021**	**-48%**	**9,454**	**1,063**	**13%**
Run-Off Pervious Areas (m^3/yr)	4,023	2,573	-1,449	-36%	2,296	-1,727	-43%
Run-Off Impervious Areas (m^3/yr)	0	9,252	9,252	NA	4,445	4,445	NA
Total Run-Off (m^3/yr)	4,023	11,825	7,803	194%	6,741	2,718	68%
Total Outputs (m^3/yr)	**26,242**	**26,242**	**0**	**0%**	**26,242**	**0**	**0%**



E-ONE SANITARY SYSTEM NOTES

1. E-ONE 2010-93 GRINDER PUMP STATION WITH ALARM PANEL, SUPPLIED BY DEVELOPER, TO BE INSTALLED BY THE HOME OWNER (TYP. OF ALL LOTS ON PIONEER TRAIL)
2. ALL PRIVATE WORK RELATED WITH INSTALATION OF E-ONE PUMP AND CONNECTION TO STREET SERVICE CONNECTION TO BE BY HOME OWNER TO THE SATISFACTION OF THE CITY.
3. EXISTING SEPTIC FIELD SYSTEMS TO BE DECOMMISSIONED TO MOE STANDARDS AND SATISFACTION OF THE CITY BY HOME OWNER.

NOTES:
- EXISTING DRIVEWAYS TO BE REINSTATED WITH 150mm GRANULAR 'A'.
- EXISTING BELL SERVICE LINES TO BE TEMPORARILY RELOCATED TO EXISTING POLE LINE DURING CONSTRUCTION. BELL CANADA TO PROVIDE FINAL DESIGN.

NOTE: REFER TO DRAWING SEC-1 FOR DETERMINATION OF CROSS-FALL DIRECTION

NOTE: VALVES IN EXCESS OF 1.7m IN DEPTH SHALL REQUIRE VALVE STEM EXTENSIONS

FIN. G. PROFILE	234.160	234.232	234.364	234.224	233.799	233.093	232.293	231.493	230.702	230.118	229.824	229.802	229.842	229.882
EXIST. G. PROFILE	234.13	234.20	234.30	234.17	233.51	233.57	233.09	231.47	230.84	230.36	230.04	229.90	229.79	229.72
CHAINAGE	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260

Notes

BENCHMARK:

ELEVATION - (#031910025 - HORIZONTAL)
MONUMENT ON THE SOUTH SIDE OF BIG BAY POINT ROAD AT THE EAST END OF THE VALLEY, APPROXIMATELY 700m EAST OF THE EASTERLY ENTRANCE TO PINE DRIVE.

ELEVATION - (#031970009 - HORIZONTAL)
MONUMENT ON THE NORTH SHOULDER OF BIG BAY POINT ROAD BY THE BARRIE POPULATION SIGN AT THE CITY OF BARRIE LIMITS.

REFER TO DWG. N-1 FOR VERTICAL BENCHMARK INFORMATION

NO.	REVISIONS	DATE	INITIAL
6	AS RECORDED INFORMATION	AUG 2007	JPC

Approved
CITY OF BARRIE
APPROVED
DATE . . . . . .
. . . . . .
DIRECTOR OF ENGINEERING

Approved
REGISTERED PROFESSIONAL ENGINEER
R.J. LACKEY
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
G.M. PEARSON
PROVINCE OF ONTARIO

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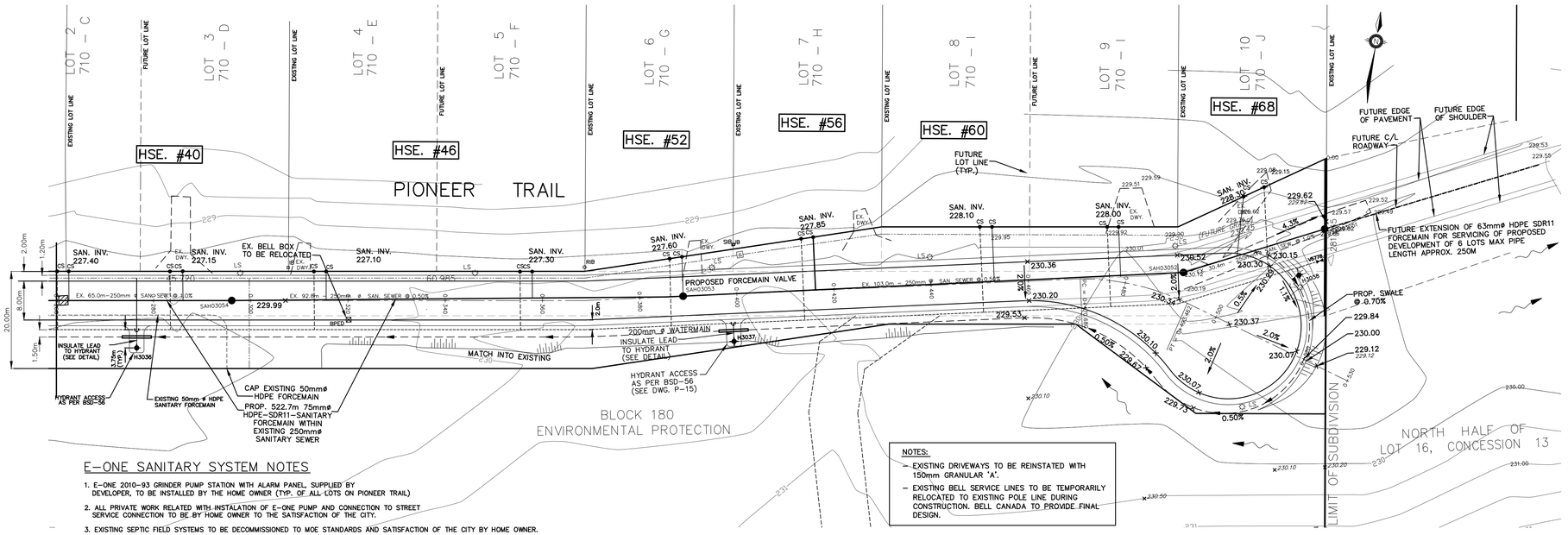
DESIGN	GMP	SCALE: HORZ. 1:500 VERT. 1:50	DATE AUG 2001
DRAWN	TS/RY	ROY-99151	DWG. Nº P-14 B
CHECKED	GMP		

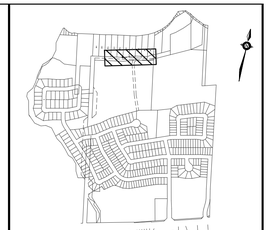
AS RECORDED

PIONEER-TRAIL-EONE_R-04-AS RECORDED.dwg

REFER TO DWG. No. P-14

MATCHLINE STA 0+260





LEGEND

- HYDRANT AND VALVE
- VALVE AND BOX
- BELL PEDESTAL
- CABLE PEDESTAL
- SAH03055 SANITARY MANHOLE
- STORM MANHOLE
- CATCHBASIN
- EX. TRANSFORMER
- EX. HYDRO/BELL/CABLE
- EX. GAS MAIN
- LS LIGHT STANDARD
- SANITARY SERVICE
- EX. SANITARY FORCEMAIN
- PROP. SANITARY FORCEMAIN
- WATER SERVICE

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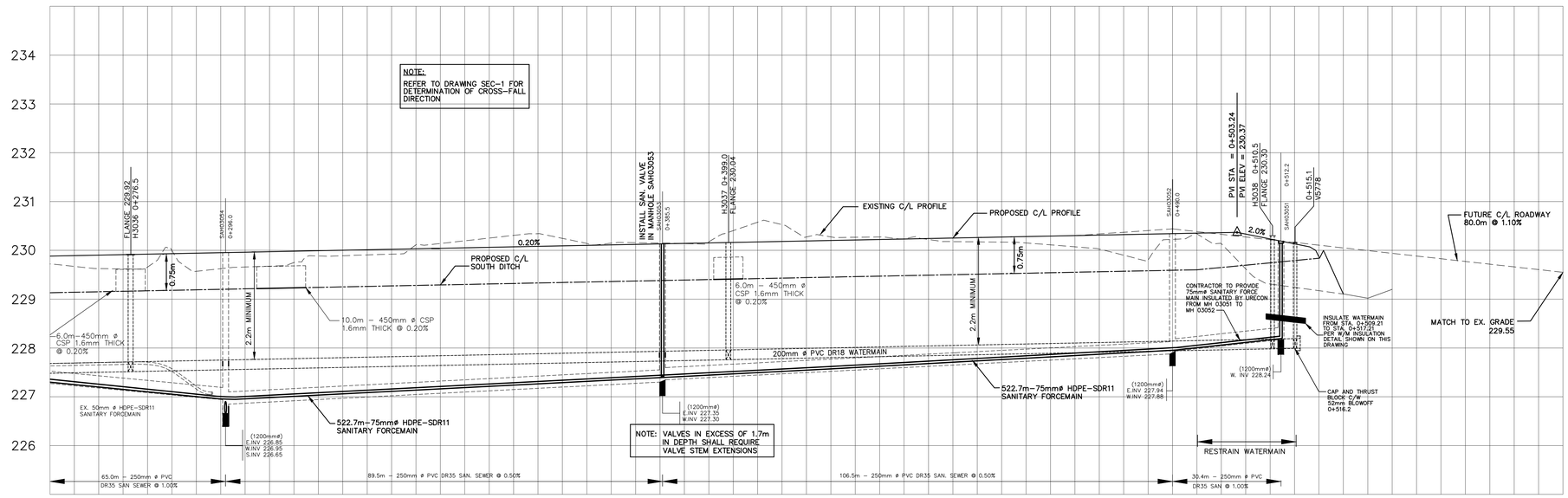

CHAINAGE	EXIST. G. PROFILE	FIN. G. PROFILE
0+260	229.72	229.882
0+280	229.66	229.922
0+300	229.66	229.962
0+320	229.89	230.002
0+340	230.14	230.042
0+360	230.34	230.082
0+380	230.16	230.122
0+400	230.40	230.162
0+420	230.27	230.202
0+440	230.22	230.242
0+460	230.15	230.282
0+480	229.90	230.322
0+500	230.14	230.362
0+520	229.17	229.867
0+530	229.02	

Notes

BENCHMARK:

ELEVATION - (#031910025 - HORIZONTAL)

MONUMENT ON THE SOUTH SIDE OF BIG BAY POINT ROAD AT THE EAST END OF THE VALLEY, APPROXIMATELY 700m EAST OF THE EASTERLY ENTRANCE TO PINE DRIVE.

ELEVATION - (#031970009 - HORIZONTAL)

MONUMENT ON THE NORTH SHOULDER OF BIG BAY POINT ROAD BY THE BARRIE POPULATION SIGN AT THE CITY OF BARRIE LIMITS.

REFER TO DWG. N-1 FOR VERTICAL BENCHMARK INFORMATION

NO.	REVISIONS	DATE	INITIAL
6	AS RECORDED INFORMATION	AUG 2007	JPC

Approved

CITY OF BARRIE
APPROVED
DATE . . . . . .
. . . . . .
DIRECTOR OF ENGINEERING

Approved

REGISTERED PROFESSIONAL ENGINEER R.J. LACKEY PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER G.M. PEARSON PROVINCE OF ONTARIO

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DESIGN	GMP	SCALE: HORZ. 1:500	VERT. 1:50	DATE AUG 2001
DRAWN	TS/RY	ROY-99151	DWG. Nº P-15 B	
CHECKED	GMP			

AS RECORDED

PIONEER-TRAIL-EONE_R-04-AS RECORDED.dwg

Appendix B

Reduced Engineering Submission Drawings

- Title — Title Page
- GN-1 — General Notes
- ESC-1 — Erosion and Sediment Control Plan
- ESC-2 — Erosion and Sediment Control Plan Notes and Details
- GS-1 — General Servicing Plan
- GP-1 — Grading Plan
- GP-2 — Detailed Grading Plan
- STM-1 — Storm Drainage Plan
- SWM-1 — Stormwater Management Pre-Development Areas
- SWM-2 — Overall Stormwater Management Post-Development Areas
- SAN-1 — Sanitary Drainage Plan
- WM-1 — Watermain Swabbing Plan
- PP-1 — Plan and Profile Street 'A' STA. 0-020 to 0+360
- PP-2 — Plan and Profile Storm Water Facility STA. 0+000 to 0+106
- PP-3 — Plan and Profile Watermain Loop STA. 0+000 to 0+340
- SEC-1 — Sections
- PM-1 — Pavement Marking and Signage Plan
- DET-1 — Standard Details
- DET-2 — Standard Details
- DET-3 — Standard Details
- DET-4 — Standard Details
- DET-5 — Standard Details
- DET-6 — Standard Details
- DET-7 — Standard Details
- DET-8 — Standard Details
- DET-9 — Standard Details
- DET-10 — Standard Details
- DET-11 — Standard Details
- 92496-F-001 — Parkside Subdivision PRV
- 92496-F-002 — Parkside Subdivision PRV

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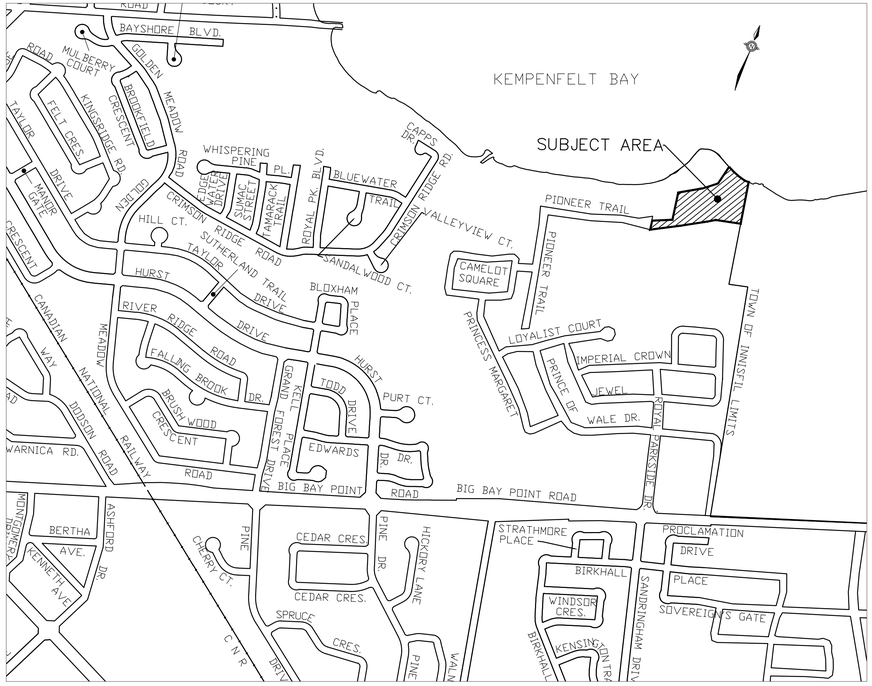
CITY OF BARRIE

DRAWING LEGEND

TITLE	TITLE PAGE
GN–1	GENERAL NOTES
ESC–1	EROSION AND SEDIMENT CONTROL PLAN
ESC–2	EROSION AND SEDIMENT CONTROL PLAN NOTES AND DETAILS
GS–1	GENERAL SERVICING PLAN
GP–1	GRADING PLAN
GP–2	DETAILED GRADING PLAN
STM–1	STORM DRAINAGE PLAN
SWM–1	STORMWATER MANAGEMENT PRE–DEVELOPMENT AREAS
SWM–2	OVERALL STORMWATER MANAGEMENT POST DEVELOPMENT AREAS
SAN–1	SANITARY DRAINAGE PLAN
WM–1	WATERMAIN SWABBING PLAN
PP–1	PLAN AND PROFILE STREET 'A' STA. –0+010 TO 0+345
PP–2	PLAN AND PROFILE STORM WATER FACILITY STA. 0+000 TO 0+106
PP–3	PLAN AND PROFILE WATERMAIN LOOP STA. 0+000 TO 0+340
SEC–1	SECTIONS
PM–1	PAVEMENT PARKING AND SIGNAGE PLAN
DET–1	STANDARD DETAILS
DET–2	STANDARD DETAILS
DET–3	STANDARD DETAILS
DET–4	STANDARD DETAILS
DET–5	STANDARD DETAILS
DET–6	STANDARD DETAILS
DET–7	STANDARD DETAILS
DET–8	STANDARD DETAILS
DET–9	STANDARD DETAILS
DET–10	STANDARD DETAILS
DET–11	STANDARD DETAILS
92496–F–001	PARKSIDE SUBDIVISION PRV
92496–F–002	PARKSIDE SUBDIVISION PRV



CITY OF BARRIE
ENGINEERING DEPARTMENT
70 COLLIER STREET (BOX 400)
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F. 705.734.1056

FER–15101 – SECOND SUBMISSION – AUGUST 2022

1. GRADE AND CROSSFALL ADJUSTEMENT OF MAINTENANCE HOLE AND CATCHBASIN FRAMES WILL BE MADE USING PRODUCTS SPECIFICALLY MANUFACTURED FOR THAT PURPOSE.
2. ADJUSTMENT UNITS MUST BE CERTIFIED TO MEET ALL PERTINENT OPS, CSA, ASTM AND MTO-DSM LISTS, OR OTHER INDUSTRY GUIDELINES FOR MATERIALS, PERFORMANCE AND USE AS APPLICABLE.
3. ADJUSTMENT UNITS AND JOINTS WILL BE SEALED AND OR PARGED IN COMPLIANCE WITH MANUFACTURERS SPECIFICATIONS AND GUIDELINES
4. MORTAR IS USED FOR LEVELING OF PRECAST UNITS ONLY. THE THICKNESS OF MORTAR WILL BE 10mm TO FILL ALL VOIDS CREATED BY IRREGULARITIES IN THE PRECAST UNITS TO ENSURE AN EVEN SURFACE ONLY.

Barrie STANDARD DETAIL	GENERAL NOTES ROADWORKS	REV No. 1 / DATE: OCT 2017 / SCALE: N.T.S.	BSD-N2
			APPROVED DATE .. Oct. 28/17 .. DIRECTOR OF ENGINEERING

GENERAL NOTES – STORM SEWER

STORM SEWER

A. STORM SEWER TO BE PROVIDED ON ALL ROADS WITH CURB AND GUTTER.

B. PLACE ALL CATCH BASIN LATERALS AT 2% GRADE UNLESS OTHERWISE NOTED. PIPE SIZE MINIMUM 250mm DIA. SINGLE , 300mm DIA. DOUBLE.

C. STORM SEWERS SHALL BE CONSTRUCTED WITH BEDDING AS PER OPSD–802.010 (GRAN. 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD–802.030 OR 802.031 CLASS B (GRAN. 'A' BEDDING MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING.

D. MAINTENANCE HOLE TOPS (FRAMES) AND CATCH BASIN (FRAMES) ARE TO BE SET TO BASE COURSE ASPHALT GRADE AND THEN ADJUSTED TO FINAL GRADE WHEN THE TOP LIFT OF ASPHALT IS PLACED. ALL ADJUSTMENT WILL BE ACCORDANCE WITH BSD–N2.

E. STORM SEWER TO BE LOCATED OFFSET 3.0m SOUTH OR EAST OF CENTRELINE UNLESS OTHERWISE SPECIFIED.

F. ALL CONNECTIONS TO THE STORM MAIN SHALL BE MADE WITH A STORM MANHOLE OR APPROVED FACTORY TEE CONNECTON AS PER OPSD–708.01 OR 708.03.

G. PIPE MATERIAL TO BE REINFORCED CONCRETE WITH A MINIMUM STRENGTH OF 50 N/m/mm CERTIFIED TO C.S.A. STANDARD A247.2–1982, CLASS 50–D (PREVIOUSLY C.S.A. STANDARD A257.2–1974, CLASS II) OR PVC CERTIFIED TO C.S.A. STANDARDS 182.2 AND 182.4.

H. STORM SEWER TO BE MINIMUM 300mm DIAMETER WITH JOINTS CONFORMING TO C.S.A. STANDARD A257.3.

I. ALL PIPE BEDDING MUST CONFORM TO OPSD, MAXIMUM COVER TABLE. NO FLEXIBLE PIPE SEWERS WILL BE INSTALLED WITH A DEPTH OF COVER GREATER THAN 6 METRES UNLESS SPECIFICALLY APPROVED BY THE DIRECTOR OF ENGINEERING.

J. ALL PIPE HANDLING INSTALLATIONS MUST BE IN STRICT COMPLIANCE WITH MANUFACTURES INSTALLATION GUIDES AND THE O.C.P.A. OR UNIBELL GUIDELINES.

K. SUMP PUMP DISCHARGE PIPING IN BOULEVARD:
IN THE EVENT OF OVERACTIVE SUMP PUMP ACTIVITY, A 150mm DIAMETER PVC DR–28 SEWER MAY BE INSTALLED, WHEN SO DIRECTED BY THE DIRECTOR OF ENGINEERING, ALONG THE FRONTAGES OF DESIGNATED LOTS, WITH AN OFFSET OF 0.6m FROM BACK OF CURB. THIS SEWER IS TO BE CAPPED AT THE UPSTREAM END AND IS TO OUTLET INTO THE NEAREST CATCHBASIN DOWNSTREAM. DEPTH OF SEWER IS TO BE EQUAL TO SUBDRAIN DEPTH. NOT TO BE DIRECTLY CONNECTED TO FOUNDATION DRAINS.

CITY OF BARRIE STANDARD	NO.	REVISION	APR'D	DATE
GENERAL NOTES STORM SEWERS	4.	NOTE 'K' – SUMP PUMP DISCHARGE PIPING	B.R.	2003.01.07
	3.	NOTE 'F' & 'G' – "DIRECTOR OF ENGINEERING"	B.R.	2002.10.28
	2.	NOTE 'C' OPSD NUMBER REVISION	K.C.	2000.03.16
	1.	NOTE 'D' CHANGED	K.C.	98.03.30

APR'D: R.G.N. DATE: 92.05.15 / DRAWN: L.A.J. SCALE: N.T.S. / BSD-N5

GENERAL NOTES – SANITARY SEWER

SANITARY SEWERS

A. SANITARY SEWER TO BE LOCATED AT THE CENTRELINE OF THE ROAD.

B. SEWERS SHALL BE CONSTRUCTED WITH BEDDINGS AS PER OPSD–802.010, (GRAN. 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD–802.030 OR 802.031 CLASS B (GRAN. 'A' BEDDING MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING.

C. MAXIMUM DEFLECTION FROM COMBINED LIVE AND DEAD LOADING SHALL NOT EXCEED ANY C.S.A., O.P.S. OR MANUFACTURERS RECOMMENDED SPECIFICATIONS.

D. PVC, CONCRETE AND PROFILE WALL PVC SEWERS SHALL HAVE RUBBER GASKET TYPE JOINTS AND SHALL BE CERTIFIED TO CONFORM TO ALL APPLICABLE CURRENT C.S.A. SPECIFICATIONS.

E. CONCRETE SANITARY SEWERS SHALL HAVE A MINIMUM STRENGTH OF 50 N/m/mm CONFORMING TO CSA STANDARD A257.2–1982, CLASS 50–D (PREVIOUSLY C.S.A. STANDARD A257.2–1974, CLASS II).

F. MAINTENANCE HOLE TOPS (FRAMES) ARE TO BE SET TO BASE COURSE ASPHALT GRADE AND THEN ADJUSTED TO FINAL GRADE WHEN THE TOP LIFT OF ASPHALT IS PLACE. ALL ADJUSTMENT WILL BE ACCORDANCE WITH BSD–N2.

G. ALL CONNECTIONS TO NEW SANITARY MAINS SHALL BE PRE–MANUFACTURED, FABRICATED TEES. CONNECTIONS TO EXISTING SANITARY SEWER SHALL BE MADE WITH APPROVED FACTORY MADE TEES OR INSERTA–TEES IN STRICT ACCORDANCE TO MANUFACTURES GUIDELINES.

CITY OF BARRIE STANDARD	NO.	REVISION	APR'D	DATE
GENERAL NOTES SANITARY SEWERS	4.	NOTE "B" – "ENGINEERING"	B.R.	2002.10.28
	3.	NOTE "B" OPSD NUMBER REVISION	K.C.	2000.03.16
	2.	NOTE "F" CHANGED	K.C.	98.03.30
	1.	CHANGES TO B. TO G.	K.C.	95.04.24

APR'D: R.G.N. DATE: 92.05.15 / DRAWN: L.A.J. SCALE: N.T.S. / BSD-N3

GENERAL NOTES – SANITARY SEWER

SANITARY SERVICE LATERALS

A. SANITARY LATERAL CONNECTION TO BE LOCATED AT THE CENTRELINE OF THE LOT AND CAPPED.

B. LOCATION OF LATERAL TO BE MARKED 2.0m PAST PROPERTY LINE WITH A 50 x 100mm WOOD MARKER, PAINTED GREEN, EXTENDING FROM SERVICE INVERT TO 300mm ABOVE GROUND LEVEL.

C. PIPE TO BE MINIMUM 100 mm DIA. PVC SDR28, RUBBER GASKET TYPE JOINTS AND SHALL CONFORM TO C.S.A. (B–182.2.3.4) (COLOURED) FOR A RESIDENTIAL HOUSE AND 150mm MINIMUM DIA. PVC SDR28 FOR INDUSTRIAL/COMMERCIAL DEVELOPMENT.

D. MINIMUM DEPTH OF LATERAL AT PROPERTY LINE SHALL BE 2.4m MEASURED FROM THE SEWER OBVERT TO FINISHED GROUND SURFACE ELEVATION UNLESS NOTED OTHERWISE.

E. ALL CONNECTIONS TO NEW SANITARY MAINS SHALL BE PRE–MANUFACTURED, FABRICATED TEES. CONNECTIONS TO EXISTING SANITARY SEWER SHALL BE MADE WITH APPROVED FACTORY MADE TEES OR INSERTA–TEES IN STRICT ACCORDANCE TO MANUFACTURES GUIDELINES.

F. MINIMUM PIPE SLOPE TO BE 2.0%, MAXIMUM 8.0% (SEE OPSD–1006.010, 1006.020).

CITY OF BARRIE STANDARD	NO.	REVISION	APR'D	DATE
GENERAL NOTES SANITARY SEWERS	2.	OPSD NUMBERS REVISED	K.C.	2000.08.17
	1.	CHANGES TO B. TO G.	K.C.	95.04.24

APR'D: R.G.N. DATE: 92.05.15 / DRAWN: L.A.J. SCALE: N.T.S. / BSD-N4

GENERAL NOTES

1. DRAWINGS

A. ALL DRAWINGS SHALL BE PRODUCED IN ACCORDANCE WITH CURRENT CITY OF BARRIE STANDARDS & SYMBOLS FOR PLAN & PROFILE DRAWINGS, GENERAL SERVICE PLANS AND LOT GRADING PLANS.

2. MEASUREMENTS

A. ALL DIMENSIONS ARE IN METRES, EXCEPT PIPE DIAMETERS, WHICH ARE IN MILLIMETRES, UNLESS SPECIFIED OTHERWISE.

3. GENERAL

A. ALL WORK SHALL BE IN ACCORDANCE WITH CURRENT CITY OF BARRIE STANDARD DRAWINGS (BSD) AND ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD).

B. ORDER OF PRECEDENCE OF STANDARD DRAWINGS IS FIRSTLY CITY OF BARRIE STANDARD DRAWINGS (BSD) AND SECONDLY ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD).

C. LOCATION OF EXISTING SERVICES ARE NOT GUARANTEED.. THE CONTRACTOR IS REQUIRED TO NOTIFY THE VARIOUS UTILITY COMPANIES 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK.

D. A ROAD OCCUPANCY PERMIT IS REQUIRED FROM THE ROADS AND PARKS OPERATIONS BRANCH PRIOR TO THE COMMENCEMENT OF WORK WITHIN ANY CITY RIGHT–OF–WAY.

E. A SITE ALTERATION PERMIT IS REQUIRED FROM THE ENGINEERING DEPARTMENT PRIOR TO THE COMMENCEMENT OF ANY EARTH WORKS ON THE SITE.

F. NATIVE MATERIAL, SUITABLE FOR BACKFILL, SHALL BE COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY.

G. GRANULAR MATERIAL , USED FOR BACKFILL , SHALL BE PLACED IN LAYERS 150mm IN DEPTH MAXIMUM AND COMPACTED TO 100% STANDARD PROCTOR MAXIMUM DRY DENSITY.

H. ALL DISTURBED AREAS ARE TO BE REINSTATED TO THEIR ORIGINAL CONDITION OR BETTER, AS DETERMINED BY THE CITY ENGINEERING DEPARTMENT.

I. ALL SILT CONTROL AND EROSION PROTECTION DEVICES ARE TO BE IN PLACE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL CONSTRUCTION IS COMPLETE AND THE GRASS HAS ESTABLISHED GROWTH, SUBJECT TO APPROVAL BY THE CITY ENGINEERING DEPARTMENT.

CITY OF BARRIE STANDARD	NO.	REVISION	APR'D	DATE
GENERAL NOTES	3.	3. NOTE; 3.E. REVISED & 3.I. ADDED	J.S.	05.01.10
	2.	3.D. – "ENGINEERING DEPARTMENT"	B.R.	02.10.28
	1.	3.E. TOPSOIL PERMIT		01.12.06

APR'D: R.G.N. DATE: 92.05.15 / DRAWN: L.A.J. SCALE: N.T.S. / BSD-N6

GENERAL NOTES - WATERMAIN

1. CONTRACTORS SHALL INFORM THE CITY OF BARRIE WATER OPERATIONS DEPARTMENT A MINIMUM OF 48 HOURS IN ADVANCE OF THEIR INTENTIONS TO PERFORM WORK ON WATER INFRASTRUCTURE.
2. OPERATION OF HYDRANTS AND VALVES ON THE POTABLE WATER SYSTEM BY OTHER THAN QUALIFIED WATER OPERATIONS STAFF IS PROHIBITED BY CURRENT BY-LAW. CITY SERVICE FEES ARE PER THE CURRENT FEES BY-LAW. THE CITY'S WATER OPERATIONS STAFF WILL SWAB, PRESSURE TEST, CHLORINATE AND FLUSH ALL NEW WATERMAINS.
3. MINIMUM COVER OVER WATERMAIN SHALL BE 1.7m. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATERMAIN AND SEWERS SHALL BE 2.5m; WHERE WATERMAIN CONFLICTS WITH SEWER PIPES, DEFLECT WATERMAIN HORIZONTALLY OR VERTICALLY WHILE PROVIDING A MINIMUM OF 0.5m CLEARANCE BETWEEN WATERMAIN AND SEWERS. MAINTAIN MINIMUM DEPTH OF COVER AT ALL TIMES.
4. WATERMAIN SHALL BE INSTALLED IN BEDDING AS PER OPSD 802.010 (GRANULAR 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD 802.030 OR 802.031 CLASS 'B' (GRANULAR 'A' BEDDING MATERIAL, GRANULAR 'A' OR SELECT NATIVE COVER MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF WATER OPERATIONS. ALTERNATIVE EMBEDMENT MATERIAL - SAND MEETING GRADATION REQUIREMENTS OF OPSS.MUNI 1004.05.07 COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY IS PERMISSIBLE WHERE NOTED IN STANDARD DETAILS. GEOTECHNICAL CERTIFICATION OF MATERIAL AND COMPACTION TESTING MUST BE PROVIDED EVERY 150 METRES. THE COMPACTION TESTING MUST INCLUDE THE ENTIRE EMBEDMENT ENVELOPE (HAUNCHES, BEDDING, TOP OF PIPE AND COVER).
5. COPPER WATER MAINS AND SERVICES 25mm TO 50mm IN DIAMETER SHALL BE EMBEDDED IN SAND 100mm ABOVE AND BELOW TO CONFORM TO OPSS.MUNI 1004.05.07.
6. RESTRAINING WILL BE REQUIRED ON ALL HYDRANTS. THRUST BLOCKS, AS PER OPSD 1103.010 AND 1103.020. RESTRAINING DEVICES MAY BE REQUIRED IN ADDITION TO STANDARD CONCRETE THRUST BLOCKING WHERE SOIL CONDITIONS WARRANT AT THE CITY'S DISCRETION.
7. NEW WATERMAINS TO BE PVC DR18 CL150 MINIMUM; DUCTILE IRON CL52 AS PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEMS LIST.
8. TRACING WIRE SHALL BE #12 AWG HIGH STRENGTH COPPER CLAD (HS-CSS) AND SHALL BE INSTALLED ON THE TOTAL LENGTH OF ALL WATERMAIN AND BROUGHT UP AT EACH HYDRANT AND CONNECTED TO FLANGE BOLT. ALL SPLICES TO UTILIZE CONNECTORS AS PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEMS LIST.
9. ALL WATER SERVICES SHALL BE MINIMUM 25mm TYPE 'K' COPPER OR 25mm CROSS-LINKED POLYETHYLENE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF WATER OPERATIONS. WATER SERVICE SADDLES SHALL BE USED WHEN TAPPING INTO PVC WATERMAIN.
10. SERVICE TAPPINGS SHALL BE PLACED AT A MINIMUM SEPARATION OF 1.0m AND A MINIMUM OF 0.6m FROM JOINTS. (ENDS OF PIPE)
11. RISER PIPES ARE TO BE INSTALLED AS PER BSD-510, AND REMOVED AS DIRECTED. SWABBING SCHEDULE TO BE SUPPLIED BY A WATER OPERATIONS FIELD REPRESENTATIVE. ALL RISERS ARE TO BE RESTRAINED OR THRUST BLOCKED.
12. ALL NEW CURB STOPS AND BOXES TO BE LOCATED AT PROPERTY LINE AND OUT OF DRIVEWAYS AND SIDEWALKS.
13. HYDRANTS WITHIN THE SITE TO BE CONSIDERED PRIVATE AND PAINTED RED.

City of BARRIE STANDARD DETAIL	GENERAL NOTES - WATERMAIN (MODIFIED)	REV No. 2 / DATE: MAY 2015 / SCALE: N.T.S.	BSD-500
			APPROVED DATE: May 29/15 .. DIRECTOR OF ENGINEERING

EROSION CONTROL NOTES

1. ALL TEMPORARY SILT CONTROL AND EROSION PROTECTION DEVICES (I.E. SILT FENCING, DRAINAGE SWALES, ROCK CHECK DAMS, SEDIMENT BASINS, GRAVEL ACCESS PAD, ETC.) SHALL BE CONSTRUCTED PRIOR TO COMMENCEMENT OF SITE WORKS AND SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL CONSTRUCTION IS COMPLETE AND THE GRASS HAS ESTABLISHED GROWTH, SUBJECT TO APPROVAL BY THE CITY ENGINEERING DEPARTMENT.
2. ALL SEDIMENTATION CONTROL MEASURES ARE TO BE INSPECTED REGULARLY (MINIMUM WEEKLY), AS WELL AS AFTER EVERY RAINFALL EVENT AND ANY DAMAGED SILT CONTROL AND EROSION PROTECTION DEVICES SHALL BE PROMPTLY REPAIRED OR REPLACED BY THE CONTRACTOR.
3. THE CONTRACTOR SHALL BE PREPARED FOR UNEXPECTED CONDITIONS AND ACCORDINGLY HAVE STOCKPILED MATERIALS ON SITE FOR NECESSARY REPAIRS AS A RESULT OF FAILED OR INADEQUATE CONTROL MEASURES.
4. AREAS WITHOUT STABLE GROUND COVER SHALL BE PROTECTED WITH SILTATION CONTROL FENCING, STRAW MULCH, ETC, AND MAINTAINED BY THE CONTRACTOR UNTIL VEGETATION HAS BECOME ESTABLISHED IN THE SUBSEQUENT GROWING SEASON.
5. ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS SHALL BE STABILIZED BY SEEDING. (IF SEEDING IS APPROPRIATE DURING CURRENT SEASON)
7. ALL SITE DRAINAGE IS TO BE DIRECTED TO THE TEMPORARY SEDIMENT BASINS AND OTHER CHECK DAMS VIA SHEET DRAINAGE, BERMS OR SWALES (AS NECESSARY) TO FACILITATE THE COMPLETION OF GRADING WORKS. THE CONTRACTOR SHALL CONSTRUCT ANY ADDITIONAL SWALES OR BERMS THAT MAY BE NECESSARY TO DIRECT RUN–OFF TO THE SEDIMENT BASINS.
8. ALL CONSTRUCTION VEHICLES SHALL ENTER AND EXIT THE SITE FROM THE PROPOSED CONSTRUCTION ACCESS VIA THE GRAVEL ACCESS PAD. ANY CONSTRUCTION ACCESS ROUTES INTERNAL TO THE SITE SHALL NOT IMPEDE THE INTENDED DRAINAGE PATTERNS SET OUT ON THE ESC PLAN.
9. ANY DEWATERING WASTE SHALL BE DISCHARGED TO A VEGETATED AREA AT LEAST 30m FROM ANY WATERCOURSE AND FILTERED. FILTERING METHODS MUST BE APPROVED BY THE SITE INSPECTOR.
10. THE CONTRACTOR SHALL OBTAIN A CURRENT COPY AND BECOME FAMILIAR WITH OPSS 805; CONSTRUCTION SPECIFICATION FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES, AS WELL AS APPLICABLE MUNICIPAL STANDARDS AND/OR APPROVAL AGENCY STANDARDS.
11. THE CONTRACTOR MAY CONSIDER ALTERNATIVE EROSION AND SEDIMENT CONTROL MEASURES. SUCH MEASURES MUST BE PRESENTED IN WRITING FOR APPROVAL BY THE CONTRACT ADMINISTRATOR AND MUST BE APPROVED IN WRITING BY THE APPLICABLE APPROVAL AGENCIES.

GRADING NOTES

1. ALL DISTURBED AREAS TO BE RESTORED TO EXISTING CONDITIONS OR BETTER WITH A MIN. 200mm DEPTH OF TOPSOIL AND SOD IMMEDIATELY FOLLOWING COMPLETION OF GRADING.
2. ALL SLOPES SHALL BE RESTORED WITH A MIN. 200mm DEPTH OF TOPSOIL AND SOD IMMEDIATELY FOLLOWING COMPLETION OF GRADING.
3. ALL SLOPES ALONG BERMS AND DITCHES TO BE MAXIMUM SLOPES OF 3:1.

WATER SERVICING NOTES

GENERAL

1. ALL REQUIRED PERMITS SHALL BE IN PLACE PRIOR TO INSTALLATION OF WATERMAIN AND SERVICES.
2. A ROAD OCCUPANCY PERMIT IS REQUIRED, AND CAN BE OBTAINED AT THE OPERATION CENTRE.
3. MINIMUM COVER OVER WATERMAIN TO BE 1.7m. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATERMAIN AND SEWER TO BE 2.5m. WHERE WATERMAIN CONFLICTS WITH SEWER PIPE, DEFLECT WATERMAIN HORIZONTALLY OR VERTICALLY WHILE PROVIDING A MINIMUM OF 0.5m CLEARANCE BETWEEN WATERMAIN AND SEWERS, MAINTAIN MINIMUM DEPTH OF COVER AT ALL TIMES.
4. ALL BENDS AND TEES SHALL BE RESTRAINED IN ADDITION TO THRUST BLOCKS.
5. ALL DOMESTIC AND FIRE WATER SERVICES WILL REQUIRE BACKFLOW PREVENTION AS PER CITY OF BARRIE BYLAW 2010–102.
6. SERVICES INSTALLED UNDER FLOORS SHALL BE FULLY RESTRAINED.
7. HYDRANTS SHALL BE INSTALLED AS PER BSD–507. ON SITE HYDRANTS SHALL BE CONSIDERED PRIVATE (PAINTED RED) AND ARE TO BE MAINTAINED BY THE CONDOMINIUM CORPORATION.
8. ALL FIRE SERVICES SHALL CONFORM TO THE MOST CURRENT BUILDING CODE AND NATIONAL FIRE PROTECTION ACT. THE REQUIREMENT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/OWNERS. INFORMATION MAY BE OBTAINED FROM THE INSURANCE UNDERWRITER, CITY OF BARRIE PLANNING AND DEVELOPMENT AND THE CITY OF BARRIE FIRE DEPARTMENT.
9. ALL NEW CURB STOPS AND BOXES TO BE LOCATED OUT OF DRIVEWAYS AND SIDEWALKS. WATER SERVICE FROST COLLAR TO BE INSTALLED ON ALL CURB STOPS LOCATED WITHIN DRIVEWAYS.
10. COPPER WATER SERVICES 25mm TO 50mm IN DIAMETER SHALL BE EMBEDDED IN SAND 100mm ABOVE AND BELOW.
11. ALL COPPER WATER SERVICE FITTINGS SHALL BE COMPRESSION STYLE. IF A CONDITION ARISES WHERE A COPPER SERVICE MUST BE JOINED UNDER THE FLOOR, THE COPPER SHALL BE JOINTED BY SILVER SOLDER CONNECTION ONLY.
12. CONTRACTOR SHALL INFORM THE CITY OF BARRIE OPERATIONS DEPARTMENT A MINIMUM OF 48 HOURS IN ADVANCE OF THEIR INTENTIONS TO WORK.
13. THE CITY WILL FLUSH THE NEW SERVICE AND CONTRACTOR WILL PERFORM PRESSURE TEST WITNESSED BY THE WATER FIELD COORDINATOR.
14. WATER WILL NOT BE AVAILABLE UNTIL SERVICES HAVE BEEN SAMPLED AND PASSES FOR BACTERIOLOGICAL COMPLIANCE, A CHECK VALVE SHALL BE INSTALLED FOR TEMPORARY WATER.
15. REFER TO DRAWING WM–1 FOR WATERMAIN TESTING AND DISINFECTION NOTES.
16. AN ANNUAL CHARGE FOR EACH PRIVATE CONNECTION MADE TO THE MUNICIPAL WATER DISTRIBUTION SYSTEM WILL APPLY.
17. AN ANNUAL CHARGE FOR EACH PRIVATE FIRE HYDRANT SUPPLIED WITH WATER FROM THE MUNICIPAL WATER DISTRIBUTION SYSTEM WILL APPLY.

ENGINEERING NOTES

UNLESS OTHERWISE NOTED ON THE DRAWINGS, THE FOLLOWING REQUIREMENTS SHALL APPLY TO THE WORKS.

1. ALL MEASUREMENTS FOR THIS PROJECT ARE IN METERS, EXCEPT PIPE DIAMETERS, WHICH ARE IN MILLIMETRES, UNLESS OTHERWISE NOTED. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF ANY CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.
2. ALL MECHANICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE CODES, STANDARDS, RULES AND REGULATIONS, TO MEET THE REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION, AND TO MEET THE DESIGN INTENT.
3. ALL WORK AND MATERIALS WITHIN THE PROPERTY BOUNDARIES SHALL CONFORM TO THE LATEST EDITION OF THE ONTARIO BUILDING CODE. WHERE THERE IS A CONFLICT BETWEEN THE FOLLOWING NOTES AND SPECIFICATIONS AND THE ONTARIO BUILDING CODE, THE DECISION OF THE CHIEF BUILDING OFFICIAL WILL GOVERN.
4. INFORMATION ON EXISTING SERVICES AND UTILITIES SHOWN ON THESE DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE NECESSARY UTILITY LOCATES PRIOR TO COMMENCING CONSTRUCTION.
5. CONTRACTOR SHALL INFORM THE SITE (PROJECT) MANAGER A MINIMUM 24 HOURS IN ADVANCE OF HIS INTENTION TO COMMENCE WORK. CONTRACTOR SHALL AT ALL TIMES, PROVIDE SUITABLE BARRICADES AND FLAGGING PROTECTION IN ACCORDANCE WITH THE MINISTRY OF LABOUR PRACTICES, AND OCCUPATIONAL HEALTH AND SAFETY ACT. THE OPERATION OF ANY CONSTRUCTION EQUIPMENT IN CONNECTION WITH CONSTRUCTION IS PROHIBITED BETWEEN 7:00 PM OF ONE DAY TO 7:00 AM OF THE NEXT DAY AND ALL DAY SUNDAYS AND STATUTORY HOLIDAYS UNLESS OTHERWISE DIRECTED BY THE CITY OF BARRIE.
6. THESE NOTES ARE GENERAL IN NATURE; FOR SPECIFIC DETAILS REFER TO CITY OF BARRIE AND ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS.
7. SEWER PIPE MATERIAL: –POLYVINYL CHLORIDE PIPE SHALL CONFORM TO CSA–B–182.1 AND CSA–B–182.2 WITH BELL AND SPIGOT RUBBER GASKETED JOINTS COMPLYING WITH CSA–B182.2 AND CSA–B182.3. POLYVINYL CHLORIDE PIPE SHALL BE SDR–35 AND ALL SANITARY SERVICE LATERALS TO BE SDR–28. CONCRETE PIPE SHALL BE CLASS 65–D, 100–D, OR 140–D AS SPECIFIED.
8. SEWER BEDDING WILL CONFORM TO O.P.S.D. 802.030 FOR RIGID PIPE INSTALLATION AND O.P.S.D. 802.010 FOR FLEXIBLE PIPE C/W CLASS B BEDDING INSTALLATION. NATIVE MATERIAL USED FOR BACKFILL SHALL BE APPROVED BY A GEOTECHNICAL ENGINEER.
9. ALL TRENCHES ARE TO BE BACKFILLED WITH NATIVE MATERIAL AND COMPACTED TO AT LEAST 95% STANDARD PROCTOR DENSITY OR AS PER THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS. IN ADDITION, ALL STRUCTURES WITHIN TRAVELLED PORTION OF THE ROAD & PARKING AREAS SHALL HAVE NATIVE 4:1 FROST TAPERS FROM FROST LINE TO SUBGRADE.
10. MAINTENANCE HOLES:
–STEPS SHALL BE ALUMINUM ALLOY O.P.S.D. 405.010 SOLID CIRCULAR ALUMINUM OR APPROVED EQUAL.
–FRAMES AND COVERS SHALL BE DOMINION WHEEL FOUNDRIES DESIGN STD. 579 OR APPROVED EQUAL AND SELF LEVELLING FRAME AND GRATE/COVER SHALL BE USED FOR ALL NEW MAINTENANCE HOLES WITHIN ASPHALT ROADWAYS AS PER BSD–41 (NOVEMBER 2019) AND SHALL CONFORM TO O.P.S.D. 401.010 TYPE 'A'.
–SANITARY MAINTENANCE HOLES ARE TO HAVE CORE AND SEAL GASKETS ON ALL PIPE CONNECTIONS.
1200 DIAMETER MAINTENANCE HOLES – O.P.S.D. 701.010; 1500 DIAMETER MAINTENANCE HOLES – O.P.S.D. 701.011; 1800 DIAMETER MAINTENANCE HOLES – O.P.S.D. 701.012; 2400 DIAMETER MAINTENANCE HOLES – O.P.S.D 701.013.
–MAINTENANCE HOLE BENCHING SHALL EXTEND TO PIPE OBVERT AND SHALL BE IN ACCORDANCE WITH DETAILS SHOWN AS PER OPSD 701.021 –SAFETY PLATFORMS SHALL BE AS PER OPSD 404.020.
11. ROAD MAKE–UP FOR LIGHT DUTY (LOCAL RESIDENTIAL ROADS)–PER GEI CONSULTANTS GEOTECHNICAL UPDATE REPORT FOR PROPOSED RESIDENTIAL DEVELOPMENT, DATED AUGUST 14, 2022.
–40mm HL3 TOP COURSE ASPHALT
–70mm HL8 BOTTOM COURSE ASPHALT
–150mm GRANULAR A BASE COURSE
–450mm GRANULAR B SUBBASE COURSE
12. CURBS TO BE CITY OF BARRIE APPROVED MODIFIED ROLLOVER CURBS. SEE BSD–313 ON DET–3.
15. ALL PROPOSED CATCHBASIN, DOUBLE CATCHBASIN, & CATCHBASIN MAINTENANCE STRUCTURES TO HAVE MIN. 900mm SUMP DEPTH PER OPSD 705.010 AND OPSD 705.020 RESPECTIVELY.
16. FROST STRAPS TO BE PROVIDED ON ALL SANITARY MAINTENANCE HOLES (AND STORM MAINTENANCE HOLES WHERE NECESSARY) PER OPSD 701.100.
17. SANITARY GRINDER PUMP IS TO BE E–ONE MODEL DH151–93.
18. RECOMMENDATIONS FROM SECTION OF THE ENVIRONMENTAL IMPACT STUDY – 70 PIONEER TRAIL, CITY OF BARRIE COMPLETED BY AZIMUTH ENVIRONMENTAL CONSULTING, INC. ARE TO BE ADHERED TO. SECTION 8 RECOMMENDATIONS COVERS INFORMATION REGARDING SPECIES AT RISK, MIGRATORY BREEDING BIRDS AND BATS, SEDIMENT AND EROSION CONTROLS, OPERATIONS (INCLUDING REFUELING AND SPILL MANAGEMENT), BUTTERNUT REGISTRATION AND COMPENSATION, LSRCA ECOLOGICAL OFFSETTING POLICY, TREE INVENTORY, ANALYSIS AND PRESERVATION REPORT AND FISH AND FISH HABITAT.

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #0312008O059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #0312008O010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

GENERAL NOTES

JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
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DESIGN MG	SCALE: AS NOTED	DATE DEC 2021
DRAWN JH	PROJECT FER–15101	DWG. Nº GN–1
CHECKED JWI		

C:\Eng_3D\FER–15101–01\Production DWGS\FER–15101–COVER AND DETAILS–01.dwg, Layout:GN–1 Plotted: Aug 18, 2022 @ 1:17pm by kcopsin, The Jones Consulting Group Ltd.

LEGEND

- EX. SANITARY MAINTENANCE HOLE
- EX. SANITARY SEWER PIPE AND FLOW DIRECTION
- EX. SANITARY SERVICE
- EX. WATER MAIN
- EX. VALVE & BOX
- EX. HYDRANT & VALVE
- EX. CURB STOP AND WATER SERVICE
- EX. BELL PEDESTAL
- EX. HYDRO POLE
- EX./PROP. STREETLIGHT
- LIMIT OF DEVELOPMENT/ PROPOSED SEDIM CONTROL FENCE PER LSRCA ESC-2
- TREE PRESERVATION LIMIT
- ~~SHRUB PRESERVATION~~ LIMIT
- LIMIT OF EASEMENT
- EX. CONTOUR
- PROPOSED CEDAR POST PER BSD-1233
- CATCHMENT AREA ID NUMBER
- E1 | 0.30 / 1.50 — RUN-OFF COEFFICIENT; AREA (ha.)
- BOREHOLE ID AND ELEV.
- STORM CATCHMENT AREA BOUNDARY
- PROPOSED CUT-OFF SWALE
- PROPOSED CONSTRUCTION ACCESS MAT PER C.O.B. BSD-23D
- PROPOSED ROCK CHECK DAM PER LSRCA ESC-4
- DIRECTION OF STORM DRAINAGE
- 226.50 / 227.38 — PROPOSED GROUND ELEVATION; EXISTING STRIPPED GROUND ELEVATION
- 0.5% — PROPOSED DRAINAGE FLOW DIRECTION AND GRADIENT
- PROPOSED CLEARING AND GRUBBING
- PROPOSED TOPSOIL STOCKPILE PER LSRCA ESC-6
- PROPOSED CATCHBASIN SEDIMENT TRAP

KEMPENFELT BAY

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 116 on 51M986)

OPEN SPACE

EX. PIONEER TRAIL

EXISTING MUNICIPAL CUL-DE-SAC

EXISTING RESIDENTIAL LOT 9 — HSE. #60

EXISTING RESIDENTIAL LOT 10 — HSE. #68

EXISTING INTERMITTENT WATER COURSE

EX. 200mmø WATERMAIN

EXISTING HYDRANT H3038 TO BE RELOCATED

EX. 75mmø HDPE SAN. SANITARY FORCEMAIN

EX. SANDWOOD CT.

PROPERTY LIMITS

PROPERTY LINE

TOP OF SLOPE

WATER'S EDGE

EX. BUILDING

PROP. BERM 1.0m WIDE TOP WITH SIDESLOPES AT 3:1 TO ENSURE 1.0m (min) DEPTH FOR CUT-OFF SWALE
TOP OF BERM ELEV. 228.10 MIN

PROP. LIMIT OF SLOPE

PROP. TREE PRESERVATION FENCE

PROP. STRAWBALE AS PER LSRCA ESC-2

PROP. DOUBLE SILTATION CONTROL FENCING PER BSD-1233

SLOPE STABILITY PLUS 15m EROSION SETBACK AT TOE

3:1 MAX.

SEDIMENT BASIN
BOT 226.10
PP 226.80
TOP 228.10

PROP. 1.4m OVERFLOW WEIR

30m BUFFER

4m WOF ACCESS ROAD

CONTROL-MH2 (1200mmø)

CONTROL-MH1 (1200mmø)

150mmø RIP RAP ON TERRAFIX 270R FILTER FABRIC

REFER TO TYPICAL BERM DETAIL ON DRAWING ESC-2

PROP. ROCK CHECK DAM PER LSRCA ESC-2 (TYP.)

PROP. 0.5 (min) DEEP CUT-OFF SWALE PER LSRCA ESC-2

PROP. SINGLE SILTATION CONTROL FENCING PER BSD-1233

STM 01 (1200mmø)

STM 02 (1200mmø)

STM 03 (1200mmø)

DCBMH STM 04 (1500mmø)

E1 | 0.12 / 0.94

E2 | 0.12 / 0.48

EX HP & BPED TO BE REMOVED

EX. WELL TO BE DECOMMISSIONED

PROP. TOPSOIL STOCK PILE PER LSRCA ESC-6

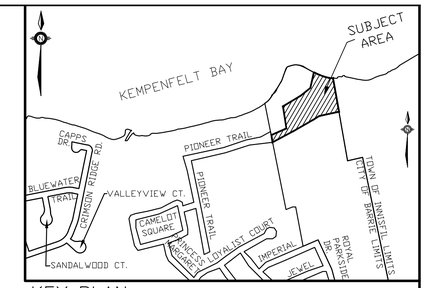
PROP. CONSTRUCTION ACCESS MAT PER BSD-23D TO BE INSTALLED AT END OF THE EXISTING ASPHALT DRIVEWAY

EX. BARN (DEMOLISHED)

PRIVATE PROPERTY

STREET 'A'

KEY PLAN
NTS



CONCEPTUAL: NOT FOR CONSTRUCTION

NOTE:
"I HAVE REVIEWED THE PLANS FOR THE CONSTRUCTION OF 70 PIONEER TRAIL AND HAVE PREPARED THIS PLAN TO INDICATE THE COMPATIBILITY OF THE PROPOSAL TO EXISTING ADJACENT PROPERTIES AND MUNICIPAL SERVICES. IT IS MY BELIEF THAT ADHERENCE TO THE PROPOSED GRADES AS SHOWN WILL PRODUCE ADEQUATE SURFACE DRAINAGE AND PROPER FACILITY OF MUNICIPAL SERVICES WITHOUT ANY DETRIMENTAL EFFECT TO THE EXISTING DRAINAGE PATTERNS OR ADJACENT PROPERTIES."

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER — J. W. INGRAM — 100143779 — 22-08-18 — PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL
EROSION AND SEDIMENT CONTROL PLAN

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	VBS	SCALE: 1:500	DATE APRIL 2021
DRAWN	VBS	PROJECT FER-15101	DWG. Nº ESC-1
CHECKED	JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101_ESC-01.dwg Layout:ESC-1 Plotted: Aug 19, 2022 @ 6:33pm by mgilpin The Jones Consulting Group Ltd.

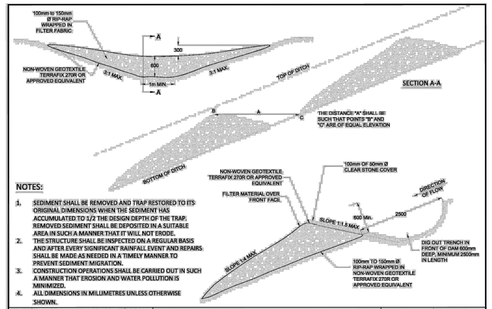
EROSION AND SEDIMENT CONTROL NOTES:

1. ALL SEDIMENT CONTROL MEASURES SUCH AS SEDIMENT CONTROL FENCE, TEMPORARY PONDS, CONSTRUCTION ACCESS MATS, SEDIMENT TRAPS, SWALES AND CHECK DAMS MUST BE INSTALLED PRIOR TO THE COMMENCEMENT OF SITE WORKS.
2. SEDIMENT CONTROLS SHOULD BE INSPECTED ON A REGULAR BASIS AND AFTER EVERY SIGNIFICANT RAINFALL EVENT. REPAIRS TO ESC MEASURES MUST BE COMPLETED IN A TIMELY MANNER TO PREVENT SEDIMENT MIGRATION.
3. ADDITIONAL MATERIALS SUCH AS CLEAR STONE, FILTER FABRIC, PUMPS, HOSES AND/SILTSOXX TO BE KEPT ONSITE AT ALL TIMES FOR CONDUCTING REPAIRS TO SEDIMENT CONTROL MEASURES.
4. ALL DISTURBED AREAS LEFT INACTIVE FOR MORE THAN THIRTY DAYS ARE TO BE STABILIZED.
5. THE STABILIZATION SEED MIXTURE IS TO BE AS SPECIFIED ON THE EROSION AND SEDIMENT CONTROL PLAN.
6. THE STABILIZATION SEED MIXTURE IS TO BE APPLIED AT A MINIMUM RATE OF 25 kg/ha.
7. ENGINEERED CHANGES TO THE ESC MEASURES MAY BE NEEDED AS SITE CONDITIONS CHANGE THROUGHOUT THE CONSTRUCTION PROCESS. THESE UPDATES MUST REFLECT BEST MANAGEMENT PRACTICES TO CONTROL SEDIMENT AND EROSION ONSITE AND SHOULD BE COMPLETED BASED ON DIRECTION FROM THE SITE ENGINEER. ADDITIONAL MEASURES MAY BE REQUIRED AS DIRECTED BY AN ENGINEER THROUGHOUT THE CONSTRUCTION PROCESS.
8. THE CONSTRUCTION ENTRANCE MAT IS TO BE INSTALLED AS THE FIRST STEP IN THE SITE ALTERATION PROCESS.
9. SEDIMENT CONTROL FENCE IS TO BE INSTALLED DOWNSLOPE OF ALL DISTURBED AREAS. A DOUBLE ROW OF SEDIMENT CONTROL FENCE IS TO BE INSTALLED SURROUNDING ALL NATURAL HERITAGE FEATURES AND AS DIRECTED BY THE SITE ENGINEER. SEDIMENT CONTROL FENCE IS TO BE AS PER LSRCA STANDARD ESC-4 or ESC-5 AS A MINIMUM. LIGHT DUTY SEDIMENT CONTROL FENCE IS TO BE INSTALLED.
10. CUT OFF DITCHES ARE TO BE INSTALLED AS SHOWN ON THE ESC PLANS AND AS NECESSARY BASED ON CHANGING SITE CONDITIONS TO DIRECT OVERLAND FLOW TO THE APPROPRIATE SEDIMENT TRAP OR TEMPORARY SEDIMENT POND.
11. CHECK DAMS ARE TO BE INSTALLED IN ALL SWALES AND DITCHES IN ACCORDANCE WITH DRAWING LSRCA ESC-2, AS A MINIMUM
12. TEMPORARY SEDIMENT TRAP(S) ARE TO BE CONSTRUCTED AT THE BEGINNING OF SITE GRADING AND IF THE SITE DRAINAGE CHANGES DURING CONSTRUCTION, IT MAY BE NECESSARY FOR TEMPORARY SWALES TO BE CONSTRUCTED TO DIRECT SITE FLOWS TO THE TEMPORARY SEDIMENT TRAP(S) DURING ROUGH GRADING AND AS CONSTRUCTION PROGRESSES.
13. TEMPORARY SEDIMENT POND(S) ARE TO BE CONSTRUCTED AT THE BEGINNING OF SITE GRADING AND IF THE SITE DRAINAGE CHANGES DURING CONSTRUCTION, IT MAY BE NECESSARY FOR TEMPORARY SWALES TO BE CONSTRUCTED TO DIRECT SITE FLOWS TO THE TEMPORARY SEDIMENT POND(S) DURING ROUGH GRADING AND AS CONSTRUCTION PROGRESSES.
14. FILTREXX SILTSOXX OR APPROVED EQUIVALENT TO BE INSTALLED DOWNSTREAM FROM SEDIMENT TRAP AND TEMPORARY SEDIMENT POND OUTLETS TO A MINIMUM HEIGHT OF 300mm.
15. IF STOCKPILES ARE USED ON-SITE FOR THE STORAGE OF EXCESS MATERIAL, THEY ARE TO BE IN ACCORDANCE WITH DETAIL DRAWING LSRCA ESC-6 OR BETTER.
16. ANY DEWATERING OCCURRING ONSITE MUST BE IN ACCORDANCE WITH AN APPROVED DEWATERING PLAN. ADDITIONAL DEWATERING REQUIREMENTS MAY BE DEEMED NECESSARY AND SHALL BE IMPLEMENTED AS DIRECTED BY THE ENGINEER, CONTRACT ADMINISTRATOR OR LOCAL MUNICIPALITY.
17. THE SITE TRAILER IS TO BE LOCATED ONLY AT THE DESIGNATED LOCATION SHOWN ON THE PLANS.
18. EQUIPMENT AND HYDROCARBON STORAGE IS TO OCCUR ONLY WITHIN THE DESIGNATED AREA SHOWN ON THE PLANS.
19. REFUELING IS TO TAKE PLACE ONLY WITHIN THE DESIGNATED AREA SHOWN ON THE PLANS AND SHALL BE A MINIMUM OF THIRTY METRES FROM ANY WATERCOURSE OR ENVIRONMENTALLY SENSITIVE AREA.
20. AN APPROVED SPILLS MANAGEMENT PLAN IS TO BE KEPT ONSITE.
21. SPILL CLEANUP EQUIPMENT SUCH AS ABSORPTIVE MEDIA IS TO BE MAINTAINED ONSITE FOR IMMEDIATE USE IN THE EVENT OF A SPILL.
22. SPILLS ARE TO BE REPORTED IMMEDIATELY TO THE MOECC SPILLS ACTION CENTRE AT 1-800-268-6060.
23. THE CONTRACTOR WILL BE RESPONSIBLE FOR CLEAN-UP AND RESTORATION, INCLUDING ALL COSTS, DUE TO THE RELEASE OF SEDIMENT FROM THE SITE.
24. LOW IMPACT DEVELOPMENT (LID) MEASURES ARE NOT TO BE USED AS SEDIMENT CONTROL DEVICES.
25. ADDITIONAL SEDIMENT CONTROL DEVICES MAY BE DEEMED NECESSARY AND AS SITE CONDITIONS CHANGE AND SHALL BE INSTALLED AS DIRECTED BY THE SITE ENGINEER, CONTRACT ADMINISTRATOR OR LOCAL MUNICIPALITY.

NO.	REVISION	DATE
1.	SWM GUIDELINES UPDATE	06.2016

EROSION AND SEDIMENT CONTROL PLAN NOTES

DATE: 06.2016
SCALE: NTS
LSRCA ESC-1



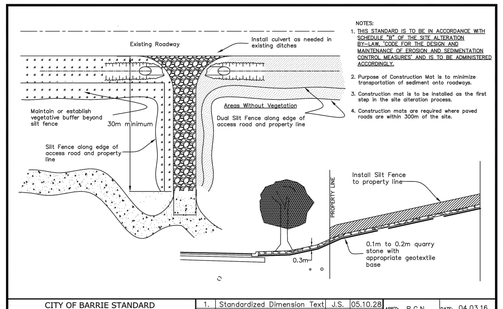
NOTES:

1. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA IN SUCH A MANNER THAT IT WILL NOT ERODE.
2. THE STRUCTURE SHALL BE INSPECTED ON A REGULAR BASIS AND AFTER EVERY SIGNIFICANT RAINFALL EVENT AND REPAIRS SHALL BE MADE AS NEEDED IN A TIMELY MANNER TO PREVENT SEDIMENT MIGRATION.
3. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION IS MINIMIZED.
4. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SHOWN.

NO.	REVISION	DATE
1.	SWM GUIDELINES UPDATE	06.2016

SWALE AND ROCK CHECK DAM

DATE: 06.2016
SCALE: NTS
LSRCA ESC-2



NOTES:

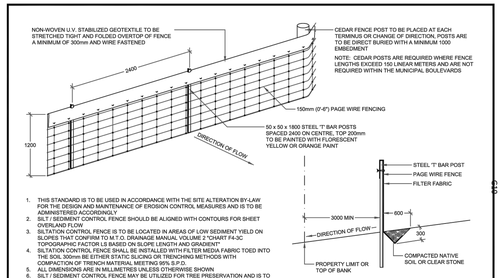
1. THIS STANDARD IS TO BE IN ACCORDANCE WITH SCHEDULE "B" OF THE SITE ALTERATION BY-LAW, CODE FOR THE DESIGN AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROL MEASURES, AND IS TO BE ADMINISTERED ACCORDINGLY.
2. Purpose of Construction Mat is to minimize transportation of sediment onto roadways.
3. Construction mat is to be installed as the first step in the site alteration process.
4. Construction mats are required where paved roads are within 300m of the site.

NO.	REVISION	APR'D	DATE
1.	Standardized Dimension Text	J.S.	05.10.28

CITY OF BARRIE STANDARD

CONSTRUCTION ENTRANCE MAT

APR'D: R.G.N. DATE: 04.03.16
DRAWN: A.S.C SCALE: N.T.S
BSD-23D

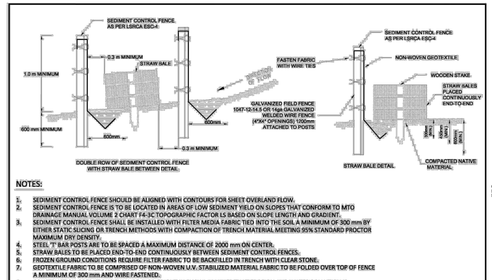


1. THIS STANDARD IS TO BE USED IN ACCORDANCE WITH THE SITE ALTERATION BY-LAW FOR THE DESIGN AND MAINTENANCE OF EROSION CONTROL MEASURES AND IS TO BE ADMINISTERED ACCORDINGLY.
2. SILT / SEDIMENT CONTROL FENCE SHOULD BE ALIGNED WITH CONTOURS FOR SHEET OVERLAND FLOW.
3. SILTATION CONTROL FENCE IS TO BE LOCATED IN AREAS OF LOW SEDIMENT YIELD ON SLOPES THAT CONFIRM TO M.T.O. DRAINAGE MANUAL VOLUME 2 "CHART F4-3C TOPOGRAPHIC FACTOR LS BASED ON SLOPE LENGTH AND GRADIENT"
4. SILTATION CONTROL FENCE SHALL BE INSTALLED WITH FILTER MEDIA FABRIC TOED INTO THE SOIL 300mm BE EITHER STATIC SLICING OR TRENCHING METHODS WITH COMPACTION OF TRENCH MATERIAL MEETING 95% STANDARD PROCTOR MAXIMUM DRY DENSITY.
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN
6. SILT / SEDIMENT CONTROL FENCE MAY BE UTILIZED FOR TREE PRESERVATION AND IS TO BE USED IN CONJUNCTION WITH BSD-1231, BSD-1232 AND BSD-1238

REV No.	DATE: OCT 2017	APPROVED
2	SCALE: N.T.S.	Oct 19/17
BSD-1233 FORMERLY BSD-23A		Original Signed By DIRECTOR OF ENGINEERING

Barrie STANDARD DETAIL

SILTATION CONTROL FENCE



NOTES:

1. SEDIMENT CONTROL FENCE SHOULD BE ALIGNED WITH CONTOURS FOR SHEET OVERLAND FLOW.
2. SEDIMENT CONTROL FENCE IS TO BE LOCATED IN AREAS OF LOW SEDIMENT YIELD ON SLOPES THAT CONFORM TO MTO DRAINAGE MANUAL VOLUME 2 CHART F4-3C TOPOGRAPHIC FACTOR LS BASED ON SLOPE LENGTH AND GRADIENT.
3. SEDIMENT CONTROL FENCE SHALL BE INSTALLED WITH FILTER MEDIA FABRIC TIED INTO THE SOIL A MINIMUM OF 300 mm BY EITHER STATIC SLICING OR TRENCH METHODS WITH COMPACTION OF TRENCH MATERIAL MEETING 95% STANDARD PROCTOR MAXIMUM DRY DENSITY.
4. STEEL "T" BAR POSTS ARE TO BE SPACED A MAXIMUM DISTANCE OF 2000 mm ON CENTER.
5. STRAW BALES TO BE PLACED END-TO-END CONTINUOUSLY BETWEEN SEDIMENT CONTROL FENCES.
6. FROZEN GROUND CONDITIONS REQUIRE FILTER FABRIC TO BE BACKFILLED IN TRENCH WITH CLEAR STONE.
7. GEOTEXTILE FABRIC TO BE COMPRISED OF NON-WOVEN U.V. STABILIZED MATERIAL FABRIC TO BE FOLDED OVER TOP OF FENCE A MINIMUM OF 300 mm AND WIRE FASTENED.
8. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION IS MINIMIZED.
9. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SHOWN.

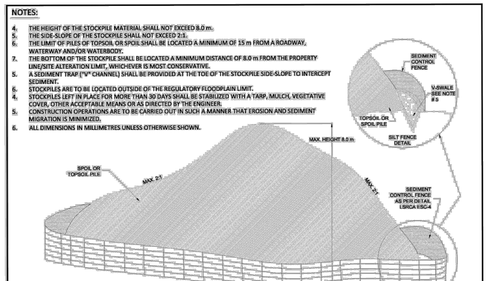
NO.	REVISION	DATE
1.	SWM GUIDELINES UPDATE	06.2016

DOUBLE ROW SEDIMENT CONTROL FENCE

DATE: 06.2016
SCALE: NTS
LSRCA ESC-5

NOTES:

4. THE HEIGHT OF THE STOCKPILE MATERIAL SHALL NOT EXCEED 8.0 m.
5. THE SIDE-SLOPE OF THE STOCKPILE SHALL NOT EXCEED 2:1.
6. THE LIMIT OF PILES OF TOPSOIL OR SPOIL SHALL BE LOCATED A MINIMUM OF 15 m FROM A ROADWAY, WATERWAY AND/OR WATERBODY.
7. THE BOTTOM OF THE STOCKPILE SHALL BE LOCATED A MINIMUM DISTANCE OF 8.0 m FROM THE PROPERTY LINE/SITE ALTERATION LIMIT, WHICH EVER IS MOST CONSERVATIVE.
8. A SEDIMENT TRAP ("V"-CHANNEL) SHALL BE PROVIDED AT THE TOE OF THE STOCKPILE SIDE-SLOPE TO INTERCEPT SEDIMENT.
9. STOCKPILES ARE TO BE LOCATED OUTSIDE OF THE REGULATORY FLOODPLAIN LIMIT.
10. STOCKPILES LEFT IN PLACE FOR MORE THAN 30 DAYS SHALL BE STABILIZED WITH A TARP, MULCH, VEGETATIVE COVER, OTHER ACCEPTABLE MEANS OR AS DIRECTED BY THE ENGINEER.
11. CONSTRUCTION OPERATIONS ARE TO BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT MIGRATION IS MINIMIZED.
12. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SHOWN.



NO.	REVISION	DATE
3.	SWM GUIDELINES UPDATE	06.2016

STOCKPILE SILTATION CONTROL

DATE: 06.2016
SCALE: NTS
LSRCA ESC-6

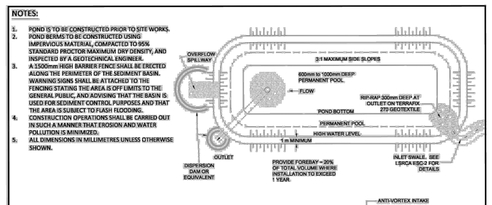
ENVIRONMENTAL IMPACT STUDY RECOMMENDATIONS

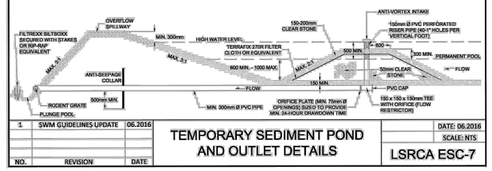
ENVIRONMENTAL IMPACT STUDY – 70 PIONEER TRAIL, COMPLETED BY AZIMUTH ENVIRONMENTAL CONSULTING INC., DATED FEBRUARY 2022.

1. THE DEVELOPMENT HAS NOT BEEN DESIGNATED AS A SPECIES AT RISK AREA. THE CONTRACTOR WILL KEEP UP TO DATE ON SPECIES AT RISK POLICY AND THE CHANGING NATURAL ENVIRONMENT OF THE SITE WHICH COULD SHIFT THE CURRENT WILDLIFE HABITATS. WORKERS WILL BE TRAINED IN THE IDENTIFICATION OF SPECIES AT RISK THAT MAY POTENTIALLY OCCUR IN THE AREA.
2. IN THE EVENT A SPECIES AT RISK IS IDENTIFIED WITHIN THE DEVELOPMENT LIMITS, STOP WORK AND CONTACT THE MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS. WORKERS SHOULD ENSURE THAT THEY ARE NOT WANTONLY INJURED OR KILLED AND TO ENSURE THAT DAMAGE TO THE HABITAT IS AVOIDED.
3. REMOVAL OF VEGETATION SHOULD BE AVOIDED BETWEEN APRIL 1 THROUGH AUGUST 31 OF ANY YEAR. IF CLEARING IS REQUIRED DURING THIS TIME, SCREENING BY AN ECOLOGIST KNOWLEDGEABLE ABOUT LOCAL BIRD SPECIES WILL BE COMPLETED.
4. TREE REMOVAL SHOULD BE AVOIDED BETWEEN APRIL 1 THROUGH SEPTEMBER 30 OF ANY YEAR.
5. MATERIAL STORAGE (I.E. STOCKPILES) WILL BE LOCATED OVER 30m FROM FISH HABITATS AND WOODLANDS. FENCING SHALL BE USED TO AVOID INTRUSION OF MACHINERY INTO UNDISTURBED NATURAL AREAS.
6. THE CONTRACTOR SHALL HAVE A CONTAMINANT AND SPILL MANAGEMENT PLAN IN PLACE PRIOR TO THE START OF WORK. THIS WILL INCLUDE KEEPING A SPILL KIT ON SITE AT ALL TIMES.
7. GRADING WORK WILL REMAIN 50m AWAY FROM THE IDENTIFIED BUTTERNUT TREE 005. IF GRADING ENCROACHES WITHIN THAT BOUNDARY IT SHALL BE CONSIDERED HARMFUL TO THE TREE AND COMPENSATION SHALL BE REQUIRED. THE TREE MAY QUALIFY FOR AN ESA EXEMPTION, REFER TO SECTION 8.5 OF THE ENVIRONMENTAL IMPACT STUDY – 70 PIONEER TRAIL FOR DETAILS.
8. THE CONTRACTOR SHALL COMPLY WITH THE LSRCA'S ECOLOGICAL OFFSETTING POLICY (LSRCA, 2021).
9. REMOVAL OF TREES SHALL COMPLY WITH THE CITY OF BARRIE TREE PRESERVATION BY-LAW (2014-115).
10. IT IS RECOMMENDED THAT CONSTRUCTION TAKE PLACE DURING DIRER MONTHS TO MINIMIZE DISTURBANCES OF FISH HABITATS.
11. IF DEWATERING IS REQUIRED, ALL WATER SHALL BE PUMPED TO A FILTER BAG PRIOR TO BEING RELEASED INTO THE SWALE ALONG THE EASTERN BOUNDARY. FILTER BAGS SHALL BE PLACED ON STABLE VEGETATED GROUND A MINIMUM OF 30m FROM THE LAKE.
12. SCOUR PROTECTION ELEMENTS ARE RECOMMENDED AT THE STORMWATER OUTLET TO LIMIT EROSIONS.

NOTES:

1. POND IS TO BE CONSTRUCTED PRIOR TO SITE WORKS.
2. POND BERMS TO BE CONSTRUCTED USING IMPERVIOUS MATERIAL, COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY, AND INSPECTED BY A GEOTECHNICAL ENGINEER.
3. A 1500mm HIGH BARBER FENCE SHALL BE ERECTED ALONG THE PERIMETER OF THE SEDIMENT BASIN. WARNING SIGNS SHALL BE ATTACHED TO THE FENCING STATING THE AREA IS OFF LIMITS TO THE GENERAL PUBLIC, AND ADVISING THAT THE BASIN IS USED FOR SEDIMENT CONTROL PURPOSES AND THAT THE AREA IS SUBJECT TO FLASH FLOODING.
4. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION IS MINIMIZED.
5. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SHOWN.

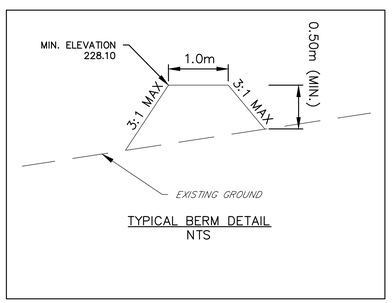




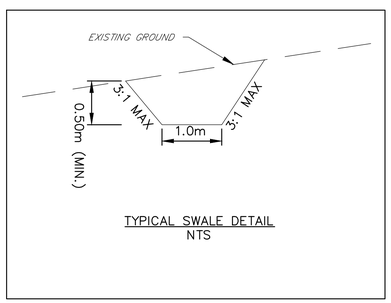
NO.	REVISION	DATE
1.	SWM GUIDELINES UPDATE	06.2016

TEMPORARY SEDIMENT POND AND OUTLET DETAILS

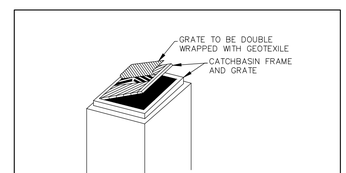
DATE: 06.2016
SCALE: NTS
LSRCA ESC-7



TYPICAL BERM DETAIL
NTS



TYPICAL SWALE DETAIL
NTS



NOTES:
1. TO BE USED UNDER APPROPRIATE DRAINAGE CIRCUMSTANCES. BETWEEN APRIL AND DECEMBER.
2. WOVEN GEOTEXTILE TO HAVE A MINIMUM EQUIVALENT OPENING SIZE OF 0.15mm AND A MAXIMUM EQUIVALENT OPENING SIZE OF 0.25mm OR A NON WOVEN GEOTEXTILE TO BE CONSIDERED BASED ON SOIL PARAMETERS AND SITE CONDITIONS.
3. GEOTEXTILE TO BE REPLACED PERIODICALLY WHEN ACCUMULATED SEDIMENTS INTERFERES WITH DRAINAGE, OR AS DIRECTED BY THE ENGINEER..

CATCHBASIN SEDIMENT TRAP

N.T.S.

EROSION CONTROL NOTES

1. THE ACCOMPANYING PLANS SET OUT THE MEASURES THAT WILL BE TAKEN BY THE DEVELOPER AND ITS CONTRACTORS TO CONTROL DOWNSTREAM SEDIMENT TO THE LOWEST LEVEL PRACTICALLY ACHIEVABLE. THE CONDITIONS AND TECHNIQUES SET OUT ARE TO BE FOLLOWED UNLESS APPROVED OTHERWISE BY THE CONTRACT ADMINISTRATOR, CONSERVATION AUTHORITY AND/OR MUNICIPALITY.
2. ALL TEMPORARY SILT CONTROL AND EROSION PROTECTION DEVICES (I.E. SILT FENCING, DRAINAGE SWALES, ROCK CHECK DAMS, SEDIMENT BASIN, GRAVEL ACCESS PAD, ETC.) SHALL BE CONSTRUCTED PRIOR TO COMMENCEMENT OF SITE WORKS AND SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL CONSTRUCTION IS COMPLETE AND THE GRASS HAS ESTABLISHED GROWTH, SUBJECT TO APPROVAL BY THE CITY ENGINEERING DEPARTMENT.
3. ALL SEDIMENTATION CONTROL MEASURES ARE TO BE INSPECTED REGULARLY (MINIMUM WEEKLY), AS WELL AS AFTER EVERY SIGNIFICANT RAINFALL EVENT AND ANY DAMAGED SILT CONTROL AND EROSION PROTECTION DEVICES SHALL BE PROMPTLY REPAIRED OR REPLACED BY THE CONTRACTOR.
4. THE CONTRACTOR MUST USE MATERIALS, CONSTRUCTION PRACTICES, AND MITIGATION TECHNIQUES IN ORDER TO PREVENT THE UNAUTHORIZED HARMFUL ALTERATION, DISRUPTION OR DESTRUCTION (HADD) OF VEGETATION OR THE IMPAIRMENT OF RECEIVER WATER QUALITY.
5. THE CONTRACTOR SHALL BE PREPARED FOR UNEXPECTED CONDITIONS AND ACCORDINGLY HAVE STOCKPILED MATERIALS ON SITE FOR NECESSARY REPAIRS AS A RESULT OF FAILED OR INADEQUATE CONTROL MEASURES.
6. AREAS WITHOUT STABLE GROUND COVER SHALL BE PROTECTED WITH SILTATION CONTROL FENCING, STRAW MULCH, ETC, AND MAINTAINED BY THE CONTRACTOR UNTIL VEGETATION HAS BECOME ESTABLISHED IN THE SUBSEQUENT GROWING SEASON.
7. ALL EXPOSED SOIL MUST BE GRADED TO A STABLE SLOPE AND TREATED AS QUICKLY AS POSSIBLE TO PREVENT EROSION AND SEDIMENT FROM LEAVING THE SITE. ALL AREAS STRIPPED OF VEGETATIVE COVER FOR LONGER THAN 15 DAYS SHALL BE HYDROSEEDED AT THE DIRECTION OF THE ENGINEER. HYDROSEED WITH FIBRETAC AT 100KG/HA AND MIXTURE OF 48% ANNUAL RYE GRASS, 48% FALL RYE, 4% RED CLOVER WILL NEED TO BE APPLIED TO THE SIDE SLOPES OF THE SEDIMENT CONTROL PONDS AND ANY EXPOSED AREAS FOLLOWING TOPSOIL STRIPPING.
8. ALL SITE DRAINAGE TO BE DIRECTED TO THE TEMPORARY SEDIMENT BASINS AND OTHER CHECK DAMS VIA SHEET DRAINAGE, BERMS OR SWALES (AS NECESSARY) TO FACILITATE THE COMPLETION OF GRADING WORKS. THE CONTRACTOR SHALL CONSTRUCT ANY ADDITIONAL SWALES OR BERMS THAT MAY BE NECESSARY TO DIRECT RUN-OFF IN A CONTROLLED MANNER TO A SUITABLE TREATMENT PRACTICE.
9. ALL CONSTRUCTION VEHICLES SHALL ENTER AND EXIT THE SITE FROM PROPOSED CONSTRUCTION ACCESS VIA THE GRAVEL ACCESS PAD.
10. ANY DEWATERING WASTE SHALL BE DISCHARGED TO A VEGETATED AREA AT LEAST 30m FROM ANY WATERCOURSE AND FILTERED PRIOR TO RELEASE. FILTERING METHODS MUST BE APPROVED BY THE SITE INSPECTOR.
11. TECHNIQUES FOR EROSION AND SEDIMENT CONTROLS ARE TO ADHERE TO ACCEPTED ENGINEERING PRACTICE AND MUNICIPAL, CONSERVATION AUTHORITY AND ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND DRAWINGS. THE CONTRACTOR SHALL OBTAIN A CURRENT COPY AND BECOME FAMILIAR WITH OPSS 805; CONSTRUCTION SPECIFICATION FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES, AS WELL AS APPLICABLE MUNICIPAL STANDARDS AND/OR APPROVAL AGENCY STANDARDS.
12. THE CONTRACTOR MAY CONSIDER ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES, SUCH MEASURES MUST BE PRESENTED IN WRITING FOR APPROVAL BY THE CONTRACT ADMINISTRATOR AND MUST BE APPROVED IN WRITING BY THE APPLICABLE APPROVAL AGENCIES.

CONSTRUCTION SEQUENCE

THE FOLLOWING CONSTRUCTION SEQUENCE IS PROVIDED FOR CONTRACTOR GUIDANCE:

1. CONSTRUCT ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES INCLUDING SILT FENCE, TREE PRESERVATION FENCE, MUD MATS, CHECK DAMS, SWALES/BERMS AND TEMPORARY SEDIMENT BASIN, ETC.
2. STRIPPING AND REMOVAL OF TOPSOIL. TOPSOIL TO BE REMOVED FROM SITE OR STOCKPILED AT THE DESIGNATED LOCATION AS DIRECTED BY THE ENGINEER.
3. PROCEED WITH EARTH EXCAVATION AND PRE-GRADING.
4. PROCEED WITH SEEDING OF RESTORATION AREAS AS DIRECTED BY ENGINEER.
5. PROCEED WITH SITE WORKS I.E. SITE SERVICING AND SURFACE WORKS INSTALLATIONS. COMPLETE TEMPORARY CONNECTIONS FROM SEDIMENT BASINS TO INTERNAL STORM SEWERS.
6. RESTORATION OF DISTURBED AREAS.
7. REMOVAL OF SEDIMENT AND EROSION CONTROLS.

**NOTE SILTATION AND EROSION CONTROL MEASURES ARE TO BE MONITORED AND MAINTAINED THROUGHOUT CONSTRUCTION AND NECESSARY REPAIRS TO BE COMPLETED PROMPTLY, AS REQUIRED.

**NOTE SERVICING WORKS PENDING FURTHER APPROVALS FROM THE CITY OF BARRIE.

CONTINGENCY PLAN

IF UNFORESEEN EVENTS CAUSE THE STRATEGIES SET OUT IN THIS PLAN TO BE INSUFFICIENT OR INAPPROPRIATE TO MEET THE OBJECTIVE, THE CONTRACTOR IS EXPECTED TO RESPOND IN A TIMELY MANNER WITH ALL REASONABLE MEASURES CONSISTENT WITH SAFETY, TO PREVENT, COUNTERACT OR REMEDY DOWNSTREAM SEDIMENTATION AND EROSION.

IF A SPILL OCCURS IT SHALL BE REPORTED TO THE MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE AND THE MINISTRY OF NATURAL RESOURSES. THE ON CALL CITY OF BARRIE ENVIRONMENTAL OFFICER SHOULD ALSO BE NOTIFIED VIA CELL PHONE (705) 725-3374.

IF APPROVAL AGENCIES DETERMINE THAT LONG TERM DAMAGE TO THE NATURAL ENVIRONMENT HAS OCCURRED DUE TO FAILURE OF THIS PLAN TO CONTROL SEDIMENT, A RESTORATION PLAN WILL BE DEVELOPED BY THE CONTRACTOR IN CONSULTATION WITH AND APPROVAL FROM THE APPROPRIATE AGENCIES FOR IMPLEMENTATION BY THE CONTRACTOR.

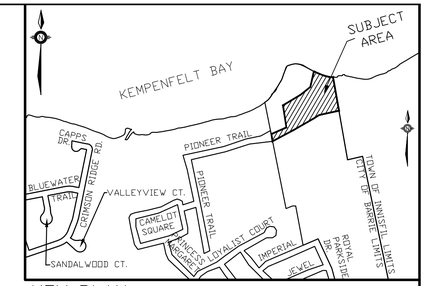
NOTE:
"I HAVE REVIEWED THE PLANS FOR THE CONSTRUCTION OF 70 PIONEER TRAIL AND HAVE PREPARED THIS PLAN TO INDICATE THE COMPATIBILITY OF THE PROPOSAL TO EXISTING ADJACENT PROPERTIES AND MUNICIPAL SERVICES. IT IS MY BELIEF THAT ADHERENCE TO THE PROPOSED GRADES AS SHOWN WILL PRODUCE ADEQUATE SURFACE DRAINAGE AND PROPER FACILITY OF MUNICIPAL SERVICES WITHOUT ANY DETRIMENTAL EFFECT TO THE EXISTING DRAINAGE PATTERNS OR ADJACENT PROPERTIES."

SITE DATA	
OVERALL SITE AREA TO BE DISTURBED	1.77 Ha
EXISTING LAND USE	TREED VACANT LAND
PREDOMINANT SOIL TYPE	GRAVELLY SANDY LOAM

CATCHMENT E1-E2 TSP DATA	
BOTTOM OF POND ELEVATION	226.10
PERMANENT POOL ELEVATION	226.85
ORIFICE DIAMETER	75 mm
OVERFLOW WEIR ELEVATION	227.8
WEIR LENGTH	1.4m
WEIR SIDE SLOPES	3:1
TOP OF POND EL

LEGEND

- EX. SAN03052 — EX. SANITARY MAINTENANCE HOLE
- EX. SANITARY SEWER PIPE AND FLOW DIRECTION
- EX. SANITARY SERVICE
- EX. WATER MAIN
- VB — EX. VALVE & BOX
- H&V — EX. HYDRANT & VALVE
- CS — EX. CURB STOP AND WATER SERVICE
- EX. BELL PEDESTAL
- EX. HP — EX. HYDRO POLE
- EX./PROP. STREETLIGHT
- PROP. STREETLIGHT CONTROL
- FLUSHING STATION — PROP. SAN MH FLUSHING STATION
- PROP. 32mmø P.E. SANITARY SERVICE & BALL/CHECK VALVE
- PROP HDPE SANITARY FORCEMAIN AND FLOW DIRECTION
- STM 01 — PROP. STM MH
- STM DCBMH — PROP. STM DCBMH
- CB — PROP. STM CATCHBASIN
- DCB — PROP. STM DOUBLE CATCHBASIN
- PROP. STORM SEWER PIPE AND FLOW DIRECTION
- VB — PROP. VALVE & BOX
- H&V — PROP. HYDRANT & VALVE
- CS — PROP. CURB STOP AND WATER SERVICE
- PROP. WATER MAIN
- LIMIT OF DEVELOPMENT
- TREE PRESERVATION LIMIT
- 5m BUFFER
- LIMIT OF EASEMENT
- 260.00 — EX. CONTOUR
- BOREHOLE 100 / 230.00 — BOREHOLE ID AND ELEV.



KEY PLAN
NTS

KEMPENFELT BAY

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 116 on 51M986)

OPEN SPACE

OPEN SPACE

WATER'S EDGE

TOP OF SLOPE

END PROPERTY BOUNDARY C.L. FENCE AT TOP OF BANK LIMIT. LIMIT TO BE STAKED IN THE FIELD.

PROPERTY LINE

END CHAIN LINK FENCE AT TOP OF BANK LIMIT TO BE STAKED OUT ONSITE.

0.3m WIDE SPILLWAY, 3:1 SIDE SLOPE MAX. LINED WITH TERRAFIX FM200 – TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

SLOPE STABILITY PLUS 15m EROSION SETBACK AT TOE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

PROP. TREE PRESERVATION FENCE

END CHAINLINK FENCE (TRANSITION)

LIMIT OF GRADING

PROPOSED OVERLAND FLOW

PROPOSED BERM WITH REMEDIATION PLANTING. REFER TO L.S.A. DESIGN

DIRECTION OF OVERLAND FLOW

PROP. TREE PRESERVATION FENCE

300mm DEEP, 100–150mm Dia. RIVER RUN STONE EROSION MATTRESS (TYP.) OVER FILTER CLOTH.

HEADWALLS AS PER OPSD 804.030 HANDRAIL AS PER OPSD 980.101 (TYP.)

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

START C.L. FENCE

PROP. WOOD BOLLARDS SPACED 1.0m O.C.

EX POWER POLE TO BE REMOVED

75mmø HDPE SAN FORCEMAIN TO BE CONNECT TO EX. FORCEMAIN IN SAH03051

PROP. WATERMAIN TO BE CONNECTED TO EXISTING VB AND CAP TO BE REMOVED

EX. 75mmø HDPE SAN. SANITARY FORCEMAIN

ADJUST GRATE TO FINISHED GRADE

EX. PIONEER TRAIL

EX. SAH03052

EX. SAH03051

EX-200mmø WATERMAIN

EXISTING MUNICIPAL CUL-DE-SAC

EXISTING HYDRANT H.3038 TO BE RELOCATED

HSE. #56

HSE. #60

HSE. #68

EXISTING RESIDENTIAL LOT 9

EXISTING RESIDENTIAL LOT 10

EXISTING LOT LINE

LOT 8 / LOT 9

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

PROP. 75mmø HDPE SANITARY FORCEMAIN

EX HP & BPED TO BE REMOVED

42.7m–300mmø PVC STM @ 0.50%

STM 01 (1200mmø)

200mmø PVC (DR-18) W/M

22.5° BEND

1.5m SIDEWALK

3–TWIN 15.8m– 375mmø CONC. PIPE @ 0.50%
S INV 228.93
N INV 228.85
HEADWALL AS PER OPSD 804.030

PROPERTY LINE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

PROP. TREE PRESERVATION FENCE

MATCHING EXISTING GROUND

0.3m HEIGHT WITH 3:1 SIDE SLOPES AND 0.5m FLAT TOP BERM

PROP. TREE PRESERVATION FENCE

MATCHING EXISTING GROUND

PROP. SWALE c/w FRENCH DRAIN 0.3m MIN. DEPTH WITH 3:1 SIDE SLOPE REFER TO DWG. DET-10

EASEMENT LIMIT

EX BARN TO BE REMOVED

PROP. TREE PRESERVATION FENCE

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 115 on 51M986)

4m WIDE ACCESS ROAD EASEMENT LIMIT

EXISTING ROCK REVETMENT

PROP. TREE PRESERVATION FENCE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE ENDS.

MATCH EXISTING DRAINAGE COURSE

16.0m–375mmø PVC STM @ 2.00%

CONTROL–MH2 (1200mmø)

TERRAFIX FM200 – TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

1.0m WIDE BERM MIN. 0.3m ABOVE SWALE

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

150mmø SUBDRAIN TO DAYLIGHT INTO SWALE WITH 2.5m CSP c/w RODENT GRATE

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE

PROP. TREE PRESERVATION FENCE

PROP. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

PROP. TREE PRESERVATION FENCE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE

PROP. TREE PRESERVATION FENCE

5.9m–375mmø PVC STM @ 2.00%

17.5m–375mmø PVC STM @ 2.00%

30m BUFFER

UNDERGROUND INFILTRATION GALLERY (ADS STORMTECH MC-4500)

3.0m SERVICING EASEMENT

PROP. 75mmø HDPE SANITARY FORCEMAIN

3.1m–375mmø PVC STM @ 5.00%

4m WIDE ACCESS ROAD

50mmø COPPER W/M

25.0m–375mmø PVC STM @ 1.30%

UFF–10

1.5m SIDEWALK

DCBMH STM 04 (1500mmø)

61.7m–375mmø PVC STM @ 0.50%

4.6m–375mmø PVC STM @ 1.30%

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

CONTROL–MH1 (1200mmø)

25.8m–375mmø PVC STM @ 0.50%

STM 03 (1200mmø)

PROP. FLUSHING–MH STATION #2

STM 02 (1200mmø)

STREET 'A'

200x50mmø TEE

50mmø COPPER W/M

260mmø PVC (DR–18) W/M

PROP. FLUSHING–MH STATION #1

PROP. UTILITY DUCT CROSSING

3.0m SERVICING EASEMENT

PROP. 75mmø HDPE SANITARY FORCEMAIN

EX. WELL TO BE DECOMMISSIONED

ACTIVE WELL

PRIVATE PROPERTY

PROPERTY LINE

EASEMENT LIMIT

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

BENCHMARK:	NO.	REVISIONS	DATE	INITIAL
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059				
ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010				
	2.	SECOND SUBMISSION	AUG 2022	JWI
	1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER — J. W. INGRAM — 100143779 — 22-08-18 — PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

GENERAL SERVICING

JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	VBS	SCALE: 1:500	DATE APRIL 2021
DRAWN	VBS	PROJECT FER–15101	DWG. Nº GS–1
CHECKED	JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101_GENERAL-SERVICING.dwg Layout: GS-1 Plotted: Aug 19, 2022 @ 7:08pm by mgolland The Jones Consulting Group Ltd

LEGEND

- EX. SAN0,SO52 — EX. SANITARY MAINTENANCE HOLE
- WV — EX. VALVE & BOX
- H&V — EX. HYDRANT & VALVE
- CS — EX. CURB STOP
- EX. BELL PEDESTAL
- EX. HP — EX. HYDRO POLE
- SL — EX./PROP. STREETLIGHT
- PROP. STREETLIGHT CONTROL
- FLUSHING STATION — PROP. SAN MH FLUSHING STATION
- PROP. 32mmø SANITARY BALL/CHECK VALVE
- STM 01 — PROP. STM MH
- STM DCBMH — PROP. STM DCBMH
- CB — PROP. STM CATCHBASIN
- DCB — PROP. STM DOUBLE CATCHBASIN
- VB — PROP. VALVE & BOX
- H&V — PROP. HYDRANT & VALVE
- CS — PROP. CURB STOP
- LIMIT OF DEVELOPMENT
- TREE PRESERVATION LIMIT
- 5m BUFFER
- LIMIT OF EASEMENT
- 260.00 — EX. CONTOUR
- MAJOR OVERLAND FLOW ROUTE
- SD — SPLIT DRAINAGE LOT
- WO — WALK OUT LOT
- LO — LOOK OUT LOT
- FD — FRONT DRAINING LOT
- TR — TRANSITION LOT
- R=3 — NUMBER OF RISERS

LOT TYPE
ORIGINAL GROUND ELEVATION
PROPOSED ELEVATION
HOUSE ELEVATION DICTATED BY WATER TABLE
3:1 SLOPE (MAX)
DRAFT PLAN LOT NUMBER
SURFACE DRAINAGE DIRECTION & GRADE
CONCEPTUAL BUILDING ENVELOPE
RECOMMENDED FINISHED FLOOR ELEVATION
RECOMMENDED BASEMENT FLOOR ELEVATION
HIGH GROUNDWATER ELEVATION
ENGINEERED FILL
CURB STOP
LIMIT OF ROW
SIDEWALK PER OPSD 310.010
ASPHALT DRIVEWAY APRON
TWO-STAGE BARRIER CURB & GUTTER OPSD-M600.070
DROPPED CURB
GRADE CHANGE FLAG
ROAD LENGTH & GRADE
STATION & ELEVATION
BOREHOLE ID AND ELEV.

ENGINEERED FILL DETAIL
N.T.S.

STREETLINE — VARIES — 5m — REAR LOT LINE
VARIES FINAL GRADE
TYP. PREGRADE DEPTH
ENGINEERED FILL
GRADE APPROVED FOR FILL PLACEMENT
EX. TOPSOIL DELETERIOUS MAT'L TO BE REMOVED

FINISHED FLOOR ELEVATION DICTATED BY WATER TABLE AND APPROXIMATED BUILDING ENVELOPE. GROUND WATER AND FINIHSED FLOOR ELEVATION TO BE CONFIRMED PRIOR TO ISSUANCE OF BUILDING PERMIT

KEMPENFELT BAY

END PROPERTY BOUNDARY C.L. FENCE AT TOP OF BANK LIMIT. LIMIT TO BE STAKED IN THE FIELD.

OPEN SPACE

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 116 on 51M986)

END CHAIN LINK FENCE AT TOP OF BANK LIMIT TO BE STAKED OUT ONSITE.

0.3m WIDE SPILLWAY, 3:1 SIDE SLOPE MAX. LINED WITH TERRAFIX FM200 -TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

SLOPE STABILITY PLUS 15m EROSION SETBACK AT TOE

LIMIT OF GRADING

PROPOSED OVERLAND FLOW

PROPOSED BERM WITH REMEDIATION PLANTING. REFER TO L.S.A. DESIGN

PROP. TREE PRESERVATION FENCE

DIRECTION OF OVERLAND FLOW

300mm DEEP, 100-150mm Dia. RIVER RUN STONE EROSION MATTRESS (TYP.) OVER FILTER CLOTH.

HEADWALLS AS PER OPSD 804.030 HANDRAIL AS PER OPSD 980.101 (TYP.)

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

START C.L. FENCE- PROP. WOOD BOLLARDS SPACED 1.0m O.C.

EX. POWER POLE TO BE REMOVED

EX. HP & BPED TO BE REMOVED

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

EXISTING MUNICIPAL CUL-DE-SAC

EXISTING HYDRANT H.3038 TO BE RELOCATED

EX. PIONEER TRAIL

HSE. #56 HSE. #60 HSE. #68

EXISTING RESIDENTIAL LOT 9 LOT 10 LOT 8 710 - 1

3-TWIN 15.8m- 375mmø CONC. PIPE @ 0.50% S INV 228.93 N INV 228.85 HEADWALL AS PER OPSD 804.030

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

PROP. TREE PRESERVATION FENCE

MATCHING EXISTING GROUND

0.3m HEIGHT WITH 3:1 SIDE SLOPES AND 0.5m FLAT TOP BERM

PROP. TREE PRESERVATION FENCE

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 115 on 51M986)

END CHAINLINK FENCE (TRANSITION)

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

PROP. TREE PRESERVATION FENCE

3.0m SERVICING EASEMENT

PROP. FLUSHING MH STATION #2

PROP. FLUSHING MH STATION #1

STREET 'A'

STM 01 STM 02 STM 03 STM 04

DCB STM 04

1.5m SIDEWALK

CONTROL-MH1 CONTROL-MH2

4m WIDE ACCESS ROAD EASEMENT LIMIT

30m BUFFER

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

TERRAFIX FM200 -TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE 1.0m WIDE BERM MIN. 0.3m ABOVE SWALE

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

150mmø SUBDRAIN TO DAYLIGHT INTO SWALE WITH 2.5m CSP c/w RODENT GRATE

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE

PROP. TREE PRESERVATION FENCE

PROP. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

PROP. TREE PRESERVATION FENCE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE

PROP. TREE PRESERVATION FENCE

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

EX. BARN TO BE REMOVED

EX. WELL TO BE DECOMMISSIONED

PROP. SWALE c/w FRENCH DRAIN 0.3m MIN. DEPTH WITH 3:1 SIDE SLOPE REFER TO DWG. DET-10

MATCHING EXISTING GROUND

EASEMENT LIMIT

PROPERTY LINE

PRIVATE PROPERTY

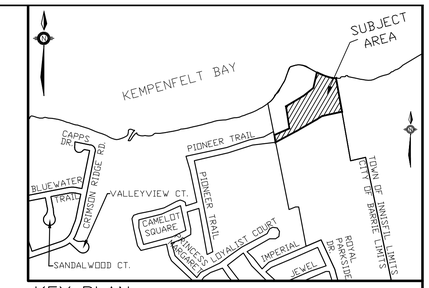
EXISTING ROCK REVETMENT

PROP. TREE PRESERVATION FENCE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE ENDS.

MATCH EXISTING DRAINAGE COURSE

KEY PLAN
NTS



CONCEPTUAL: NOT FOR CONSTRUCTION

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

GRADING PLAN

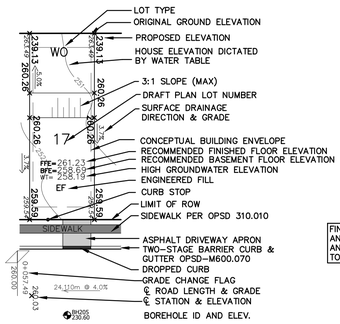
JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

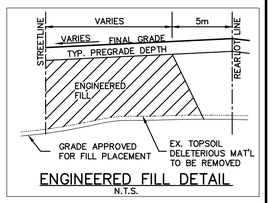
DESIGN	VBS	SCALE: 1:500	DATE APRIL 2021
DRAWN	VBS	PROJECT FER-15101	DWG. Nº GP-1
CHECKED	JWI		

C:\Eng_3D\FER-15101-01\Production DWGS\FER-15101_GRADING-PLAN.dwg Layout:GP-1 Plotted: Aug 19, 2022 @ 7:11pm by mgallant The Jones Consulting Group Ltd

LEGEND

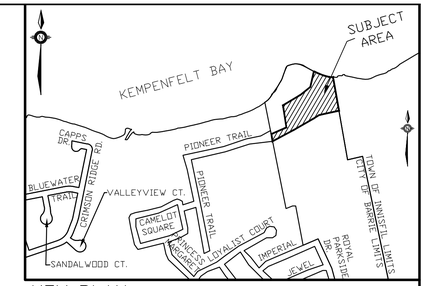
- EX. SANITARY MAINTENANCE HOLE (EX. SAN0.5052)
- EX. VALVE & BOX (VB)
- EX. HYDRANT & VALVE (H&V)
- EX. CURB STOP (CS)
- EX. BELL PEDESTAL
- EX. HYDRO POLE (EX. HP)
- EX./PROP. STREETLIGHT (SL)
- PROP. STREETLIGHT CONTROL
- PROP. SAN MH FLUSHING STATION (FLUSHING STATION)
- PROP. 32mmø SANITARY BALL/CHECK VALVE
- PROP. STM MH (STM 01)
- PROP. STM DCBMH (STM DCBMH)
- PROP. STM CATCHBASIN (CB)
- PROP. STM DOUBLE CATCHBASIN (DCB)
- PROP. VALVE & BOX (VB)
- PROP. HYDRANT & VALVE (H&V)
- PROP. CURB STOP (CS)
- LIMIT OF DEVELOPMENT
- TREE PRESERVATION LIMIT
- 5m BUFFER
- LIMIT OF EASEMENT
- EX. CONTOUR (260.00)
- MAJOR OVERLAND FLOW ROUTE
- SD SPLIT DRAINAGE LOT
- WO WALK OUT LOT
- LO LOOK OUT LOT
- FD FRONT DRAINING LOT
- TR TRANSITION LOT
- R=3 NUMBER OF RISERS



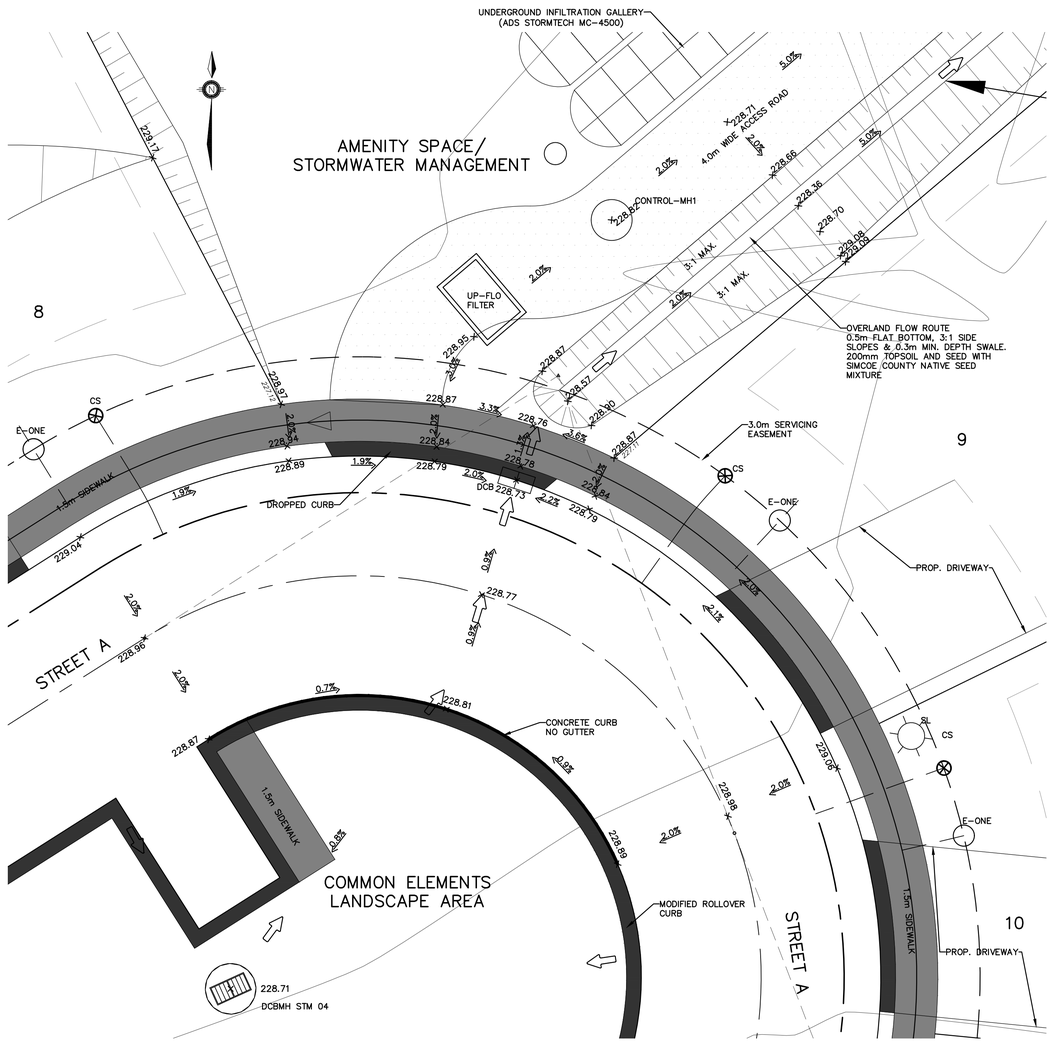


ENGINEERED FILL DETAIL
N.T.S.

FINISHED FLOOR ELEVATION DICTATED BY WATER TABLE AND APPROXIMATED BUILDING ENVELOPE. GROUND WATER AND FINIHSED FLOOR ELEVATION TO BE CONFIRMED PRIOR TO ISSUANCE OF BUILDING PERMIT



KEY PLAN
NTS



CONCEPTUAL: NOT FOR CONSTRUCTION

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENSED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

DETAILED GRADING PLAN

JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	VBS	SCALE: 1:100	DATE APRIL 2021
DRAWN	VBS	PROJECT FER-15101	DWG. Nº GP-2
CHECKED	JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101_GRADING-PLAN.dwg Layout:GP-2 Plotted Aug 19, 2022 @ 7:12pm by mgilliet The Jones Consulting Group Ltd.

LEGEND

- STM 01 — PROP. STM MH
- STM DCBMH 02 — PROP. STM DCBMH
- CB — PROP. STM CATCHBASIN
- DCB — PROP. STM DOUBLE CATCHBASIN
- PROP. STORM SEWER PIPE AND FLOW DIRECTION
- LIMIT OF DEVELOPMENT
- TREE PRESERVATION LIMIT
- 5m BUFFER
- LIMIT OF EASEMENT
- 260.00 — EX. CONTOUR
- DIRECTION OF OVERLAND FLOW
- DIRECTION OF EXISTING EXTERNAL OVERLAND FLOW
- 101 / 0.13 / 0.60 — CATCHMENT AREA ID NUMBER, RUN-OFF COEFFICIENT, AREA (ha.)
- CATCHMENT BOUNDARY
- 301 / 33 / 5.56 — CATCHMENT AREA ID NUMBER, CURVE NUMBER OR % IMPERVIOUS, AREA (ha.)
- CATCHMENT BOUNDARY
- BOREHOLE ID AND ELEV.

KEMPENFELT BAY

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 116 on 51M986)

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 115 on 51M986)

205 — 0.42 / 0.08 — OPEN SPACE

204 — 0.21 / 0.19 — OPEN SPACE

203 — 0.13 / 0.20

202 — 0.63 / 0.47

201A — 0.11 / 0.87

201B — 0.11 / 0.76

201C — 0.14 / 0.76

201D — 0.52 / 0.73

206 — 0.50 / 0.57

208 — 0.03 / 0.10

207 — 0.09 / 0.10

303 / 25 / 0.33

301 / 29 / 6.32

302 / 27 / 1.68

END PROPERTY BOUNDARY C.L. FENCE AT TOP OF BANK LIMIT. LIMIT TO BE STAKED IN THE FIELD.

END CHAIN LINK FENCE AT TOP OF BANK LIMIT TO BE STAKED OUT ONSITE.

0.3m WIDE SPILLWAY, 3:1 SIDE SLOPE MAX. LINED WITH TERRAFIX FM200 - TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

SLOPE STABILITY PLUS 15m EROSION SETBACK AT TOE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

END CHAINLINK FENCE (TRANSITION)

PROP. TREE PRESERVATION FENCE

UNDERGROUND INFILTRATION GALLERY (ADS STORMTECH MC-4500) REFER TO DET-11 FOR ADDITIONAL DETAILS

3.1m-375mmø PVC STM @ 5.00%

CONTROL-MH1 (1200mmø)

4.6m-375mmø PVC STM @ 1.30%

LIMIT OF GRADING

PROPERTY LINE

PROPOSED OVERLAND FLOW

PROPOSED BERM WITH REMEDIATION PLANTING. REFER TO L.S.A. DESIGN

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

DIRECTION OF OVERLAND FLOW

300mm DEEP, 100-150mm Dia. RIVER RUN STONE EROSION MATTRESS (TYP.) OVER FILTER CLOTH.

START C.L. FENCE - PROP. WOOD BOLLARDS SPACED 1.0m O.C.

EX POWER POLE TO BE REMOVED

EX HP & BPED TO BE REMOVED

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

EXISTING MUNICIPAL CUL-DE-SAC

EXISTING HYDRANT H.3038 TO BE RELOCATED

3-TWN 15.8m- 375mmø CONC. PIPE @ 0.50% S INV 228.93 N INV 228.85 HEADWALL AS PER OPSD 804.030

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

MATCHING EXISTING GROUND

0.3m 3:1 ANG

PROP. SWALE c/w FRENCH DRAIN 0.3m MIN. DEPTH WITH 3:1 SIDE SLOPE REFER TO DWG. DET-10

EX BARN TO BE REMOVED

25.8m-375mmø PVC STM @ 0.50%

STM 03 (1200mmø)

25.0m-375mmø PVC STM @ 1.30%

UFF-10

1.5m SIDEWALK

DROPPED CURB

DCBMH STM 04 (1500mmø)

61.7m-375mmø PVC STM @ 0.50%

STM 02 (1200mmø)

42.7m-300mmø PVC STM @ 0.50%

STM 01 (1200mmø)

STREET 'A'

6m WIDE ACCESS ROAD

4m WIDE ACCESS ROAD

30m BUFFER

EXISTING ROCK REVETMENT

PROP. TREE PRESERVATION FENCE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE ENDS.

MATCH EXISTING DRAINAGE COURSE

16.0m-375mmø PVC STM @ 2.00%

5.9m-375mmø PVC STM @ 2.00%

CONTROL-MH2 (1200mmø)

TERRAFIX FM200 - TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

17.5m-375mmø PVC STM @ 2.00%

1.0m WIDE BERM MIN. 0.3m ABOVE SWALE

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

150mmø SUBDRAIN TO DAYLIGHT INTO SWALE WITH 2.5m CSP c/w RODENT GRATE

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE

EX WELL TO BE DECOMMISSIONED

ACTIVE WELL

PROP. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE

PROP. TREE PRESERVATION FENCE

PRIVATE PROPERTY

EX. PIONEER TRAIL

EX. 75mmø HDPE SAN. SANITARY FORCEMAIN

EX. 200mmø WATERMAIN

EX. SAN3052

EX. 50mmø GAS

EX. 150mmø HDPE SAN. SANITARY FORCEMAIN

EX. 300mmø STM

EX. 200mmø WATERMAIN

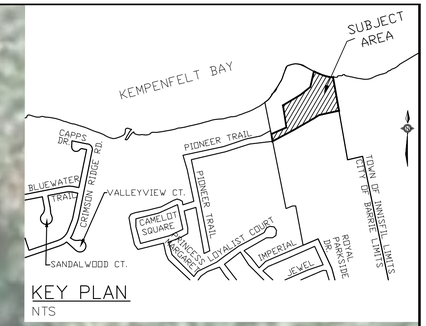
EX. 50mmø GAS

EX. 150mmø HDPE SAN. SANITARY FORCEMAIN

EX. 75

LEGEND

- LIMIT OF DEVELOPMENT
- TREE PRESERVATION LIMIT
- 5m BUFFER
- LIMIT OF EASEMENT
- 260.00 EX. CONTOUR
- DIRECTION OF EXISTING OVERLAND FLOW
- CATCHMENT AREA ID NUMBER
- 301 | 33 / 5.56 — CURVE NUMBER / AREA (ha.)
- CATCHMENT BOUNDARY
- BH205 230.00 BOREHOLE ID AND ELEV.



KEY PLAN
NTS

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

J. W. INGRAM 100143779 22-08-18 — LICENSED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

STORMWATER MANAGEMENT PRE-DEVELOPMENT AREAS

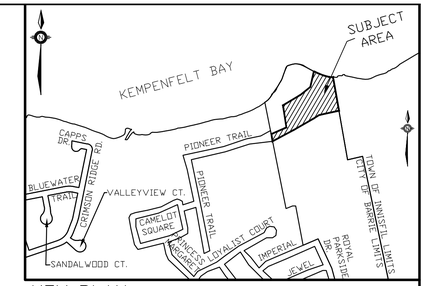
JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	VBS	SCALE: 1:500	DATE OCTOBER 2020
DRAWN	VBS	PROJECT FER-15101	DWG. Nº SWM-1
CHECKED	JWI		

G:\Eng_JD\FER-15101-01\Production DWGS\FER-15101_PRE_DEVELOPMENT.dwg Layout:SWM-1 Plotted Aug 19, 2022 @ 4:13pm by kcronin The Jones Consulting Group Ltd.

LEGEND

- PROP. STM MH
- PROP. STM DCBMH
- PROP. STM CATCHBASIN
- PROP. STM DOUBLE CATCHBASIN
- PROP. STORM SEWER PIPE AND FLOW DIRECTION
- LIMIT OF DEVELOPMENT
- TREE PRESERVATION LIMIT
- 5m BUFFER
- LIMIT OF EASEMENT
- 260.00 EX. CONTOUR
- DIRECTION OF OVERLAND FLOW
- DIRECTION OF EXTERNAL OVERLAND FLOW
- CATCHMENT AREA ID NUMBER / CURVE NUMBER / AREA (ha.) (e.g. 101 | 0.13 | 33)
- CATCHMENT BOUNDARY
- CATCHMENT AREA ID NUMBER / CURVE NUMBER / AREA (ha.) (e.g. 301 | 33 | 5.56)
- EXTERNAL CATCHMENT BOUNDARY
- BH205 229.50 BOREHOLE ID AND ELEV.



KEY PLAN
NTS

KEMPENFELT BAY

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 116 on 51M986)

OPEN SPACE

OPEN SPACE

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 115 on 51M986)

EXISTING RESIDENTIAL LOT 9

EXISTING RESIDENTIAL LOT 10

LOT 8
70 – 1

HSE. #56

HSE. #60

HSE. #68

EX. PIONEER TRAIL

EXISTING MUNICIPAL CUL-DE-SAC

STREET 'A'

PROPERTY LINE

EASEMENT LIMIT

PRIVATE PROPERTY

WATER'S EDGE

TOP OF SLOPE

EX. BUILDING

END PROPERTY BOUNDARY C.L. FENCE AT TOP OF BANK LIMIT. LIMIT TO BE STAKED IN THE FIELD.

END CHAIN LINK FENCE AT TOP OF BANK LIMIT TO BE STAKED OUT ONSITE.

9.3m WIDE SPILLWAY, 3:1 SIDE SLOPE MAX. LINED WITH TERRAFIX FM200 – TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

SLOPE STABILITY PLUS 15m EROSION SETBACK AT TOE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

END CHAINLINK FENCE (TRANSITION)

PROP. TREE PRESERVATION FENCE

LIMIT OF GRADING

PROPOSED OVERLAND FLOW

PROPOSED BERM WITH REMEDIATION PLANTING. REFER TO L.S.A. DESIGN

DIRECTION OF OVERLAND FLOW

300mm DEEP, 100–150mm Dia. RIVER RUN STONE EROSION MATTRESS (TYP.) OVER FILTER CLOTH.

HEADWALLS AS PER OPSD 804.030

HANDRAIL AS PER OPSD 980.101 (TYP.)

START C.L. FENCE

PROP. WOOD BOLLARDS SPACED 1.0m O.C.

EX POWER POLE TO BE REMOVED

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

EX HP & BPED TO BE REMOVED

3–TWN 15.8m– 375mmø CONC. PIPE @ 0.50%
S INV 228.93
N INV 228.85
HEADWALL AS PER OPSD 804.030

0.3m HEIGHT WITH 3:1 SIDE SLOPES AND 0.5m FLAT TOP BERM

MATCHING EXISTING GROUND

PROP. SWALE c/w FRENCH DRAIN 0.3m MIN. DEPTH WITH 3:1 SIDE SLOPE REFER TO DWG. DET–10

EX. BARN TO BE REMOVED

3.0m SERVICING EASEMENT

4m WIDE ACCESS ROAD

5m BUFFER

1.5m SIDEWALK

DROPPED CURB

EX. WELL TO BE DECOMMISSIONED

ACTIVE WELL

EXISTING ROCK REVETMENT

MATCH EXISTING DRAINAGE COURSE

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

TERRAFIX FM200 – TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

1.0m WIDE BERM MIN. 0.3m ABOVE SWALE

150mmø SUBDRAIN TO DAYLIGHT INTO SWALE WITH 2.5m CSP c/w RODENT GRATE

PROP. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE ENDS.

CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE

208	0.03	39	
207	0.10	37	
206	0.50	72	
205	0.42	28	
204	0.21	42	
203	0.13	46	
202	0.63	65	
201	0.88	86	
303	25	0.33	
301	29	6.32	
302	27	1.68	

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APPROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

PROFESSIONAL ENGINEER J.W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

OVERALL STORMWATER MANAGEMENT POST DEVELOPMENT AREAS

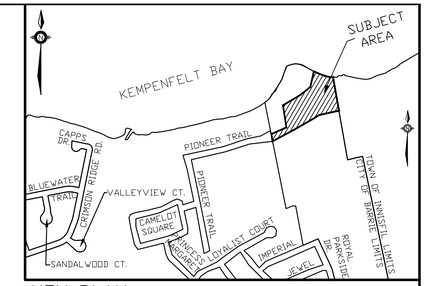
JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN VBS	SCALE: 1:500	DATE OCTOBER 2020	
DRAWN VBS	PROJECT FER–15101	DWG. Nº SWM–2	
CHECKED JWI			

C:\Eng_30\FER-15101-01\Production DWGS\FER-15101_POST-DEVELOPMENT.dwg Layout: SWM-2 Plotted: Aug 19, 2022 @ 7:23pm by mpollard The Jones Consultan Group Ltd.

LEGEND

- CATCHMENT BOUNDARY
- AREA (ha.) 0.42 | 2.34 PERSONS PER UNIT
- No. OF UNITS 10 | 13 CATCHMENT AREA ID NUMBER
- EX. SAN03052 — EX. SANITARY MAINTENANCE HOLE
- EX. SANITARY SEWER PIPE AND FLOW DIRECTION
- EX. SANITARY SERVICE
- EX. BELL PEDESTAL
- EX. HP — EX. HYDRO POLE
- EX. SL / SL — EX./PROP. STREETLIGHT
- PROP. STREETLIGHT CONTROL
- FLUSHING STATION — PROP. SAN MH FLUSHING STATION
- PROP. 32mmø P.E. SANITARY SERVICE & BALL/CHECK VALVE
- PROP HDPE SANITARY FORCEMAIN AND FLOW DIRECTION
- LIMIT OF DEVELOPMENT
- TREE PRESERVATION LIMIT
- 5m BUFFER
- LIMIT OF EASEMENT
- 260.00 — EX. CONTOUR
- BH205 EL.260.00 — BOREHOLE ID AND ELEV.



KEY PLAN
NTS

KEMPENFELT BAY

WATER'S EDGE

TOP OF SLOPE

END PROPERTY BOUNDARY C.L. FENCE AT TOP OF BANK LIMIT. LIMIT TO BE STAKED IN THE FIELD.

PROPERTY LINE

OPEN SPACE

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 116 on 51M986)

SLOPE STABILITY PLUS 15m EROSION SETBACK AT TOE

END CHAIN LINK FENCE AT TOP OF BANK LIMIT TO BE STAKED OUT ONSITE.

0.3m WIDE SPILLWAY, 3:1 SIDE SLOPE MAX. LINED WITH TERRAFIX FM200 – TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

CHAINLINK FENCE AS PER 150mm ON CITY PROPERTY.

PROP. TREE PRESERVATION FENCE

END CHAINLINK FENCE (TRANSITION)

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

LIMIT OF GRADING

PROPERTY LINE

EXISTING BUILDING

30m BUFFER

4m WIDE ACCESS ROAD EASEMENT LIMIT

EXISTING ROCK REVEMENT

PROP. TREE PRESERVATION FENCE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE ENDS.

MATCH EXISTING DRAINAGE COURSE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

LIMIT OF GRADING

PROPOSED OVERLAND FLOW

PROPOSED BERM WITH REMEDIATION PLANTING. REFER TO L.S.A. DESIGN

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

PROP. TREE PRESERVATION FENCE

DIRECTION OF OVERLAND FLOW

PROP. TREE PRESERVATION FENCE

300mm DEEP, 100–150mm Dia. RIVER RUN STONE EROSION MATTRESS (TYP.) OVER FILTER CLOTH.

HEADWALLS AS PER OPSD 804.030 HANDRAIL AS PER OPSD 980.101 (TYP.)

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

START C.L. FENCE

PROP. WOOD BOLLARDS SPACED 1.0m O.C.

EX POWER POLE TO BE REMOVED

75mmø HDPE SAN FORCEMAIN TO BE CONNECT TO EX. FORCEMAIN IN SAH03051

PROP. 75mmø HDPE SANITARY FORCEMAIN

EX HP & BPED TO BE REMOVED

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

ADJUST GRATE TO FINISHED GRADE

EX. 75mmø HDPE SAN. SANITARY FORCEMAIN

EX. SAH03052

EX. PIONEER TRAIL

EXISTING MUNICIPAL CUL-DE-SAC

3–TWIN 15.8m– 375mmø CONC. PIPE @ 0.50% S INV 228.93 N INV 228.85 HEADWALL AS PER OPSD 804.030

PROP. TREE PRESERVATION FENCE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

PROPERTY LINE

MATCHING EXISTING GROUND

0.3m HEIGHT WITH 3:1 SIDE SLOPES AND 0.5m FLAT TOP BERM

PROP. TREE PRESERVATION FENCE

PROP. SWALE c/w FRENCH DRAIN 0.3m MIN. DEPTH WITH 3:1 SIDE SLOPE REFER TO DWG. DET-10

MATCHING EXISTING GROUND

EASEMENT LIMIT

EX. BARN TO BE REMOVED

PROP. TREE PRESERVATION FENCE

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

PROP. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

PROP. TREE PRESERVATION FENCE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE

PRIVATE PROPERTY

PROPERTY LINE

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

TERRAFIX FM200 – TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

1.0m WIDE BERM MIN. 0.3m ABOVE SWALE

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

150mmø SUBDRAIN TO DAYLIGHT INTO SWALE WITH 2.5m CSP c/w RODENT GRATE

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE

PROP. TREE PRESERVATION FENCE

EX. WELL TO BE DECOMMISSIONED

ACTIVE WELL

PROP. 75mmø HDPE SANITARY FORCEMAIN

3.0m SERVICING EASEMENT

PROP. FLUSHING MH STATION #1

PROP. FLUSHING MH STATION #2

PROP. 75mmø HDPE SANITARY FORCEMAIN

4m WIDE ACCESS ROAD

DROPPED CURB

1.5m SIDEWALK

2.03 | 2.34

18 | 1

STREET 'A'

E/ONE GRINDER PUMP MODEL DH151–93

1 E/ONE GRINDER PUMP MODEL DH151–93
2 E/ONE GRINDER PUMP MODEL DH151–93
3 E/ONE GRINDER PUMP MODEL DH151–93
4 E/ONE GRINDER PUMP MODEL DH151–93
5 E/ONE GRINDER PUMP MODEL DH151–93
6 E/ONE GRINDER PUMP MODEL DH151–93
7 E/ONE GRINDER PUMP MODEL DH151–93
8 E/ONE GRINDER PUMP MODEL DH151–93
9 E/ONE GRINDER PUMP MODEL DH151–93
10 E/ONE GRINDER PUMP MODEL DH151–93
11 E/ONE GRINDER PUMP MODEL DH151–93
12 E/ONE GRINDER PUMP MODEL DH151–93
13 E/ONE GRINDER PUMP MODEL DH151–93
14 E/ONE GRINDER PUMP MODEL DH151–93
15 E/ONE GRINDER PUMP MODEL DH151–93
16 E/ONE GRINDER PUMP MODEL DH151–93
17 E/ONE GRINDER PUMP MODEL DH151–93
18 E/ONE GRINDER PUMP MODEL DH151–93

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 115 on 51M986)

LOT 8
710 – 1

EXISTING RESIDENTIAL LOT 9

EXISTING RESIDENTIAL LOT 10

HSE. #56

HSE. #60

HSE. #68

EXISTING LOT LINE

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

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1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL
INTERNAL SANITARY DRAINAGE AREA PLAN

JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	VBS	SCALE: 1:500	DATE APRIL 2021
DRAWN	VBS	PROJECT FER–15101	DWG. Nº SAN–1
CHECKED	JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101_SANITARY-DRAINAGE.dwg, Layout:SAN-1 Plotted: Aug 19, 2022 @ 7:29pm by mpelton The Jones Consulting Group Ltd.

LEGEND

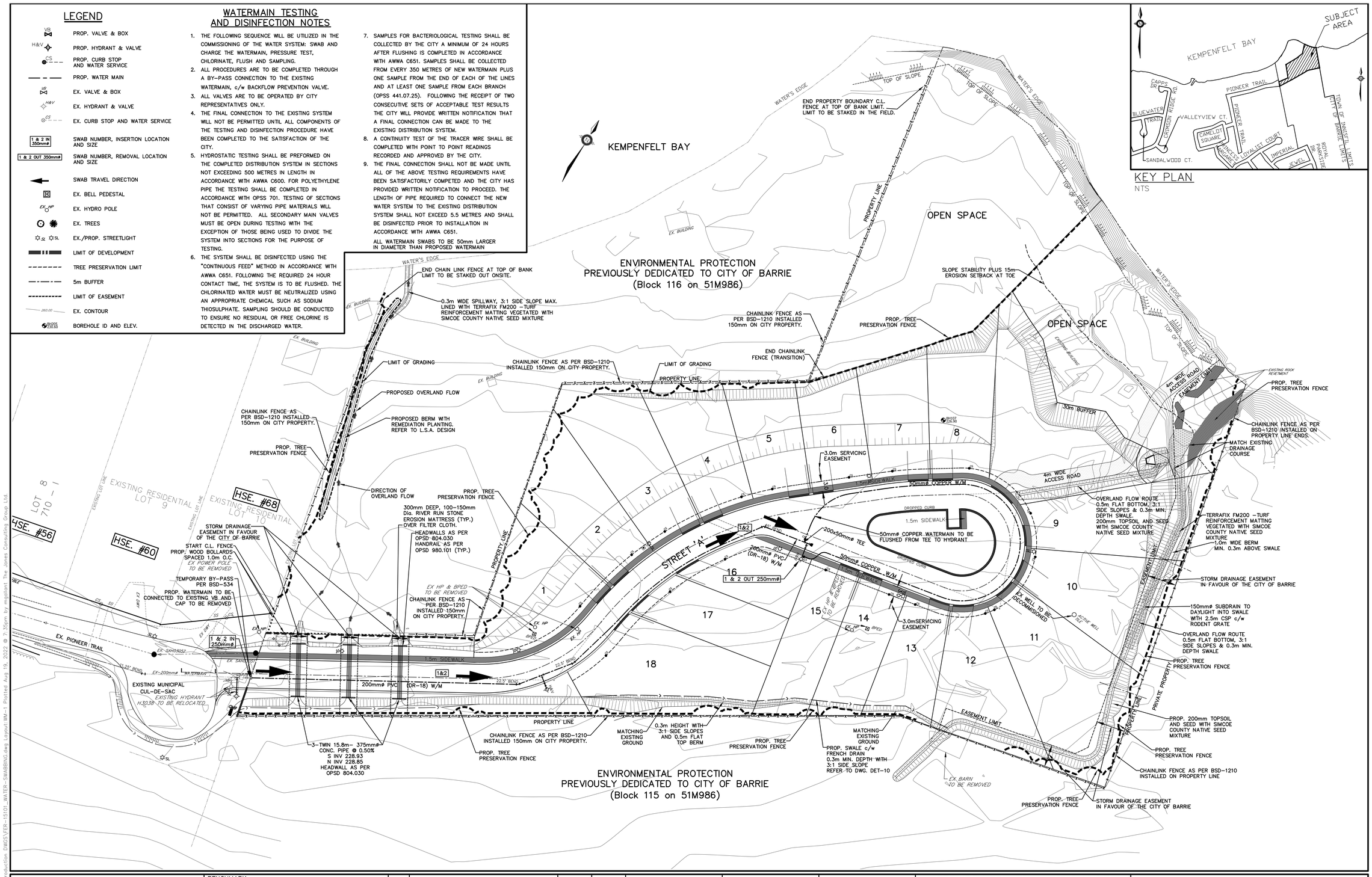
- PROP. VALVE & BOX
- PROP. HYDRANT & VALVE
- PROP. CURB STOP AND WATER SERVICE
- PROP. WATER MAIN
- EX. VALVE & BOX
- EX. HYDRANT & VALVE
- EX. CURB STOP AND WATER SERVICE
- 1 & 2 IN 350mmø — SWAB NUMBER, INSERTION LOCATION AND SIZE
- 1 & 2 OUT 350mmø — SWAB NUMBER, REMOVAL LOCATION AND SIZE
- SWAB TRAVEL DIRECTION
- EX. BELL PEDESTAL
- EX. HYDRO POLE
- EX. TREES
- EX./PROP. STREETLIGHT
- LIMIT OF DEVELOPMENT
- TREE PRESERVATION LIMIT
- 5m BUFFER
- LIMIT OF EASEMENT
- 260.00 — EX. CONTOUR
- BH205 EL260.00 — BOREHOLE ID AND ELEV.

WATERMAIN TESTING AND DISINFECTION NOTES

1. THE FOLLOWING SEQUENCE WILL BE UTILIZED IN THE COMMISSIONING OF THE WATER SYSTEM: SWAB AND CHARGE THE WATERMAIN, PRESSURE TEST, CHLORINATE, FLUSH AND SAMPLING.
2. ALL PROCEDURES ARE TO BE COMPLETED THROUGH A BY-PASS CONNECTION TO THE EXISTING WATERMAIN, c/w BACKFLOW PREVENTION VALVE.
3. ALL VALVES ARE TO BE OPERATED BY CITY REPRESENTATIVES ONLY.
4. THE FINAL CONNECTION TO THE EXISTING SYSTEM WILL NOT BE PERMITTED UNTIL ALL COMPONENTS OF THE TESTING AND DISINFECTION PROCEDURE HAVE BEEN COMPLETED TO THE SATISFACTION OF THE CITY.
5. HYDROSTATIC TESTING SHALL BE PREFORMED ON THE COMPLETED DISTRIBUTION SYSTEM IN SECTIONS NOT EXCEEDING 500 METRES IN LENGTH IN ACCORDANCE WITH AWWA C600. FOR POLYETHYLENE PIPE THE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 701. TESTING OF SECTIONS THAT CONSIST OF VARYING PIPE MATERIALS WILL NOT BE PERMITTED. ALL SECONDARY MAIN VALVES MUST BE OPEN DURING TESTING WITH THE EXCEPTION OF THOSE BEING USED TO DIVIDE THE SYSTEM INTO SECTIONS FOR THE PURPOSE OF TESTING.
6. THE SYSTEM SHALL BE DISINFECTED USING THE "CONTINUOUS FEED" METHOD IN ACCORDANCE WITH AWWA C651. FOLLOWING THE REQUIRED 24 HOUR CONTACT TIME, THE SYSTEM IS TO BE FLUSHED. THE CHLORINATED WATER MUST BE NEUTRALIZED USING AN APPROPRIATE CHEMICAL SUCH AS SODIUM THIOSULPHATE. SAMPLING SHOULD BE CONDUCTED TO ENSURE NO RESIDUAL OR FREE CHLORINE IS DETECTED IN THE DISCHARGED WATER.
7. SAMPLES FOR BACTERIOLOGICAL TESTING SHALL BE COLLECTED BY THE CITY A MINIMUM OF 24 HOURS AFTER FLUSHING IS COMPLETED IN ACCORDANCE WITH AWWA C651. SAMPLES SHALL BE COLLECTED FROM EVERY 350 METRES OF NEW WATERMAIN PLUS ONE SAMPLE FROM THE END OF EACH OF THE LINES AND AT LEAST ONE SAMPLE FROM EACH BRANCH (OPSS 441.07.25). FOLLOWING THE RECEIPT OF TWO CONSECUTIVES SETS OF ACCEPTABLE TEST RESULTS THE CITY WILL PROVIDE WRITTEN NOTIFICATION THAT A FINAL CONNECTION CAN BE MADE TO THE EXISTING DISTRIBUTION SYSTEM.
8. A CONTINUITY TEST OF THE TRACER WIRE SHALL BE COMPLETED WITH POINT TO POINT READINGS RECORDED AND APPROVED BY THE CITY.
9. THE FINAL CONNECTION SHALL NOT BE MADE UNTIL ALL OF THE ABOVE TESTING REQUIREMENTS HAVE BEEN SATISFACTORILY COMPETED AND THE CITY HAS PROVIDED WRITTEN NOTIFICATION TO PROCEED. THE LENGTH OF PIPE REQUIRED TO CONNECT THE NEW WATER SYSTEM TO THE EXISTING DISTRIBUTION SYSTEM SHALL NOT EXCEED 5.5 METRES AND SHALL BE DISINFECTED PRIOR TO INSTALLATION IN ACCORDANCE WITH AWWA C651.

ALL WATERMAIN SWABS TO BE 50mm LARGER IN DIAMETER THAN PROPOSED WATERMAIN

KEY PLAN
NTS



BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

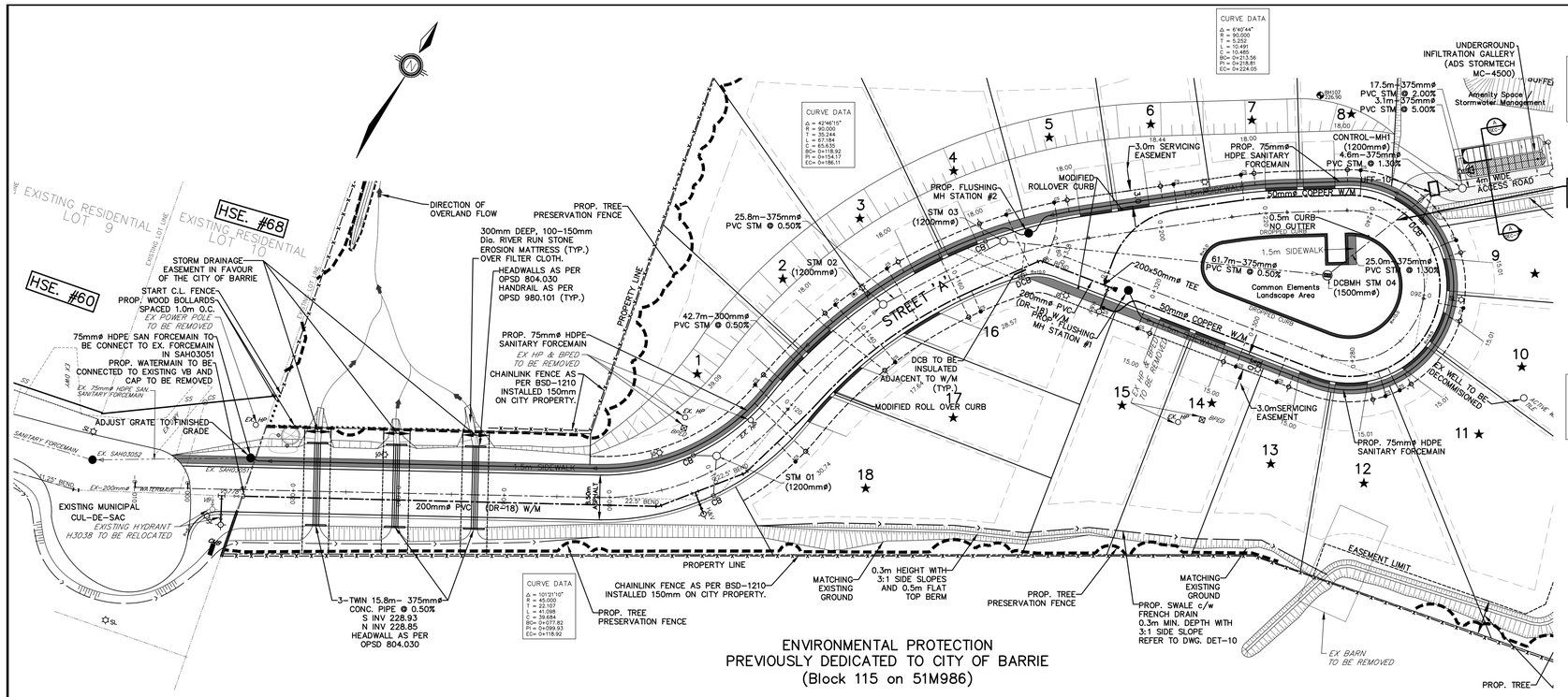
FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM 70 PIONEER TRAIL

WATERMAIN SWABBING PLAN

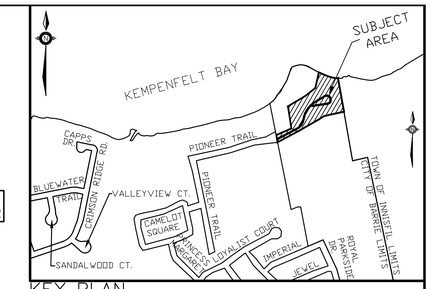
JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	VBS	SCALE: 1:500	DATE APRIL 2021
DRAWN	VBS	PROJECT FER-15101	DWG. Nº WM-1
CHECKED	JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101_WATER-SWABBING.dwg Layout: WM-1 Plotted: Aug 19, 2022 @ 7:35pm by mgplant The Jones Consulting Group Ltd.



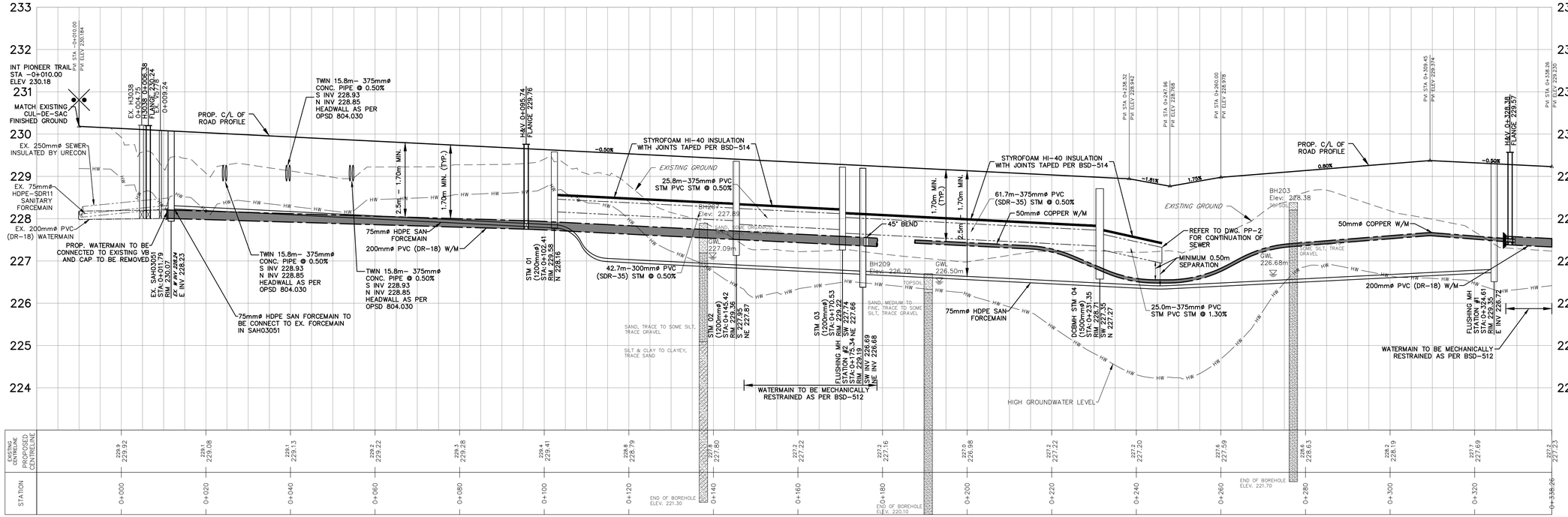
ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 115 on 51M986)



KEY PLAN
NTS

LEGEND

EX. SAH03052 ●	EX. SANITARY MAINTENANCE HOLE	VB ⋈	PROP. VALVE & BOX
——→——	EX. SANITARY SEWER PIPE AND FLOW DIRECTION	H&V ✧	PROP. HYDRANT & VALVE
------	EX. SANITARY SERVICE	CS ⊙	PROP. CURB STOP AND WATER SERVICE
------	EX. WATER MAIN	——	PROP. WATER MAIN
VB ⋈	EX. VALVE & BOX	▬▬	LIMIT OF DEVELOPMENT
H&V ✧	EX. HYDRANT & VALVE	- - - -	TREE PRESERVATION LIMIT
CS ⊙	EX. CURB STOP AND EY. WATER SERVICE	—·—	5m BUFFER
▩	EX. BELL PEDESTAL	----------	LIMIT OF EASEMENT
EX. HP ○	EX. HYDRO POLE	▬	DEPRESSED CURB
⊙ ✹	EX. TREES	▭	TACTILE WARNING PLATES
☼ ☼ SL	EX./PROP. STREET LIGHT POLE	BH205 230.00	BOREHOLE ID AND ELEV.
STM 01 ○	PROP. STM MH	11.0	LOT FRONTAGE (m)
STM DCBMH ⊞	PROP. STM DCBMH	★	LOT TYPE (SINGLE)
CB □	PROP. STM CATCHBASIN	FLUSHING STATION ○	PROP. SAN MH FLUSHING STATION
DCB □□	PROP. STM DOUBLE CATCHBASIN	----○----	PROP. 32mmø P.E. SANITARY SERVICE & BALL/CHECK VALVE
——→——	PROP. STORM SEWER PIPE AND FLOW DIRECTION	——→——	PROP HDPE SANITARY FORCEMAIN AND FLOW DIRECTION



BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

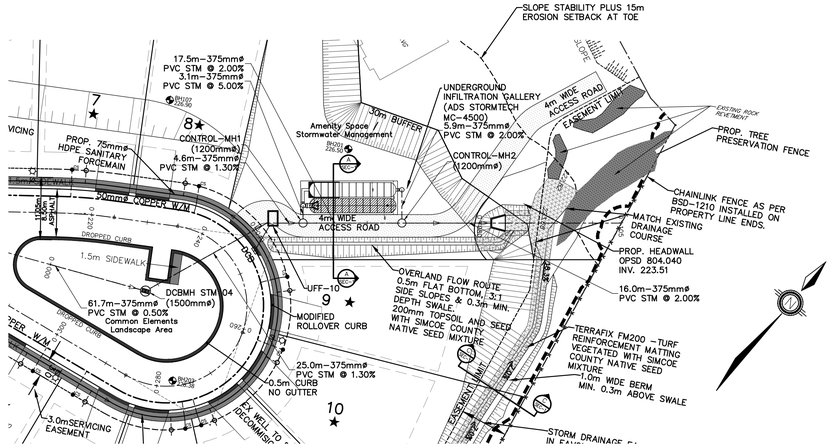
FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

PLAN AND PROFILE
STREET 'A'
STA. -0+010 TO 0+345

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN VBS	SCALE: H 1:500 V 1:50	DATE APRIL 2021	
DRAWN VBS	PROJECT FER-15101	DWG. Nº PP-1	
CHECKED JWI			

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101_PROF_ST_A.dwg Layout:PP-1 Plotted: Aug 19, 2022 @ 8:45pm by mgilliot The Jones Consulting Group Ltd.



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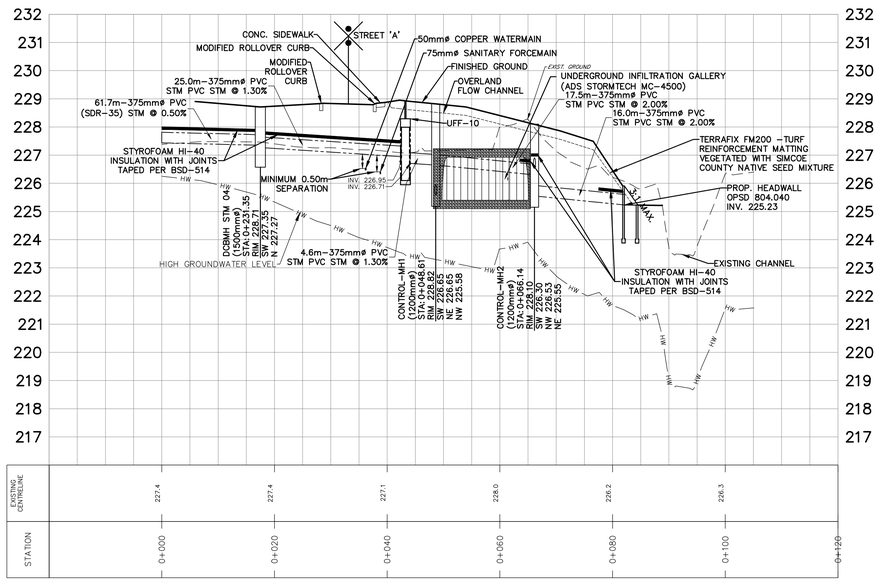

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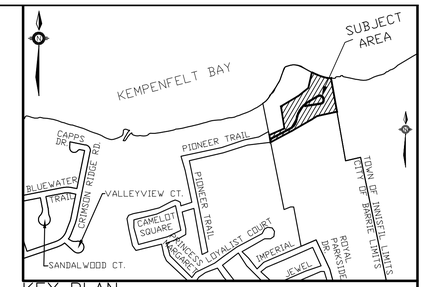

KEY PLAN
NTS

LEGEND

EX. SAN03052	EX. SANITARY MAINTENANCE HOLE	VB	PROP. VALVE & BOX
	EX. SANITARY SEWER PIPE AND FLOW DIRECTION	H&V	PROP. HYDRANT & VALVE
	EX. SANITARY SERVICE	CS	PROP. CURB STOP AND WATER SERVICE
	EX. WATER MAIN		PROP. WATER MAIN
VB	EX. VALVE & BOX		LIMIT OF DEVELOPMENT
H&V	EX. HYDRANT & VALVE		TREE PRESERVATION LIMIT
CS	EX. CURB STOP AND EY. WATER SERVICE		5m BUFFER
	EX. BELL PEDESTAL		LIMIT OF EASEMENT
EX HP	EX. HYDRO POLE		DEPRESSED CURB
	EX. TREES		TACTILE WARNING PLATES
SL	EX./PROP. STREET LIGHT POLE	BH205.60	BOREHOLE ID AND ELEV.
STM 01	PROP. STM MH	11.0	LOT FRONTAGE (m)
STM DCBMH	PROP. STM DCBMH	★	LOT TYPE (SINGLE)
CB	PROP. STM CATCHBASIN	FLUSHING STATION	PROP. SAN MH FLUSHING STATION
DCB	PROP. STM DOUBLE CATCHBASIN		PROP. 32mmø P.E. SANITARY SERVICE & BALL/CHECK VALVE
	PROP. STORM SEWER PIPE AND FLOW DIRECTION		PROP HDPE SANITARY FORCEMAIN AND FLOW DIRECTION

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

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1.	FIRST SUBMISSION	FEB 2022	JWI

LICENSED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

PLAN AND PROFILE STORM WATER FACILITY STA. 0+000 TO 0+106

JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	VBS	SCALE: AS NOTED	DATE APRIL 2021
DRAWN	VBS	PROJECT FER–15101	DWG. Nº PP–2
CHECKED	JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101_PROF_SWM.dwg Layout: PP-2 Plotted Aug 19, 2022 @ 9:15pm by mpollard The Jones Consulting Group Ltd

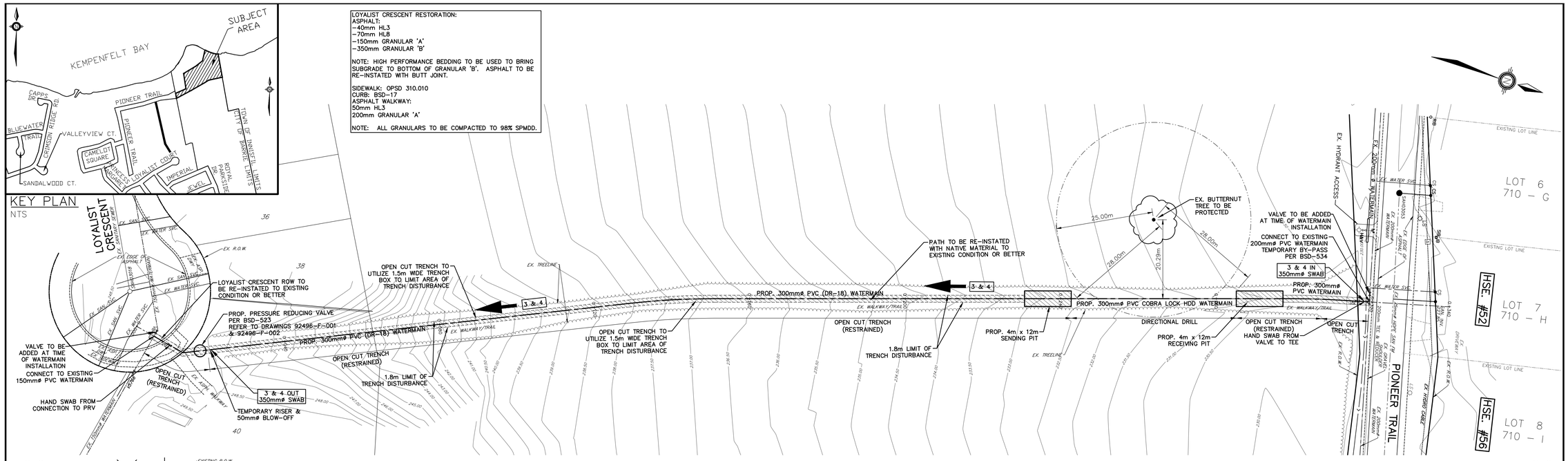
KEY PLAN
NTS

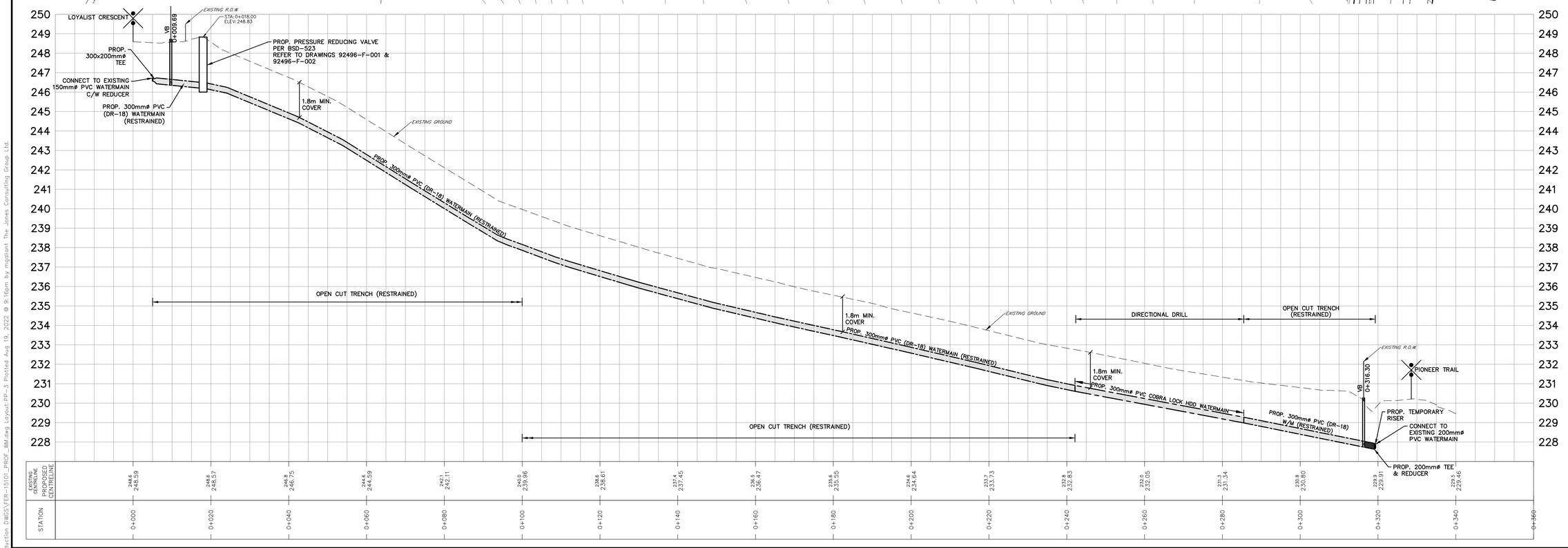
LOYALIST CRESCENT RESTORATION:
ASPHALT:
–40mm HL3
–70mm HL8
–150mm GRANULAR 'A'
–350mm GRANULAR 'B'

NOTE: HIGH PERFORMANCE BEDDING TO BE USED TO BRING SUBGRADE TO BOTTOM OF GRANULAR 'B'. ASPHALT TO BE RE–INSTATED WITH BUTT JOINT.

SIDEWALK: OPSD 310.010
CURB: BSD–17
ASPHALT WALKWAY:
50mm HL3
200mm GRANULAR 'A'

NOTE: ALL GRANULARS TO BE COMPACTED TO 98% SPMDD.





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1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER
J. W. INGRAM
100145779
22-08-18
PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

PLAN AND PROFILE WATERMAIN LOOP STA. 0+000 TO 0+340

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	VBS	SCALE: H 1:500 V 1:100	DATE APRIL 2021
DRAWN	VBS	PROJECT FER–15101	DWG. Nº PP–3
CHECKED	JWI		

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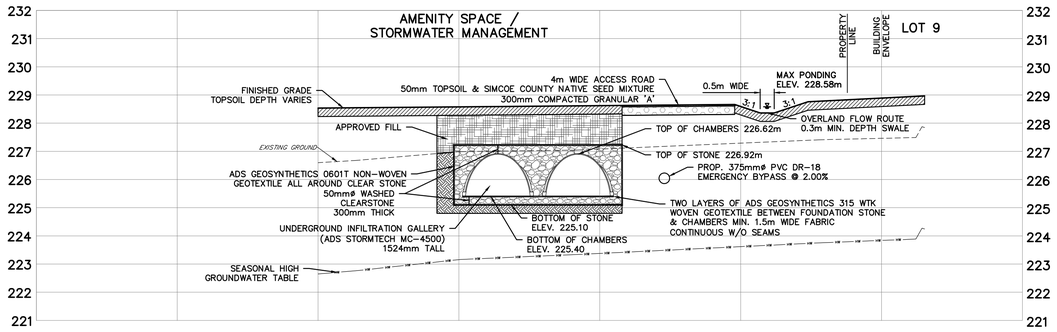
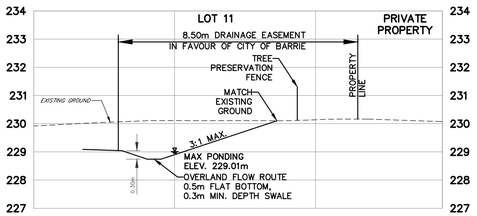
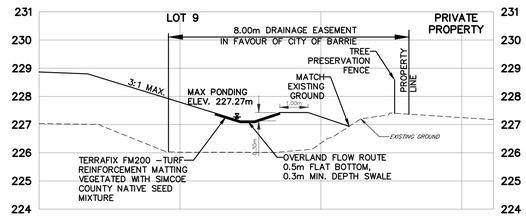


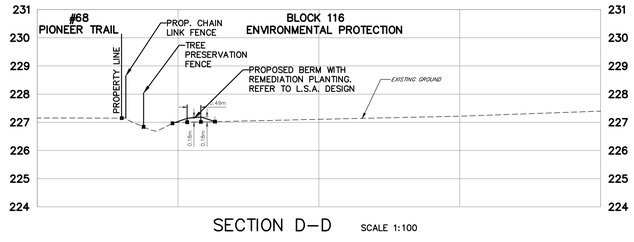
SECTION A–A SCALE 1:100



SECTION B–B SCALE 1:100



SECTION C–C SCALE 1:100



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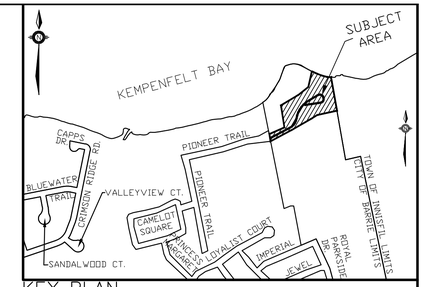

KEY PLAN
NTS

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

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1.	FIRST SUBMISSION	FEB 2022	JWI

LICENSED PROFESSIONAL ENGINEER
J. W. INGRAM
100143779
22-08-18
PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

SECTIONS

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1556

DESIGN	JJH	SCALE: AS NOTED	DATE APRIL 2021
DRAWN	JJH	PROJECT FER–15101	DWG. Nº SEC–1
CHECKED	JWI		

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LEGEND

- EX. SANITARY MAINTENANCE HOLE
- EX. VALVE & BOX
- EX. HYDRANT & VALVE
- EX. CURB STOP AND WATER SERVICE
- EX. BELL PEDESTAL
- EX. HYDRO POLE
- EX./PROP. STREETLIGHT
- PROP. STREETLIGHT CONTROL
- FLUSHING STATION — PROP. SAN MH FLUSHING STATION
- PROP. 32mmø P.E. SANITARY SERVICE & BALL/CHECK VALVE
- PROP. VALVE & BOX
- PROP. HYDRANT & VALVE
- PROP. CURB STOP AND WATER SERVICE
- STOP SIGN — Ra-1
- NO PARKING SIGN — Rb-51
- PEDESTRIAN X (CROSSOVER) SIGN — Ra-4
- NO PARKING SNOW ROUTE SIGN — Rb-57

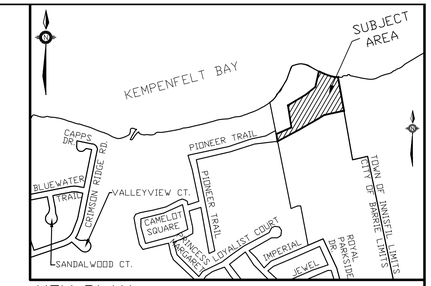
1	SOLID YELLOW,10cm
2	SOLID DOUBLE YELLOW,10cm
3	363 BROKEN YELLOW,10cm
4	SOLID YELLOW,20cm
5	SOLID WHITE,10cm
6	333 BROKEN WHITE,10cm
7	363 BROKEN WHITE,10cm
8	393 BROKEN WHITE,10cm
9	SOLID WHITE,20cm
10	111 BROKEN WHITE, **10cm**
11	333 BROKEN WHITE,20cm
12	333 BROKEN WHITE,30cm
13	SOLID WHITE,30cm
14	SOLID WHITE,45cm
15	SOLID WHITE,60cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

NOTES:
1. 333, 363, 393, Denotes Pavement Marking Spacing (ex. 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use (1) to Denote PAVEMENT MARKING, TEMPORARY
4. Use (1) to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use (1) to Denote PAVEMENT MARKING, DURABLE

MINISTRY OF TRANSPORTATION ONTARIO DRAWING — Date: 1994 04 01 — Rev:
LEGEND PAVEMENT MARKINGS — Issue Date: — WP: — Issued By: — MTOD – 101.070

PAVEMENT MARKING NOTES:
1. UPON COMPLETION OF THE ASPHALT AND UPON NOTIFICATION FROM THE CITY, PAVEMENT MARKINGS SHALL BE PAINTED CONFIRMING WITH THE STANDARDS OF THE MINISTRY OF TRANSPORTATION ONTARIO, BOOK 11 AT ALL INTERSECTIONS, SCHOOL CROSSINGS, WALKWAYS AND RAIL CROSSINGS.
2. LANE MARKINGS ARE TO BE DURABLE TRAFFIC PAINT COMPLETE WITH GLASS BEADS.
3. ALL LANE MARKING APPLICATIONS TO NEW ASPHALT REQUIRE TWO APPLICATIONS OF PAINT. THE SECOND APPLICATION SHALL NOT BE APPLIED UNTIL THE FIRST IS TACK FREE. PAVEMENT MARKINGS ARE TO CONFORM WITH OPSS 710 AND OPSS 1712.
4. TRAFFIC LANE SYMBOLS, STOP BARS AND PEDESTRIAN CROSSWALKS ARE TO BE DURABLE PAVEMENT MARKINGS OR FIELD REACTED POLYMERIC PAVEMENT MARKINGS IN ACCORDANCE WITH OPSS 710, OPSS 1713 AND OPSS 1714.

STREET SIGN NOTES:
1. WHERE SIGNS ARE WITHIN 1m OF EACH OTHER, THEY SHOULD BE COMBINED ONTO ONE SIGN.
2. WHERE Rb-51 SIGNS ARE COMBINED WITH OTHER SIGNS, ONLY THE Rb-51 SIGN SHALL BE ORIENTED AT 45 DEGREES TO THE ROADWAY BY INSTALLING A POST CAP FOR Rb-51 SIGNS.
3. STOP SIGNS ARE NOT TO BE IMPEDED BY STREET LIGHT POLES AND SHOULD EITHER BE MOUNTED TO THE STREET LIGHT OR PLACED IN FRONT OF THE STREET LIGHT POLE AT INTERSECTIONS.



KEY PLAN
NTS

KEMPENFELT BAY

END PROPERTY BOUNDARY C.L. FENCE AT TOP OF BANK LIMIT. LIMIT TO BE STAKED IN THE FIELD.

TOP OF SLOPE — WATER'S EDGE — PROPERTY LINE — OPEN SPACE

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 116 on 51M986)

END CHAIN LINK FENCE AT TOP OF BANK LIMIT TO BE STAKED OUT ONSITE.

0.3m WIDE SPILLWAY, 3:1 SIDE SLOPE MAX. LINED WITH TERRAFIX FM200 – TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

SLOPE STABILITY PLUS 15m EROSION SETBACK AT TOE

CHAINLINK FENCE AS PER 150mm ON CITY PROPERTY.

PROP. TREE PRESERVATION FENCE

END CHAINLINK FENCE (TRANSITION)

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

LIMIT OF GRADING

PROPERTY LINE

EXISTING BUILDING

30m BUFFER

4m WIDE ACCESS ROAD EASEMENT LIMIT

EXISTING ROCK REVEMENT

PROP. TREE PRESERVATION FENCE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE ENDS.

MATCH EXISTING DRAINAGE COURSE

PROPOSED OVERLAND FLOW

PROPOSED BERM WITH REMEDIATION PLANTING. REFER TO L.S.A. DESIGN

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

PROP. TREE PRESERVATION FENCE

DIRECTION OF OVERLAND FLOW

PROP. TREE PRESERVATION FENCE

300mm DEEP, 100-150mm Dia. RIVER RUN STONE EROSION MATTRESS (TYP.) OVER FILTER CLOTH.

HEADWALLS AS PER OPSD 804.030 HANDRAIL AS PER OPSD 980.101 (TYP.)

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

START C.L. FENCE PROP. WOOD BOLLARDS SPACED 1.0m O.C.

EX. POWER POLE TO BE REMOVED

EX. BUILDING

HSE. #56 — HSE. #60 — HSE. #68

LOT 8 710 – 1

EXISTING RESIDENTIAL LOT 9 — EXISTING RESIDENTIAL LOT 10

EXISTING LOT LINE

EX. 75mmø HDPE SAN. SANITARY FORCEMAIN

EX. PIONEER TRAIL

EX. SAN03052

EXISTING MUNICIPAL CUL-DE-SAC

EX. HP & BPED TO BE REMOVED

EX. HP

EX. HP & BPED

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

PROP. TREE PRESERVATION FENCE

3-TWIN 15.8m- 375mmø CONC. PIPE @ 0.50% S INV 228.93 N INV 228.85 HEADWALL AS PER OPSD 804.030

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

PROPERTY LINE

MATCHING EXISTING GROUND

0.3m HEIGHT WITH 3:1 SIDE SLOPES AND 0.5m FLAT TOP BERM

PROP. TREE PRESERVATION FENCE

PROP. SWALE c/w FRENCH DRAIN 0.3m MIN. DEPTH WITH 3:1 SIDE SLOPE REFER TO DWG. DET-10

MATCHING EXISTING GROUND

EASEMENT LIMIT

EX. BARN TO BE REMOVED

PROP. TREE PRESERVATION FENCE

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

3.0m SERVICING EASEMENT

4m WIDE ACCESS ROAD

1.5m SIDEWALK

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

TERRAFIX FM200 – TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

1.0m WIDE BERM MIN. 0.3m ABOVE SWALE

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

150mmø SUBDRAIN TO DAYLIGHT INTO SWALE WITH 2.5m CSP c/w RODENT GRATE

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE

PROP. TREE PRESERVATION FENCE

PRIVATE PROPERTY

PROP. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

PROP. TREE PRESERVATION FENCE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE

PROP. TREE PRESERVATION FENCE

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

EX. WELL TO BE DECOMMISSIONED

ACTIVE WELL

LANDSCAPE\ SNOW STORAGE

DROPPED CURB

Rb-51 1.5m SIDEWALK

STREET 'A'

1.5m SIDEWALK

3.0mSERVICING EASEMENT

EX. HP & BPED TO BE REMOVED

EX. HP & BPED

EX. SAN03051

EX. MH

EX. SAN03052

V57778

0.25° BEND

Rb-51

Rb-57

LS-238

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 115 on 51M986)

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

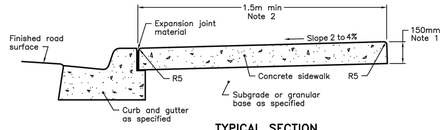
LICENCED PROFESSIONAL ENGINEER — J. W. INGRAM — 100143779 — 22-08-18 — PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL
PAVEMENT MARKING AND SIGNAGE PLAN

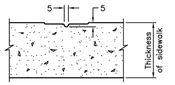
JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	VBS	SCALE: 1:500	DATE APRIL 2021
DRAWN	VBS	PROJECT FER-15101	DWG. Nº PM-1
CHECKED	JWI		

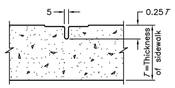
C:\Eng_3D\FER-15101-01\Production DWGS\FER-15101_PM-1.dwg Layout:PM-1 Plotted Aug 19, 2022 @ 9:21pm by mgallant The Jones Consulting Group Ltd.



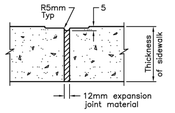
TYPICAL SECTION



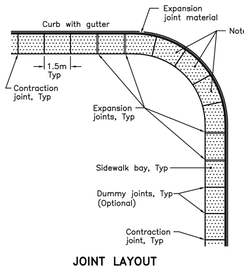
DUMMY JOINT



CONTRACTION JOINT



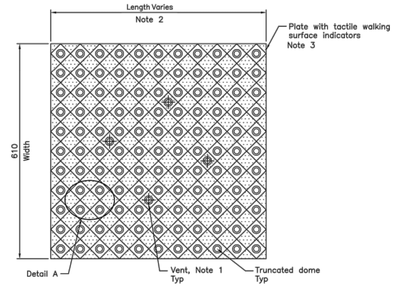
EXPANSION JOINT



JOINT LAYOUT

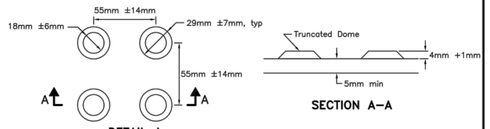
NOTES:
1 At commercial and industrial driveways, the thickness shall be 200mm.
2 Sidewalk width shall be wider when specified.
3 This OPSD shall be read in conjunction with OPSD 310.030, 310.031, 310.033, and 310.039.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 3
CONCRETE SIDEWALK ADJACENT TO CURB WITH GUTTER		OPSD 310.020



PLAN

ELEVATION

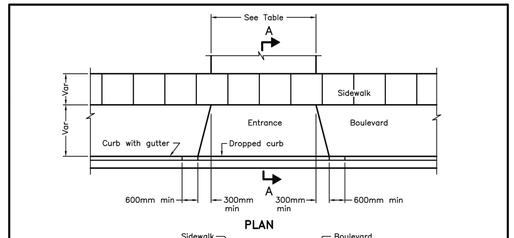


DETAIL A
TRUNCATED DOMES PLAN

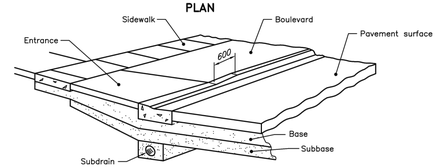
SECTION A–A

NOTES:
1 Vents shall be as specified by the manufacturer.
2 Length of plate may be increased to suit the curb depression width.
3 Material of plate shall be as specified in Contract Documents.
A Adjacent cast iron plates shall be permanently connected using a locking mechanism and any hardware shall be hot dipped galvanized.
B All dimensions are in millimetres unless otherwise shown.

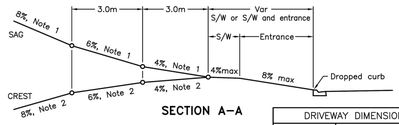
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 1
CONCRETE SIDEWALK RAMPS TACTILE WALKING SURFACE INDICATORS COMPONENT		OPSD 310.039



PLAN



ISOMETRIC VIEW

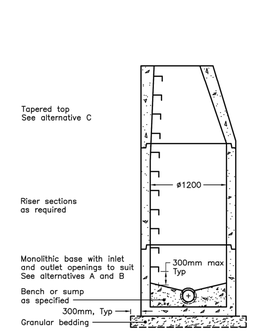


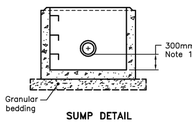
SECTION A–A

DRIVEWAY DIMENSIONS				
LAND USE	WIDTH m			
	Single		Double	
	min	max	min	max
Residential	3.0	4.3	6.0	7.3

NOTES:
1 Maximum upgrade shall be 10%.
2 Maximum downgrade shall be 8%.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 2
URBAN RESIDENTIAL ENTRANCE		OPSD 351.010

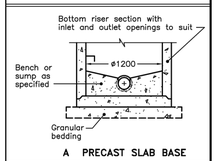




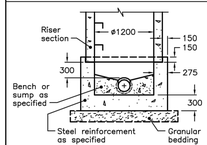
SUMP DETAIL

NOTES:
1 The sump is measured from the lowest invert.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, or 701.032.
C Structure exceeding 5.0m in depth shall include safety platform according to OPSD 404.020.
D Pipe support according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

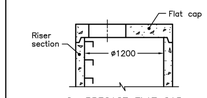
ALTERNATIVES



A PRECAST SLAB BASE

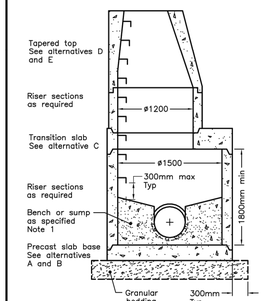


B CAST–IN–PLACE BASE



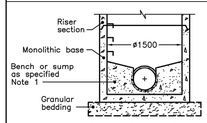
C PRECAST FLAT CAP

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1200mm DIAMETER		OPSD 701.010

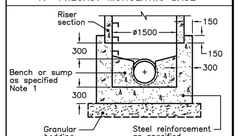


NOTES:
1 For sump detail, see OPSD 701.010.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, 701.040, 701.041, 703.011, 703.021, and 706.010.
C Structures exceeding 5.0m in depth shall include safety platform according to OPSD 404.020 or 404.021.
D Pipe support shall be according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

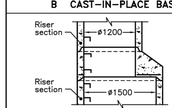
ALTERNATIVES



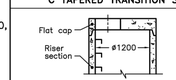
A PRECAST MONOLITHIC BASE



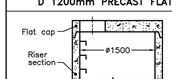
B CAST–IN–PLACE BASE



C TAPERED TRANSITION SLAB

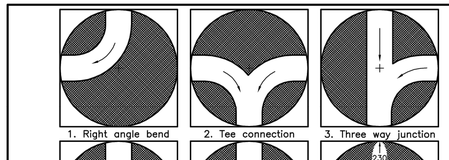


D 1200mm PRECAST FLAT CAP



E 1500mm PRECAST FLAT CAP

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1500mm DIAMETER		OPSD 701.011

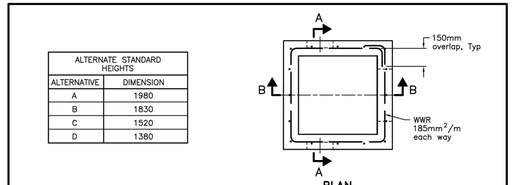


MAXIMUM SIZE HOLE IN THE WALL IN PRECAST RISER SECTIONS

Maintenance Hole Diameter	No. 1–4	No. 5 and 6	No. 8	No.7	
				Inlet Hole	Outlet Hole
1200	700	860	780	700	860
1500	860	1220	960	860	1170
1800	1220	1485	1220	1220	1485
2400	1485	2020	1760	1485	2020
3000	1930	2450	2300	1930	2450
3600	2470	3085	2730	2470	3085

NOTES:
1 Slopes shall be maintained from the outlet hole opening for top of benching.
A Concrete for benching shall be 30MPa.
B When benching is hand–finished, it shall be given wood float finish, channel shall be given steel trowel finish.
C Benching slope and height shall be as specified.
D When specified, maintenance holes that are 1200mm in diameter with a uniform channel for 200 or 250mm pipe may be prebenched at the manufacturer with standardized benching slope and channel orientation.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

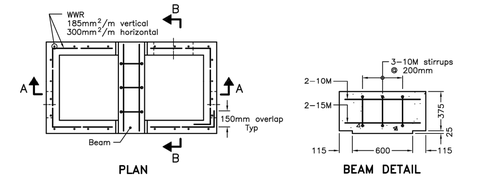
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 4
MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES		OPSD 701.021



ALTERNATE STANDARD HEIGHTS	
ALTERNATIVE	DIMENSION
A	1980
B	1830
C	1520
D	1380

NOTES:
1 Outlet hole size 525mm diameter maximum, location as required.
2 200mm diameter knockout to accommodate subdrain. Knockout shall be 60mm deep.
A Centre reinforcing in base slab and walls ±20mm.
B Granular backfill shall be placed to a minimum thickness of 300mm all around the catch basin.
C Frame, grate, and adjustment units shall be installed according to OPSD 704.010.
D Pipe support shall be according to OPSD 708.020.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 4
PRECAST CONCRETE CATCH BASIN 600x600mm		OPSD 705.010



NOTES:
1 Outlet hole size 525mm diameter maximum, location as required.
2 200mm diameter knockout to accommodate subdrain. Knockout shall be 60mm deep.
3 Minimum clearance between beam recess and hole for pipe shall be 300mm or minimum clearance can be 150mm with addition of two 15M size rebar on 45 degree diagonal.
A Centre reinforcing in base slab and walls ±20mm.
B Granular backfill shall be placed to a minimum thickness of 300mm all around the catch basin.
C Frame, grate, and adjustment units shall be installed according to OPSD 704.010.
D Pipe support shall be according to OPSD 708.020.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ALTERNATE STANDARD HEIGHTS	
ALTERNATIVE	DIMENSION
A	1980
B	1830
C	1680

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 4
PRECAST CONCRETE TWIN INLET CATCH BASIN 600 x 1450mm		OPSD 705.020

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENSED PROFESSIONAL ENGINEER
J. W. INGRAM
100143779
22-08-18
PROVINCE OF ONTARIO

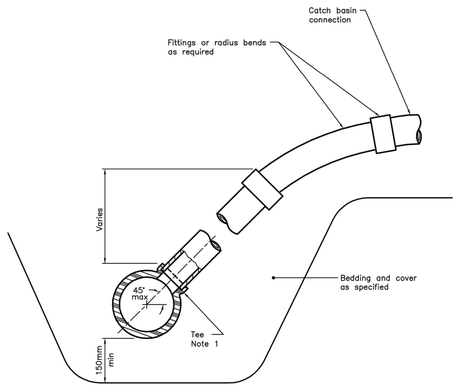
FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

DETAILS

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN MG	SCALE: AS NOTED	DATE DEC 2021
DRAWN JH	PROJECT FER–15101	DWG. Nº DET–1
CHECKED JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101-COVER AND DETAILS-01.dwg, Layout:DET-1 Plotted: Aug 18, 2022 @ 1:26pm by kcaplin The Jones Consulting Group Ltd.

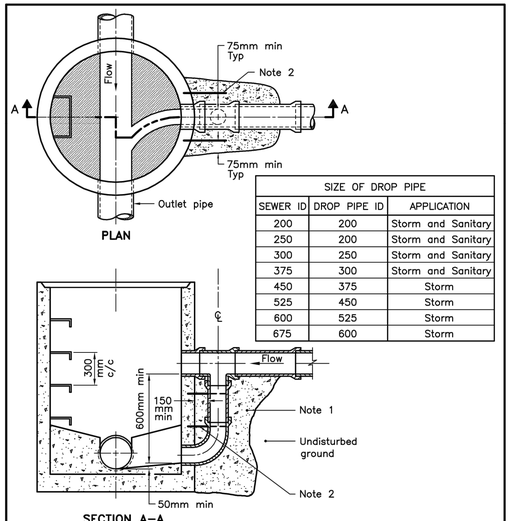


NOTES:
1 For catch basin connections 300mm in diameter or less, factory made tees shall be used.

A For catch basin connections greater than 300mm in diameter, maintenance holes shall be used at the main sewer.

B All dimensions are in millimetres unless otherwise shown.

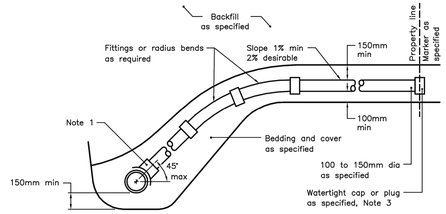
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2016	Rev 3
CATCH BASIN CONNECTION FOR FLEXIBLE MAIN PIPE SEWER		OPSD 708.030

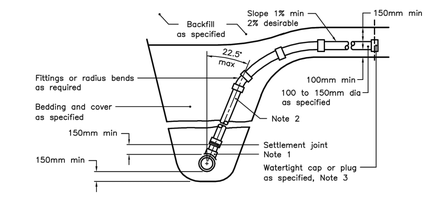


NOTES:
1 Concrete shall be placed to undisturbed ground and the outside face of the maintenance hole, but there shall be a minimum of 150mm of 15MPa concrete around the drop pipe.
2 Concrete shall be secured to the maintenance hole with 450mm long, 13mm diameter threaded rods and drilled expansion anchors down either side of the drop pipe at 300mm centres.

A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2016	Rev 3
CAST–IN–PLACE MAINTENANCE HOLE DROP STRUCTURE TEE		OPSD 1003.010

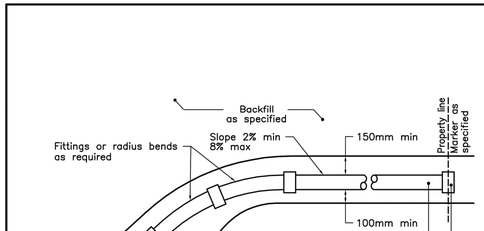




NOTES:
1 Sewer service connections to the main pipe sewer shall be made using factory made tees or wyes, strap–on–saddles, or other approved saddles.
2 Vertical risers shall be as specified.
3 Cap or plug at property line shall be adequately braced.

A Maintenance holes shall be used at the main sewer to connect service connections greater than or equal to 200mm.
B For new construction, saddles shall be installed on the main pipe before that pipe is laid.
C Approved cut–in tool shall be used for field made connections.
D All dimensions are in millimetres unless otherwise shown.

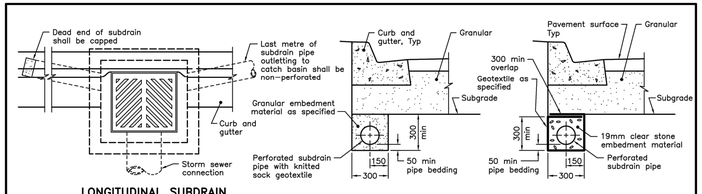
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2016	Rev 3
SEWER SERVICE CONNECTIONS FOR MAIN PIPE SEWER		OPSD 1006.010

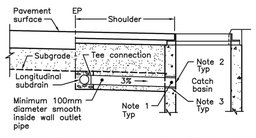


NOTES:
1 Sewer service connections to the main pipe sewer shall be made using factory made tees or wyes, strap–on–saddles, or other approved saddles.
2 Cap or plug at property line shall be adequately braced.

A Maintenance holes shall be used at the main sewer to connect service connections greater than or equal to 200mm.
B For new construction, saddles shall be installed on the main pipe before that pipe is laid.
C Approved cut–in tool shall be used for field made connections.
D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2011	Rev 2
SEWER SERVICE CONNECTIONS FOR FLEXIBLE MAIN PIPE SEWER		OPSD 1006.020

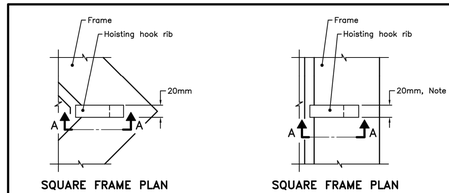




NOTES:
1 Core hole diameter to allow outlet pipe into structure.
2 Install outlet pipe flush with inside face of catch basin.
3 Annular space around pipe shall be filled with non–shrink grout.

A Use compatible manufactured fittings for all connectors, couplings, and caps.
B Trench dimensions shown to accommodate 100 or 150mm diameter subdrain pipe.
C Longitudinal subdrain pipe shall be installed parallel to the grade of the gutter.
D All dimensions are in millimetres unless otherwise shown.

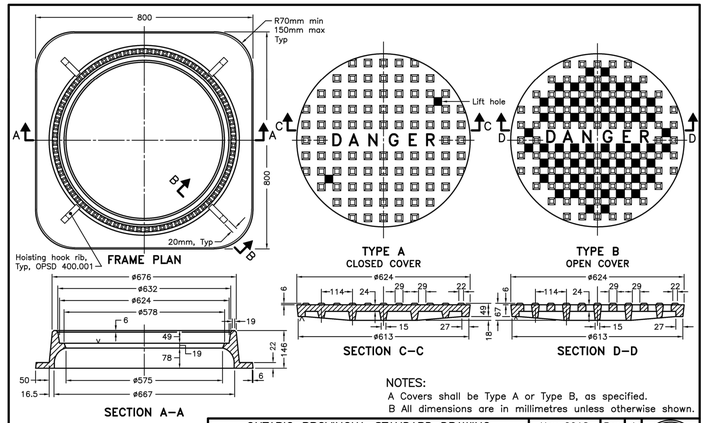
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2017	Rev 3
SUBDRAIN PIPE CONNECTION AND OUTLET URBAN SECTION		OPSD 216.021



NOTES:
1 For OPSD 402.030, the hoisting hook rib thickness shall be 29mm.

A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 2
HOISTING HOOK RIB FOR CAST IRON FRAMES FOR CATCH BASINS, MAINTENANCE HOLES, AND VALVE CHAMBERS		OPSD 400.001



NOTES:
A Covers shall be Type A or Type B, as specified.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 4
CAST IRON, SQUARE FRAME WITH CIRCULAR CLOSED OR OPEN COVER FOR MAINTENANCE HOLES		OPSD 401.010

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

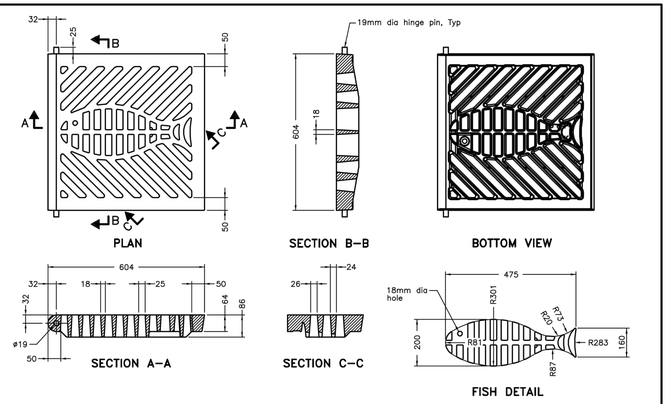
FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

DETAILS

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

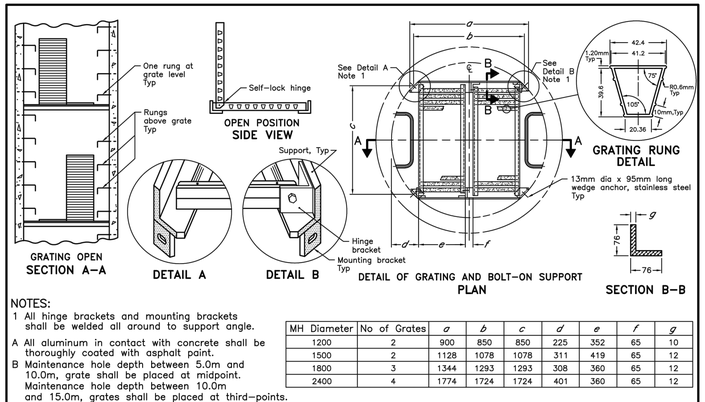
DESIGN MG	SCALE: AS NOTED	DATE JAN 2022
DRAWN JH	PROJECT FER–15101	DWG. Nº DET–2
CHECKED JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101-COVER AND DETAILS-01.dwg Layout:DET-2 Plotted Aug 18, 2022 @ 1:33pm by kcaputo The Jones Consulting Group Ltd.



NOTE:
A This OPSD shall be read in conjunction with OPSD 400.020.
B All dimensions are in millimetres unless otherwise shown.

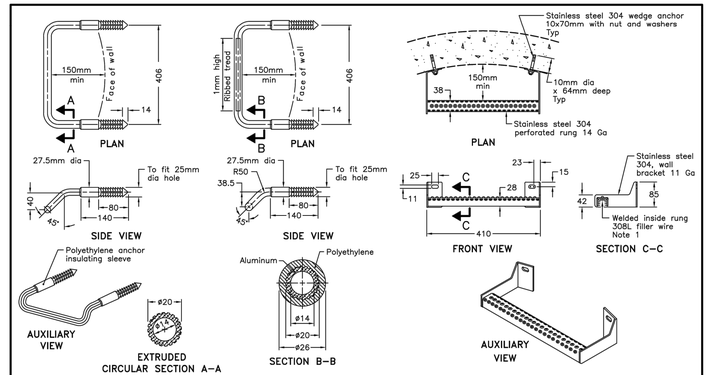
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev	1
CAST IRON, SQUARE FRAME FISH TYPE COVER			
	OPSD 401.081		



NOTES:
1 All hinge brackets and mounting brackets shall be welded all around to support angle.
A All aluminum in contact with concrete shall be thoroughly coated with asphalt paint.
B Maintenance hole depth between 5.0m and 10.0m, grate shall be placed at midpoint. Maintenance hole depth between 10.0m and 15.0m, grates shall be placed at third–points.
C All fasteners shall be 304 stainless steel.
D All welding shall be according to CSA W47.2 and W59.2.
E All aluminum components shall be 6000 series structural aluminum.
F All dimensions are in millimetres unless otherwise shown.

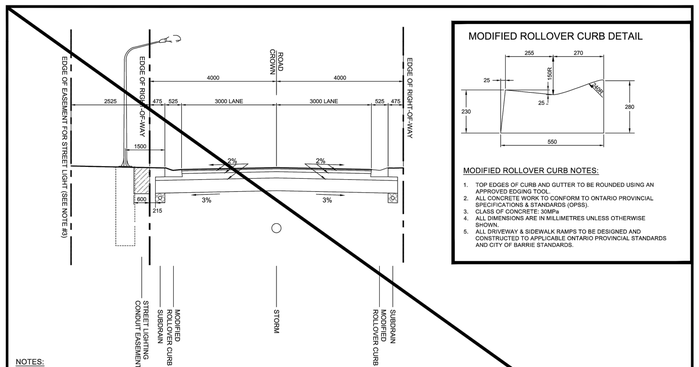
MH Diameter	No. of Grates	a	b	c	d	e	f	g
1200	2	900	850	850	225	352	65	10
1500	2	1128	1078	1078	311	419	65	12
1800	3	1344	1293	1293	308	360	65	12
2400	4	1774	1724	1724	401	360	65	12

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev	4
ALUMINUM SAFETY PLATFORM FOR CIRCULAR MAINTENANCE HOLES			
	OPSD 404.020		



NOTE:
1 The company undertaking welded fabrication shall be certified according to CSA W47.1. All welding shall be according to CSA W59.
A All aluminum components shall be 6000 series structural aluminum.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev	4
MAINTENANCE HOLE STEPS HOLLOW			
	OPSD 405.010		

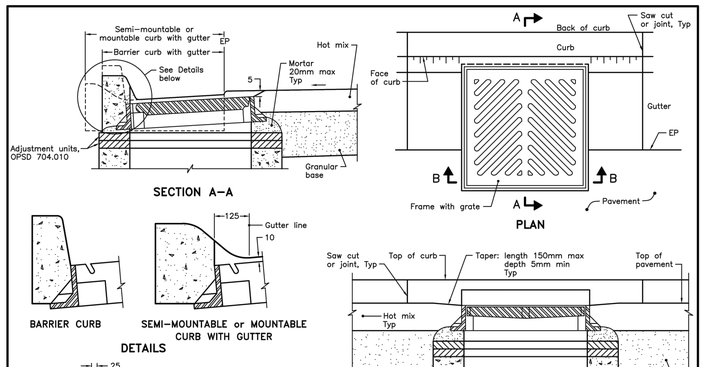


NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
2. STORMWATER SYSTEMS TO BE DESIGNED IN ACCORDANCE WITH CITY OF BARRIE ENGINEERING GUIDELINES AND STANDARDS.
3. STREET LIGHTING IS TO BE PLACED IN A 2.4m WIDE BY 2.525m DEEP EASEMENT FROM THE EDGE OF RIGHT-OF-WAY (3.0m DEEP FROM THE OUTSIDE EDGE OF CURB). CONDUIT AND POWER FEEDS ARE TO BE PLACED IN A 0.6m LINEAR EASEMENT ALONG THE OUTSIDE EDGE OF THE RIGHT-OF-WAY. REFER TO THE CITY OF BARRIE ROADWAY ILLUMINATION POLICIES AND DESIGN GUIDELINES AND ASSOCIATED BSD'S FOR LIGHT STANDARD AND POLE BASE LOCATION AND DEPTH.
4. REFER TO TRANSPORTATION DESIGN MANUAL FOR PAVEMENT DESIGN METHODOLOGY.
5. TREE/LANDSCAPING ARE TO BE ACCOMMODATED WHEREVER POSSIBLE IN LOCATIONS APPROVED BY THE PARKS, PLANNING, AND DEVELOPMENT BRANCH AND IN ACCORDANCE WITH CITY OF BARRIE GUIDELINES.
6. STRAIGHT RUNS PREFERRED.
7. UTILITIES AND SITE SERVICING ARE TO BE PROVIDED FROM FRONT FACE OF STREET (WHEREVER POSSIBLE).

MODIFIED ROLLOVER CURB DETAIL

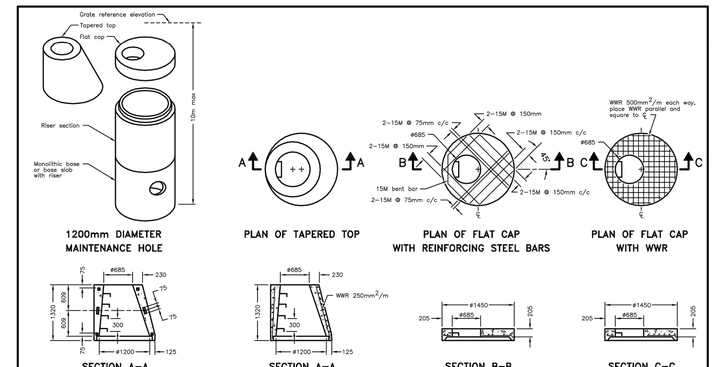
MODIFIED ROLLOVER CURB NOTES:
1. TOP EDGES OF CURB AND GUTTER TO BE ROUNDED USING AN APPROVED EDGING TOOL.
2. ALL CONCRETE WORK TO CONFORM TO ONTARIO PROVINCIAL SPECIFICATIONS & STANDARDS (OPSS).
3. CLASS OF CONCRETE: 30MPa
4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
5. ALL DRIVEWAY & SIDEWALK RAMPS TO BE DESIGNED AND CONSTRUCTED TO APPLICABLE ONTARIO PROVINCIAL STANDARDS AND CITY OF BARRIE STANDARDS.

Barrie STANDARD DETAIL	~~8.0 m~~ LANEWAY ROAD ALLOWANCE ~~6.0 m ASPHALT~~	REV No. 1	DATE: OCT 2017	APPROVED
			SCALE: N.T.S.	DATE .....
		BSD-313		..... DIRECTOR OF ENGINEERING



NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev	2
CATCH BASIN FRAME WITH GRATE INSTALLATION AT CURB WITH GUTTER			
	OPSD 610.010		



NOTES:
A This drawing shall be read in conjunction with OPSD 701.031 and 701.032.
B Centre reinforcing steel in riser ±20mm. All other reinforcing steel shall have 25mm minimum cover.
C Steps shall be according to OPSD 405.010 or 405.020.
D All dimensions are nominal.
E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev	4
PRECAST CONCRETE MAINTENANCE HOLE COMPONENTS 1200mm DIAMETER TAPERED TOP AND FLAT CAP			
	OPSD 701.030		

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

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1.	FIRST SUBMISSION	FEB 2022	JWI

LICENSED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
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DETAILS

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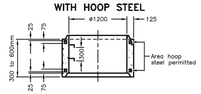
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

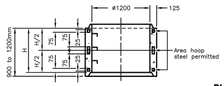
DESIGN	MG	SCALE: AS NOTED	DATE JAN 2022
DRAWN	JH	PROJECT FER–15101	DWG. Nº DET–3
CHECKED	JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101-COVER AND DETAILS-01.dwg Layout:DET-3 Plotted Aug 18, 2022 @ 1:34pm by kcopsin The Jones Consulting Group Ltd.

PLAN OF RISER WITH HOOP STEEL

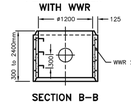


SECTION A–A
RISERS < 900mm HIGH

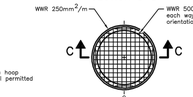


SECTION A–A
RISERS ≥ 900mm

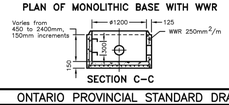
PLAN OF RISER WITH WWR



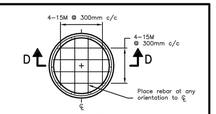
SECTION B–B



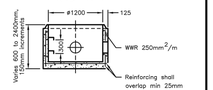
PLAN OF MONOLITHIC BASE WITH WWR



SECTION C–C



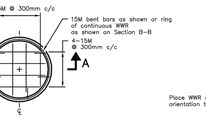
PLAN OF MONOLITHIC BASE WITH REINFORCING STEEL BARS AND WWR



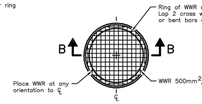
SECTION D–D

NOTES:
A This drawing shall be read in conjunction with OPSD 701.030 and 701.032.
B Centre reinforcing steel in riser ±20mm. All other reinforcing steel shall have 25mm minimum cover.
C Steps shall be according to OPSD 405.010 or 405.020.
D All dimensions are nominal.
E All dimensions are in millimetres unless otherwise shown.

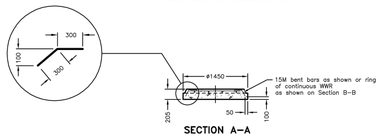
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 2
PRECAST CONCRETE MAINTENANCE HOLE COMPONENTS 1200mm DIAMETER RISER AND MONOLITHIC BASE		OPSD 701.031



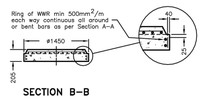
PLAN OF BASE SLAB WITH REINFORCING STEEL BARS



PLAN OF BASE SLAB WITH WWF



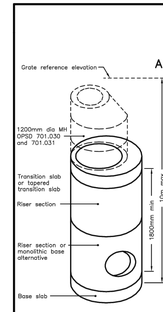
SECTION A–A

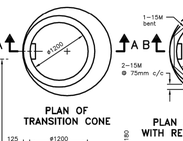


SECTION B–B

NOTES:
1 Welded splice shall develop minimum 50% yield strength of bar or wire, as applicable.
A This drawing shall be read in conjunction with OPSD 701.030 and 701.031.
B Centre reinforcing steel in riser ±20mm. All other reinforcing steel shall have 25mm minimum cover.
C All dimensions are nominal.
D All dimensions are in millimetres unless otherwise shown.

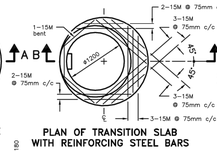
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 2
PRECAST CONCRETE MAINTENANCE HOLE COMPONENTS 1200mm DIAMETER BASE SLAB		OPSD 701.032



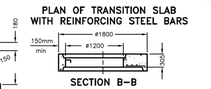


SECTION A–A

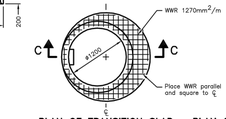
PLAN OF TRANSITION CONE



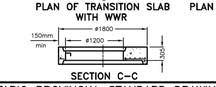
PLAN OF TRANSITION SLAB WITH REINFORCING STEEL BARS



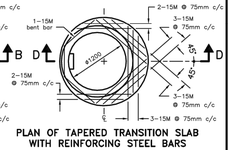
SECTION B–B



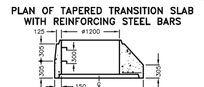
PLAN OF TRANSITION SLAB WITH WWR



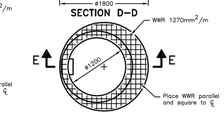
SECTION C–C



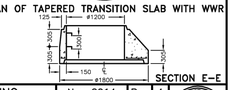
PLAN OF TAPERED TRANSITION SLAB WITH REINFORCING STEEL BARS



SECTION D–D



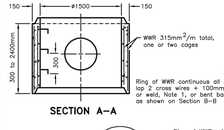
PLAN OF TAPERED TRANSITION SLAB WITH WWR



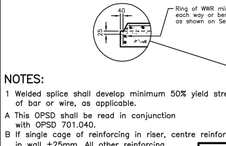
SECTION E–E

NOTES:
A This OPSD shall be read in conjunction with OPSD 701.041.
B Centre reinforcing in transition cone ±25mm. All other reinforcing steel shall have 25mm minimum cover.
C Steps shall be according to OPSD 405.010 or 405.020.
D All dimensions are nominal.
E All dimensions are in millimetres unless otherwise shown.

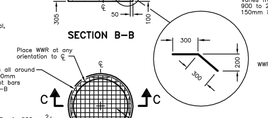
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 4
PRECAST CONCRETE MAINTENANCE HOLE COMPONENTS 1500mm DIAMETER TRANSITION CONE AND SLABS		OPSD 701.040



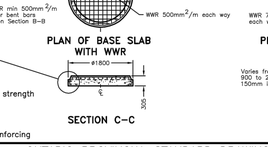
PLAN OF RISER WITH WWR



SECTION A–A



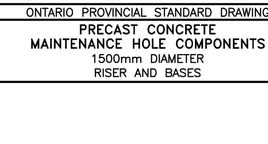
PLAN OF BASE SLAB WITH REINFORCING STEEL BARS



SECTION B–B

PLAN OF MONOLITHIC BASE WITH REINFORCING STEEL BARS

SECTION D–D



PLAN OF BASE SLAB WITH WWR

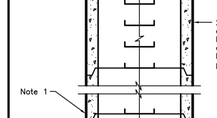
PLAN OF MONOLITHIC BASE WITH WWR

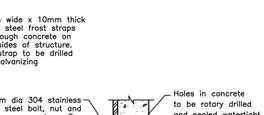
SECTION C–C

SECTION E–E

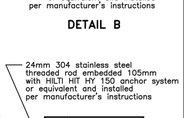
NOTES:
1 Welded splice shall develop minimum 50% yield strength of bar or wire, as applicable.
A This OPSD shall be read in conjunction with OPSD 701.040.
B If single cage of reinforcing in riser, centre reinforcing in wall ±25mm. All other reinforcing steel shall have 25mm minimum cover.
C Steps shall be according to OPSD 405.010 or 405.020.
D All dimensions are nominal.
E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 2
PRECAST CONCRETE MAINTENANCE HOLE COMPONENTS 1500mm DIAMETER RISER AND BASES		OPSD 701.041

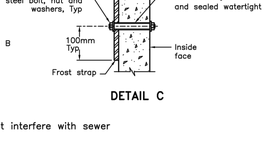




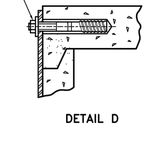
DETAIL A



DETAIL B



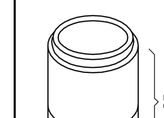
DETAIL C

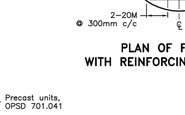


DETAIL D

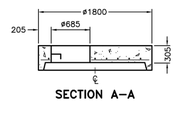
NOTES:
1 Depth of frost strap shall be as specified.
A Frost straps shall be placed so they do not interfere with sewer pipe openings and the steps.
B Frost straps shall be placed when specified.
C Galvanizing shall be according to CAN/CSA G164.
D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 3
FROST STRAP INSTALLATION		OPSD 701.100

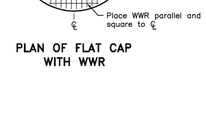




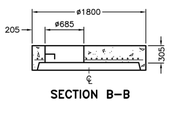
PLAN OF FLAT CAP WITH REINFORCING STEEL BARS



SECTION A–A



PLAN OF FLAT CAP WITH WWR



SECTION B–B

NOTES:
A All reinforcing steel shall have 25mm minimum cover.
B All dimensions are nominal.
C All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 2
PRECAST CONCRETE SINGLE INLET FLAT CAP 1500mm DIAMETER		OPSD 703.011

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

PROFESSIONAL ENGINEER J.W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

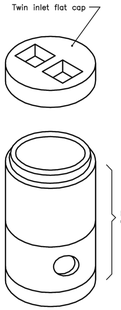
FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

DETAILS

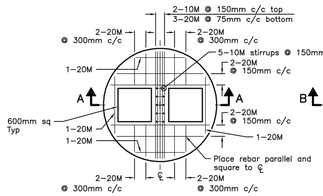
JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	MG	SCALE: AS NOTED	DATE JAN 2022
DRAWN	JH	PROJECT FER–15101	DWG. Nº DET–4
CHECKED	JWI		

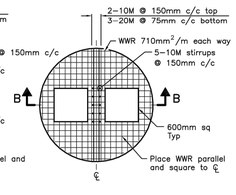
G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101-COVER AND DETAILS-01.dwg Layout:DET-4 Plotted Aug 18, 2022 @ 1:36pm by kcaplin The Jones Consulting Group Ltd



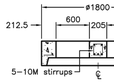
1500mm DIAMETER MAINTENANCE HOLE



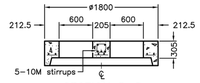
PLAN OF TWIN INLET FLAT CAP WITH REINFORCING STEEL BARS



PLAN OF TWIN INLET FLAT CAP WITH WWR



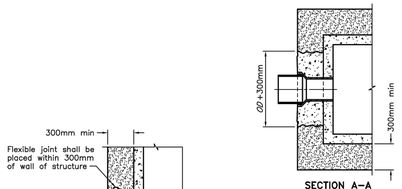
SECTION A–A



SECTION B–B

NOTES:
A All reinforcing steel shall have 25mm minimum cover.
B All dimensions are nominal.
C All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 2
PRECAST CONCRETE TWIN INLET FLAT CAP 1500mm DIAMETER		OPSD 703.021



ELEVATION
FLEXIBLE JOINT RIGID AND FLEXIBLE PIPE

ELEVATION
CONCRETE CRADLE RIGID PIPE

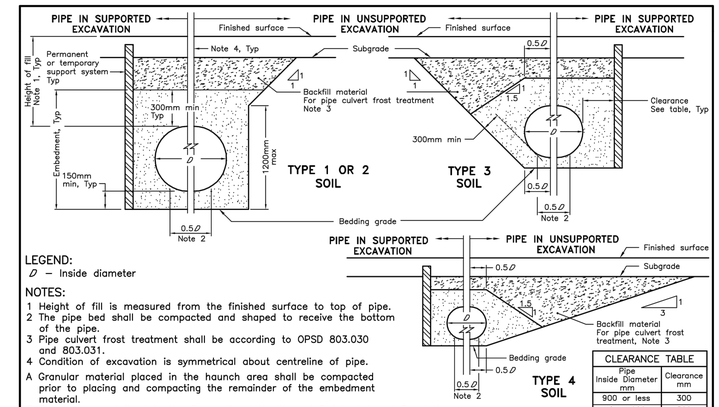
For installation of these connectors refer to manufacturer's instructions.

A full length of pipe may be used in conjunction with a flexible watertight connector.

FLEXIBLE, WATERTIGHT CONNECTOR RIGID AND FLEXIBLE PIPE

NOTES:
1 Pipe shall be supported with concrete or unshrinkable fill to the first pipe joint.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2016	Rev 4
SUPPORT FOR PIPE AT CATCH BASIN OR MAINTENANCE HOLE		OPSD 708.020

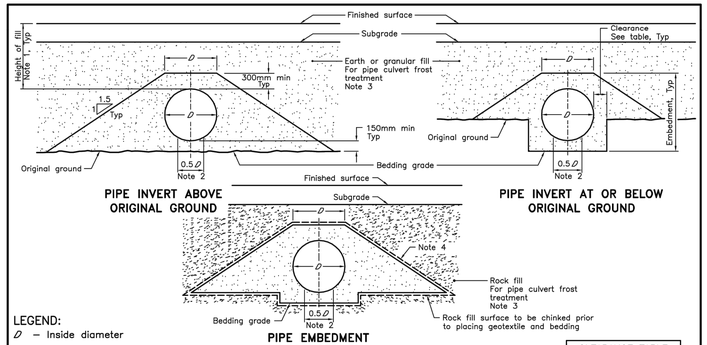


LEGEND:
Ø – Inside diameter

NOTES:
1 Height of fill is measured from the finished surface to top of pipe.
2 The pipe bed shall be compacted and shaped to receive the bottom of the pipe.
3 Pipe culvert frost treatment shall be according to OPSD 803.030 and 803.031.
4 Condition of excavation is symmetrical about centreline of pipe.
A Granular material placed in the haunch area shall be compacted prior to placing and compacting the remainder of the embedment material.
B Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
C All dimensions are in metres unless otherwise shown.

CLEARANCE TABLE	
Pipe Inside Diameter mm	Clearance mm
900 or less	300
Over 900	500

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 3
FLEXIBLE PIPE EMBEDMENT AND BACKFILL EARTH EXCAVATION		OPSD 802.010

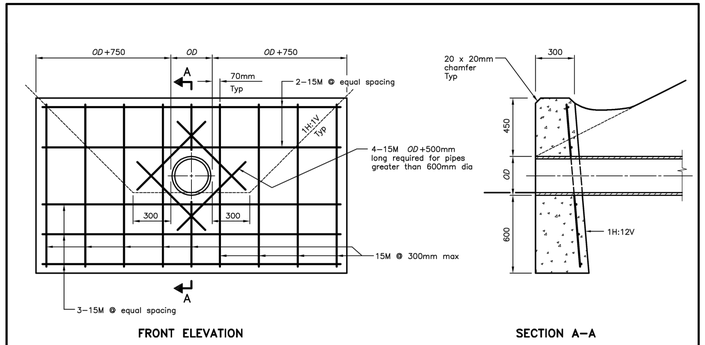


LEGEND:
Ø – Inside diameter

NOTES:
1 Height of fill is measured from the finished surface to top of pipe.
2 The pipe bed shall be compacted and shaped to receive the bottom of the pipe.
3 Pipe culvert frost treatment shall be according to OPSD 803.030 and 803.031.
4 Embedment material shall be wrapped in non–woven geotextile when specified.
A Granular material placed in the haunch area shall be compacted prior to placing and compacting the remainder of the embedment material.
B All dimensions are in metres unless otherwise shown.

CLEARANCE TABLE	
Pipe Inside Diameter mm	Clearance mm
900 or less	300
Over 900	500

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 3
FLEXIBLE PIPE EMBEDMENT IN EMBANKMENT ORIGINAL GROUND: EARTH OR ROCK		OPSD 802.014



LEGEND:
OD – Outside diameter of pipe

NOTES:
A This OPSD to be read in conjunction with OPSD 3940.150.
B If a steel grate is required, refer to OPSD 804.05.
C Class of concrete: 30MPa.
D Cover to reinforcing bars 70mm ± 20mm.
E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2017	Rev 2
CONCRETE HEADWALL FOR PIPE LESS THAN 900mm DIAMETER		OPSD 804.030

PIPE DIA mm	AREA m²	TRENCH WIDTH	MAXIMUM HEIGHT OF FILL					
			210 kPa Stiffness PSM DR 41		320 kPa Stiffness PSM DR 35		625 kPa Stiffness PSM DR 28	
			Trench	Embankment	Trench	Embankment	Trench	Embankment
100	0.008	0.40	10.4	6.2	10.8	6.5	11.9	7.0
135	0.014	0.54	10.4	6.2	10.8	6.5	11.9	7.0
150	0.020	0.95	10.4	6.2	10.8	6.5	11.9	7.0
200	0.030	1.00	10.4	6.2	10.8	6.5	N/A	N/A
250	0.050	1.05	10.4	6.2	10.8	6.5	N/A	N/A
300	0.070	1.10	10.4	6.2	10.8	6.5	N/A	N/A
375	0.110	1.20	10.4	6.2 *	10.8	6.5 *	N/A	N/A
450	0.160	1.25	10.4	6.2 **	10.8	6.5 **	N/A	N/A
525	0.220	1.30	10.4 *	6.2 **	10.8 *	6.5 **	N/A	N/A
600	0.280	1.40	10.4 *	6.2 **	10.8 *	6.5 **	N/A	N/A
675	0.360	1.50	10.4 *	6.2 **	10.8 *	6.5 **	N/A	N/A
750	0.440	1.60	10.4 *	6.2 **	10.8 *	6.5 **	N/A	N/A
900	0.640	1.70	10.4 **	6.2 **	10.8 **	6.5 **	N/A	N/A

NOTES:
1 For installations in Type 4 soil, height of fill shall be calculated from first principles.
2 For installations in Type 3 soil, height of fill shall be calculated from first principles.
A Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
B Minimum height of fill over top of pipe shall be 300mm or one pipe diameter, whichever is greater.
C The table based on backfill density of 2243 kg/m³.
D This OPSD shall be read in conjunction with OPSD 802.010 and 802.013.
E Height of fill greater than 12.0m shall be calculated from first principles.
F All dimensions are in metres unless otherwise shown.

LEGEND:
* Note 1
** Note 1 and 2
N/A Not Available

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 4
HEIGHT OF FILL TABLE POLYVINYL CHLORIDE GRAVITY SEWER PIPE 210, 320, and 625kPa		OPSD 806.040

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENSED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

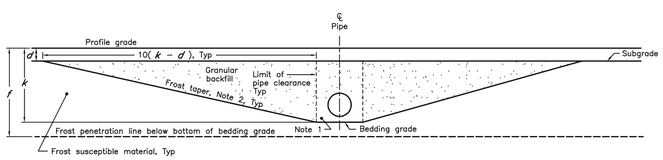
FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

DETAILS

JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN MG	SCALE: AS NOTED	DATE JAN 2022
DRAWN JH	PROJECT FER–15101	DWG. Nº DET–5
CHECKED JWI		

C:\Eng_3D\FER-15101-01\Production DWGS\FER-15101-COVER AND DETAILS-01.dwg Layout:DET-5 Printed Aug 18, 2022 @ 1:35pm by kcoppin The Jones Consulting Group Ltd.

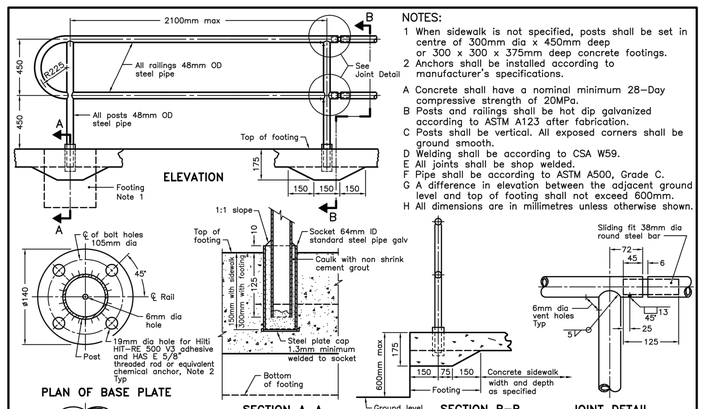


FROST TREATMENT
RIGID AND FLEXIBLE PIPE

NOTES:
1 Pipe embedment or bedding, cover, and backfill shall be according to:
  a) Flexible OPSD 802.010, 802.013, 802.014, 802.020, 802.023, and 802.024.
  b) Rigid – OPSD 802.030, 802.031, 802.032, 802.033, 802.034, 802.050, 802.051, 802.052, 802.053, and 802.054.
2 Frost tapers shall start at bedding grade.

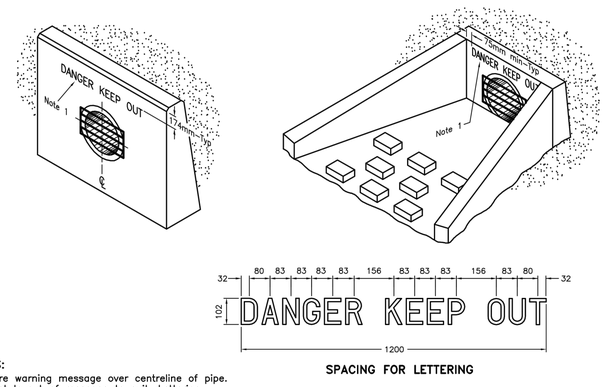
LEGEND:
d –depth of roadbed granular
k –depth of frost treatment below profile grade
f –depth of frost penetration below profile grade

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 3
FROST TREATMENT – PIPE CULVERTS FROST PENETRATION LINE BELOW BEDDING GRADE		
	OPSD 803.030	



NOTES:
1 When sidewalk is not specified, posts shall be set in centre of 300mm dia x 450mm deep or 300 x 300 x 375mm deep concrete footings.
2 Anchors shall be installed according to manufacturer's specifications.
A Concrete shall have a nominal minimum 28–Day compressive strength of 20MPa.
B Posts and railings shall be hot dip galvanized according to ASTM A123 after fabrication.
C Posts shall be vertical. All exposed corners shall be ground smooth.
D Welding shall be according to CSA W59.
E All joints shall be shop welded.
F Pipe shall be according to ASTM A500, Grade C.
G A difference in elevation between the adjacent ground level and top of footing shall not exceed 600mm.
H All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2017	Rev 3
PEDESTRIAN BARRICADE INSTALLATION		
	OPSD 980.101	

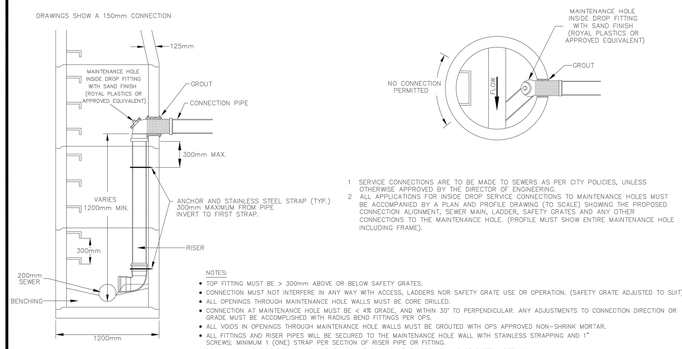


SPACING FOR LETTERING

NOTES:
1 Centre warning message over centreline of pipe. Adjust layout of message to suit. Lettering to be set in concrete.
A This OPSD to be read in conjunction with OPSD 3940.151.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2010	Rev 2
FIGURES IN CONCRETE WARNING MESSAGE LAYOUT		
	OPSD 3940.150	

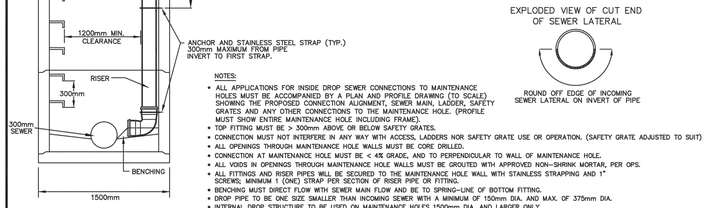
AS SPECIFIED FOR CONVENTIONAL SEWER CONNECTIONS, OWNERS ARE RESPONSIBLE FOR MAINTENANCE OF THE CONNECTION FROM THE SEWER TO THE BUILDING. THIS INCLUDES ALL FITTINGS AND PIPE FROM THE MAINTENANCE HOLE BENCHING TO THE BUILDING.



1 SERVICE CONNECTIONS ARE TO BE MADE TO SEWERS AS PER CITY POLICIES, UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING.
2 ALL APPLICATIONS FOR INSIDE DROP SERVICE CONNECTIONS TO MAINTENANCE HOLES MUST BE ACCOMPANIED BY A PLAN AND PROFILE DRAWING (TO SCALE) SHOWING THE PROPOSED CONNECTION ALIGNMENT, SEWER MAIN, LADDER, SAFETY GRATES AND ANY OTHER CONNECTIONS TO THE MAINTENANCE HOLE. (PROFILE MUST SHOW ENTIRE MAINTENANCE HOLE INCLUDING FRAME).

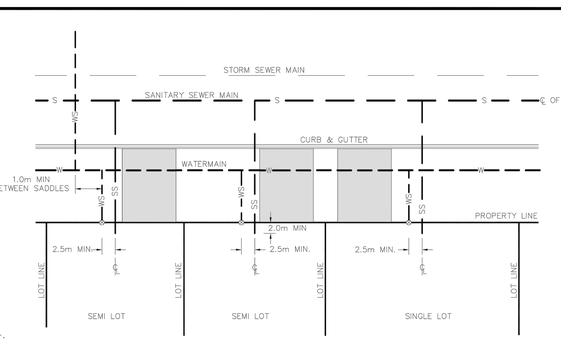
NOTES:
- TOP FITTING MUST BE > 300mm ABOVE OR BELOW SAFETY GRATES.
- CONNECTION MUST NOT INTERFERE IN ANY WAY WITH ACCESS, LADDERS NOR SAFETY GRATE USE OR OPERATION. (SAFETY GRATE ADJUSTED TO SUIT)
- ALL OPENINGS THROUGH MAINTENANCE HOLE WALLS MUST BE CORE DRILLED.
- CONNECTION AT MAINTENANCE HOLE MUST BE < 4% GRADE, AND WITHIN 30° TO PERPENDICULAR. ANY ADJUSTMENTS TO CONNECTION DIRECTION OR GRADE MUST BE ACCOMPLISHED WITH RADIUS BEND FITTINGS PER OPS.
- ALL VOIDS IN OPENINGS THROUGH MAINTENANCE HOLE WALLS MUST BE GROUTED WITH OPS APPROVED NON-SHRINK MORTAR.
- ALL FITTINGS AND RISER PIPES WILL BE SECURED TO THE MAINTENANCE HOLE WALL WITH STAINLESS STRAPPING AND 1" SCREWS; MINIMUM 1 (ONE) STRAP PER SECTION OF RISER PIPE OR FITTING.
- BENCHING MUST DIRECT FLOW WITH SEWER MAIN FLOW AND BE TO SPRING–LINE OF BOTTOM FITTING.

CITY OF BARRIE NON TYPICAL					APR'D: R.G.N.	DATE: 98.04.22
PVC INSIDE DROP SEWER SERVICE CONNECTION	3.	SAFETY GRATE ADJUSTED TO SUIT	B.R.	03.01.07	DRAWN: L.V.R.	SCALE: NTS
	2.	REVISED DRAWING & S.S. STRAPS	B.R.	02.11.05		
	1.	REVISED DRAWING AND NOTES	GAM	99.05.05		
	NO.	REVISION	APR'D	DATE	BSD-15A	



NOTES:
- ALL APPLICATIONS FOR INSIDE DROP SEWER CONNECTIONS TO MAINTENANCE HOLES MUST BE ACCOMPANIED BY A PLAN AND PROFILE DRAWING (TO SCALE) SHOWING THE PROPOSED CONNECTION ALIGNMENT, SEWER MAIN, LADDER, SAFETY GRATES AND ANY OTHER CONNECTIONS TO THE MAINTENANCE HOLE. (PROFILE MUST SHOW ENTIRE MAINTENANCE HOLE INCLUDING FRAME).
- TOP FITTING MUST BE > 300mm ABOVE OR BELOW SAFETY GRATES.
- CONNECTION MUST NOT INTERFERE IN ANY WAY WITH ACCESS, LADDERS NOR SAFETY GRATE USE OR OPERATION. (SAFETY GRATE ADJUSTED TO SUIT)
- ALL OPENINGS THROUGH MAINTENANCE HOLE WALLS MUST BE CORE DRILLED.
- CONNECTION AT MAINTENANCE HOLE MUST BE < 4% GRADE, AND TO PERPENDICULAR TO WALL OF MAINTENANCE HOLE.
- ALL VOIDS IN OPENINGS THROUGH MAINTENANCE HOLE WALLS MUST BE GROUTED WITH APPROVED NON–SHRINK MORTAR, PER OPS.
- ALL FITTINGS AND RISER PIPES WILL BE SECURED TO THE MAINTENANCE HOLE WALL WITH STAINLESS STRAPPING AND 1" SCREWS; MINIMUM 1 (ONE) STRAP PER SECTION OF RISER PIPE OR FITTING.
- BENCHING MUST DIRECT FLOW WITH SEWER MAIN FLOW AND BE TO SPRING–LINE OF BOTTOM FITTING.
- DROP PIPE TO BE ONE SIZE SMALLER THAN INCOMING SEWER WITH A MINIMUM OF 150mm DIA. AND MAX. OF 375mm DIA.
- INTERNAL DROP STRUCTURE TO BE USED ON MAINTENANCE HOLES 1500mm DIA. AND LARGER ONLY.

Barrie	PVC INSIDE DROP SEWER MAINTENANCE HOLE	REV NO: 5	DATE: APRIL 2022
			SCALE: N.T.S
		BSD–15B	



NOTES:
1. SANITARY SERVICES ARE TO BE BROUGHT 2.0m MIN. PAST PROPERTY LINE AND PROPERLY MARKED WITH A 50x100mm STAKE EXTENDING FROM THE INVERT OF THE SERVICE TO GROUND LEVEL. WATER SERVICES ARE TO BE BROUGHT TO PROPERTY LINE, TERMINATED WITH A CURB STOP AND PROPERLY MARKED WITH A 50x100mm STAKE EXTENDING FROM THE CURB STOP TO GROUND LEVEL (REFER TO BSD–48) SANITARY SERVICES TO BE MARKED GREEN, WATER SERVICES TO BE MARKED BLUE.
2. SANITARY SERVICE TO BE LOCATED AT THE CENTRE LINE OF EACH LOT/UNIT.
3. WATER SERVICE TO BE LOCATED 2.5m OFFSET NORTH OR WEST OF THE SANITARY SERVICE TO AVOID DRIVEWAY APPROACHES.
4. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.

CITY OF BARRIE STANDARD					APR'D: R.G.N.	DATE: 92.05.15
STANDARD RESIDENTIAL SERVICE LOCATIONS	4.	DRIVEWAYS ADDED	J.S.	2005.01.11	DRAWN: L.A.J.	SCALE: N.T.S.
	3.	REVISED LINETYPE AND CENTERLINE OF LOTS	B.R.	2002.02.05		
	2.	SAN. SERVICE 2.0m MIN PAST P/L	K.C.	2000.10.20		
	1.	NOTE 1, 2, AND 3 CHANGED	K.C.	2000.03.20		
	NO.	REVISION	APR'D	DATE	BSD-25	

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENSED PROFESSIONAL ENGINEER J.W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

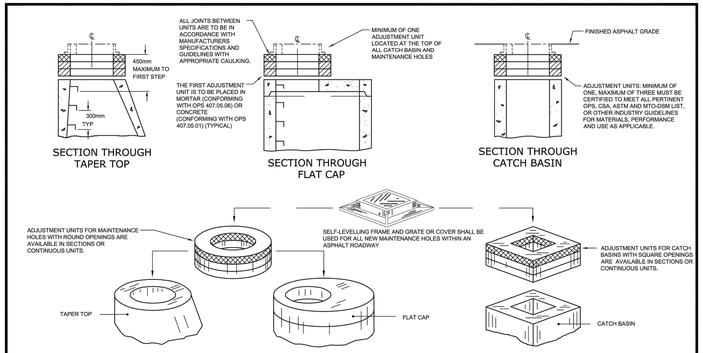
FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

DETAILS

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN MG	SCALE: AS NOTED	DATE JAN 2022
DRAWN JH	PROJECT FER–15101	DWG. Nº DET–6
CHECKED JWI		

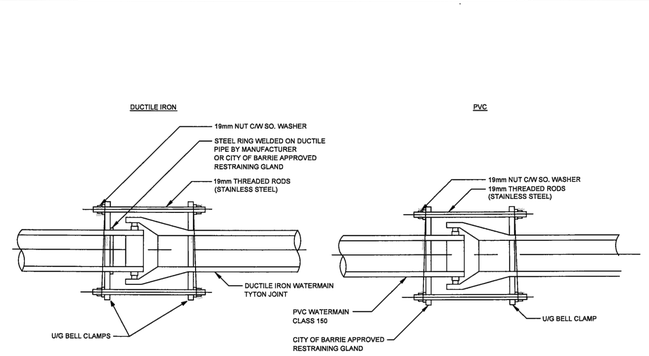
G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101-COVER AND DETAILS-01.dwg Layout:DET-6 Plotted Aug 18, 2022 @ 1:48pm by kcopin The Jones Consulting Group Ltd



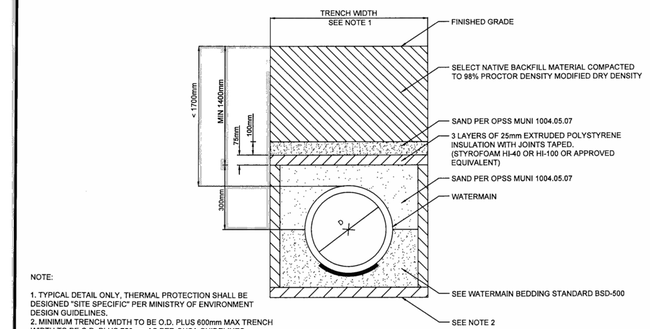
NOTES:

1. ADJUSTMENT UNITS SHALL NOT EXTEND BEYOND THE OUTSIDE EDGE OF THE STRUCTURE.
2. MAINTENANCE HOLE TOPS (FRAMES) ARE TO BE SET IN BASE ASPHALT GRADE AND THEN ADJUSTED TO FINAL GRADE WHEN TOP LIFT OF ASPHALT IS PLACED.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
4. IF A STEP IS REQUIRED IN AN ADJUSTMENT UNIT, THEN THE ADJUSTMENT UNIT SHALL BE OF THE TYPE MANUFACTURED WITH A STEP IN PLACE.

Barrie STANDARD DETAIL	MAINTENANCE HOLE AND CATCH BASIN ADJUSTMENT UNITS	REV No. 3	DATE: Nov 2019
			SCALE: N.T.S.
		BSD-41	



City of BARRIE STANDARD DETAIL	TYPICAL RESTRAINED WATERMAIN DUCTILE IRON OR PVC	REV No. 1	DATE: FEB 2015
			SCALE: N.T.S.
		BSD-512 (PREVIOUSLY BSD-47)	APPROVED DATE: 6 Feb 2015 DIRECTOR OF ENGINEERING



NOTE:

1. TYPICAL DETAIL ONLY, THERMAL PROTECTION SHALL BE DESIGNED "SITE SPECIFIC" PER MINISTRY OF ENVIRONMENT DESIGN GUIDELINES.
2. MINIMUM TRENCH WIDTH TO BE O.D. PLUS 600mm MAX TRENCH WIDTH TO BE O.D. PLUS 750mm AS PER OHSA GUIDELINES
3. INSULATING THE BOTTOM OF THE TRENCH MAY BE REQUIRED IF STORMWATER INFRASTRUCTURE IS UNDER WATERMAIN
4. ALL UNITS IN MILLIMETERS UNLESS OTHERWISE NOTED.

City of BARRIE STANDARD DETAIL	TYPICAL INSULATION DETAIL	REV No. 1	DATE: FEB 2015
			SCALE: N.T.S.
		BSD-514	APPROVED DATE: 6 Feb 2015 DIRECTOR OF ENGINEERING

NOTES:

1. POLYETHYLENE COVER IS TO BE USED BETWEEN STONE AND BACKFILL.
2. BLOW OFFS ARE TO BE SELF DRAINING.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.

City of BARRIE STANDARD DETAIL	50mm BLOW OFF DETAIL	REV No. 1	DATE: FEB 2015
			SCALE: N.T.S.
		BSD-516 (PREVIOUSLY BSD-51)	APPROVED DATE: 6 Feb 2015 DIRECTOR OF ENGINEERING

NOTES:

1. MATERIAL FOR LOWERING SHALL BE DUCTILE IRON IF EXISTING MATERIAL IS METALLIC.
2. UNITS IN MILLIMETERS UNLESS OTHERWISE NOTED.
3. ALL JOINTS TO BE MECHANICALLY RESTRAINED, INCLUDING JOINTS ON EXISTING WATERMAIN.

City of BARRIE STANDARD DETAIL	LOWERING DETAIL AT NEW OR EXIST. WATERMAIN CROSSING OF NEW OR EXIST. SANITARY SEWER	REV No. 1	DATE: FEB 2015
			SCALE: N.T.S.
		BSD-518	APPROVED DATE: 6 Feb 2015 DIRECTOR OF ENGINEERING

NOTES:

1. LOWERED SECTION OF WATERMAIN TO BE SAME MATERIAL AND CLASS AS EXISTING.
2. ALL JOINTS TO BE MECHANICALLY RESTRAINED, INCLUDING JOINTS ON EXISTING WATERMAIN.
3. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE NOTED.

City of BARRIE STANDARD DETAIL	LOWERING DETAILOF NEW OR EXIST. WATERMAIN CROSSING NEW OR EXIST. CULVERT, STORM SEWER OR DITCH	REV No. 1	DATE: FEB 2015
			SCALE: N.T.S.
		BSD-519	APPROVED DATE: 6 Feb 2015 DIRECTOR OF ENGINEERING

BENCHMARK:

ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENSED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

DETAILS

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229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN MG	SCALE: AS NOTED	DATE JAN 2022	
DRAWN JH	PROJECT FER-15101	DWG. Nº DET-7	
CHECKED JWI			

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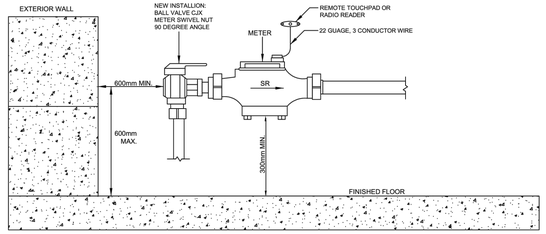


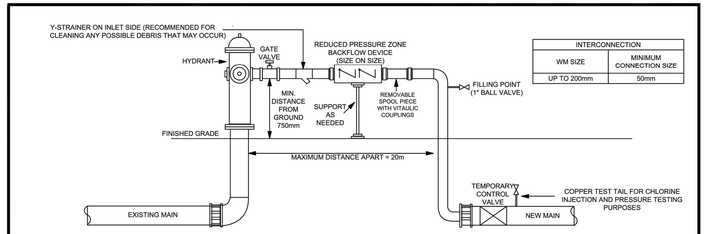
NOTES:

1. MIN 300mm CLEAR SPACE REQUIRED FROM CENTER OF METER TO EXTERIOR WALL(ONE WALL), MIN. 600mm CLEAR SPACE REQUIRED (THREE SIDES)
2. AVERAGE SIZE PERSON SHOULD BE ABLE TO ACCESS METER.
3. PROVIDE SUPPORT FOR THE METER AS REQUIRED.
4. METER WIRE TO BE BROUGHT TO OUTSIDE OF BUILDING BESIDE HYDRO METER, OR ON NEAREST EXTERIOR WALL TO WATER METER IF HYDRO METER IS UNAVAILABLE.
5. NO CONNECTIONS PERMITTED UPSTREAM OF THE WATER METER.
6. METER TO BE INSPECTED AND SEALED PRIOR TO OCCUPANCY, CALL WATER OPERATIONS BRANCH FOR INSPECTION AND SEAL OF WATER METER.
7. PIPING SUPPORT REQUIRED TO CITY OF BARRIE SATISFACTION.
8. WATER METERS LOCATED IN CRAWL SPACE, UNDER STAIR LANDING, IN WALLS OR OTHER INACCESSIBLE AREAS WILL NOT BE ACCEPTED.
9. A FLAT SURFACE MUST BE PROVIDED FOR THE INSTALLATION OF THE EXTERIOR REMOTE READING DEVICE (SMARTPOINT).
10. IF METER WIRE PASSES THROUGH ANOTHER DWELLING OR IS RUN UNDER THE FLOOR IT MUST BE PLACED IN A DEDICATED CONDUIT.

Barrie
STANDARD DETAIL

WATER METER INSTALLATION PACKAGE

REV No.	DATE: MAY 2021
3	SCALE: N.T.S.
	BSD-532



INTERCONNECTION	
WM SIZE	MINIMUM CONNECTION SIZE
UP TO 200mm	50mm

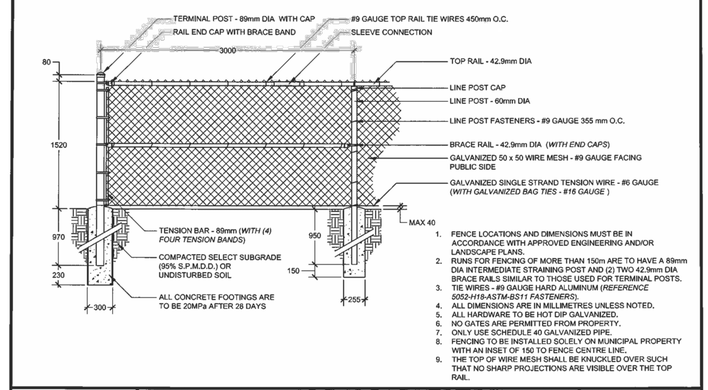
NOTES:

1. THE REDUCED PRESSURE ZONE BACKFLOW PREVENTER (RPZ) MUST BE PROVIDED BY THE CONTRACTOR, IN GOOD WORKING ORDER, AND TESTED AS PER CSA B64.10-01 (AS AMENDED) WITH THE EXCEPTION OF REDUCED PRESSURE ZONES INITIALLY TESTED AND THEN RELOCATED WITHIN THE SAME DAY.
2. THE BACKFLOW PREVENTION ASSEMBLY AND THE BACKFLOW PREVENTION VALVE ASSEMBLY SHALL BE PHYSICALLY SEPERATED FROM THE NEW MAIN DURING WATERMAIN PRESSURE TESTS.THE FINAL CONNECTION OF THE WATERMAIN SHALL BE COMPLETED ONLY AFTER AUTHORIZATION BY THE CITY OF BARRIE.
3. THE WATERMAIN SHALL BE DRAINED BY CONTROLLED MEANS, DE-CHLORINATING AS REQUIRED AS PER AWWA, AND TEMPORARY CAPS OR PLUGS INSTALLED AS REQUIRED.
4. THE WATERMAIN SHALL BE CUT BACK TO REMOVE THE TAPPING POINTS OF THE TEMPORARY WATERMAIN BY-PASS ASSEMBLY. ENSURE COMPLETION PIECE IS LESS THAN 5.5m AND DISINFECTED ACCORDING TO AWWA 651 (AS AMENDED).
5. ONLY CITY OF BARRIE WATER OPERATIONS SHALL OPERATE VALVES AND/OR OTHER APPURTENANCES WITHIN THE NEW SYSTEM ONCE COMMISSIONING PROCEDURES ARE INITIATED. FAILURE TO COMPLY WITH THIS REQUIREMENT WILL RESULT IN A CHARGE, AS OUTLINED IN CITY OF BARRIE FEES BY-LAW (AS AMENDED).
6. ALL PIPING AND APPURTENANCES PLANCED IN THE CONNECTION SHALL BE NEW MATERIAL DISINFECTED AS PER AWWA C651: DISINFECTING WATERMAIN (AS AMENDED).
7. A PHYSICAL SEPARATION MUST BE MAINTAINED AT ALL CONNECTION POINTS OF NEW WATERMAINS TO THE EXISTING SYSTEM UNTIL BACTERIOLOGICAL SAMPLES CONFIRM SATISFACTORY RESULTS. A SAMPLING TAP MUST BE PROVIDED AT THE END OF EACH BRANCH OR STUB.
8. THE ACTUAL CONFIGURATION USED MUST SATISFY THE INTENT OF THIS DRAWING AND AT THE DISCRETION OF THE CITY REPRESENTATIVE. (THE CITY OF BARRIE WATER OPERATIONS BRANCH MUST BE CONSULTED PRIOR TO ANY CONNECTION TO THE EXISTING DRINKING WATER SYSTEM)
9. WINTER PROTECTION MUST BE PROVIDED WHEN APPLICABLE.
10. ALL TEMPORARY CAPS TO BE RESTRAINED. ALL RESTRAINED JOINTS AS PER PIPE MANUFACTURER'S SPECIFICATION.
11. CITY OF BARRIE WATER OPERATIONS MAINTAINS THE RIGHT TO REQUEST ALTERNATE BY-PASS ASSEMBLY SIZING IN AREAS WHERE PRESSURE AND FLOW RATES MAY BE AN ISSUE.

Barrie

WATERMAIN CONNECTION FROM HYDRANT (FOR WATERMAINS UP TO 200MM)

REV No.	DATE: NOV 2019
2	SCALE: N.T.S.
	BSD-535



NOTES:

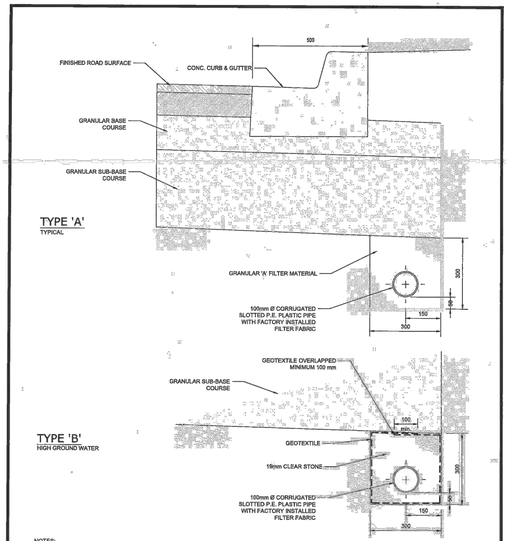
1. FENCE LOCATIONS AND DIMENSIONS MUST BE IN ACCORDANCE WITH APPROVED ENGINEERING AND/OR LANDSCAPE PLANS.
2. RUNS FOR FENCING OF MORE THAN 150m ARE TO HAVE A 89mm DIA INTERMEDIATE STRAINING POST AND (2) TWO 42.9mm DIA BRACE RAILS SIMILAR TO THOSE USED FOR TERMINAL POSTS.
3. TIE WIRES - #9 GAUGE HARD ALUMINUM (*REFERENCE 5052-H18-ASTM-B511 FASTENERS*).
4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED.
5. ALL HARDWARE TO BE HOT DIP GALVANIZED.
6. NO GATES ARE PERMITTED FROM PROPERTY.
7. ONLY USE SCHEDULE 40 GALVANIZED PIPE.
8. FENCING TO BE INSTALLED SOLELY ON MUNICIPAL PROPERTY WITH AN INSET OF 150 TO FENCE CENTRE LINE.
9. THE TOP OF WIRE MESH SHALL BE KNUCKLED OVER SUCH THAT NO SHARP PROJECTIONS ARE VISIBLE OVER THE TOP RAIL.

The City of BARRIE
STANDARD DETAIL

1.52m CHAIN LINK PARK FENCING

REV No.	DATE: JUNE 2015
1	SCALE: N.T.S.
	BSD-1210
	FORMERLY BSD-21

APPROVED
DATE June 11/15
DIRECTOR OF ENGINEERING



NOTES:

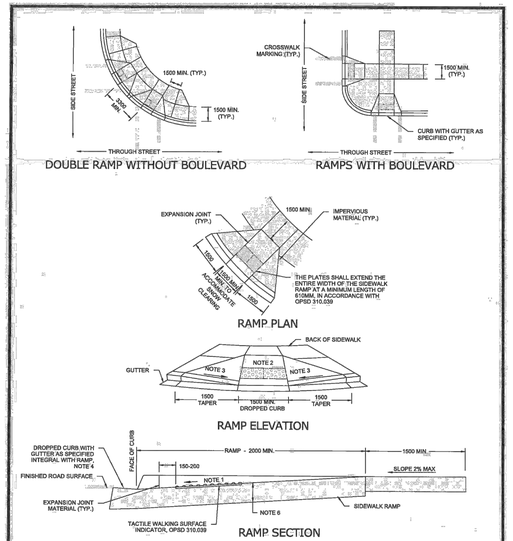
1. ALL CONNECTIONS TO BE MADE ON THE UPSTREAM SIDE OF ALL CATCH BASINS. MORTARED INSIDE AND OUTSIDE.
2. SUBDRAINS TO BE PLUGGED AT THE HIGH END WITH A MANUFACTURED PLUG.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
4. FOR SELECTION OF TYPE 'A' AND TYPE 'B' SUBDRAINS REFER TO CITY OF BARRIE TRANSPORTATION DESIGN MANUAL.
5. TYPE 'B', THE SUBDRAIN TRENCH SHALL BE LINED WITH CLASS II, NON-WOVEN GEOTEXTILE, WITH AN F.D.S. OF 75-150 µm AND A MINIMUM THICKNESS OF 1 mm.

APPROVED
DATE Oct. 26/17.
DIRECTOR OF ENGINEERING

Barrie
STANDARD DETAIL

TYPICAL 100mm SUBDRAIN DETAIL

REV No.	DATE: OCT 2017
1	SCALE: N.T.S.
	BSD-315



NOTES:

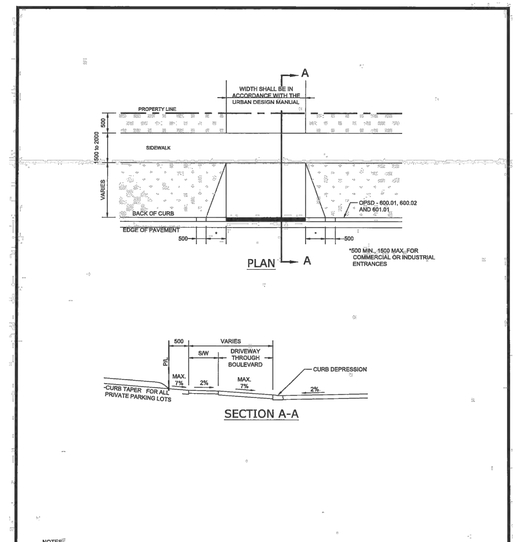
1. SLOPE OF RAMP SHALL NOT EXCEED 8%
2. CROSS SLOPE OF RAMP SHALL NOT EXCEED 2% IN EITHER DIRECTION
3. CROSS SLOPE OF FLARED SIDE OF RAMP SHALL NOT EXCEED 8%
4. DROPPED CURB AT RAMP SHALL BE MODIFIED TO ELIMINATE 10mm STEP AT GUTTER LINE
5. ACCESSIBLE PEDESTRIAN SIGNAL TO HAVE TACTILE ARROW THAT ALIGNS WITH DIRECTION OF CROSSWALK
6. MINIMUM THICKNESS OF RAMP IS 200mm. MINIMUM THICKNESS OF SIDEWALK AND FLARED SIDES ADJACENT TO RAMP IS 150mm.
7. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED
8. FOR CROSSWALK MARKINGS AND SIGNAGE REFER TO OTM BOOK 15

APPROVED
DATE Oct 26/17.
DIRECTOR OF ENGINEERING

Barrie
STANDARD DETAIL

CONCRETE SIDEWALK RAMPS AT UNSIGNALIZED INTERSECTIONS

REV No.	DATE: OCT 2017
1	SCALE: N.T.S.
	BSD-318



NOTES:

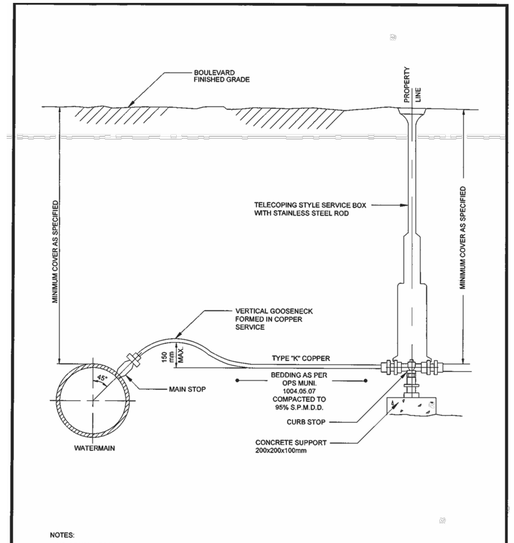
1. CROSSFALL OF SIDEWALK 2.0% UNLESS OTHERWISE APPROVED.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
3. UPON THE APPROVAL OF THE DIRECTOR OF ENGINEERING, STEEPER SLOPES MAY BE CONSIDERED WHEN THE BOULEVARD WIDTH IS LESS THAN 2.4M OR DURING ROAD RECONSTRUCTION.
4. REVERSE GRADES ARE NOT APPROVED.

APPROVED
DATE Oct. 26/17.
DIRECTOR OF ENGINEERING

Barrie
STANDARD DETAIL

DRIVEWAY AND ENTRANCE DETAIL

REV No.	DATE: OCT 2017
1	SCALE: N.T.S.
	BSD-319



NOTES:

1. NO COUPLINGS WILL BE PERMITTED BETWEEN MAIN STOP AND CURB STOP.
2. ALL WATER SERVICES TO BE INSTALLED AT RIGHT ANGLE TO THE WATERMAIN.
3. CONNECTIONS TO PVC MAINS TO BE MADE USING APPROVED SERVICE SADDLES.
4. TAPPING TO BE AT 2 OR 10 O'CLOCK POSITION ONLY.
5. WATERMAIN TO BE DRILLED AND TAPPED WITH AWWA INLET THREAD
6. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.

APPROVED
DATE May 29/15.
DIRECTOR OF ENGINEERING

City of BARRIE
STANDARD DETAIL

COPPER WATER SERVICE CONNECTION DETAIL 25mm DIAMETER SIZE

REV No.	DATE: MAY 2015
2	SCALE: N.T.S.
	BSD-502

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER
J. W. INGRAM
100145779
22-08-18
PROVINCE OF ONTARIO

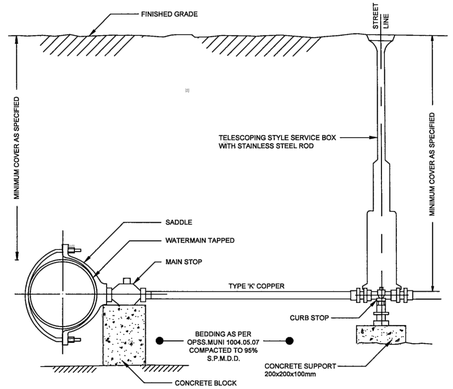
FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

DETAILS

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	MG	SCALE: AS NOTED	DATE JAN 2022
DRAWN	JH	PROJECT FER-15101	DWG. Nº DET-8
CHECKED	JWI		

C:\Eng_JOB\FER-15101-01\Production DWGS\FER-15101-COVER AND DETAILS-01.dwg Layout:DET-8 Plotted Aug 18, 2022 @ 1:55pm by kcogdin The Jones Consulting Group Ltd.

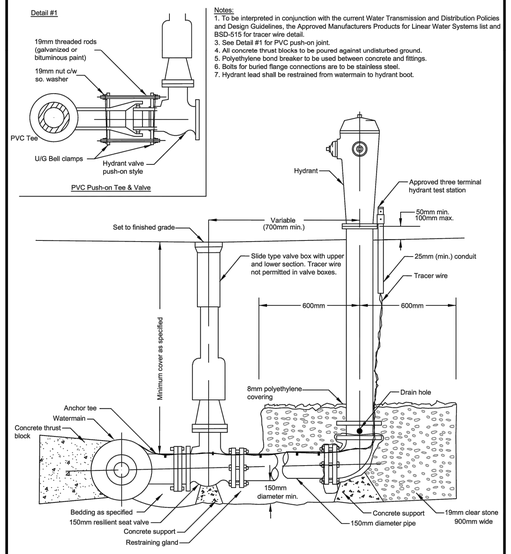


NOTES

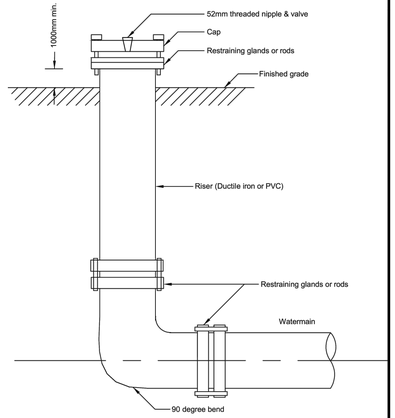
1. ANY JUNCTION MADE IN SERVICE PIPE BETWEEN MAIN STOP AND CURB STOP TO BE MADE WITH APPROVED COUPLINGS, (FOR 50mm ONLY).
2. ALL WATER SERVICES TO BE INSTALLED AT RIGHT ANGLE TO THE WATERMAIN.
3. ALL TAPPINGS TO BE AT 3 OR 9 O'CLOCK POSITION ONLY.
4. 915mm (36") STAINLESS STEEL SERVICE BOX ROD.
5. SEE BSD-504 FOR 38mm AND 50mm NON-COPPER WATER SERVICES.
6. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.

APPROVED
DATE 6/Feb/2015
DIRECTOR OF ENGINEERING

City of BARRIE STANDARD DETAIL	COPPER WATER SERVICE CONNECTION DETAIL 38mm AND 50mm DIAMETER SIZES	REV No. 1	DATE: FEB 2015
			SCALE: N.T.S.
		BSD-503 (PREVIOUSLY BSD-49)	



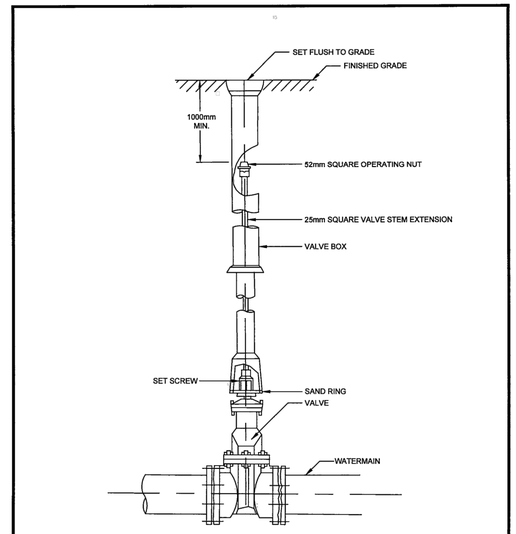
Barrie	Standard Hydrant and Valve Installation	REV No. 2	DATE: April 2019
			SCALE: N.T.S.
		BSD-507	



NOTES:

1. All dimensions are in millimeters unless otherwise shown.
2. Restraining glands or rods to be used for restraint.

Barrie	Temporary Riser Installation	REV No. 2	DATE: May 2019
			SCALE: N.T.S.
		BSD-510	

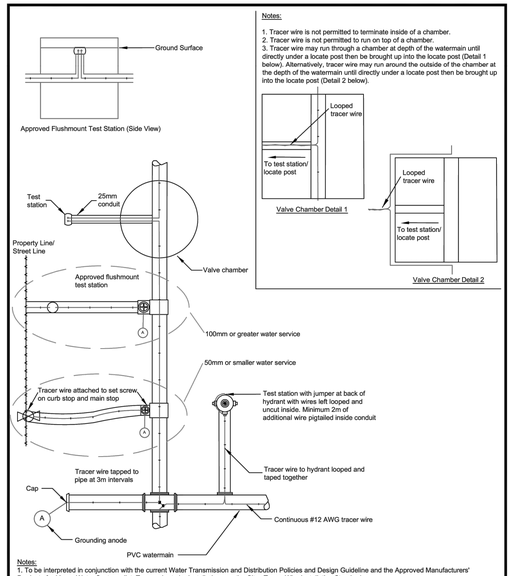


NOTES:

1. EXTENSION REQUIRED WHEN DISTANCE FROM THE TOP OF VALVE TO FINISHED GRADE IS MORE THAN 1.7m.

APPROVED
DATE 6 Feb 2015
DIRECTOR OF ENGINEERING

City of BARRIE STANDARD DETAIL	VALVE STEM EXTENSION IN VALVE BOX	REV No. 1	DATE: FEB 2015
			SCALE: N.T.S.
		BSD-511 (PREVIOUSLY BSD-46)	



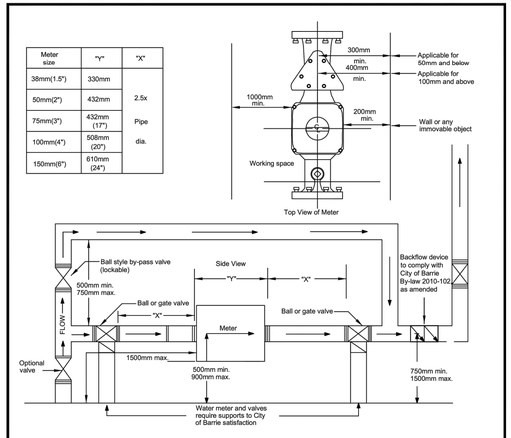
Notes:

1. Tracer wire is not permitted to terminate inside of a chamber.
2. Tracer wire is not permitted to run on top of a chamber.
3. Tracer wire may run through a chamber at depth of the watermain until directly under a locate post then be brought up into the locate post (Detail 1 below). Alternatively, tracer wire may run around the outside of the chamber at the depth of the watermain until directly under a locate post then be brought up into the locate post (Detail 2 below).

Notes:

1. To be interpreted in conjunction with the current Water Transmission and Distribution Policies and Design Guideline and the Approved Manufacturers' Products for Linear Water Systems list. Tracer wire to be installed as per the Citys Tracer Wire Installation Standard.
2. Hydrant test station conduit shall be a minimum of 25mm installed to a depth of 600mm below grade.
3. All connections must be waterproofed.
4. Splicing of tracer wire is not allowed unless specified or approved.
5. Heat shrink is to be completed by a heat gun and not using an open flame.
6. SnakePits are to be placed inside of a SSL road leveler with lid.

Barrie	Tracer Wire Detail	REV No. 4	DATE: Jan 2021
			SCALE: N.T.S.
		BSD-515	

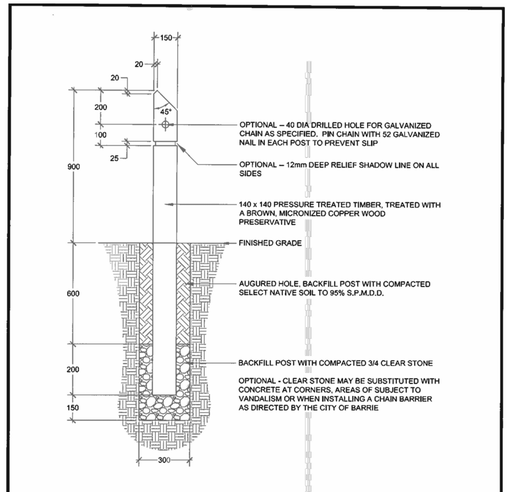


• A key to the mechanical room to be supplied to the City of Barrie for meter reading and maintenance.

NOTES:

1. The diameter of the by-pass line shall match the diameter of the internal plumbing.
2. All materials to be supplied by the contractor except water meters. All meters larger than 50mm are to be supplied and installed by the contractor.
3. Butterfly valves or globe valves shall not be used.
4. All piping between water service entering the building and backflow device must be labeled 'No connection permitted'.
5. Backflow device must be installed within a maximum of 3 meters downstream of the water meter.
6. Meter wire, installed in conduit, to be run from meter location to outside of building at the direction of the Barrie Water Operations representative. Meter wire (22 gauge, 2 conductor, metgray, UV rated) supplied by the City of Barrie.
7. All dimension are in millimeters unless otherwise shown.
8. Contractor to provide flat secure (vertical) surface for the smart point to be mounted on.

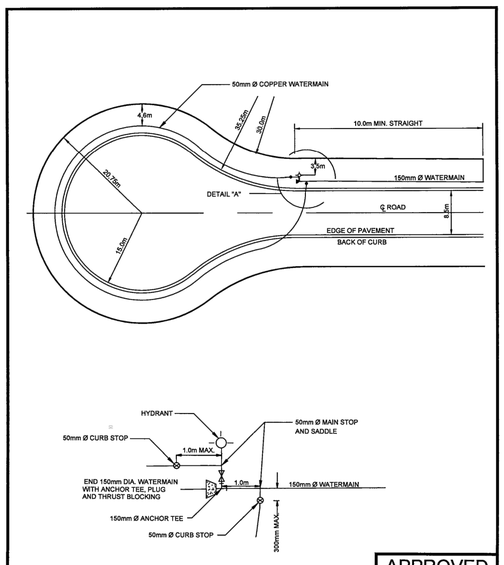
Barrie	Typical Meter Installation for Domestic Services Requiring By-passes	REV No. 3	DATE: May 2019
			SCALE: N.T.S.
		BSD-533	



1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
2. CHAMFER CUTS ARE TO BE MADE FOLLOWING INSTALLATION OF BOLLARD(S) USING A TEMPLATE OR GUIDE FOR UNIFORM CUTS.
3. ALL BOLLARD HEIGHTS ARE TO BE UNIFORM.
4. FOR MULTIPLE BOLLARDS, SPACING SHALL BE AT A STANDARD 1000 ON CENTRE.
5. BOLLARDS ARE TO BE INSET 150mm ONTO MUNICIPAL PROPERTY AND CHAMFER FACE IS TO BE SET ORIENTATED OUT FROM THE SUBJECT PROPERTY.
6. ALL FENCE FOOTINGS ARE TO BE INSTALLED SOLELY ON MUNICIPAL PROPERTY.

APPROVED
DATE June.11/15
DIRECTOR OF ENGINEERING

The City of BARRIE STANDARD DETAIL	TIMBER BOLLARD DETAIL	REV No. 1	DATE: JUNE 2015
			SCALE: N.T.S.
		BSD-1217 FORMERLY BSD-38	



DETAIL "A"

APPROVED
DATE 6 Feb 2015
DIRECTOR OF ENGINEERING

City of BARRIE STANDARD DETAIL	TYPICAL CUL-DE-SAC WATERMAIN DESIGN (50mm DIA. COPPER LOOPING)	REV No. 1	DATE: FEB 2015
			SCALE: N.T.S.
		BSD-513 (PREVIOUSLY BSD-55)	

BENCHMARK:

ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

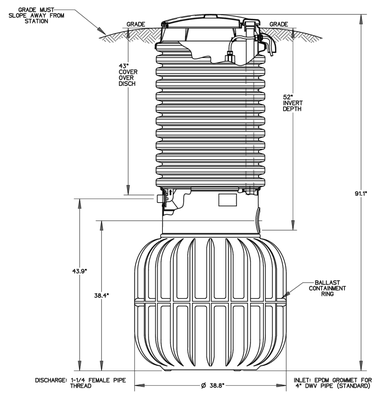
DETAILS

JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	MG	SCALE: AS NOTED	DATE JAN 2022
DRAWN	JH	PROJECT FER-15101	DWG. Nº DET-9
CHECKED	JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101-COVER AND DETAILS-01.dwg Layout:DET-9 Plotted Aug 18, 2022 @ 1:56pm by kcopin The Jones Consulting Group Ltd

OPTIONS : ☐ DH151-93 (HARD WIRED LEVEL CONTROLS)
☐ DR151-93 (WIRELESS LEVEL CONTROLS)



CONCRETE BALLAST MAY BE REQUIRED
SEE INSTALLATION INSTRUCTIONS
FOR DETAILS

AD	CAH	7/13/07	B	1/16
DR BY	CHK'D	DATE	ISSUE	SCALE

SEWER SYSTEMS

MODEL DH151-93 / DR151-93

NA0051P06

HYDRO-GUARD® HG-4 Sub-Surface Discharge Unit

Installation Instructions

GENERAL

Overview

The Hydro-Guard® HG-4 Sub-Surface Discharge Unit, the industry's premium patented, program-mable flushing apparatus, is suitable for year-round use in cold to extreme cold climates. This Automatic Flushing System has been designed, engineered, and manufactured to provide outstanding dependability and performance.

Please read and retain this manual for future training, reference, troubleshooting, and maintenance.

Site Evaluation

Each Hydro-Guard® System installation is unique and will require a minimum of advance planning. Prior tothe installation of the device, the drainage patterns for the intended installation location should be reviewed. The drainage pattern must permit discharged water to flow away from the Hydro-Guard® Unit. Discharged water flushed from the Hydro-Guard® Unit must be routed away from the device. It is recommended that a 6" catch pipe (by others) be installed inside of the HG-4's external cabinet. The catch pipe shall be mounted at least 3" under the discharge piping of the HG-4 (see Typical Installation illustration). The 6" pipe shall be installed a minimum of 24" below grade before a 90-degree bend or pipe size reduction. If desired, the 6" pipe can be reduced to a 3" or 4" pipe to continue the routing of the flow to a final discharge point. The recommended final discharge points may include a storm drain, drainage or retention pond, or a storm swale.

INSTALLATION

Hydro-Guard® HG-4 Unit

1. Remove the Hydro-Guard® Unit from its packaging and inspect for possible damage during shipping.

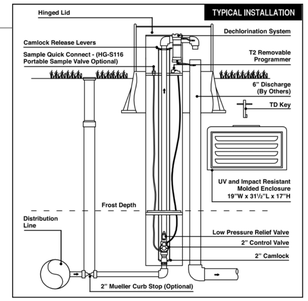
2. Excavate a suitably-sized ditch ensuring it is connected on one side to the utility's service line trench. Remove any debris that might create uneven pressure on the Unit. Compact the bottom of the hole in order to minimize settling after installation. Place #57 stone, then non-compacted clean bedding material within the bottom of the hole. Turn off service line feed.

3. Slowly lower the Hydro-Guard® Unit into place, pressing it firmly into the noncompacted bedding material until it is fully seated. Ensure that the Unit is level before beginning the backfilling operation (the bottom of the ground plate should be approxi-mately 1" above the final grade).

4. Connect the utility's water system to the Hydro-Guard® Unit by means of the 2" threaded connection.

5. Backfill the hole around and under the Unit's below grade base with clean fill and/or #57 stone. Backfilling should be accomplished in 6" compacted lifts. Check that the Unit is level.

TYPICAL INSTALLATION



6. After installation is complete, sod the area around the Hydro-Guard® Unit or take other steps in order to prevent erosion. Inspect the area immediately around the Unit in order to ensure that the existing ground cover is not subject to severe erosion. You may opt to create a custom installation to best suit your needs.

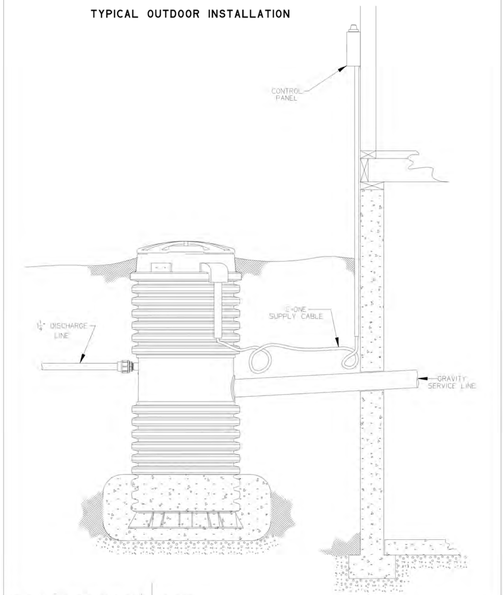
7. Disinfect the Hydro-Guard® Flushing Device in accordance with the utility's policy. DO NOT exceed the dosage and contact times recommended by the AWWA.

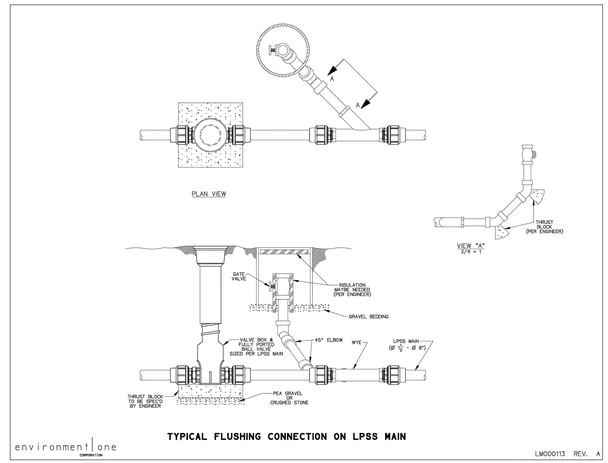
8. The Hydro-Guard® Automatic Flushing Device may now be pro-grammed and placed into service.

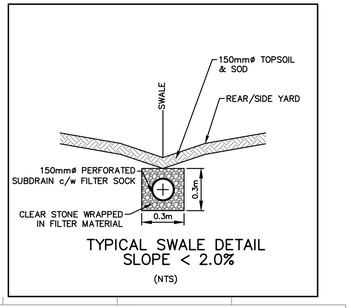
AUTO-FLUSHER DETAIL
MUELLER HYDRO-GUARD HG-4

TO BE INSTALLED WITH 50mm WATER SUPPLY AS PER BSD-503

TYPICAL OUTDOOR INSTALLATION

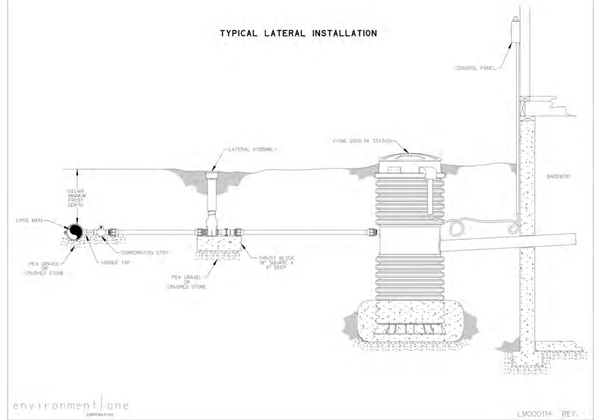


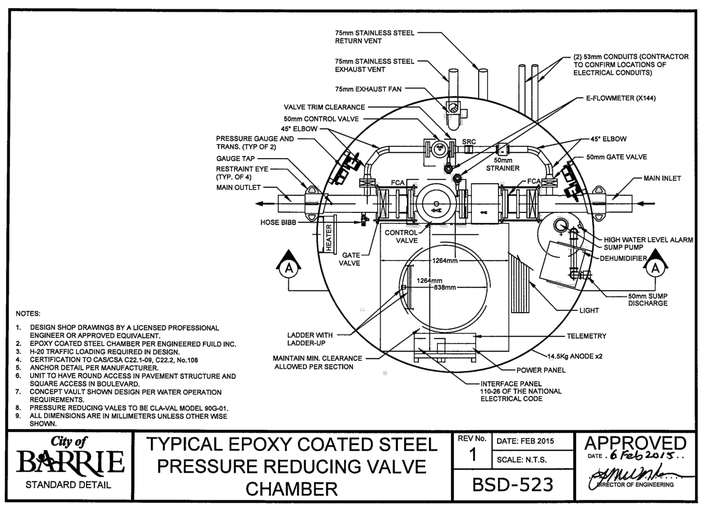




TYPICAL SWALE DETAIL
SLOPE < 2.0%
(NTS)

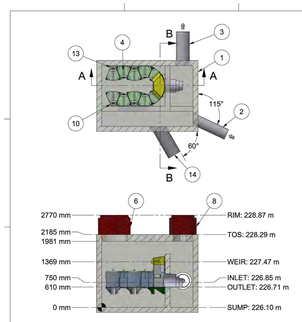
TYPICAL LATERAL INSTALLATION



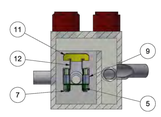


NOTES:
1. DESIGN SHOP DRAWINGS BY A LICENSED PROFESSIONAL ENGINEER OR APPROVED EQUIVALENT.
2. EPOXY COATED STEEL CHAMBER PER ENGINEERED FUILD INC.
3. H-20 TRAFFIC LOADING REQUIRED IN DESIGN.
4. CERTIFICATION TO CAS/CSA C22.1-09, C22.2, No.108
5. ANCHOR DETAIL PER MANUFACTURER.
6. UNIT TO HAVE ROUND ACCESS IN PAVEMENT STRUCTURE AND SQUARE ACCESS IN BOULEVARD.
7. CONCEPT VAULT SHOWN DESIGN PER WATER OPERATION REQUIREMENTS.
8. PRESSURE REDUCING VALES TO BE CLA-VAL MODEL 90G-01.
9. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHER WISE SHOWN.

City of BARRIE STANDARD DETAIL	TYPICAL EPOXY COATED STEEL PRESSURE REDUCING VALVE CHAMBER	REV No. 1 / DATE: FEB 2015 / SCALE: N.T.S.	APPROVED DATE - 6 Feb 2015 DIRECTOR OF ENGINEERING
		BSD-523	



SECTION A-A
SCALE 1:50



SECTION B-B
SCALE 1:50

CAPACITIES:
1. Minimum performance: 80% removal NJDEP - NJDEP Blend; NJCAT, Sil-Co-Sil 106 (d50 = 22 microns) at the peak treatment flow.
2. Maximum number of modules per outlet module: 38 **
3. NJDEP peak treatment flow: .056 cfs (25 gpm) per module, CPZ

ADDITIONAL DESIGN INFORMATION:
1. * Normal operating W.S.E. is 2.46' above the outlet invert at the peak treatment flow of .056 cfs (25 gpm) per module. For a given flow the head requirement can be reduced by adding additional filters.
2. ** Treatment flows that require more modules will require a larger vault design or different arrangement.
3. Media Types Available: New Jersey - Ribbons; Elsewhere - CPZ
4. Unit shall conform to HS20-44 load ratings.

PARTS LIST				
ITEM	QTY	DESCRIPTION	TYPE	SIZE (mm)
1	1	PRECAST VAULT		6ft x 9ft
2	1	UFF INLET PIPE	PVC	300
3	1	UFF OUTLET PIPE	PVC	375
4	10	MODULE LID		
5	3	SUPPORT FRAME		
6	1	COVER 30 IN		762
7	2	WEDGE WALL MOUNT		
8	2	COVER 24 IN		609.6
9	10	MODULE BODY		
10	2	SUPPORT FRAME LH		
11	1	BYPASS HOOD-S		
12	1	OUTLET MODULE		
13	2	SUPPORT FRAME RH		
14	1	AUX PIPE INLET - INVERT 226.95 m	PVC	375

1. STRUCTURE WALL AND SLAB THICKNESSES ARE NOT TO SCALE.
2. CONTACT HYDRO INTERNATIONAL FOR A BOTTOM OF STRUCTURE ELEVATION PRIOR TO SETTING THE STRUCTURE.
3. CONTRACTOR TO CONFIRM RIM, PIPE INVERTS, PIPE DIA, AND PIPE ORIENTATION PRIOR TO RELEASE OF UNIT TO FABRICATION.
4. CONTRACTOR IS RESPONSIBLE FOR MATERIALS AND LABOR TO BRING CASTINGS TO FINISHED GRADE.
5. ACTUAL DEPTH OF STRUCTURE MAY VARY DEPENDING ON AVAILABLE PRECAST FORMS. CONTRACTOR TO MEASURE HEIGHT OF STRUCTURE TO ENSURE THAT DEPTH OF EXCAVATION IS CORRECT

REVISION HISTORY			
REV	BY	DESCRIPTION	DATE
-	DROE	FIRST RELEASE	8/16/2022

PROJECTION

IF IN DOUBT ASK

DATE: 8/16/2022	SCALE: 1:50	
DRAWN BY: WCS	CHECKED BY:	APPROVED BY

Title: UF-FLO FILTER 1.83m x 2.74m

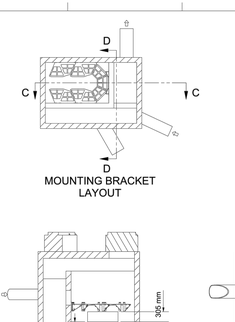
10 MODULES

UFF-1
PARKSIDE WATERFRONT CONDOMINIUM 276702
BARRIE, ONTARIO

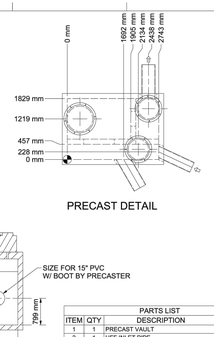
Patent: www.hydro-int.com/patents

Hydro International
hydro-int.com
©2021 HYDRO INTERNATIONAL

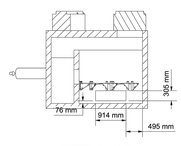
WEIGHT: MATERIAL:
STOCK NUMBER:
DRAWING NO.: 22_12_0234-UFF-1
SHEET SIZE: B | SHEET: 1 OF 2 | Rev: -



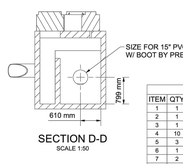
MOUNTING BRACKET LAYOUT



PRECAST DETAIL



SECTION C-C
SCALE 1:50



SECTION D-D
SCALE 1:50

PARTS LIST				
ITEM	QTY	DESCRIPTION	TYPE	SIZE (mm)
1	1	PRECAST VAULT		6ft x 9ft
2	1	UFF INLET PIPE	PVC	300
3	1	UFF OUTLET PIPE	PVC	375
4	10	MODULE LID		
5	3	SUPPORT FRAME		
6	1	COVER 30 IN		762
7	2	WEDGE WALL MOUNT		
8	2	COVER 24 IN		609.6
9	10	MODULE BODY		
10	2	SUPPORT FRAME LH		
11	1	BYPASS HOOD-S		
12	1	OUTLET MODULE		
13	2	SUPPORT FRAME RH		
14	1	AUX PIPE INLET - INVERT 226.95 m	PVC	375

1. STRUCTURE WALL AND SLAB THICKNESSES ARE NOT TO SCALE.
2. CONTACT HYDRO INTERNATIONAL FOR A BOTTOM OF STRUCTURE ELEVATION PRIOR TO SETTING THE STRUCTURE.
3. CONTRACTOR TO CONFIRM RIM, PIPE INVERTS, PIPE DIA, AND PIPE ORIENTATION PRIOR TO RELEASE OF UNIT TO FABRICATION.
4. CONTRACTOR IS RESPONSIBLE FOR MATERIALS AND LABOR TO BRING CASTINGS TO FINISHED GRADE.
5. ACTUAL DEPTH OF STRUCTURE MAY VARY DEPENDING ON AVAILABLE PRECAST FORMS. CONTRACTOR TO MEASURE HEIGHT OF STRUCTURE TO ENSURE THAT DEPTH OF EXCAVATION IS CORRECT

PROJECTION

IF IN DOUBT ASK

DATE: 8/16/2022	SCALE: 1:50	
DRAWN BY: WCS	CHECKED BY:	APPROVED BY

Title: UF-FLO FILTER 1.83m x 2.74m

10 MODULES

UFF-1
PARKSIDE WATERFRONT CONDOMINIUM 276702
BARRIE, ONTARIO

Hydro International
hydro-int.com
©2021 HYDRO INTERNATIONAL

WEIGHT: MATERIAL:
STOCK NUMBER:
DRAWING NO.: 22_12_0234-UFF-1
SHEET SIZE: B | SHEET: 2 OF 2 | Rev: -

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENSED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

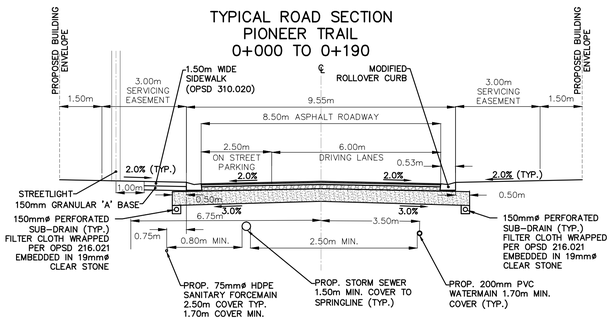
FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

DETAILS

JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN MG	SCALE: AS NOTED	DATE JAN 2022	
DRAWN JH	PROJECT FER-15101	DWG. Nº DET-10	
CHECKED JWI			

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101-COVER AND DETAILS-01.dwg Layout: DET-10 Plotted: Aug 19, 2022 @ 7:00pm by mpatton The Jones Consulting Group Ltd



TYPICAL ROAD SECTION
PIONEER TRAIL
0+000 TO 0+190

SCALE: 1:100

PAVEMENT STRUCTURE:
40mm HL3 TOP COURSE ASPHALT
70mm HL8 BOTTOM COURSE ASPHALT
150mm GRANULAR 'A' BASE COURSE
450mm GRANULAR 'B' SUBBASE COURSE

TYPICAL ROAD SECTION AND PAVEMENT STRUCTURE ADAPTED FROM THE UPDATED GEOTECHNICAL REPORT CREATED BY GEI CONSULTANTS DATED AUGUST 14, 2022.

TYPICAL ROAD SECTION
PIONEER TRAIL
0+000 TO 0+190

REVISIONS	DATE	SCALE: 1:100	DRAWN: JH

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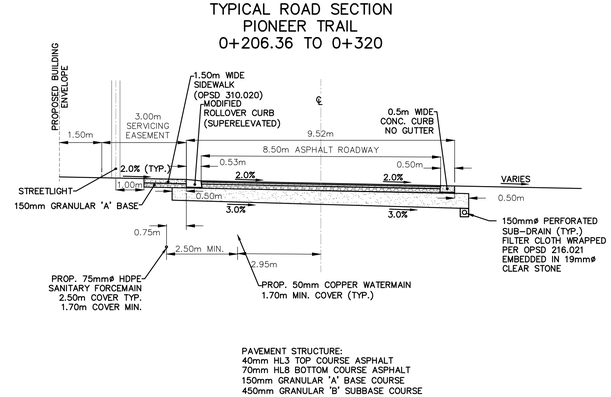

TYPICAL ROAD SECTION
PIONEER TRAIL
0+206.36 TO 0+320

SCALE: 1:100

PAVEMENT STRUCTURE:
40mm HL3 TOP COURSE ASPHALT
70mm HL8 BOTTOM COURSE ASPHALT
150mm GRANULAR 'A' BASE COURSE
450mm GRANULAR 'B' SUBBASE COURSE

TYPICAL ROAD SECTION AND PAVEMENT STRUCTURE ADAPTED FROM THE UPDATED GEOTECHNICAL REPORT CREATED BY GEI CONSULTANTS DATED AUGUST 14, 2022.

TYPICAL ROAD SECTION
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PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER	
ADS SALES REP	
PROJECT NO.	

ADS Advanced Drainage Systems, Inc.

SiteAssist FOR STORMTECH INSTALLATION INSTRUCTIONS VISIT OUR APP

70 PIONEER TRAIL LID-1
BARRIE, ONTARIO, CANADA

MC-4500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-4500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL BE CERTIFIED TO CSA B184, "POLYMERIC SUB-SURFACE STORMWATER MANAGEMENT STRUCTURES", AND MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE CSA S6 CL-625 TRUCK AND THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". THE PERFORMANCE SERIES DESIGN LOADINGS SHALL INCLUDE H1 MIN AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER (3) MAXIMUM PERMANENT (75 YR) COVER LOAD AND (5) ALLOWABLE COVER WITH PAVED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 5".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.6 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 450 LB/S/FT/IN., AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 23° C / 73° F), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - PRIOR TO THE STRUCTURAL EVALUATION, DEMONSTRATION THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR LONG-DURATION DEAD LOADS AND 1.75 FOR LIVE LOADS AS REQUIRED BY ASTM F2787 AND BY SECTIONS 6 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-4500 CHAMBER SYSTEM

1. STORMTECH MC-4500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3000/MC-4000 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 230 mm (9") SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 300 mm (12") INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE WELL GRADED BETWEEN ¾" AND 2" (20-50 mm).
9. STONE SHALL BE BROUGHT UP EVENLY AROUND CHAMBERS SO AS NOT TO DISTORT THE CHAMBER SHAPE. STONE DEPTHS SHOULD NEVER DIFFER BY MORE THAN 300 mm (12") BETWEEN ADJACENT CHAMBER ROWS.
10. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
11. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIAL BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
12. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

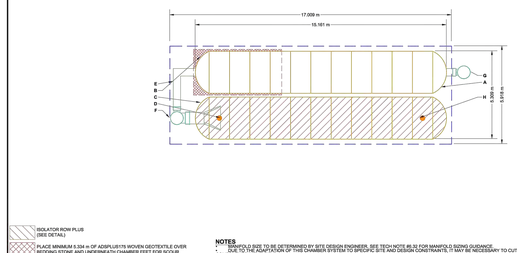
NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3000/MC-4000 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-4500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - FULL DEPTH DUMP TRUCKS MAY ONLY TRAVEL OVER CHAMBERS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3000/MC-4000 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3000/MC-4000 CONSTRUCTION GUIDE".
3. FULL 900 mm (36") OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

PROPOSED LAYOUT		PROPOSED ELEVATIONS			*INVERT ABOVE BASE OF CHAMBER	
#2	STORMTECH MC-4500 CHAMBERS	223.000	PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
#1	STORMTECH MC-4500 END CAP	223.000					
305	STONE ABOVE (mm)	217.530	PREFABRICATED END CAP	A	375 mm BOTTOM PARTIAL CUT END CAP, PART#: MC4500EPP10B / TYP OF ALL 375 mm BOTTOM CONNECTIONS	43 mm	
305	STONE BELOW (mm)	217.530					
#2	STONE FOUNDATION	217.530	PREFABRICATED END CAP	B	375 mm TOP PARTIAL CUT END CAP, PART#: MC4500EPP10T / TYP OF ALL 375 mm TOP CONNECTIONS	301 mm	
	INSTALLED SYSTEM VOLUME (m³)	217.530					
128.4	INSTALLED SYSTEM VOLUME (yd³) (COVER STONE INCLUDED)	217.530	PREFABRICATED END CAP	C	600 mm BOTTOM PARTIAL CUT END CAP, PART#: MC4500EPP06B / TYP OF ALL 600 mm BOTTOM CONNECTIONS AND ISOLATOR PLUS ROWS	57 mm	
	BASE STONE INCLUDED)	222.000	24" (600 mm) HDPE INVERT	D	INSTALL FLAMP ON 600 mm ACCESS PIPE / PART#: MC4500DRAMP		
100.3	SYSTEM PERIMETER (m)	223.000	6" (150 mm) PVC INVERT	E	150 mm x 375 mm TOP MANIFOLD (INLET W/ ISO PLUS ROW)	833 mm	
93.9	SYSTEM PERIMETER (m)	223.000	6" (150 mm) PVC INVERT	F	750 mm DIAMETER (810 mm BUMP MIN)		59 L/s IN
		223.000	BOTTOM OF STONE	G	750 mm DIAMETER DESIGN BY ENGINEERS		76 L/s OUT
				H	INSPECTION PORT		



NOTES
- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE 86.30 FOR MANIFOLD SIZING GUIDANCE.
- BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND, IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF SOILS AND PROVIDING THE BEARING CAPACITY OF THE IN-SITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS KNOWN.
- **NOT FOR CONSTRUCTION:** THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.

ISOLATOR ROW PLUS (SEE DETAIL)
PLACE MINIMUM 5.334 m OF ADSPLUS175 WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS
BED LIMITS

StormTech® Chamber System
ADS TRUENAIN BLVD MILFORD, OHIO 45150 (800) 733-7473
SCALE = 1:1 - 100
SHEET 2 OF 6

ACCEPTABLE FILL MATERIALS: STORMTECH MC-4500 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEERS PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE (B LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR MANUFACTURED PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[2] A-1, A-2-4, A-3 OR AASHTO M43[3] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm)" OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL-GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE (A LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[3] 5, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[3] 5, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[1,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR AN STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR GRADING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

NOTES:
1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101
2. MC-4500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS"
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 5".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LB/S/FT/IN., THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418, AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

NOTES:
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MC-4500 TECHNICAL SPECIFICATION

NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	100.0" X 60.0" X 48.3"	(2540 mm X 1524 mm X 1227 mm)
CHAMBER STORAGE	102.9 CUBIC FEET	(2.91 m³)
MINIMUM INSTALLED STORAGE*	162.6 CUBIC FEET	(4.60 m³)
WEIGHT (NOMINAL)	125.0 lbs.	(56.7 kg)

NOMINAL END CAP SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	90.9" X 61.0" X 32.9"	(2286 mm X 1549 mm X 833 mm)
END CAP STORAGE	39.5 CUBIC FEET	(1.12 m³)
MINIMUM INSTALLED STORAGE*	115.3 CUBIC FEET	(3.26 m³)
WEIGHT (NOMINAL)	90 lbs.	(40.8 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC4500EPP06T	6" (150 mm)	42.54" (1081 mm)	—
MC4500EPP06B		—	0.89" (22 mm)
MC4500EPP08T	8" (200 mm)	40.50" (1029 mm)	—
MC4500EPP08B		—	1.51" (38 mm)
MC4500EPP10T	10" (250 mm)	38.37" (975 mm)	—
MC4500EPP10B		—	1.33" (34 mm)
MC4500EPP12T	12" (300 mm)	35.69" (907 mm)	—
MC4500EPP12B		—	1.55" (39 mm)
MC4500EPP15T	15" (375 mm)	32.72" (831 mm)	—
MC4500EPP15B		—	1.70" (43 mm)
MC4500EPP18T	18" (450 mm)	29.36" (746 mm)	—
MC4500EPP18TW			—
MC4500EPP18B		—	1.97" (50 mm)
MC4500EPP18BW			—
MC4500EPP24T	24" (600 mm)	23.00" (585 mm)	—
MC4500EPP24TW			—
MC4500EPP24B		—	2.26" (57 mm)
MC4500EPP24BW			—
MC4500EPP30BW	30" (750 mm)	—	2.95" (75 mm)
MC4500EPP36BW	36" (900 mm)	—	3.33" (85 mm)
MC4500EPP42BW	42" (1050 mm)	—	3.59" (90 mm)

*NOTE: ALL DIMENSIONS ARE NOMINAL

CUSTOM PARTIAL CUT INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 12-48" (300-1200 mm) SIZE ON 24" (600 mm) SIZE. CONTACT CUSTOM INVERT LOCATIONS ON THE MC-4500 END CAP IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 12" (300 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

MC-SERIES END CAP INSERTION DETAIL

NTS

NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

StormTech® Chamber System
ADS TRUENAIN BLVD MILFORD, OHIO 45150 (800) 733-7473
SCALE = 1:1 - 100
SHEET 5 OF 6

MC-4500 ISOLATOR ROW PLUS DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE STORMTECH ISOLATOR ROW PLUS ACCESS COVER
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 6" (150 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 6" (150 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1 rad) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL B

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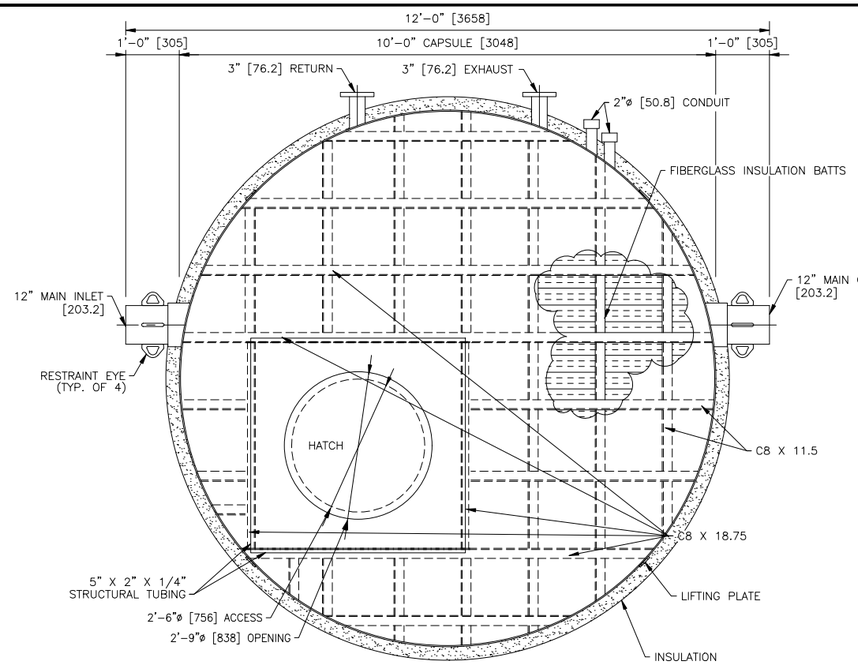
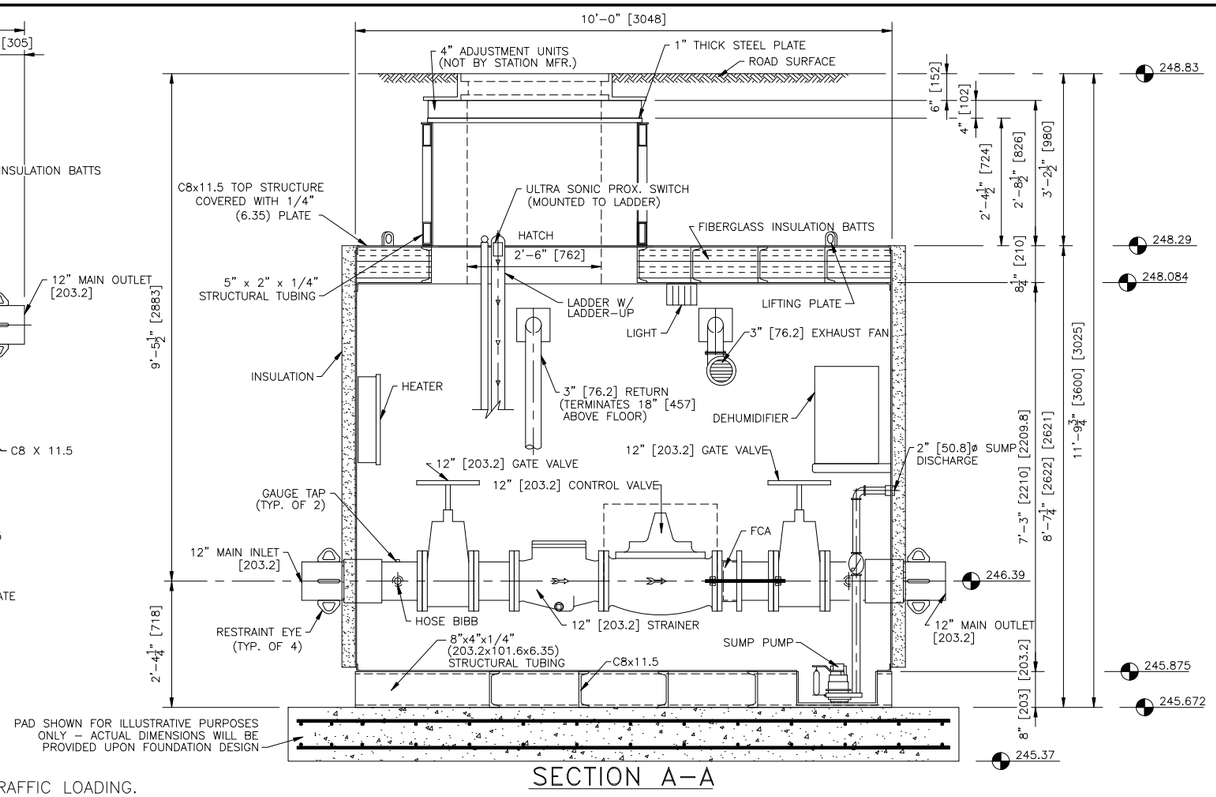
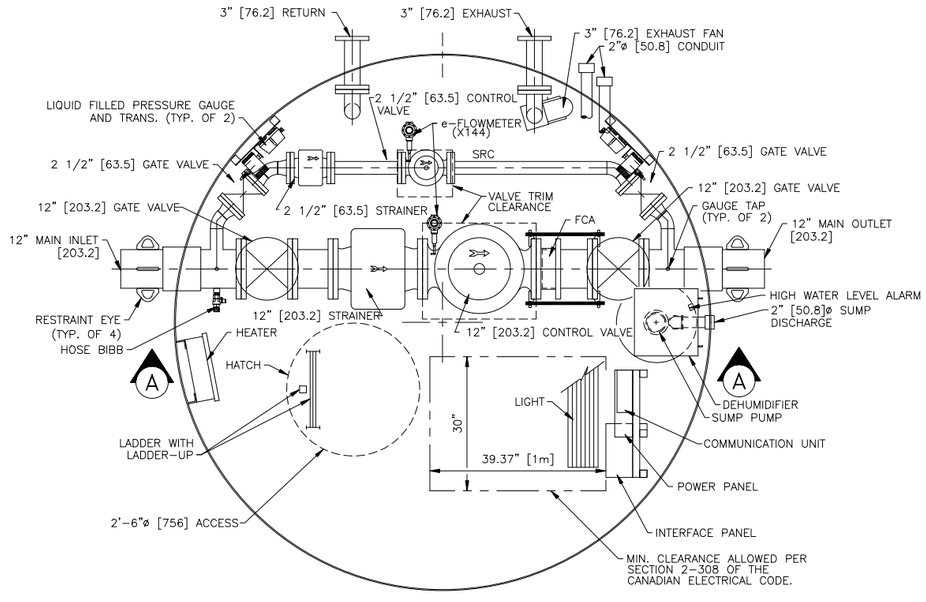


EXTERIOR PLAN

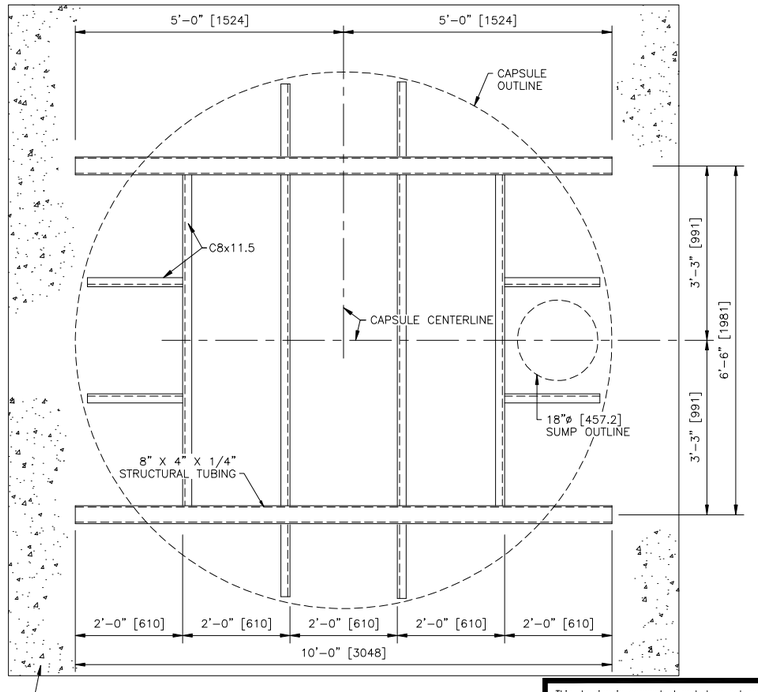
NOTE:
CAPSULE IS DESIGNED FOR H–20 TRAFFIC LOADING.



SECTION A–A

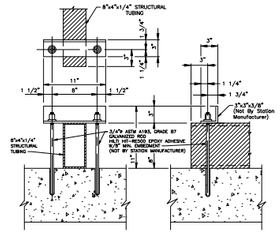


INTERIOR PLAN



SKID PLAN

PAD SHOWN FOR ILLUSTRATIVE PURPOSES ONLY – ACTUAL DIMENSIONS WILL BE PROVIDED UPON FOUNDATION DESIGN



TYPICAL ANCHOR DETAIL

NOTES: ANCHOR ANGLE, BOLTS, NUTS, & ADHESIVE CAPSULE NOT BY STATION MFR. CONCRETE MUST HAVE A MINIMUM f'c OF 3500 PSI FOR PROPER ANCHORAGE.

REVISION #	DATE	REVISED BY	DESCRIPTION

DESIGNED BY: CF	MECHANICAL CHECKED BY (C.E.):	ELECTRICAL CHECKED BY:	SCALE: 3/4" = 1'–0"
DRAWN BY: AB			

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PRESSURE REDUCING STATION

PARKSIDE SUBDIVISION PRV

BARRIE, ONTARIO, CANADA

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JOB REF NO. 92496

DRWG. NO. 92496–F–001.

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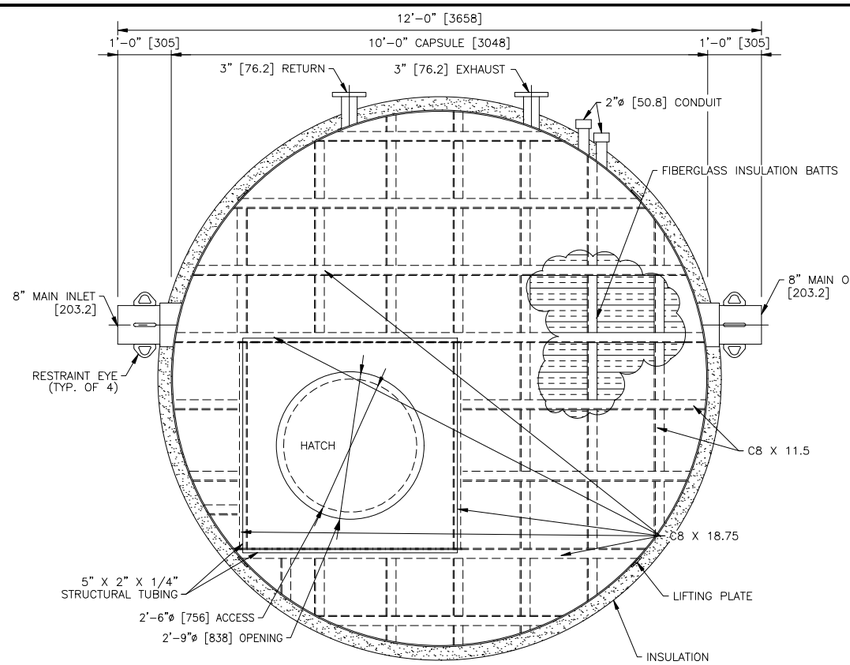
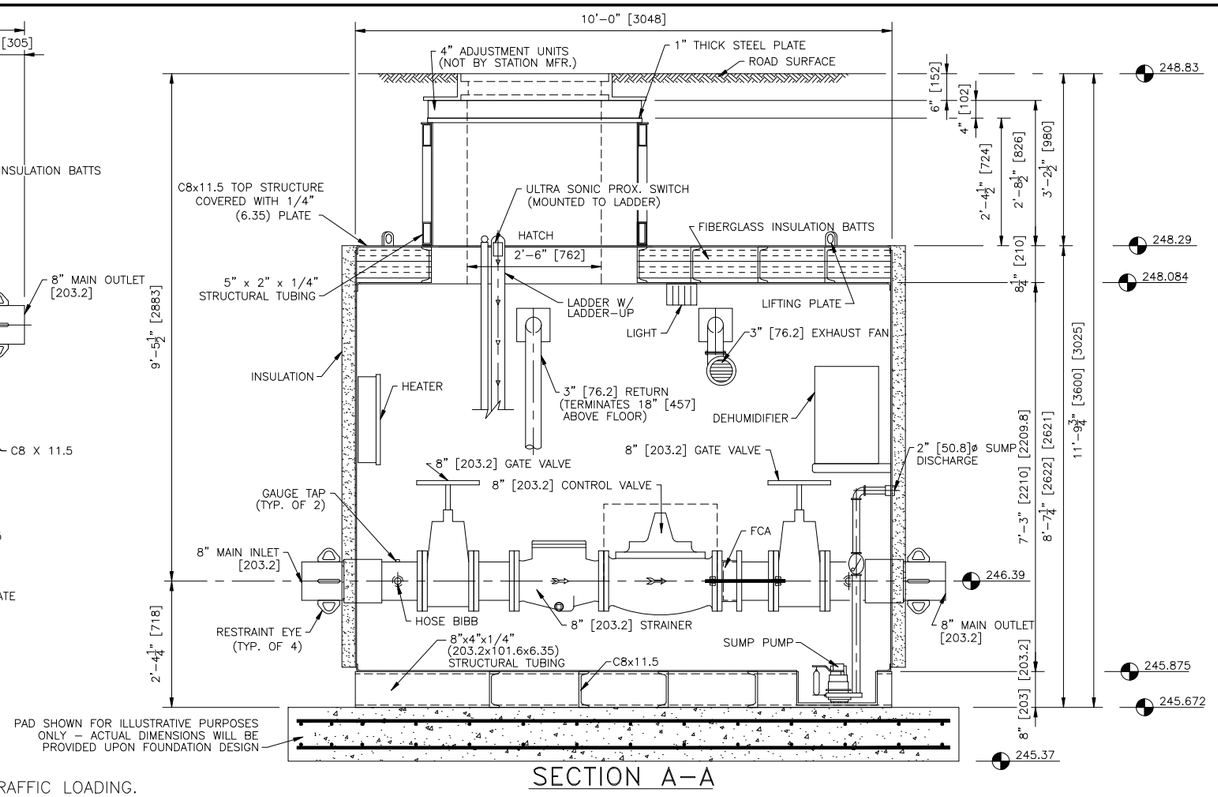
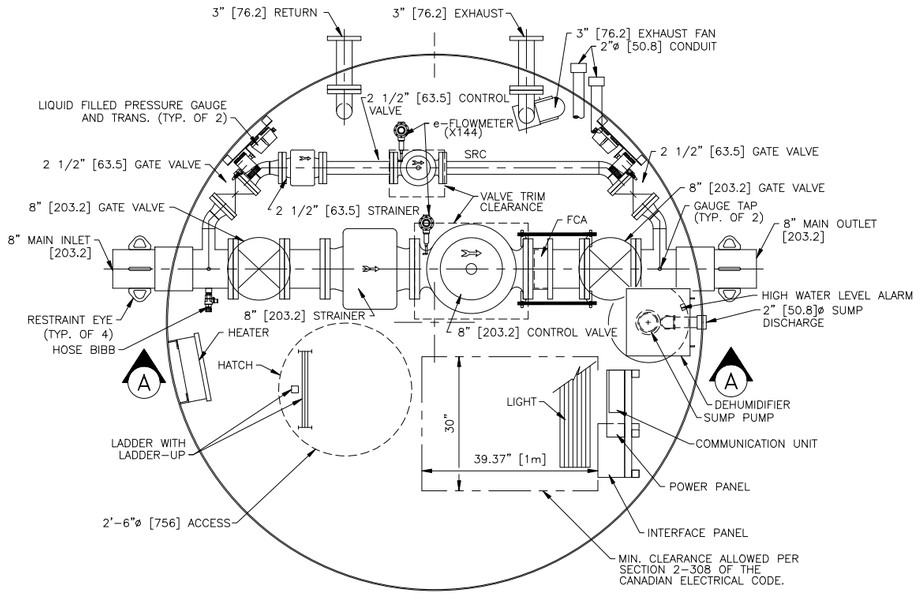


EXTERIOR PLAN

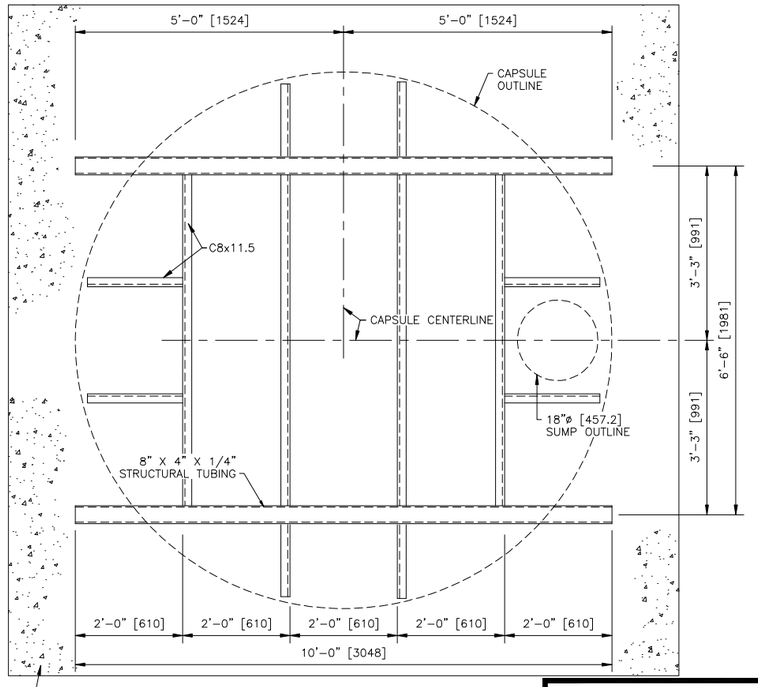
NOTE:
CAPSULE IS DESIGNED FOR H–20 TRAFFIC LOADING.



SECTION A–A

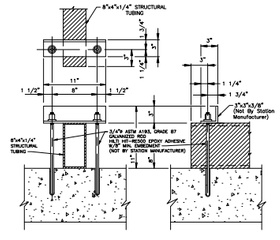


INTERIOR PLAN



SKID PLAN

PAD SHOWN FOR ILLUSTRATIVE PURPOSES ONLY – ACTUAL DIMENSIONS WILL BE PROVIDED UPON FOUNDATION DESIGN



TYPICAL ANCHOR DETAIL

NOTES: ANCHOR ANGLE, BOLTS, NUTS, & ADHESIVE CAPSULE NOT BY STATION MFR. CONCRETE MUST HAVE A MINIMUM f'c OF 3500 PSI FOR PROPER ANCHORAGE.

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DESIGNED BY: CF		MECHANICAL CHECKED BY (C.E.):	ELECTRICAL CHECKED BY:
DRAWN BY: AB			SCALE: 3/4" = 1'–0"

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Appendix C

Supporting Stormwater Management Calculations & Design Charts

- Detailed Land Use Breakdown & OTTHYMO Model Input Parameters
- StormTech MC-4500 Cumulative Storage Volumes
- ADS MC-4500 Underground Storage System Details
- LID Facility Drawdown Time Calculations
- OTTHYMO LID Performance Summary – 25mm 4hr CHI WQE
- 5-Year Storm Sewer Design Sheet
- Hydraulic Conveyance Calculations
    - Overland Flow Conveyance Capacity
    - East Channel Conveyance Capacity
    - West Channel Conveyance Capacity
    - ROW crossing Culvert Conveyance Capacity
    - Channel lining and Erosion Protection
    - SWMF Bypass Rating Curve
- MOE Phosphorous Loading Tool Summary
- ADS Up-Flo Filter (UFF-10) Sizing Summary & System Details
- Up-Flo Filter ETV Performance Verification
- StormTech Isolator Row Plus ETV Performance Verification
- Terrafix FM200 – TRM Specification Sheet
- Summary Calculations & Digital files of Barrie WPCC Climatology Data dated 1979 to 2008

Pre-Development Catchment Area

Weighted Curve Number Calculator

Input:

Catchment ID	101		
Hydrologic Soil Group	A		
Soil Texture	Sargent Gravelly Sandy Loam	Weighted Curve Number	Weighted Runoff 'C'
Wetland(ha)/CN	0.00	N/A	N/A
Woods(ha)/CN	1.80	25.0	0.08
Pasture/Lawn Area(ha)/CN	0.34	39.0	0.10
Cultivated(ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.10	76.0	0.40
Impervious Area(ha)/CN	0.02	100.0	0.95

Calculated:

Area	2.25
Average CN	30
Average Pervious CN	29
Average Runoff 'C'	0.10

Initial Abstraction Calculator

Input:

Wetland	16	mm
Woods	10	mm
Pasture/Lawns	5	mm
Cultivated	7	mm
Impervious Areas	2	mm

Calculated:

Total Average IA	8.97	mm
Average Pervious IA	9.02	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the City of Barrie Storm Drainage & SWM Policies and Design Guidelines dated October 22nd, 2020. Weighted Curve Numbers and Weighted Rational Coefficients are determined from the weighted average of the area and Curve Number or Rational Coefficient in a given soil type, i.e. Type A, B, C or D.

Time of Concentration Calculator

Input:

Catchment Max El.	229.70	m
Catchment Min. El.	226.15	m
Catchment Flow Length	103	m

Calculated:

Catchment Ave. Slope	3.4	%
Imperviousness	1%	
Directly Connected Imperviousness	0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.10

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.11
50YR Rational 'C'	0.12
100YR Rational 'C'	0.13

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	21.92	min
Time of Concentration	0.37	hr
Time to Peak	0.24	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	4.23	min
Time of Concentration	0.07	hr
Time to Peak	0.05	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.37**	**hr**
Time to Peak	**0.24**	**hr**

Pre-Development Catchment 101

	Areas	CN	CN*A	Rational "C"	C*A
Wetlands "A"	0	50	0	0.05	0
Woods "A"	17978	25	449450	0.08	1438.24
Pasture/Lawn "A"	3411	39	133029	0.10	341.1
Cultivated "A"	0	51	0	0.22	0
Gravel "A"	964	76	73264	0.40	385.6
Impervious "A" (Dis-Connected)	177	100	17700	0.95	168.15
Total Area "A"	22530				
Weighted coefficients "A"			29.89095		0.103555
Wetlands "B"	0	50	0	0.05	0
Woods "B"	0	55	0	0.25	0
Pasture/Lawn "B"	0	61	0	0.28	0
Cultivated "B"	0	67	0	0.35	0
Gravel "B"	0	85	0	0.50	0
Impervious "B" (Dis-Connected)	0	100	0	0.95	
Total Area "B"	0				
Weighted coefficients "B"			0		0
Wetlands "C"	0	50	0	0.05	0
Woods "C"	0	70	0	0.35	0
Pasture/Lawn "C"	0	74	0	0.40	0
Cultivated "C"	0	76	0	0.55	0
Gravel "C"	0	89	0	0.60	0
Impervious "C" (Dis-Connected)	0	100	0	0.95	
Total Area "C"	0				
Weighted coefficients "C"			0		0
Wetlands "D"	0	50	0	0.05	0
Woods "D"	0	77	0	0.35	0
Pasture/Lawn "D"	0	80	0	0.40	0
Cultivated "D"	0	80	0	0.55	0
Gravel "D"	0	91	0	0.60	0
Impervious "D" (Dis-Connected)	0	100	0	0.95	0
Total Area "D"	0				
Weighted coefficients "D"			0		0
Totals:	22530	Weighted CN	29.89095	Weighted "C"	0.103555
Mannings Gravel =	0.40				
Mannings Woods =	0.40		Average Pervious Mannings=		0.37
Mannings Lawn =	0.19				

Weighted Curve Number Calculator

Input:

Catchment ID	102		
Hydrologic Soil Group	A		
Soil Texture	Sargent Gravelly Sandy Loam	Weighted Curve Number	Weighted Runoff 'C'
Wetland(ha)/CN	0.00	N/A	N/A
Woods(ha)/CN	0.32	25.0	0.08
Pasture/Lawn Area(ha)/CN	0.10	39.0	0.10
Cultivated(ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.00	N/A	N/A

Calculated:

Area	0.42
Average CN	28
Average Pervious CN	28
Average Runoff 'C'	0.08

Initial Abstraction Calculator

Input:

Wetland	16	mm
Woods	10	mm
Pasture/Lawns	5	mm
Cultivated	7	mm
Impervious Areas	2	mm

Calculated:

Total Average IA	8.86	mm
Average Pervious IA	8.86	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the City of Barrie Storm Drainage & SWM Policies and Design Guidelines dated October 22nd, 2020. Weighted Curve Numbers and Weighted Rational Coefficients are determined from the weighted average of the area and Curve Number or Rational Coefficient in a given soil type, i.e. Type A, B, C or D.

Time of Concentration Calculator

Input:

Catchment Max El.	225.72	m
Catchment Min. El.	223.04	m
Catchment Flow Length	80	m

Calculated:

Catchment Ave. Slope	3.4	%
Imperviousness	0%	
Directly Connected Imperviousness	0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.08

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.09
50YR Rational 'C'	0.10
100YR Rational 'C'	0.11

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	19.87	min
Time of Concentration	0.33	hr
Time to Peak	0.22	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	3.91	min
Time of Concentration	0.07	hr
Time to Peak	0.04	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.33**	**hr**
Time to Peak	**0.22**	**hr**

Pre-Development Catchment 102

	Areas	CN	CN*A	Rational "C"	C*A
Wetlands "A"	0	50	0	0.05	0
Woods "A"	3237	25	80925	0.08	258.96
Pasture/Lawn "A"	953	39	37167	0.10	95.3
Cultivated "A"	0	51	0	0.22	0
Gravel "A"	0	76	0	0.40	0
Impervious "A" (Dis-Connected)	0	100	0	0.95	0
Total Area "A"	4190				
Weighted coefficients "A"			28.18425		0.084549
Wetlands "B"	0	50	0	0.05	0
Woods "B"	0	55	0	0.25	0
Pasture/Lawn "B"	0	61	0	0.28	0
Cultivated "B"	0	67	0	0.35	0
Gravel "B"	0	85	0	0.50	0
Impervious "B" (Dis-Connected)	0	100	0	0.95	0
Total Area "B"	0				
Weighted coefficients "B"			0		0
Wetlands "C"	0	50	0	0.05	0
Woods "C"	0	70	0	0.35	0
Pasture/Lawn "C"	0	74	0	0.40	0
Cultivated "C"	0	76	0	0.55	0
Gravel "C"	0	89	0	0.60	0
Impervious "C" (Dis-Connected)	0	100	0	0.95	0
Total Area "C"	0				
Weighted coefficients "C"			0		0
Wetlands "D"	0	50	0	0.05	0
Woods "D"	0	77	0	0.35	0
Pasture/Lawn "D"	0	80	0	0.40	0
Cultivated "D"	0	80	0	0.55	0
Gravel "D"	0	91	0	0.60	0
Impervious "D" (Dis-Connected)	0	100	0	0.95	0
Total Area "D"	0				
Weighted coefficients "D"			0		0
Totals:	4190	Weighted CN	28.18425	Weighted "C"	0.084549
Mannings Gravel =	0.40				
Mannings Woods =	0.40		Average Pervious Mannings=		0.35
Mannings Lawn =	0.19				

Weighted Curve Number Calculator

Input:

Catchment ID	103		
Hydrologic Soil Group	A		
Soil Texture	Sargent Gravelly Sandy Loam	Weighted Curve Number	Weighted Runoff 'C'
Wetland(ha)/CN	0.00	N/A	N/A
Woods(ha)/CN	0.07	25.0	0.08
Pasture/Lawn Area(ha)/CN	0.12	39.0	0.10
Cultivated(ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.03	100.0	0.95

Calculated:

Area	0.21
Average CN	42
Average Pervious CN	34
Average Runoff 'C'	0.19

Initial Abstraction Calculator

Input:

Wetland	16	mm
Woods	10	mm
Pasture/Lawns	5	mm
Cultivated	7	mm
Impervious Areas	2	mm

Calculated:

Total Average IA	6.31	mm
Average Pervious IA	6.89	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the City of Barrie Storm Drainage & SWM Policies and Design Guidelines dated October 22nd, 2020. Weighted Curve Numbers and Weighted Rational Coefficients are determined from the weighted average of the area and Curve Number or Rational Coefficient in a given soil type, i.e. Type A, B, C or D.

Time of Concentration Calculator

Input:

Catchment Max El.	226.24	m
Catchment Min. El.	222.57	m
Catchment Flow Length	45	m

Calculated:

Catchment Ave. Slope	8.2	%
Imperviousness	12%	
Directly Connected Imperviousness	0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.19

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.21
50YR Rational 'C'	0.23
100YR Rational 'C'	0.24

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	9.91	min
Time of Concentration	0.17	hr
Time to Peak	0.11	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	1.97	min
Time of Concentration	0.03	hr
Time to Peak	0.02	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.17**	**hr**
Time to Peak	**0.11**	**hr**

Pre-Development Catchment 103

	Areas	CN	CN*A	Rational "C"	C*A
Wetlands "A"	0	50	0	0.05	0
Woods "A"	712	25	17800	0.08	56.96
Pasture/Lawn "A"	1172	39	45708	0.10	117.2
Cultivated "A"	0	51	0	0.22	0
Gravel "A"	0	76	0	0.40	0
Impervious "A" (Dis-Connected)	254	100	25400	0.95	241.3
Total Area "A"	2138				
Weighted coefficients "A"			41.58466		0.194322
Wetlands "B"	0	50	0	0.05	0
Woods "B"	0	55	0	0.25	0
Pasture/Lawn "B"	0	61	0	0.28	0
Cultivated "B"	0	67	0	0.35	0
Gravel "B"	0	85	0	0.50	0
Impervious "B" (Dis-Connected)	0	100	0	0.95	
Total Area "B"	0				
Weighted coefficients "B"			0		0
Wetlands "C"	0	50	0	0.05	0
Woods "C"	0	70	0	0.35	0
Pasture/Lawn "C"	0	74	0	0.40	0
Cultivated "C"	0	76	0	0.55	0
Gravel "C"	0	89	0	0.60	0
Impervious "C" (Dis-Connected)	0	100	0	0.95	
Total Area "C"	0				
Weighted coefficients "C"			0		0
Wetlands "D"	0	50	0	0.05	0
Woods "D"	0	77	0	0.35	0
Pasture/Lawn "D"	0	80	0	0.40	0
Cultivated "D"	0	80	0	0.55	0
Gravel "D"	0	91	0	0.60	0
Impervious "D" (Dis-Connected)	0	100	0	0.95	0
Total Area "D"	0				
Weighted coefficients "D"			0		0

Totals:	2138	Weighted CN	41.58466	Weighted "C"	0.194322
Mannings Gravel =	0.40				
Mannings Woods =	0.40		Average Pervious Mannings=		0.27
Mannings Lawn =	0.19				

Weighted Curve Number Calculator

Input:

Catchment ID	301		
Hydrologic Soil Group	A		
Soil Texture	Sargent Gravelly Sandy Loam	Weighted Curve Number	Weighted Runoff 'C'
Wetland(ha)/CN	0.00	N/A	N/A
Woods(ha)/CN	5.77	25.0	0.08
Pasture/Lawn Area(ha)/CN	0.25	39.0	0.10
Cultivated(ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.30	100.0	0.95

Calculated:

Area	6.32
Average CN	29
Average Pervious CN	26
Average Runoff 'C'	0.12

Initial Abstraction Calculator

Input:

Wetland	16	mm
Woods	10	mm
Pasture/Lawns	5	mm
Cultivated	7	mm
Impervious Areas	2	mm

Calculated:

Total Average IA	9.42	mm
Average Pervious IA	9.79	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the City of Barrie Storm Drainage & SWM Policies and Design Guidelines dated October 22nd, 2020. Weighted Curve Numbers and Weighted Rational Coefficients are determined from the weighted average of the area and Curve Number or Rational Coefficient in a given soil type, i.e. Type A, B, C or D.

Time of Concentration Calculator

Input:

Catchment Max El.	262.10	m
Catchment Min. El.	228.99	m
Catchment Flow Length	291	m

Calculated:

Catchment Ave. Slope	11.4	%
Imperviousness	5%	
Directly Connected Imperviousness	3%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.12

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.13
50YR Rational 'C'	0.15
100YR Rational 'C'	0.15

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	24.39	min
Time of Concentration	0.41	hr
Time to Peak	0.27	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	8.48	min
Time of Concentration	0.14	hr
Time to Peak	0.09	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.41**	**hr**
Time to Peak	**0.27**	**hr**

Pre- and Post-Development Catchment 301

	Areas	CN	CN*A	Rational "C"	C*A
Wetlands "A"	0	50	0	0.05	0
Woods "A"	57724	25	1443100	0.08	4617.92
Pasture/Lawn "A"	2544	39	99216	0.10	254.4
Cultivated "A"	0	51	0	0.22	0
Impervious "A" (Connected)	2063	100	206300	0.95	1959.85
Impervious "A" (Dis-Connected)	908	100	90800	0.95	862.6
Total Area "A"	63239				
Weighted coefficients "A"			29.08673		0.121678
Wetlands "B"	0	50	0	0.05	0
Woods "B"	0	55	0	0.25	0
Pasture/Lawn "B"	0	61	0	0.28	0
Cultivated "B"	0	67	0	0.35	0
Impervious "B" (Connected)	0	100	0	0.95	0
Impervious "B" (Dis-Connected)	0	100	0	0.95	0
Total Area "B"	0				
Weighted coefficients "B"			0		0
Wetlands "C"	0	50	0	0.05	0
Woods "C"	0	70	0	0.35	0
Pasture/Lawn "C"	0	74	0	0.40	0
Cultivated "C"	0	76	0	0.55	0
Impervious "C" (Connected)	0	100	0	0.95	0
Impervious "C" (Dis-Connected)	0	100	0	0.95	0
Total Area "C"	0				
Weighted coefficients "C"			0		0
Wetlands "D"	0	50	0	0.05	0
Woods "D"	0	77	0	0.35	0
Pasture/Lawn "D"	0	80	0	0.40	0
Cultivated "D"	0	80	0	0.55	0
Impervious "D" (Connected)	0	100	0	0.95	0
Impervious "D" (Dis-Connected)	0	100	0	0.95	0
Total Area "D"	0				
Weighted coefficients "D"			0		0

Totals:	63239	Weighted CN	29.08673	Weighted "C"	0.121678

Mannings Woods =	0.40	Average Pervious Mannings=	0.39
Mannings Lawn =	0.19		

Weighted Curve Number Calculator

Input:

Catchment ID	302		
Hydrologic Soil Group	A		
Soil Texture	Sargent Gravelly Sandy Loam	Weighted Curve Number	Weighted Runoff 'C'
Wetland(ha)/CN	0.00	N/A	N/A
Woods(ha)/CN	1.54	25.0	0.08
Pasture/Lawn Area(ha)/CN	0.12	39.0	0.10
Cultivated(ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.02	100.0	0.95

Calculated:

Area	1.68
Average CN	27
Average Pervious CN	26
Average Runoff 'C'	0.09

Initial Abstraction Calculator

Input:

Wetland	16	mm
Woods	10	mm
Pasture/Lawns	5	mm
Cultivated	7	mm
Impervious Areas	2	mm

Calculated:

Total Average IA	9.55	mm
Average Pervious IA	9.64	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the City of Barrie Storm Drainage & SWM Policies and Design Guidelines dated October 22nd, 2020. Weighted Curve Numbers and Weighted Rational Coefficients are determined from the weighted average of the area and Curve Number or Rational Coefficient in a given soil type, i.e. Type A, B, C or D.

Time of Concentration Calculator

Input:

Catchment Max El.	264.50	m
Catchment Min. El.	229.55	m
Catchment Flow Length	295	m

Calculated:

Catchment Ave. Slope	11.8	%
Imperviousness	1%	
Directly Connected Imperviousness	1%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.09

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.10
50YR Rational 'C'	0.11
100YR Rational 'C'	0.12

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	24.96	min
Time of Concentration	0.42	hr
Time to Peak	0.28	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	9.74	min
Time of Concentration	0.16	hr
Time to Peak	0.11	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.42**	**hr**
Time to Peak	**0.28**	**hr**

Pre- and Post-Development Catchment 302

	Areas (m²)	CN	CN*A	Rational "C"	C*A
Wetlands "A"	0	50	0	0.05	0
Woods "A"	15426	25	385650	0.08	1234.08
Pasture/Lawn "A"	1181	39	46059	0.10	118.1
Cultivated "A"	0	51	0	0.22	0
Impervious "A" (Connected)	125	100	12500	0.95	118.75
Impervious "A" (Dis-Connected)	84	100	8400	0.95	79.8
Total Area "A"	16816				
Weighted coefficients "A"			26.91538		0.092218
Wetlands "B"	0	50	0	0.05	0
Woods "B"	0	55	0	0.25	0
Pasture/Lawn "B"	0	61	0	0.28	0
Cultivated "B"	0	67	0	0.35	0
Impervious "B" (Connected)	0	100	0	0.95	0
Impervious "B" (Dis-Connected)	0	100	0	0.95	0
Total Area "B"	0				
Weighted coefficients "B"			0		0
Wetlands "C"	0	50	0	0.05	0
Woods "C"	0	70	0	0.35	0
Pasture/Lawn "C"	0	74	0	0.40	0
Cultivated "C"	0	76	0	0.55	0
Impervious "C" (Connected)	0	100	0	0.95	0
Impervious "C" (Dis-Connected)	0	100	0	0.95	0
Total Area "C"	0				
Weighted coefficients "C"			0		0
Wetlands "D"	0	50	0	0.05	0
Woods "D"	0	77	0	0.35	0
Pasture/Lawn "D"	0	80	0	0.40	0
Cultivated "D"	0	80	0	0.55	0
Impervious "D" (Connected)	0	100	0	0.95	0
Impervious "D" (Dis-Connected)	0	100	0	0.95	0
Total Area "D"	0				
Weighted coefficients "D"			0		0
Totals:	16816	Weighted CN	26.91538	Weighted "C"	0.092218

Mannings Woods =	0.40	Average Pervious Mannings=	0.39
Mannings Lawn =	0.19		

Weighted Curve Number Calculator

Input:

Catchment ID	303		
Hydrologic Soil Group	A		
Soil Texture	Sargent Gravelly Sandy Loam	Weighted Curve Number	Weighted Runoff 'C'
Wetland(ha)/CN	0.00	N/A	N/A
Woods(ha)/CN	0.33	25.0	0.08
Pasture/Lawn Area(ha)/CN	0.00	N/A	N/A
Cultivated(ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.00	N/A	N/A

Calculated:

Area	0.33
Average CN	25
Average Pervious CN	25
Average Runoff 'C'	0.08

Initial Abstraction Calculator

Input:

Wetland	16	mm
Woods	10	mm
Pasture/Lawns	5	mm
Cultivated	7	mm
Impervious Areas	2	mm

Calculated:

Total Average IA	10.00	mm
Average Pervious IA	10.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the City of Barrie Storm Drainage & SWM Policies and Design Guidelines dated October 22nd, 2020. Weighted Curve Numbers and Weighted Rational Coefficients are determined from the weighted average of the area and Curve Number or Rational Coefficient in a given soil type, i.e. Type A, B, C or D.

Time of Concentration Calculator

Input:

Catchment Max El.	229.24	m
Catchment Min. El.	224.94	m
Catchment Flow Length	110	m

Calculated:

Catchment Ave. Slope	3.9	%
Imperviousness	0%	
Directly Connected Imperviousness	0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.08

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.09
50YR Rational 'C'	0.10
100YR Rational 'C'	0.10

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	22.24	min
Time of Concentration	0.37	hr
Time to Peak	0.25	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	5.34	min
Time of Concentration	0.09	hr
Time to Peak	0.06	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.37**	**hr**
Time to Peak	**0.25**	**hr**

Pre- and Post-Development Catchment 303

	Areas	CN	CN*A	Rational "C"	C*A
Wetlands "A"	0	50	0	0.05	0
Woods "A"	3254	25	81350	0.08	260.32
Pasture/Lawn "A"	0	39	0	0.10	0
Cultivated "A"	0	51	0	0.22	0
Impervious "A" (Connected)	0	100	0	0.95	0
Impervious "A" (Dis-Connected)	0	100	0	0.95	0
Total Area "A"	3254				
Weighted coefficients "A"			25		0.08
Wetlands "B"	0	50	0	0.05	0
Woods "B"	0	55	0	0.25	0
Pasture/Lawn "B"	0	61	0	0.28	0
Cultivated "B"	0	67	0	0.35	0
Impervious "B" (Connected)	0	100	0	0.95	0
Impervious "B" (Dis-Connected)	0	100	0	0.95	0
Total Area "B"	0				
Weighted coefficients "B"			0		0
Wetlands "C"	0	50	0	0.05	0
Woods "C"	0	70	0	0.35	0
Pasture/Lawn "C"	0	74	0	0.40	0
Cultivated "C"	0	76	0	0.55	0
Impervious "C" (Connected)	0	100	0	0.95	0
Impervious "C" (Dis-Connected)	0	100	0	0.95	0
Total Area "C"	0				
Weighted coefficients "C"			0		0
Wetlands "D"	0	50	0	0.05	0
Woods "D"	0	77	0	0.35	0
Pasture/Lawn "D"	0	80	0	0.40	0
Cultivated "D"	0	80	0	0.55	0
Impervious "D" (Connected)	0	100	0	0.95	0
Impervious "D" (Dis-Connected)	0	100	0	0.95	0
Total Area "D"	0				
Weighted coefficients "D"			0		0
Totals:	3254	Weighted CN	25	Weighted "C"	0.08

Mannings Woods =	0.40	Average Pervious Mannings=	0.40
Mannings Lawn =	0.19		

Weighted Curve Number Calculator

Input:

Catchment ID	201		
Hydrologic Soil Group	A		
Soil Texture	Sargent Gravelly Sandy Loam	Weighted Curve Number	Weighted Runoff 'C'
Wetland(ha)/CN	0.00	N/A	N/A
Woods(ha)/CN	0.00	N/A	N/A
Pasture/Lawn Area(ha)/CN	0.20	39.0	0.10
Cultivated(ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.68	100.0	0.95

Calculated:

Area	0.88
Average CN	86
Average Pervious CN	39
Average Runoff 'C'	0.76

Initial Abstraction Calculator

Input:

Wetland	16	mm
Woods	10	mm
Pasture/Lawns	5	mm
Cultivated	7	mm
Impervious Areas	2	mm

Calculated:

Total Average IA	2.69	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the City of Barrie Storm Drainage & SWM Policies and Design Guidelines dated October 22nd, 2020. Weighted Curve Numbers and Weighted Rational Coefficients are determined from the weighted average of the area and Curve Number or Rational Coefficient in a given soil type, i.e. Type A, B, C or D.

Time of Concentration Calculator

Input:

Catchment Max El.	Varies	m
Catchment Min. El.	Varies	m
Catchment Flow Length	20	m

Calculated:

Catchment Ave. Slope	2.0	%
Imperviousness	77%	
Directly Connected Imperviousness	51%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.76

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.83
50YR Rational 'C'	0.91
100YR Rational 'C'	0.94

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	3.99	min
Time of Concentration	0.07	hr
Time to Peak	0.04	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	1.01	min
Time of Concentration	0.02	hr
Time to Peak	0.01	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.02**	**hr**
Time to Peak	**0.01**	**hr**

Post-Development Catchment Area 201

	Areas	CN	CN*A	Rational "C"	C*A
Wetlands "A"	0	50	0	0.05	0
Woods "A"	0	25	0	0.08	0
Pasture/Lawn "A"	2014	39	78546	0.10	201.4
Cultivated "A"	0	51	0	0.22	0
Impervious "A" (Connected)	4466	100	446600	0.95	4242.7
Impervious "A" (Dis-Connected)	2324	100	232400	0.95	2207.8
Total Area "A"	8804				
Weighted coefficients "A"			86.04566		0.755554
Wetlands "B"	0	50	0	0.05	0
Woods "B"	0	55	0	0.25	0
Pasture/Lawn "B"	0	61	0	0.28	0
Cultivated "B"	0	67	0	0.35	0
Impervious "B" (Connected)	0	100	0	0.95	0
Impervious "B" (Dis-Connected)	0	100	0	0.95	0
Total Area "B"	0				
Weighted coefficients "B"			0		0
Wetlands "C"	0	50	0	0.05	0
Woods "C"	0	70	0	0.35	0
Pasture/Lawn "C"	0	74	0	0.40	0
Cultivated "C"	0	76	0	0.55	0
Impervious "C" (Connected)	0	100	0	0.95	0
Impervious "C" (Dis-Connected)	0	100	0	0.95	0
Total Area "C"	0				
Weighted coefficients "C"			0		0
Wetlands "D"	0	50	0	0.05	0
Woods "D"	0	77	0	0.35	0
Pasture/Lawn "D"	0	80	0	0.40	0
Cultivated "D"	0	80	0	0.55	0
Impervious "D" (Connected)	0	100	0	0.95	0
Impervious "D" (Dis-Connected)	0	100	0	0.95	0
Total Area "D"	0				
Weighted coefficients "D"			0		0

Totals:	8804	Weighted CN	86.04566	Weighted "C"	0.76

Mannings Woods =	0.40	Average Pervious Mannings=	0.19
Mannings Lawn =	0.19		

Weighted Curve Number Calculator

Input:

Catchment ID	202		
Hydrologic Soil Group	A		
Soil Texture	Sargent Gravelly Sandy Loam	Weighted Curve Number	Weighted Runoff 'C'
Wetland(ha)/CN	0.00	N/A	N/A
Woods(ha)/CN	0.03	25.0	0.08
Pasture/Lawn Area(ha)/CN	0.33	39.0	0.10
Cultivated(ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.28	100.0	0.95

Calculated:

Area	0.63
Average CN	65
Average Pervious CN	38
Average Runoff 'C'	0.47

Initial Abstraction Calculator

Input:

Wetland	16	mm
Woods	10	mm
Pasture/Lawns	5	mm
Cultivated	7	mm
Impervious Areas	2	mm

Calculated:

Total Average IA	3.90	mm
Average Pervious IA	5.37	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the City of Barrie Storm Drainage & SWM Policies and Design Guidelines dated October 22nd, 2020. Weighted Curve Numbers and Weighted Rational Coefficients are determined from the weighted average of the area and Curve Number or Rational Coefficient in a given soil type, i.e. Type A, B, C or D.

Time of Concentration Calculator

Input:

Catchment Max El.	Varies	m
Catchment Min. El.	Varies	m
Catchment Flow Length	30	m

Calculated:

Catchment Ave. Slope	3.0	%
Imperviousness	44%	
Directly Connected Imperviousness	3%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.47

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.52
50YR Rational 'C'	0.56
100YR Rational 'C'	0.59

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	7.83	min
Time of Concentration	0.13	hr
Time to Peak	0.09	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	1.44	min
Time of Concentration	0.02	hr
Time to Peak	0.02	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.02**	**hr**
Time to Peak	**0.02**	**hr**

Post-Development Catchment Area 202

	Areas	CN	CN*A	Rational "C"	C*A
Wetlands "A"	0	50	0	0.05	0
Woods "A"	261	25	6525	0.08	20.88
Pasture/Lawn "A"	3298	39	128622	0.10	329.8
Cultivated "A"	0	51	0	0.22	0
Impervious "A" (Connected)	169	100	16900	0.95	160.55
Impervious "A" (Dis-Connected)	2586	100	258600	0.95	2456.7
Total Area "A"	6314				
Weighted coefficients "A"			65.03754		0.470055
Wetlands "B"	0	50	0	0.05	0
Woods "B"	0	55	0	0.25	0
Pasture/Lawn "B"	0	61	0	0.28	0
Cultivated "B"	0	67	0	0.35	0
Impervious "B" (Connected)	0	100	0	0.95	0
Impervious "B" (Dis-Connected)	0	100	0	0.95	0
Total Area "B"	0				
Weighted coefficients "B"			0		0
Wetlands "C"	0	50	0	0.05	0
Woods "C"	0	70	0	0.35	0
Pasture/Lawn "C"	0	74	0	0.40	0
Cultivated "C"	0	76	0	0.55	0
Impervious "C" (Connected)	0	100	0	0.95	0
Impervious "C" (Dis-Connected)	0	100	0	0.95	0
Total Area "C"	0				
Weighted coefficients "C"			0		0
Wetlands "D"	0	50	0	0.05	0
Woods "D"	0	77	0	0.35	0
Pasture/Lawn "D"	0	80	0	0.40	0
Cultivated "D"	0	80	0	0.55	0
Impervious "D" (Connected)	0	100	0	0.95	0
Impervious "D" (Dis-Connected)	0	100	0	0.95	0
Total Area "D"	0				
Weighted coefficients "D"			0		0
Totals:	6314	Weighted CN	65.03754	Weighted "C"	0.470055

Mannings Woods =	0.40	Average Pervious Mannings=	0.21
Mannings Lawn =	0.19		

Weighted Curve Number Calculator

Input:

Catchment ID	203		
Hydrologic Soil Group	A		
Soil Texture	Sargent Gravelly Sandy Loam	Weighted Curve Number	Weighted Runoff 'C'
Wetland(ha)/CN	0.00	N/A	N/A
Woods(ha)/CN	0.00	N/A	N/A
Pasture/Lawn Area(ha)/CN	0.12	39.0	0.10
Cultivated(ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.01	100.0	0.95

Calculated:

Area	0.13
Average CN	46
Average Pervious CN	39
Average Runoff 'C'	0.20

Initial Abstraction Calculator

Input:

Wetland	16	mm
Woods	10	mm
Pasture/Lawns	5	mm
Cultivated	7	mm
Impervious Areas	2	mm

Calculated:

Total Average IA	4.66	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the City of Barrie Storm Drainage & SWM Policies and Design Guidelines dated October 22nd, 2020. Weighted Curve Numbers and Weighted Rational Coefficients are determined from the weighted average of the area and Curve Number or Rational Coefficient in a given soil type, i.e. Type A, B, C or D.

Time of Concentration Calculator

Input:

Catchment Max El.	228.97	m
Catchment Min. El.	226.24	m
Catchment Flow Length	31	m

Calculated:

Catchment Ave. Slope	8.8	%
Imperviousness	11%	
Directly Connected Imperviousness	11%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.20

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.21
50YR Rational 'C'	0.23
100YR Rational 'C'	0.24

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	8.01	min
Time of Concentration	0.13	hr
Time to Peak	0.09	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	1.40	min
Time of Concentration	0.02	hr
Time to Peak	0.02	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.13**	**hr**
Time to Peak	**0.09**	**hr**

Post-Development Catchment Area 203

	Areas	CN	CN*A	Rational "C"	C*A
Wetlands "A"	0	50	0	0.05	0
Woods "A"	0	25	0	0.08	0
Pasture/Lawn "A"	1155	39	45045	0.10	115.5
Cultivated "A"	0	51	0	0.22	0
Impervious "A" (Connected)	146	100	14600	0.95	138.7
Impervious "A" (Dis-Connected)	0	100	0	0.95	0
Total Area "A"	1301				
Weighted coefficients "A"			45.8455		0.195388
Wetlands "B"	0	50	0	0.05	0
Woods "B"	0	55	0	0.25	0
Pasture/Lawn "B"	0	61	0	0.28	0
Cultivated "B"	0	67	0	0.35	0
Impervious "B" (Connected)	0	100	0	0.95	0
Impervious "B" (Dis-Connected)	0	100	0	0.95	0
Total Area "B"	0				
Weighted coefficients "B"			0		0
Wetlands "C"	0	50	0	0.05	0
Woods "C"	0	70	0	0.35	0
Pasture/Lawn "C"	0	74	0	0.40	0
Cultivated "C"	0	76	0	0.55	0
Impervious "C" (Connected)	0	100	0	0.95	0
Impervious "C" (Dis-Connected)	0	100	0	0.95	0
Total Area "C"	0				
Weighted coefficients "C"			0		0
Wetlands "D"	0	50	0	0.05	0
Woods "D"	0	77	0	0.35	0
Pasture/Lawn "D"	0	80	0	0.40	0
Cultivated "D"	0	80	0	0.55	0
Impervious "D" (Connected)	0	100	0	0.95	0
Impervious "D" (Dis-Connected)	0	100	0	0.95	0
Total Area "D"	0				
Weighted coefficients "D"			0		0
Totals:	1301	Weighted CN	45.8455	Weighted "C"	0.195388

Mannings Woods =	0.40	Average Pervious Mannings=	0.19
Mannings Lawn =	0.19		

Weighted Curve Number Calculator

Input:

Catchment ID	204		
Hydrologic Soil Group	A		
Soil Texture	Sargent Gravelly Sandy Loam	Weighted Curve Number	Weighted Runoff 'C'
Wetland(ha)/CN	0.00	N/A	N/A
Woods(ha)/CN	0.07	25.0	0.08
Pasture/Lawn Area(ha)/CN	0.12	39.0	0.10
Cultivated(ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.03	100.0	0.95

Calculated:

Area	0.21
Average CN	42
Average Pervious CN	34
Average Runoff 'C'	0.19

Initial Abstraction Calculator

Input:

Wetland	16	mm
Woods	10	mm
Pasture/Lawns	5	mm
Cultivated	7	mm
Impervious Areas	2	mm

Calculated:

Total Average IA	6.31	mm
Average Pervious IA	6.89	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the City of Barrie Storm Drainage & SWM Policies and Design Guidelines dated October 22nd, 2020. Weighted Curve Numbers and Weighted Rational Coefficients are determined from the weighted average of the area and Curve Number or Rational Coefficient in a given soil type, i.e. Type A, B, C or D.

Time of Concentration Calculator

Input:

Catchment Max El.	226.24	m
Catchment Min. El.	222.57	m
Catchment Flow Length	45	m

Calculated:

Catchment Ave. Slope	8.2	%
Imperviousness	12%	
Directly Connected Imperviousness	0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.19

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.21
50YR Rational 'C'	0.23
100YR Rational 'C'	0.24

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	9.91	min
Time of Concentration	0.17	hr
Time to Peak	0.11	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	1.97	min
Time of Concentration	0.03	hr
Time to Peak	0.02	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.17**	**hr**
Time to Peak	**0.11**	**hr**

Post-Development Catchment Area 204

	Areas	CN	CN*A	Rational "C"	C*A
Wetlands "A"	0	50	0	0.05	0
Woods "A"	712	25	17800	0.08	56.96
Pasture/Lawn "A"	1172	39	45708	0.10	117.2
Cultivated "A"	0	51	0	0.22	0
Impervious "A" (Connected)	0	100	0	0.95	0
Impervious "A" (Dis-Connected)	254	100	25400	0.95	241.3
Total Area "A"	2138				
Weighted coefficients "A"			41.58466		0.194322
Wetlands "B"	0	50	0	0.05	0
Woods "B"	0	55	0	0.25	0
Pasture/Lawn "B"	0	61	0	0.28	0
Cultivated "B"	0	67	0	0.35	0
Impervious "B" (Connected)	0	100	0	0.95	0
Impervious "B" (Dis-Connected)	0	100	0	0.95	0
Total Area "B"	0				
Weighted coefficients "B"			0		0
Wetlands "C"	0	50	0	0.05	0
Woods "C"	0	70	0	0.35	0
Pasture/Lawn "C"	0	74	0	0.40	0
Cultivated "C"	0	76	0	0.55	0
Impervious "C" (Connected)	0	100	0	0.95	0
Impervious "C" (Dis-Connected)	0	100	0	0.95	0
Total Area "C"	0				
Weighted coefficients "C"			0		0
Wetlands "D"	0	50	0	0.05	0
Woods "D"	0	77	0	0.35	0
Pasture/Lawn "D"	0	80	0	0.40	0
Cultivated "D"	0	80	0	0.55	0
Impervious "D" (Connected)	0	100	0	0.95	0
Impervious "D" (Dis-Connected)	0	100	0	0.95	0
Total Area "D"	0				
Weighted coefficients "D"			0		0
Totals:	2138	Weighted CN	41.58466	Weighted "C"	0.194322

Mannings Woods =	0.40	Average Pervious Mannings=	0.27
Mannings Lawn =	0.19		

Weighted Curve Number Calculator

Input:

Catchment ID	205		
Hydrologic Soil Group	A		
Soil Texture	Sargent Gravelly Sandy Loam	Weighted Curve Number	Weighted Runoff 'C'
Wetland(ha)/CN	0.00	N/A	N/A
Woods(ha)/CN	0.32	25.0	0.08
Pasture/Lawn Area(ha)/CN	0.10	39.0	0.10
Cultivated(ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.00	N/A	N/A

Calculated:

Area	0.42
Average CN	28
Average Pervious CN	28
Average Runoff 'C'	0.08

Initial Abstraction Calculator

Input:

Wetland	16	mm
Woods	10	mm
Pasture/Lawns	5	mm
Cultivated	7	mm
Impervious Areas	2	mm

Calculated:

Total Average IA	8.86	mm
Average Pervious IA	8.86	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the City of Barrie Storm Drainage & SWM Policies and Design Guidelines dated October 22nd, 2020. Weighted Curve Numbers and Weighted Rational Coefficients are determined from the weighted average of the area and Curve Number or Rational Coefficient in a given soil type, i.e. Type A, B, C or D.

Time of Concentration Calculator

Input:

Catchment Max El.	225.72	m
Catchment Min. El.	223.04	m
Catchment Flow Length	80	m

Calculated:

Catchment Ave. Slope	3.4	%
Imperviousness	0%	
Directly Connected Imperviousness	0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.08

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.09
50YR Rational 'C'	0.10
100YR Rational 'C'	0.11

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	19.87	min
Time of Concentration	0.33	hr
Time to Peak	0.22	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	3.91	min
Time of Concentration	0.07	hr
Time to Peak	0.04	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.33**	**hr**
Time to Peak	**0.22**	**hr**

Post-Development Catchment Area 205

	Areas	CN	CN*A	Rational "C"	C*A
Wetlands "A"	0	50	0	0.05	0
Woods "A"	3237	25	80925	0.08	258.96
Pasture/Lawn "A"	953	39	37167	0.10	95.3
Cultivated "A"	0	51	0	0.22	0
Impervious "A" (Connected)	0	100	0	0.95	0
Impervious "A" (Dis-Connected)	0	100	0	0.95	0
Total Area "A"	4190				
Weighted coefficients "A"			28.18425		0.084549
Wetlands "B"	0	50	0	0.05	0
Woods "B"	0	55	0	0.25	0
Pasture/Lawn "B"	0	61	0	0.28	0
Cultivated "B"	0	67	0	0.35	0
Impervious "B" (Connected)	0	100	0	0.95	0
Impervious "B" (Dis-Connected)	0	100	0	0.95	0
Total Area "B"	0				
Weighted coefficients "B"			0		0
Wetlands "C"	0	50	0	0.05	0
Woods "C"	0	70	0	0.35	0
Pasture/Lawn "C"	0	74	0	0.40	0
Cultivated "C"	0	76	0	0.55	0
Impervious "C" (Connected)	0	100	0	0.95	0
Impervious "C" (Dis-Connected)	0	100	0	0.95	0
Total Area "C"	0				
Weighted coefficients "C"			0		0
Wetlands "D"	0	50	0	0.05	0
Woods "D"	0	77	0	0.35	0
Pasture/Lawn "D"	0	80	0	0.40	0
Cultivated "D"	0	80	0	0.55	0
Impervious "D" (Connected)	0	100	0	0.95	0
Impervious "D" (Dis-Connected)	0	100	0	0.95	0
Total Area "D"	0				
Weighted coefficients "D"			0		0
Totals:	4190	Weighted CN	28.18425	Weighted "C"	0.084549

Mannings Woods =	0.40	Average Pervious Mannings=	0.35
Mannings Lawn =	0.19		

Weighted Curve Number Calculator

Input:

Catchment ID	206		
Hydrologic Soil Group	A		
Soil Texture	Sargent Gravelly Sandy Loam	Weighted Curve Number	Weighted Runoff 'C'
Wetland(ha)/CN	0.00	N/A	N/A
Woods(ha)/CN	0.04	25.0	0.08
Pasture/Lawn Area(ha)/CN	0.18	39.0	0.10
Cultivated(ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.28	100.0	0.95

Calculated:

Area	0.50
Average CN	72
Average Pervious CN	36
Average Runoff 'C'	0.57

Initial Abstraction Calculator

Input:

Wetland	16	mm
Woods	10	mm
Pasture/Lawns	5	mm
Cultivated	7	mm
Impervious Areas	2	mm

Calculated:

Total Average IA	3.73	mm
Average Pervious IA	5.93	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the City of Barrie Storm Drainage & SWM Policies and Design Guidelines dated October 22nd, 2020. Weighted Curve Numbers and Weighted Rational Coefficients are determined from the weighted average of the area and Curve Number or Rational Coefficient in a given soil type, i.e. Type A, B, C or D.

Time of Concentration Calculator

Input:

Catchment Max El.	Varies	m
Catchment Min. El.	Varies	m
Catchment Flow Length	34	m

Calculated:

Catchment Ave. Slope	3.0	%
Imperviousness	56%	
Directly Connected Imperviousness	0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.57

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.63
50YR Rational 'C'	0.69
100YR Rational 'C'	0.72

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	6.95	min
Time of Concentration	0.12	hr
Time to Peak	0.08	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	1.67	min
Time of Concentration	0.03	hr
Time to Peak	0.02	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.03**	**hr**
Time to Peak	**0.02**	**hr**

Post-Development Catchment Area 206

	Areas	CN	CN*A	Rational "C"	C*A
Wetlands "A"	0	50	0	0.05	0
Woods "A"	405	25	10125	0.08	32.4
Pasture/Lawn "A"	1774	39	69186	0.10	177.4
Cultivated "A"	0	51	0	0.22	0
Impervious "A" (Connected)	0	100	0	0.95	0
Impervious "A" (Dis-Connected)	2778	100	277800	0.95	2639.1
Total Area "A"	4957				
Weighted coefficients "A"			72.04176		0.574723
Wetlands "B"	0	50	0	0.05	0
Woods "B"	0	55	0	0.25	0
Pasture/Lawn "B"	0	61	0	0.28	0
Cultivated "B"	0	67	0	0.35	0
Impervious "B" (Connected)	0	100	0	0.95	0
Impervious "B" (Dis-Connected)	0	100	0	0.95	0
Total Area "B"	0				
Weighted coefficients "B"			0		0
Wetlands "C"	0	50	0	0.05	0
Woods "C"	0	70	0	0.35	0
Pasture/Lawn "C"	0	74	0	0.40	0
Cultivated "C"	0	76	0	0.55	0
Impervious "C" (Connected)	0	100	0	0.95	0
Impervious "C" (Dis-Connected)	0	100	0	0.95	0
Total Area "C"	0				
Weighted coefficients "C"			0		0
Wetlands "D"	0	50	0	0.05	0
Woods "D"	0	77	0	0.35	0
Pasture/Lawn "D"	0	80	0	0.40	0
Cultivated "D"	0	80	0	0.55	0
Impervious "D" (Connected)	0	100	0	0.95	0
Impervious "D" (Dis-Connected)	0	100	0	0.95	0
Total Area "D"	0				
Weighted coefficients "D"			0		0
Totals:	4957	Weighted CN	72.04176	Weighted "C"	0.574723

Mannings Woods =	0.40	Average Pervious Mannings=	0.23
Mannings Lawn =	0.19		

Weighted Curve Number Calculator

Input:

Catchment ID	207		
Hydrologic Soil Group	A		
Soil Texture	Sargent Gravelly Sandy Loam	Weighted Curve Number	Weighted Runoff 'C'
Wetland(ha)/CN	0.00	N/A	N/A
Woods(ha)/CN	0.01	25.0	0.08
Pasture/Lawn Area(ha)/CN	0.08	39.0	0.10
Cultivated(ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.00	N/A	N/A

Calculated:

Area	0.09
Average CN	37
Average Pervious CN	37
Average Runoff 'C'	0.10

Initial Abstraction Calculator

Input:

Wetland	16	mm
Woods	10	mm
Pasture/Lawns	5	mm
Cultivated	7	mm
Impervious Areas	2	mm

Calculated:

Total Average IA	5.68	mm
Average Pervious IA	5.68	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the City of Barrie Storm Drainage & SWM Policies and Design Guidelines dated October 22nd, 2020. Weighted Curve Numbers and Weighted Rational Coefficients are determined from the weighted average of the area and Curve Number or Rational Coefficient in a given soil type, i.e. Type A, B, C or D.

Time of Concentration Calculator

Input:

Catchment Max El.	230.04	m
Catchment Min. El.	228.94	m
Catchment Flow Length	6.5	m

Calculated:

Catchment Ave. Slope	16.9	%
Imperviousness	0%	
Directly Connected Imperviousness	0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.10

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.11
50YR Rational 'C'	0.12
100YR Rational 'C'	0.12

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	3.28	min
Time of Concentration	0.05	hr
Time to Peak	0.04	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	0.27	min
Time of Concentration	0.00	hr
Time to Peak	0.00	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.05**	**hr**
Time to Peak	**0.04**	**hr**

Post-Development Catchment Area 207

	Areas	CN	CN*A	Rational "C"	C*A
Wetlands "A"	0	50	0	0.05	0
Woods "A"	124	25	3100	0.08	9.92
Pasture/Lawn "A"	791	39	30849	0.10	79.1
Cultivated "A"	0	51	0	0.22	0
Impervious "A" (Connected)	0	100	0	0.95	0
Impervious "A" (Dis-Connected)	0	100	0	0.95	0
Total Area "A"	915				
Weighted coefficients "A"			37.10273		0.09729
Wetlands "B"	0	50	0	0.05	0
Woods "B"	0	55	0	0.25	0
Pasture/Lawn "B"	0	61	0	0.28	0
Cultivated "B"	0	67	0	0.35	0
Impervious "B" (Connected)	0	100	0	0.95	0
Impervious "B" (Dis-Connected)	0	100	0	0.95	0
Total Area "B"	0				
Weighted coefficients "B"			0		0
Wetlands "C"	0	50	0	0.05	0
Woods "C"	0	70	0	0.35	0
Pasture/Lawn "C"	0	74	0	0.40	0
Cultivated "C"	0	76	0	0.55	0
Impervious "C" (Connected)	0	100	0	0.95	0
Impervious "C" (Dis-Connected)	0	100	0	0.95	0
Total Area "C"	0				
Weighted coefficients "C"			0		0
Wetlands "D"	0	50	0	0.05	0
Woods "D"	0	77	0	0.35	0
Pasture/Lawn "D"	0	80	0	0.40	0
Cultivated "D"	0	80	0	0.55	0
Impervious "D" (Connected)	0	100	0	0.95	0
Impervious "D" (Dis-Connected)	0	100	0	0.95	0
Total Area "D"	0				
Weighted coefficients "D"			0		0

Totals:	915	Weighted CN	37.10273	Weighted "C"	0.09729

Mannings Woods =	0.40	Average Pervious Mannings=	0.22
Mannings Lawn =	0.19		

Weighted Curve Number Calculator

Input:

Catchment ID	208		
Hydrologic Soil Group	A		
Soil Texture	Sargent Gravelly Sandy Loam	Weighted Curve Number	Weighted Runoff 'C'
Wetland(ha)/CN	0.00	N/A	N/A
Woods(ha)/CN	0.00	25.0	0.08
Pasture/Lawn Area(ha)/CN	0.02	39.0	0.10
Cultivated(ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.00	N/A	N/A

Calculated:

Area	0.03
Average CN	39
Average Pervious CN	39
Average Runoff 'C'	0.10

Initial Abstraction Calculator

Input:

Wetland	16	mm
Woods	10	mm
Pasture/Lawns	5	mm
Cultivated	7	mm
Impervious Areas	2	mm

Calculated:

Total Average IA	5.14	mm
Average Pervious IA	5.14	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the City of Barrie Storm Drainage & SWM Policies and Design Guidelines dated October 22nd, 2020. Weighted Curve Numbers and Weighted Rational Coefficients are determined from the weighted average of the area and Curve Number or Rational Coefficient in a given soil type, i.e. Type A, B, C or D.

Time of Concentration Calculator

Input:

Catchment Max El.	230.14	m
Catchment Min. El.	229.26	m
Catchment Flow Length	7.3	m

Calculated:

Catchment Ave. Slope	12.1	%
Imperviousness	0%	
Directly Connected Imperviousness	0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.10

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.11
50YR Rational 'C'	0.12
100YR Rational 'C'	0.12

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	3.88	min
Time of Concentration	0.06	hr
Time to Peak	0.04	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	0.37	min
Time of Concentration	0.01	hr
Time to Peak	0.00	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.06**	**hr**
Time to Peak	**0.04**	**hr**

Post-Development Catchment Area 208

	Areas	CN	CN*A	Rational "C"	C*A
Wetlands "A"	0	50	0	0.05	0
Woods "A"	7	25	175	0.08	0.56
Pasture/Lawn "A"	243	39	9477	0.10	24.3
Cultivated "A"	0	51	0	0.22	0
Impervious "A" (Connected)	0	100	0	0.95	0
Impervious "A" (Dis-Connected)	0	100	0	0.95	0
Total Area "A"	250				
Weighted coefficients "A"			38.608		0.09944
Wetlands "B"	0	50	0	0.05	0
Woods "B"	0	55	0	0.25	0
Pasture/Lawn "B"	0	61	0	0.28	0
Cultivated "B"	0	67	0	0.35	0
Impervious "B" (Connected)	0	100	0	0.95	0
Impervious "B" (Dis-Connected)	0	100	0	0.95	0
Total Area "B"	0				
Weighted coefficients "B"			0		0
Wetlands "C"	0	50	0	0.05	0
Woods "C"	0	70	0	0.35	0
Pasture/Lawn "C"	0	74	0	0.40	0
Cultivated "C"	0	76	0	0.55	0
Impervious "C" (Connected)	0	100	0	0.95	0
Impervious "C" (Dis-Connected)	0	100	0	0.95	0
Total Area "C"	0				
Weighted coefficients "C"			0		0
Wetlands "D"	0	50	0	0.05	0
Woods "D"	0	77	0	0.35	0
Pasture/Lawn "D"	0	80	0	0.40	0
Cultivated "D"	0	80	0	0.55	0
Impervious "D" (Connected)	0	100	0	0.95	0
Impervious "D" (Dis-Connected)	0	100	0	0.95	0
Total Area "D"	0				
Weighted coefficients "D"			0		0
Totals:	250	Weighted CN	38.608	Weighted "C"	0.09944

Mannings Woods =	0.40	Average Pervious Mannings=	0.20
Mannings Lawn =	0.19		

Post-Development Catchment Area 201A

	Areas	CN	CN*A	Rational "C"	C*A
Wetlands "A"	0	50	0	0.05	0
Woods "A"	0	25	0	0.08	0
Pasture/Lawn "A"	105	39	4095	0.10	10.5
Cultivated "A"	0	51	0	0.22	0
Impervious "A" (Connected)	964	100	96400	0.95	915.8
Impervious "A" (Dis-Connected)	10	100	1000	0.95	9.5
Total Area "A"	1079				
Weighted coefficients "A"			94.06395		0.867285
Wetlands "B"	0	50	0	0.05	0
Woods "B"	0	55	0	0.25	0
Pasture/Lawn "B"	0	61	0	0.28	0
Cultivated "B"	0	67	0	0.35	0
Impervious "B" (Connected)	0	100	0	0.95	0
Impervious "B" (Dis-Connected)	0	100	0	0.95	0
Total Area "B"	0				
Weighted coefficients "B"			0		0
Wetlands "C"	0	50	0	0.05	0
Woods "C"	0	70	0	0.35	0
Pasture/Lawn "C"	0	74	0	0.40	0
Cultivated "C"	0	76	0	0.55	0
Impervious "C" (Connected)	0	100	0	0.95	0
Impervious "C" (Dis-Connected)	0	100	0	0.95	0
Total Area "C"	0				
Weighted coefficients "C"			0		0
Wetlands "D"	0	50	0	0.05	0
Woods "D"	0	77	0	0.35	0
Pasture/Lawn "D"	0	80	0	0.40	0
Cultivated "D"	0	80	0	0.55	0
Impervious "D" (Connected)	0	100	0	0.95	0
Impervious "D" (Dis-Connected)	0	100	0	0.95	0
Total Area "D"	0				
Weighted coefficients "D"			0		0

Totals:	1079	Weighted CN	94	Weighted "C"	0.87
Area Total:	0.11	ha			

Mannings Woods =	0.40	Average Pervious Mannings=	0.19
Mannings Lawn =	0.19		

Post-Development Catchment Area 201B

	Areas	CN	CN*A	Rational "C"	C*A
Wetlands "A"	0	50	0	0.05	0
Woods "A"	0	25	0	0.08	0
Pasture/Lawn "A"	246	39	9594	0.10	24.6
Cultivated "A"	0	51	0	0.22	0
Impervious "A" (Connected)	603	100	60300	0.95	572.85
Impervious "A" (Dis-Connected)	267	100	26700	0.95	253.65
Total Area "A"	1116				
Weighted coefficients "A"			86.55376		0.762634
Wetlands "B"	0	50	0	0.05	0
Woods "B"	0	55	0	0.25	0
Pasture/Lawn "B"	0	61	0	0.28	0
Cultivated "B"	0	67	0	0.35	0
Impervious "B" (Connected)	0	100	0	0.95	0
Impervious "B" (Dis-Connected)	0	100	0	0.95	0
Total Area "B"	0				
Weighted coefficients "B"			0		0
Wetlands "C"	0	50	0	0.05	0
Woods "C"	0	70	0	0.35	0
Pasture/Lawn "C"	0	74	0	0.40	0
Cultivated "C"	0	76	0	0.55	0
Impervious "C" (Connected)	0	100	0	0.95	0
Impervious "C" (Dis-Connected)	0	100	0	0.95	0
Total Area "C"	0				
Weighted coefficients "C"			0		0
Wetlands "D"	0	50	0	0.05	0
Woods "D"	0	77	0	0.35	0
Pasture/Lawn "D"	0	80	0	0.40	0
Cultivated "D"	0	80	0	0.55	0
Impervious "D" (Connected)	0	100	0	0.95	0
Impervious "D" (Dis-Connected)	0	100	0	0.95	0
Total Area "D"	0				
Weighted coefficients "D"			0		0
Totals:	1116	Weighted CN	87	Weighted "C"	0.76
Area Total:	0.11	ha			
Mannings Woods =	0.40		Average Pervious Mannings=		0.19
Mannings Lawn =	0.19				

Post-Development Catchment Area 201C

	Areas	CN	CN*A	Rational "C"	C*A
Wetlands "A"	0	50	0	0.05	0
Woods "A"	0	25	0	0.08	0
Pasture/Lawn "A"	318	39	12402	0.10	31.8
Cultivated "A"	0	51	0	0.22	0
Impervious "A" (Connected)	547	100	54700	0.95	519.65
Impervious "A" (Dis-Connected)	576	100	57600	0.95	547.2
Total Area "A"	1441				
Weighted coefficients "A"			86.53851		0.762422
Wetlands "B"	0	50	0	0.05	0
Woods "B"	0	55	0	0.25	0
Pasture/Lawn "B"	0	61	0	0.28	0
Cultivated "B"	0	67	0	0.35	0
Impervious "B" (Connected)	0	100	0	0.95	0
Impervious "B" (Dis-Connected)	0	100	0	0.95	0
Total Area "B"	0				
Weighted coefficients "B"			0		0
Wetlands "C"	0	50	0	0.05	0
Woods "C"	0	70	0	0.35	0
Pasture/Lawn "C"	0	74	0	0.40	0
Cultivated "C"	0	76	0	0.55	0
Impervious "C" (Connected)	0	100	0	0.95	0
Impervious "C" (Dis-Connected)	0	100	0	0.95	0
Total Area "C"	0				
Weighted coefficients "C"			0		0
Wetlands "D"	0	50	0	0.05	0
Woods "D"	0	77	0	0.35	0
Pasture/Lawn "D"	0	80	0	0.40	0
Cultivated "D"	0	80	0	0.55	0
Impervious "D" (Connected)	0	100	0	0.95	0
Impervious "D" (Dis-Connected)	0	100	0	0.95	0
Total Area "D"	0				
Weighted coefficients "D"			0		0
Totals:	1441	Weighted CN	87	Weighted "C"	0.76
Area Total:	0.14	ha			
Mannings Woods =	0.40		Average Pervious Mannings=		0.19
Mannings Lawn =	0.19				

Post-Development Catchment Area 201D

	Areas	CN	CN*A	Rational "C"	C*A
Wetlands "A"	0	50	0	0.05	0
Woods "A"	0	25	0	0.08	0
Pasture/Lawn "A"	1347	39	52533	0.10	134.7
Cultivated "A"	0	51	0	0.22	0
Impervious "A" (Connected)	2351	100	235100	0.95	2233.45
Impervious "A" (Dis-Connected)	1471	100	147100	0.95	1397.45
Total Area "A"	5169				
Weighted coefficients "A"			84.10389		0.728497
Wetlands "B"	0	50	0	0.05	0
Woods "B"	0	55	0	0.25	0
Pasture/Lawn "B"	0	61	0	0.28	0
Cultivated "B"	0	67	0	0.35	0
Impervious "B" (Connected)	0	100	0	0.95	0
Impervious "B" (Dis-Connected)	0	100	0	0.95	0
Total Area "B"	0				
Weighted coefficients "B"			0		0
Wetlands "C"	0	50	0	0.05	0
Woods "C"	0	70	0	0.35	0
Pasture/Lawn "C"	0	74	0	0.40	0
Cultivated "C"	0	76	0	0.55	0
Impervious "C" (Connected)	0	100	0	0.95	0
Impervious "C" (Dis-Connected)	0	100	0	0.95	0
Total Area "C"	0				
Weighted coefficients "C"			0		0
Wetlands "D"	0	50	0	0.05	0
Woods "D"	0	77	0	0.35	0
Pasture/Lawn "D"	0	80	0	0.40	0
Cultivated "D"	0	80	0	0.55	0
Impervious "D" (Connected)	0	100	0	0.95	0
Impervious "D" (Dis-Connected)	0	100	0	0.95	0
Total Area "D"	0				
Weighted coefficients "D"			0		0

Totals:	5169	Weighted CN	84	Weighted "C"	0.73
Area Total:	0.52	ha			

Mannings Woods =	0.40	Average Pervious Mannings=	0.19
Mannings Lawn =	0.19		

Project: **FER-15101 - 70 Pioneer Trail**

Chamber Model -	MC-4500	
Units -	**Metric**	
Number of Chambers -	22	
Number of End Caps -	4	
Voids in the stone (porosity) -	40	%
Base of Stone Elevation -	225.10	m
Amount of Stone Above Chambers -	305	mm
Amount of Stone Below Chambers -	300	mm

100.66 sq.meters Min. Area - 87.35 sq.meters

StormTech MC-4500 Cumulative Storage Volumes

Height of System (mm)	Incremental Single Chamber (cubic meters)	Incremental Single End Cap (cubic meters)	Incremental Chambers (cubic meters)	Incremental End Cap (cubic meters)	Incremental Stone (cubic meters)	Incremental Ch, EC and Stone (cubic meters)	Cumulative System (cubic meters)	Elevation (meters)
2134	0.00	0.00	0.00	0.00	1.022	1.02	128.36	227.23
2108	0.00	0.00	0.00	0.00	1.022	1.02	127.34	227.21
2083	0.00	0.00	0.00	0.00	1.022	1.02	126.32	227.18
2057	0.00	0.00	0.00	0.00	1.022	1.02	125.30	227.16
2032	0.00	0.00	0.00	0.00	1.022	1.02	124.27	227.13
2007	0.00	0.00	0.00	0.00	1.022	1.02	123.25	227.11
1981	0.00	0.00	0.00	0.00	1.022	1.02	122.23	227.08
1956	0.00	0.00	0.00	0.00	1.022	1.02	121.21	227.06
1930	0.00	0.00	0.00	0.00	1.022	1.02	120.18	227.03
1905	0.00	0.00	0.00	0.00	1.022	1.02	119.16	227.01
1880	0.00	0.00	0.00	0.00	1.022	1.02	118.14	226.98
1854	0.00	0.00	0.00	0.00	1.022	1.02	117.12	226.95
1829	0.00	0.00	0.03	0.00	1.011	1.04	116.10	226.93
1803	0.00	0.00	0.07	0.00	0.992	1.07	115.06	226.90
1778	0.00	0.00	0.10	0.01	0.979	1.09	113.99	226.88
1753	0.01	0.00	0.13	0.01	0.967	1.10	112.90	226.85
1727	0.01	0.00	0.17	0.01	0.952	1.13	111.80	226.83
1702	0.01	0.00	0.28	0.01	0.905	1.20	110.67	226.80
1676	0.02	0.00	0.41	0.01	0.850	1.28	109.47	226.78
1651	0.02	0.00	0.50	0.02	0.816	1.33	108.19	226.75
1626	0.03	0.01	0.57	0.02	0.787	1.37	106.86	226.73
1600	0.03	0.01	0.62	0.02	0.762	1.41	105.48	226.70
1575	0.03	0.01	0.68	0.03	0.740	1.45	104.07	226.67
1549	0.03	0.01	0.72	0.03	0.720	1.48	102.63	226.65
1524	0.03	0.01	0.77	0.03	0.701	1.50	101.15	226.62
1499	0.04	0.01	0.81	0.04	0.683	1.53	99.65	226.60
1473	0.04	0.01	0.85	0.04	0.667	1.56	98.12	226.57
1448	0.04	0.01	0.88	0.04	0.651	1.58	96.56	226.55
1422	0.04	0.01	0.92	0.05	0.637	1.60	94.98	226.52
1397	0.04	0.01	0.95	0.05	0.622	1.62	93.38	226.50
1372	0.04	0.01	0.98	0.05	0.609	1.64	91.76	226.47
1346	0.05	0.01	1.01	0.06	0.596	1.66	90.12	226.45
1321	0.05	0.01	1.04	0.06	0.583	1.68	88.46	226.42
1295	0.05	0.02	1.06	0.06	0.572	1.70	86.78	226.40
1270	0.05	0.02	1.09	0.06	0.560	1.71	85.08	226.37
1245	0.05	0.02	1.11	0.07	0.550	1.73	83.36	226.34
1219	0.05	0.02	1.14	0.07	0.539	1.75	81.63	226.32
1194	0.05	0.02	1.16	0.07	0.529	1.76	79.89	226.29
1168	0.05	0.02	1.18	0.07	0.520	1.78	78.12	226.27
1143	0.05	0.02	1.20	0.08	0.510	1.79	76.35	226.24
1118	0.06	0.02	1.22	0.08	0.501	1.80	74.56	226.22
1092	0.06	0.02	1.24	0.08	0.492	1.82	72.75	226.19
1067	0.06	0.02	1.26	0.08	0.484	1.83	70.94	226.17
1041	0.06	0.02	1.28	0.09	0.476	1.84	69.11	226.14
1016	0.06	0.02	1.30	0.09	0.468	1.85	67.27	226.12
991	0.06	0.02	1.31	0.09	0.461	1.86	65.41	226.09
965	0.06	0.02	1.33	0.09	0.453	1.88	63.55	226.07
940	0.06	0.02	1.34	0.09	0.446	1.89	61.67	226.04
914	0.06	0.02	1.36	0.10	0.440	1.90	59.79	226.01
889	0.06	0.02	1.37	0.10	0.434	1.90	57.89	225.99
864	0.06	0.03	1.39	0.10	0.427	1.92	55.98	225.96
838	0.06	0.03	1.40	0.10	0.421	1.92	54.07	225.94
813	0.06	0.03	1.41	0.10	0.415	1.93	52.15	225.91
787	0.06	0.03	1.43	0.10	0.410	1.94	50.21	225.89
762	0.07	0.03	1.44	0.11	0.404	1.95	48.27	225.86
737	0.07	0.03	1.45	0.11	0.399	1.96	46.32	225.84
711	0.07	0.03	1.46	0.11	0.394	1.96	44.37	225.81
686	0.07	0.03	1.47	0.11	0.390	1.97	42.40	225.79
660	0.07	0.03	1.48	0.11	0.386	1.98	40.43	225.76
635	0.07	0.03	1.49	0.11	0.381	1.98	38.46	225.74
610	0.07	0.03	1.50	0.11	0.377	1.99	36.47	225.71
584	0.07	0.03	1.51	0.12	0.373	2.00	34.48	225.68
559	0.07	0.03	1.52	0.12	0.369	2.00	32.49	225.66
533	0.07	0.03	1.52	0.12	0.366	2.01	30.48	225.63
508	0.07	0.03	1.53	0.12	0.363	2.01	28.48	225.61
483	0.07	0.03	1.54	0.12	0.359	2.02	26.47	225.58
457	0.07	0.03	1.54	0.12	0.357	2.02	24.45	225.56
432	0.07	0.03	1.55	0.12	0.354	2.02	22.43	225.53
406	0.07	0.03	1.56	0.12	0.351	2.03	20.41	225.51
381	0.07	0.03	1.56	0.12	0.349	2.03	18.38	225.48
356	0.07	0.03	1.57	0.12	0.346	2.04	16.34	225.46
330	0.07	0.03	1.57	0.13	0.342	2.04	14.31	225.43
305	0.00	0.00	0.00	0.00	1.022	1.02	12.27	225.40
279	0.00	0.00	0.00	0.00	1.022	1.02	11.24	225.38
254	0.00	0.00	0.00	0.00	1.022	1.02	10.22	225.35
229	0.00	0.00	0.00	0.00	1.022	1.02	9.20	225.33
203	0.00	0.00	0.00	0.00	1.022	1.02	8.18	225.30
178	0.00	0.00	0.00	0.00	1.022	1.02	7.16	225.28
152	0.00	0.00	0.00	0.00	1.022	1.02	6.13	225.25

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER	
ADS SALES REP	
PROJECT NO.	

Advanced Drainage Systems, Inc.

SiteAssist™
FOR STORMTECH
INSTALLATION INSTRUCTIONS
VISIT OUR APP

70 PIONEER TRAIL LID-1

BARRIE, ONTARIO, CANADA

MC-4500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-4500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL BE CERTIFIED TO CSA B184, "POLYMERIC SUB-SURFACE STORMWATER MANAGEMENT STRUCTURES", AND MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE CSA S6 CL-625 TRUCK AND THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 75 mm (3").
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 23° C / 73° F), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-4500 CHAMBER SYSTEM

1. STORMTECH MC-4500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 230 mm (9") SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 300 mm (12") INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE WELL GRADED BETWEEN ¾" AND 2" (20-50 mm).
9. STONE SHALL BE BROUGHT UP EVENLY AROUND CHAMBERS SO AS NOT TO DISTORT THE CHAMBER SHAPE. STONE DEPTHS SHOULD NEVER DIFFER BY MORE THAN 300 mm (12") BETWEEN ADJACENT CHAMBER ROWS.
10. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
11. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIAL BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
12. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-4500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 900 mm (36") OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

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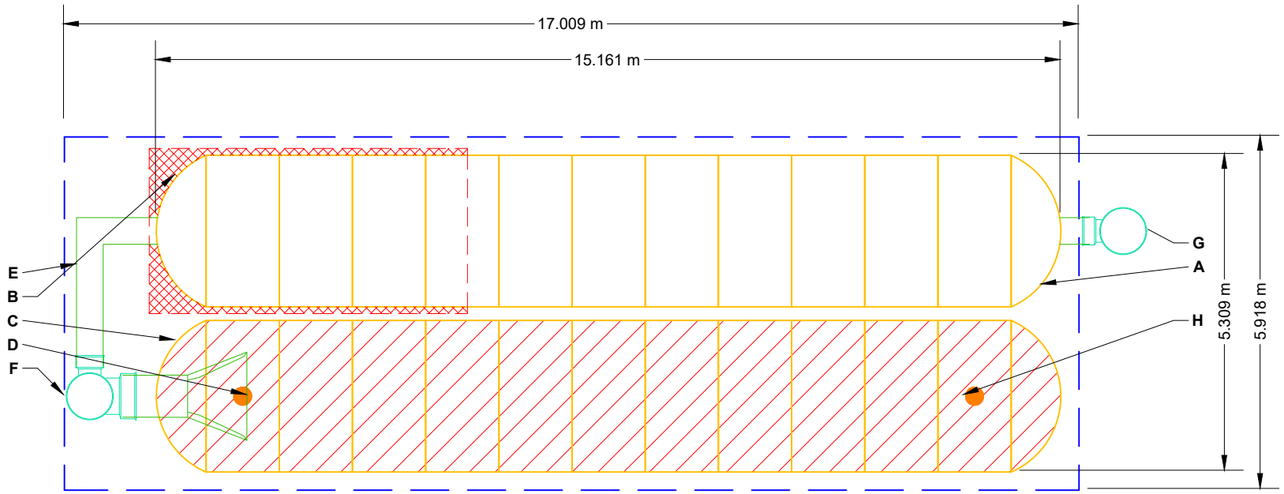
PROPOSED LAYOUT		PROPOSED ELEVATIONS	
22	STORMTECH MC-4500 CHAMBERS	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	229.058
4	STORMTECH MC-4500 END CAPS	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	227.686
305	STONE ABOVE (mm)	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	227.534
300	STONE BELOW (mm)	MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	227.534
40	STONE VOID	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	227.534
128.4	INSTALLED SYSTEM VOLUME (m^3) (PERIMETER STONE INCLUDED) (COVER STONE INCLUDED) (BASE STONE INCLUDED)	TOP OF STONE:	227.229
		TOP OF MC-4500 CHAMBER:	226.924
		375 mm x 375 mm TOP MANIFOLD INVERT:	226.231
		600 mm ISOLATOR ROW PLUS INVERT:	225.457
100.7	SYSTEM AREA (m^2)	375 mm BOTTOM CONNECTION INVERT:	225.443
45.9	SYSTEM PERIMETER (m)	BOTTOM OF MC-4500 CHAMBER:	225.400
		BOTTOM OF STONE:	225.100

*INVERT ABOVE BASE OF CHAMBER

PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
PREFABRICATED END CAP	A	375 mm BOTTOM PARTIAL CUT END CAP, PART#: MC4500IEPP15B / TYP OF ALL 375 mm BOTTOM CONNECTIONS	43 mm	
PREFABRICATED END CAP	B	375 mm TOP PARTIAL CUT END CAP, PART#: MC4500IEPP15T / TYP OF ALL 375 mm TOP CONNECTIONS	831 mm	
PREFABRICATED END CAP	C	600 mm BOTTOM PARTIAL CUT END CAP, PART#: MC4500IEPP24B / TYP OF ALL 600 mm BOTTOM CONNECTIONS AND ISOLATOR PLUS ROWS	57 mm	
FLAMP	D	INSTALL FLAMP ON 600 mm ACCESS PIPE / PART#: MC450024RAMP		
MANIFOLD	E	375 mm x 375 mm TOP MANIFOLD, ADS N-12	831 mm	
NYLOPLAST (INLET W/ ISO PLUS ROW)	F	750 mm DIAMETER (610 mm SUMP MIN)		99 L/s IN
NYLOPLAST (OUTLET)	G	750 mm DIAMETER (DESIGN BY ENGINEER)		76 L/s OUT
INSPECTION PORT	H	100 mm SEE DETAIL (TYP 2 PLACES)		



ISOLATOR ROW PLUS
(SEE DETAIL)

PLACE MINIMUM 5.334 m OF ADSPLUS175 WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS

BED LIMITS

NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- **NOT FOR CONSTRUCTION:** THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.

70 PIONEER TRAIL LID-1
BARRIE, ONTARIO, CANADA
DRAWN: MG
CHECKED: N/A
DATE:
PROJECT #:

DATE	DRW	CHK	DESCRIPTION

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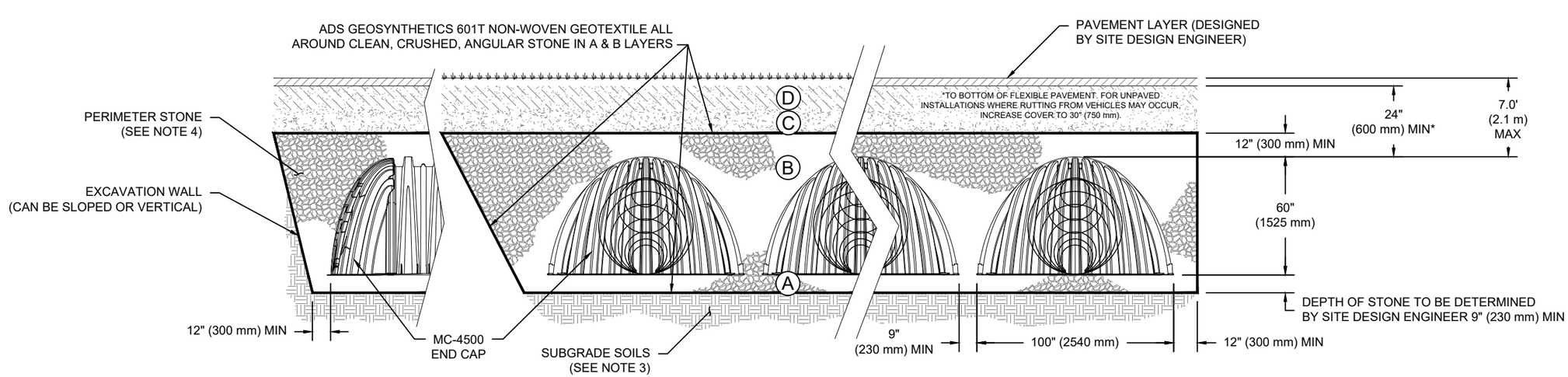
SCALE = 1 : 100

SHEET
2 OF 6

ACCEPTABLE FILL MATERIALS: STORMTECH MC-4500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101
2. MC-4500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

70 PIONEER TRAIL LID-1
BARRIE, ONTARIO, CANADA
DATE: DRAWN: MG
PROJECT #: CHECKED: N/A

DATE	DRW	CHK	DESCRIPTION

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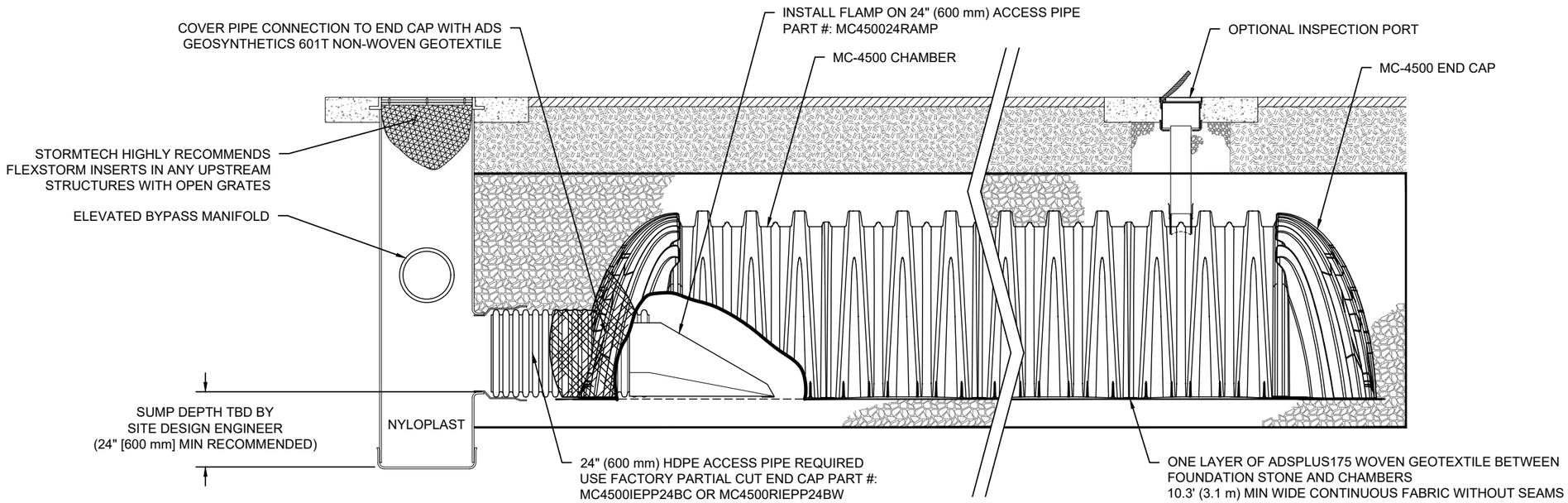


MC-4500 ISOLATOR ROW PLUS DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

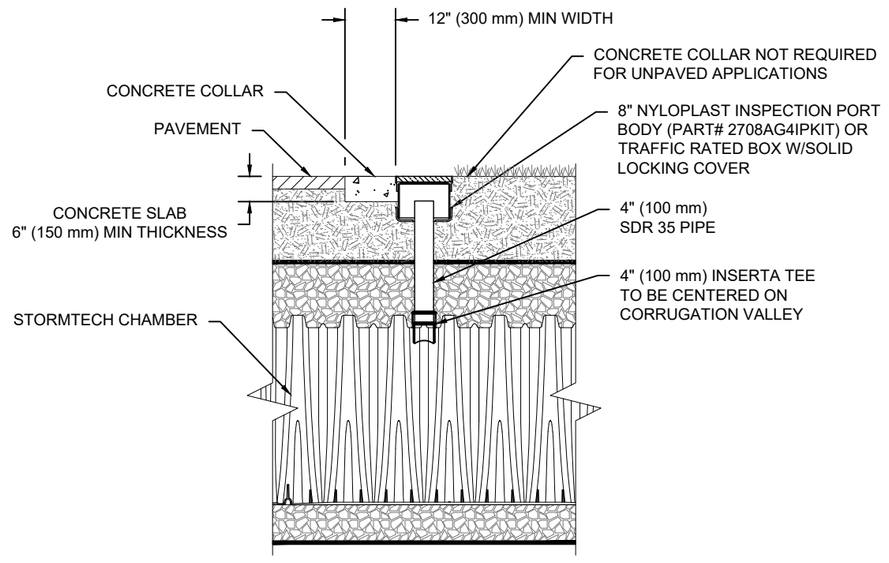
STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.

2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.

4" PVC INSPECTION PORT DETAIL
(MC SERIES CHAMBER)
NTS

70 PIONEER TRAIL LID-1
BARRIE, ONTARIO, CANADA
DATE:
DRAWN: MG
PROJECT #:
CHECKED: N/A

DATE	DRW	CHK	DESCRIPTION

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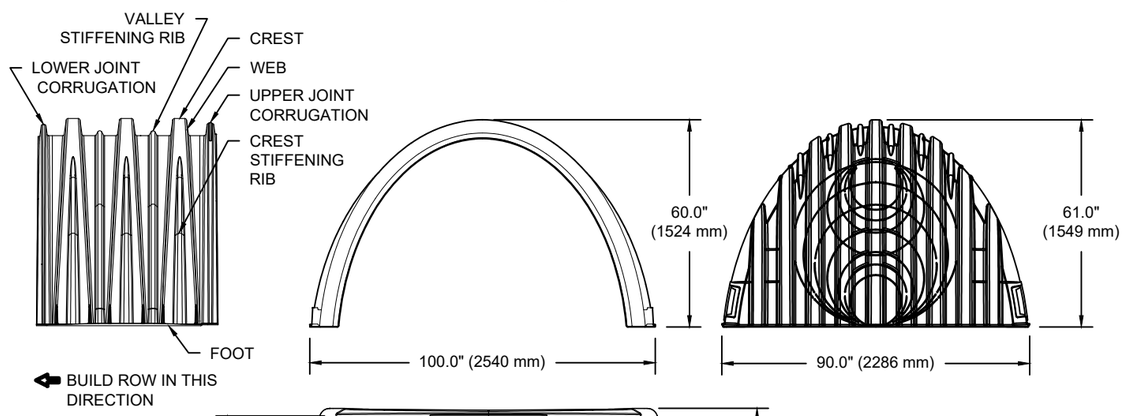
MC-4500 TECHNICAL SPECIFICATION

NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	100.0" X 60.0" X 48.3"	(2540 mm X 1524 mm X 1227 mm)
CHAMBER STORAGE	106.5 CUBIC FEET	(3.01 m³)
MINIMUM INSTALLED STORAGE*	162.6 CUBIC FEET	(4.60 m³)
WEIGHT (NOMINAL)	125.0 lbs.	(56.7 kg)

NOMINAL END CAP SPECIFICATIONS

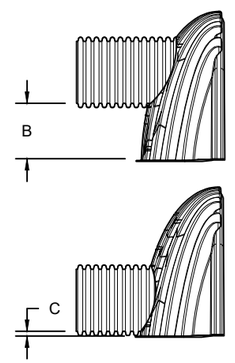
SIZE (W X H X INSTALLED LENGTH)	90.0" X 61.0" X 32.8"	(2286 mm X 1549 mm X 833 mm)
END CAP STORAGE	39.5 CUBIC FEET	(1.12 m³)
MINIMUM INSTALLED STORAGE*	115.3 CUBIC FEET	(3.26 m³)
WEIGHT (NOMINAL)	90 lbs.	(40.8 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC4500IEPP06T	6" (150 mm)	42.54" (1081 mm)	---
MC4500IEPP06B		---	0.86" (22 mm)
MC4500IEPP08T	8" (200 mm)	40.50" (1029 mm)	---
MC4500IEPP08B		---	1.01" (26 mm)
MC4500IEPP10T	10" (250 mm)	38.37" (975 mm)	---
MC4500IEPP10B		---	1.33" (34 mm)
MC4500IEPP12T	12" (300 mm)	35.69" (907 mm)	---
MC4500IEPP12B		---	1.55" (39 mm)
MC4500IEPP15T	15" (375 mm)	32.72" (831 mm)	---
MC4500IEPP15B		---	1.70" (43 mm)
MC4500IEPP18T	18" (450 mm)	29.36" (746 mm)	---
MC4500IEPP18TW			
MC4500IEPP18B		---	1.97" (50 mm)
MC4500IEPP18BW			
MC4500IEPP24T	24" (600 mm)	23.05" (585 mm)	---
MC4500IEPP24TW			
MC4500IEPP24B		---	2.26" (57 mm)
MC4500IEPP24BW			
MC4500IEPP30BW	30" (750 mm)	---	2.95" (75 mm)
MC4500IEPP36BW	36" (900 mm)	---	3.25" (83 mm)
MC4500IEPP42BW	42" (1050 mm)	---	3.55" (90 mm)

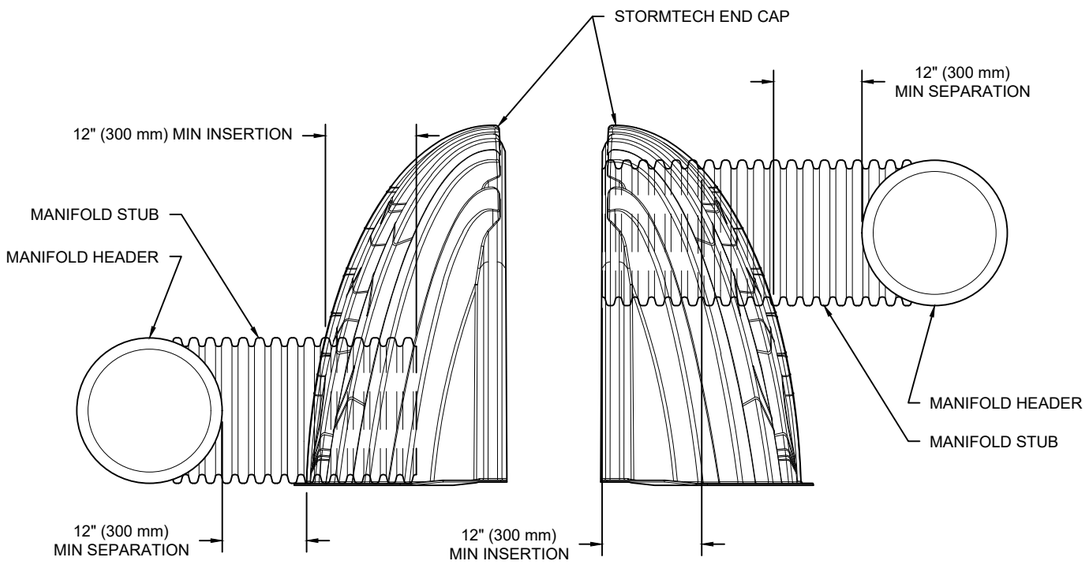
NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PARTIAL CUT INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-4500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

MC-SERIES END CAP INSERTION DETAIL

NTS



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

70 PIONEER TRAIL LID-1
BARRIE, ONTARIO, CANADA
DATE: DRAWN: MG
PROJECT #: CHECKED: N/A

DESCRIPTION	CHK	DRW	DATE

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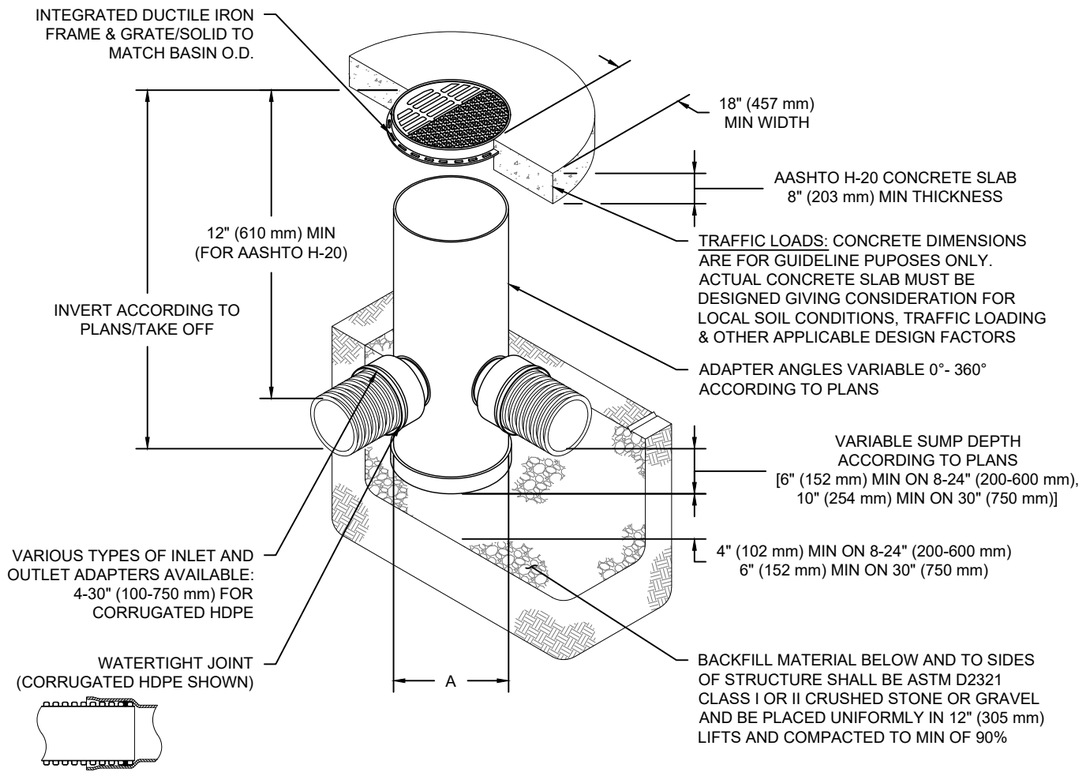
NYLOPLAST DRAIN BASIN

NTS



NOTES

1. 8-30" (200-750 mm) GRATES/SOLID COVERS SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
2. 12-30" (300-750 mm) FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
3. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS
4. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS & HANCOR DUAL WALL) & SDR 35 PVC
5. FOR COMPLETE DESIGN AND PRODUCT INFORMATION: **WWW.NYLOPLAST-US.COM**
6. TO ORDER CALL: **800-821-6710**

A	PART #	GRATE/SOLID COVER OPTIONS		
8" (200 mm)	2808AG	PEDESTRIAN LIGHT DUTY	STANDARD LIGHT DUTY	SOLID LIGHT DUTY
10" (250 mm)	2810AG	PEDESTRIAN LIGHT DUTY	STANDARD LIGHT DUTY	SOLID LIGHT DUTY
12" (300 mm)	2812AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
15" (375 mm)	2815AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
18" (450 mm)	2818AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
24" (600 mm)	2824AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
30" (750 mm)	2830AG	PEDESTRIAN AASHTO H-20	STANDARD AASHTO H-20	SOLID AASHTO H-20

70 PIONEER TRAIL LID-1

BARRIE, ONTARIO, CANADA

DATE: | DRAWN: MG

PROJECT #: | CHECKED: N/A

DATE	DRW	CHK	DESCRIPTION

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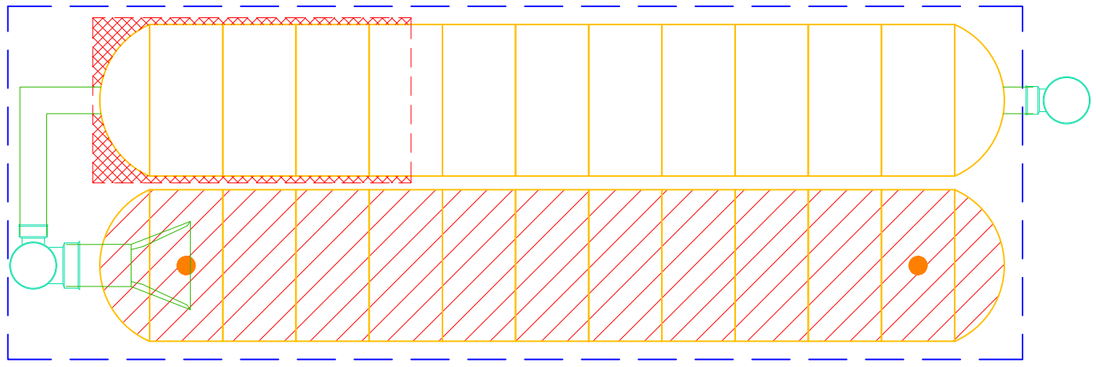


Pioneer Trail Residential Condominium
Water Quality Calculations - LID Facility Drawdown Time

CLIENT: Fernbrook Homes (Parkside)Ltd.

PROJECT: 70 Pioneer Trail

FILE: FER-15101 (50)

DATE: August 2022

DESIGN: MG

CHECKED: JWI

25mm Event Drawdown Time for LID-1

From Post-Dev-PF OTTHYMO model		
Native soil infiltration rate:	38	mm/hr
Area of facility:	100.66	m²
Upstream catchment area:	0.8804	ha
Runon from upstream catchments:	12.93	mm

25mm event Runoff Volume	113.84	m³
Infiltration Flow Rate	0.00106	m³/s
Drawdown Time	29.76	hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(25mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
V(25mm) is the 25mm event runoff volume (m³)
Q is infiltration flowrate (m³/s)

Runoff Volume Equation: $V_{(25mm)} = RO \times A \times 10$

where ; RO is the runon from the upstream catchments taken at Catchment LID-10A_1 (mm)
A is upstream catchment area (ha)

Infiltration Flow Rate: $Q_i = (P \times A_{LID})/3600000$

where ; P is the Native Soil Infiltration Rate (mm/hr)
A_{LID} is area of the LID facility (m²)

Pioneer Trail Residential Condominium
OTTHYMO LID Performance Summary

CLIENT: Fernbrook Homes (Parkside) Ltd.

DATE: August 2022

PROJECT: 70 Pioneer Trail

DESIGN: MG

FILE: FER-15101 (50)

CHECKED: JWI

25mm Event Performance

LID Name	Catchment Area ID	Contributing Area (ha)	Total Runoff contributing (mm)	Total Runoff Volume (cu.m)	LID Catchment Area (ha)	Total Inflow (mm)	Infil Loss (mm)	Infiltration Volume (cu.m)	Surface Outflow (mm)	% of WQE Runoff Captured	
LID-1	201	0.88	12.93	113.82	0.0101	1130.72	123.57	101.38	0.00	89.1%	
No LID	202	0.63	2.45	15.49	0.0000	0.00	0.00	0.00	15.49	0.0%	
No LID	203	0.13	1.30	1.69	0.0000	0.00	0.00	0.00	1.69	0.0%	
No LID	204	0.21	0.94	2.02	0.0000	0.00	0.00	0.00	2.02	0.0%	
No LID	205	0.42	0.39	1.63	0.0000	0.00	0.00	0.00	1.63	0.0%	
No LID	206	0.50	2.27	11.23	0.0000	0.00	0.00	0.00	11.23	0.0%	
No LID	207	0.10	0.82	0.78	0.0000	0.00	0.00	0.00	0.78	0.0%	
No LID	208	0.03	0.90	0.22	0.0000	0.00	0.00	0.00	0.22	0.0%	
	TOTALS:	**2.89**		**146.88**				**101.38**		**69.0%**	**PERFORMANCE** **8.25 mm**

Pioneer Trail Residential Condominium - 70 Pioneer Trail
5-Year Storm Sewer Design Sheet

CLIENT: Fernbrook Homes (Parkside) Ltd.

PROJECT: 70 Pioneer Trail

FILE: FER-15101 (50)

DATE: August 2022

DESIGN: MG

CHECKED BY: JWI

5-Year Storm Sewer Design Sheet

STREET	CATCHMENT AREA ID	MANHOLE		LENGTH (m)	INCREMENT			TOTAL CA	FLOW TIME (min)		I (mm)	TOTAL Q (m^3)	S (%)	D (mm)	Q FULL (cms)	V FULL (m/s)	% FULL
		FROM	TO		C	A	CA		IN	OUT							
Pioneer Trail	201A	STM01	STM02	**42.7**	0.87	0.11	0.09	0.09	10.00	0.74	109	0.028	**0.50**	**300**	0.068	1.0	**41.4**
Pioneer Trail	201B	STM02	STM03	**25.8**	0.76	0.11	0.09	0.18	10.74	0.38	105	0.052	**0.50**	**375**	0.124	1.1	**42.0**
Pioneer Trail	201C	STM03	DCBMH04	**61.7**	0.76	0.14	0.11	0.29	11.12	0.92	103	0.083	**0.50**	**375**	0.124	1.1	**66.6**
Pioneer Trail	201D	DCBMH04	UFF	**24.7**	0.73	0.52	0.38	0.67	12.03	0.23	99	0.182	**1.30**	**375**	0.200	1.8	**91.1**
		UFF	CTRLMH01	**4.6**				0.67	12.26	0.04	98	0.180	**1.30**	**375**	0.200	1.8	**90.2**
		CTRLMH01	CTRLMH02	**17.5**				0.67	12.30	0.13	97	0.180	**2.00**	**375**	0.248	2.2	**72.6**
		CTRLMH02	HEADWALL	**16.0**				0.67	12.43	0.12	97	0.179	**2.00**	**375**	0.248	2.2	**72.2**

Q= 0.0028*C*I*A (cms); C=RUNOFF COEFFICIENT I-RAINFALL INTENSITY (5 Year) = 853.608 / (t_d+4.699) ^ 0.766 A=AREA (ha)

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Aug 18 2022

FER-15101 - Overland Flow Channel Capacity at 2% Slope

Trapezoidal

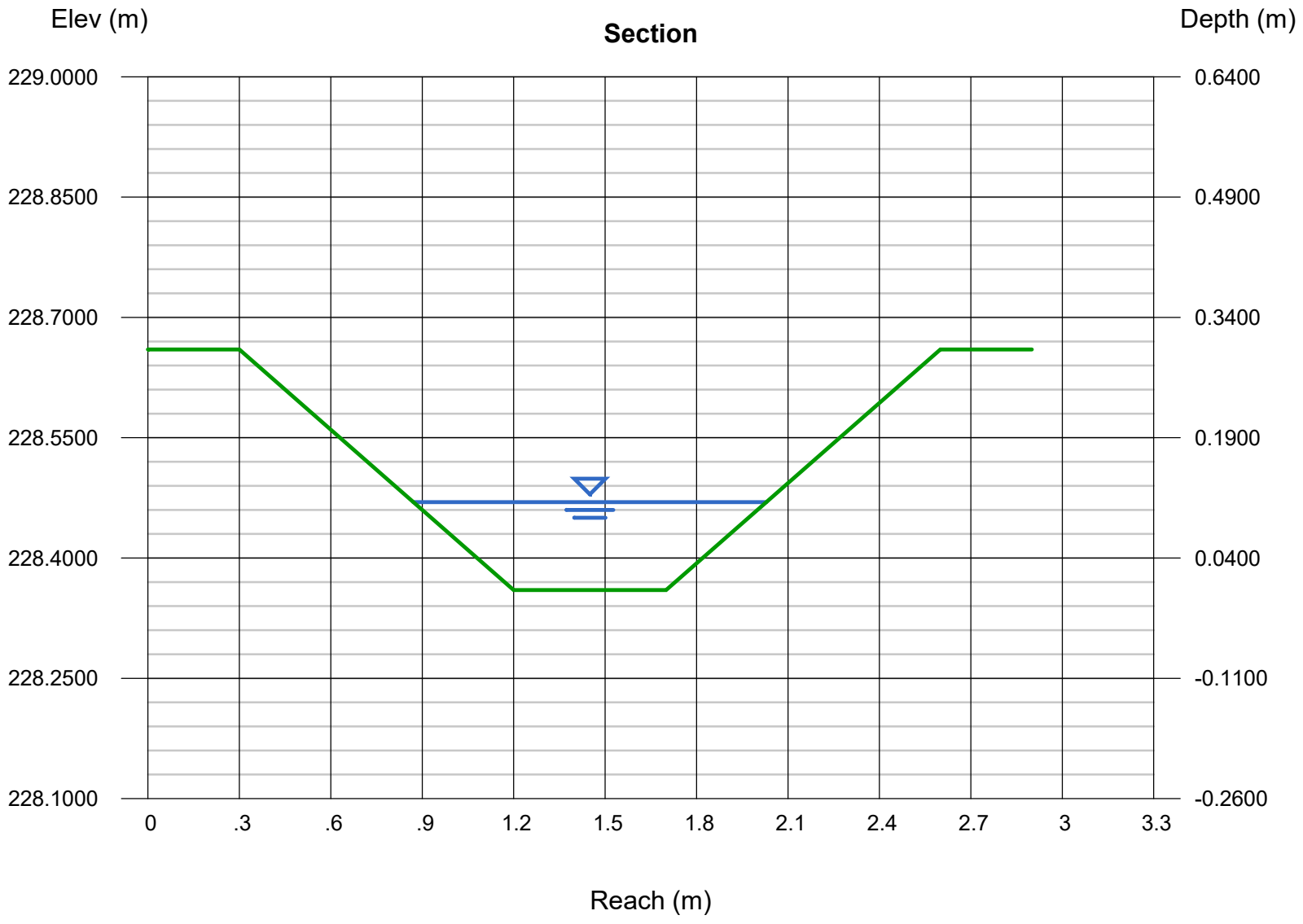
Bottom Width (m)	= 0.5000
Side Slopes (z:1)	= 3.0000, 3.0000
Total Depth (m)	= 0.3000
Invert Elev (m)	= 228.3600
Slope (%)	= 2.0000
N-Value	= 0.035

Calculations

Compute by:	Known Q
Known Q (cms)	= 0.0650

Highlighted

Depth (m)	= 0.1097
Q (cms)	= 0.065
Area (sqm)	= 0.0910
Velocity (m/s)	= 0.7144
Wetted Perim (m)	= 1.1940
Crit Depth, Yc (m)	= 0.1006
Top Width (m)	= 1.1584
EGL (m)	= 0.1358



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Aug 18 2022

FER-15101 - Overland Flow Channel Capacity at 2% Slope Blocked

Trapezoidal

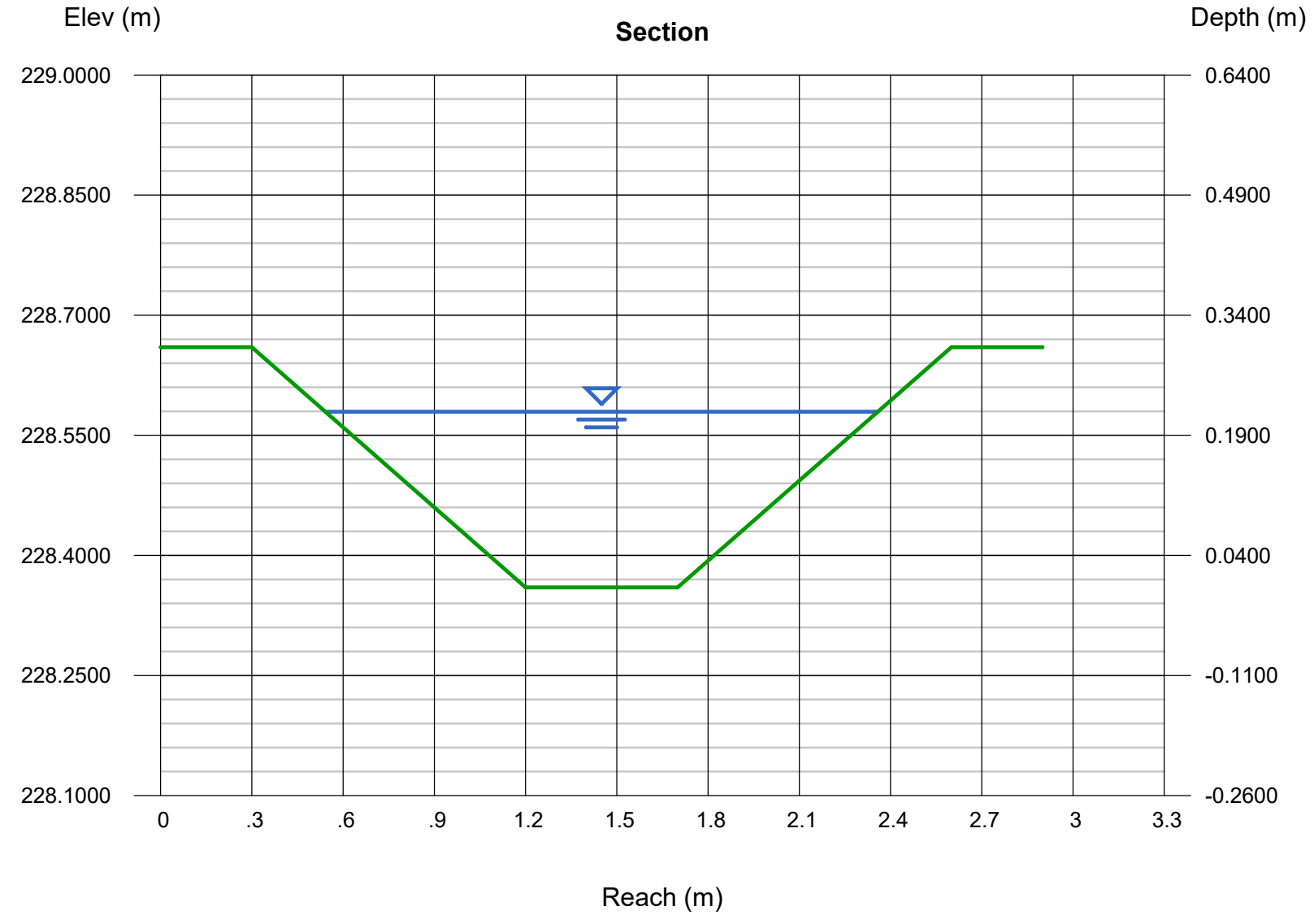
Bottom Width (m)	= 0.5000
Side Slopes (z:1)	= 3.0000, 3.0000
Total Depth (m)	= 0.3000
Invert Elev (m)	= 228.3600
Slope (%)	= 2.0000
N-Value	= 0.035

Calculations

Compute by:	Known Q
Known Q (cms)	= 0.2650

Highlighted

Depth (m)	= 0.2195
Q (cms)	= 0.265
Area (sqm)	= 0.2542
Velocity (m/s)	= 1.0424
Wetted Perim (m)	= 1.8880
Crit Depth, Yc (m)	= 0.2073
Top Width (m)	= 1.8167
EGL (m)	= 0.2749



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Aug 18 2022

FER-15101 - Overland Flow Route at 5% slope

Trapezoidal

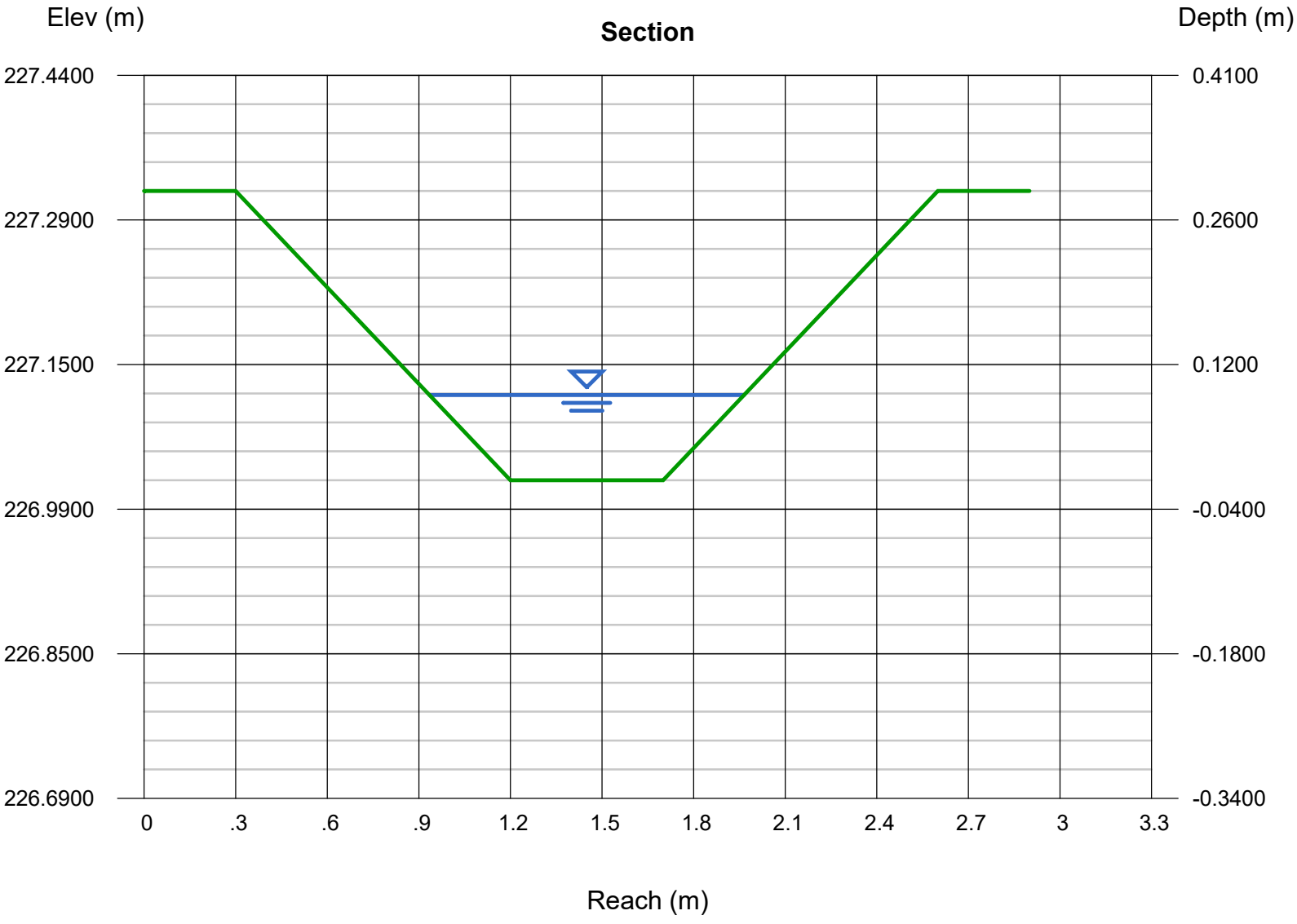
Bottom Width (m)	= 0.5000
Side Slopes (z:1)	= 3.0000, 3.0000
Total Depth (m)	= 0.3000
Invert Elev (m)	= 227.0300
Slope (%)	= 5.0000
N-Value	= 0.035

Calculations

Compute by:	Known Q
Known Q (cms)	= 0.0650

Highlighted

Depth (m)	= 0.0884
Q (cms)	= 0.065
Area (sqm)	= 0.0676
Velocity (m/s)	= 0.9610
Wetted Perim (m)	= 1.0590
Crit Depth, Yc (m)	= 0.1006
Top Width (m)	= 1.0304
EGL (m)	= 0.1355



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Aug 18 2022

FER-15101 - Overland Flow Route Blocked at 5% slope

Trapezoidal

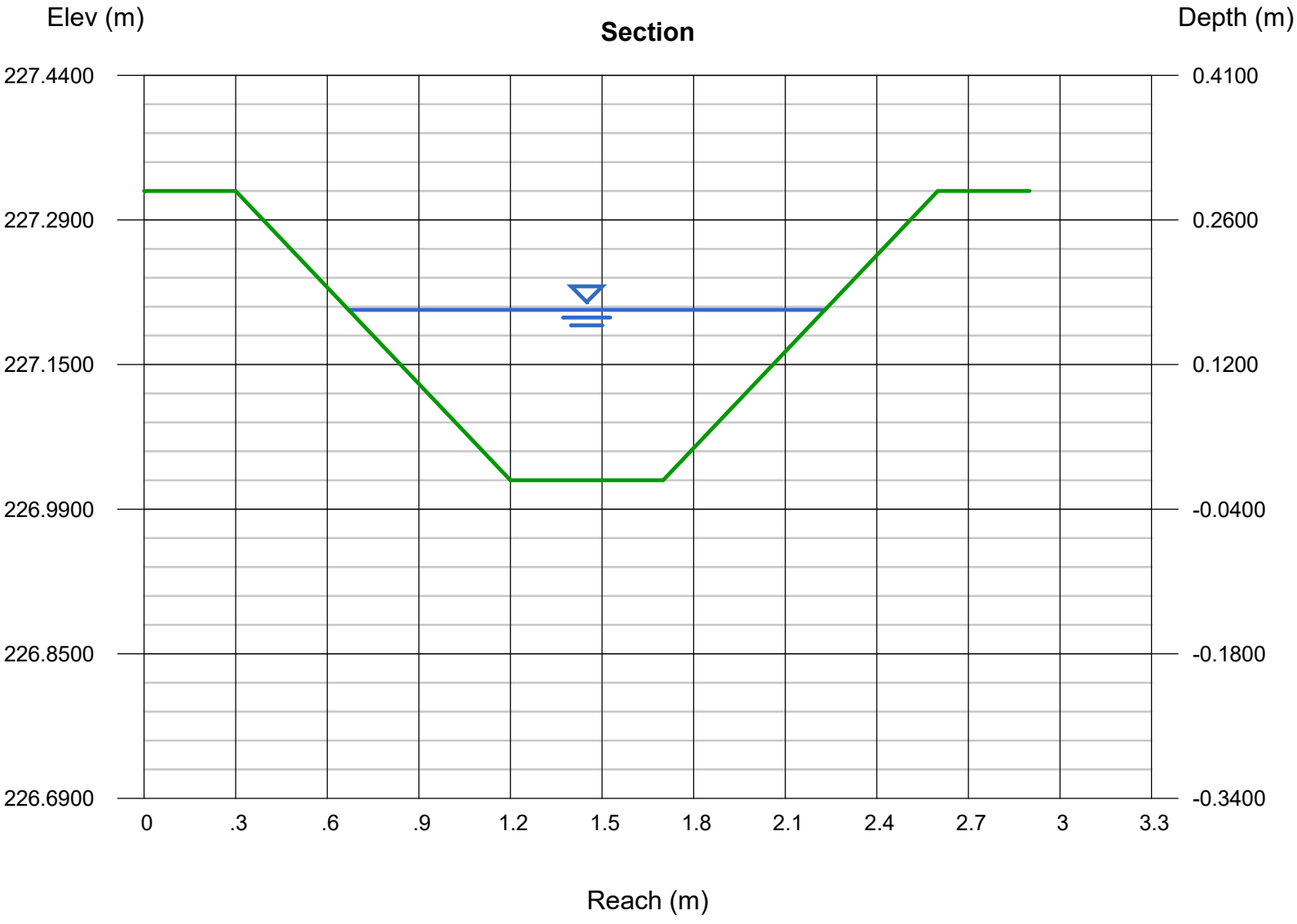
Bottom Width (m)	= 0.5000
Side Slopes (z:1)	= 3.0000, 3.0000
Total Depth (m)	= 0.3000
Invert Elev (m)	= 227.0300
Slope (%)	= 5.0000
N-Value	= 0.035

Calculations

Compute by:	Known Q
Known Q (cms)	= 0.2650

Highlighted

Depth (m)	= 0.1768
Q (cms)	= 0.265
Area (sqm)	= 0.1821
Velocity (m/s)	= 1.4548
Wetted Perim (m)	= 1.6181
Crit Depth, Yc (m)	= 0.2073
Top Width (m)	= 1.5607
EGL (m)	= 0.2847



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Aug 18 2022

FER-15101 - Overland Flow Channel Capacity at 27.9% Slope

Trapezoidal

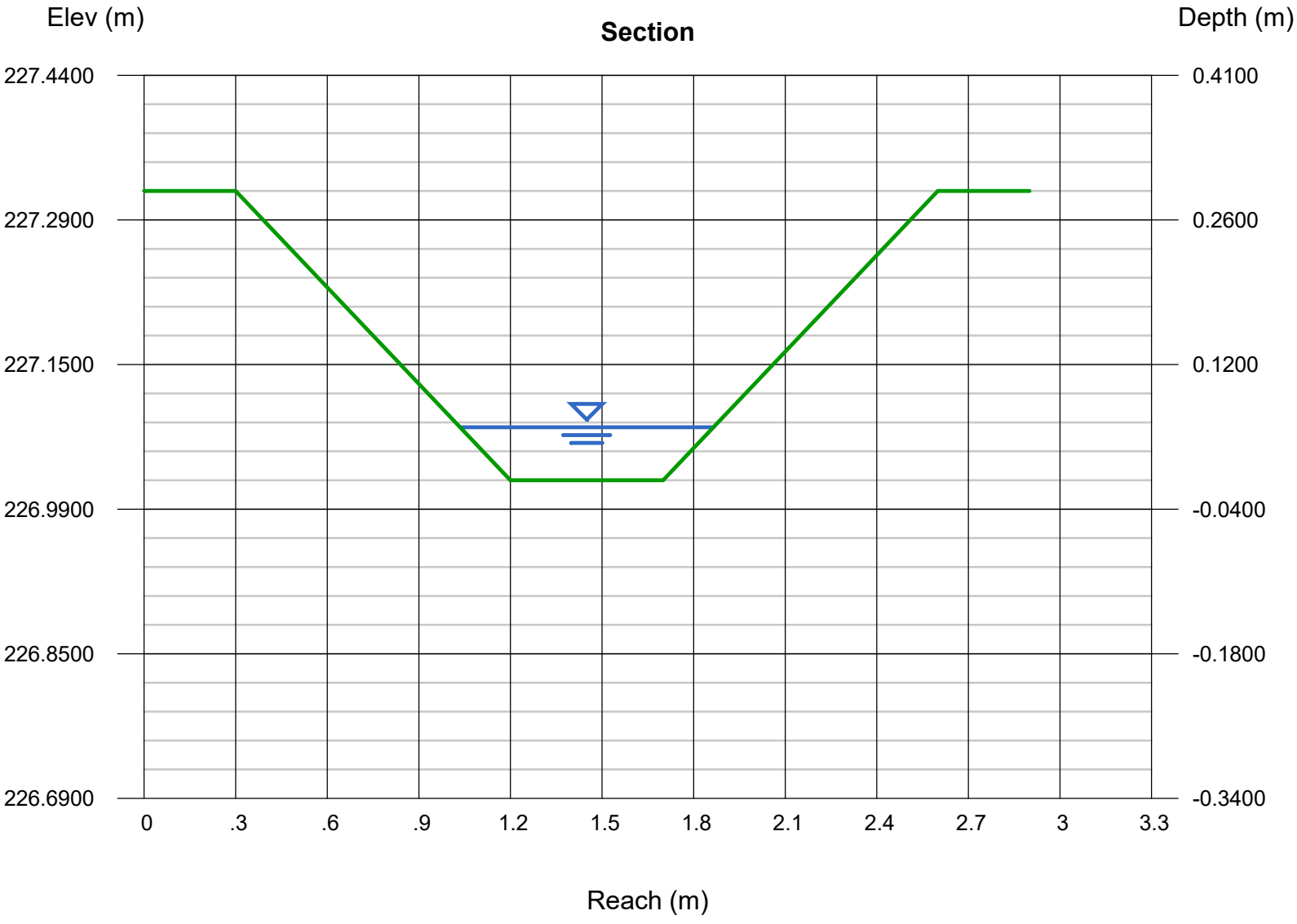
Bottom Width (m)	= 0.5000
Side Slopes (z:1)	= 3.0000, 3.0000
Total Depth (m)	= 0.3000
Invert Elev (m)	= 227.0300
Slope (%)	= 27.9000
N-Value	= 0.035

Calculations

Compute by:	Known Q
Known Q (cms)	= 0.0650

Highlighted

Depth (m)	= 0.0549
Q (cms)	= 0.065
Area (sqm)	= 0.0365
Velocity (m/s)	= 1.7827
Wetted Perim (m)	= 0.8470
Crit Depth, Yc (m)	= 0.1006
Top Width (m)	= 0.8292
EGL (m)	= 0.2170



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Aug 18 2022

FER-15101 - Overland Flow Channel Capacity at 27.9% Slope Blocked

Trapezoidal

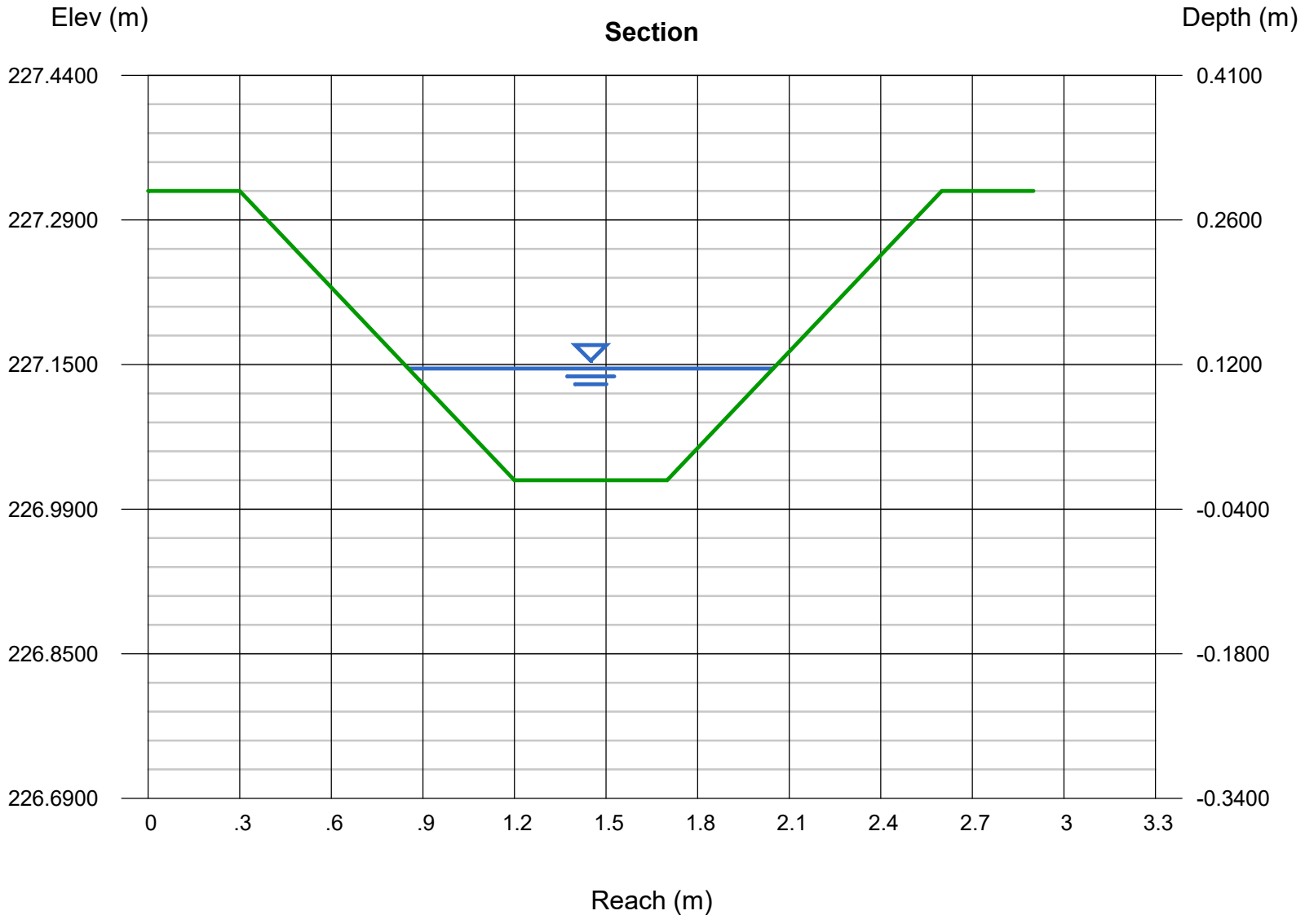
Bottom Width (m)	= 0.5000
Side Slopes (z:1)	= 3.0000, 3.0000
Total Depth (m)	= 0.3000
Invert Elev (m)	= 227.0300
Slope (%)	= 27.9000
N-Value	= 0.035

Calculations

Compute by:	Known Q
Known Q (cms)	= 0.2650

Highlighted

Depth (m)	= 0.1158
Q (cms)	= 0.265
Area (sqm)	= 0.0982
Velocity (m/s)	= 2.6997
Wetted Perim (m)	= 1.2325
Crit Depth, Yc (m)	= 0.2073
Top Width (m)	= 1.1949
EGL (m)	= 0.4876



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Aug 18 2022

FER-15101 - Street Overland Flow Capacity

User-defined

Invert Elev (m)	= 228.7700
Slope (%)	= 2.0000
N-Value	= 0.035

Calculations

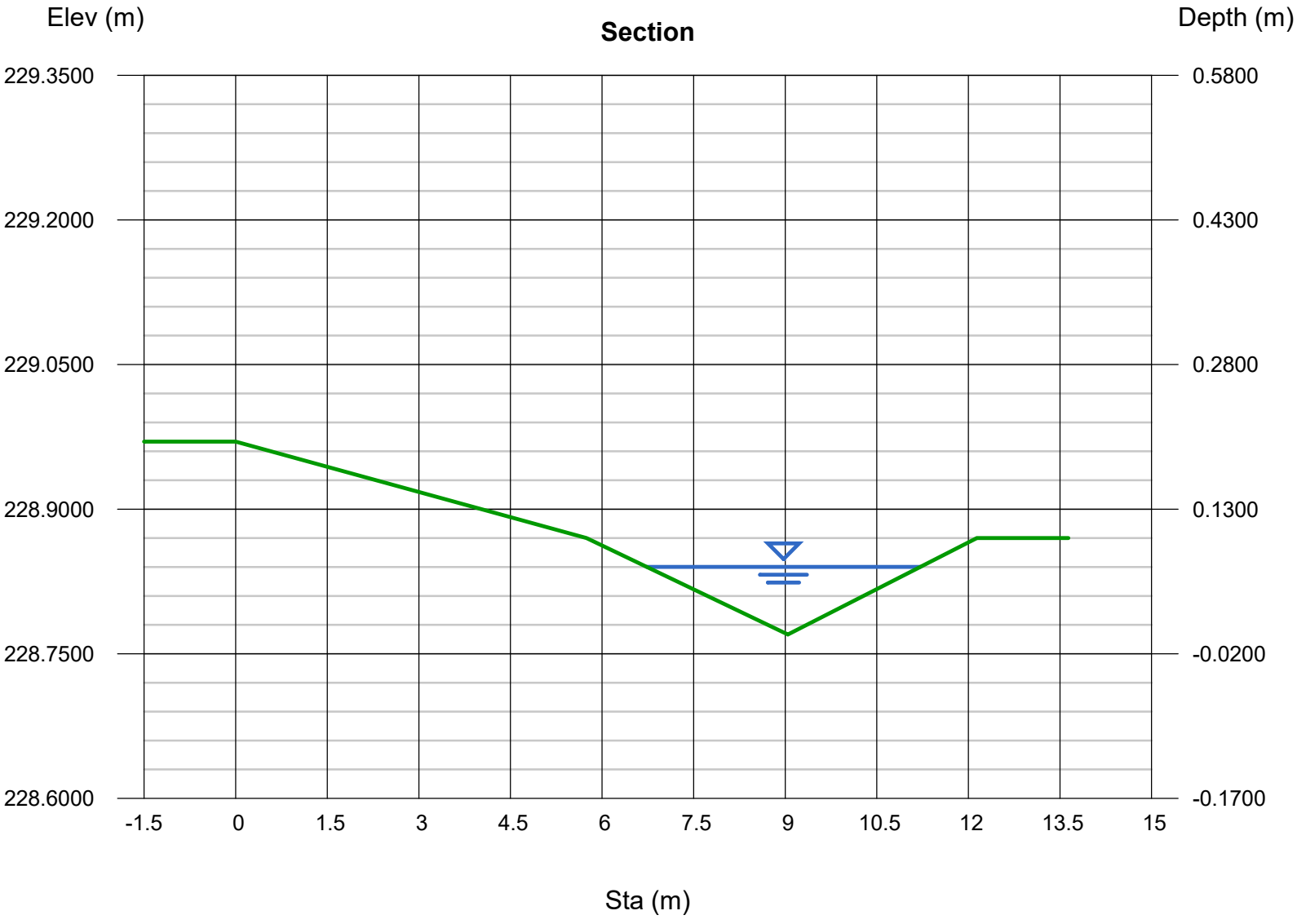
Compute by:	Known Q
Known Q (cms)	= 0.0650

Highlighted

Depth (m)	= 0.0701
Q (cms)	= 0.065
Area (sqm)	= 0.1571
Velocity (m/s)	= 0.4138
Wetted Perim (m)	= 4.4838
Crit Depth, Yc (m)	= 0.0640
Top Width (m)	= 4.4816
EGL (m)	= 0.0788

(Sta, El, n)-(Sta, El, n)...

(0.0000, 228.9700)-(5.7450, 228.8700, 0.035)-(9.0440, 228.7700, 0.035)-(12.1380, 228.8700, 0.035)



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Aug 18 2022

FER-15101 - Street Overland Flow Capacity Blocked

User-defined

Invert Elev (m)	= 228.7700
Slope (%)	= 2.0000
N-Value	= 0.035

Calculations

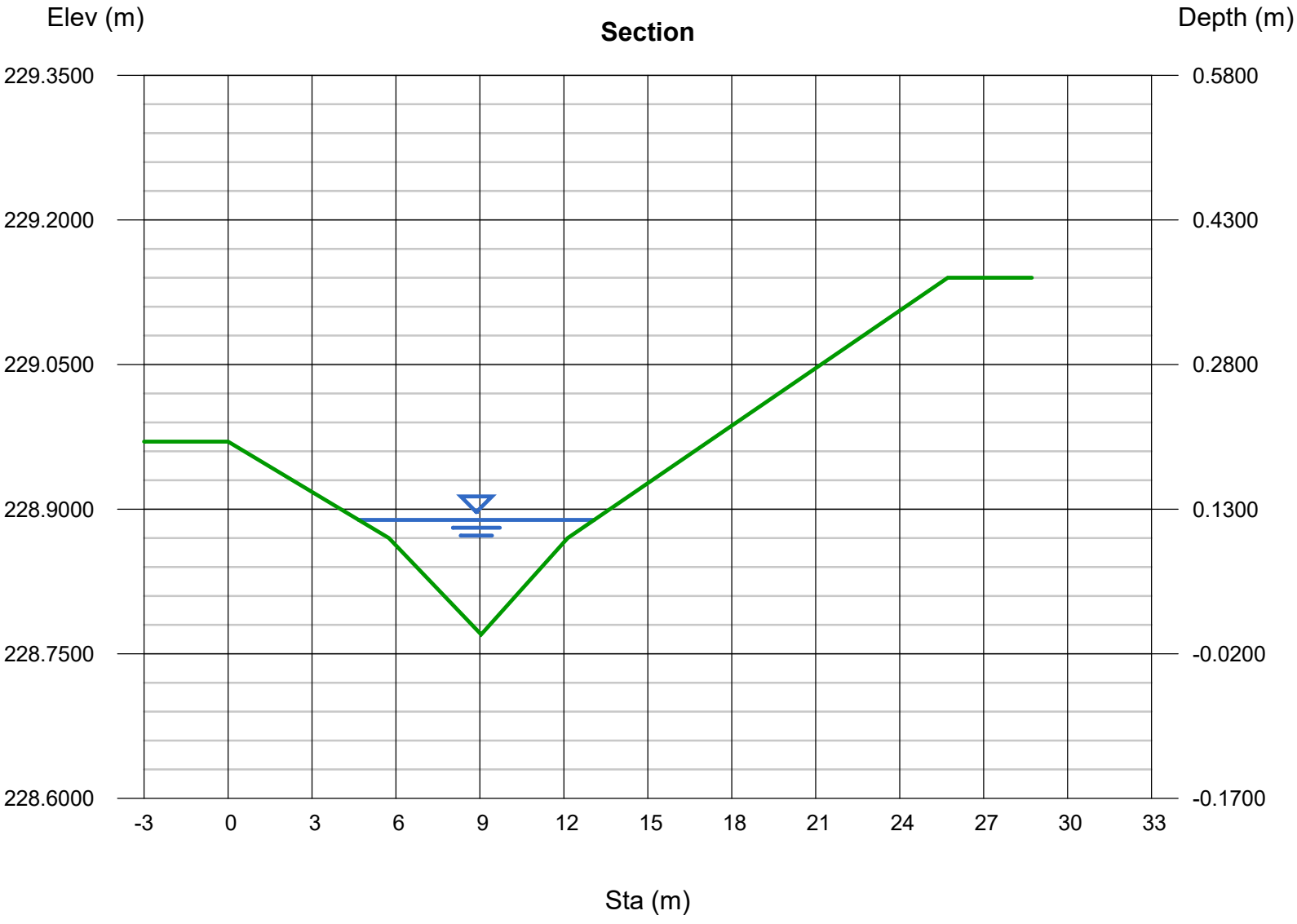
Compute by:	Known Q
Known Q (cms)	= 0.2650

Highlighted

Depth (m)	= 0.1189
Q (cms)	= 0.265
Area (sqm)	= 0.4596
Velocity (m/s)	= 0.5766
Wetted Perim (m)	= 8.4310
Crit Depth, Yc (m)	= 0.1097
Top Width (m)	= 8.4275
EGL (m)	= 0.1358

(Sta, El, n)-(Sta, El, n)...

(0.0000, 228.9700)-(5.7450, 228.8700, 0.035)-(9.0440, 228.7700, 0.035)-(12.1380, 228.8700, 0.035)-(25.7200, 229.1400, 0.035)



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Aug 18 2022

FER-15101 - East Channel Capacity at 0.5% Slope

Trapezoidal

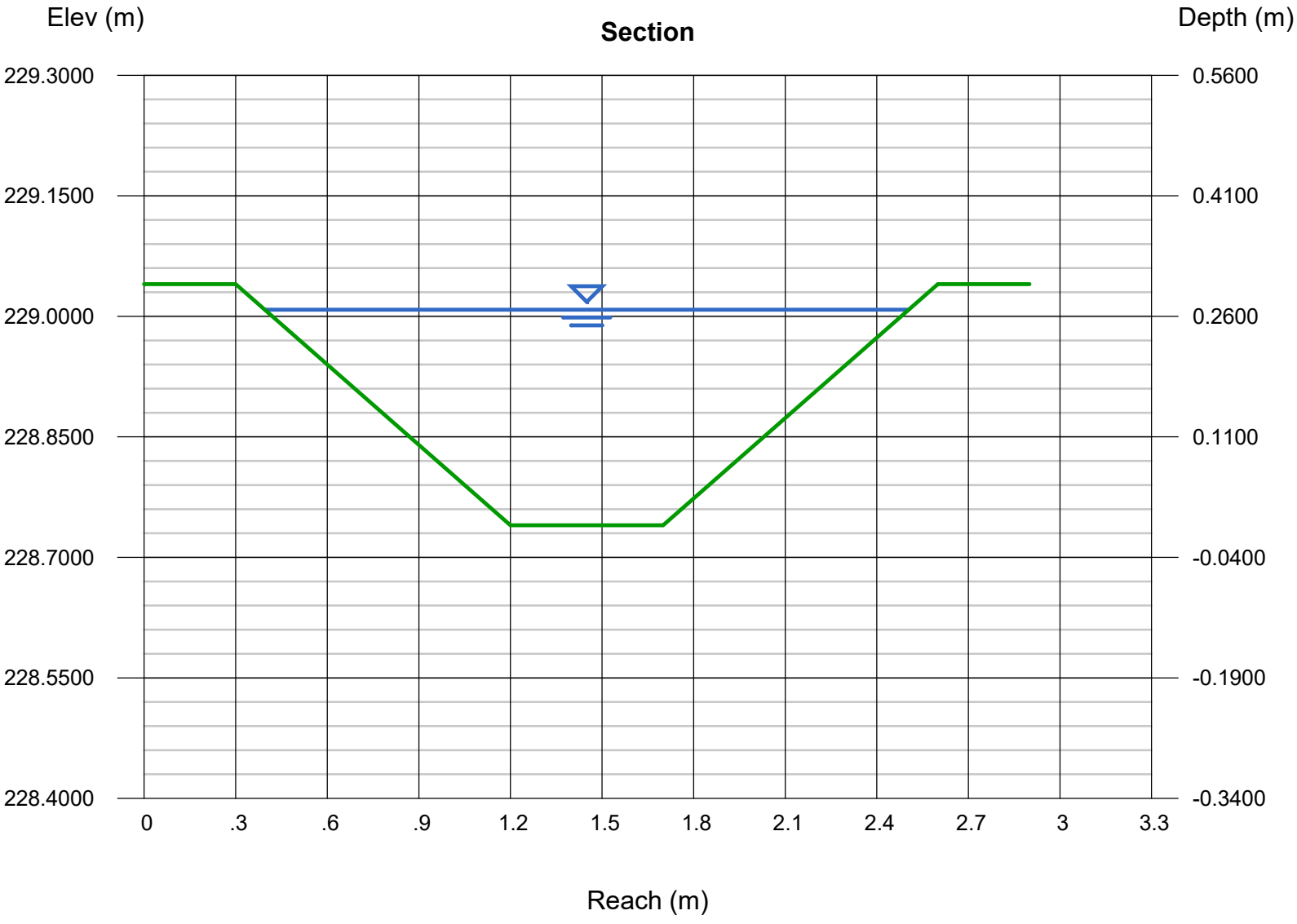
Bottom Width (m)	= 0.5000
Side Slopes (z:1)	= 3.0000, 3.0000
Total Depth (m)	= 0.3000
Invert Elev (m)	= 228.7400
Slope (%)	= 0.5000
N-Value	= 0.035

Calculations

Compute by:	Known Q
Known Q (cms)	= 0.2030

Highlighted

Depth (m)	= 0.2682
Q (cms)	= 0.203
Area (sqm)	= 0.3499
Velocity (m/s)	= 0.5801
Wetted Perim (m)	= 2.1964
Crit Depth, Yc (m)	= 0.1829
Top Width (m)	= 2.1093
EGL (m)	= 0.2854



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Aug 18 2022

FER-15101 - East Channel Capacity at 7% Slope

Trapezoidal

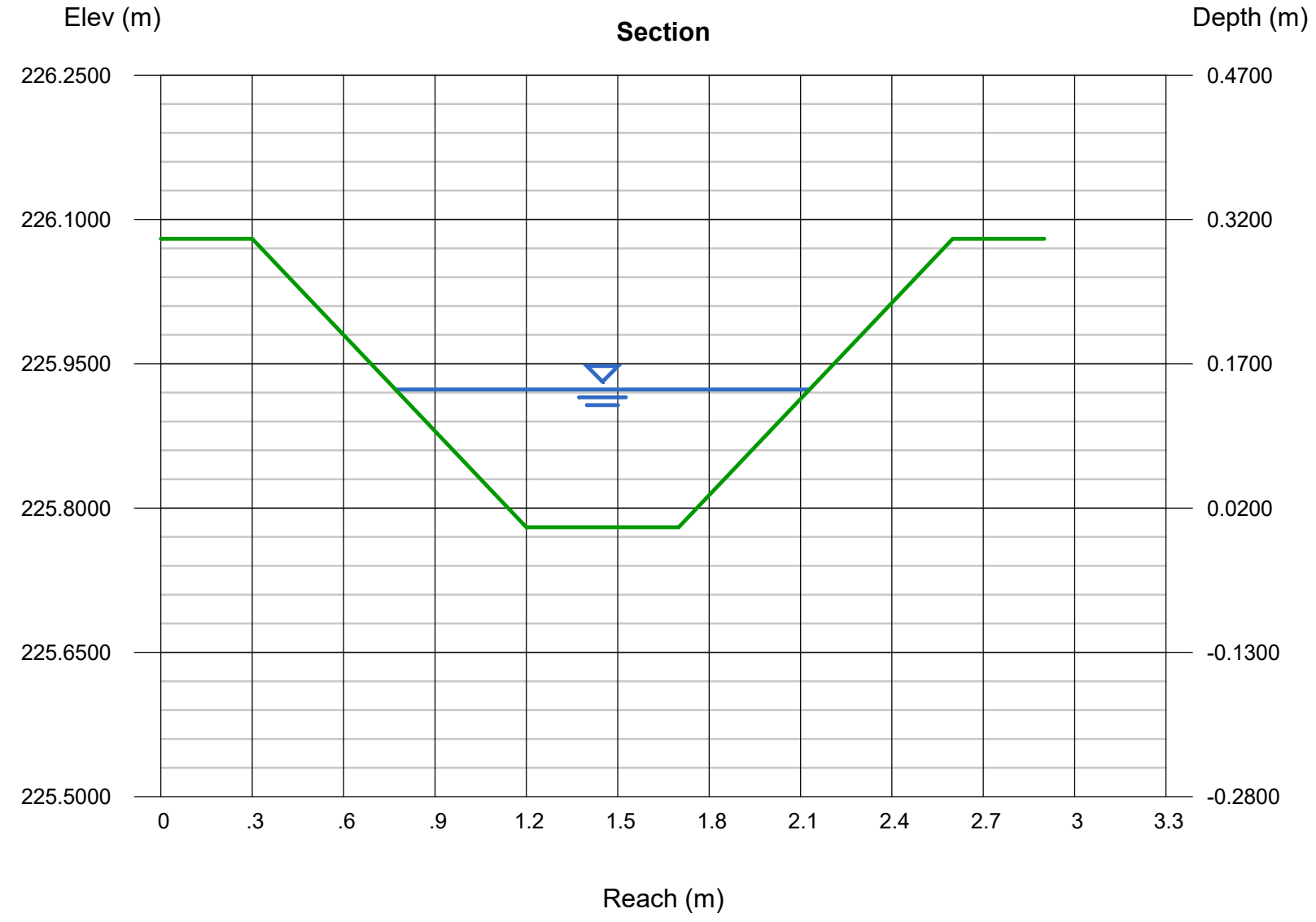
Bottom Width (m)	= 0.5000
Side Slopes (z:1)	= 3.0000, 3.0000
Total Depth (m)	= 0.3000
Invert Elev (m)	= 225.7800
Slope (%)	= 7.0000
N-Value	= 0.035

Calculations

Compute by:	Known Q
Known Q (cms)	= 0.2030

Highlighted

Depth (m)	= 0.1433
Q (cms)	= 0.203
Area (sqm)	= 0.1332
Velocity (m/s)	= 1.5241
Wetted Perim (m)	= 1.4060
Crit Depth, Yc (m)	= 0.1829
Top Width (m)	= 1.3595
EGL (m)	= 0.2617



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Aug 18 2022

FER-15101 - East Channel Capacity at 18.3% Slope

Trapezoidal

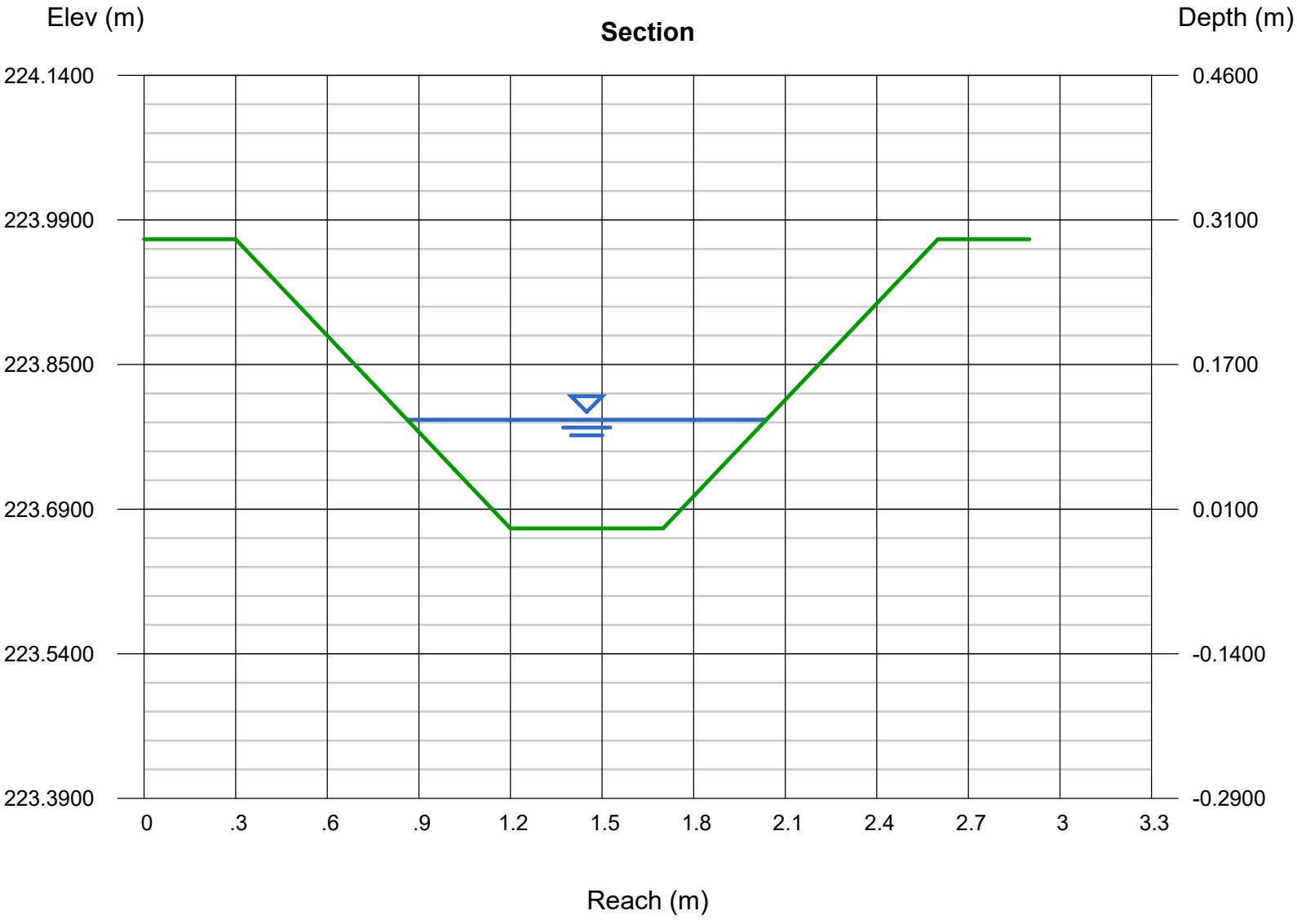
Bottom Width (m)	= 0.5000
Side Slopes (z:1)	= 3.0000, 3.0000
Total Depth (m)	= 0.3000
Invert Elev (m)	= 223.6800
Slope (%)	= 18.3000
N-Value	= 0.035

Calculations

Compute by:	Known Q
Known Q (cms)	= 0.2030

Highlighted

Depth (m)	= 0.1128
Q (cms)	= 0.203
Area (sqm)	= 0.0945
Velocity (m/s)	= 2.1472
Wetted Perim (m)	= 1.2133
Crit Depth, Yc (m)	= 0.1829
Top Width (m)	= 1.1767
EGL (m)	= 0.3479



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Aug 18 2022

FER-15101 - East Channel Capacity Existing Section at 15.16% Slope

User-defined

Invert Elev (m)	= 220.5400
Slope (%)	= 15.1600
N-Value	= 0.035

Calculations

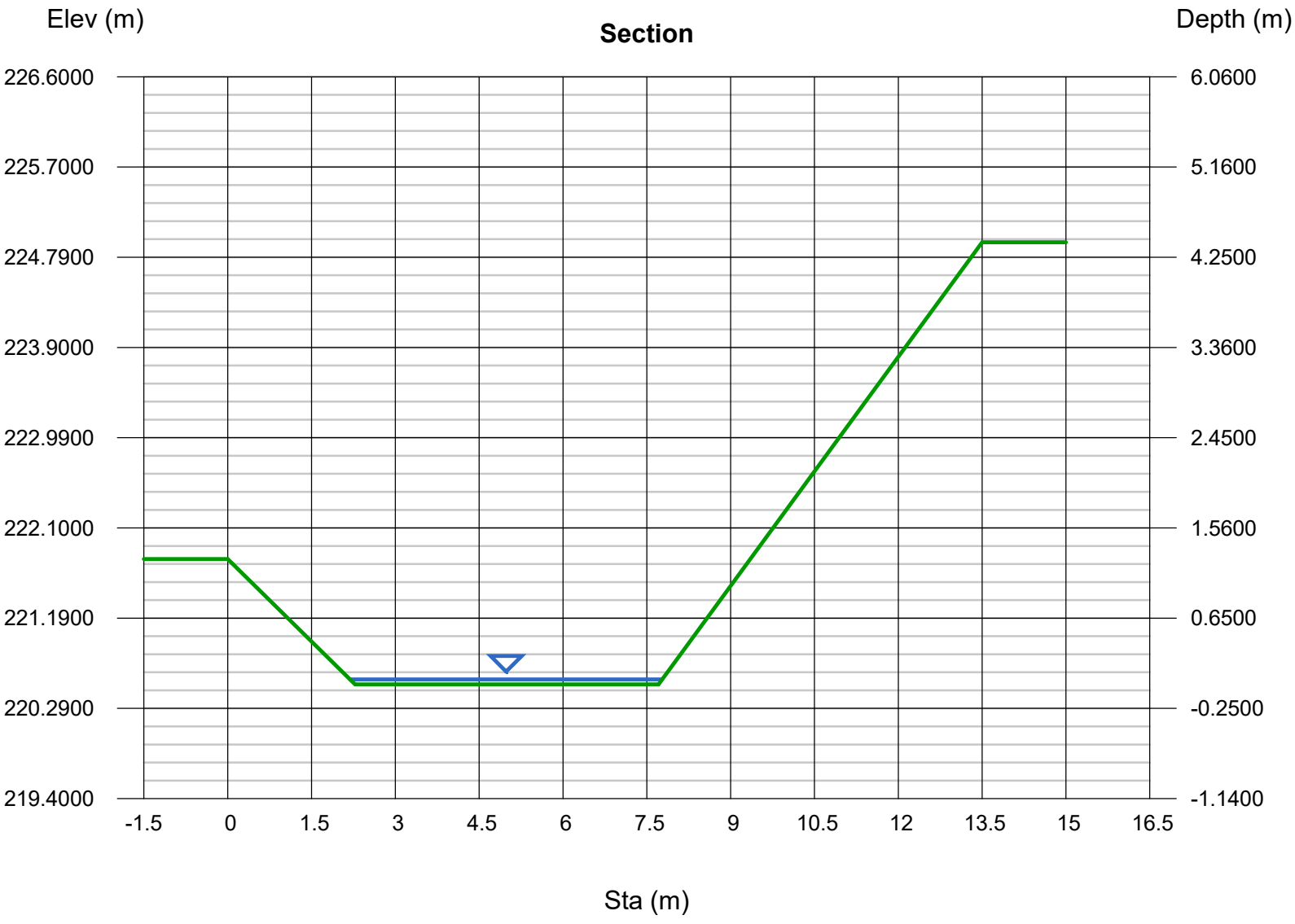
Compute by:	Known Q
Known Q (cms)	= 0.3830

Highlighted

Depth (m)	= 0.0488
Q (cms)	= 0.3830
Area (sqm)	= 0.2685
Velocity (m/s)	= 1.4265
Wetted Perim (m)	= 5.6119
Crit Depth, Yc (m)	= 0.0792
Top Width (m)	= 5.5830
EGL (m)	= 0.1526

(Sta, El, n)-(Sta, El, n)...

(0.0000, 221.7900)-(2.2800, 220.5400, 0.035)-(7.7100, 220.5400, 0.035)-(13.5000, 224.9500, 0.035)



Culvert Calculator Report
3 twin Street A culverts

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	229.79	m	Headwater Depth/Height	0.60	
Computed Headwater Elevation	229.16	m	Discharge	0.5090	m³/s
Inlet Control HW Elev.	229.14	m	Tailwater Elevation	228.85	m
Outlet Control HW Elev.	229.16	m	Control Type	Outlet Control	

Grades					
Upstream Invert	228.93	m	Downstream Invert	228.85	m
Length	15.8	m	Constructed Slope	0.005063	m/m

Hydraulic Profile					
Profile	M2		Depth, Downstream	0.15	m
Slope Type	Mild		Normal Depth	0.22	m
Flow Regime	Subcritical		Critical Depth	0.21	m
Velocity Downstream	2.07	m/s	Critical Slope	0.006021	m/m

Section					
Section Shape	Circular		Mannings Coefficient	0.013	
Section Material	Concrete		Span	0.38	m
Section Size	375 mm		Rise	0.38	m
Number Sections	6				

Outlet Control Properties					
Outlet Control HW Elev.	229.16	m	Upstream Velocity Head	0.05	m
Ke	0.50		Entrance Loss	0.03	m

Inlet Control Properties					
Inlet Control HW Elev.	229.14	m	Flow Control	N/A	
Inlet Type	Square edge w/headwall		Area Full	0.7	m²
K	0.00980		HDS 5 Chart	1	
M	2.00000		HDS 5 Scale	1	
C	0.03980		Equation Form	1	
Y	0.67000				

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Aug 18 2022

FER-15101 - West Culvert Outlet at 1% Slope

Trapezoidal

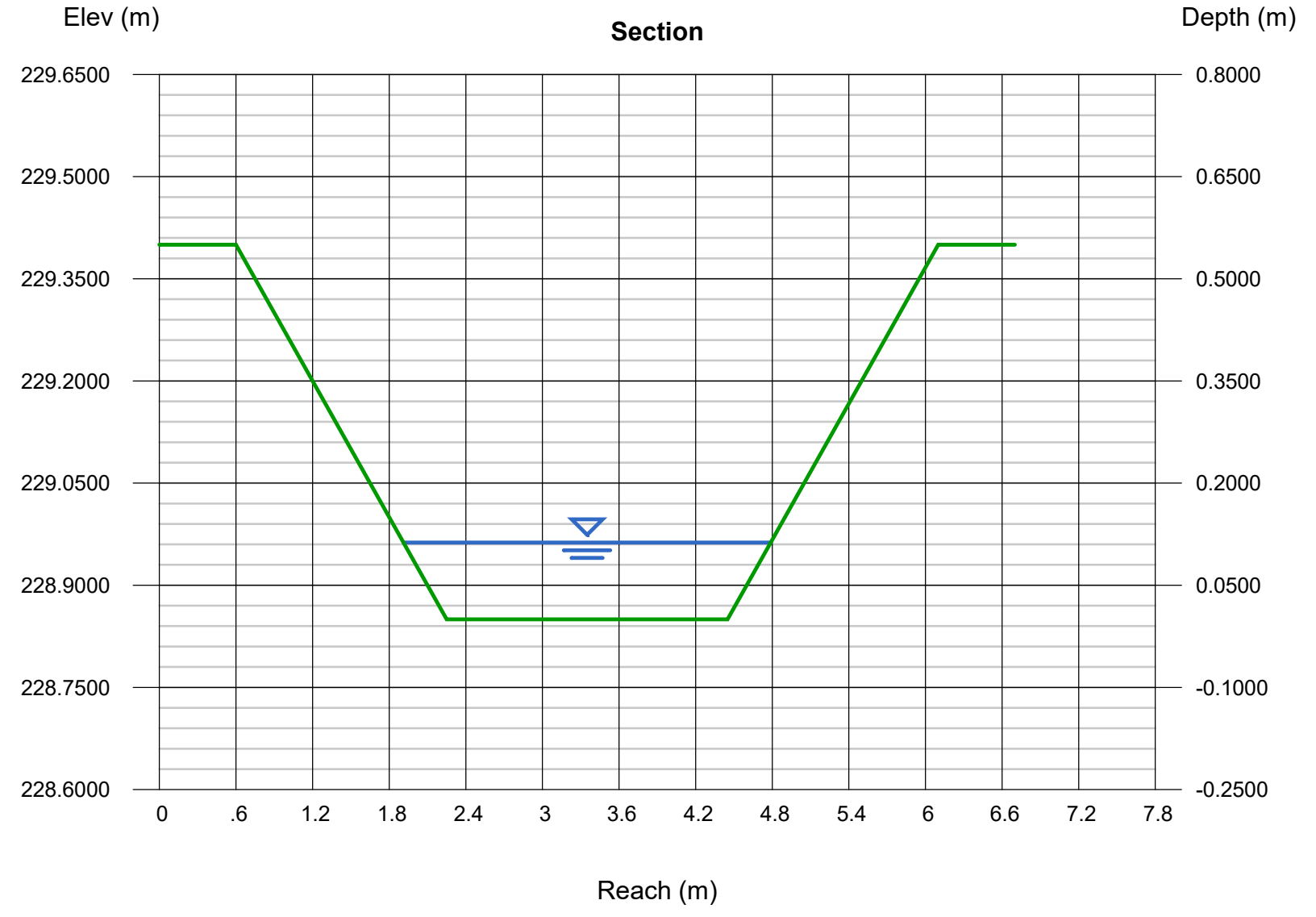
Bottom Width (m)	= 2.2000
Side Slopes (z:1)	= 3.0000, 3.0000
Total Depth (m)	= 0.5500
Invert Elev (m)	= 228.8500
Slope (%)	= 1.0000
N-Value	= 0.035

Calculations

Compute by:	Known Q
Known Q (cms)	= 0.1700

Highlighted

Depth (m)	= 0.1128
Q (cms)	= 0.170
Area (sqm)	= 0.2863
Velocity (m/s)	= 0.5939
Wetted Perim (m)	= 2.9133
Crit Depth, Yc (m)	= 0.0823
Top Width (m)	= 2.8767
EGL (m)	= 0.1308



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Aug 18 2022

FER-15101 - West Channel Capacity next to berm at 3.4% Slope

User-defined

Invert Elev (m)	= 227.0480
Slope (%)	= 3.4000
N-Value	= 0.035

Calculations

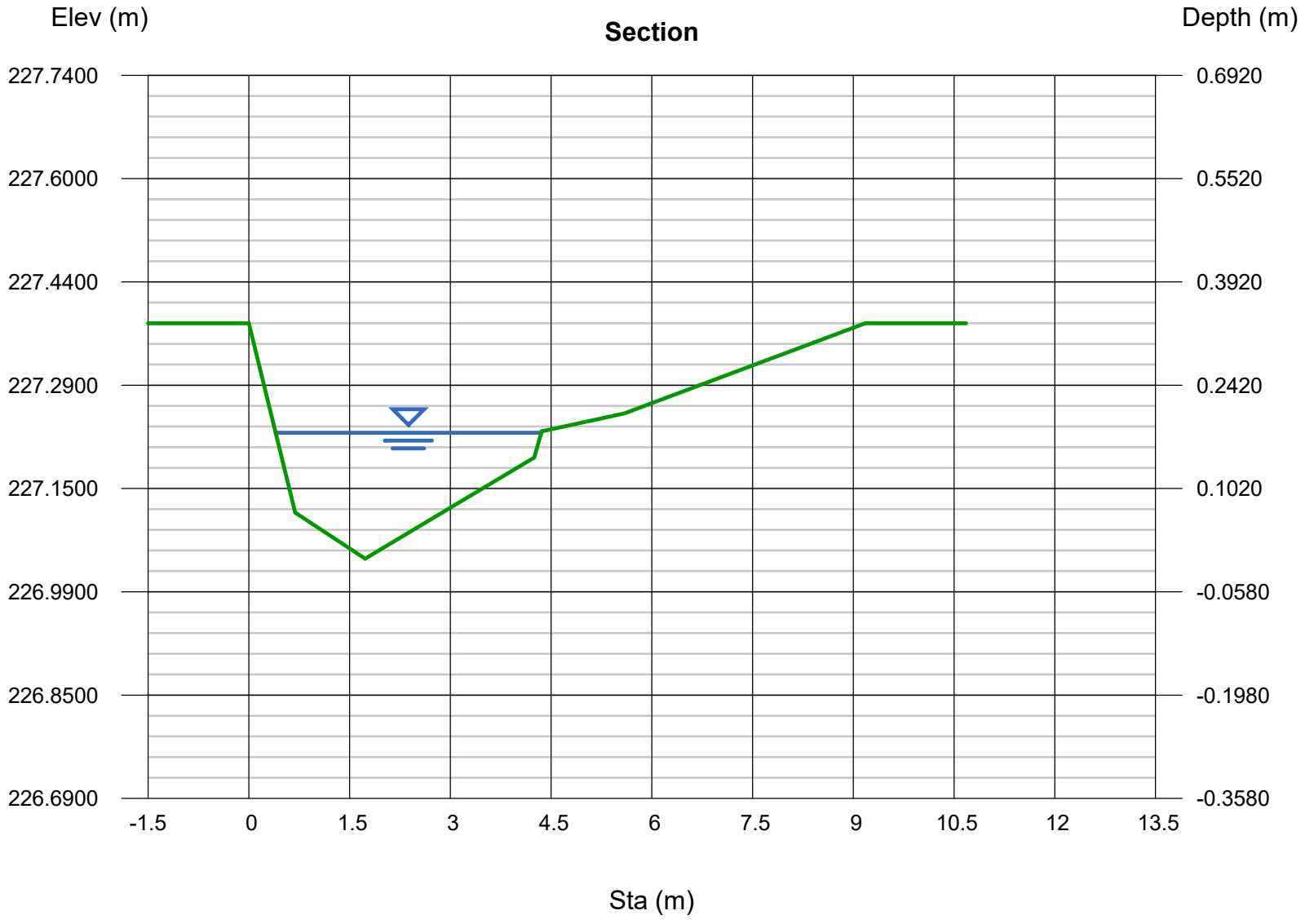
Compute by:	Known Q
Known Q (cms)	= 0.5350

Highlighted

Depth (m)	= 0.1829
Q (cms)	= 0.5350
Area (sqm)	= 0.4497
Velocity (m/s)	= 1.1898
Wetted Perim (m)	= 3.9893
Crit Depth, Yc (m)	= 0.1981
Top Width (m)	= 3.9546
EGL (m)	= 0.2551

(Sta, El, n)-(Sta, El, n)...

(0.0000, 227.3900)-(0.6900, 227.1150, 0.035)-(1.7300, 227.0480, 0.035)-(4.2500, 227.1950, 0.035)-(4.3600, 227.2330, 0.035)-(5.5900, 227.2590, 0.035)-(9.1800, 2



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Friday, Aug 19 2022

FER-15101 - West Culvert Spillway at 0.5% Slope

Trapezoidal

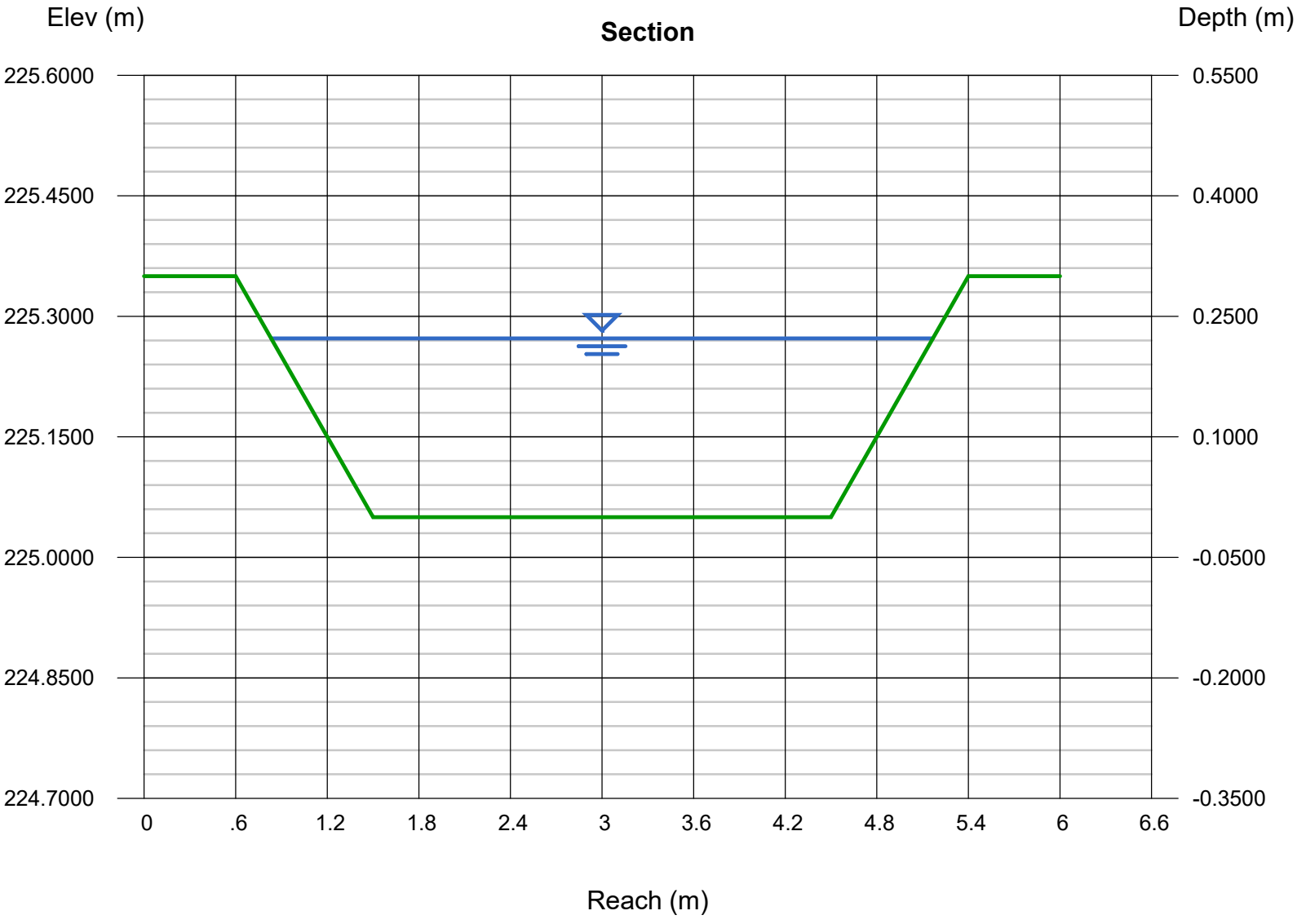
Bottom Width (m)	= 3.0000
Side Slopes (z:1)	= 3.0000, 3.0000
Total Depth (m)	= 0.3000
Invert Elev (m)	= 225.0500
Slope (%)	= 0.5000
N-Value	= 0.035

Calculations

Compute by:	Known Q
Known Q (cms)	= 0.5350

Highlighted

Depth (m)	= 0.2225
Q (cms)	= 0.5350
Area (sqm)	= 0.8160
Velocity (m/s)	= 0.6556
Wetted Perim (m)	= 4.4072
Crit Depth, Yc (m)	= 0.1433
Top Width (m)	= 4.3350
EGL (m)	= 0.2444



Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: East Channel refer to Hydroflow express printout titled "*FER-15101 - East Channel Capacity at 0.5% Slope*" in S&SWMR **Appendix C**.

Flow rate has been extracted from the *Hazel AMCIII Post-Dev-PF Channel* model at AddHyd 5.

CLIENT: Fernbrook Homes (Parkside) Ltd. **DATE:** August 2022

PROJECT: 70 Pioneer Trail **DESIGN:** MG

FILE: FER-15101 (50) **CHECKED BY:** JWI

CHANNEL GEOMETRY

East Bypass Channel			
Channel Slope (S)	0.005	m/m	average slope
Bottom Width (b_w)	0.5	m	
Side Slope (Left)	3	:1 (H:V)	
Side Slope (Right)	3	:1 (H:V)	
Wetted Perimeter (P_w)	2.196	m	
Hydraulic Radius (R)	0.159	m	
Normal Depth (y)	0.2682	m	
Velocity (V)	0.5801	m/s	
Discharge (Q)	0.203	m^3/s	From OTTHYMO *Post-Dev-PF Channel* model during governing storm event.
Froude Number (F)	0.45		
Flow Type	subcritical flow		

TRACTIVE FORCES - Channel Bed

$\tau_{b\,max} = K_b * \gamma * R * S$

Where: $K_b = (Z/2)^{0.14}\,[1.42 - 0.019 \ln (b_w / y)^3]$ or MTO Design Chart No. 2.11

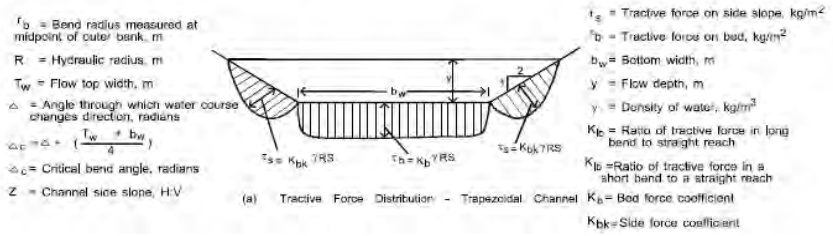
$\tau_{b\,max}$ = maximum tractive bed stress (N/m^2)
K_b = tractive force coefficient (bed), MTO Design Chart 2.11
γ = unit weight of water (9810 N/m^3)
R = hydraulic radius (m)
S = channel slope (m/m)

East Bypass Channel

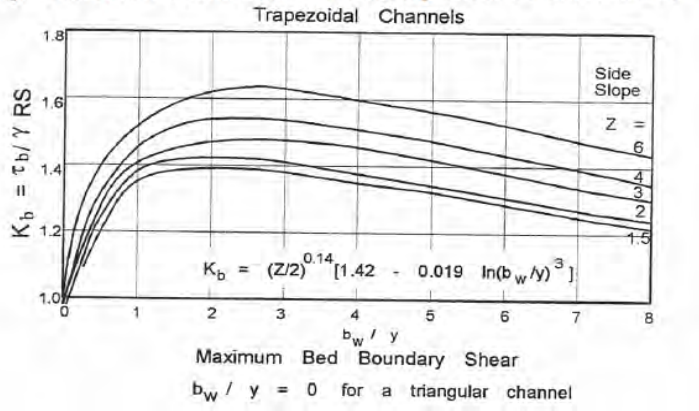
K_b = 1.47
γ = 9810 N/m^3
R = 0.159 m
S = 0.005 m/m

$\tau_{b\,max}$ =	11.45 N/m^2

Figure 5.32: Tractive Force Distribution



Design Chart 2.11: Coefficients of Boundary Shear on Channel Bed



Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: East Channel refer to Hydroflow express printout titled "*FER-15101 - East Channel Capacity at 0.5% Slope*" in S&SWMR **Appendix C**.

Flow rate has been extracted from the *Hazel AMCIII Post-Dev-PF Channel* model at AddHyd 5.

CLIENT: Fernbrook Homes (Parkside) Ltd. **DATE:** August 2022

PROJECT: 70 Pioneer Trail **DESIGN:** MG

FILE: FER-15101 (50) **CHECKED BY:** JWI

TRACTIVE FORCES - Channel Banks

$\tau_{s\,max} = K_{bk} * \gamma * R * S$

Where: $K_b = (Z/2)^{0.36}\,[1.3 - 0.15\,\ln(b_w / y)]$ or MTO Design Chart No. 2.12

$\tau_{s\,max}$ = maximum tractive bank stress (N/m^2)
K_{bk} = tractive force coefficient (bank), MTO Design Chart 2.12
γ = unit weight of water (9810 N/m^3)
R = hydraulic radius (m)
S = channel slope (m/m)

East Bypass Channel

K_b = 1.40
γ = 9810 N/m^3
R = 0.1593 m
S = 0.005 m/m

$\tau_{b\,max}$ = 10.91 N/m^2

RESISTIVE FORCES - Channel Bed

$\tau_{cb} = 0.0642 * D_{50}$

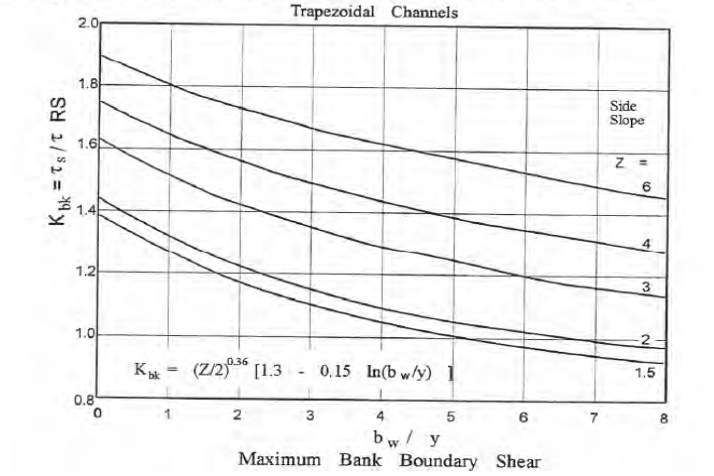
Where: τ_{cb} = critical side Shear Stress of particles on Channel Bed (kg/m^2)
D_{50} = median particle size (mm)

East Bypass Channel

Channel will be seeded with Simcoe County Native seed mixture.

τ_{cb} = 10 (kg/m^2)
or 98.10 N/m^2

Design Chart 2.12: Coefficients of Boundary Shear on the Side Slope



From MTO Drainage Management Manual Design Chart 2.16:

Vegitative	Permissible Unit Shear Stress (kg/m²)
Class A	18 kg/m²
Class B	**10 kg/m²**
Class C	4.9 kg/m²
Class D	2.9 kg/m²
Class E	1.7 kg/m²

Channel will be seeded with **Simcoe County Native Seed Mixture**. According to *MTO Drainage Management Manual Design Chart 2.22* Native grass mixture is classified as a **Class B retardance** therefore the **Permitted Critical Shear Stress on the channel bed is 10 kg/m².**

Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: East Channel refer to Hydroflow express printout titled "*FER-15101 - East Channel Capacity at 0.5% Slope*" in S&SWMR **Appendix C**.

Flow rate has been extracted from the *Hazel AMCIII Post-Dev-PF Channel* model at AddHyd 5.

CLIENT: Fernbrook Homes (Parkside) Ltd. **DATE:** August 2022

PROJECT: 70 Pioneer Trail **DESIGN:** MG

FILE: FER-15101 (50) **CHECKED BY:** JWI

RESISTIVE FORCES - Channel Banks

$\tau_{cs} = K_{cs} * \tau_{cb}$

Where: $K_{cs} = (1 - (\sin^2\theta / \sin^2\phi))^{0.5}$

θ = Channel Side Slope Angle

ϕ = Angle of Repose of Bank Material (MTO Design Chart 2.13

θ = 18.43 ° (Critical Bank Where Z=3)

ϕ = 42.30 °

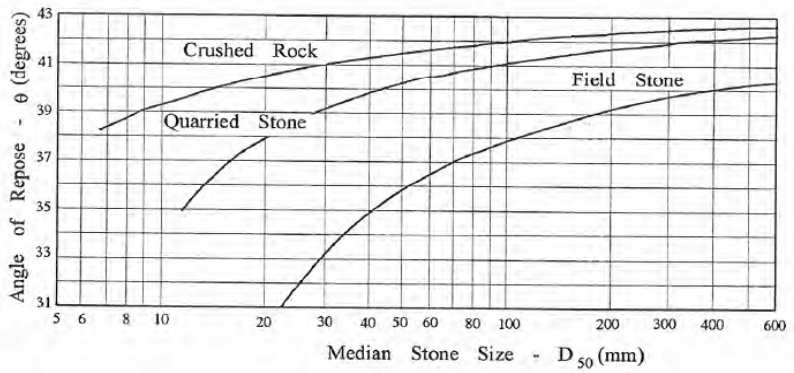
K_{cs} = 0.912

τ_{cb} = 98.10 N/m^2

East Bypass Channel

τ_{cs} =	**89.48 N/m^2**

Design Chart 2.13: Determining Angle of Repose



Design Chart 2.16: Permissible Shear for Lining Materials

Vegetative			Permissible Unit Shear Stress (kg / m^2)	
Class A			18	
Class B			10	
Class C			4.9	
Class D			2.9	
Class E			1.7	
Gravel Riprap	1"	25 mm	1.6	Estimates only. Permissible shear stress is dependent on several factors including flow depth, velocity, bank side slope, etc.
	2"	50 mm	3.2	
Rock Riprap	6"	150 mm	9.8	
	12"	300 mm	20	

Note: Class A, B, C, D and E shown on Design Chart 2.23

SUMMARY		
	Channel Boundary Shear Stress (N/m^2)	Channel Lining Shear Resistance (N/m^2)
Channel Bed	11.45	98.10
Channel Banks	10.91	89.48

Seeding the channel with Simcoe County Native seed mixture will provide sufficient channel lining shear resistance.

Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: East Channel refer to Hydroflow express printout titled "*FER-15101 - East Channel Capacity at 7% Slope*" in S&SWMR **Appendix C**.

Flow rate has been extracted from the *Hazel AMCIII Post-Dev-PF Channel* model at AddHyd 5.

CLIENT: Fernbrook Homes (Parkside) Ltd. **DATE:** August 2022

PROJECT: 70 Pioneer Trail **DESIGN:** MG

FILE: FER-15101 (50) **CHECKED BY:** JWI

CHANNEL GEOMETRY

East Bypass Channel			
Channel Slope (S)	0.07	m/m	average slope
Bottom Width (b_w)	0.5	m	
Side Slope (Left)	3	:1 (H:V)	
Side Slope (Right)	3	:1 (H:V)	
Wetted Perimeter (P_w)	1.406	m	
Hydraulic Radius (R)	0.095	m	
Normal Depth (y)	0.1433	m	
Velocity (V)	1.5241	m/s	
Discharge (Q)	0.203	m^3/s	From OTTHYMO *Post-Dev-PF Channel* model during governing storm event.
Froude Number (F)	1.55		
Flow Type	supercritical flow		

TRACTIVE FORCES - Channel Bed

$\tau_{b\,max} = K_b * \gamma * R * S$

Where: $K_b = (Z/2)^{0.14}\,[1.42 - 0.019 \ln (b_w / y)^3]$ or MTO Design Chart No. 2.11

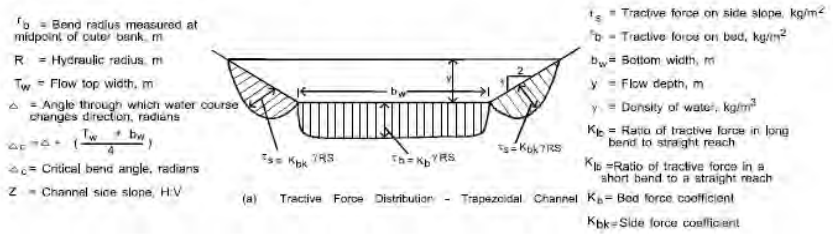
$\tau_{b\,max}$ = maximum tractive bed stress (N/m^2)
K_b = tractive force coefficient (bed), MTO Design Chart 2.11
γ = unit weight of water (9810 N/m^3)
R = hydraulic radius (m)
S = channel slope (m/m)

East Bypass Channel

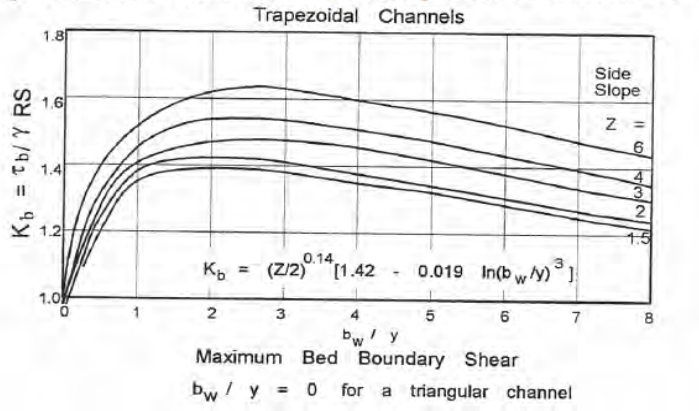
K_b = 1.43
γ = 9810 N/m^3
R = 0.095 m
S = 0.07 m/m

$\tau_{b\,max}$ =	92.89 N/m^2

Figure 5.32: Tractive Force Distribution



Design Chart 2.11: Coefficients of Boundary Shear on Channel Bed



Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: East Channel refer to Hydroflow express printout titled "*FER-15101 - East Channel Capacity at 7% Slope*" in S&SWMR **Appendix C**.

Flow rate has been extracted from the *Hazel AMCIII Post-Dev-PF Channel* model at AddHyd 5.

CLIENT: Fernbrook Homes (Parkside) Ltd. **DATE:** August 2022

PROJECT: 70 Pioneer Trail **DESIGN:** MG

FILE: FER-15101 (50) **CHECKED BY:** JWI

TRACTIVE FORCES - Channel Banks

$\tau_{s\,max} = K_{bk} * \gamma * R * S$

Where: $K_b = (Z/2)^{0.36}\,[1.3 - 0.15\,\ln(b_w / y)]$ or MTO Design Chart No. 2.12

$\tau_{s\,max}$ = maximum tractive bank stress (N/m^2)
K_{bk} = tractive force coefficient (bank), MTO Design Chart 2.12
γ = unit weight of water (9810 N/m^3)
R = hydraulic radius (m)
S = channel slope (m/m)

East Bypass Channel

K_b =	1.29
γ =	9810 N/m^3
R =	0.0948 m
S =	0.07 m/m

$\tau_{b\,max}$ =	**83.77 N/m^2**

RESISTIVE FORCES

East Bypass Channel

τ_{cb} = critical side Shear Stress of particles on Channel Bed (kg/m^2)

Terrafix FM200 has been specified to line the chanel bed and banks. The following information has been referenced from the product specification sheet. This product will be vegitated.

Unvegetated Maximum Permissible Shear Stress =	158.4 Pa
Vegetated Maximum Permissible Shear Stress =	665 Pa
Maximum Flow Velocity Unvegetated =	3.8 m/s
Maximum Flow Velocity Vegetated =	6.65 m/s

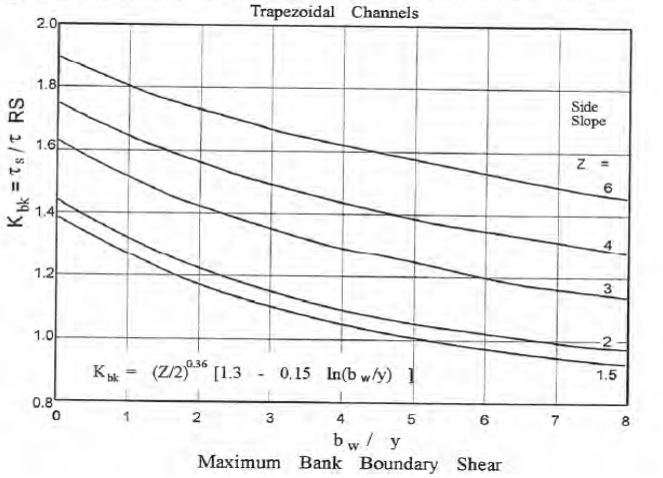
τ_{cb} =	**665.00 N/m^2**

1Pa = 1N/m²

SUMMARY		
	Channel Boundary Shear Stress (N/m^2)	Channel Boundary Shear Stress (N/m^2)
Channel Bed	92.89	665.00
Channel Banks	83.77	665.00

The shear stress and maximum velocity in the channel are within maximum limits of the product. The product is suitable to line the channel with.

Design Chart 2.12: Coefficients of Boundary Shear on the Side Slope



Design Chart 2.16: Permissible Shear for Lining Materials

Vegetative			Permissible Unit Shear Stress (kg / m^2)	
Class A			18	
Class B			10	
Class C			4.9	
Class D			2.9	
Class E			1.7	
Gravel Riprap	1"	25 mm	1.6	Estimates only. Permissible shear stress is dependent on several factors including flow depth, velocity, bank side slope, etc.
	2"	50 mm	3.2	
Rock Riprap	6"	150 mm	9.8	
	12"	300 mm	20	

Note: Class A, B, C, D and E shown on Design Chart 2.23

Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: East Channel refer to Hydroflow express printout titled "*FER-15101 - East Channel Capacity at 18.3% Slope*" in S&SWMR **Appendix C**.

Flow rate has been extracted from the *Hazel AMCIII Post-Dev-PF Channel* model at AddHyd 5.

CLIENT: Fernbrook Homes (Parkside) Ltd. **DATE:** August 2022

PROJECT: 70 Pioneer Trail **DESIGN:** MG

FILE: FER-15101 (50) **CHECKED BY:** JWI

CHANNEL GEOMETRY

East Bypass Channel			
Channel Slope (S)	0.183	m/m	average slope
Bottom Width (b_w)	0.5	m	
Side Slope (Left)	3	:1 (H:V)	
Side Slope (Right)	3	:1 (H:V)	
Wetted Perimeter (P_w)	1.213	m	
Hydraulic Radius (R)	0.078	m	
Normal Depth (y)	0.1128	m	
Velocity (V)	2.1472	m/s	
Discharge (Q)	0.203	m^3/s	From OTTHYMO *Post-Dev-PF Channel* model during governing storm event.
Froude Number (F)	2.42		
Flow Type	supercritical flow		

TRACTIVE FORCES - Channel Bed

$\tau_{b\,max} = K_b * \gamma * R * S$

Where: $K_b = (Z/2)^{0.14}\,[1.42 - 0.019 \ln (b_w / y)^3]$ or MTO Design Chart No. 2.11

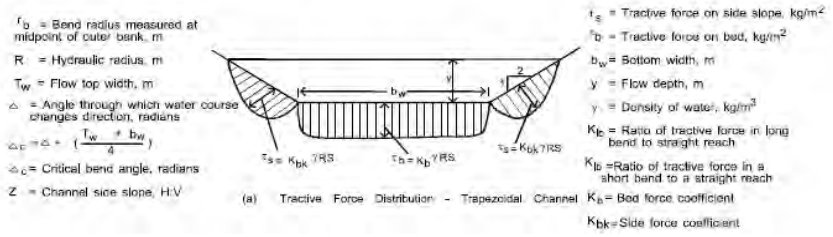
$\tau_{b\,max}$ = maximum tractive bed stress (N/m^2)
K_b = tractive force coefficient (bed), MTO Design Chart 2.11
γ = unit weight of water (9810 N/m^3)
R = hydraulic radius (m)
S = channel slope (m/m)

East Bypass Channel

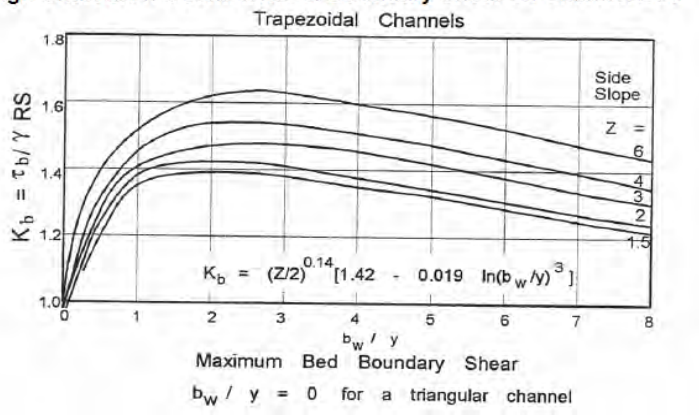
K_b = 1.41
γ = 9810 N/m^3
R = 0.078 m
S = 0.183 m/m

$\tau_{b\,max}$ =	197.72 N/m^2

Figure 5.32: Tractive Force Distribution



Design Chart 2.11: Coefficients of Boundary Shear on Channel Bed



Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: East Channel refer to Hydroflow express printout titled "*FER-15101 - East Channel Capacity at 18.3% Slope*" in S&SWMR **Appendix C**.

Flow rate has been extracted from the *Hazel AMCIII Post-Dev-PF Channel* model at AddHyd 5.

CLIENT: Fernbrook Homes (Parkside) Ltd. **DATE:** August 2022

PROJECT: 70 Pioneer Trail **DESIGN:** MG

FILE: FER-15101 (50) **CHECKED BY:** JWI

TRACTIVE FORCES - Channel Banks

$\tau_{s\,max} = K_{bk} * \gamma * R * S$

Where: $K_b = (Z/2)^{0.36}\,[1.3 - 0.15\,\ln(b_w / y)]$ or MTO Design Chart No. 2.12

$\tau_{s\,max}$ = maximum tractive bank stress (N/m^2)
K_{bk} = tractive force coefficient (bank), MTO Design Chart 2.12
γ = unit weight of water (9810 N/m^3)
R = hydraulic radius (m)
S = channel slope (m/m)

East Bypass Channel

K_b = 1.25
γ = 9810 N/m^3
R = 0.0779 m
S = 0.183 m/m

$\tau_{b\,max}$ = 174.32 N/m^2

RESISTIVE FORCES

East Bypass Channel

τ_{cb} = critical side Shear Stress of particles on Channel Bed (kg/m^2)

Terrafix FM200 has been specified to line the chanel bed and banks. The following information has been referenced from the product specification sheet. This product will be vegitated.

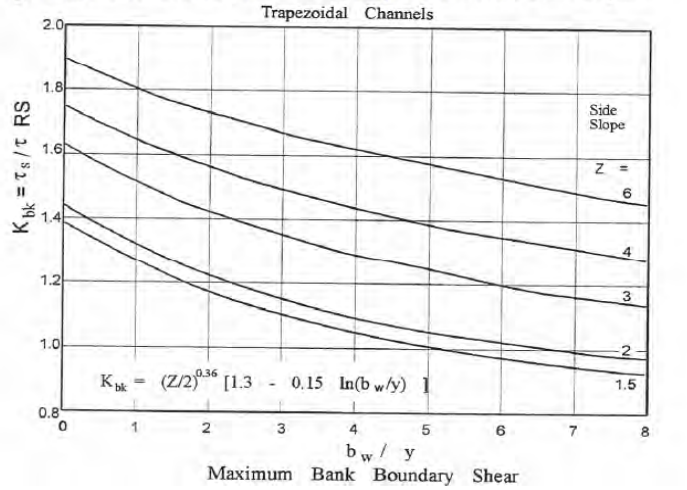
Unvegetated Maximum Permissible Shear Stress = 158.4 Pa
Vegetated Maximum Permissible Shear Stress = 665 Pa
Maximum Flow Velocity Unvegetated = 3.8 m/s
Maximum Flow Velocity Vegetated = 6.65 m/s

τ_{cb} = 665.00 N/m^2 1Pa = 1N/m²

SUMMARY		
	Channel Boundary Shear Stress (N/m^2)	Channel Boundary Shear Stress (N/m^2)
Channel Bed	197.72	665.00
Channel Banks	174.32	665.00

The shear stress and maximum velocity in the channel are within maximum limits of the product. The product is suitable to line the channel with.

Design Chart 2.12: Coefficients of Boundary Shear on the Side Slope



Design Chart 2.16: Permissible Shear for Lining Materials

Vegetative			Permissible Unit Shear Stress (kg / m^2)	
Class A			18	
Class B			10	
Class C			4.9	
Class D			2.9	
Class E			1.7	
Gravel Riprap	1"	25 mm	1.6	Estimates only. Permissible shear stress is dependent on several factors including flow depth, velocity, bank side slope, etc.
	2"	50 mm	3.2	
Rock Riprap	6"	150 mm	9.8	
	12"	300 mm	20	

Note: Class A, B, C, D and E shown on Design Chart 2.23

Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: East Channel refer to Hydroflow express printout titled "*FER-15101 - East Channel Capacity Existing Section at 15.16% Slope*" in S&SWMR **Appendix C**.

Flow rate has been extracted from the *100Yr 24Hr SCS Post-Dev-PF Channel* model at AddHyd 9.

CLIENT: Fernbrook Homes (Parkside) Ltd. **DATE:** August 2022

PROJECT: 70 Pioneer Trail **DESIGN:** MG

FILE: FER-15101 (50) **CHECKED BY:** JWI

CHANNEL GEOMETRY

East Bypass Channel			
Channel Slope (S)	0.1516	m/m	average slope
Bottom Width (b_w)	5.43	m	
Side Slope (Left)	1.824	:1 (H:V)	
Side Slope (Right)	1.313	:1 (H:V)	
Wetted Perimeter (P_w)	5.633	m	
Hydraulic Radius (R)	0.048	m	
Normal Depth (y)	0.0488	m	
Velocity (V)	1.4265	m/s	
Discharge (Q)	0.383	m^3/s	From OTTHYMO *Post-Dev-PF Channel* model during governing storm event.
Froude Number (F)	2.07		
Flow Type	supercritical flow		

TRACTIVE FORCES - Channel Bed

$\tau_{b\,max} = K_b * \gamma * R * S$

Where: $K_b = (Z/2)^{0.14}\,[1.42 - 0.019 \ln (b_w / y)^3]$ or MTO Design Chart No. 2.11

$\tau_{b\,max}$ = maximum tractive bed stress (N/m^2)

K_b = tractive force coefficient (bed), MTO Design Chart 2.11

γ = unit weight of water (9810 N/m^3)

R = hydraulic radius (m)

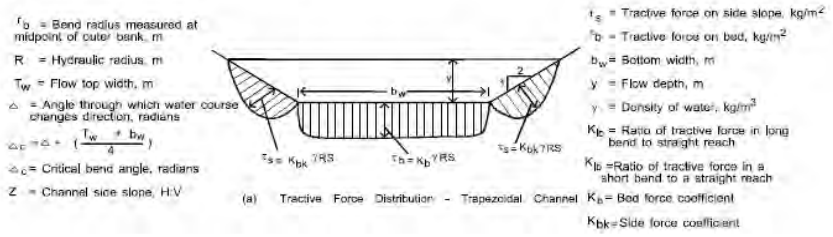
S = channel slope (m/m)

East Bypass Channel

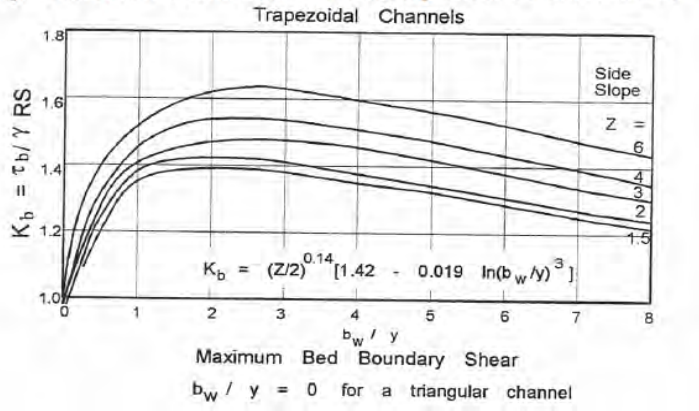
K_b =	1.14	
γ =	9810	N/m^3
R =	0.048	m
S =	0.1516	m/m

$\tau_{b\,max}$ =	**80.64 N/m^2**

Figure 5.32: Tractive Force Distribution



Design Chart 2.11: Coefficients of Boundary Shear on Channel Bed



Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: East Channel refer to Hydroflow express printout titled "*FER-15101 - East Channel Capacity Existing Section at 15.16% Slope*" in S&SWMR **Appendix C**.

Flow rate has been extracted from the *100Yr 24Hr SCS Post-Dev-PF Channel* model at AddHyd 9.

CLIENT: Fernbrook Homes (Parkside) Ltd. **DATE:** August 2022

PROJECT: 70 Pioneer Trail **DESIGN:** MG

FILE: FER-15101 (50) **CHECKED BY:** JWI

TRACTIVE FORCES - Channel Banks

$\tau_{s\,max} = K_{bk} * \gamma * R * S$

Where: $K_b = (Z/2)^{0.36}\,[1.3 - 0.15\,\ln(b_w / y)\,]$ or MTO Design Chart No. 2.12

$\tau_{s\,max}$ = maximum tractive bank stress (N/m^2)
K_{bk} = tractive force coefficient (bank), MTO Design Chart 2.12
γ = unit weight of water (9810 N/m^3)
R = hydraulic radius (m)
S = channel slope (m/m)

East Bypass Channel

K_b = 0.57
γ = 9810 N/m^3
R = 0.0477 m
S = 0.1516 m/m

$\tau_{b\,max}$ = 40.71 N/m^2

RESISTIVE FORCES - Channel Bed

$\tau_{cb} = 0.0642 * D_{50}$

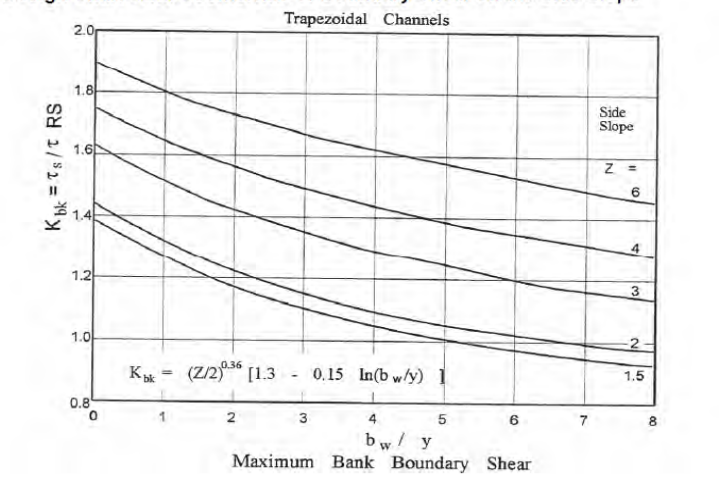
Where: τ_{cb} = critical side Shear Stress of particles on Channel Bed (kg/m^2)
D_{50} = median particle size (mm)

East Bypass Channel

Channel will be seeded with Simcoe County Native seed mixture.

τ_{cb} = 10 (kg/m^2)
or 98.10 N/m^2

Design Chart 2.12: Coefficients of Boundary Shear on the Side Slope



From MTO Drainage Management Manual Design Chart 2.16:

Vegitative	Permissible Unit Shear Stress (kg/m^2)
Class A	18 kg/m^2
Class B	**10 kg/m^2**
Class C	4.9 kg/m^2
Class D	2.9 kg/m^2
Class E	1.7 kg/m^2

Channel will be seeded with **Simcoe County Native Seed Mixture**. According to *MTO Drainage Management Manual Design Chart 2.22* Native grass mixture is classified as a **Class B retardance** therefore the **Permitted Critical Shear Stress on the channel bed is 10 kg/m^2.**

Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: East Channel refer to Hydroflow express printout titled "*FER-15101 - East Channel Capacity Existing Section at 15.16% Slope*" in S&SWMR **Appendix C**.

Flow rate has been extracted from the *100Yr 24Hr SCS Post-Dev-PF Channel* model at AddHyd 9.

CLIENT: Fernbrook Homes (Parkside) Ltd. **DATE:** August 2022

PROJECT: 70 Pioneer Trail **DESIGN:** MG

FILE: FER-15101 (50) **CHECKED BY:** JWI

RESISTIVE FORCES - Channel Banks

$\tau_{cs} = K_{cs} * \tau_{cb}$

Where: $K_{cs} = (1 - (\sin^2\theta / \sin^2\phi))^{0.5}$

θ = Channel Side Slope Angle

ϕ = Angle of Repose of Bank Material (MTO Design Chart 2.13

θ = 18.43 ° (Critical Bank Where Z=3)

ϕ = 42.30 °

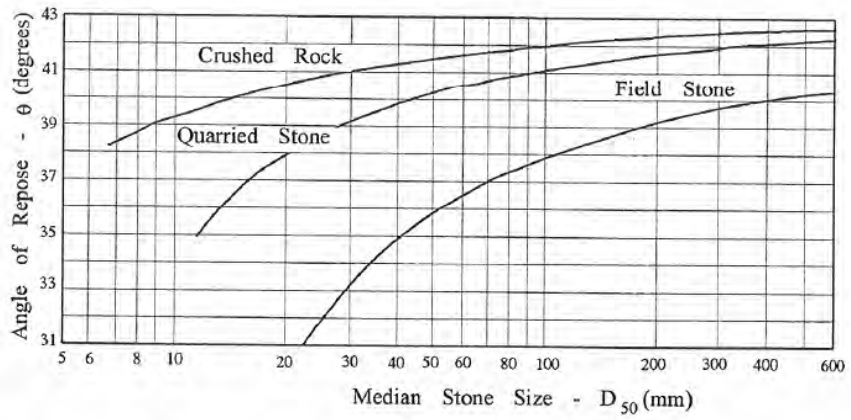
K_{cs} = 0.912

τ_{cb} = 98.10 N/m^2

East Bypass Channel

τ_{cs} =	**89.48 N/m^2**

Design Chart 2.13: Determining Angle of Repose



Design Chart 2.16: Permissible Shear for Lining Materials

Vegetative			Permissible Unit Shear Stress (kg / m^2)	
Class A			18	
Class B			10	
Class C			4.9	
Class D			2.9	
Class E			1.7	
Gravel Riprap	1"	25 mm	1.6	Estimates only. Permissible shear stress is dependent on several factors including flow depth, velocity, bank side slope, etc.
	2"	50 mm	3.2	
Rock Riprap	6"	150 mm	9.8	
	12"	300 mm	20	

Note: Class A, B, C, D and E shown on Design Chart 2.23

SUMMARY		
	Channel Boundary Shear Stress (N/m^2)	Channel Lining Shear Resistance (N/m^2)
Channel Bed	80.64	98.10
Channel Banks	40.71	89.48

Seeding the channel with Simcoe County Native seed mixture will provide sufficient channel lining shear resistance.

Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: *West ROW Culvert Outlet Channel, refer to Hydraflow Express Report titled "FER-15101 - West Culvert Outlet at 1% Slope" in S&SWMR* ***Appendix C*** *.*

Flow rate has been extracted from the 100-year 24-hour Post-Dev-PF Channel model at AddHyd 7 and divided by the number of crossings (3).

CLIENT: Fernbrook Homes (Parkside) Ltd. **DATE:** August 2022

PROJECT: 70 Pioneer Trail **DESIGN:** MG

FILE: FER-15101 (50) **CHECKED BY:** JWI

CHANNEL GEOMETRY

West Culvert Outlet			
Channel Slope (S)	0.01	m/m	average slope
Bottom Width (b_w)	2.2	m	
Side Slope (Left)	3	:1 (H:V)	
Side Slope (Right)	3	:1 (H:V)	
Wetted Perimeter (P_w)	2.913	m	
Hydraulic Radius (R)	0.098	m	
Normal Depth (y)	0.1128	m	
Velocity (V)	0.5939	m/s	
Discharge (Q)	0.170	m^3/s	From OTTHYMO *Post-Dev-PF Channel* model during governing 100 year storm event.
Froude Number (F)	0.60		
Flow Type	subcritical flow		

TRACTIVE FORCES - Channel Bed

$\tau_{b\,max} = K_b * \gamma * R * S$

Where: K_b = $(Z/2)^{0.14}$ [1.42 - 0.019 ln $(b_w / y)^3$] or MTO Design Chart No. 2.11

$\tau_{b\,max}$ = maximum tractive bed stress (N/m^2)

K_b = tractive force coefficient (bed), MTO Design Chart 2.11

γ = unit weight of water (9810 N/m^3)

R = hydraulic radius (m)

S = channel slope (m/m)

West Culvert Outlet

K_b = 1.32

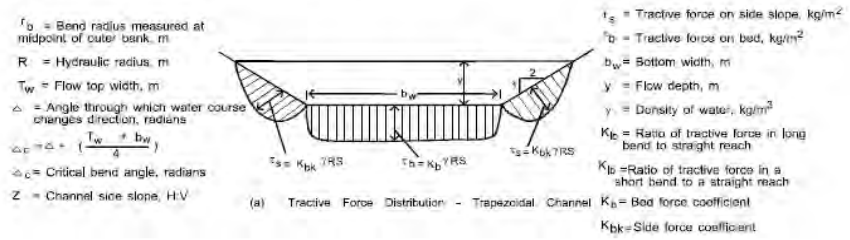
γ = 9810 N/m^3

R = 0.098 m

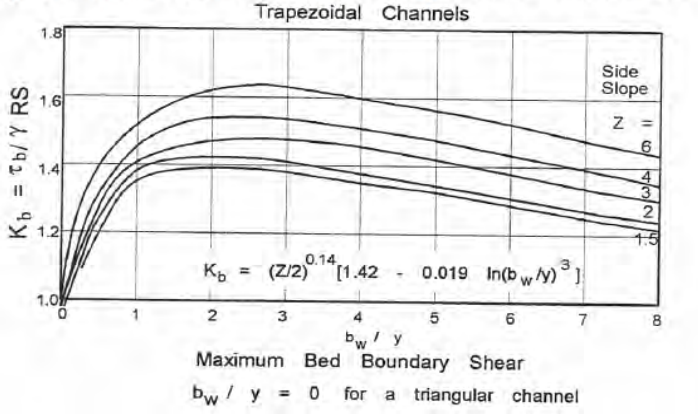
S = 0.01 m/m

$\tau_{b\,max}$ =	12.76 N/m^2

Figure 5.32: Tractive Force Distribution



Design Chart 2.11: Coefficients of Boundary Shear on Channel Bed



Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: *West ROW Culvert Outlet Channel, refer to Hydraflow Express Report titled "FER-15101 - West Culvert Outlet at 1% Slope" in S&SWMR* ***Appendix C*** *.*

Flow rate has been extracted from the 100-year 24-hour Post-Dev-PF Channel model at AddHyd 7 and divided by the number of crossings (3).

CLIENT: Fernbrook Homes (Parkside) Ltd. **DATE:** August 2022

PROJECT: 70 Pioneer Trail **DESIGN:** MG

FILE: FER-15101 (50) **CHECKED BY:** JWI

TRACTIVE FORCES - Channel Banks

$\tau_{s\,max} = K_{bk} * \gamma * R * S$

Where:

K_b = $(Z/2)^{0.36}$ [1.3 - 0.15 ln (b_w / y)] or MTO Design Chart No. 2.12

$\tau_{s\,max}$ = maximum tractive bank stress (N/m²)

K_{bk} = tractive force coefficient (bank), MTO Design Chart 2.12

γ = unit weight of water (9810 N/m³)

R = hydraulic radius (m)

S = channel slope (m/m)

West Culvert Outlet

K_b =	0.99	
γ =	9810	N/m³
R =	0.0983	m
S =	0.01	m/m

$\tau_{b\,max}$ =	**9.53 N/m²**

RESISTIVE FORCES - Channel Bed

$\tau_{cb} = 0.0642 * D_{50}$

Where:

τ_{cb} = critical side Shear Stress of particles on Channel Bed (kg/m²)

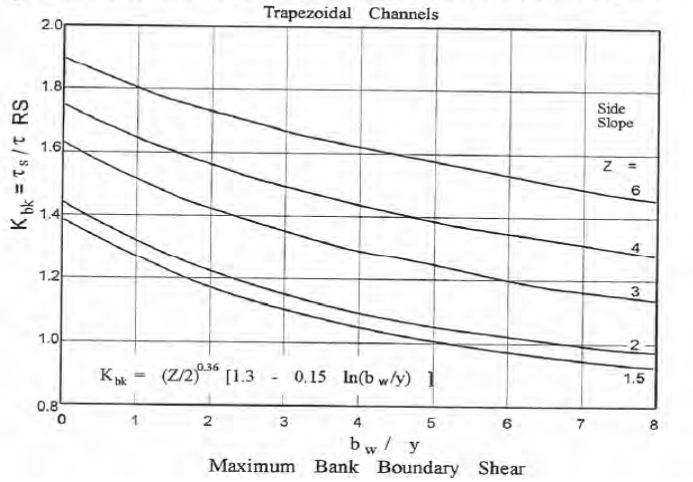
D_{50} = median particle size (mm)

West Culvert Outlet

D_{50} =	150	mm
τ_{cb} =	9.63	kg/m²

τ_{cb} =	**9.63 (kg/m²)**
or	**94.47 N/m²**

Design Chart 2.12: Coefficients of Boundary Shear on the Side Slope



From MTO Drainage Management Manual Design Chart 2.16:

Vegitative	Permissible Unit Shear Stress (kg/m²)
Class A	18 kg/m²
Class B	10 kg/m²
Class C	4.9 kg/m²
Class D	2.9 kg/m²
Class E	1.7 kg/m²

Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: *West ROW Culvert Outlet Channel, refer to Hydraflow Express Report titled "FER-15101 - West Culvert Outlet at 1% Slope" in S&SWMR* ***Appendix C*** *.*

Flow rate has been extracted from the 100-year 24-hour Post-Dev-PF Channel model at AddHyd 7 and divided by the number of crossings (3).

CLIENT: Fernbrook Homes (Parkside) Ltd. **DATE:** August 2022

PROJECT: 70 Pioneer Trail **DESIGN:** MG

FILE: FER-15101 (50) **CHECKED BY:** JWI

RESISTIVE FORCES - Channel Banks

$\tau_{cs} = K_{cs} * \tau_{cb}$

Where: $K_{cs} = (1 - (\sin^2\theta / \sin^2\phi))^{0.5}$

θ = Channel Side Slope Angle

ϕ = Angle of Repose of Bank Material (MTO Design Chart 2.13

θ = 18.43 ° (Critical Bank Where Z=3)

ϕ = 42.30 °

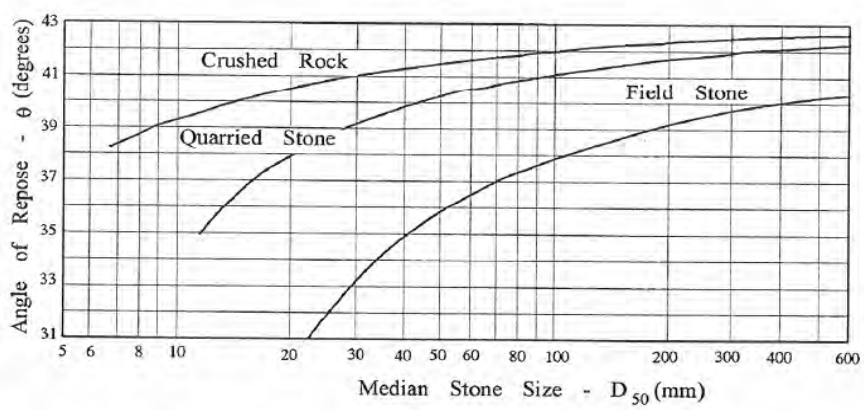
K_{cs} = 0.912

τ_{cb} = 94.47 N/m^2

West Culvert Outlet

τ_{cs} =	**86.17 N/m^2**

Design Chart 2.13: Determining Angle of Repose



Design Chart 2.16: Permissible Shear for Lining Materials

Vegetative			Permissible Unit Shear Stress (kg / m^2)	
Class A			18	
Class B			10	
Class C			4.9	
Class D			2.9	
Class E			1.7	
Gravel Riprap	1"	25 mm	1.6	Estimates only. Permissible shear stress is dependent on several factors including flow depth, velocity, bank side slope, etc.
	2"	50 mm	3.2	
Rock Riprap	6"	150 mm	9.8	
	12"	300 mm	20	

Note: Class A, B, C, D and E shown on Design Chart 2.23

SUMMARY		
	Channel Boundary Shear Stress (N/m^2)	Channel Lining Shear Resistance (N/m^2)
Channel Bed	12.76	94.47
Channel Banks	9.53	86.17

The channel has sufficient shear resistances when lined with 150mm diameter crushed rock. Erosion is not anticipated.

Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: Overland Flow Route refer to Hydroflow express printout titled "*FER-15101 - Overland Flow Route Capacity at 2% Slope Blocked*" in S&SWMR **Appendix C**.

Flow rate has been extracted from the 100Yr 24Hr SCS Post-Dev-PF Channel model at AddHyd 9.

CLIENT: Fernbrook Homes (Parkside) Ltd.

PROJECT: 70 Pioneer Trail

FILE: FER-15101 (50)

DATE: August 2022

DESIGN: MG

CHECKED BY: JWI

CHANNEL GEOMETRY

Overland Flow Route		
Channel Slope (S)	0.02	m/m
Bottom Width (b_w)	0.5	m
Side Slope (Left)	3	:1 (H:V)
Side Slope (Right)	3	:1 (H:V)
Wetted Perimeter (P_w)	1.888	m
Hydraulic Radius (R)	0.135	m
Normal Depth (y)	0.2195	m
Velocity (V)	1.0424	m/s
Discharge (Q)	0.265	m^3/s
Froude Number (F)	0.89	
Flow Type	subcritical flow	

TRACTIVE FORCES - Channel Bed

$\tau_{b\,max} = K_b * \gamma * R * S$

Where: K_b = $(Z/2)^{0.14}$ [1.42 - 0.019 ln $(b_w / y)^3$] or MTO Design Chart No. 2.11

$\tau_{b\,max}$ = maximum tractive bed stress (N/m^2)

K_b = tractive force coefficient (bed), MTO Design Chart 2.11

γ = unit weight of water (9810 N/m^3)

R = hydraulic radius (m)

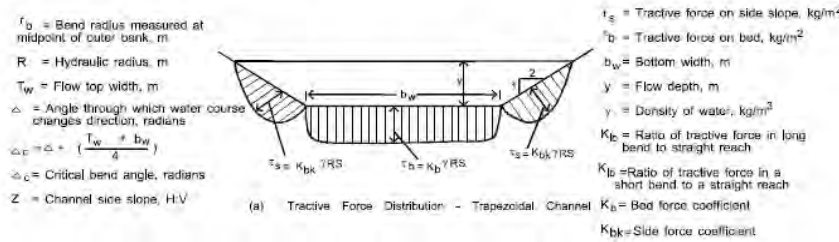
S = channel slope (m/m)

Overland Flow Route

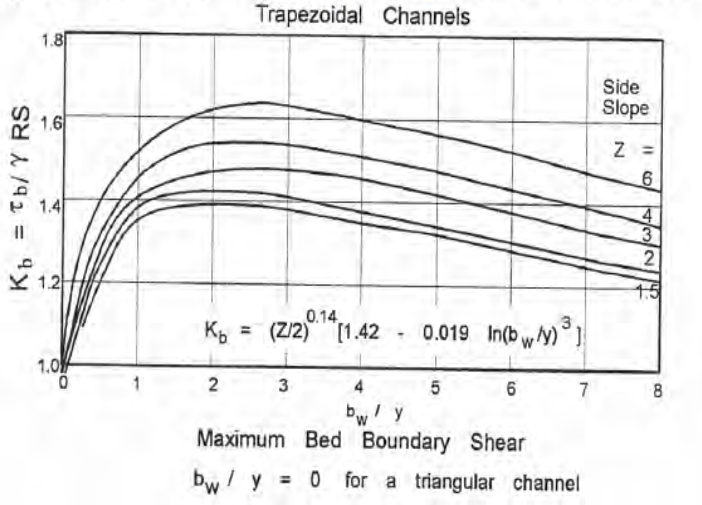
K_b =	1.45	
γ =	9810	N/m^3
R =	0.135	m
S =	0.02	m/m

$\tau_{b\,max}$ =	**38.40 N/m^2**

Figure 5.32: Tractive Force Distribution



Design Chart 2.11: Coefficients of Boundary Shear on Channel Bed



Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: Overland Flow Route refer to Hydroflow express printout titled "*FER-15101 - Overland Flow Route Capacity at 2% Slope Blocked*" in S&SWMR **Appendix C**.

Flow rate has been extracted from the 100Yr 24Hr SCS Post-Dev-PF Channel model at AddHyd 9.

CLIENT: Fernbrook Homes (Parkside) Ltd. **DATE:** August 2022

PROJECT: 70 Pioneer Trail **DESIGN:** MG

FILE: FER-15101 (50) **CHECKED BY:** JWI

TRACTIVE FORCES - Channel Banks

$\tau_{s\,max} = K_{bk} * \gamma * R * S$

Where: $K_b = (Z/2)^{0.36}\,[1.3 - 0.15\,\ln(b_w / y)]$ or MTO Design Chart No. 2.12

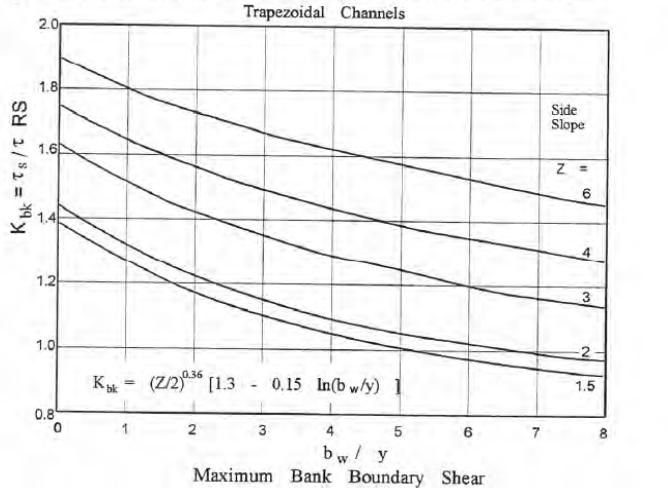
$\tau_{s\,max}$ = maximum tractive bank stress (N/m^2)
K_{bk} = tractive force coefficient (bank), MTO Design Chart 2.12
γ = unit weight of water (9810 N/m^3)
R = hydraulic radius (m)
S = channel slope (m/m)

Overland Flow Route

K_b = 1.36
γ = 9810 N/m^3
R = 0.1347 m
S = 0.02 m/m

$\tau_{b\,max}$ = 35.97 N/m^2

Design Chart 2.12: Coefficients of Boundary Shear on the Side Slope



RESISTIVE FORCES - Channel Bed

$\tau_{cb} = 0.0642 * D_{50}$

Where: τ_{cb} = critical side Shear Stress of particles on Channel Bed (kg/m^2)
D_{50} = median particle size (mm)

Overland Flow Route

Channel will be seeded with Simcoe County Native seed mixture.

τ_{cb} = 10 (kg/m^2)
or 98.10 N/m^2

From MTO Drainage Management Manual Design Chart 2.16:

Vegitative	Permissible Unit Shear Stress (kg/m²)
Class A	18 kg/m²
Class B	**10 kg/m²**
Class C	4.9 kg/m²
Class D	2.9 kg/m²
Class E	1.7 kg/m²

Channel will be seeded with **Simcoe County Native Seed Mixture**. According to *MTO Drainage Management Manual Design Chart 2.22* Native grass mixture is classified as a **Class B retardance** therefore the **Permitted Critical Shear Stress on the channel bed is 10 kg/m².**

Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: Overland Flow Route refer to Hydroflow express printout titled "*FER-15101 - Overland Flow Route Capacity at 2% Slope Blocked*" in S&SWMR **Appendix C**.

Flow rate has been extracted from the 100Yr 24Hr SCS Post-Dev-PF Channel model at AddHyd 9.

CLIENT: Fernbrook Homes (Parkside) Ltd. **DATE:** August 2022

PROJECT: 70 Pioneer Trail **DESIGN:** MG

FILE: FER-15101 (50) **CHECKED BY:** JWI

RESISTIVE FORCES - Channel Banks

$\tau_{cs} = K_{cs} * \tau_{cb}$

Where: $K_{cs} = (1 - (\sin^2\theta / \sin^2\phi))^{0.5}$

θ = Channel Side Slope Angle

ϕ = Angle of Repose of Bank Material (MTO Design Chart 2.13

θ = 18.43 ° (Critical Bank Where Z=3)

ϕ = 42.30 °

K_{cs} = 0.912

τ_{cb} = 98.10 N/m^2

Overland Flow Route

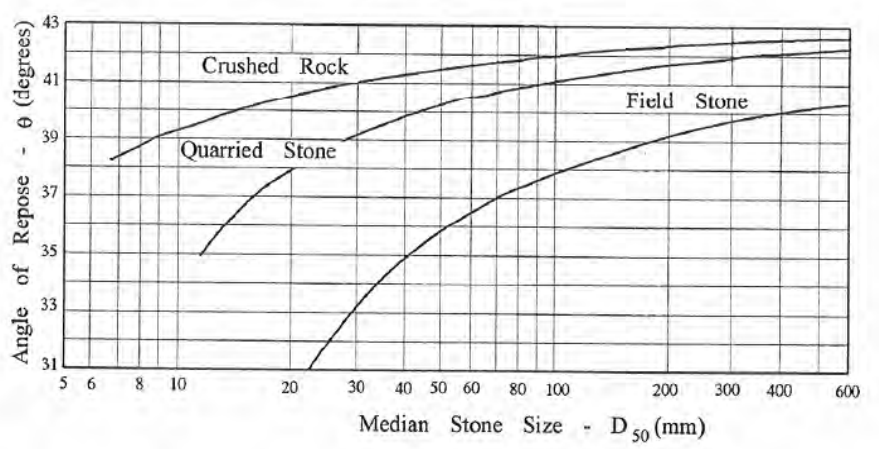
τ_{cs} =	**89.48 N/m^2**

SUMMARY

	Channel Boundary Shear Stress (N/m^2)	Channel Lining Shear Resistance (N/m^2)
Channel Bed	38.40	98.10
Channel Banks	35.97	89.48

Seeding the channel with Simcoe County Native seed mixture will provide sufficient channel lining shear resistance.

Design Chart 2.13: Determining Angle of Repose



Design Chart 2.16: Permissible Shear for Lining Materials

Vegetative			Permissible Unit Shear Stress (kg / m^2)	
Class A			18	
Class B			10	
Class C			4.9	
Class D			2.9	
Class E			1.7	
Gravel Riprap	1"	25 mm	1.6	Estimates only. Permissible shear stress is dependent on several factors including flow depth, velocity, bank side slope, etc.
	2"	50 mm	3.2	
Rock Riprap	6"	150 mm	9.8	
	12"	300 mm	20	

Note: Class A, B, C, D and E shown on Design Chart 2.23

Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: Overland Flow Route refer to Hydroflow express printout titled "*FER-15101 - Overland Flow Route Blocked at 5% Slope*" in S&SWMR **Appendix C**.

Flow rate has been extracted from the 100Yr 24Hr SCS Post-Dev-PF Channel model at AddHyd 9.

CLIENT: Fernbrook Homes (Parkside) Ltd. **DATE:** August 2022

PROJECT: 70 Pioneer Trail **DESIGN:** MG

FILE: FER-15101 (50) **CHECKED BY:** JWI

CHANNEL GEOMETRY

Overland Flow Route		
Channel Slope (S)	0.05	m/m
Bottom Width (b_w)	0.5	m
Side Slope (Left)	3	:1 (H:V)
Side Slope (Right)	3	:1 (H:V)
Wetted Perimeter (P_w)	1.618	m
Hydraulic Radius (R)	0.113	m
Normal Depth (y)	0.1768	m
Velocity (V)	1.4548	m/s
Discharge (Q)	0.265	m^3/s
Froude Number (F)	1.36	
Flow Type	supercritical flow	

TRACTIVE FORCES - Channel Bed

$\tau_{b\,max} = K_b * \gamma * R * S$

Where: K_b = $(Z/2)^{0.14}$ [1.42 - 0.019 ln $(b_w / y)^3$] or MTO Design Chart No. 2.11

$\tau_{b\,max}$ = maximum tractive bed stress (N/m^2)

K_b = tractive force coefficient (bed), MTO Design Chart 2.11

γ = unit weight of water (9810 N/m^3)

R = hydraulic radius (m)

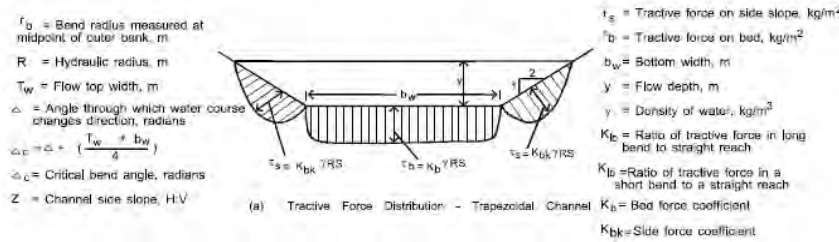
S = channel slope (m/m)

Overland Flow Route

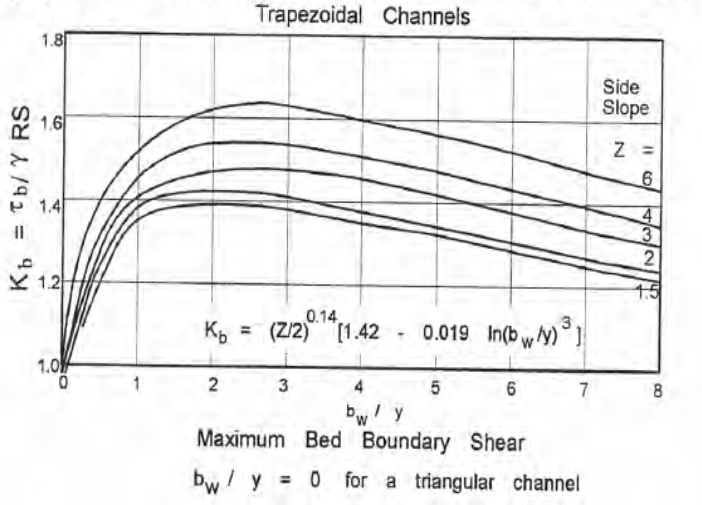
K_b =	1.44	
γ =	9810	N/m^3
R =	0.113	m
S =	0.05	m/m

$\tau_{b\,max}$ =	**79.53 N/m^2**

Figure 5.32: Tractive Force Distribution



Design Chart 2.11: Coefficients of Boundary Shear on Channel Bed



Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: Overland Flow Route refer to Hydroflow express printout titled "*FER-15101 - Overland Flow Route Blocked at 5% Slope*" in S&SWMR **Appendix C**.

Flow rate has been extracted from the 100Yr 24Hr SCS Post-Dev-PF Channel model at AddHyd 9.

CLIENT: Fernbrook Homes (Parkside) Ltd. **DATE:** August 2022

PROJECT: 70 Pioneer Trail **DESIGN:** MG

FILE: FER-15101 (50) **CHECKED BY:** JWI

TRACTIVE FORCES - Channel Banks

$\tau_{s\,max} = K_{bk} * \gamma * R * S$

Where: $K_b = (Z/2)^{0.36}\,[1.3 - 0.15\,\ln(b_w / y)]$ or MTO Design Chart No. 2.12

$\tau_{s\,max}$ = maximum tractive bank stress (N/m^2)
K_{bk} = tractive force coefficient (bank), MTO Design Chart 2.12
γ = unit weight of water (9810 N/m^3)
R = hydraulic radius (m)
S = channel slope (m/m)

Overland Flow Route

K_b = 1.32
γ = 9810 N/m^3
R = 0.1126 m
S = 0.05 m/m

$\tau_{b\,max}$ = 73.10 N/m^2

RESISTIVE FORCES - Channel Bed

$\tau_{cb} = 0.0642 * D_{50}$

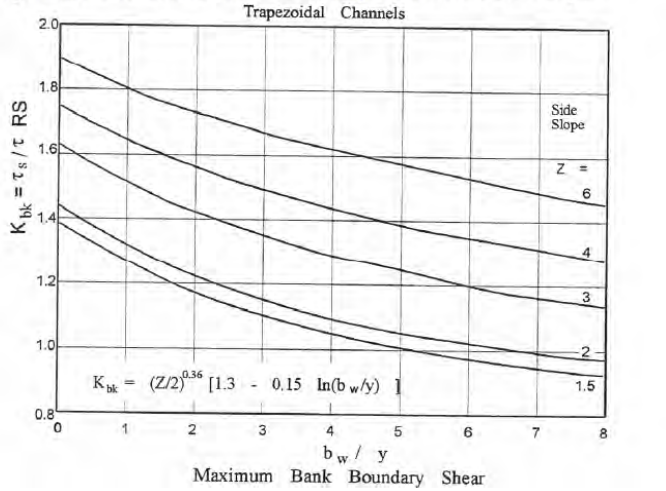
Where: τ_{cb} = critical side Shear Stress of particles on Channel Bed (kg/m^2)
D_{50} = median particle size (mm)

Overland Flow Route

Channel will be seeded with Simcoe County Native seed mixture.

τ_{cb} = 10 (kg/m^2)
or 98.10 N/m^2

Design Chart 2.12: Coefficients of Boundary Shear on the Side Slope



From MTO Drainage Management Manual Design Chart 2.16:

Vegitative	Permissible Unit Shear Stress (kg/m²)
Class A	18 kg/m²
Class B	**10 kg/m²**
Class C	4.9 kg/m²
Class D	2.9 kg/m²
Class E	1.7 kg/m²

Channel will be seeded with **Simcoe County Native Seed Mixture**. According to *MTO Drainage Management Manual Design Chart 2.22* Native grass mixture is classified as a **Class B retardance** therefore the **Permitted Critical Shear Stress on the channel bed is 10 kg/m².**

Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: Overland Flow Route refer to Hydroflow express printout titled "*FER-15101 - Overland Flow Route Blocked at 5% Slope*" in S&SWMR **Appendix C**.

Flow rate has been extracted from the 100Yr 24Hr SCS Post-Dev-PF Channel model at AddHyd 9.

CLIENT: Fernbrook Homes (Parkside) Ltd. **DATE:** August 2022

PROJECT: 70 Pioneer Trail **DESIGN:** MG

FILE: FER-15101 (50) **CHECKED BY:** JWI

RESISTIVE FORCES - Channel Banks

$\tau_{cs} = K_{cs} * \tau_{cb}$

Where: $K_{cs} = (1 - (\sin^2\theta / \sin^2\phi))^{0.5}$

θ = Channel Side Slope Angle

ϕ = Angle of Repose of Bank Material (MTO Design Chart 2.13

θ = 18.43 ° (Critical Bank Where Z=3)

ϕ = 42.30 °

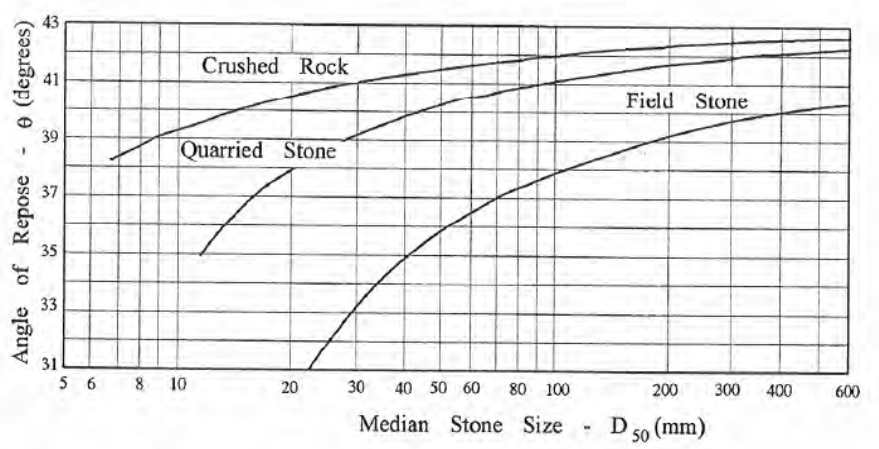
K_{cs} = 0.912

τ_{cb} = 98.10 N/m^2

Overland Flow Route

τ_{cs} =	**89.48 N/m^2**

Design Chart 2.13: Determining Angle of Repose



SUMMARY		
Overland Flow Route		
	Channel Boundary Shear Stress (N/m^2)	Channel Lining Shear Resistance (N/m^2)
Channel Bed	79.53	98.10
Channel Banks	73.10	89.48

Seeding the channel with Simcoe County Native seed mixture will provide sufficient channel lining shear resistance.

Design Chart 2.16: Permissible Shear for Lining Materials

Vegetative			Permissible Unit Shear Stress (kg / m^2)	
Class A			18	
Class B			10	
Class C			4.9	
Class D			2.9	
Class E			1.7	
Gravel Riprap	1"	25 mm	1.6	Estimates only. Permissible shear stress is dependent on several factors including flow depth, velocity, bank side slope, etc.
	2"	50 mm	3.2	
Rock Riprap	6"	150 mm	9.8	
	12"	300 mm	20	

Note: Class A, B, C, D and E shown on Design Chart 2.23

Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: Overland Flow Route refer to Hydroflow express printout titled "*FER-15101 - Overland Flow Route Capacity at 27.9% Slope Blocked*" in S&SWMR **Appendix C**.

Flow rate has been extracted from the 100Yr 24Hr SCS Post-Dev-PF Channel model at AddHyd 9.

CLIENT: Fernbrook Homes (Parkside) Ltd.

PROJECT: 70 Pioneer Trail

FILE: FER-15101 (50)

DATE: August 2022

DESIGN: MG

CHECKED BY: JWI

CHANNEL GEOMETRY

Overland Flow Route		
Channel Slope (S)	0.279	m/m
Bottom Width (b_w)	0.5	m
Side Slope (Left)	3	:1 (H:V)
Side Slope (Right)	3	:1 (H:V)
Wetted Perimeter (P_w)	1.232	m
Hydraulic Radius (R)	0.080	m
Normal Depth (y)	0.1158	m
Velocity (V)	2.6997	m/s
Discharge (Q)	0.265	m^3/s
Froude Number (F)	3.01	
Flow Type	supercritical flow	

TRACTIVE FORCES - Channel Bed

$\tau_{b\,max} = K_b * \gamma * R * S$

Where: K_b = $(Z/2)^{0.14}$ [1.42 - 0.019 ln $(b_w / y)^3$] or MTO Design Chart No. 2.11

$\tau_{b\,max}$ = maximum tractive bed stress (N/m^2)

K_b = tractive force coefficient (bed), MTO Design Chart 2.11

γ = unit weight of water (9810 N/m^3)

R = hydraulic radius (m)

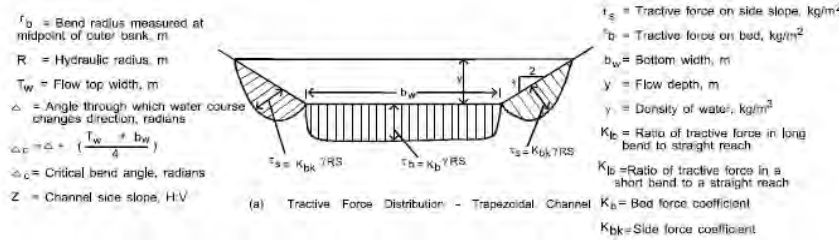
S = channel slope (m/m)

Overland Flow Route

K_b =	1.41	
γ =	9810	N/m^3
R =	0.080	m
S =	0.279	m/m

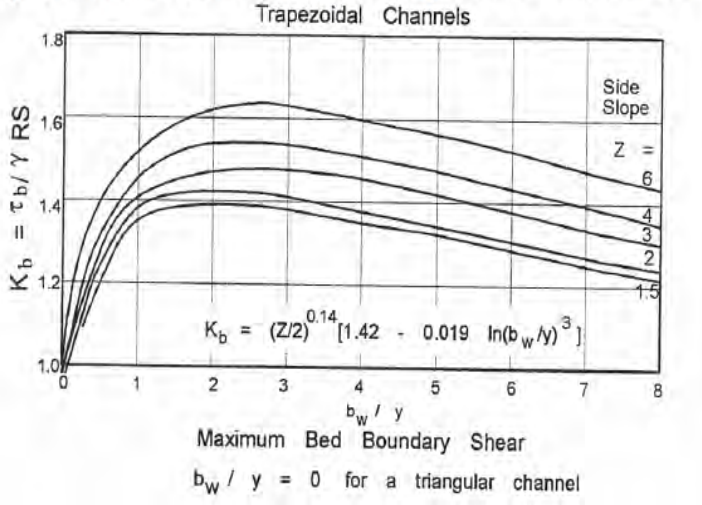
$\tau_{b\,max}$ =	**308.31 N/m^2**

Figure 5.32: Tractive Force Distribution



(a) Tractive Force Distribution - Trapezoidal Channel

Design Chart 2.11: Coefficients of Boundary Shear on Channel Bed



Pioneer Trail Residential Condominium

Channel Lining & Erosion Protection Design

Notes: Overland Flow Route refer to Hydroflow express printout titled "*FER-15101 - Overland Flow Route Capacity at 27.9% Slope Blocked*" in S&SWMR **Appendix C**.

Flow rate has been extracted from the 100Yr 24Hr SCS Post-Dev-PF Channel model at AddHyd 9.

CLIENT: Fernbrook Homes (Parkside) Ltd. **DATE:** August 2022

PROJECT: 70 Pioneer Trail **DESIGN:** MG

FILE: FER-15101 (50) **CHECKED BY:** JWI

TRACTIVE FORCES - Channel Banks

$\tau_{s\,max} = K_{bk} * \gamma * R * S$

Where: $K_b = (Z/2)^{0.36}\,[1.3 - 0.15\,\ln(b_w / y)]$ or MTO Design Chart No. 2.12

$\tau_{s\,max}$ = maximum tractive bank stress (N/m^2)
K_{bk} = tractive force coefficient (bank), MTO Design Chart 2.12
γ = unit weight of water (9810 N/m^3)
R = hydraulic radius (m)
S = channel slope (m/m)

Overland Flow Route

K_b = 1.25
γ = 9810 N/m^3
R = 0.0796 m
S = 0.279 m/m

$\tau_{b\,max}$ = 272.51 N/m^2

RESISTIVE FORCES

Overland Flow Route

τ_{cb} = critical side Shear Stress of particles on Channel Bed (kg/m^2)

Terrafix FM200 has been specified to line the chanel bed and banks. The following information has been referenced from the product specification sheet. This product will be vegitated.

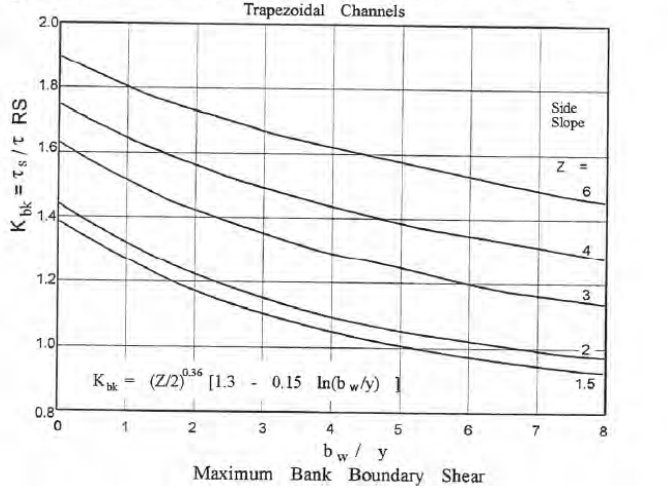
Unvegetated Maximum Permissible Shear Stress = 158.4 Pa
Vegetated Maximum Permissible Shear Stress = 665 Pa
Maximum Flow Velocity Unvegetated = 3.8 m/s
Maximum Flow Velocity Vegetated = 6.65 m/s

τ_{cb} = 665.00 N/m^2 1Pa = 1N/m²

SUMMARY		
	Channel Boundary Shear Stress (N/m^2)	Channel Boundary Shear Stress (N/m^2)
Channel Bed	308.31	665.00
Channel Banks	272.51	665.00

The shear stress and maximum velocity in the channel are within maximum limits of the product. The product is suitable to line the channel with.

Design Chart 2.12: Coefficients of Boundary Shear on the Side Slope



Design Chart 2.16: Permissible Shear for Lining Materials

Vegetative			Permissible Unit Shear Stress (kg / m^2)	
Class A			18	
Class B			10	
Class C			4.9	
Class D			2.9	
Class E			1.7	
Gravel Riprap	1"	25 mm	1.6	Estimates only. Permissible shear stress is dependent on several factors including flow depth, velocity, bank side slope, etc.
	2"	50 mm	3.2	
Rock Riprap	6"	150 mm	9.8	
	12"	300 mm	20	

Note: Class A, B, C, D and E shown on Design Chart 2.23

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Aug 18 2022

FER-15101 - SWMF Bypass Rating Curve

Circular

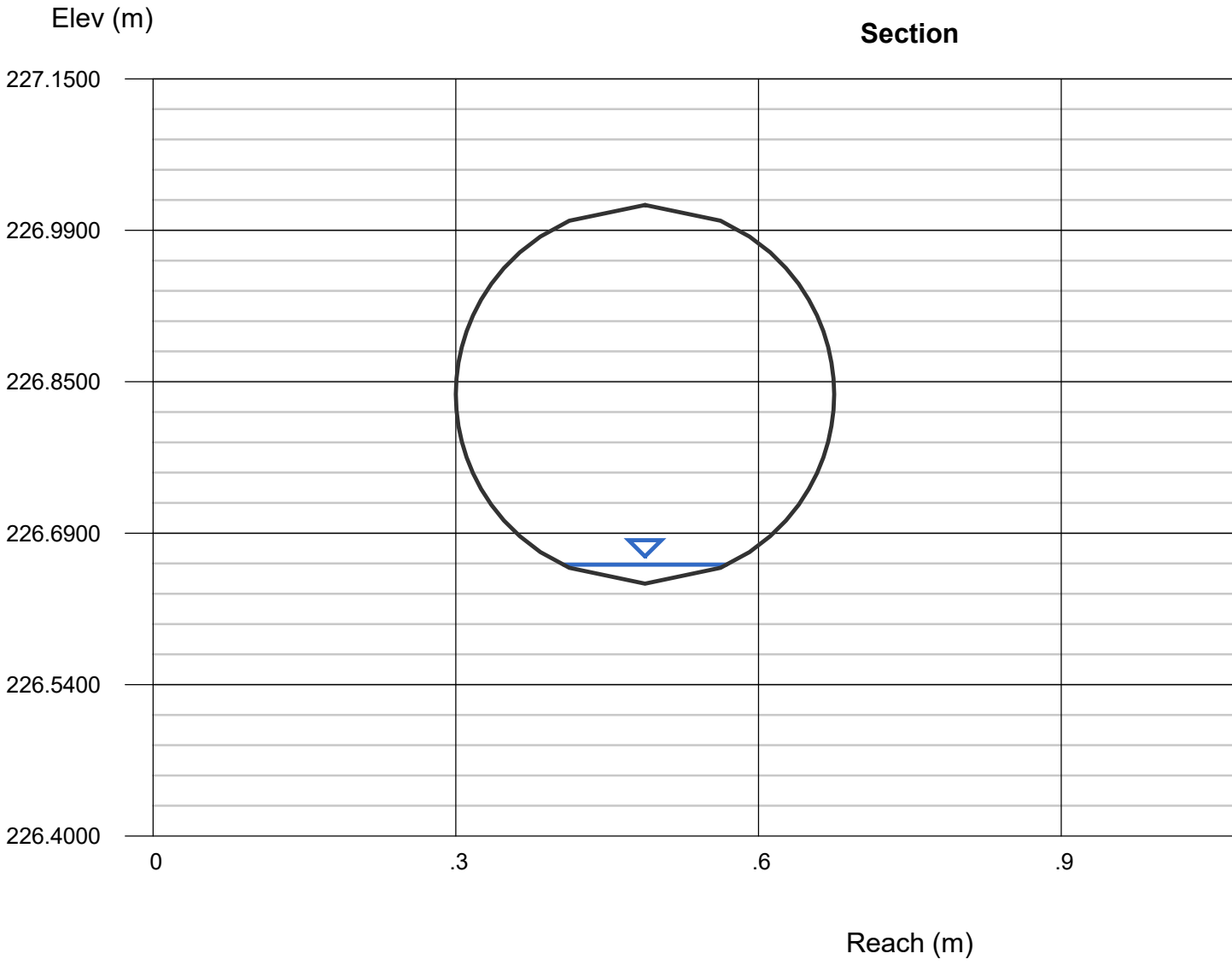
Diameter (m)	= 0.3750
Invert Elev (m)	= 226.6500
Slope (%)	= 2.0000
N-Value	= 0.013

Calculations

Compute by:	Q vs Depth
No. Increments	= 20

Highlighted

Depth (m)	= 0.0188
Q (cms)	= 0.001
Area (sqm)	= 0.0021
Velocity (m/s)	= 0.5826
Wetted Perim (m)	= 0.1706
Crit Depth, Yc (m)	= 0.0244
Top Width (m)	= 0.1648
EGL (m)	= 0.0361



Depth	Q	Area	Veloc
(m)	(cms)	(sqm)	(m/s)
0.0188	0.001	0.002	0.5826
0.0375	0.005	0.006	0.9025
0.0563	0.012	0.011	1.1672
0.0750	0.022	0.016	1.3845
0.0938	0.034	0.022	1.5766
0.1125	0.049	0.028	1.7427
0.1313	0.066	0.035	1.8969
0.1500	0.084	0.041	2.0253
0.1688	0.104	0.049	2.1466
0.1875	0.125	0.056	2.2482
0.2063	0.146	0.063	2.3358
0.2250	0.167	0.069	2.4087
0.2438	0.188	0.076	2.4695
0.2625	0.208	0.083	2.5141
0.2813	0.226	0.089	2.5441
0.3000	0.242	0.095	2.5581
0.3188	0.256	0.100	2.5524
0.3375	0.264	0.105	2.5229
0.3563	0.266	0.108	2.4557
0.3750	0.248	0.110	2.2443

Wp	Yc	TopWidth	Energy
(m)	(m)	(m)	(m)
0.1706	0.0244	0.1648	0.0361
0.2419	0.0518	0.2254	0.0790
0.3000	0.0792	0.2690	0.1257
0.3487	0.1067	0.3006	0.1728
0.3937	0.1341	0.3253	0.2205
0.4350	0.1615	0.3438	0.2674
0.4762	0.1890	0.3582	0.3148
0.5137	0.2134	0.3675	0.3592
0.5531	0.2377	0.3733	0.4038
0.5906	0.2621	0.3750	0.4453
0.6281	0.2835	0.3730	0.4845
0.6656	0.3018	0.3672	0.5210
0.7050	0.3170	0.3572	0.5548
0.7444	0.3292	0.3433	0.5849
0.7856	0.3383	0.3246	0.6114
0.8306	0.3475	0.2998	0.6338
0.8813	0.3505	0.2668	0.6511
0.9375	0.3536	0.2244	0.6622
1.0106	0.3536	0.1620	0.6639
1.1781	0.3505	0.0000	0.6319

Ontario

MINISTRY OF THE ENVIRONMENT

Database Version: **V 2.0 Release Update**
Update Date: **30-Mar-12**

Project DEVELOPMENT Summary

DEVELOPMENT: **Fernbrook Homes Ltd. - 70 Pioneer Trail**
Subwatershed: **Innisfil Creeks**

Total Pre-Development Area (ha):	**2.8858**	Total Pre-Development Phosphorus Load (kg/yr):	**0.23**

Pre-Development Land Use	Area (ha)	P coeff. (kg/ha)	P Load (kg/yr)
Forest	2.1927	0.05	0.11
Hay-Pasture	0.5536	0.07	0.04
Low Intensity Development	0.0431	0.13	0.01
Unpaved Road	0.0964	0.83	0.08

DEVELOPMENT: Fernbrook Homes Ltd. - 70 Pioneer Trail
Subwatershed: Innisfil Creeks

POST-DEVELOPMENT LOAD

Post-Development Land Use	Area (ha)	P coeff. (kg/ha)	Best Management Practice applied with P Removal Efficiency		P Load (kg/yr)
Forest	0.4746	0.05	NONE	0%	0.02
Post-Development Catchment Areas 202 through 208 forested areas. (HSG A)					
Hay-Pasture	0.2125	0.07	NONE	0%	0.01
Post-Development Catchment Area 204 & 205 pasture and lawn areas. (HSG A)					
Low Intensity Development	1.3194	0.13	NONE	0%	0.17
Post-Development Catchment Areas 202, 203, & 206 through 208 developable areas excluding forested areas includes 204 impervious area. (HSG A)					
Low Intensity Development	0.8804	0.13	Other	93%	0.01
Post-Development Catchment Area 201. BMP is Treatement Train consisting of Up-Flo Filter and Underground Infiltration Gallery. Gallery is sized to infiltrate the 25mm WQE. Estimated 93.1% annual TP removal efficiency. Refer to S&SWMR Sec 2.6.3. (HSG A)					

		P Load (kg/yr)
Post-Development Area Altered:	**2.89**	
Total Pre-Development Area:	**2.89**	
Unaffected Area:	**0**	
Pre-Development:		**0.23**
Post-Development:		**0.32**
Change (Pre - Post):		**-0.09**
39% Net Increase in Load		
Post-Development (with BMPs):		**0.22**
Change (Pre - Post):		**0.02**
7% Net Reduction in Load		

DEVELOPMENT: **Fernbrook Homes Ltd. - 70 Pioneer Trail**
Subwatershed: **Innisfil Creeks**

CONSTRUCTION PHASE LOAD

SUMMARY WITH IMPLEMENTATION OF BMPs	P Load (kg/yr)
Pre-Development:	**0.23**
Construction Phase Amortized Over 8 Years :	to be determined
Post-Development:	**0.22**
Post-Development + Amortized Construction:	**to be determined**
Pre-Development Load - Post-Development Load:	**0.02**
Conclusion:	**7% Reduction in Load**
Pre-Development Load - (Post-Development + Amortized Construction Load):	**to be determined**
Conclusion:	**to be determined**

Based on a comparison of Pre-Development and Post-Development loads, and in consideration of Construction Phase loads, the Ministry would encourage the Municipality to:

August 16, 2022

ADS UFF Sizing Summary

Project Name: 70 Pioneer Trail

Consulting Engineer: Jones Consulting

Location: Barrie, ON

Sizing Completed By: C. Neath **Email:** cody.neath@ads-pipe.com

Recommended Unit	
Recommended Model:	UFF-10
TSS Removal Percentage:	81.9%
Total Site Volume Treated:	90.9%

Site Details	
Site Area:	0.8804 ha
% Impervious:	77.0%
Rational C:	0.76
Rainfall Station:	Barrie, ONT
Particle Size Distribution:	ETV
Peak Storm Flowrate:	---

Unit Specifications:	
Number of Filter Modules:	10
Maximum Treatment Flowrate:	16 L/s
Inlet - Outlet Drop:	240 mm*
Maximum Pipe Diameter:	600 mm

* Drop across unit can be reduced when required.

Site Elevations:	
Rim Elevation:	228.87
Inlet Pipe Elevation:	226.85
Outlet Pipe Elevation:	226.71

Consult approved shop drawings for final elevations. Riser sections (and/or grade rings) may be required to reach final grade on site.

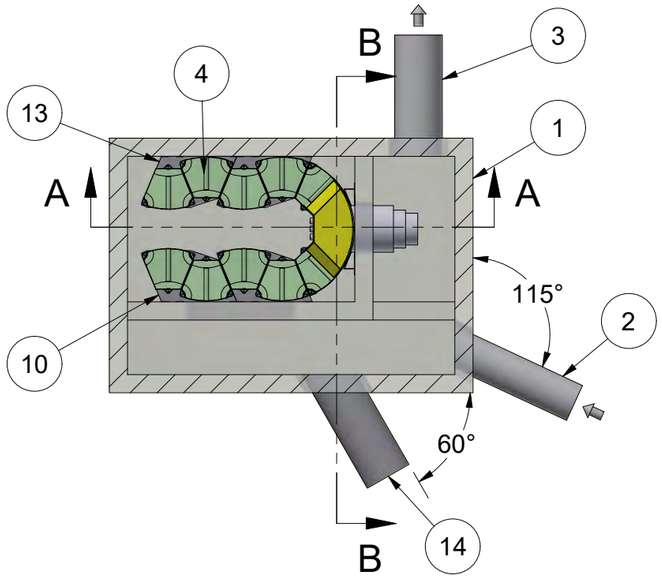
Rainfall Intensity	Fraction of Rainfall	Removal Efficiency	Weighted Net-Annual Removal Efficiency
mm/hr	%	%	%
0.50	0.3%	92.3%	0.3%
1.00	25.7%	91.4%	23.5%
1.50	5.3%	90.5%	4.8%
2.00	13.4%	89.6%	12.0%
2.50	5.5%	88.7%	4.9%
3.00	3.7%	87.8%	3.3%
3.50	7.2%	86.9%	6.2%
4.00	3.4%	86.0%	2.9%
4.50	2.4%	85.1%	2.1%
5.00	4.3%	84.2%	3.7%
6.00	3.6%	82.4%	3.0%
7.00	4.3%	80.6%	3.5%
8.00	3.4%	78.8%	2.7%
9.00	1.6%	77.0%	1.3%
10.00	2.1%	75.2%	1.6%
20.00	8.9%	57.2%	5.1%
30.00	2.3%	39.3%	0.9%
40.00	1.0%	21.3%	0.2%
50.00	0.5%	3.3%	0.0%
100.00	0.7%	0.0%	0.0%
150.00	0.1%	0.0%	0.0%
200.00	0.0%	0.0%	0.0%
Net Annual Treatment:			81.9%
Total Runoff Volume Treated:			90.9%

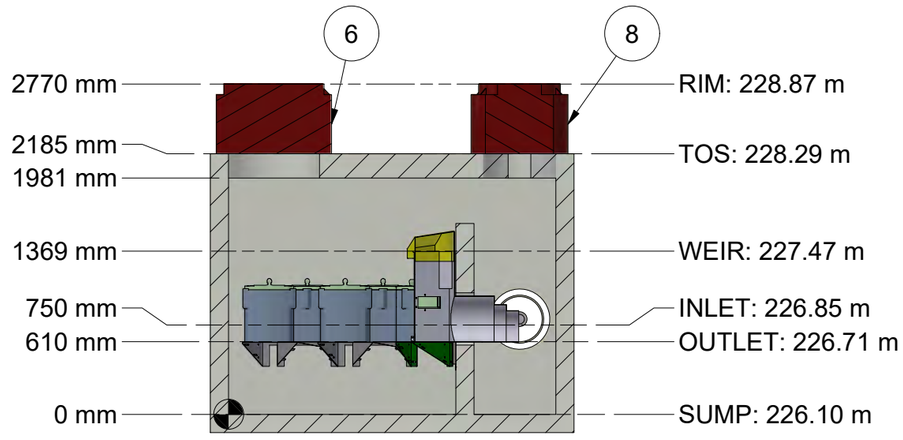
Rainfall Data: 1978:2007, HLY03, Barrie, ONT, 6110557.

Notes:

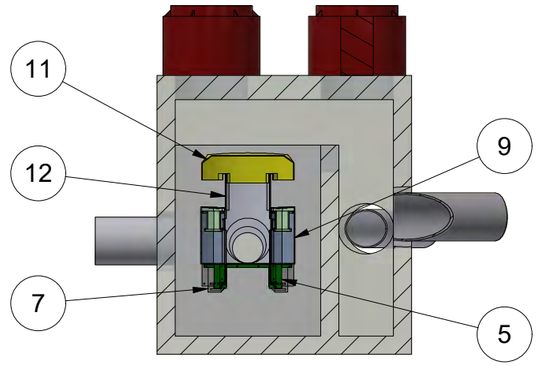
Removal efficiencies are based on ETV results.

All units supplied by ADS have numerous local, provincial, and international certifications (copies of which can be provided upon request). The design engineer is responsible for ensuring compliance with applicable regulations.





SECTION A-A
SCALE 1:50



SECTION B-B
SCALE 1:50

CAPACITIES:
1. Minimum performance: 80% removal. NJDEP - NJDEP Blend; NJCAT, Sil-Co-Sil 106 (d50 = 22 microns) at the peak treatment flow.
2. Maximum number of modules per outlet module: 38 **
3. NJDEP peak treatment flow: .056 cfs (25 gpm) per module, CPZ

ADDITIONAL DESIGN INFORMATION:
1. * Normal operating W.S.E. is 2.46' above the outlet invert at the peak treatment flow of .056 cfs (25 gpm) per module. For a given flow the head requirement can be reduced by adding additional filters.
2. ** Treatment flows that require more modules will require a larger vault design or different arrangement.
3. Media Types Available: New Jersey - Ribbons; Elsewhere - CPZ
4. Unit shall conform to HS20-44 load ratings.

PARTS LIST

ITEM	QTY	DESCRIPTION	TYPE	SIZE (mm)
1	1	PRECAST VAULT		6ft x 9ft
2	1	UFF INLET PIPE	PVC	300
3	1	UFF OUTLET PIPE	PVC	375
4	10	MODULE LID		
5	3	SUPPORT FRAME		
6	1	COVER 30 IN		762
7	2	WEDGE WALL MOUNT		
8	2	COVER 24 IN		609.6
9	10	MODULE BODY		
10	2	SUPPORT FRAME LH		
11	1	BYPASS HOOD-S		
12	1	OUTLET MODULE		
13	2	SUPPORT FRAME RH		
14	1	AUX PIPE INLET - INVERT 226.95 m	PVC	375

1. STRUCTURE WALL AND SLAB THICKNESSES ARE NOT TO SCALE.

2. CONTACT HYDRO INTERNATIONAL FOR A BOTTOM OF STRUCTURE ELEVATION PRIOR TO SETTING THE STRUCTURE.

3. CONTRACTOR TO CONFIRM RIM, PIPE INVERTS, PIPE DIA. AND PIPE ORIENTATION PRIOR TO RELEASE OF UNIT TO FABRICATION.

4. CONTRACTOR IS RESPONSIBLE FOR MATERIALS AND LABOR TO BRING CASTINGS TO FINISHED GRADE.

5. ACTUAL DEPTH OF STRUCTURE MAY VARY DEPENDING ON AVAILABLE PRECAST FORMS. CONTRACTOR TO MEASURE HEIGHT OF STRUCTURE TO ENSURE THAT DEPTH OF EXCAVATION IS CORRECT.

REVISION HISTORY			
REV	BY	DESCRIPTION	DATE
-	WCS	FIRST RELEASE	8/16/2022

PROJECTION

IF IN DOUBT ASK

DATE:	SCALE:
8/16/2022	1:50

DRAWN BY:	CHECKED BY:	APPROVED BY
WCS		

Title
UP-FLO FILTER
1.83m x 2.74m

10 MODULES

UFF-1
PARKSIDE WATERFRONT
CONDOMINIUM 276702
BARRIE, ONTARIO
Patent: www.hydro-int.com/patents

Hydro International®
hydro-int.com

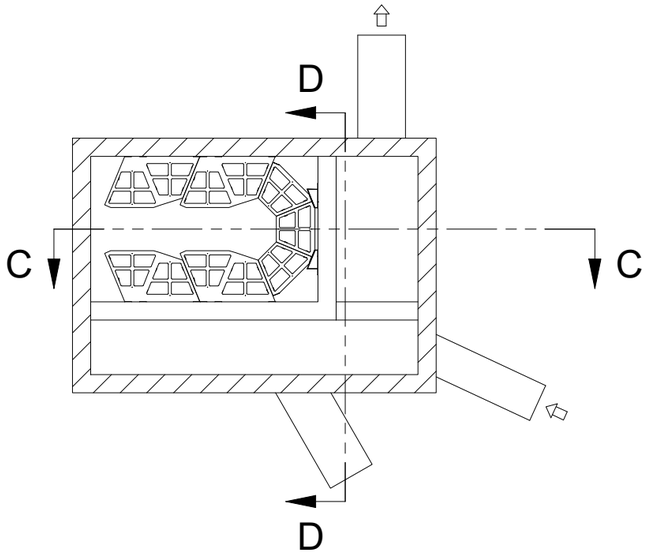
©2021 HYDRO INTERNATIONAL

WEIGHT:	MATERIAL:

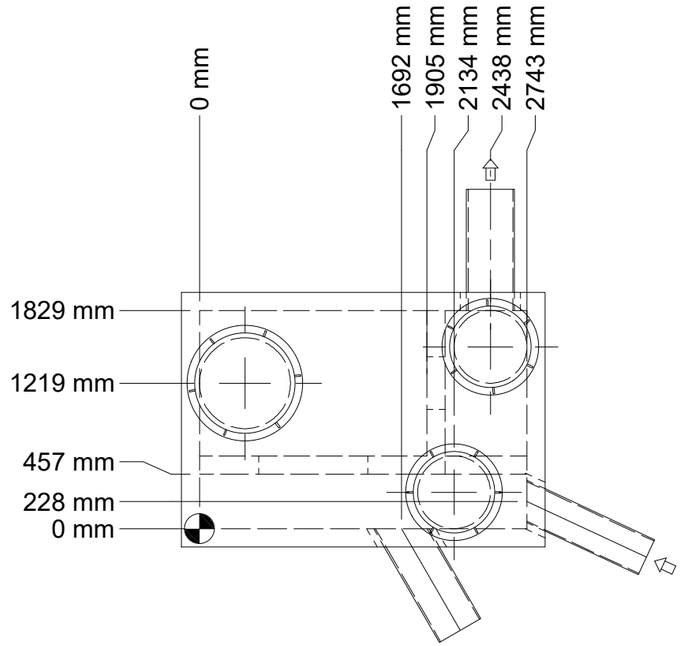
STOCK NUMBER:
1

DRAWING NO.:
22_12_0234-UFF-1

SHEET SIZE:	SHEET:	Rev:
B	1 OF 2	-



MOUNTING BRACKET LAYOUT



PRECAST DETAIL

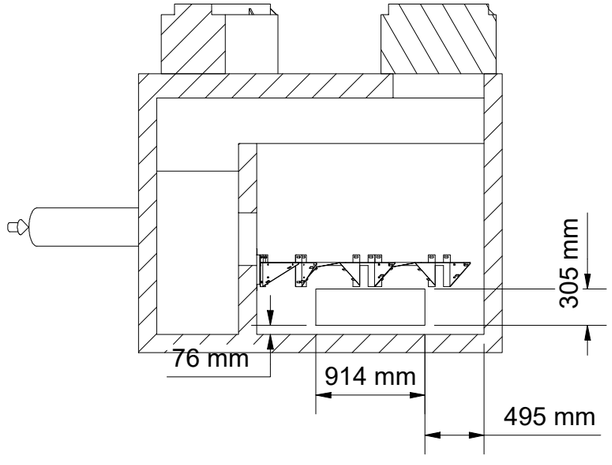
1. STRUCTURE WALL AND SLAB THICKNESSES ARE NOT TO SCALE.

2. CONTACT HYDRO INTERNATIONAL FOR A BOTTOM OF STRUCTURE ELEVATION PRIOR TO SETTING THE STRUCTURE.

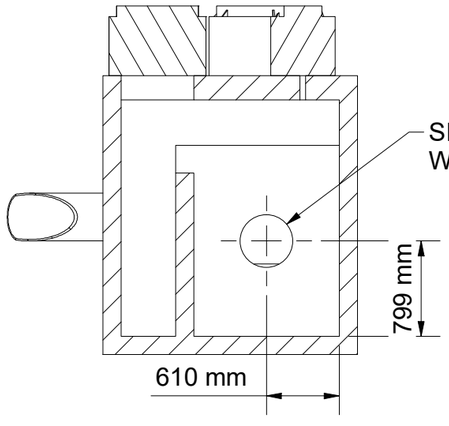
3. CONTRACTOR TO CONFIRM RIM, PIPE INVERTS, PIPE DIA. AND PIPE ORIENTATION PRIOR TO RELEASE OF UNIT TO FABRICATION.

4. CONTRACTOR IS RESPONSIBLE FOR MATERIALS AND LABOR TO BRING CASTINGS TO FINISHED GRADE.

5. ACTUAL DEPTH OF STRUCTURE MAY VARY DEPENDING ON AVAILABLE PRECAST FORMS. CONTRACTOR TO MEASURE HEIGHT OF STRUCTURE TO ENSURE THAT DEPTH OF EXCAVATION IS CORRECT.



SECTION C-C
SCALE 1:50



SECTION D-D
SCALE 1:50

PARTS LIST			
ITEM	QTY	DESCRIPTION	SIZE (mm)
1	1	PRECAST VAULT	6ft x 9ft
2	1	UFF INLET PIPE	300
3	1	UFF OUTLET PIPE	375
4	10	MODULE LID	
5	3	SUPPORT FRAME	
6	1	COVER 30 IN	762
7	2	WEDGE WALL MOUNT	
8	2	COVER 24 IN	609.6
9	10	MODULE BODY	
10	2	SUPPORT FRAME LH	
11	1	BYPASS HOOD-S	
12	1	OUTLET MODULE	
13	2	SUPPORT FRAME RH	
14	1	AUX PIPE INLET - INVERT 226.95 m	375

PROJECTION

IF IN DOUBT ASK

DATE:	SCALE:
8/16/2022	1:50

DRAWN BY:	CHECKED BY:	APPROVED BY
WCS		

Title
UP-FLO FILTER
1.83m x 2.74m

10 MODULES

UFF-1
PARKSIDE WATERFRONT
CONDOMINIUM 276702
BARRIE, ONTARIO

Hydro International®
hydro-int.com

©2021 HYDRO INTERNATIONAL

WEIGHT:	MATERIAL:

STOCK NUMBER:
1

DRAWING NO.:
22_12_0234-UFF-1

SHEET SIZE:	SHEET:	Rev:
B	2 OF 2	-

Verification Statement

Hydro International Up-Flo® Filter with CPZ™ Media

Registration number: (V-2019-06-01)
Date of issue: (2020-May-13)

Technology type	Stormwater Filtration Device		
Application	Technology to remove sediment, nutrients and metals from stormwater runoff		
Company	Hydro International	**Website**	https://www.hydro-int.com
Address	94 Hutchins Drive, Portland, Maine USA 04102		
E-mail	TechSupport@hydro-int.com	**Phone**	+1 (207) 756 6200

This Verification Statement was prepared by VerifiGlobal to summarize the results reported in the Verification Report for the Hydro International Up-Flo® Filter with CPZ™ Media, dated November 26, 2019. The Verification Report was prepared by Good Harbour Laboratories Inc. (GHL) for VerifiGlobal in accordance with the requirements of the International Organization for Standardization (ISO) 14034 Environmental Technology Verification (ETV) standard and the VerifiGlobal Performance Verification Protocol. All the information provided in this Statement are based on the independent, third-party review and verification of technical information, performance test reports, performance data and specific performance claims documented in the Verification Report.

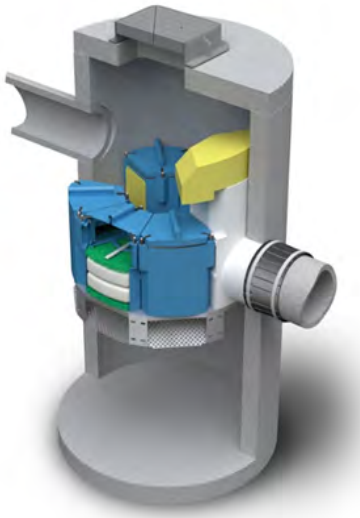


Figure 1: Up-Flo® Filter with CPZ™ Media

Technology Description

The Up-Flo® Filter with CPZ™ Media is a stormwater remedial device that incorporates gravitational separation of floating and settling materials, screening, and filtration of polluted stormwater to offer treatment train capabilities in a standalone device. Each Up-Flo® Filter consists of a highly configurable array of modules that are typically supplied as a complete system housed in a 4-ft (1.2 m) diameter manhole or precast vault. Manhole configurations consist of a single ring assembly containing one to six modules. Vaulted systems are highly configurable and may contain single or multiple arrays each consisting of one to 18 Filter Modules depending on availability of vault sizes.

Verified Performance Claims

Verification of the Hydro International Up-Flo® Filter with CPZ™ Media is based on existing performance test data from two different locations with different rainfall characteristics, catchment areas and pollutant loadings. Supporting data were obtained from three independent perfomance monitoring studies. One was conducted by Engineering School of Sustainable Infrastructure and Environment (ESSIE) at the University of Florida (UF) under the supervision of Dr. John Sansalone and two were conducted by Department of Civil, Construction, and Environmental Engineering (CCEE) at the University of Alabama (UA) under the supervision of Dr. Bob Pitt.

All three studies performance monitoring studies were conducted following the requirements of the New Jersey Department of Environmental Protection (NJDEP) Technology Acceptance Reciprocity Partnership (TARP) Tier II Protocol for Stormwater Best Management Practice Demonstrations (2003) and its 2006 and 2009 amendments. In total, there were 66[1] storms assessed to verify that an Up-Flo® Filter with CPZ™ Media achieves the performance listed in Tables 1 and 2, when designed to the following parameters:

- System hydraulic loading rate of 25 gpm (1.58 L/s) per filter module, with bypass of higher flows.
- Filter flux rate of 22.7 gpm/ft2 (15.4 L/s/m2)
- Operating head of ≤30 in. (76.2 cm)
- Effective Sedimentation/ Filtration Treatment Area (ESA/EFTA) –12.6/6.6 (1.91)
- Maximum sediment storage volume of 16.8 ft3 (0.476 m3) at a sediment depth of 16 inches (0.41m).

Table 1. Up-Flo® Filter with CPZ™ Media – Verified Concentration Removal Efficiency

Constituent	Lower 95% Confidence Interval	Median	Upper 95% Confidence Interval
SSC *	85.9%	92.8%	94.7%
SSC **	73.9%	82.8%	86.3%
TSS *	79.0%	89.2%	91.0%
TSS **	72.0%	78.3%	85.2%
TN *	9.0%	28.5%	64.7%
TP *	33.8%	43.9%	50.9%
Zn **	39.4%	50.0%	62.1%
Cu **	72.6%	80.7%	85.2%
* Based on ESSIE (UF) Performance monitoring results ** Based on CCEE (UA) Performance monitoring results			

Table 2. Up-Flo® Filter with CPZ™ Media – Verified Flow Weighted Mass Removal Efficiency

Constituent	ESSIE (UF) Performance monitoring results		CCEE (UA) Performance monitoring results
	6-month	12-month	12-month
SSC	93%	92%	86%
TSS*	89%	87%	87%
TN **	68%	39%	***
TP **	48%	48%	***
Zn	***	***	59%
Cu	***	***	70%
* TSS results for UF are a function of SSC. ** TN and TP load data was time dependent after 6-months *** No data submitted			

[1]Of the total 66 storms (16 storms from UF and 50 storms from UA), 62 were identified as qualifying events having quality data for TSS, and 59 for SSC. Fewer events with metals detected in the runoff limited the metals data sets. There were a total of 28 and 17 storms for Zn and Cu, respectively, solely from the UA data. Total Nitrogen and Total Phosphorous claims were based on the 16 storms recorded solely from the UF data.

Description of Test Procedure

Table 3 shows the target criteria as outlined by the TARP and TAPE programs as well as the results achieved at the two locations. Table 4 provides a more detailed description of the observed operating conditions over the testing period. At the time of testing, the TARP and TAPE programs both allowed for field testing data to be used to obtain certification in participating states. They were the most widely used protocols and were generally accepted as industry standards. The TARP program has since stopped accepting field data, but the TAPE program remains in effect and is currently referenced to benchmark the quality of data obtained from stormwater monitoring programs.

Table 3. Up-Flo® Filter with CPZ™ Media Performance Testing - Specified TARP & TAPE criteria, and achieved results, for storm selection and sampling

Description	TARP Criteria	TAPE Criteria	Achieved value	
			ESSIE - UF	CCEE - UA
Total rainfall/storm	≥2.5 mm (0.1”)	≥3.81 mm (0.15”)	>2.5 mm (0.1")	≥4.6 mm (0.18”)
Minimum inter-event period	6 h	6 h	≥ 6 h	≥ 6 h
Minimum flow-weighted composite sample storm coverage	70% including as much of the first 20% of the storm	75% including as much of the first 20% of the storm	100%	87.6%
Minimum influent/effluent samples	10, but a minimum of 5 subsamples for composite samples	12, but a minimum of 10 subsamples for composite samples	5, whole manual samples	11
Total sampled rainfall	≥ 381 mm (15”)	NA	195 mm (7.66”)	765 mm (30.07”)
Total sampled storms	≥ 20	≥ 12	16	29

Table 4. Up-Flo® Filter with CPZ™ Media Performance Testing - Observed operational conditions for events monitored over each performance test period

Operating parameter	Observed range	
	ESSIE - UF	CCEE - UA Total*
Storm duration	0.35-5.78 h	0.67-64.7 h
Previous dry hours**	6-213	> 6 hrs for the 20 storms in 1st study and 12-632 hrs for 30 storms in second study
Rainfall depth	0.10-1.64 in	0.18-2.44 in
Runoff volume	223-4095 gal (0.84-15.5 m^3)	2,065-61,131 gal(7.82-231 m^3)
Peak rainfall intensity (5 min)	1.2-5.4 in/h (3.0-13.7 cm)	0.24-4.68 in/h (0.61-11.9 cm)
Peak runoff flow rate	27.7-233 gpm (1.75-14.7 L/s)	68-1023 gpm (4.29-64.5 L/s)
Event median flow rate	2.4-21.4 gpm (0.15-1.35 L/s)	28-175 gpm (1.75-11.0 L/s)

* The UA data ranges cover the storms for both studies; ranges for individual studies might be narrower.
** This is the same as the time period between events, or time since it last rained a qualifying event.

For the UF study, performance monitoring was conducted at the Reitz Union surface parking lot, which had a drainage area of 0.12-0.20 acres (0.049-0.081 ha),which was 76% impervious, depending on storm intensity and wind direction. The area generated a flow rate in excess of the 150 gpm (9.55 L/s) maximum treatment flow rate (MTFR) in 3 of the 16 storms. The 4-ft diameter (1.2 m) test unit was installed above ground in a temporary installation at the bottom of a hill sloping down from the lot. An inlet catch basin conveyed runoff from the parking lot through a Pashall flume into the filter. Monitoring occurred over a period of 12 months and the UF team recovered the captured mass at the end of the perfomance monitoring study. No maintenance was required or conducted during the year long monitoring period from 12 September 2015 through 1 September 2016.

The UA perfomance monitoring studies covered a total of 50 storms, but not all of them yielded useful data for all parameters. The site used in both cases was the Riverwalk parking lot near the Bama Belle in Tuscaloosa, Alabama. The drainage area was about 0.9 acres (0.36 ha), 68% impervious. The unit was installed in a 4 ft. (1.2 m) diameter below-grade catch basin inlet manhole on the site. Monitoring occurred in two stages of approximately 12 months each over a total of 32 months. The first round of testing occurred from July 16, 2010 to April 11, 2011 and the second from May 31st, 2012 to March 30th, 2013.

The UA perfomance monitoring study used autosamplers to generate the flow-weighted composite samples and the event mean concentration data. This data was used to calculate removal efficiencies. However, in the UF performance monitoring study, sediment removal performance was assessed by taking full cross section samples of the influent and effluent streams at regular intervals for the duration of the storm and combining the samples into flow-weighted composites. The data was converted into event mean concentrations for the purposes of calculating removals.

The following approved analytical methods were used:

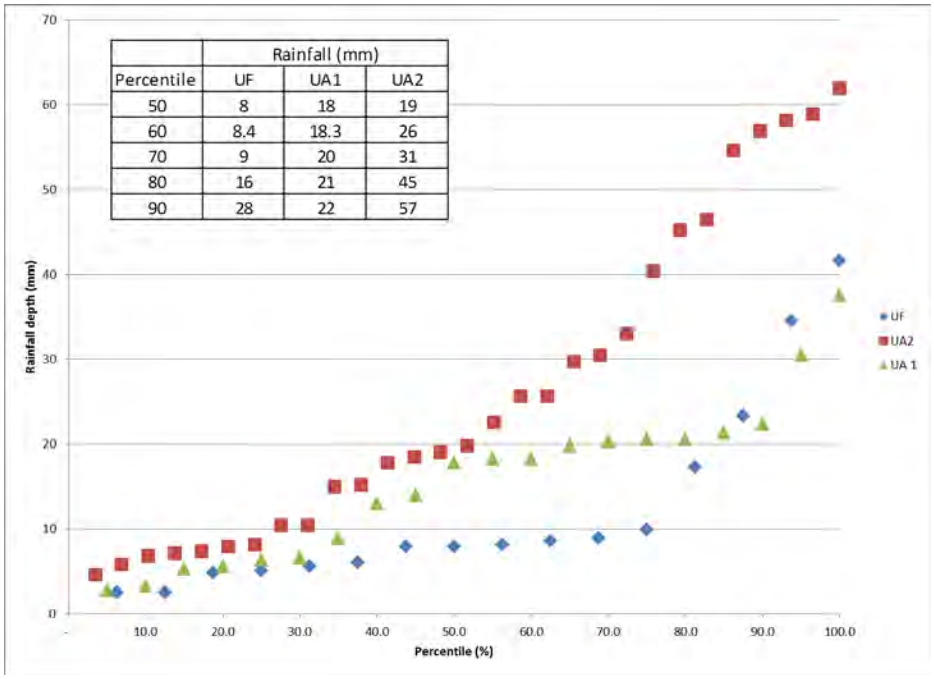
- TSS – ASTM D2540
- SSC – ASTM D3977-97(2013) Standard Test Methods for Determining Sediment Concentration in Water Samples
- PSD – ASTM D422 – 63 Standard Test Method for Particle-Size Analysis of Soils and ASTM C136 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
- PSD – ASTM 2560- C, D (UF used 2560D laser diffraction or light-scattering method and UA used 2560C Coulter Counter or light-blocking method)
- TP – S.M.4500-P-B Acid Hydrolysis
- TN – Persulfate Digestion Method
- Cu – EPA 200.8 Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma – Mass Spectrometry
- Zn - EPA 200.8 Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma – Mass Spectrometry

As part of the mass balance measurements, the UF team allowed all samples to sit for an hour and reported concentrations of suspended solids, measured using ASTM 2540D, as TSS, in addition to the usual SSC measurement using SM3977. In order to be able to report a TSS comparable to other perfomance monitoring studies, Dr. Sansalone developed a correlation equation for TSS* = f(SSC) as well as equations for the 95% confidence limits of TSS*.

Summary of Verification Results

The cumulative frequency of rainfall depths monitored during the three perfomance monitoring studies is presented in Figure 2. The median rainfall depths in the three perfomance monitoring studies were 0.31, 0.71, and 0.75 inches (8, 18 & 19 mm) while the 90th percentile rainfall depths were 1.1, 0.9 and 2.2 inches (28, 22 and 57 mm). Thus the data presented covers a comparatively wide range of rain events.

Figure 2. Rainfall depth frequency curves



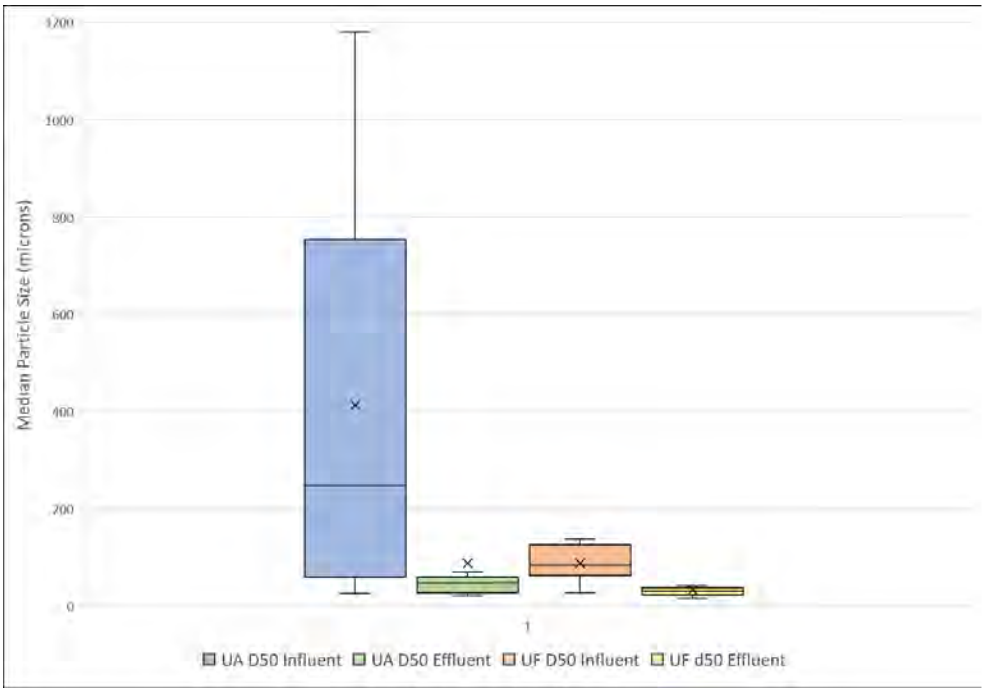
For UF monitoring, a total of 16 storm events, with varying rainfall intensity and runoff volume from event to event, were monitored. The cumulative rainfall depth was 7.66 inches (195 mm) and the cumulative influent runoff volume was 20,022 gallons (7.65 m^3). The entire volume was treated by the Up-Flo® Filter system. Of the 16 storms treated, three storms generated flow rates exceeding the MTFR of 150 gpm (9.55 L/s) but there was no bypass, because the excess was not sufficient to top the overflow weir, and all sampled flows passed through the filtration media. Median driving head difference for an event never exceeded 13.1 inches (33.3 cm) and peak driving head difference never exceeded 27.1 inches (68.8 cm), which indicates the media was not occluded.

For the UA site, all of the storm events from May 31st, 2012 to March 30th, 2013 were monitored for flow but only 30 events were sampled. The total rainfall depth for this period was 49 inches (124.5 cm) or 982,192 gal. (3,718 m^3) of runoff volume that was routed through the filter. Actual storm data from the monitoring period showed about 624,503 gal. (2,364 m^3) of runoff (from about 30 inches or 76.2 cm of rainfall) was treated by the media filter system. This included about 28.5 % of bypass flow volume, which was sampled and included in the performance results. Given that the total bypassed volume was almost three times the expected bypass volume at the UA site, the UA results are considered conservative.

Influent particle sizes varied considerably between the two monitored locations and between storm events. Catchment characteristics and available sources, sampling methods (auto sampling vs. grab sampling), storm intensities, duration and volumes all influence the particle size range. The particle size analyses were completed for just the median particle size for each storm. A comparison of statistical descriptive values for influent and effluent median particle sizes for the two monitored sites is illustrated with the Whisker-Box-Plot shown in Figure 3.

Due to larger storm events and curbside erosion, the median UA influent particle size range and d_{50} were substantially the larger of the two monitored sites. The interquartile range for the influent median particles sizes was 659 µm for UA compared to 59 µm for UF and the UA d50 was 247 µm compared to 85 µm for UF. However, despite the influent particle size differences between locations, the median UA and UF effluent particle size range and d50 were similar. The interquartile range for the effluent median particles sizes was 33 µm for UA compared to 13 µm for UF and the UA d50 was 48 µm compared to 30 µm for UF.

Figure 3. UF and UA Summary of Influent and Effluent Median Particle Sizes



Summary statistics for the influent and effluent concentration removal efficiencies as well as the overall mass load reductions are shown in Table 4 and Table 5 for UF and UA, respectively.

While the flow weighted removal efficiency for TP and TN were 48% and 39%, respectively, TP and TN reduction tended to decrease with the overall volume treated. Results showed that if the filter maintnenance cycle is limited to 6-8 months, the long-term load reduction for TP and TN would have been 50% and 70%, respectively.

Table 4: Up-Flo® Filter with CPZ™ Media Performance Testing - Summary statistics for influent and effluent event mean concentrations (EMCs) and the overall mass load reductions for selected constituents (UF Test)

Parameter	Sample Location	Min	Max	Median	SD	Mass Load Reduction
SSC	Influent	146	1584	487	360	92%
	Effluent	19.9	96.5	43.25	20.2	
TSS*	Influent	93.3	870	277	194	87%
	Effluent	25.0	66.4	37.6	10.9	
TP	Influent	0.79	6.05	1.9	1.70	48%
	Effluent	.56	2.19	1.1	0.56	
TN	Influent	.41	7.89	2.1	2.18	39%
	Effluent	.52	3.84	1.2	1.21	

Table 5. Up-Flo® Filter with CPZ™ Media Performance Testing - Summary statistics for influent and effluent event mean concentrations (EMCs) and the overall mass load reductions for selected constituents (UA Tests)

Parameter	Sample Location	Min	Max	Median	SD	Mass Load Reduction
SSC (mg/L)	Influent	23	879	88	166	86%
	Effluent	3	69	17	18	
TSS (mg/L)	Influent	11	571	89	128	87%
	Effluent	3	64	19	22	
Total Zn (µg/L)	Influent	7.0	157	22.0	0.71	59%
	Effluent	2.5*	72	14.0	0.68	
Total Cu (µg/L)	Influent	6	181	9	42	70%
	Effluent	1.3**	42	1.3	20.9	

* There was a single effluent value that was non-detect (ND). Since it was only 1 value ½ the detection limit 1.3 µg/L, was substituted when calculating statistics.
**The Cu data was highly censored (many non-detect, ND, effluents). Statistics were calculated by substituting ½ the detection limit, 1.3 µg/L, for all ND data then bootstrapping as usual.

As the independent third-party verifier, following the requirements of ISO 14034, GHL has confirmed that:

- The Hydro International Up-Flo® Filter with CPZ™ Media is based on sound scientific and engineering principles, providing a net environmental benefit.
- Performance testing of the Hydro International Up-Flo® Filter with CPZ™ Media was based on defined parameters and was conducted following the requirements of the NJDEP TARP Tier II Protocol for Stormwater Best Management Practice Demonstrations (2003) and its 2006 and 2009 amendments.
- Performance testing of the Hydro International Up-Flo® Filter with CPZ™ Media was performed by a qualified testing organization.
- Sample analyses were carried out as part of the test plan by a third-party analytical laboratory in a manner that meets the quality requirements of ISO 17025. Operating conditions and performance during each testing run were documented.
- Frequency of sampling and duration of each performance test were determined based on the specifications in a credible test plan and the requirements to produce sufficient data to support the performance claim at a 95% confidence level.
- Performance measurements and calculations were based on the technology application and relevant performance parameters as outlined in the Verification Plan.
- Performance calculations were done according to generally accepted test methods described in the test design, including the applicable mathematical and statistical principles and procedures.
- Data storage, transfer and control were adequate, carried out in accordance with the intent of ISO 9001 enabling control and retrieval of documents and records.
- Quality assurance requirements were addressed throughout the performance testing process and in the generation of performance test results. This confirmation included reviewing all data sheets and data downloads, as well as overall management of test system quality.

Quality Assurance

Performance testing and verification of the Hydro International Up-Flo® Filter with CPZ™ Media were performed in accordance with the requirements of ISO 14034:2016 and the VerifiGlobal Performance Verification Protocol. The verifier, Good Harbour Laboratories, has confirmed that quality assurance requirements were addressed throughout the performance testing process and in the generation of performance test results. This includes reviewing all data sheets and data downloads, as well as overall management of the test system, quality control and data integrity.

References

Technology Acceptance Reciprocity Partnership (TARP) Protocol and New Jersey Department of Environmental Protection (NJDEP amendments to the TARP Protocol, dated August 5, 2009 and Revised December 5th, 2009

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Particulate Matter Fraction Analyses. (Sansalone & Kim: Transport of Particulate Matter Fractions in Runoff, Journal of Environmental Quality • Volume 37 • September–October 2008)

New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids Removal by a Filtration Manufactured Treatment Device, January 2013

2009 Urban Stormwater BMP Performance Monitoring Guidelines
http://www.bmpdatabase.org/contacts.html

Description of Up-Flo® Filter

Up-Flo® Filter Design Manual https://www.hydroint.com/sites/default/files/uff_dg_nashville_f1504.pdf

Up-Flo® Filter Verification Brochure

ISO/IEC 14034, Environmental management – Environmental technology verification

ISO/IEC 17025, General requirements for the competence of testing and calibration laboratories

ISO/IEC 9001, Quality Management Systems.

VerifiGlobal Performance Verification Protocol (Applying ISO 14034:2016)

VerifiGlobal Test Body Assessment – Guidance (2018)

What is ISO 14034?

The purpose of environmental technology verification is to provide a credible and impartial account of the performance of environmental technologies. Environmental technology verification is based on a number of principles to ensure that verifications are performed and reported accurately, clearly, unambiguously and objectively. The International Organization for Standardization (ISO) standard for environmental technology verification (ETV) is ISO 14034, which was published in November 2016.

Benefits of ETV

ETV contributes to protection and conservation of the environment by promoting and facilitating market uptake of innovative environmental technologies, especially those that perform better than relevant alternatives. ETV is particularly applicable to those environmental technologies whose innovative features or performance cannot be fully assessed using existing standards. Through the provision of objective evidence, ETV provides an independent and impartial confirmation of the performance of an environmental technology based on reliable test data. ETV aims to strengthen the credibility of new, innovative technologies by supporting informed decision-making among interested parties.

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Signed for Hydro International: *Original signed by:* *Phillip Taylor* Phillip Taylor Technical Product Manager, Americas Stormwater	Signed for VerifiGlobal: *Original signed by:* *Thomas Bruun* Thomas Bruun, Managing Director *Original signed by:* *John Neate* John Neate, Managing Director

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Verification Statement

StormTech Isolator® Row PLUS
Registration number: (V-2020-10-01)
Date of issue: (2020-October-27)

Technology type	Stormwater Filtration Device
Application	Stormwater filtration technology to remove sediments, nutrients, heavy metals, and organic contaminants from stormwater runoff
Company	StormTech, LLC.
Address	520 Cromwell Avenue, Rocky Hill, CT 06067 USA **Phone** +1-888-892-2694
Website	www.stormtech.com
E-mail	info@stormtech.com

Verified Performance Claims

The StormTech Isolator® Row PLUS technology was tested at the Mid-Atlantic Storm Water Research Center (MASWRC), under the supervision of Boggs Environmental Consultants, Inc. The performance test results for two overlapping StormTech Isolator® Row PLUS chambers (commercial unit model SC-740) were verified by Good Harbour Laboratories Inc. (GHL), following the requirements of ISO 14034:2016 and the VerifiGlobal Performance Verification Protocol. Based on the laboratory testing conducted, the verified performance claims are as follows:

Total Suspended Solids (TSS) Removal Efficiency - The StormTech Isolator® Row PLUS achieved 82% ± 1% removal efficiency of suspended sediment concentration (SCC) at a 95% confidence level.

Average Loading Rate - Based on the reported flow rate data and the effective sedimentation and filtration treatment area of the test unit, the average loading rate of the test unit was 4.15 ± 0.03 GPM/ft^2 at a 95% confidence level.

Maximum Treatment Flow Rate (MTFR) - Although the MTFR varies among the StormTech Isolator® Row PLUS model sizes and the number of chambers, the design surface loading rate remains the same (4.13 gpm/ ft^2 of treatment surface area). The test unit consisted of two overlapping StormTech SC-740 chambers with a nominal MTFR of 225 GPM (0.501 CFS) and an effective filtration treatment area (EFTA) of approximately 54.5 ft^2.

Detention Time and Volume - The StormTech Isolator Row PLUS detention time and wet volume varies with model size. The unit tested had a wet volume of approximately 65.1 ft^3 and a detention time of 2.2 minutes.

Maximum Sediment Storage Depth and Volume - The sediment storage volume and depth vary according to the StormTech Isolator® Row PLUS model sizes and system configuration. For the two overlapping StormTech SC-740 chambers tested, the maximum sediment storage volume is 2.3 ft^3 at a sediment depth of 0.5 inches.

Effective Sedimentation/Filtration Treatment Areas - The Effective Sedimentation Area (ESA) and the Effective Filtration Treatment Area (EFTA) increase as the size of the system increases. For the two overlapping StormTech SC-740 chambers tested, the ESA and the ratio of ESA/EFTA were 54.5 ft^2 and 1.0, respectively.

Sediment Mass Load Capacity - The sediment mass load capacity varies according to the StormTech Isolator® Row PLUS model sizes and system configuration. For the two overlapping StormTech SC-740 chambers tested, the mass loading capture was 158.4 lbs ± 0.8 lbs (2.91 ±0.01 lbs/ ft^2) following a total sediment loading of 195.2 lbs.

Technology Application

The StormTech "Isolator® Row PLUS" is a stormwater treatment technology designed for use under parking lots, roadways and heavy earth loads while providing a superior and durable structural system. The technology comprises a row of chambers covered in a non-woven geotextile fabric with a single layer of proprietary woven fabric at the bottom that serves as a filter strip, providing surface area for infiltration and runoff reduction with enhanced suspended solids and pollutant removal. The following features make the Isolator® Row PLUS effective as a water quality solution:

- Enhanced infiltration Surface Area
- Runoff Volume Reduction
- Peak Flow Reduction
- Sediment/Pollutant Removal
- Internal Water Storage (IWS)
- Water Temperature Cooling (Thermal Buffer).

Technology Description

The Isolator® Row PLUS (shown in Figures 1 and 2) is the first row of StormTech chambers that is surrounded with filter fabric and connected to a closely located manhole for easy access. The Isolator® Row PLUS provides for settling and filtration of sediment as stormwater rises in the chamber and ultimately passes through the filter fabric. The open-bottom chambers allow stormwater to flow out of the chambers, while sediment is captured in the Isolator® Row PLUS.

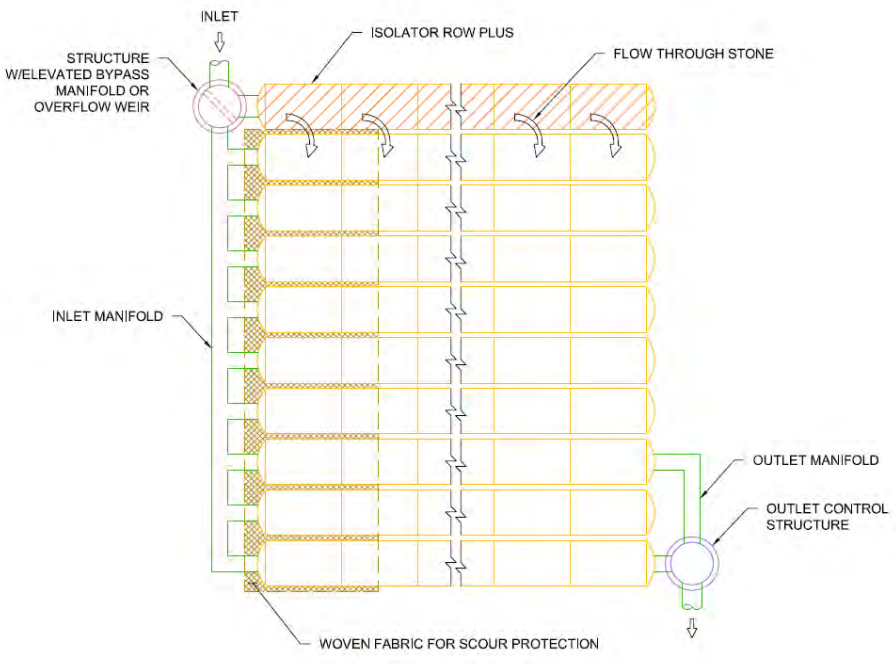

Figure 1: Schematic of the StormTech Isolator® Row PLUS System

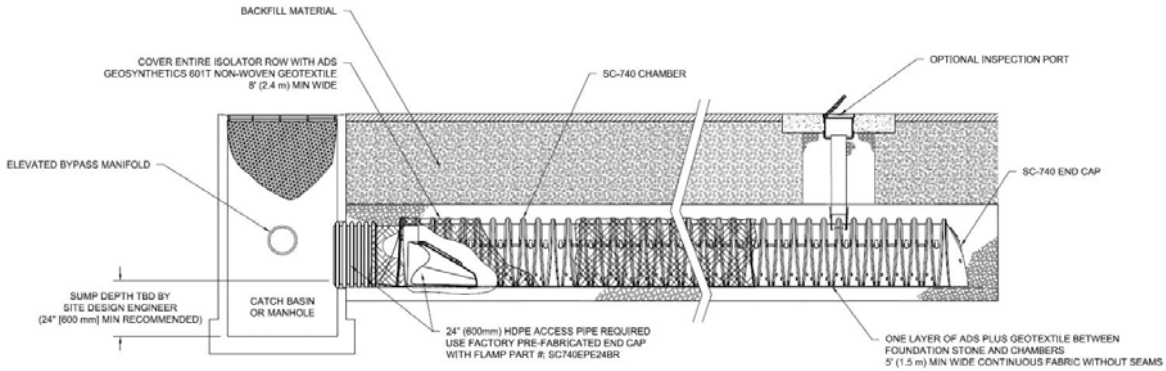

Figure 2: Isolator® Row PLUS Detail

A single layer of proprietary Advanced Drainage Systems (ADS) PLUS fabric is placed between the angular base stone and the Isolator Row PLUS chamber. The geotextile provides the means for stormwater filtration and provides a durable surface for maintenance operations. A 6 oz. non-woven fabric is placed over the chambers.

The Isolator® Row PLUS is designed to capture the “first flush” and offers the versatility to be sized on a volume basis or a flow-rate basis. An upstream manhole not only provides access to the Isolator® Row PLUS but includes a high low/concept such that stormwater flow rates or volumes that exceed the capacity of the Isolator® Row PLUS bypass through a manifold to the other chambers. This is achieved with either a high-flow weir or an elevated manifold. This creates a differential between the Isolator® Row PLUS and the manifold, thus allowing for settlement time in the Isolator® Row PLUS. After Stormwater flows through the Isolator® Row PLUS and into the rest of the StormTech chamber system it is either infiltrated into the soils below or passed at a controlled rate through an outlet manifold and outlet control structure.

StormTech developed and owns the Isolator® Row PLUS technology and has filed a number of patent applications relating to the Isolator® Row PLUS system.[1]

Description of Test Procedure for the StormTech Isolator® Row PLUS

In January 2020, two overlapping StormTech SC-740 Isolator® Row PLUS commercial size chambers were installed at the Mid-Atlantic Storm Water Research Center (MASWRC, a subsidiary of BaySaver), in Mount Airy, Maryland, to evaluate the performance of the Isolator® Row PLUS system for Total Suspended Solid (TSS) removal (Figure 3) All testing and data collection procedures were supervised by Boggs Environmental Consultants, Inc. (BEC), who was hired by ADS for third party oversight, and were in accordance with the *New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids Removal by a Filtration Manufactured Treatment Device (January 2013)*.

Prior to the start of testing, a Quality Assurance Project Plan (QAPP), revision dated January 09, 2020, was submitted and approved by the New Jersey Corporation for Advanced Technology (NJCAT), c/o Center for Environmental Systems, Stevens Institute of Technology, Castle Point on Hudson, Hoboken, NJ 07030.

[1] (U.S. Provisional Application No. 62/753,050, filed October 30, 2018; U.S. Non-Provisional Application No. 16/670,628, filed October 31, 2019; International Application No. PCT/US2019/059283, filed October 31, 2019; U.S. Application No. 16/938,482, filed July 24, 2020; U.S. Application No. 16/938,657, filed July 24, 2020; PCT International Application No. PCT/US2020/043543, filed July 24, 2020; PCT International Application No. PCT/US2020/043557, filed July 24, 2020.

Figure 3: StormTech "Isolator® Row PLUS" Test Set-up at MASWRC

Verification Results

The verification process for the StormTech Isolator® Row PLUS technology was conducted by GHL in accordance with the VerifiGlobal Verification Plan for the StormTech "Isolator® Row PLUS" Technology – 2020-09-09. The technology performance claims verified by GHL are summarized at the front of this Verification Statement and in Table 6 on Page 8 under the heading "Verification Summary".

Particle size distribution analysis was performed by ECS Mid-Atlantic, LLC of Frederick, MD in accordance with ASTM D422-63(2007). ECS is accredited by the American Association of State Highways and Transportation Officials (AASHTO).

ASTM D422-63(2007) is a sieve and hydrometer method where the larger particles, > 75 microns, are measured using a standard sieve stack while the smaller particles are measured based on their settling time using a hydrometer.

The PSD meets the requirements of NJDEP, which is generally accepted as representative of the type of particle sizes an OGS would be designed to treat. Actual PSD is site and rainfall event specific, so it was necessary to choose a standard PSD to make testing and comparison manageable.

Table 1 shows the NJDEP PSD specification. Table 2 and Figure 4 show the incoming material PSD as determined by ECS Mid-Atlantic and confirmed by the verifier.

Table 1: NJDEP PSD Specification

Particle Size (µm)	NJDEP Minimum Specification
1000	98
500	93
250	88
150	73
100	58
75	48
50	43
20	33
8	18
5	8
2	3
d_{50}	< 75 µm

Table 2 – Particle Size Distribution (PSD) of Test Sediment

Mesh (mm)	US Sieve Size	Sample ID		
		PSD A	PSD B	PSD C
		Percent Finer		
9.525	0.375	100.0	100.0	100.0
4.750	#4	100.0	100.0	100.0
4.000	#5	100.0	100.0	100.0
2.360	#8	100.0	100.0	100.0
2.000	#10	100.0	100.0	100.0
1.180	#16	100.0	100.0	100.0
1.000	#18	100.0	100.0	100.0
0.500	#35	100.0	100.0	100.0
0.425	#40	93.3	93.0	93.6
0.250	#60	90.3	89.8	90.2
0.150	#100	79.3	78.1	78.1
0.125	#120	73.6	71.7	71.7
0.106	#140	68.4	65.2	64.8
0.090	#170	60.2	58.3	57.5
0.075	#200	52.0	50.9	50.3
0.053	#270	48.0	48.3	47.8
0.045	Hydrometer	46.6	46.7	46.7
0.032		42.8	42.9	41.0
0.021		37.1	37.2	35.3
0.0125		25.7	25.7	25.8
0.0090		20.1	20.1	19.2
0.0064		16.3	16.4	14.5
0.0032		8.8	8.7	7.8
0.0014		3.8	3.7	3.8

The suspended sediment concentration analysis was completed by Fredericktowne Labs Inc., Meyersville, MD. Fredericktown Labs is accredited by the Maryland Department of Environment as Maryland Certified Water Quality Laboratory. The analysis procedure was ASTM D3977-97, Suspended Sediment Concentration. The sampling procedure and submission of samples to the test lab were overseen by the independent observer, Boggs Environmental Consultants, Inc.

All test data and calculations were detailed in the report “NJCAT TECHNOLOGY VERIFICATION Isolator® Row PLUS StormTech, LLC”, July 2020, which was submitted to and verified by the New Jersey Corporation for Advanced Technology (NJCAT).

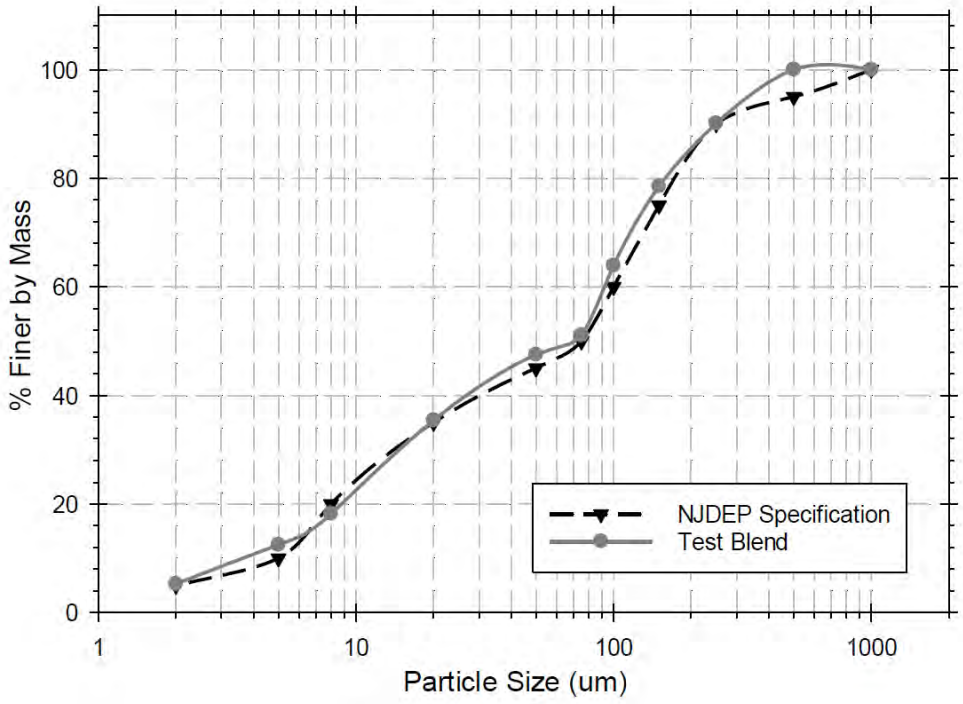

Figure 4– Particle Size Distribution (PSD)

The data in Table 3 (Flow Rate and Temperature) and Table 4 (Removal Efficiency) form the basis for the verified technology performance claim, specifically, flow rate, sediment captured and removal efficiency.

Table 3: Flow Rate and Temperature Summary

Run	Max Flow (gpm)	Min Flow (gpm)	Average Flow (gpm)	Flow COV	Flow Compliance (COV< 0.1)	Maximum Temperature (Fahrenheit)	NJDEP Temperature Compliance (< 80 F)
1	232.8	223.9	226.3	0.0078	Y	48.2	Y
2	228.9	218.6	220.8	0.0104	Y	51.5	Y
3	229.4	220.0	227.2	0.0094	Y	44.7	Y
4	230.2	218.7	223.2	0.0138	Y	40.5	Y
5	228.7	216.9	222.2	0.0103	Y	44.7	Y
6	227.6	217.0	224.2	0.0115	Y	46.7	Y
7	229.7	221.9	226.4	0.0092	Y	44.6	Y
8	230.3	222.2	226.8	0.0089	Y	43.5	Y
9	233.2	218.4	225.6	0.0136	Y	45.5	Y
10	232.2	219.7	228.4	0.0126	Y	44.7	Y
11	226.9	219.2	224.1	0.0088	Y	52.4	Y
12	232.2	222.1	226.9	0.0107	Y	48.5	Y
13	234.7	221.2	226.1	0.0109	Y	48.5	Y
14	231.9	223.4	228.7	0.0103	Y	45.6	Y
15	236.8	224.1	231.4	0.0131	Y	52.2	Y
16	232.5	221.3	229.0	0.0137	Y	47.8	Y

Table 4: Removal Efficiency Results

Run	Average Influent TSS (mg/L)	Influent Water Volume (gal)	Adjusted Average Effluent TSS (mg/L)	Effluent Water Volume (gal)	Adjusted Average Drain Down TSS (mg/L)	Drain Down Water Volume (gal)	Single Run Removal Efficiency (%)	Mass of Captured Sediment (g)	Cumulative Removal Efficiency (%)
1	203	7166	46	6881	34	285	77.8	4282	77.8
2	199	6993	32	6639	27	354	84.0	4415	80.8
3	207	7197	37	6793	27	403	82.6	4654	81.4
4	217	7068	33	6635	29	433	84.9	4923	82.3
5	215	7037	39	6593	29	444	82.2	4705	82.3
6	207	7097	40	6643	31	454	81.2	4504	82.1
7	198	7169	37	6693	30	476	81.6	4386	82.0
8	201	7184	37	6716	32	468	81.6	4473	82.0
9	205	7147	38	6675	30	472	81.8	4539	82.0
10	203	7235	38	6759	31	476	81.4	4523	81.9
11	208	7096	38	6624	30	472	81.8	4567	81.9
12	209	7185	41	6709	30	476	80.7	4584	81.8
13	198	7162	41	6680	32	482	79.7	4277	81.6
14	200	7242	43	6757	34	485	78.8	4318	81.4
15	196	7329	41	6842	32	487	79.5	4320	81.3
16	202	7254	44	6769	31	485	78.9	4384	81.2
Avg.	**204.2**	**7160**	**39**	**6713**	**31**	**447**	**81.2**	**4491**	**N/A**
Cumulative Mass Removed (g)							**71854**		
Cumulative Mass Removed (lb)							**158.4**		
Total Mass Loaded (lb)							**195.2**		
Cumulative Removal Efficiency (%)							**81.2**		

Quality Assurance

Performance verification of the StormTech Isolator® Row PLUS technology was performed in accordance with the requirements of ISO 14034:2016 and the VerifiGlobal Performance Verification Protocol. This included reviewing all data sheets and calculated values, as well as overall management of the test system, quality control and data integrity.

Additional information on quality control measures taken can be found in section 5 of the QAPP for StormTech Isolator Row New Jersey Department of Environmental Protection Testing, Rev. 1/9/2020.

Specific QA/QC measures reviewed by the verifier are summarized in Table 5 below.

Table 5. Validation of QA/QC Procedures

QC Parameter	Acceptance Criteria
Independence of observer	Confirmed in letter from Boggs Environmental Consultants, Inc. to NJCAT
Consistency of procedure	Daily logs confirm proper procedure
Existence of QAPP	Confirmed. “QAPP For StormTech Isolator Row New Jersey Department of Environmental Protection Testing”, Rev. 1/9/2020*)*
Use of appropriate sample analysis method – ASTM D3799	Confirmed by method reference on lab reports from Fredericktowne Labs Inc.
Test method appropriate for the technology	Used industry stakeholder approved protocol: *New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids*

	Removal by a Filtration Manufactured Treatment Device (January 2013)
Test parameters stayed within required limits	Confirmed in report "NJCAT TECHNOLOGY VERIFICATION Isolator® Row PLUS StormTech, LLC", July 2020
Third party verified data	All testing was observed and reviewed by Boggs Environmental Consultants, Inc.

Variance

Performance claims regarding structural load limitations were not verified as they are outside the scope of the performance testing that was conducted in accordance with the 'Quality Assurance Project Plan (QAPP) for StormTech Isolator Row, New Jersey Department of Environmental Protection Testing', revision dated January 09, 2020.

Verification Summary

The StormTech "Isolator® Row PLUS" is a stormwater treatment technology designed for use under parking lots, roadways and heavy earth loads while providing a superior and durable structural system. The technology comprises a row of chambers wrapped in woven geotextile fabric with two layers at the bottom that serve as a filter strip, providing surface area for infiltration and runoff reduction with enhanced suspended solids and pollutant removal.

The StormTech Isolator® Row PLUS technology was tested at the Mid-Atlantic Storm Water Research Center (MASWRC), under the supervision of Boggs Environmental Consultants, Inc. The performance test results for two overlapping StormTech Isolator® Row PLUS chambers (commercial unit model SC-740) were verified by Good Harbour Laboratories Inc. (GHL), following the requirements of ISO 14034:2016 and the VerifiGlobal Performance Verification Protocol. Table 6 summarizes the verification results in relation to the technology performance parameters that were identified in the Verification Plan to determine the efficacy of the StormTech Isolator® Row PLUS technology.

Table 6 - Summary of Verification Results Against Performance Parameters

Parameters	Verified Claims	Accuracy
Total Suspended Solids (TSS) Removal Efficiency	Based on the laboratory testing conducted, the StormTech Isolator® Row PLUS achieved an average 82% removal efficiency of SSC	± 1% (95% confidence level)
Average Loading Rate	Based on the laboratory testing parameters, the StormTech Isolator® Row PLUS maintained a loading rate of 4.15 GPM/sf	±0.03 GPM/sf (95% confidence level)
Maximum Treatment Flow Rate (MTFR)	Although the MTFR varies among the StormTech Isolator® Row PLUS model sizes and the number of chambers, the design surface loading rate remains the same (4.13 GPM/ft^2 of treatment surface area). The test unit consisted of two overlapping StormTech SC-740 chambers with a nominal MTFR of 225 GPM (0.501 CFS) and an effective filtration treatment area (EFTA) of approximately 54.5 ft^2.	± 1.4 GPM (95% confidence level)
Detention Time and Volume	Detention time and wet volume varies with model size. The unit tested had a wet volume of approximately 65.1 ft^3 (based on	N/A

	physical measurement) and a detention time of 2.2 minutes.	
Maximum Sediment Storage Depth and Volume	The sediment storage volume and depth vary according to the StormTech Isolator® Row PLUS model sizes and system configuration. For the two overlapping StormTech SC-740 chambers tested, the maximum sediment storage volume is 2.3 ft^3 at a sediment depth of 0.5 inches.	N/A
Effective Sedimentation/ Filtration Treatment Area	The effective sedimentation and filtration treatment area increases as the size of the chamber increases. Under the tested conditions using 2 overlapping chambers, the treatment area was 54.5 ft^2	The sedimentation /filtration area was determined from the actual physical dimensions of the test unit*
Sediment Mass Load Capacity	The sediment mass load capacity varies according to the StormTech Isolator® Row PLUS model sizes and system configuration. For the two overlapping StormTech SC-740 chambers tested, the mass loading capture was 158.4 lbs (2.91 lbs/ ft^2) following a total sediment loading of 195.2 lbs	± 0.8 lbs (±0.01 lbs/ft^2) (95% confidence level)

*Note: These numbers are determined based on physical measurement or a dimensional drawing, which is standard practice. Highly accurate measurements are not practical.

In conclusion, the StormTech Isolator® Row PLUS is a viable technology that can be used to remove contaminants from stormwater runoff via filtration. This technology has proven effective at removing suspended sediment from stormwater through in-lab testing using an industry recognized laboratory protocol.

By extension of sediment removal, this technology should also remove particle bound nutrients, heavy metals, and a wide variety of organic contaminants. Performance is a function of pollutant properties, hydraulic retention time, filter media, pre-treatment, and flow rate, such that proper design of the system is critical to achieving the desired results.

What is ISO 14034?

The purpose of environmental technology verification is to provide a credible and impartial account of the performance of environmental technologies. Environmental technology verification is based on a number of principles to ensure that verifications are performed and reported accurately, clearly, unambiguously and objectively. The International Organization for Standardization (ISO) standard for environmental technology verification (ETV) is ISO 14034, which was published in November 2016.

Benefits of ETV

ETV contributes to protection and conservation of the environment by promoting and facilitating market uptake of innovative environmental technologies, especially those that perform better than relevant alternatives. ETV is particularly applicable to those environmental technologies whose innovative features or performance cannot be fully assessed using existing standards. Through the provision of objective evidence, ETV provides an independent and impartial confirmation of the performance of an environmental technology based on reliable test data. ETV aims to strengthen the credibility of new, innovative technologies by supporting informed decision-making among interested parties.

For more information on the StormTech "Isolator® Row PLUS" technology, contact:	For more information on VerifiGlobal, contact:
StormTech, LLC. 520 Cromwell Avenue, Rocky Hill, CT 06067 USA t: +1-888-892-2694 e: info@stormtech.com w: www.stormtech.com	VerifiGlobal c/o ETA-Danmark A/S Göteborg Plads 1, DK-2150 Nordhaven t +45 7224 5900 e: info@verifiglobal.com w: www. verifiglobal.com
Signed for StormTech: *Original signed by:* *Greg Spires* Greg Spires, P.E. General Manager	Signed for VerifiGlobal: *Original signed by:* *Thomas Bruun* Thomas Bruun, Managing Director *Original signed by:* *John Neate* John Neate, Managing Director

NOTICE: Verifications are based on an evaluation of technology performance under specific, predetermined operational conditions and parameters and the appropriate quality assurance procedures. VerifiGlobal and the Verification Expert, Good Harbour Laboratories, make no expressed or implied warranties as to the performance of the technology and do not certify that a technology will always operate as verified. The end user is solely responsible for complying with any and all applicable regulatory requirements. Mention of commercial product names does not imply endorsement.

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FM200 - TRM

Specification Sheet

The FM200 is a turf reinforcement mat made of 100% polypropylene fiber (green) designed for critical slope and channel applications requiring permanent erosion control and turf reinforcement. The matting is sewn together on 1.5 inch (38.1 mm) centers. The FM200 meets all requirements established in the FHWA FP-03 as a Type 5 A, B, and C turf reinforcement matting for use on slopes with gradients up to 0.5:1 (h:v), channels, and shorelines. The FM200 has been tested by the National Transportation Product Evaluation Program (NTPEP). The FM200 comes packaged in clear shrink-wrap with a blue band and includes installation instructions.

Product Nomenclature & Properties

FM = 100% polypropylene fiber matrix (tan or green in color) applied at a rate of 0.75 lbs/yd^2 (400 g/m^2)
200 = top permanent UV stabilized black net with a mesh size of 0.53 x 0.5 in (1.34 x 1.27 cm)
= bottom permanent UV stabilized black net with a mesh size of 0.626 x 0.626 in (1.59 x 1.59 cm)
= permanent UV stabilized black thread

Index & Bench Scale Testing

Test Description	Test Method	Test Results
Mass per Unit Area	ASTM D6475	12.7 oz/yd^2
UV Stability at 500 hours	ASTM D 4355	96%
Tensile Strength	ASTM D6818	31.4 lb/in @ 27.6% MD 17.7 lb/in @ 33.4% TD
Thickness	ASTM D6525	0.446 in
Light Penetration / Ground Cover	ASTM D6567	20% / 80%
Unvegetated Bench-Scale Rain Splash and Runoff (not to be used as a design value)	ASTM D7101	Soil Loss Ratio* = 6.29 Soil Loss Ratio*= 6.05 Soil Loss Ratio*= 5.81
Unvegetated Bench-Scale Shear Stress (not to be used as design value)	ASTM D7207	3.07 lbs/ft^2 @ ½ in. soil loss
Seed Germination and Plant Growth Under Bench-Scale Conditions	ASTM D7322	508% Improvement (increased biomass)
*Soil Loss Ratio = Soil Loss Bare Soil / Soil Loss with RECP = 1 / C-Factor (Note: Soil loss is based on regression analysis)		

Design Values

- "C" factor = 0.001
- Unvegetated Maximum Permissible Shear Stress = 3.30 lbs/ft^2 (158.4 Pa)
- Vegetated Maximum Permissible Shear Stress = 14.0 lbs/ft^2 (665 Pa)
- Maximum Flow Velocity Unvegetated = 12 ft/s (3.8 m/s)
- Maximum Flow Velocity Vegetated = 21 ft/s (6.65 m/s)
- Unvegetated Manning's "n" = 0.03 (The hydraulic roughness coefficient will vary for vegetated conditions based on vegetation stand height and density)

Standard Roll Details

Width	2.44m (8ft)
Standard Length	25.7m (84.3ft)
Area	62.7m^2 (75yd^2)
Weight ±10%	28kg (61lb)

Also available in:

Width	2.44m (8ft)	4.88m (16ft)	4.88m (16ft)
Standard Length	102.8m (337.5ft)	102.8m (337.5ft)	25.7m (84.3ft)
Area	250.8m^2 (300yd^2)	500m^2 (600yd^2)	125.4m^2 (150yd^2)
Weight ±10%	112kg (244 lb)	224kg (488 lb)	56kg (122lb)

PHONE: (416)674-0363 • www.terrafixgeo.com • FAX: (416)674-1159
455 Horner Ave., Toronto, ON, M8W 4W9

Pioneer Trail Residential Condominium
Barrie WPCC 1979-2008 Climatology Summary Sheet

CLIENT: Crisdawn Construction Inc.

DATE: August 2022

PROJECT: 70 Pioneer Trail

DESIGN: MG

FILE: FER-15101 (50)

CHECKED: JWI

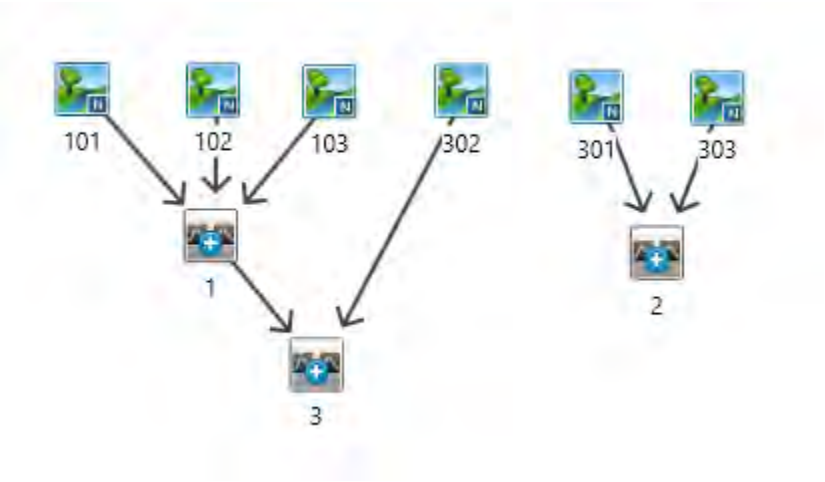
Number of Days with Recorded Historical Precipitation Data	8176	days	or	272.5	average days/year
Equivalent number of years	22.38	years			
Total Rainfall	19404.2	mm			
Total Precipitation	21213.4	mm			
Average yearly rainfall	866.32	mm/yr			
Average yearly precipitation	947.68	mm/yr			
Sum of historical precipitation events <=2mm	1415.2	mm	6152	days	205.1 days/year
Sum of historical precipitation events <=25mm	16907.2	mm	8060	days	268.7 days/year
Sum of historical precipitation events >25mm	4306.2	mm	116	days	3.9 days/year
Days with rainfall			3381	days	112.7 days/year
Days with no rainfall			4795	days	159.8 days/year
Sum of historical precipitation between 2 and 25mm	15492.0	mm	1908	days	63.6 days/year
Average historical precipitation <=2mm per year	63.22	mm/yr			
Average historical precipitation >2mm and <=25mm per year	692.08	mm/yr			
Estimated annual precipitation capture between 2 & 25mm events	73.0%				
Number of historical precipitation events >25mm	116	days			
Average historical precipitation >25mm per year	192.37	mm/yr			
Estimated annual precipitation >25mm	20.3%				
Initial precipitation captured by LID during >25mm events	2900	mm			
Effective precipitation captured by LIDs during >25mm events per year	129.55	mm/yr			
Effective annual precipitation captured by LIDs during >25mm events	13.7%				
Total precipitation captured by LID	18392.0	mm			
Estimated LID runoff capture	821.6	mm/yr			
Estimated LID % annual runoff capture	86.7%				

Appendix D

OTTHYMO Schematics & Model Outputs

- OTTHYMO Model Schematics
    - Pre-Dev-PF & Pre-Dev-PF Hazel AMC III
    - Post-Dev-PF & Post-Dev-PF Hazel AMC III
    - Post-Dev-PF Channel & Post-Dev-PF Channel Hazel AMCIII
- OTTHYMO Detailed Outputs
    - Pre-Dev-PF – 25mm 4hr CHI WQE
    - Pre-Dev-PF – 100yr24hrSCS
    - Pre-Dev-PF – Hazel AMCIII
    - Post-Dev-PF – 25mm 4hr CHI WQE
    - Post-Dev-PF – 100yr24HrSCS
    - Post-Dev-PF – Hazel AMCIII
    - Post-Dev-PF Channel – 100yr24HrSCS
    - Post-Dev-PF Channel – Hazel AMCIII
- OTTHYMO Node Detail Outputs
    - Pre-Dev-PF AddHyd 1 Summary
    - Post-Dev-PF AddHyd 1 Summary
    - Post-Dev-PF Channel AddHyd 5 Summary
    - Post-Dev-PF Channel AddHyd 7 Summary
    - Post-Dev-PF Channel AddHyd 8 Summary
    - Post-Dev-PF Channel AddHyd 9 Summary
- Digital Modeling Files

Pre-Dev-PF & *Pre-Dev-PF Hazel AMCIII* Model Schematics



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        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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DATE: 08-10-2022                              TIME: 08:57:24

USER:



COMMENTS: _____________________________________________________________________

--------------------------------------------------------------------------------
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  ************************************************
  ** SIMULATION : Pre-Dev-PF, WQE 25mm 4hr CHI  **
  ************************************************


--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 458.560
| Ptotal= 25.00 mm |                          B=   4.699
--------------------                          C=   0.781
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    =  5.00 min
                       Time to peak ratio =  0.33

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    1.56 |  1.00    6.77 |  2.00    4.31 |  3.00    2.07
                0.08    1.65 |  1.08   10.39 |  2.08    3.92 |  3.08    1.99
                0.17    1.76 |  1.17   24.03 |  2.17    3.61 |  3.17    1.92
                0.25    1.88 |  1.25   77.76 |  2.25    3.34 |  3.25    1.85
                0.33    2.03 |  1.33   31.02 |  2.33    3.12 |  3.33    1.79
                0.42    2.20 |  1.42   17.08 |  2.42    2.92 |  3.42    1.73
                0.50    2.41 |  1.50   11.77 |  2.50    2.76 |  3.50    1.68
                0.58    2.68 |  1.58    9.02 |  2.58    2.61 |  3.58    1.63
                0.67    3.02 |  1.67    7.34 |  2.67    2.48 |  3.67    1.58
```

0.75	3.47	1.75	6.21	2.75	2.36	3.75	1.54
0.83	4.11	1.83	5.40	2.83	2.25	3.83	1.50
0.92	5.09	1.92	4.79	2.92	2.16	3.92	1.46

CALIB			
NASHYD (0301)	Area (ha)=	6.32	Curve Number (CN)= 29.0
ID= 1 DT= 2.0 min	Ia (mm)=	9.42	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.27	

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	1.56	1.033	6.77	2.033	4.31	3.03	2.07
0.067	1.56	1.067	6.77	2.067	4.31	3.07	2.07
0.100	1.60	1.100	8.58	2.100	4.12	3.10	2.03
0.133	1.65	1.133	10.39	2.133	3.92	3.13	1.99
0.167	1.65	1.167	10.39	2.167	3.92	3.17	1.99
0.200	1.76	1.200	24.03	2.200	3.61	3.20	1.92
0.233	1.76	1.233	24.03	2.233	3.61	3.23	1.92
0.267	1.82	1.267	50.90	2.267	3.48	3.27	1.88
0.300	1.88	1.300	77.76	2.300	3.34	3.30	1.85
0.333	1.88	1.333	77.76	2.333	3.34	3.33	1.85
0.367	2.03	1.367	31.02	2.367	3.12	3.37	1.79
0.400	2.03	1.400	31.02	2.400	3.12	3.40	1.79
0.433	2.11	1.433	24.05	2.433	3.02	3.43	1.76
0.467	2.20	1.467	17.08	2.467	2.92	3.47	1.73
0.500	2.20	1.500	17.08	2.500	2.92	3.50	1.73
0.533	2.41	1.533	11.77	2.533	2.76	3.53	1.68
0.567	2.41	1.567	11.77	2.567	2.76	3.57	1.68
0.600	2.55	1.600	10.40	2.600	2.68	3.60	1.65
0.633	2.68	1.633	9.02	2.633	2.61	3.63	1.63
0.667	2.68	1.667	9.02	2.667	2.61	3.67	1.63
0.700	3.02	1.700	7.34	2.700	2.48	3.70	1.58
0.733	3.02	1.733	7.34	2.733	2.48	3.73	1.58
0.767	3.24	1.767	6.78	2.767	2.42	3.77	1.56
0.800	3.47	1.800	6.21	2.800	2.36	3.80	1.54
0.833	3.47	1.833	6.21	2.833	2.36	3.83	1.54
0.867	4.11	1.867	5.40	2.867	2.25	3.87	1.50
0.900	4.11	1.900	5.40	2.900	2.25	3.90	1.50
0.933	4.60	1.933	5.09	2.933	2.20	3.93	1.48
0.967	5.09	1.967	4.79	2.967	2.16	3.97	1.46
1.000	5.09	2.000	4.79	3.000	2.16	4.00	1.46

Unit Hyd Qpeak (cms)= 0.894

PEAK FLOW (cms)= 0.004 (i)
TIME TO PEAK (hrs)= 1.867
RUNOFF VOLUME (mm)= 0.381
TOTAL RAINFALL (mm)= 24.998
RUNOFF COEFFICIENT = 0.015

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0303)	Area (ha)=	0.33	Curve Number (CN)= 25.0
ID= 1 DT= 2.0 min	Ia (mm)=	10.00	# of Linear Res.(N)= 3.00

---------- U.H. Tp(hrs)= 0.25

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	1.56	1.033	6.77	2.033	4.31	3.03	2.07
0.067	1.56	1.067	6.77	2.067	4.31	3.07	2.07
0.100	1.60	1.100	8.58	2.100	4.12	3.10	2.03
0.133	1.65	1.133	10.39	2.133	3.92	3.13	1.99
0.167	1.65	1.167	10.39	2.167	3.92	3.17	1.99
0.200	1.76	1.200	24.03	2.200	3.61	3.20	1.92
0.233	1.76	1.233	24.03	2.233	3.61	3.23	1.92
0.267	1.82	1.267	50.90	2.267	3.48	3.27	1.88
0.300	1.88	1.300	77.76	2.300	3.34	3.30	1.85
0.333	1.88	1.333	77.76	2.333	3.34	3.33	1.85
0.367	2.03	1.367	31.02	2.367	3.12	3.37	1.79
0.400	2.03	1.400	31.02	2.400	3.12	3.40	1.79
0.433	2.11	1.433	24.05	2.433	3.02	3.43	1.76
0.467	2.20	1.467	17.08	2.467	2.92	3.47	1.73
0.500	2.20	1.500	17.08	2.500	2.92	3.50	1.73
0.533	2.41	1.533	11.77	2.533	2.76	3.53	1.68
0.567	2.41	1.567	11.77	2.567	2.76	3.57	1.68
0.600	2.55	1.600	10.40	2.600	2.68	3.60	1.65
0.633	2.68	1.633	9.02	2.633	2.61	3.63	1.63
0.667	2.68	1.667	9.02	2.667	2.61	3.67	1.63
0.700	3.02	1.700	7.34	2.700	2.48	3.70	1.58
0.733	3.02	1.733	7.34	2.733	2.48	3.73	1.58
0.767	3.24	1.767	6.78	2.767	2.42	3.77	1.56
0.800	3.47	1.800	6.21	2.800	2.36	3.80	1.54
0.833	3.47	1.833	6.21	2.833	2.36	3.83	1.54
0.867	4.11	1.867	5.40	2.867	2.25	3.87	1.50
0.900	4.11	1.900	5.40	2.900	2.25	3.90	1.50
0.933	4.60	1.933	5.09	2.933	2.20	3.93	1.48
0.967	5.09	1.967	4.79	2.967	2.16	3.97	1.46
1.000	5.09	2.000	4.79	3.000	2.16	4.00	1.46

Unit Hyd Qpeak (cms)= 0.050

PEAK FLOW (cms)= 0.000 (i)
TIME TO PEAK (hrs)= 1.833
RUNOFF VOLUME (mm)= 0.287
TOTAL RAINFALL (mm)= 24.998
RUNOFF COEFFICIENT = 0.011

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0002)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0301):	6.32	0.004	1.87	0.38
+ ID2= 2 (0303):	0.33	0.000	1.83	0.29
ID = 3 (0002):	6.65	0.004	1.87	0.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB

| NASHYD (0101)| Area (ha)= 2.25 Curve Number (CN)= 30.0
|ID= 1 DT= 2.0 min | Ia (mm)= 8.97 # of Linear Res.(N)= 3.00
---------- U.H. Tp(hrs)= 0.24

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	1.56	1.033	6.77	2.033	4.31	3.03	2.07
0.067	1.56	1.067	6.77	2.067	4.31	3.07	2.07
0.100	1.60	1.100	8.58	2.100	4.12	3.10	2.03
0.133	1.65	1.133	10.39	2.133	3.92	3.13	1.99
0.167	1.65	1.167	10.39	2.167	3.92	3.17	1.99
0.200	1.76	1.200	24.03	2.200	3.61	3.20	1.92
0.233	1.76	1.233	24.03	2.233	3.61	3.23	1.92
0.267	1.82	1.267	50.90	2.267	3.48	3.27	1.88
0.300	1.88	1.300	77.76	2.300	3.34	3.30	1.85
0.333	1.88	1.333	77.76	2.333	3.34	3.33	1.85
0.367	2.03	1.367	31.02	2.367	3.12	3.37	1.79
0.400	2.03	1.400	31.02	2.400	3.12	3.40	1.79
0.433	2.11	1.433	24.05	2.433	3.02	3.43	1.76
0.467	2.20	1.467	17.08	2.467	2.92	3.47	1.73
0.500	2.20	1.500	17.08	2.500	2.92	3.50	1.73
0.533	2.41	1.533	11.77	2.533	2.76	3.53	1.68
0.567	2.41	1.567	11.77	2.567	2.76	3.57	1.68
0.600	2.55	1.600	10.40	2.600	2.68	3.60	1.65
0.633	2.68	1.633	9.02	2.633	2.61	3.63	1.63
0.667	2.68	1.667	9.02	2.667	2.61	3.67	1.63
0.700	3.02	1.700	7.34	2.700	2.48	3.70	1.58
0.733	3.02	1.733	7.34	2.733	2.48	3.73	1.58
0.767	3.24	1.767	6.78	2.767	2.42	3.77	1.56
0.800	3.47	1.800	6.21	2.800	2.36	3.80	1.54
0.833	3.47	1.833	6.21	2.833	2.36	3.83	1.54
0.867	4.11	1.867	5.40	2.867	2.25	3.87	1.50
0.900	4.11	1.900	5.40	2.900	2.25	3.90	1.50
0.933	4.60	1.933	5.09	2.933	2.20	3.93	1.48
0.967	5.09	1.967	4.79	2.967	2.16	3.97	1.46
1.000	5.09	2.000	4.79	3.000	2.16	4.00	1.46

Unit Hyd Qpeak (cms)= 0.358

PEAK FLOW (cms)= 0.002 (i)
TIME TO PEAK (hrs)= 1.800
RUNOFF VOLUME (mm)= 0.422
TOTAL RAINFALL (mm)= 24.998
RUNOFF COEFFICIENT = 0.017

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0102)| Area (ha)= 0.42 Curve Number (CN)= 28.0
|ID= 1 DT= 2.0 min | Ia (mm)= 8.86 # of Linear Res.(N)= 3.00
---------- U.H. Tp(hrs)= 0.22

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr

0.033	1.56	1.033	6.77	2.033	4.31	3.03	2.07
0.067	1.56	1.067	6.77	2.067	4.31	3.07	2.07
0.100	1.60	1.100	8.58	2.100	4.12	3.10	2.03
0.133	1.65	1.133	10.39	2.133	3.92	3.13	1.99
0.167	1.65	1.167	10.39	2.167	3.92	3.17	1.99
0.200	1.76	1.200	24.03	2.200	3.61	3.20	1.92
0.233	1.76	1.233	24.03	2.233	3.61	3.23	1.92
0.267	1.82	1.267	50.90	2.267	3.48	3.27	1.88
0.300	1.88	1.300	77.76	2.300	3.34	3.30	1.85
0.333	1.88	1.333	77.76	2.333	3.34	3.33	1.85
0.367	2.03	1.367	31.02	2.367	3.12	3.37	1.79
0.400	2.03	1.400	31.02	2.400	3.12	3.40	1.79
0.433	2.11	1.433	24.05	2.433	3.02	3.43	1.76
0.467	2.20	1.467	17.08	2.467	2.92	3.47	1.73
0.500	2.20	1.500	17.08	2.500	2.92	3.50	1.73
0.533	2.41	1.533	11.77	2.533	2.76	3.53	1.68
0.567	2.41	1.567	11.77	2.567	2.76	3.57	1.68
0.600	2.55	1.600	10.40	2.600	2.68	3.60	1.65
0.633	2.68	1.633	9.02	2.633	2.61	3.63	1.63
0.667	2.68	1.667	9.02	2.667	2.61	3.67	1.63
0.700	3.02	1.700	7.34	2.700	2.48	3.70	1.58
0.733	3.02	1.733	7.34	2.733	2.48	3.73	1.58
0.767	3.24	1.767	6.78	2.767	2.42	3.77	1.56
0.800	3.47	1.800	6.21	2.800	2.36	3.80	1.54
0.833	3.47	1.833	6.21	2.833	2.36	3.83	1.54
0.867	4.11	1.867	5.40	2.867	2.25	3.87	1.50
0.900	4.11	1.900	5.40	2.900	2.25	3.90	1.50
0.933	4.60	1.933	5.09	2.933	2.20	3.93	1.48
0.967	5.09	1.967	4.79	2.967	2.16	3.97	1.46
1.000	5.09	2.000	4.79	3.000	2.16	4.00	1.46

Unit Hyd Qpeak (cms)= 0.073

PEAK FLOW (cms)= 0.000 (i)
TIME TO PEAK (hrs)= 1.733
RUNOFF VOLUME (mm)= 0.388
TOTAL RAINFALL (mm)= 24.998
RUNOFF COEFFICIENT = 0.016

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0103) ID= 1 DT= 2.0 min	Area (ha)= 0.21	Curve Number (CN)= 42.0
	Ia (mm)= 6.31	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.11	

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	1.56	1.033	6.77	2.033	4.31	3.03	2.07
0.067	1.56	1.067	6.77	2.067	4.31	3.07	2.07
0.100	1.60	1.100	8.58	2.100	4.12	3.10	2.03
0.133	1.65	1.133	10.39	2.133	3.92	3.13	1.99
0.167	1.65	1.167	10.39	2.167	3.92	3.17	1.99
0.200	1.76	1.200	24.03	2.200	3.61	3.20	1.92
0.233	1.76	1.233	24.03	2.233	3.61	3.23	1.92
0.267	1.82	1.267	50.90	2.267	3.48	3.27	1.88
0.300	1.88	1.300	77.76	2.300	3.34	3.30	1.85
0.333	1.88	1.333	77.76	2.333	3.34	3.33	1.85

0.367	2.03	1.367	31.02	2.367	3.12	3.37	1.79
0.400	2.03	1.400	31.02	2.400	3.12	3.40	1.79
0.433	2.11	1.433	24.05	2.433	3.02	3.43	1.76
0.467	2.20	1.467	17.08	2.467	2.92	3.47	1.73
0.500	2.20	1.500	17.08	2.500	2.92	3.50	1.73
0.533	2.41	1.533	11.77	2.533	2.76	3.53	1.68
0.567	2.41	1.567	11.77	2.567	2.76	3.57	1.68
0.600	2.55	1.600	10.40	2.600	2.68	3.60	1.65
0.633	2.68	1.633	9.02	2.633	2.61	3.63	1.63
0.667	2.68	1.667	9.02	2.667	2.61	3.67	1.63
0.700	3.02	1.700	7.34	2.700	2.48	3.70	1.58
0.733	3.02	1.733	7.34	2.733	2.48	3.73	1.58
0.767	3.24	1.767	6.78	2.767	2.42	3.77	1.56
0.800	3.47	1.800	6.21	2.800	2.36	3.80	1.54
0.833	3.47	1.833	6.21	2.833	2.36	3.83	1.54
0.867	4.11	1.867	5.40	2.867	2.25	3.87	1.50
0.900	4.11	1.900	5.40	2.900	2.25	3.90	1.50
0.933	4.60	1.933	5.09	2.933	2.20	3.93	1.48
0.967	5.09	1.967	4.79	2.967	2.16	3.97	1.46
1.000	5.09	2.000	4.79	3.000	2.16	4.00	1.46

Unit Hyd Qpeak (cms)= 0.073

PEAK FLOW (cms)= 0.001 (i)
TIME TO PEAK (hrs)= 1.500
RUNOFF VOLUME (mm)= 0.943
TOTAL RAINFALL (mm)= 24.998
RUNOFF COEFFICIENT = 0.038

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0001)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0101):	2.25	0.002	1.80	0.42
	+ ID2= 2 (0102):	0.42	0.000	1.73	0.39
	ID = 3 (0001):	2.67	0.002	1.77	0.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0001)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0001):	2.67	0.002	1.77	0.42
	+ ID2= 2 (0103):	0.21	0.001	1.50	0.94
	ID = 1 (0001):	2.88	0.002	1.73	0.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0302)			
ID= 1 DT= 2.0 min	Area (ha)= 1.68	Curve Number (CN)= 27.0	
	Ia (mm)= 9.55	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.28		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	1.56	1.033	6.77	2.033	4.31	3.03	2.07
0.067	1.56	1.067	6.77	2.067	4.31	3.07	2.07
0.100	1.60	1.100	8.58	2.100	4.12	3.10	2.03
0.133	1.65	1.133	10.39	2.133	3.92	3.13	1.99
0.167	1.65	1.167	10.39	2.167	3.92	3.17	1.99
0.200	1.76	1.200	24.03	2.200	3.61	3.20	1.92
0.233	1.76	1.233	24.03	2.233	3.61	3.23	1.92
0.267	1.82	1.267	50.90	2.267	3.48	3.27	1.88
0.300	1.88	1.300	77.76	2.300	3.34	3.30	1.85
0.333	1.88	1.333	77.76	2.333	3.34	3.33	1.85
0.367	2.03	1.367	31.02	2.367	3.12	3.37	1.79
0.400	2.03	1.400	31.02	2.400	3.12	3.40	1.79
0.433	2.11	1.433	24.05	2.433	3.02	3.43	1.76
0.467	2.20	1.467	17.08	2.467	2.92	3.47	1.73
0.500	2.20	1.500	17.08	2.500	2.92	3.50	1.73
0.533	2.41	1.533	11.77	2.533	2.76	3.53	1.68
0.567	2.41	1.567	11.77	2.567	2.76	3.57	1.68
0.600	2.55	1.600	10.40	2.600	2.68	3.60	1.65
0.633	2.68	1.633	9.02	2.633	2.61	3.63	1.63
0.667	2.68	1.667	9.02	2.667	2.61	3.67	1.63
0.700	3.02	1.700	7.34	2.700	2.48	3.70	1.58
0.733	3.02	1.733	7.34	2.733	2.48	3.73	1.58
0.767	3.24	1.767	6.78	2.767	2.42	3.77	1.56
0.800	3.47	1.800	6.21	2.800	2.36	3.80	1.54
0.833	3.47	1.833	6.21	2.833	2.36	3.83	1.54
0.867	4.11	1.867	5.40	2.867	2.25	3.87	1.50
0.900	4.11	1.900	5.40	2.900	2.25	3.90	1.50
0.933	4.60	1.933	5.09	2.933	2.20	3.93	1.48
0.967	5.09	1.967	4.79	2.967	2.16	3.97	1.46
1.000	5.09	2.000	4.79	3.000	2.16	4.00	1.46

Unit Hyd Qpeak (cms)= 0.229

PEAK FLOW (cms)= 0.001 (i)
TIME TO PEAK (hrs)= 1.867
RUNOFF VOLUME (mm)= 0.339
TOTAL RAINFALL (mm)= 24.998
RUNOFF COEFFICIENT = 0.014

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0003)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0001):	2.88	0.002	1.73	0.45
+	ID2= 2 (0302):	1.68	0.001	1.87	0.34
	ID = 3 (0003):	4.56	0.003	1.77	0.41

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
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DATE: 08-10-2022                              TIME: 08:57:22

USER:



COMMENTS: _____________________________________________________________


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  ************************************************
  ** SIMULATION : Pre-Dev-PF, 100yr 24hr SCS    **
  ************************************************



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|    READ STORM    |    Filename: C:\Users\mgallant\AppD
|                  |              ata\Local\Temp\
|                  |              2b2cced9-c1e1-431a-afba-9a3f81df7ac0\804d1b39
| Ptotal=133.60 mm |    Comments: 100yr 24hr SCS Type II
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  6.08    2.40 | 12.17   19.24 | 18.25    2.40
                0.08    1.47 |  6.17    2.40 | 12.25   19.24 | 18.33    2.40
                0.17    1.47 |  6.25    2.40 | 12.33   19.24 | 18.42    2.40
                0.25    1.47 |  6.33    2.40 | 12.42   19.24 | 18.50    2.40
                0.33    1.47 |  6.42    2.40 | 12.50   19.24 | 18.58    2.40
                0.42    1.47 |  6.50    2.40 | 12.58    9.89 | 18.67    2.40
                0.50    1.47 |  6.58    2.40 | 12.67    9.89 | 18.75    2.40
                0.58    1.47 |  6.67    2.40 | 12.75    9.89 | 18.83    2.40
                0.67    1.47 |  6.75    2.40 | 12.83    9.89 | 18.92    2.40
                0.75    1.47 |  6.83    2.40 | 12.92    9.89 | 19.00    2.40
                0.83    1.47 |  6.92    2.40 | 13.00    9.89 | 19.08    2.40
                0.92    1.47 |  7.00    2.40 | 13.08    7.21 | 19.17    2.40
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1.00	1.47	7.08	2.94	13.17	7.21	19.25	2.40
1.08	1.47	7.17	2.94	13.25	7.21	19.33	2.40
1.17	1.47	7.25	2.94	13.33	7.21	19.42	2.40
1.25	1.47	7.33	2.94	13.42	7.21	19.50	2.40
1.33	1.47	7.42	2.94	13.50	7.21	19.58	2.40
1.42	1.47	7.50	2.94	13.58	5.61	19.67	2.40
1.50	1.47	7.58	2.94	13.67	5.61	19.75	2.40
1.58	1.47	7.67	2.94	13.75	5.61	19.83	2.40
1.67	1.47	7.75	2.94	13.83	5.61	19.92	2.40
1.75	1.47	7.83	2.94	13.92	5.61	20.00	2.40
1.83	1.47	7.92	2.94	14.00	5.61	20.08	1.60
1.92	1.47	8.00	2.94	14.08	4.01	20.17	1.60
2.00	1.47	8.08	3.47	14.17	4.01	20.25	1.60
2.08	1.74	8.17	3.47	14.25	4.01	20.33	1.60
2.17	1.74	8.25	3.47	14.33	4.01	20.42	1.60
2.25	1.74	8.33	3.47	14.42	4.01	20.50	1.60
2.33	1.74	8.42	3.47	14.50	4.01	20.58	1.60
2.42	1.74	8.50	3.47	14.58	4.01	20.67	1.60
2.50	1.74	8.58	3.74	14.67	4.01	20.75	1.60
2.58	1.74	8.67	3.74	14.75	4.01	20.83	1.60
2.67	1.74	8.75	3.74	14.83	4.01	20.92	1.60
2.75	1.74	8.83	3.74	14.92	4.01	21.00	1.60
2.83	1.74	8.92	3.74	15.00	4.01	21.08	1.60
2.92	1.74	9.00	3.74	15.08	4.01	21.17	1.60
3.00	1.74	9.08	4.28	15.17	4.01	21.25	1.60
3.08	1.74	9.17	4.28	15.25	4.01	21.33	1.60
3.17	1.74	9.25	4.28	15.33	4.01	21.42	1.60
3.25	1.74	9.33	4.28	15.42	4.01	21.50	1.60
3.33	1.74	9.42	4.28	15.50	4.01	21.58	1.60
3.42	1.74	9.50	4.28	15.58	4.01	21.67	1.60
3.50	1.74	9.58	4.81	15.67	4.01	21.75	1.60
3.58	1.74	9.67	4.81	15.75	4.01	21.83	1.60
3.67	1.74	9.75	4.81	15.83	4.01	21.92	1.60
3.75	1.74	9.83	4.81	15.92	4.01	22.00	1.60
3.83	1.74	9.92	4.81	16.00	4.01	22.08	1.60
3.92	1.74	10.00	4.81	16.08	2.40	22.17	1.60
4.00	1.74	10.08	6.15	16.17	2.40	22.25	1.60
4.08	2.14	10.17	6.15	16.25	2.40	22.33	1.60
4.17	2.14	10.25	6.15	16.33	2.40	22.42	1.60
4.25	2.14	10.33	6.15	16.42	2.40	22.50	1.60
4.33	2.14	10.42	6.15	16.50	2.40	22.58	1.60
4.42	2.14	10.50	6.15	16.58	2.40	22.67	1.60
4.50	2.14	10.58	8.28	16.67	2.40	22.75	1.60
4.58	2.14	10.67	8.28	16.75	2.40	22.83	1.60
4.67	2.14	10.75	8.28	16.83	2.40	22.92	1.60
4.75	2.14	10.83	8.28	16.92	2.40	23.00	1.60
4.83	2.14	10.92	8.28	17.00	2.40	23.08	1.60
4.92	2.14	11.00	8.28	17.08	2.40	23.17	1.60
5.00	2.14	11.08	12.83	17.17	2.40	23.25	1.60
5.08	2.14	11.17	12.83	17.25	2.40	23.33	1.60
5.17	2.14	11.25	12.83	17.33	2.40	23.42	1.60
5.25	2.14	11.33	12.83	17.42	2.40	23.50	1.60
5.33	2.14	11.42	12.83	17.50	2.40	23.58	1.60
5.42	2.14	11.50	12.83	17.58	2.40	23.67	1.60
5.50	2.14	11.58	39.55	17.67	2.40	23.75	1.60
5.58	2.14	11.67	39.55	17.75	2.40	23.83	1.60
5.67	2.14	11.75	39.55	17.83	2.40	23.92	1.60
5.75	2.14	11.83	163.53	17.92	2.40	24.00	1.60
5.83	2.14	11.92	163.53	18.00	2.40		
5.92	2.14	12.00	163.53	18.08	2.40		
6.00	2.14	12.08	19.24	18.17	2.40		

CALIB					
NASHYD (0301)	Area (ha)=	6.32	Curve Number (CN)=	29.0	
ID= 1 DT= 2.0 min	Ia (mm)=	9.42	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.27			

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	6.067	2.14	12.100	91.18	18.13	2.40
0.067	0.00	6.100	2.27	12.133	19.24	18.17	2.40
0.100	0.73	6.133	2.40	12.167	19.24	18.20	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.533	1.47	6.567	2.40	12.600	14.55	18.63	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.033	1.47	7.067	2.40	13.100	8.55	19.13	2.40
1.067	1.47	7.100	2.67	13.133	7.21	19.17	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.533	1.47	7.567	2.94	13.600	6.41	19.63	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40

1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	2.00
2.033	1.47	8.067	2.94	14.100	4.81	20.13	1.60
2.067	1.47	8.100	3.21	14.133	4.01	20.17	1.60
2.100	1.60	8.133	3.47	14.167	4.01	20.20	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.567	1.74	8.600	3.61	14.633	4.01	20.67	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.067	1.74	9.100	4.01	15.133	4.01	21.17	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.567	1.74	9.600	4.54	15.633	4.01	21.67	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60

3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.033	1.74	10.067	4.81	16.100	3.20	22.13	1.60
4.067	1.74	10.100	5.48	16.133	2.40	22.17	1.60
4.100	1.94	10.133	6.15	16.167	2.40	22.20	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.567	2.14	10.600	7.22	16.633	2.40	22.67	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.067	2.14	11.100	10.56	17.133	2.40	23.17	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.567	2.14	11.600	26.22	17.633	2.40	23.67	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.733	2.14	11.767	39.55	17.800	2.40	23.83	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.800	2.14	11.833	39.71	17.867	2.40	23.90	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.900	2.14	11.933	163.53	17.967	2.40	24.00	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
6.000	2.14	12.033	163.53	18.067	2.40	24.10	0.80

6.033	2.14	12.067	163.53	18.100	2.40

Unit Hyd Qpeak (cms)= 0.894

PEAK FLOW (cms)= 0.253 (i)
TIME TO PEAK (hrs)= 12.267
RUNOFF VOLUME (mm)= 20.669
TOTAL RAINFALL (mm)= 133.599
RUNOFF COEFFICIENT = 0.155

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0303)	Area (ha)= 0.33	Curve Number (CN)= 25.0	
ID= 1 DT= 2.0 min	Ia (mm)= 10.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.25		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	6.067	2.14	12.100	91.18	18.13	2.40
0.067	0.00	6.100	2.27	12.133	19.24	18.17	2.40
0.100	0.73	6.133	2.40	12.167	19.24	18.20	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.533	1.47	6.567	2.40	12.600	14.55	18.63	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.033	1.47	7.067	2.40	13.100	8.55	19.13	2.40
1.067	1.47	7.100	2.67	13.133	7.21	19.17	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40

1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.533	1.47	7.567	2.94	13.600	6.41	19.63	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	2.00
2.033	1.47	8.067	2.94	14.100	4.81	20.13	1.60
2.067	1.47	8.100	3.21	14.133	4.01	20.17	1.60
2.100	1.60	8.133	3.47	14.167	4.01	20.20	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.567	1.74	8.600	3.61	14.633	4.01	20.67	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.067	1.74	9.100	4.01	15.133	4.01	21.17	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60

3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.567	1.74	9.600	4.54	15.633	4.01	21.67	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.033	1.74	10.067	4.81	16.100	3.20	22.13	1.60
4.067	1.74	10.100	5.48	16.133	2.40	22.17	1.60
4.100	1.94	10.133	6.15	16.167	2.40	22.20	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.567	2.14	10.600	7.22	16.633	2.40	22.67	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.067	2.14	11.100	10.56	17.133	2.40	23.17	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.567	2.14	11.600	26.22	17.633	2.40	23.67	1.60

5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.733	2.14	11.767	39.55	17.800	2.40	23.83	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.800	2.14	11.833	39.71	17.867	2.40	23.90	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.900	2.14	11.933	163.53	17.967	2.40	24.00	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
6.000	2.14	12.033	163.53	18.067	2.40	24.10	0.80
6.033	2.14	12.067	163.53	18.100	2.40		

Unit Hyd Qpeak (cms)= 0.050

PEAK FLOW (cms)= 0.012 (i)
TIME TO PEAK (hrs)= 12.233
RUNOFF VOLUME (mm)= 17.248
TOTAL RAINFALL (mm)= 133.599
RUNOFF COEFFICIENT = 0.129

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0002)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0301):	6.32	0.253	12.27	20.67
	+ ID2= 2 (0303):	0.33	0.012	12.23	17.25
	ID = 3 (0002):	6.65	0.264	12.27	20.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0101)	Area (ha)=	2.25	Curve Number (CN)=	30.0	
ID= 1 DT= 2.0 min	Ia (mm)=	8.97	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.24			

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	6.067	2.14	12.100	91.18	18.13	2.40
0.067	0.00	6.100	2.27	12.133	19.24	18.17	2.40
0.100	0.73	6.133	2.40	12.167	19.24	18.20	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40

0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.533	1.47	6.567	2.40	12.600	14.55	18.63	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.033	1.47	7.067	2.40	13.100	8.55	19.13	2.40
1.067	1.47	7.100	2.67	13.133	7.21	19.17	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.533	1.47	7.567	2.94	13.600	6.41	19.63	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	2.00
2.033	1.47	8.067	2.94	14.100	4.81	20.13	1.60
2.067	1.47	8.100	3.21	14.133	4.01	20.17	1.60
2.100	1.60	8.133	3.47	14.167	4.01	20.20	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.567	1.74	8.600	3.61	14.633	4.01	20.67	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60

2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.067	1.74	9.100	4.01	15.133	4.01	21.17	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.567	1.74	9.600	4.54	15.633	4.01	21.67	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.033	1.74	10.067	4.81	16.100	3.20	22.13	1.60
4.067	1.74	10.100	5.48	16.133	2.40	22.17	1.60
4.100	1.94	10.133	6.15	16.167	2.40	22.20	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.567	2.14	10.600	7.22	16.633	2.40	22.67	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60

4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.067	2.14	11.100	10.56	17.133	2.40	23.17	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.567	2.14	11.600	26.22	17.633	2.40	23.67	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.733	2.14	11.767	39.55	17.800	2.40	23.83	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.800	2.14	11.833	39.71	17.867	2.40	23.90	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.900	2.14	11.933	163.53	17.967	2.40	24.00	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
6.000	2.14	12.033	163.53	18.067	2.40	24.10	0.80
6.033	2.14	12.067	163.53	18.100	2.40		

Unit Hyd Qpeak (cms)= 0.358

PEAK FLOW (cms)= 0.103 (i)
TIME TO PEAK (hrs)= 12.233
RUNOFF VOLUME (mm)= 21.653
TOTAL RAINFALL (mm)= 133.599
RUNOFF COEFFICIENT = 0.162

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0102) ID= 1 DT= 2.0 min

Area (ha)= 0.42 Curve Number (CN)= 28.0
Ia (mm)= 8.86 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.22

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	6.067	2.14	12.100	91.18	18.13	2.40

0.067	0.00	6.100	2.27	12.133	19.24	18.17	2.40
0.100	0.73	6.133	2.40	12.167	19.24	18.20	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.533	1.47	6.567	2.40	12.600	14.55	18.63	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.033	1.47	7.067	2.40	13.100	8.55	19.13	2.40
1.067	1.47	7.100	2.67	13.133	7.21	19.17	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.533	1.47	7.567	2.94	13.600	6.41	19.63	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	2.00
2.033	1.47	8.067	2.94	14.100	4.81	20.13	1.60
2.067	1.47	8.100	3.21	14.133	4.01	20.17	1.60
2.100	1.60	8.133	3.47	14.167	4.01	20.20	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60

2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.567	1.74	8.600	3.61	14.633	4.01	20.67	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.067	1.74	9.100	4.01	15.133	4.01	21.17	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.567	1.74	9.600	4.54	15.633	4.01	21.67	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.033	1.74	10.067	4.81	16.100	3.20	22.13	1.60
4.067	1.74	10.100	5.48	16.133	2.40	22.17	1.60
4.100	1.94	10.133	6.15	16.167	2.40	22.20	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60

4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.567	2.14	10.600	7.22	16.633	2.40	22.67	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.067	2.14	11.100	10.56	17.133	2.40	23.17	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.567	2.14	11.600	26.22	17.633	2.40	23.67	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.733	2.14	11.767	39.55	17.800	2.40	23.83	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.800	2.14	11.833	39.71	17.867	2.40	23.90	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.900	2.14	11.933	163.53	17.967	2.40	24.00	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
6.000	2.14	12.033	163.53	18.067	2.40	24.10	0.80
6.033	2.14	12.067	163.53	18.100	2.40		

Unit Hyd Qpeak (cms)= 0.073

PEAK FLOW (cms)= 0.019 (i)
TIME TO PEAK (hrs)= 12.200
RUNOFF VOLUME (mm)= 20.001
TOTAL RAINFALL (mm)= 133.599
RUNOFF COEFFICIENT = 0.150

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0103)	Area (ha)= 0.21	Curve Number (CN)= 42.0	
ID= 1 DT= 2.0 min	Ia (mm)= 6.31	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.11		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	6.067	2.14	12.100	91.18	18.13	2.40
0.067	0.00	6.100	2.27	12.133	19.24	18.17	2.40
0.100	0.73	6.133	2.40	12.167	19.24	18.20	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.533	1.47	6.567	2.40	12.600	14.55	18.63	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.033	1.47	7.067	2.40	13.100	8.55	19.13	2.40
1.067	1.47	7.100	2.67	13.133	7.21	19.17	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.533	1.47	7.567	2.94	13.600	6.41	19.63	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40

1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	2.00
2.033	1.47	8.067	2.94	14.100	4.81	20.13	1.60
2.067	1.47	8.100	3.21	14.133	4.01	20.17	1.60
2.100	1.60	8.133	3.47	14.167	4.01	20.20	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.567	1.74	8.600	3.61	14.633	4.01	20.67	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.067	1.74	9.100	4.01	15.133	4.01	21.17	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.567	1.74	9.600	4.54	15.633	4.01	21.67	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60

3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.033	1.74	10.067	4.81	16.100	3.20	22.13	1.60
4.067	1.74	10.100	5.48	16.133	2.40	22.17	1.60
4.100	1.94	10.133	6.15	16.167	2.40	22.20	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.567	2.14	10.600	7.22	16.633	2.40	22.67	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.067	2.14	11.100	10.56	17.133	2.40	23.17	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.567	2.14	11.600	26.22	17.633	2.40	23.67	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.733	2.14	11.767	39.55	17.800	2.40	23.83	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.800	2.14	11.833	39.71	17.867	2.40	23.90	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.900	2.14	11.933	163.53	17.967	2.40	24.00	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
6.000	2.14	12.033	163.53	18.067	2.40	24.10	0.80

	6.033	2.14	12.067	163.53	18.100	2.40	

Unit Hyd Qpeak (cms)= 0.073

PEAK FLOW (cms)= 0.024 (i)
TIME TO PEAK (hrs)= 12.100
RUNOFF VOLUME (mm)= 33.873
TOTAL RAINFALL (mm)= 133.599
RUNOFF COEFFICIENT = 0.254

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0001)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0101):	2.25	0.103	12.23	21.65
	+ ID2= 2 (0102):	0.42	0.019	12.20	20.00
	ID = 3 (0001):	2.67	0.121	12.23	21.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0001)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0001):	2.67	0.121	12.23	21.39
	+ ID2= 2 (0103):	0.21	0.024	12.10	33.87
	ID = 1 (0001):	2.88	0.138	12.20	22.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0302)	Area (ha)=	1.68	Curve Number (CN)=	27.0
ID= 1 DT= 2.0 min	Ia (mm)=	9.55	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.28		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	6.067	2.14	12.100	91.18	18.13	2.40
0.067	0.00	6.100	2.27	12.133	19.24	18.17	2.40
0.100	0.73	6.133	2.40	12.167	19.24	18.20	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40

0.533	1.47	6.567	2.40	12.600	14.55	18.63	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.033	1.47	7.067	2.40	13.100	8.55	19.13	2.40
1.067	1.47	7.100	2.67	13.133	7.21	19.17	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.533	1.47	7.567	2.94	13.600	6.41	19.63	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	2.00
2.033	1.47	8.067	2.94	14.100	4.81	20.13	1.60
2.067	1.47	8.100	3.21	14.133	4.01	20.17	1.60
2.100	1.60	8.133	3.47	14.167	4.01	20.20	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.567	1.74	8.600	3.61	14.633	4.01	20.67	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60

2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.067	1.74	9.100	4.01	15.133	4.01	21.17	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.567	1.74	9.600	4.54	15.633	4.01	21.67	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.033	1.74	10.067	4.81	16.100	3.20	22.13	1.60
4.067	1.74	10.100	5.48	16.133	2.40	22.17	1.60
4.100	1.94	10.133	6.15	16.167	2.40	22.20	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.567	2.14	10.600	7.22	16.633	2.40	22.67	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60

4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.067	2.14	11.100	10.56	17.133	2.40	23.17	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.567	2.14	11.600	26.22	17.633	2.40	23.67	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.733	2.14	11.767	39.55	17.800	2.40	23.83	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.800	2.14	11.833	39.71	17.867	2.40	23.90	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.900	2.14	11.933	163.53	17.967	2.40	24.00	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
6.000	2.14	12.033	163.53	18.067	2.40	24.10	0.80
6.033	2.14	12.067	163.53	18.100	2.40		

Unit Hyd Qpeak (cms)= 0.229

PEAK FLOW (cms)= 0.060 (i)
TIME TO PEAK (hrs)= 12.267
RUNOFF VOLUME (mm)= 18.979
TOTAL RAINFALL (mm)= 133.599
RUNOFF COEFFICIENT = 0.142

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0003)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0001):	2.88	0.138	12.20	22.30
+	ID2= 2 (0302):	1.68	0.060	12.27	18.98
	ID = 3 (0003):	4.56	0.195	12.20	21.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


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DATE: 08-10-2022                              TIME: 09:00:25

USER:



COMMENTS: _____________________________________________________________


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  ************************************************
  ** SIMULATION : Pre-Dev-PF, Hazel AMCIII      **
  ************************************************


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|    READ STORM    |    Filename: C:\Users\mgallant\AppD
|                  |              ata\Local\Temp\
|                  |              42e55eba-8c5f-481f-9b6e-fcbe21aa2ffb\c4cd6a53
| Ptotal=212.00 mm |    Comments: Hazel
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  4.00   13.00 |  8.00   13.00 | 12.00   13.00
                1.00    6.00 |  5.00   17.00 |  9.00   13.00 |
                2.00    4.00 |  6.00   13.00 | 10.00   53.00 |
                3.00    6.00 |  7.00   23.00 | 11.00   38.00 |

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| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   2.25   Curve Number   (CN)= 50.0
|ID= 1 DT= 2.0 min |   Ia      (mm)=   8.97   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.24
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NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.300	6.00	6.567	13.00	9.83	13.00
0.067	0.00	3.333	6.00	6.600	13.00	9.87	13.00
0.100	0.00	3.367	6.00	6.633	13.00	9.90	13.00
0.133	0.00	3.400	6.00	6.667	13.00	9.93	13.00
0.167	0.00	3.433	6.00	6.700	13.00	9.97	13.00
0.200	0.00	3.467	6.00	6.733	13.00	10.00	13.02
0.233	0.00	3.500	6.00	6.767	13.00	10.03	53.00
0.267	0.00	3.533	6.00	6.800	13.00	10.07	53.00
0.300	0.00	3.567	6.00	6.833	13.00	10.10	53.00
0.333	0.00	3.600	6.00	6.867	13.00	10.13	53.00
0.367	0.00	3.633	6.00	6.900	13.00	10.17	53.00
0.400	0.00	3.667	6.00	6.933	13.00	10.20	53.00
0.433	0.00	3.700	6.00	6.967	13.00	10.23	53.00
0.467	0.00	3.733	6.00	7.000	13.00	10.27	53.00
0.500	0.00	3.767	6.00	7.033	23.00	10.30	53.00
0.533	0.00	3.800	6.00	7.067	23.00	10.33	53.00
0.567	0.00	3.833	6.00	7.100	23.00	10.37	53.00
0.600	0.00	3.867	6.00	7.133	23.00	10.40	53.00
0.633	0.00	3.900	6.00	7.167	23.00	10.43	53.00
0.667	0.00	3.933	6.00	7.200	23.00	10.47	53.00
0.700	0.00	3.967	6.00	7.233	23.00	10.50	53.00
0.733	0.00	4.000	6.00	7.267	23.00	10.53	53.00
0.767	0.00	4.033	13.00	7.300	23.00	10.57	53.00
0.800	0.00	4.067	13.00	7.333	23.00	10.60	53.00
0.833	0.00	4.100	13.00	7.367	23.00	10.63	53.00
0.867	0.00	4.133	13.00	7.400	23.00	10.67	53.00
0.900	0.00	4.167	13.00	7.433	23.00	10.70	53.00
0.933	0.00	4.200	13.00	7.467	23.00	10.73	53.00
0.967	0.00	4.233	13.00	7.500	23.00	10.77	53.00
1.000	0.00	4.267	13.00	7.533	23.00	10.80	53.00
1.033	6.00	4.300	13.00	7.567	23.00	10.83	53.00
1.067	6.00	4.333	13.00	7.600	23.00	10.87	53.00
1.100	6.00	4.367	13.00	7.633	23.00	10.90	53.00
1.133	6.00	4.400	13.00	7.667	23.00	10.93	53.00
1.167	6.00	4.433	13.00	7.700	23.00	10.97	53.00
1.200	6.00	4.467	13.00	7.733	23.00	11.00	52.99
1.233	6.00	4.500	13.00	7.767	23.00	11.03	38.00
1.267	6.00	4.533	13.00	7.800	23.00	11.07	38.00
1.300	6.00	4.567	13.00	7.833	23.00	11.10	38.00
1.333	6.00	4.600	13.00	7.867	23.00	11.13	38.00
1.367	6.00	4.633	13.00	7.900	23.00	11.17	38.00
1.400	6.00	4.667	13.00	7.933	23.00	11.20	38.00
1.433	6.00	4.700	13.00	7.967	23.00	11.23	38.00
1.467	6.00	4.733	13.00	8.000	23.00	11.27	38.00
1.500	6.00	4.767	13.00	8.033	13.00	11.30	38.00
1.533	6.00	4.800	13.00	8.067	13.00	11.33	38.00
1.567	6.00	4.833	13.00	8.100	13.00	11.37	38.00
1.600	6.00	4.867	13.00	8.133	13.00	11.40	38.00
1.633	6.00	4.900	13.00	8.167	13.00	11.43	38.00
1.667	6.00	4.933	13.00	8.200	13.00	11.47	38.00
1.700	6.00	4.967	13.00	8.233	13.00	11.50	38.00
1.733	6.00	5.000	13.00	8.267	13.00	11.53	38.00
1.767	6.00	5.033	17.00	8.300	13.00	11.57	38.00
1.800	6.00	5.067	17.00	8.333	13.00	11.60	38.00
1.833	6.00	5.100	17.00	8.367	13.00	11.63	38.00
1.867	6.00	5.133	17.00	8.400	13.00	11.67	38.00
1.900	6.00	5.167	17.00	8.433	13.00	11.70	38.00

1.933	6.00	5.200	17.00	8.467	13.00	11.73	38.00
1.967	6.00	5.233	17.00	8.500	13.00	11.77	38.00
2.000	6.00	5.267	17.00	8.533	13.00	11.80	38.00
2.033	4.00	5.300	17.00	8.567	13.00	11.83	38.00
2.067	4.00	5.333	17.00	8.600	13.00	11.87	38.00
2.100	4.00	5.367	17.00	8.633	13.00	11.90	38.00
2.133	4.00	5.400	17.00	8.667	13.00	11.93	38.00
2.167	4.00	5.433	17.00	8.700	13.00	11.97	38.00
2.200	4.00	5.467	17.00	8.733	13.00	12.00	37.97
2.233	4.00	5.500	17.00	8.767	13.00	12.03	13.00
2.267	4.00	5.533	17.00	8.800	13.00	12.07	13.00
2.300	4.00	5.567	17.00	8.833	13.00	12.10	13.00
2.333	4.00	5.600	17.00	8.867	13.00	12.13	13.00
2.367	4.00	5.633	17.00	8.900	13.00	12.17	13.00
2.400	4.00	5.667	17.00	8.933	13.00	12.20	13.00
2.433	4.00	5.700	17.00	8.967	13.00	12.23	13.00
2.467	4.00	5.733	17.00	9.000	13.00	12.27	13.00
2.500	4.00	5.767	17.00	9.033	13.00	12.30	13.00
2.533	4.00	5.800	17.00	9.067	13.00	12.33	13.00
2.567	4.00	5.833	17.00	9.100	13.00	12.37	13.00
2.600	4.00	5.867	17.00	9.133	13.00	12.40	13.00
2.633	4.00	5.900	17.00	9.167	13.00	12.43	13.00
2.667	4.00	5.933	17.00	9.200	13.00	12.47	13.00
2.700	4.00	5.967	17.00	9.233	13.00	12.50	13.00
2.733	4.00	6.000	17.00	9.267	13.00	12.53	13.00
2.767	4.00	6.033	13.00	9.300	13.00	12.57	13.00
2.800	4.00	6.067	13.00	9.333	13.00	12.60	13.00
2.833	4.00	6.100	13.00	9.367	13.00	12.63	13.00
2.867	4.00	6.133	13.00	9.400	13.00	12.67	13.00
2.900	4.00	6.167	13.00	9.433	13.00	12.70	13.00
2.933	4.00	6.200	13.00	9.467	13.00	12.73	13.00
2.967	4.00	6.233	13.00	9.500	13.00	12.77	13.00
3.000	4.00	6.267	13.00	9.533	13.00	12.80	13.00
3.033	6.00	6.300	13.00	9.567	13.00	12.83	13.00
3.067	6.00	6.333	13.00	9.600	13.00	12.87	13.00
3.100	6.00	6.367	13.00	9.633	13.00	12.90	13.00
3.133	6.00	6.400	13.00	9.667	13.00	12.93	13.00
3.167	6.00	6.433	13.00	9.700	13.00	12.97	13.00
3.200	6.00	6.467	13.00	9.733	13.00	13.00	12.98
3.233	6.00	6.500	13.00	9.767	13.00		
3.267	6.00	6.533	13.00	9.800	13.00		

Unit Hyd Qpeak (cms)= 0.358

PEAK FLOW (cms)= 0.189 (i)
TIME TO PEAK (hrs)= 11.067
RUNOFF VOLUME (mm)= 90.190
TOTAL RAINFALL (mm)= 211.998
RUNOFF COEFFICIENT = 0.425

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0102) ID= 1 DT= 2.0 min	Area (ha)= 0.42	Curve Number (CN)= 47.0
	Ia (mm)= 8.86	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.22	

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN

hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.00	3.300	6.00	6.567	13.00	9.83	13.00
0.067	0.00	3.333	6.00	6.600	13.00	9.87	13.00
0.100	0.00	3.367	6.00	6.633	13.00	9.90	13.00
0.133	0.00	3.400	6.00	6.667	13.00	9.93	13.00
0.167	0.00	3.433	6.00	6.700	13.00	9.97	13.00
0.200	0.00	3.467	6.00	6.733	13.00	10.00	13.02
0.233	0.00	3.500	6.00	6.767	13.00	10.03	53.00
0.267	0.00	3.533	6.00	6.800	13.00	10.07	53.00
0.300	0.00	3.567	6.00	6.833	13.00	10.10	53.00
0.333	0.00	3.600	6.00	6.867	13.00	10.13	53.00
0.367	0.00	3.633	6.00	6.900	13.00	10.17	53.00
0.400	0.00	3.667	6.00	6.933	13.00	10.20	53.00
0.433	0.00	3.700	6.00	6.967	13.00	10.23	53.00
0.467	0.00	3.733	6.00	7.000	13.00	10.27	53.00
0.500	0.00	3.767	6.00	7.033	23.00	10.30	53.00
0.533	0.00	3.800	6.00	7.067	23.00	10.33	53.00
0.567	0.00	3.833	6.00	7.100	23.00	10.37	53.00
0.600	0.00	3.867	6.00	7.133	23.00	10.40	53.00
0.633	0.00	3.900	6.00	7.167	23.00	10.43	53.00
0.667	0.00	3.933	6.00	7.200	23.00	10.47	53.00
0.700	0.00	3.967	6.00	7.233	23.00	10.50	53.00
0.733	0.00	4.000	6.00	7.267	23.00	10.53	53.00
0.767	0.00	4.033	13.00	7.300	23.00	10.57	53.00
0.800	0.00	4.067	13.00	7.333	23.00	10.60	53.00
0.833	0.00	4.100	13.00	7.367	23.00	10.63	53.00
0.867	0.00	4.133	13.00	7.400	23.00	10.67	53.00
0.900	0.00	4.167	13.00	7.433	23.00	10.70	53.00
0.933	0.00	4.200	13.00	7.467	23.00	10.73	53.00
0.967	0.00	4.233	13.00	7.500	23.00	10.77	53.00
1.000	0.00	4.267	13.00	7.533	23.00	10.80	53.00
1.033	6.00	4.300	13.00	7.567	23.00	10.83	53.00
1.067	6.00	4.333	13.00	7.600	23.00	10.87	53.00
1.100	6.00	4.367	13.00	7.633	23.00	10.90	53.00
1.133	6.00	4.400	13.00	7.667	23.00	10.93	53.00
1.167	6.00	4.433	13.00	7.700	23.00	10.97	53.00
1.200	6.00	4.467	13.00	7.733	23.00	11.00	52.99
1.233	6.00	4.500	13.00	7.767	23.00	11.03	38.00
1.267	6.00	4.533	13.00	7.800	23.00	11.07	38.00
1.300	6.00	4.567	13.00	7.833	23.00	11.10	38.00
1.333	6.00	4.600	13.00	7.867	23.00	11.13	38.00
1.367	6.00	4.633	13.00	7.900	23.00	11.17	38.00
1.400	6.00	4.667	13.00	7.933	23.00	11.20	38.00
1.433	6.00	4.700	13.00	7.967	23.00	11.23	38.00
1.467	6.00	4.733	13.00	8.000	23.00	11.27	38.00
1.500	6.00	4.767	13.00	8.033	13.00	11.30	38.00
1.533	6.00	4.800	13.00	8.067	13.00	11.33	38.00
1.567	6.00	4.833	13.00	8.100	13.00	11.37	38.00
1.600	6.00	4.867	13.00	8.133	13.00	11.40	38.00
1.633	6.00	4.900	13.00	8.167	13.00	11.43	38.00
1.667	6.00	4.933	13.00	8.200	13.00	11.47	38.00
1.700	6.00	4.967	13.00	8.233	13.00	11.50	38.00
1.733	6.00	5.000	13.00	8.267	13.00	11.53	38.00
1.767	6.00	5.033	17.00	8.300	13.00	11.57	38.00
1.800	6.00	5.067	17.00	8.333	13.00	11.60	38.00
1.833	6.00	5.100	17.00	8.367	13.00	11.63	38.00
1.867	6.00	5.133	17.00	8.400	13.00	11.67	38.00
1.900	6.00	5.167	17.00	8.433	13.00	11.70	38.00
1.933	6.00	5.200	17.00	8.467	13.00	11.73	38.00
1.967	6.00	5.233	17.00	8.500	13.00	11.77	38.00
2.000	6.00	5.267	17.00	8.533	13.00	11.80	38.00
2.033	4.00	5.300	17.00	8.567	13.00	11.83	38.00
2.067	4.00	5.333	17.00	8.600	13.00	11.87	38.00
2.100	4.00	5.367	17.00	8.633	13.00	11.90	38.00

2.133	4.00	5.400	17.00	8.667	13.00	11.93	38.00
2.167	4.00	5.433	17.00	8.700	13.00	11.97	38.00
2.200	4.00	5.467	17.00	8.733	13.00	12.00	37.97
2.233	4.00	5.500	17.00	8.767	13.00	12.03	13.00
2.267	4.00	5.533	17.00	8.800	13.00	12.07	13.00
2.300	4.00	5.567	17.00	8.833	13.00	12.10	13.00
2.333	4.00	5.600	17.00	8.867	13.00	12.13	13.00
2.367	4.00	5.633	17.00	8.900	13.00	12.17	13.00
2.400	4.00	5.667	17.00	8.933	13.00	12.20	13.00
2.433	4.00	5.700	17.00	8.967	13.00	12.23	13.00
2.467	4.00	5.733	17.00	9.000	13.00	12.27	13.00
2.500	4.00	5.767	17.00	9.033	13.00	12.30	13.00
2.533	4.00	5.800	17.00	9.067	13.00	12.33	13.00
2.567	4.00	5.833	17.00	9.100	13.00	12.37	13.00
2.600	4.00	5.867	17.00	9.133	13.00	12.40	13.00
2.633	4.00	5.900	17.00	9.167	13.00	12.43	13.00
2.667	4.00	5.933	17.00	9.200	13.00	12.47	13.00
2.700	4.00	5.967	17.00	9.233	13.00	12.50	13.00
2.733	4.00	6.000	17.00	9.267	13.00	12.53	13.00
2.767	4.00	6.033	13.00	9.300	13.00	12.57	13.00
2.800	4.00	6.067	13.00	9.333	13.00	12.60	13.00
2.833	4.00	6.100	13.00	9.367	13.00	12.63	13.00
2.867	4.00	6.133	13.00	9.400	13.00	12.67	13.00
2.900	4.00	6.167	13.00	9.433	13.00	12.70	13.00
2.933	4.00	6.200	13.00	9.467	13.00	12.73	13.00
2.967	4.00	6.233	13.00	9.500	13.00	12.77	13.00
3.000	4.00	6.267	13.00	9.533	13.00	12.80	13.00
3.033	6.00	6.300	13.00	9.567	13.00	12.83	13.00
3.067	6.00	6.333	13.00	9.600	13.00	12.87	13.00
3.100	6.00	6.367	13.00	9.633	13.00	12.90	13.00
3.133	6.00	6.400	13.00	9.667	13.00	12.93	13.00
3.167	6.00	6.433	13.00	9.700	13.00	12.97	13.00
3.200	6.00	6.467	13.00	9.733	13.00	13.00	12.98
3.233	6.00	6.500	13.00	9.767	13.00		
3.267	6.00	6.533	13.00	9.800	13.00		

Unit Hyd Qpeak (cms)= 0.073

PEAK FLOW (cms)= 0.033 (i)
TIME TO PEAK (hrs)= 11.033
RUNOFF VOLUME (mm)= 84.285
TOTAL RAINFALL (mm)= 211.998
RUNOFF COEFFICIENT = 0.398

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0103) ID= 1 DT= 2.0 min	Area (ha)= 0.21	Curve Number (CN)= 62.0
	Ia (mm)= 6.31	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.11	

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.300	6.00	6.567	13.00	9.83	13.00
0.067	0.00	3.333	6.00	6.600	13.00	9.87	13.00
0.100	0.00	3.367	6.00	6.633	13.00	9.90	13.00
0.133	0.00	3.400	6.00	6.667	13.00	9.93	13.00
0.167	0.00	3.433	6.00	6.700	13.00	9.97	13.00

0.200	0.00	3.467	6.00	6.733	13.00	10.00	13.02
0.233	0.00	3.500	6.00	6.767	13.00	10.03	53.00
0.267	0.00	3.533	6.00	6.800	13.00	10.07	53.00
0.300	0.00	3.567	6.00	6.833	13.00	10.10	53.00
0.333	0.00	3.600	6.00	6.867	13.00	10.13	53.00
0.367	0.00	3.633	6.00	6.900	13.00	10.17	53.00
0.400	0.00	3.667	6.00	6.933	13.00	10.20	53.00
0.433	0.00	3.700	6.00	6.967	13.00	10.23	53.00
0.467	0.00	3.733	6.00	7.000	13.00	10.27	53.00
0.500	0.00	3.767	6.00	7.033	23.00	10.30	53.00
0.533	0.00	3.800	6.00	7.067	23.00	10.33	53.00
0.567	0.00	3.833	6.00	7.100	23.00	10.37	53.00
0.600	0.00	3.867	6.00	7.133	23.00	10.40	53.00
0.633	0.00	3.900	6.00	7.167	23.00	10.43	53.00
0.667	0.00	3.933	6.00	7.200	23.00	10.47	53.00
0.700	0.00	3.967	6.00	7.233	23.00	10.50	53.00
0.733	0.00	4.000	6.00	7.267	23.00	10.53	53.00
0.767	0.00	4.033	13.00	7.300	23.00	10.57	53.00
0.800	0.00	4.067	13.00	7.333	23.00	10.60	53.00
0.833	0.00	4.100	13.00	7.367	23.00	10.63	53.00
0.867	0.00	4.133	13.00	7.400	23.00	10.67	53.00
0.900	0.00	4.167	13.00	7.433	23.00	10.70	53.00
0.933	0.00	4.200	13.00	7.467	23.00	10.73	53.00
0.967	0.00	4.233	13.00	7.500	23.00	10.77	53.00
1.000	0.00	4.267	13.00	7.533	23.00	10.80	53.00
1.033	6.00	4.300	13.00	7.567	23.00	10.83	53.00
1.067	6.00	4.333	13.00	7.600	23.00	10.87	53.00
1.100	6.00	4.367	13.00	7.633	23.00	10.90	53.00
1.133	6.00	4.400	13.00	7.667	23.00	10.93	53.00
1.167	6.00	4.433	13.00	7.700	23.00	10.97	53.00
1.200	6.00	4.467	13.00	7.733	23.00	11.00	52.99
1.233	6.00	4.500	13.00	7.767	23.00	11.03	38.00
1.267	6.00	4.533	13.00	7.800	23.00	11.07	38.00
1.300	6.00	4.567	13.00	7.833	23.00	11.10	38.00
1.333	6.00	4.600	13.00	7.867	23.00	11.13	38.00
1.367	6.00	4.633	13.00	7.900	23.00	11.17	38.00
1.400	6.00	4.667	13.00	7.933	23.00	11.20	38.00
1.433	6.00	4.700	13.00	7.967	23.00	11.23	38.00
1.467	6.00	4.733	13.00	8.000	23.00	11.27	38.00
1.500	6.00	4.767	13.00	8.033	13.00	11.30	38.00
1.533	6.00	4.800	13.00	8.067	13.00	11.33	38.00
1.567	6.00	4.833	13.00	8.100	13.00	11.37	38.00
1.600	6.00	4.867	13.00	8.133	13.00	11.40	38.00
1.633	6.00	4.900	13.00	8.167	13.00	11.43	38.00
1.667	6.00	4.933	13.00	8.200	13.00	11.47	38.00
1.700	6.00	4.967	13.00	8.233	13.00	11.50	38.00
1.733	6.00	5.000	13.00	8.267	13.00	11.53	38.00
1.767	6.00	5.033	17.00	8.300	13.00	11.57	38.00
1.800	6.00	5.067	17.00	8.333	13.00	11.60	38.00
1.833	6.00	5.100	17.00	8.367	13.00	11.63	38.00
1.867	6.00	5.133	17.00	8.400	13.00	11.67	38.00
1.900	6.00	5.167	17.00	8.433	13.00	11.70	38.00
1.933	6.00	5.200	17.00	8.467	13.00	11.73	38.00
1.967	6.00	5.233	17.00	8.500	13.00	11.77	38.00
2.000	6.00	5.267	17.00	8.533	13.00	11.80	38.00
2.033	4.00	5.300	17.00	8.567	13.00	11.83	38.00
2.067	4.00	5.333	17.00	8.600	13.00	11.87	38.00
2.100	4.00	5.367	17.00	8.633	13.00	11.90	38.00
2.133	4.00	5.400	17.00	8.667	13.00	11.93	38.00
2.167	4.00	5.433	17.00	8.700	13.00	11.97	38.00
2.200	4.00	5.467	17.00	8.733	13.00	12.00	37.97
2.233	4.00	5.500	17.00	8.767	13.00	12.03	13.00
2.267	4.00	5.533	17.00	8.800	13.00	12.07	13.00
2.300	4.00	5.567	17.00	8.833	13.00	12.10	13.00

2.333	4.00	5.600	17.00	8.867	13.00	12.13	13.00
2.367	4.00	5.633	17.00	8.900	13.00	12.17	13.00
2.400	4.00	5.667	17.00	8.933	13.00	12.20	13.00
2.433	4.00	5.700	17.00	8.967	13.00	12.23	13.00
2.467	4.00	5.733	17.00	9.000	13.00	12.27	13.00
2.500	4.00	5.767	17.00	9.033	13.00	12.30	13.00
2.533	4.00	5.800	17.00	9.067	13.00	12.33	13.00
2.567	4.00	5.833	17.00	9.100	13.00	12.37	13.00
2.600	4.00	5.867	17.00	9.133	13.00	12.40	13.00
2.633	4.00	5.900	17.00	9.167	13.00	12.43	13.00
2.667	4.00	5.933	17.00	9.200	13.00	12.47	13.00
2.700	4.00	5.967	17.00	9.233	13.00	12.50	13.00
2.733	4.00	6.000	17.00	9.267	13.00	12.53	13.00
2.767	4.00	6.033	13.00	9.300	13.00	12.57	13.00
2.800	4.00	6.067	13.00	9.333	13.00	12.60	13.00
2.833	4.00	6.100	13.00	9.367	13.00	12.63	13.00
2.867	4.00	6.133	13.00	9.400	13.00	12.67	13.00
2.900	4.00	6.167	13.00	9.433	13.00	12.70	13.00
2.933	4.00	6.200	13.00	9.467	13.00	12.73	13.00
2.967	4.00	6.233	13.00	9.500	13.00	12.77	13.00
3.000	4.00	6.267	13.00	9.533	13.00	12.80	13.00
3.033	6.00	6.300	13.00	9.567	13.00	12.83	13.00
3.067	6.00	6.333	13.00	9.600	13.00	12.87	13.00
3.100	6.00	6.367	13.00	9.633	13.00	12.90	13.00
3.133	6.00	6.400	13.00	9.667	13.00	12.93	13.00
3.167	6.00	6.433	13.00	9.700	13.00	12.97	13.00
3.200	6.00	6.467	13.00	9.733	13.00	13.00	12.98
3.233	6.00	6.500	13.00	9.767	13.00		
3.267	6.00	6.533	13.00	9.800	13.00		

Unit Hyd Qpeak (cms)= 0.073

PEAK FLOW (cms)= 0.023 (i)
TIME TO PEAK (hrs)= 11.000
RUNOFF VOLUME (mm)= 117.012
TOTAL RAINFALL (mm)= 211.998
RUNOFF COEFFICIENT = 0.552

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0001)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0101):	2.25	0.189	11.07	90.19
	+ ID2= 2 (0102):	0.42	0.033	11.03	84.29
	ID = 3 (0001):	2.67	0.222	11.03	89.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0001)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0001):	2.67	0.222	11.03	89.26
	+ ID2= 2 (0103):	0.21	0.023	11.00	117.01
	ID = 1 (0001):	2.88	0.245	11.03	91.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0302)	Area (ha)=	1.68	Curve Number (CN)=	46.0	
ID= 1 DT= 2.0 min	Ia (mm)=	9.55	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.28			

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.300	6.00	6.567	13.00	9.83	13.00
0.067	0.00	3.333	6.00	6.600	13.00	9.87	13.00
0.100	0.00	3.367	6.00	6.633	13.00	9.90	13.00
0.133	0.00	3.400	6.00	6.667	13.00	9.93	13.00
0.167	0.00	3.433	6.00	6.700	13.00	9.97	13.00
0.200	0.00	3.467	6.00	6.733	13.00	10.00	13.02
0.233	0.00	3.500	6.00	6.767	13.00	10.03	53.00
0.267	0.00	3.533	6.00	6.800	13.00	10.07	53.00
0.300	0.00	3.567	6.00	6.833	13.00	10.10	53.00
0.333	0.00	3.600	6.00	6.867	13.00	10.13	53.00
0.367	0.00	3.633	6.00	6.900	13.00	10.17	53.00
0.400	0.00	3.667	6.00	6.933	13.00	10.20	53.00
0.433	0.00	3.700	6.00	6.967	13.00	10.23	53.00
0.467	0.00	3.733	6.00	7.000	13.00	10.27	53.00
0.500	0.00	3.767	6.00	7.033	23.00	10.30	53.00
0.533	0.00	3.800	6.00	7.067	23.00	10.33	53.00
0.567	0.00	3.833	6.00	7.100	23.00	10.37	53.00
0.600	0.00	3.867	6.00	7.133	23.00	10.40	53.00
0.633	0.00	3.900	6.00	7.167	23.00	10.43	53.00
0.667	0.00	3.933	6.00	7.200	23.00	10.47	53.00
0.700	0.00	3.967	6.00	7.233	23.00	10.50	53.00
0.733	0.00	4.000	6.00	7.267	23.00	10.53	53.00
0.767	0.00	4.033	13.00	7.300	23.00	10.57	53.00
0.800	0.00	4.067	13.00	7.333	23.00	10.60	53.00
0.833	0.00	4.100	13.00	7.367	23.00	10.63	53.00
0.867	0.00	4.133	13.00	7.400	23.00	10.67	53.00
0.900	0.00	4.167	13.00	7.433	23.00	10.70	53.00
0.933	0.00	4.200	13.00	7.467	23.00	10.73	53.00
0.967	0.00	4.233	13.00	7.500	23.00	10.77	53.00
1.000	0.00	4.267	13.00	7.533	23.00	10.80	53.00
1.033	6.00	4.300	13.00	7.567	23.00	10.83	53.00
1.067	6.00	4.333	13.00	7.600	23.00	10.87	53.00
1.100	6.00	4.367	13.00	7.633	23.00	10.90	53.00
1.133	6.00	4.400	13.00	7.667	23.00	10.93	53.00
1.167	6.00	4.433	13.00	7.700	23.00	10.97	53.00
1.200	6.00	4.467	13.00	7.733	23.00	11.00	52.99
1.233	6.00	4.500	13.00	7.767	23.00	11.03	38.00
1.267	6.00	4.533	13.00	7.800	23.00	11.07	38.00
1.300	6.00	4.567	13.00	7.833	23.00	11.10	38.00
1.333	6.00	4.600	13.00	7.867	23.00	11.13	38.00
1.367	6.00	4.633	13.00	7.900	23.00	11.17	38.00
1.400	6.00	4.667	13.00	7.933	23.00	11.20	38.00
1.433	6.00	4.700	13.00	7.967	23.00	11.23	38.00
1.467	6.00	4.733	13.00	8.000	23.00	11.27	38.00
1.500	6.00	4.767	13.00	8.033	13.00	11.30	38.00
1.533	6.00	4.800	13.00	8.067	13.00	11.33	38.00
1.567	6.00	4.833	13.00	8.100	13.00	11.37	38.00
1.600	6.00	4.867	13.00	8.133	13.00	11.40	38.00
1.633	6.00	4.900	13.00	8.167	13.00	11.43	38.00
1.667	6.00	4.933	13.00	8.200	13.00	11.47	38.00
1.700	6.00	4.967	13.00	8.233	13.00	11.50	38.00

1.733	6.00	5.000	13.00	8.267	13.00	11.53	38.00
1.767	6.00	5.033	17.00	8.300	13.00	11.57	38.00
1.800	6.00	5.067	17.00	8.333	13.00	11.60	38.00
1.833	6.00	5.100	17.00	8.367	13.00	11.63	38.00
1.867	6.00	5.133	17.00	8.400	13.00	11.67	38.00
1.900	6.00	5.167	17.00	8.433	13.00	11.70	38.00
1.933	6.00	5.200	17.00	8.467	13.00	11.73	38.00
1.967	6.00	5.233	17.00	8.500	13.00	11.77	38.00
2.000	6.00	5.267	17.00	8.533	13.00	11.80	38.00
2.033	4.00	5.300	17.00	8.567	13.00	11.83	38.00
2.067	4.00	5.333	17.00	8.600	13.00	11.87	38.00
2.100	4.00	5.367	17.00	8.633	13.00	11.90	38.00
2.133	4.00	5.400	17.00	8.667	13.00	11.93	38.00
2.167	4.00	5.433	17.00	8.700	13.00	11.97	38.00
2.200	4.00	5.467	17.00	8.733	13.00	12.00	37.97
2.233	4.00	5.500	17.00	8.767	13.00	12.03	13.00
2.267	4.00	5.533	17.00	8.800	13.00	12.07	13.00
2.300	4.00	5.567	17.00	8.833	13.00	12.10	13.00
2.333	4.00	5.600	17.00	8.867	13.00	12.13	13.00
2.367	4.00	5.633	17.00	8.900	13.00	12.17	13.00
2.400	4.00	5.667	17.00	8.933	13.00	12.20	13.00
2.433	4.00	5.700	17.00	8.967	13.00	12.23	13.00
2.467	4.00	5.733	17.00	9.000	13.00	12.27	13.00
2.500	4.00	5.767	17.00	9.033	13.00	12.30	13.00
2.533	4.00	5.800	17.00	9.067	13.00	12.33	13.00
2.567	4.00	5.833	17.00	9.100	13.00	12.37	13.00
2.600	4.00	5.867	17.00	9.133	13.00	12.40	13.00
2.633	4.00	5.900	17.00	9.167	13.00	12.43	13.00
2.667	4.00	5.933	17.00	9.200	13.00	12.47	13.00
2.700	4.00	5.967	17.00	9.233	13.00	12.50	13.00
2.733	4.00	6.000	17.00	9.267	13.00	12.53	13.00
2.767	4.00	6.033	13.00	9.300	13.00	12.57	13.00
2.800	4.00	6.067	13.00	9.333	13.00	12.60	13.00
2.833	4.00	6.100	13.00	9.367	13.00	12.63	13.00
2.867	4.00	6.133	13.00	9.400	13.00	12.67	13.00
2.900	4.00	6.167	13.00	9.433	13.00	12.70	13.00
2.933	4.00	6.200	13.00	9.467	13.00	12.73	13.00
2.967	4.00	6.233	13.00	9.500	13.00	12.77	13.00
3.000	4.00	6.267	13.00	9.533	13.00	12.80	13.00
3.033	6.00	6.300	13.00	9.567	13.00	12.83	13.00
3.067	6.00	6.333	13.00	9.600	13.00	12.87	13.00
3.100	6.00	6.367	13.00	9.633	13.00	12.90	13.00
3.133	6.00	6.400	13.00	9.667	13.00	12.93	13.00
3.167	6.00	6.433	13.00	9.700	13.00	12.97	13.00
3.200	6.00	6.467	13.00	9.733	13.00	13.00	12.98
3.233	6.00	6.500	13.00	9.767	13.00		
3.267	6.00	6.533	13.00	9.800	13.00		

Unit Hyd Qpeak (cms)= 0.229

PEAK FLOW (cms)= 0.127 (i)
TIME TO PEAK (hrs)= 11.067
RUNOFF VOLUME (mm)= 81.867
TOTAL RAINFALL (mm)= 211.998
RUNOFF COEFFICIENT = 0.386

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0003)|	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)

```
      ID1= 1 (  0001):     2.88   0.245    11.03    91.28
    + ID2= 2 (  0302):     1.68   0.127    11.07    81.87
      ================================================
      ID = 3 (  0003):     4.56   0.371    11.03    87.82

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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CALIB			
NASHYD (0301)	Area (ha)= 6.32	Curve Number (CN)= 48.0	
ID= 1 DT= 2.0 min	Ia (mm)= 9.42	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.27		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.300	6.00	6.567	13.00	9.83	13.00
0.067	0.00	3.333	6.00	6.600	13.00	9.87	13.00
0.100	0.00	3.367	6.00	6.633	13.00	9.90	13.00
0.133	0.00	3.400	6.00	6.667	13.00	9.93	13.00
0.167	0.00	3.433	6.00	6.700	13.00	9.97	13.00
0.200	0.00	3.467	6.00	6.733	13.00	10.00	13.02
0.233	0.00	3.500	6.00	6.767	13.00	10.03	53.00
0.267	0.00	3.533	6.00	6.800	13.00	10.07	53.00
0.300	0.00	3.567	6.00	6.833	13.00	10.10	53.00
0.333	0.00	3.600	6.00	6.867	13.00	10.13	53.00
0.367	0.00	3.633	6.00	6.900	13.00	10.17	53.00
0.400	0.00	3.667	6.00	6.933	13.00	10.20	53.00
0.433	0.00	3.700	6.00	6.967	13.00	10.23	53.00
0.467	0.00	3.733	6.00	7.000	13.00	10.27	53.00
0.500	0.00	3.767	6.00	7.033	23.00	10.30	53.00
0.533	0.00	3.800	6.00	7.067	23.00	10.33	53.00
0.567	0.00	3.833	6.00	7.100	23.00	10.37	53.00
0.600	0.00	3.867	6.00	7.133	23.00	10.40	53.00
0.633	0.00	3.900	6.00	7.167	23.00	10.43	53.00
0.667	0.00	3.933	6.00	7.200	23.00	10.47	53.00
0.700	0.00	3.967	6.00	7.233	23.00	10.50	53.00
0.733	0.00	4.000	6.00	7.267	23.00	10.53	53.00
0.767	0.00	4.033	13.00	7.300	23.00	10.57	53.00
0.800	0.00	4.067	13.00	7.333	23.00	10.60	53.00
0.833	0.00	4.100	13.00	7.367	23.00	10.63	53.00
0.867	0.00	4.133	13.00	7.400	23.00	10.67	53.00
0.900	0.00	4.167	13.00	7.433	23.00	10.70	53.00
0.933	0.00	4.200	13.00	7.467	23.00	10.73	53.00
0.967	0.00	4.233	13.00	7.500	23.00	10.77	53.00
1.000	0.00	4.267	13.00	7.533	23.00	10.80	53.00
1.033	6.00	4.300	13.00	7.567	23.00	10.83	53.00
1.067	6.00	4.333	13.00	7.600	23.00	10.87	53.00
1.100	6.00	4.367	13.00	7.633	23.00	10.90	53.00
1.133	6.00	4.400	13.00	7.667	23.00	10.93	53.00
1.167	6.00	4.433	13.00	7.700	23.00	10.97	53.00
1.200	6.00	4.467	13.00	7.733	23.00	11.00	52.99
1.233	6.00	4.500	13.00	7.767	23.00	11.03	38.00
1.267	6.00	4.533	13.00	7.800	23.00	11.07	38.00
1.300	6.00	4.567	13.00	7.833	23.00	11.10	38.00
1.333	6.00	4.600	13.00	7.867	23.00	11.13	38.00
1.367	6.00	4.633	13.00	7.900	23.00	11.17	38.00
1.400	6.00	4.667	13.00	7.933	23.00	11.20	38.00
1.433	6.00	4.700	13.00	7.967	23.00	11.23	38.00
1.467	6.00	4.733	13.00	8.000	23.00	11.27	38.00
1.500	6.00	4.767	13.00	8.033	13.00	11.30	38.00

1.533	6.00	4.800	13.00	8.067	13.00	11.33	38.00
1.567	6.00	4.833	13.00	8.100	13.00	11.37	38.00
1.600	6.00	4.867	13.00	8.133	13.00	11.40	38.00
1.633	6.00	4.900	13.00	8.167	13.00	11.43	38.00
1.667	6.00	4.933	13.00	8.200	13.00	11.47	38.00
1.700	6.00	4.967	13.00	8.233	13.00	11.50	38.00
1.733	6.00	5.000	13.00	8.267	13.00	11.53	38.00
1.767	6.00	5.033	17.00	8.300	13.00	11.57	38.00
1.800	6.00	5.067	17.00	8.333	13.00	11.60	38.00
1.833	6.00	5.100	17.00	8.367	13.00	11.63	38.00
1.867	6.00	5.133	17.00	8.400	13.00	11.67	38.00
1.900	6.00	5.167	17.00	8.433	13.00	11.70	38.00
1.933	6.00	5.200	17.00	8.467	13.00	11.73	38.00
1.967	6.00	5.233	17.00	8.500	13.00	11.77	38.00
2.000	6.00	5.267	17.00	8.533	13.00	11.80	38.00
2.033	4.00	5.300	17.00	8.567	13.00	11.83	38.00
2.067	4.00	5.333	17.00	8.600	13.00	11.87	38.00
2.100	4.00	5.367	17.00	8.633	13.00	11.90	38.00
2.133	4.00	5.400	17.00	8.667	13.00	11.93	38.00
2.167	4.00	5.433	17.00	8.700	13.00	11.97	38.00
2.200	4.00	5.467	17.00	8.733	13.00	12.00	37.97
2.233	4.00	5.500	17.00	8.767	13.00	12.03	13.00
2.267	4.00	5.533	17.00	8.800	13.00	12.07	13.00
2.300	4.00	5.567	17.00	8.833	13.00	12.10	13.00
2.333	4.00	5.600	17.00	8.867	13.00	12.13	13.00
2.367	4.00	5.633	17.00	8.900	13.00	12.17	13.00
2.400	4.00	5.667	17.00	8.933	13.00	12.20	13.00
2.433	4.00	5.700	17.00	8.967	13.00	12.23	13.00
2.467	4.00	5.733	17.00	9.000	13.00	12.27	13.00
2.500	4.00	5.767	17.00	9.033	13.00	12.30	13.00
2.533	4.00	5.800	17.00	9.067	13.00	12.33	13.00
2.567	4.00	5.833	17.00	9.100	13.00	12.37	13.00
2.600	4.00	5.867	17.00	9.133	13.00	12.40	13.00
2.633	4.00	5.900	17.00	9.167	13.00	12.43	13.00
2.667	4.00	5.933	17.00	9.200	13.00	12.47	13.00
2.700	4.00	5.967	17.00	9.233	13.00	12.50	13.00
2.733	4.00	6.000	17.00	9.267	13.00	12.53	13.00
2.767	4.00	6.033	13.00	9.300	13.00	12.57	13.00
2.800	4.00	6.067	13.00	9.333	13.00	12.60	13.00
2.833	4.00	6.100	13.00	9.367	13.00	12.63	13.00
2.867	4.00	6.133	13.00	9.400	13.00	12.67	13.00
2.900	4.00	6.167	13.00	9.433	13.00	12.70	13.00
2.933	4.00	6.200	13.00	9.467	13.00	12.73	13.00
2.967	4.00	6.233	13.00	9.500	13.00	12.77	13.00
3.000	4.00	6.267	13.00	9.533	13.00	12.80	13.00
3.033	6.00	6.300	13.00	9.567	13.00	12.83	13.00
3.067	6.00	6.333	13.00	9.600	13.00	12.87	13.00
3.100	6.00	6.367	13.00	9.633	13.00	12.90	13.00
3.133	6.00	6.400	13.00	9.667	13.00	12.93	13.00
3.167	6.00	6.433	13.00	9.700	13.00	12.97	13.00
3.200	6.00	6.467	13.00	9.733	13.00	13.00	12.98
3.233	6.00	6.500	13.00	9.767	13.00		
3.267	6.00	6.533	13.00	9.800	13.00		

Unit Hyd Qpeak (cms)= 0.894

PEAK FLOW (cms)= 0.502 (i)
TIME TO PEAK (hrs)= 11.067
RUNOFF VOLUME (mm)= 85.898
TOTAL RAINFALL (mm)= 211.998
RUNOFF COEFFICIENT = 0.405

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0303)	Area (ha)= 0.33	Curve Number (CN)= 43.0	
ID= 1 DT= 2.0 min	Ia (mm)= 10.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.25		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.300	6.00	6.567	13.00	9.83	13.00
0.067	0.00	3.333	6.00	6.600	13.00	9.87	13.00
0.100	0.00	3.367	6.00	6.633	13.00	9.90	13.00
0.133	0.00	3.400	6.00	6.667	13.00	9.93	13.00
0.167	0.00	3.433	6.00	6.700	13.00	9.97	13.00
0.200	0.00	3.467	6.00	6.733	13.00	10.00	13.02
0.233	0.00	3.500	6.00	6.767	13.00	10.03	53.00
0.267	0.00	3.533	6.00	6.800	13.00	10.07	53.00
0.300	0.00	3.567	6.00	6.833	13.00	10.10	53.00
0.333	0.00	3.600	6.00	6.867	13.00	10.13	53.00
0.367	0.00	3.633	6.00	6.900	13.00	10.17	53.00
0.400	0.00	3.667	6.00	6.933	13.00	10.20	53.00
0.433	0.00	3.700	6.00	6.967	13.00	10.23	53.00
0.467	0.00	3.733	6.00	7.000	13.00	10.27	53.00
0.500	0.00	3.767	6.00	7.033	23.00	10.30	53.00
0.533	0.00	3.800	6.00	7.067	23.00	10.33	53.00
0.567	0.00	3.833	6.00	7.100	23.00	10.37	53.00
0.600	0.00	3.867	6.00	7.133	23.00	10.40	53.00
0.633	0.00	3.900	6.00	7.167	23.00	10.43	53.00
0.667	0.00	3.933	6.00	7.200	23.00	10.47	53.00
0.700	0.00	3.967	6.00	7.233	23.00	10.50	53.00
0.733	0.00	4.000	6.00	7.267	23.00	10.53	53.00
0.767	0.00	4.033	13.00	7.300	23.00	10.57	53.00
0.800	0.00	4.067	13.00	7.333	23.00	10.60	53.00
0.833	0.00	4.100	13.00	7.367	23.00	10.63	53.00
0.867	0.00	4.133	13.00	7.400	23.00	10.67	53.00
0.900	0.00	4.167	13.00	7.433	23.00	10.70	53.00
0.933	0.00	4.200	13.00	7.467	23.00	10.73	53.00
0.967	0.00	4.233	13.00	7.500	23.00	10.77	53.00
1.000	0.00	4.267	13.00	7.533	23.00	10.80	53.00
1.033	6.00	4.300	13.00	7.567	23.00	10.83	53.00
1.067	6.00	4.333	13.00	7.600	23.00	10.87	53.00
1.100	6.00	4.367	13.00	7.633	23.00	10.90	53.00
1.133	6.00	4.400	13.00	7.667	23.00	10.93	53.00
1.167	6.00	4.433	13.00	7.700	23.00	10.97	53.00
1.200	6.00	4.467	13.00	7.733	23.00	11.00	52.99
1.233	6.00	4.500	13.00	7.767	23.00	11.03	38.00
1.267	6.00	4.533	13.00	7.800	23.00	11.07	38.00
1.300	6.00	4.567	13.00	7.833	23.00	11.10	38.00
1.333	6.00	4.600	13.00	7.867	23.00	11.13	38.00
1.367	6.00	4.633	13.00	7.900	23.00	11.17	38.00
1.400	6.00	4.667	13.00	7.933	23.00	11.20	38.00
1.433	6.00	4.700	13.00	7.967	23.00	11.23	38.00
1.467	6.00	4.733	13.00	8.000	23.00	11.27	38.00
1.500	6.00	4.767	13.00	8.033	13.00	11.30	38.00
1.533	6.00	4.800	13.00	8.067	13.00	11.33	38.00
1.567	6.00	4.833	13.00	8.100	13.00	11.37	38.00
1.600	6.00	4.867	13.00	8.133	13.00	11.40	38.00
1.633	6.00	4.900	13.00	8.167	13.00	11.43	38.00
1.667	6.00	4.933	13.00	8.200	13.00	11.47	38.00
1.700	6.00	4.967	13.00	8.233	13.00	11.50	38.00

1.733	6.00	5.000	13.00	8.267	13.00	11.53	38.00
1.767	6.00	5.033	17.00	8.300	13.00	11.57	38.00
1.800	6.00	5.067	17.00	8.333	13.00	11.60	38.00
1.833	6.00	5.100	17.00	8.367	13.00	11.63	38.00
1.867	6.00	5.133	17.00	8.400	13.00	11.67	38.00
1.900	6.00	5.167	17.00	8.433	13.00	11.70	38.00
1.933	6.00	5.200	17.00	8.467	13.00	11.73	38.00
1.967	6.00	5.233	17.00	8.500	13.00	11.77	38.00
2.000	6.00	5.267	17.00	8.533	13.00	11.80	38.00
2.033	4.00	5.300	17.00	8.567	13.00	11.83	38.00
2.067	4.00	5.333	17.00	8.600	13.00	11.87	38.00
2.100	4.00	5.367	17.00	8.633	13.00	11.90	38.00
2.133	4.00	5.400	17.00	8.667	13.00	11.93	38.00
2.167	4.00	5.433	17.00	8.700	13.00	11.97	38.00
2.200	4.00	5.467	17.00	8.733	13.00	12.00	37.97
2.233	4.00	5.500	17.00	8.767	13.00	12.03	13.00
2.267	4.00	5.533	17.00	8.800	13.00	12.07	13.00
2.300	4.00	5.567	17.00	8.833	13.00	12.10	13.00
2.333	4.00	5.600	17.00	8.867	13.00	12.13	13.00
2.367	4.00	5.633	17.00	8.900	13.00	12.17	13.00
2.400	4.00	5.667	17.00	8.933	13.00	12.20	13.00
2.433	4.00	5.700	17.00	8.967	13.00	12.23	13.00
2.467	4.00	5.733	17.00	9.000	13.00	12.27	13.00
2.500	4.00	5.767	17.00	9.033	13.00	12.30	13.00
2.533	4.00	5.800	17.00	9.067	13.00	12.33	13.00
2.567	4.00	5.833	17.00	9.100	13.00	12.37	13.00
2.600	4.00	5.867	17.00	9.133	13.00	12.40	13.00
2.633	4.00	5.900	17.00	9.167	13.00	12.43	13.00
2.667	4.00	5.933	17.00	9.200	13.00	12.47	13.00
2.700	4.00	5.967	17.00	9.233	13.00	12.50	13.00
2.733	4.00	6.000	17.00	9.267	13.00	12.53	13.00
2.767	4.00	6.033	13.00	9.300	13.00	12.57	13.00
2.800	4.00	6.067	13.00	9.333	13.00	12.60	13.00
2.833	4.00	6.100	13.00	9.367	13.00	12.63	13.00
2.867	4.00	6.133	13.00	9.400	13.00	12.67	13.00
2.900	4.00	6.167	13.00	9.433	13.00	12.70	13.00
2.933	4.00	6.200	13.00	9.467	13.00	12.73	13.00
2.967	4.00	6.233	13.00	9.500	13.00	12.77	13.00
3.000	4.00	6.267	13.00	9.533	13.00	12.80	13.00
3.033	6.00	6.300	13.00	9.567	13.00	12.83	13.00
3.067	6.00	6.333	13.00	9.600	13.00	12.87	13.00
3.100	6.00	6.367	13.00	9.633	13.00	12.90	13.00
3.133	6.00	6.400	13.00	9.667	13.00	12.93	13.00
3.167	6.00	6.433	13.00	9.700	13.00	12.97	13.00
3.200	6.00	6.467	13.00	9.733	13.00	13.00	12.98
3.233	6.00	6.500	13.00	9.767	13.00		
3.267	6.00	6.533	13.00	9.800	13.00		

Unit Hyd Qpeak (cms)= 0.050

PEAK FLOW (cms)= 0.024 (i)
TIME TO PEAK (hrs)= 11.067
RUNOFF VOLUME (mm)= 75.741
TOTAL RAINFALL (mm)= 211.998
RUNOFF COEFFICIENT = 0.357

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0002)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)

```
        ID1= 1 (  0301):     6.32   0.502    11.07    85.90
      + ID2= 2 (  0303):     0.33   0.024    11.07    75.74
        ==========================================================
        ID = 3 (  0002):     6.65   0.525    11.07    85.39

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------

 FINISH
================================================================================
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*******************************************
** SIMULATION:Pre-Dev-PF, 100yr 12hr SCS **
*******************************************

-------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.085     6.23    15.40
      + ID2= 2 (  0102):     0.42   0.015     6.20    14.19
        ================================================
        ID = 3 (  0001):     2.67   0.100     6.23    15.21

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0001):     2.67   0.100     6.23    15.21
      + ID2= 2 (  0103):     0.21   0.020     6.10    24.66
        ================================================
        ID = 1 (  0001):     2.88   0.114     6.20    15.90

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
*******************************************
** SIMULATION:Pre-Dev-PF, 100yr 24hr SCS **
*******************************************

-------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.103    12.23    21.65
      + ID2= 2 (  0102):     0.42   0.019    12.20    20.00
        ================================================
        ID = 3 (  0001):     2.67   0.121    12.23    21.39

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0001):     2.67   0.121    12.23    21.39
      + ID2= 2 (  0103):     0.21   0.024    12.10    33.87
        ================================================
        ID = 1 (  0001):     2.88   0.138    12.20    22.30

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
*******************************************
** SIMULATION:Pre-Dev-PF, 100yr 4hr CHI **
*******************************************

-------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.048     1.67     9.21
      + ID2= 2 (  0102):     0.42   0.009     1.63     8.47
```

```
        ================================================
        ID = 3 (  0001):     2.67   0.057     1.67     9.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0001):     2.67   0.057     1.67     9.09
      + ID2= 2 (  0103):     0.21   0.012     1.47    15.29
        ================================================
        ID = 1 (  0001):     2.88   0.065     1.63     9.55

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
****************************************
** SIMULATION:Pre-Dev-PF, 100yr 6hr SCS **
****************************************


--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.089     3.23    13.78
      + ID2= 2 (  0102):     0.42   0.016     3.20    12.70
        ================================================
        ID = 3 (  0001):     2.67   0.105     3.23    13.61

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0001):     2.67   0.105     3.23    13.61
      + ID2= 2 (  0103):     0.21   0.021     3.10    22.25
        ================================================
        ID = 1 (  0001):     2.88   0.119     3.20    14.24

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
****************************************
** SIMULATION:Pre-Dev-PF, 10yr 12hr SCS **
****************************************


--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.037     6.23     6.81
      + ID2= 2 (  0102):     0.42   0.007     6.20     6.26
        ================================================
        ID = 3 (  0001):     2.67   0.043     6.23     6.72

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
```

```
        ID1= 3 (  0001):     2.67   0.043     6.23     6.72
      + ID2= 2 (  0103):     0.21   0.009     6.10    11.54
        ==========================================================
        ID = 1 (  0001):     2.88   0.050     6.20     7.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
****************************************
** SIMULATION:Pre-Dev-PF, 10yr 24hr SCS **
****************************************

--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.045    12.23     9.72
      + ID2= 2 (  0102):     0.42   0.008    12.20     8.94
        ==========================================================
        ID = 3 (  0001):     2.67   0.053    12.23     9.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0001):     2.67   0.053    12.23     9.60
      + ID2= 2 (  0103):     0.21   0.011    12.10    16.08
        ==========================================================
        ID = 1 (  0001):     2.88   0.061    12.20    10.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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****************************************
** SIMULATION:Pre-Dev-PF, 10yr 4hr CHI **
****************************************

--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.020     1.67     4.00
      + ID2= 2 (  0102):     0.42   0.004     1.63     3.67
        ==========================================================
        ID = 3 (  0001):     2.67   0.024     1.67     3.95

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0001):     2.67   0.024     1.67     3.95
      + ID2= 2 (  0103):     0.21   0.005     1.47     7.05
        ==========================================================
        ID = 1 (  0001):     2.88   0.027     1.63     4.18

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
****************************************
** SIMULATION:Pre-Dev-PF, 10yr 6hr SCS **
****************************************
```

```
--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.037     3.23     5.84
      + ID2= 2 (  0102):     0.42   0.007     3.20     5.36
        ==================================================
        ID = 3 (  0001):     2.67   0.044     3.23     5.77

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0001):     2.67   0.044     3.23     5.77
      + ID2= 2 (  0103):     0.21   0.009     3.10    10.01
        ==================================================
        ID = 1 (  0001):     2.88   0.050     3.20     6.08

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
*****************************************
** SIMULATION:Pre-Dev-PF, 25yr 12hr SCS **
*****************************************


--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.054     6.23     9.90
      + ID2= 2 (  0102):     0.42   0.010     6.20     9.11
        ==================================================
        ID = 3 (  0001):     2.67   0.064     6.23     9.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0001):     2.67   0.064     6.23     9.78
      + ID2= 2 (  0103):     0.21   0.013     6.10    16.36
        ==================================================
        ID = 1 (  0001):     2.88   0.073     6.20    10.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
*****************************************
** SIMULATION:Pre-Dev-PF, 25yr 24hr SCS **
*****************************************


--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.066    12.23    14.04
      + ID2= 2 (  0102):     0.42   0.012    12.20    12.94
        ==================================================
        ID = 3 (  0001):     2.67   0.078    12.23    13.87
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0001)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0001):	2.67	0.078	12.23	13.87
	+ ID2= 2 (0103):	0.21	0.016	12.10	22.64
	ID = 1 (0001):	2.88	0.089	12.20	14.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Pre-Dev-PF, 25yr 4hr CHI **
****

ADD HYD (0001)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0101):	2.25	0.030	1.67	5.92
	+ ID2= 2 (0102):	0.42	0.005	1.63	5.44
	ID = 3 (0001):	2.67	0.036	1.67	5.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0001)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0001):	2.67	0.036	1.67	5.85
	+ ID2= 2 (0103):	0.21	0.008	1.47	10.14
	ID = 1 (0001):	2.88	0.041	1.63	6.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Pre-Dev-PF, 25yr 6hr SCS **
****

ADD HYD (0001)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0101):	2.25	0.055	3.23	8.69
	+ ID2= 2 (0102):	0.42	0.010	3.20	7.99
	ID = 3 (0001):	2.67	0.065	3.23	8.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0001)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0001):	2.67	0.065	3.23	8.58
	+ ID2= 2 (0103):	0.21	0.014	3.10	14.48

```
        ID = 1 (  0001):     2.88   0.075     3.20     9.01

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
****************************************
** SIMULATION:Pre-Dev-PF, 2yr 12hr SCS **
****************************************

--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.012     6.23     2.26
      + ID2= 2 (  0102):     0.42   0.002     6.23     2.07
        ================================================
        ID = 3 (  0001):     2.67   0.014     6.23     2.23

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0001):     2.67   0.014     6.23     2.23
      + ID2= 2 (  0103):     0.21   0.003     6.10     4.17
        ================================================
        ID = 1 (  0001):     2.88   0.016     6.20     2.37

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
****************************************
** SIMULATION:Pre-Dev-PF, 2yr 24hr SCS **
****************************************

--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.015    12.23     3.32
      + ID2= 2 (  0102):     0.42   0.003    12.20     3.04
        ================================================
        ID = 3 (  0001):     2.67   0.018    12.23     3.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0001):     2.67   0.018    12.23     3.27
      + ID2= 2 (  0103):     0.21   0.004    12.10     5.93
        ================================================
        ID = 1 (  0001):     2.88   0.020    12.20     3.47

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
****************************************
** SIMULATION:Pre-Dev-PF, 2yr 4hr CHI **
****************************************

--------------------
| ADD HYD  (  0001)|
```

```
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.006     1.70     1.26
      + ID2= 2 (  0102):     0.42   0.001     1.67     1.16
        ================================================
        ID = 3 (  0001):     2.67   0.007     1.70     1.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0001):     2.67   0.007     1.70     1.25
      + ID2= 2 (  0103):     0.21   0.002     1.47     2.46
        ================================================
        ID = 1 (  0001):     2.88   0.008     1.67     1.33

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
**************************************
** SIMULATION:Pre-Dev-PF, 2yr 6hr SCS **
**************************************


--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.011     3.27     1.77
      + ID2= 2 (  0102):     0.42   0.002     3.23     1.63
        ================================================
        ID = 3 (  0001):     2.67   0.013     3.23     1.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0001):     2.67   0.013     3.23     1.75
      + ID2= 2 (  0103):     0.21   0.003     3.10     3.35
        ================================================
        ID = 1 (  0001):     2.88   0.015     3.20     1.87

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
**************************************
** SIMULATION:Pre-Dev-PF, 50yr 12hr SCS **
**************************************


--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.069     6.23    12.55
      + ID2= 2 (  0102):     0.42   0.012     6.20    11.55
        ================================================
        ID = 3 (  0001):     2.67   0.081     6.23    12.39

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
```

```
-------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0001):     2.67   0.081     6.23    12.39
      + ID2= 2 (  0103):     0.21   0.016     6.10    20.38
        ==================================================
        ID = 1 (  0001):     2.88   0.093     6.20    12.97

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
****************************************
** SIMULATION:Pre-Dev-PF, 50yr 24hr SCS **
****************************************

-------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.083    12.23    17.69
      + ID2= 2 (  0102):     0.42   0.015    12.20    16.32
        ==================================================
        ID = 3 (  0001):     2.67   0.098    12.23    17.48

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0001):     2.67   0.098    12.23    17.48
      + ID2= 2 (  0103):     0.21   0.020    12.10    28.07
        ==================================================
        ID = 1 (  0001):     2.88   0.112    12.20    18.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
****************************************
** SIMULATION:Pre-Dev-PF, 50yr 4hr CHI **
****************************************

-------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.039     1.67     7.50
      + ID2= 2 (  0102):     0.42   0.007     1.63     6.89
        ==================================================
        ID = 3 (  0001):     2.67   0.045     1.67     7.40

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0001):     2.67   0.045     1.67     7.40
      + ID2= 2 (  0103):     0.21   0.009     1.47    12.62
        ==================================================
        ID = 1 (  0001):     2.88   0.052     1.63     7.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

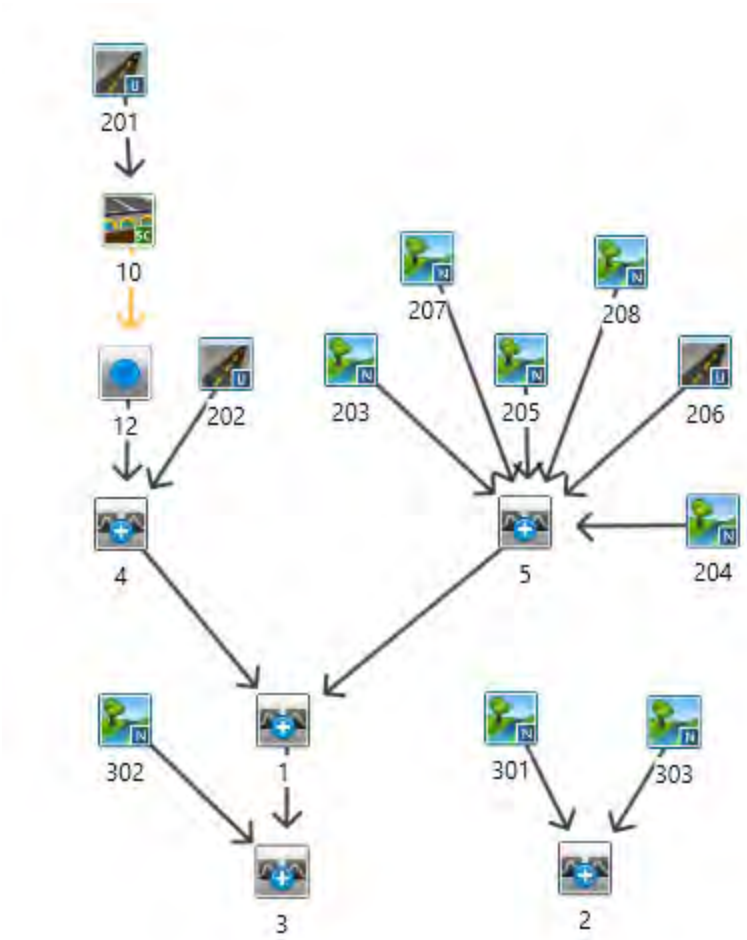
```
------------------------------------------------------------------------------
****************************************
** SIMULATION:Pre-Dev-PF, 50yr 6hr SCS **
****************************************

--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0101):     2.25   0.071     3.23    11.12
     + ID2= 2 (  0102):     0.42   0.013     3.20    10.23
       ================================================
       ID = 3 (  0001):     2.67   0.084     3.23    10.98

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0001):     2.67   0.084     3.23    10.98
     + ID2= 2 (  0103):     0.21   0.017     3.10    18.22
       ================================================
       ID = 1 (  0001):     2.88   0.096     3.20    11.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
****************************************
** SIMULATION:Pre-Dev-PF, 5yr 12hr SCS **
****************************************

--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0101):     2.25   0.025     6.23     4.72
     + ID2= 2 (  0102):     0.42   0.005     6.20     4.34
       ================================================
       ID = 3 (  0001):     2.67   0.030     6.23     4.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0001):     2.67   0.030     6.23     4.66
     + ID2= 2 (  0103):     0.21   0.006     6.10     8.22
       ================================================
       ID = 1 (  0001):     2.88   0.034     6.20     4.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
****************************************
** SIMULATION:Pre-Dev-PF, 5yr 24hr SCS **
****************************************

--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0101):     2.25   0.031    12.23     6.81
```

```
      + ID2= 2 (  0102):     0.42   0.006    12.20     6.26
        ==============================================
        ID = 3 (  0001):     2.67   0.037    12.23     6.72

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0001):     2.67   0.037    12.23     6.72
      + ID2= 2 (  0103):     0.21   0.008    12.10    11.54
        ==============================================
        ID = 1 (  0001):     2.88   0.043    12.20     7.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
****************************************
** SIMULATION:Pre-Dev-PF, 5yr 4hr CHI **
****************************************


--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.014     1.70     2.72
      + ID2= 2 (  0102):     0.42   0.002     1.67     2.50
        ==============================================
        ID = 3 (  0001):     2.67   0.016     1.67     2.69

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0001):     2.67   0.016     1.67     2.69
      + ID2= 2 (  0103):     0.21   0.004     1.47     4.95
        ==============================================
        ID = 1 (  0001):     2.88   0.018     1.63     2.85

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
****************************************
** SIMULATION:Pre-Dev-PF, 5yr 6hr SCS **
****************************************


--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.025     3.23     3.97
      + ID2= 2 (  0102):     0.42   0.004     3.23     3.64
        ==============================================
        ID = 3 (  0001):     2.67   0.029     3.23     3.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
```

```
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0001):     2.67   0.029     3.23     3.92
      + ID2= 2 (  0103):     0.21   0.007     3.10     7.00
        ================================================
        ID = 1 (  0001):     2.88   0.034     3.20     4.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
*********************************************
** SIMULATION:Pre-Dev-PF, WQE 25mm 4hr CHI **
*********************************************

--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.002     1.80     0.42
      + ID2= 2 (  0102):     0.42   0.000     1.73     0.39
        ================================================
        ID = 3 (  0001):     2.67   0.002     1.77     0.42

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0001):     2.67   0.002     1.77     0.42
      + ID2= 2 (  0103):     0.21   0.001     1.50     0.94
        ================================================
        ID = 1 (  0001):     2.88   0.002     1.73     0.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
```

```
*****************************************
** SIMULATION:Pre-Dev-PF, Hazel AMCIII **
*****************************************

--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     2.25   0.189    11.07    90.19
      + ID2= 2 (  0102):     0.42   0.033    11.03    84.29
        ================================================
        ID = 3 (  0001):     2.67   0.222    11.03    89.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0001)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0001):     2.67   0.222    11.03    89.26
      + ID2= 2 (  0103):     0.21   0.023    11.00   117.01
        ================================================
        ID = 1 (  0001):     2.88   0.245    11.03    91.28

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
```

Post-Dev-PF & *Post-Dev-PF Hazel AMCIII* Model Schematics



```
================================================================================
==========================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output        filename:    C:\Users\mgallant\AppData\Local\Civica\VH5\6bb8133b-
c3b7-49cd-875d-ed11cb8c976b\604aeb59-0c6b-4223-ab91-a4d166ca2150\sce
  Summary      filename:     C:\Users\mgallant\AppData\Local\Civica\VH5\6bb8133b-
c3b7-49cd-875d-ed11cb8c976b\604aeb59-0c6b-4223-ab91-a4d166ca2150\sce


DATE: 08-11-2022                              TIME: 04:55:48

USER:



COMMENTS: _____________________________________________________________________

--------------------------------------------------------------------------------
--------------------------
  ************************************************
  ** SIMULATION : Post-Dev-PF, WQE 25mm 4hr CHI **
  ************************************************


--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 458.560
| Ptotal= 25.00 mm |                          B=   4.699
--------------------                          C=   0.781
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    =  5.00 min
                       Time to peak ratio =  0.33

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    1.56 |  1.00    6.77 |  2.00    4.31 |  3.00    2.07
                0.08    1.65 |  1.08   10.39 |  2.08    3.92 |  3.08    1.99
                0.17    1.76 |  1.17   24.03 |  2.17    3.61 |  3.17    1.92
                0.25    1.88 |  1.25   77.76 |  2.25    3.34 |  3.25    1.85
                0.33    2.03 |  1.33   31.02 |  2.33    3.12 |  3.33    1.79
                0.42    2.20 |  1.42   17.08 |  2.42    2.92 |  3.42    1.73
                0.50    2.41 |  1.50   11.77 |  2.50    2.76 |  3.50    1.68
                0.58    2.68 |  1.58    9.02 |  2.58    2.61 |  3.58    1.63
                0.67    3.02 |  1.67    7.34 |  2.67    2.48 |  3.67    1.58
```

0.75	3.47	1.75	6.21	2.75	2.36	3.75	1.54
0.83	4.11	1.83	5.40	2.83	2.25	3.83	1.50
0.92	5.09	1.92	4.79	2.92	2.16	3.92	1.46

CALIB			
NASHYD (0301)	Area (ha)=	6.32	Curve Number (CN)= 29.0
ID= 1 DT= 1.0 min	Ia (mm)=	9.42	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.27	

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	1.56	1.017	6.77	2.017	4.31	3.02	2.07
0.033	1.56	1.033	6.77	2.033	4.31	3.03	2.07
0.050	1.56	1.050	6.77	2.050	4.31	3.05	2.07
0.067	1.56	1.067	6.77	2.067	4.31	3.07	2.07
0.083	1.56	1.083	6.77	2.083	4.31	3.08	2.07
0.100	1.65	1.100	10.39	2.100	3.92	3.10	1.99
0.117	1.65	1.117	10.39	2.117	3.92	3.12	1.99
0.133	1.65	1.133	10.39	2.133	3.92	3.13	1.99
0.150	1.65	1.150	10.39	2.150	3.92	3.15	1.99
0.167	1.65	1.167	10.39	2.167	3.92	3.17	1.99
0.183	1.76	1.183	24.03	2.183	3.61	3.18	1.92
0.200	1.76	1.200	24.03	2.200	3.61	3.20	1.92
0.217	1.76	1.217	24.03	2.217	3.61	3.22	1.92
0.233	1.76	1.233	24.03	2.233	3.61	3.23	1.92
0.250	1.76	1.250	24.03	2.250	3.61	3.25	1.92
0.267	1.88	1.267	77.76	2.267	3.34	3.27	1.85
0.283	1.88	1.283	77.76	2.283	3.34	3.28	1.85
0.300	1.88	1.300	77.76	2.300	3.34	3.30	1.85
0.317	1.88	1.317	77.76	2.317	3.34	3.32	1.85
0.333	1.88	1.333	77.76	2.333	3.34	3.33	1.85
0.350	2.03	1.350	31.02	2.350	3.12	3.35	1.79
0.367	2.03	1.367	31.02	2.367	3.12	3.37	1.79
0.383	2.03	1.383	31.02	2.383	3.12	3.38	1.79
0.400	2.03	1.400	31.02	2.400	3.12	3.40	1.79
0.417	2.03	1.417	31.02	2.417	3.12	3.42	1.79
0.433	2.20	1.433	17.08	2.433	2.92	3.43	1.73
0.450	2.20	1.450	17.08	2.450	2.92	3.45	1.73
0.467	2.20	1.467	17.08	2.467	2.92	3.47	1.73
0.483	2.20	1.483	17.08	2.483	2.92	3.48	1.73
0.500	2.20	1.500	17.08	2.500	2.92	3.50	1.73
0.517	2.41	1.517	11.78	2.517	2.76	3.52	1.68
0.533	2.41	1.533	11.77	2.533	2.76	3.53	1.68
0.550	2.41	1.550	11.77	2.550	2.76	3.55	1.68
0.567	2.41	1.567	11.77	2.567	2.76	3.57	1.68
0.583	2.41	1.583	11.77	2.583	2.76	3.58	1.68
0.600	2.68	1.600	9.02	2.600	2.61	3.60	1.63
0.617	2.68	1.617	9.02	2.617	2.61	3.62	1.63
0.633	2.68	1.633	9.02	2.633	2.61	3.63	1.63
0.650	2.68	1.650	9.02	2.650	2.61	3.65	1.63
0.667	2.68	1.667	9.02	2.667	2.61	3.67	1.63
0.683	3.02	1.683	7.34	2.683	2.48	3.68	1.58
0.700	3.02	1.700	7.34	2.700	2.48	3.70	1.58
0.717	3.02	1.717	7.34	2.717	2.48	3.72	1.58
0.733	3.02	1.733	7.34	2.733	2.48	3.73	1.58
0.750	3.02	1.750	7.34	2.750	2.48	3.75	1.58
0.767	3.47	1.767	6.21	2.767	2.36	3.77	1.54

0.783	3.47	1.783	6.21	2.783	2.36	3.78	1.54
0.800	3.47	1.800	6.21	2.800	2.36	3.80	1.54
0.817	3.47	1.817	6.21	2.817	2.36	3.82	1.54
0.833	3.47	1.833	6.21	2.833	2.36	3.83	1.54
0.850	4.11	1.850	5.40	2.850	2.25	3.85	1.50
0.867	4.11	1.867	5.40	2.867	2.25	3.87	1.50
0.883	4.11	1.883	5.40	2.883	2.25	3.88	1.50
0.900	4.11	1.900	5.40	2.900	2.25	3.90	1.50
0.917	4.11	1.917	5.40	2.917	2.25	3.92	1.50
0.933	5.09	1.933	4.79	2.933	2.16	3.93	1.46
0.950	5.09	1.950	4.79	2.950	2.16	3.95	1.46
0.967	5.09	1.967	4.79	2.967	2.16	3.97	1.46
0.983	5.09	1.983	4.79	2.983	2.16	3.98	1.46
1.000	5.09	2.000	4.79	3.000	2.16	4.00	1.46

Unit Hyd Qpeak (cms)= 0.894

PEAK FLOW (cms)= 0.004 (i)
TIME TO PEAK (hrs)= 1.867
RUNOFF VOLUME (mm)= 0.381
TOTAL RAINFALL (mm)= 24.998
RUNOFF COEFFICIENT = 0.015

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0303)	Area (ha)= 0.33	Curve Number (CN)= 25.0
ID= 1 DT= 1.0 min	Ia (mm)= 10.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.25	

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	1.56	1.017	6.77	2.017	4.31	3.02	2.07
0.033	1.56	1.033	6.77	2.033	4.31	3.03	2.07
0.050	1.56	1.050	6.77	2.050	4.31	3.05	2.07
0.067	1.56	1.067	6.77	2.067	4.31	3.07	2.07
0.083	1.56	1.083	6.77	2.083	4.31	3.08	2.07
0.100	1.65	1.100	10.39	2.100	3.92	3.10	1.99
0.117	1.65	1.117	10.39	2.117	3.92	3.12	1.99
0.133	1.65	1.133	10.39	2.133	3.92	3.13	1.99
0.150	1.65	1.150	10.39	2.150	3.92	3.15	1.99
0.167	1.65	1.167	10.39	2.167	3.92	3.17	1.99
0.183	1.76	1.183	24.03	2.183	3.61	3.18	1.92
0.200	1.76	1.200	24.03	2.200	3.61	3.20	1.92
0.217	1.76	1.217	24.03	2.217	3.61	3.22	1.92
0.233	1.76	1.233	24.03	2.233	3.61	3.23	1.92
0.250	1.76	1.250	24.03	2.250	3.61	3.25	1.92
0.267	1.88	1.267	77.76	2.267	3.34	3.27	1.85
0.283	1.88	1.283	77.76	2.283	3.34	3.28	1.85
0.300	1.88	1.300	77.76	2.300	3.34	3.30	1.85
0.317	1.88	1.317	77.76	2.317	3.34	3.32	1.85
0.333	1.88	1.333	77.76	2.333	3.34	3.33	1.85
0.350	2.03	1.350	31.02	2.350	3.12	3.35	1.79
0.367	2.03	1.367	31.02	2.367	3.12	3.37	1.79
0.383	2.03	1.383	31.02	2.383	3.12	3.38	1.79
0.400	2.03	1.400	31.02	2.400	3.12	3.40	1.79
0.417	2.03	1.417	31.02	2.417	3.12	3.42	1.79
0.433	2.20	1.433	17.08	2.433	2.92	3.43	1.73

0.450	2.20	1.450	17.08	2.450	2.92	3.45	1.73
0.467	2.20	1.467	17.08	2.467	2.92	3.47	1.73
0.483	2.20	1.483	17.08	2.483	2.92	3.48	1.73
0.500	2.20	1.500	17.08	2.500	2.92	3.50	1.73
0.517	2.41	1.517	11.78	2.517	2.76	3.52	1.68
0.533	2.41	1.533	11.77	2.533	2.76	3.53	1.68
0.550	2.41	1.550	11.77	2.550	2.76	3.55	1.68
0.567	2.41	1.567	11.77	2.567	2.76	3.57	1.68
0.583	2.41	1.583	11.77	2.583	2.76	3.58	1.68
0.600	2.68	1.600	9.02	2.600	2.61	3.60	1.63
0.617	2.68	1.617	9.02	2.617	2.61	3.62	1.63
0.633	2.68	1.633	9.02	2.633	2.61	3.63	1.63
0.650	2.68	1.650	9.02	2.650	2.61	3.65	1.63
0.667	2.68	1.667	9.02	2.667	2.61	3.67	1.63
0.683	3.02	1.683	7.34	2.683	2.48	3.68	1.58
0.700	3.02	1.700	7.34	2.700	2.48	3.70	1.58
0.717	3.02	1.717	7.34	2.717	2.48	3.72	1.58
0.733	3.02	1.733	7.34	2.733	2.48	3.73	1.58
0.750	3.02	1.750	7.34	2.750	2.48	3.75	1.58
0.767	3.47	1.767	6.21	2.767	2.36	3.77	1.54
0.783	3.47	1.783	6.21	2.783	2.36	3.78	1.54
0.800	3.47	1.800	6.21	2.800	2.36	3.80	1.54
0.817	3.47	1.817	6.21	2.817	2.36	3.82	1.54
0.833	3.47	1.833	6.21	2.833	2.36	3.83	1.54
0.850	4.11	1.850	5.40	2.850	2.25	3.85	1.50
0.867	4.11	1.867	5.40	2.867	2.25	3.87	1.50
0.883	4.11	1.883	5.40	2.883	2.25	3.88	1.50
0.900	4.11	1.900	5.40	2.900	2.25	3.90	1.50
0.917	4.11	1.917	5.40	2.917	2.25	3.92	1.50
0.933	5.09	1.933	4.79	2.933	2.16	3.93	1.46
0.950	5.09	1.950	4.79	2.950	2.16	3.95	1.46
0.967	5.09	1.967	4.79	2.967	2.16	3.97	1.46
0.983	5.09	1.983	4.79	2.983	2.16	3.98	1.46
1.000	5.09	2.000	4.79	3.000	2.16	4.00	1.46

Unit Hyd Qpeak (cms)= 0.050

PEAK FLOW (cms)= 0.000 (i)
TIME TO PEAK (hrs)= 1.850
RUNOFF VOLUME (mm)= 0.287
TOTAL RAINFALL (mm)= 24.998
RUNOFF COEFFICIENT = 0.011

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0002)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0301):	6.32	0.004	1.87	0.38
	+ ID2= 2 (0303):	0.33	0.000	1.85	0.29
	ID = 3 (0002):	6.65	0.004	1.87	0.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0205)				
ID= 1 DT= 1.0 min	Area (ha)=	0.42	Curve Number (CN)=	28.0
	Ia (mm)=	8.86	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.22		

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	1.56	1.017	6.77	2.017	4.31	3.02	2.07
0.033	1.56	1.033	6.77	2.033	4.31	3.03	2.07
0.050	1.56	1.050	6.77	2.050	4.31	3.05	2.07
0.067	1.56	1.067	6.77	2.067	4.31	3.07	2.07
0.083	1.56	1.083	6.77	2.083	4.31	3.08	2.07
0.100	1.65	1.100	10.39	2.100	3.92	3.10	1.99
0.117	1.65	1.117	10.39	2.117	3.92	3.12	1.99
0.133	1.65	1.133	10.39	2.133	3.92	3.13	1.99
0.150	1.65	1.150	10.39	2.150	3.92	3.15	1.99
0.167	1.65	1.167	10.39	2.167	3.92	3.17	1.99
0.183	1.76	1.183	24.03	2.183	3.61	3.18	1.92
0.200	1.76	1.200	24.03	2.200	3.61	3.20	1.92
0.217	1.76	1.217	24.03	2.217	3.61	3.22	1.92
0.233	1.76	1.233	24.03	2.233	3.61	3.23	1.92
0.250	1.76	1.250	24.03	2.250	3.61	3.25	1.92
0.267	1.88	1.267	77.76	2.267	3.34	3.27	1.85
0.283	1.88	1.283	77.76	2.283	3.34	3.28	1.85
0.300	1.88	1.300	77.76	2.300	3.34	3.30	1.85
0.317	1.88	1.317	77.76	2.317	3.34	3.32	1.85
0.333	1.88	1.333	77.76	2.333	3.34	3.33	1.85
0.350	2.03	1.350	31.02	2.350	3.12	3.35	1.79
0.367	2.03	1.367	31.02	2.367	3.12	3.37	1.79
0.383	2.03	1.383	31.02	2.383	3.12	3.38	1.79
0.400	2.03	1.400	31.02	2.400	3.12	3.40	1.79
0.417	2.03	1.417	31.02	2.417	3.12	3.42	1.79
0.433	2.20	1.433	17.08	2.433	2.92	3.43	1.73
0.450	2.20	1.450	17.08	2.450	2.92	3.45	1.73
0.467	2.20	1.467	17.08	2.467	2.92	3.47	1.73
0.483	2.20	1.483	17.08	2.483	2.92	3.48	1.73
0.500	2.20	1.500	17.08	2.500	2.92	3.50	1.73
0.517	2.41	1.517	11.78	2.517	2.76	3.52	1.68
0.533	2.41	1.533	11.77	2.533	2.76	3.53	1.68
0.550	2.41	1.550	11.77	2.550	2.76	3.55	1.68
0.567	2.41	1.567	11.77	2.567	2.76	3.57	1.68
0.583	2.41	1.583	11.77	2.583	2.76	3.58	1.68
0.600	2.68	1.600	9.02	2.600	2.61	3.60	1.63
0.617	2.68	1.617	9.02	2.617	2.61	3.62	1.63
0.633	2.68	1.633	9.02	2.633	2.61	3.63	1.63
0.650	2.68	1.650	9.02	2.650	2.61	3.65	1.63
0.667	2.68	1.667	9.02	2.667	2.61	3.67	1.63
0.683	3.02	1.683	7.34	2.683	2.48	3.68	1.58
0.700	3.02	1.700	7.34	2.700	2.48	3.70	1.58
0.717	3.02	1.717	7.34	2.717	2.48	3.72	1.58
0.733	3.02	1.733	7.34	2.733	2.48	3.73	1.58
0.750	3.02	1.750	7.34	2.750	2.48	3.75	1.58
0.767	3.47	1.767	6.21	2.767	2.36	3.77	1.54
0.783	3.47	1.783	6.21	2.783	2.36	3.78	1.54
0.800	3.47	1.800	6.21	2.800	2.36	3.80	1.54
0.817	3.47	1.817	6.21	2.817	2.36	3.82	1.54
0.833	3.47	1.833	6.21	2.833	2.36	3.83	1.54
0.850	4.11	1.850	5.40	2.850	2.25	3.85	1.50
0.867	4.11	1.867	5.40	2.867	2.25	3.87	1.50
0.883	4.11	1.883	5.40	2.883	2.25	3.88	1.50
0.900	4.11	1.900	5.40	2.900	2.25	3.90	1.50
0.917	4.11	1.917	5.40	2.917	2.25	3.92	1.50
0.933	5.09	1.933	4.79	2.933	2.16	3.93	1.46
0.950	5.09	1.950	4.79	2.950	2.16	3.95	1.46
0.967	5.09	1.967	4.79	2.967	2.16	3.97	1.46

0.983	5.09	1.983	4.79	2.983	2.16	3.98	1.46
1.000	5.09	2.000	4.79	3.000	2.16	4.00	1.46

Unit Hyd Qpeak (cms)= 0.073

PEAK FLOW (cms)= 0.000 (i)
TIME TO PEAK (hrs)= 1.750
RUNOFF VOLUME (mm)= 0.388
TOTAL RAINFALL (mm)= 24.998
RUNOFF COEFFICIENT = 0.016

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0203)	Area (ha)= 0.13	Curve Number (CN)= 46.0	
ID= 1 DT= 1.0 min	Ia (mm)= 4.66	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.09		

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	1.56	1.017	6.77	2.017	4.31	3.02	2.07
0.033	1.56	1.033	6.77	2.033	4.31	3.03	2.07
0.050	1.56	1.050	6.77	2.050	4.31	3.05	2.07
0.067	1.56	1.067	6.77	2.067	4.31	3.07	2.07
0.083	1.56	1.083	6.77	2.083	4.31	3.08	2.07
0.100	1.65	1.100	10.39	2.100	3.92	3.10	1.99
0.117	1.65	1.117	10.39	2.117	3.92	3.12	1.99
0.133	1.65	1.133	10.39	2.133	3.92	3.13	1.99
0.150	1.65	1.150	10.39	2.150	3.92	3.15	1.99
0.167	1.65	1.167	10.39	2.167	3.92	3.17	1.99
0.183	1.76	1.183	24.03	2.183	3.61	3.18	1.92
0.200	1.76	1.200	24.03	2.200	3.61	3.20	1.92
0.217	1.76	1.217	24.03	2.217	3.61	3.22	1.92
0.233	1.76	1.233	24.03	2.233	3.61	3.23	1.92
0.250	1.76	1.250	24.03	2.250	3.61	3.25	1.92
0.267	1.88	1.267	77.76	2.267	3.34	3.27	1.85
0.283	1.88	1.283	77.76	2.283	3.34	3.28	1.85
0.300	1.88	1.300	77.76	2.300	3.34	3.30	1.85
0.317	1.88	1.317	77.76	2.317	3.34	3.32	1.85
0.333	1.88	1.333	77.76	2.333	3.34	3.33	1.85
0.350	2.03	1.350	31.02	2.350	3.12	3.35	1.79
0.367	2.03	1.367	31.02	2.367	3.12	3.37	1.79
0.383	2.03	1.383	31.02	2.383	3.12	3.38	1.79
0.400	2.03	1.400	31.02	2.400	3.12	3.40	1.79
0.417	2.03	1.417	31.02	2.417	3.12	3.42	1.79
0.433	2.20	1.433	17.08	2.433	2.92	3.43	1.73
0.450	2.20	1.450	17.08	2.450	2.92	3.45	1.73
0.467	2.20	1.467	17.08	2.467	2.92	3.47	1.73
0.483	2.20	1.483	17.08	2.483	2.92	3.48	1.73
0.500	2.20	1.500	17.08	2.500	2.92	3.50	1.73
0.517	2.41	1.517	11.78	2.517	2.76	3.52	1.68
0.533	2.41	1.533	11.77	2.533	2.76	3.53	1.68
0.550	2.41	1.550	11.77	2.550	2.76	3.55	1.68
0.567	2.41	1.567	11.77	2.567	2.76	3.57	1.68
0.583	2.41	1.583	11.77	2.583	2.76	3.58	1.68
0.600	2.68	1.600	9.02	2.600	2.61	3.60	1.63
0.617	2.68	1.617	9.02	2.617	2.61	3.62	1.63
0.633	2.68	1.633	9.02	2.633	2.61	3.63	1.63

0.650	2.68	1.650	9.02	2.650	2.61	3.65	1.63
0.667	2.68	1.667	9.02	2.667	2.61	3.67	1.63
0.683	3.02	1.683	7.34	2.683	2.48	3.68	1.58
0.700	3.02	1.700	7.34	2.700	2.48	3.70	1.58
0.717	3.02	1.717	7.34	2.717	2.48	3.72	1.58
0.733	3.02	1.733	7.34	2.733	2.48	3.73	1.58
0.750	3.02	1.750	7.34	2.750	2.48	3.75	1.58
0.767	3.47	1.767	6.21	2.767	2.36	3.77	1.54
0.783	3.47	1.783	6.21	2.783	2.36	3.78	1.54
0.800	3.47	1.800	6.21	2.800	2.36	3.80	1.54
0.817	3.47	1.817	6.21	2.817	2.36	3.82	1.54
0.833	3.47	1.833	6.21	2.833	2.36	3.83	1.54
0.850	4.11	1.850	5.40	2.850	2.25	3.85	1.50
0.867	4.11	1.867	5.40	2.867	2.25	3.87	1.50
0.883	4.11	1.883	5.40	2.883	2.25	3.88	1.50
0.900	4.11	1.900	5.40	2.900	2.25	3.90	1.50
0.917	4.11	1.917	5.40	2.917	2.25	3.92	1.50
0.933	5.09	1.933	4.79	2.933	2.16	3.93	1.46
0.950	5.09	1.950	4.79	2.950	2.16	3.95	1.46
0.967	5.09	1.967	4.79	2.967	2.16	3.97	1.46
0.983	5.09	1.983	4.79	2.983	2.16	3.98	1.46
1.000	5.09	2.000	4.79	3.000	2.16	4.00	1.46

Unit Hyd Qpeak (cms)= 0.055

PEAK FLOW (cms)= 0.001 (i)
TIME TO PEAK (hrs)= 1.450
RUNOFF VOLUME (mm)= 1.297
TOTAL RAINFALL (mm)= 24.998
RUNOFF COEFFICIENT = 0.052

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0207)	Area (ha)= 0.09	Curve Number (CN)= 37.0
ID= 1 DT= 1.0 min	Ia (mm)= 5.68	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.04	

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	1.56	1.017	6.77	2.017	4.31	3.02	2.07
0.033	1.56	1.033	6.77	2.033	4.31	3.03	2.07
0.050	1.56	1.050	6.77	2.050	4.31	3.05	2.07
0.067	1.56	1.067	6.77	2.067	4.31	3.07	2.07
0.083	1.56	1.083	6.77	2.083	4.31	3.08	2.07
0.100	1.65	1.100	10.39	2.100	3.92	3.10	1.99
0.117	1.65	1.117	10.39	2.117	3.92	3.12	1.99
0.133	1.65	1.133	10.39	2.133	3.92	3.13	1.99
0.150	1.65	1.150	10.39	2.150	3.92	3.15	1.99
0.167	1.65	1.167	10.39	2.167	3.92	3.17	1.99
0.183	1.76	1.183	24.03	2.183	3.61	3.18	1.92
0.200	1.76	1.200	24.03	2.200	3.61	3.20	1.92
0.217	1.76	1.217	24.03	2.217	3.61	3.22	1.92
0.233	1.76	1.233	24.03	2.233	3.61	3.23	1.92
0.250	1.76	1.250	24.03	2.250	3.61	3.25	1.92
0.267	1.88	1.267	77.76	2.267	3.34	3.27	1.85
0.283	1.88	1.283	77.76	2.283	3.34	3.28	1.85
0.300	1.88	1.300	77.76	2.300	3.34	3.30	1.85

0.317	1.88	1.317	77.76	2.317	3.34	3.32	1.85
0.333	1.88	1.333	77.76	2.333	3.34	3.33	1.85
0.350	2.03	1.350	31.02	2.350	3.12	3.35	1.79
0.367	2.03	1.367	31.02	2.367	3.12	3.37	1.79
0.383	2.03	1.383	31.02	2.383	3.12	3.38	1.79
0.400	2.03	1.400	31.02	2.400	3.12	3.40	1.79
0.417	2.03	1.417	31.02	2.417	3.12	3.42	1.79
0.433	2.20	1.433	17.08	2.433	2.92	3.43	1.73
0.450	2.20	1.450	17.08	2.450	2.92	3.45	1.73
0.467	2.20	1.467	17.08	2.467	2.92	3.47	1.73
0.483	2.20	1.483	17.08	2.483	2.92	3.48	1.73
0.500	2.20	1.500	17.08	2.500	2.92	3.50	1.73
0.517	2.41	1.517	11.78	2.517	2.76	3.52	1.68
0.533	2.41	1.533	11.77	2.533	2.76	3.53	1.68
0.550	2.41	1.550	11.77	2.550	2.76	3.55	1.68
0.567	2.41	1.567	11.77	2.567	2.76	3.57	1.68
0.583	2.41	1.583	11.77	2.583	2.76	3.58	1.68
0.600	2.68	1.600	9.02	2.600	2.61	3.60	1.63
0.617	2.68	1.617	9.02	2.617	2.61	3.62	1.63
0.633	2.68	1.633	9.02	2.633	2.61	3.63	1.63
0.650	2.68	1.650	9.02	2.650	2.61	3.65	1.63
0.667	2.68	1.667	9.02	2.667	2.61	3.67	1.63
0.683	3.02	1.683	7.34	2.683	2.48	3.68	1.58
0.700	3.02	1.700	7.34	2.700	2.48	3.70	1.58
0.717	3.02	1.717	7.34	2.717	2.48	3.72	1.58
0.733	3.02	1.733	7.34	2.733	2.48	3.73	1.58
0.750	3.02	1.750	7.34	2.750	2.48	3.75	1.58
0.767	3.47	1.767	6.21	2.767	2.36	3.77	1.54
0.783	3.47	1.783	6.21	2.783	2.36	3.78	1.54
0.800	3.47	1.800	6.21	2.800	2.36	3.80	1.54
0.817	3.47	1.817	6.21	2.817	2.36	3.82	1.54
0.833	3.47	1.833	6.21	2.833	2.36	3.83	1.54
0.850	4.11	1.850	5.40	2.850	2.25	3.85	1.50
0.867	4.11	1.867	5.40	2.867	2.25	3.87	1.50
0.883	4.11	1.883	5.40	2.883	2.25	3.88	1.50
0.900	4.11	1.900	5.40	2.900	2.25	3.90	1.50
0.917	4.11	1.917	5.40	2.917	2.25	3.92	1.50
0.933	5.09	1.933	4.79	2.933	2.16	3.93	1.46
0.950	5.09	1.950	4.79	2.950	2.16	3.95	1.46
0.967	5.09	1.967	4.79	2.967	2.16	3.97	1.46
0.983	5.09	1.983	4.79	2.983	2.16	3.98	1.46
1.000	5.09	2.000	4.79	3.000	2.16	4.00	1.46

Unit Hyd Qpeak (cms)= 0.087

PEAK FLOW (cms)= 0.000 (i)
TIME TO PEAK (hrs)= 1.367
RUNOFF VOLUME (mm)= 0.823
TOTAL RAINFALL (mm)= 24.998
RUNOFF COEFFICIENT = 0.033

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0204) ID= 1 DT= 1.0 min	Area (ha)= 0.21	Curve Number (CN)= 42.0
	Ia (mm)= 6.31	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.11	

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	1.56	1.017	6.77	2.017	4.31	3.02	2.07
0.033	1.56	1.033	6.77	2.033	4.31	3.03	2.07
0.050	1.56	1.050	6.77	2.050	4.31	3.05	2.07
0.067	1.56	1.067	6.77	2.067	4.31	3.07	2.07
0.083	1.56	1.083	6.77	2.083	4.31	3.08	2.07
0.100	1.65	1.100	10.39	2.100	3.92	3.10	1.99
0.117	1.65	1.117	10.39	2.117	3.92	3.12	1.99
0.133	1.65	1.133	10.39	2.133	3.92	3.13	1.99
0.150	1.65	1.150	10.39	2.150	3.92	3.15	1.99
0.167	1.65	1.167	10.39	2.167	3.92	3.17	1.99
0.183	1.76	1.183	24.03	2.183	3.61	3.18	1.92
0.200	1.76	1.200	24.03	2.200	3.61	3.20	1.92
0.217	1.76	1.217	24.03	2.217	3.61	3.22	1.92
0.233	1.76	1.233	24.03	2.233	3.61	3.23	1.92
0.250	1.76	1.250	24.03	2.250	3.61	3.25	1.92
0.267	1.88	1.267	77.76	2.267	3.34	3.27	1.85
0.283	1.88	1.283	77.76	2.283	3.34	3.28	1.85
0.300	1.88	1.300	77.76	2.300	3.34	3.30	1.85
0.317	1.88	1.317	77.76	2.317	3.34	3.32	1.85
0.333	1.88	1.333	77.76	2.333	3.34	3.33	1.85
0.350	2.03	1.350	31.02	2.350	3.12	3.35	1.79
0.367	2.03	1.367	31.02	2.367	3.12	3.37	1.79
0.383	2.03	1.383	31.02	2.383	3.12	3.38	1.79
0.400	2.03	1.400	31.02	2.400	3.12	3.40	1.79
0.417	2.03	1.417	31.02	2.417	3.12	3.42	1.79
0.433	2.20	1.433	17.08	2.433	2.92	3.43	1.73
0.450	2.20	1.450	17.08	2.450	2.92	3.45	1.73
0.467	2.20	1.467	17.08	2.467	2.92	3.47	1.73
0.483	2.20	1.483	17.08	2.483	2.92	3.48	1.73
0.500	2.20	1.500	17.08	2.500	2.92	3.50	1.73
0.517	2.41	1.517	11.78	2.517	2.76	3.52	1.68
0.533	2.41	1.533	11.77	2.533	2.76	3.53	1.68
0.550	2.41	1.550	11.77	2.550	2.76	3.55	1.68
0.567	2.41	1.567	11.77	2.567	2.76	3.57	1.68
0.583	2.41	1.583	11.77	2.583	2.76	3.58	1.68
0.600	2.68	1.600	9.02	2.600	2.61	3.60	1.63
0.617	2.68	1.617	9.02	2.617	2.61	3.62	1.63
0.633	2.68	1.633	9.02	2.633	2.61	3.63	1.63
0.650	2.68	1.650	9.02	2.650	2.61	3.65	1.63
0.667	2.68	1.667	9.02	2.667	2.61	3.67	1.63
0.683	3.02	1.683	7.34	2.683	2.48	3.68	1.58
0.700	3.02	1.700	7.34	2.700	2.48	3.70	1.58
0.717	3.02	1.717	7.34	2.717	2.48	3.72	1.58
0.733	3.02	1.733	7.34	2.733	2.48	3.73	1.58
0.750	3.02	1.750	7.34	2.750	2.48	3.75	1.58
0.767	3.47	1.767	6.21	2.767	2.36	3.77	1.54
0.783	3.47	1.783	6.21	2.783	2.36	3.78	1.54
0.800	3.47	1.800	6.21	2.800	2.36	3.80	1.54
0.817	3.47	1.817	6.21	2.817	2.36	3.82	1.54
0.833	3.47	1.833	6.21	2.833	2.36	3.83	1.54
0.850	4.11	1.850	5.40	2.850	2.25	3.85	1.50
0.867	4.11	1.867	5.40	2.867	2.25	3.87	1.50
0.883	4.11	1.883	5.40	2.883	2.25	3.88	1.50
0.900	4.11	1.900	5.40	2.900	2.25	3.90	1.50
0.917	4.11	1.917	5.40	2.917	2.25	3.92	1.50
0.933	5.09	1.933	4.79	2.933	2.16	3.93	1.46
0.950	5.09	1.950	4.79	2.950	2.16	3.95	1.46
0.967	5.09	1.967	4.79	2.967	2.16	3.97	1.46
0.983	5.09	1.983	4.79	2.983	2.16	3.98	1.46
1.000	5.09	2.000	4.79	3.000	2.16	4.00	1.46

Unit Hyd Qpeak (cms)= 0.074

PEAK FLOW (cms)= 0.001 (i)
TIME TO PEAK (hrs)= 1.517
RUNOFF VOLUME (mm)= 0.944
TOTAL RAINFALL (mm)= 24.998
RUNOFF COEFFICIENT = 0.038

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0208)	Area (ha)= 0.03 Curve Number (CN)= 39.0
ID= 1 DT= 1.0 min	Ia (mm)= 5.14 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.04

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	1.56	1.017	6.77	2.017	4.31	3.02	2.07
0.033	1.56	1.033	6.77	2.033	4.31	3.03	2.07
0.050	1.56	1.050	6.77	2.050	4.31	3.05	2.07
0.067	1.56	1.067	6.77	2.067	4.31	3.07	2.07
0.083	1.56	1.083	6.77	2.083	4.31	3.08	2.07
0.100	1.65	1.100	10.39	2.100	3.92	3.10	1.99
0.117	1.65	1.117	10.39	2.117	3.92	3.12	1.99
0.133	1.65	1.133	10.39	2.133	3.92	3.13	1.99
0.150	1.65	1.150	10.39	2.150	3.92	3.15	1.99
0.167	1.65	1.167	10.39	2.167	3.92	3.17	1.99
0.183	1.76	1.183	24.03	2.183	3.61	3.18	1.92
0.200	1.76	1.200	24.03	2.200	3.61	3.20	1.92
0.217	1.76	1.217	24.03	2.217	3.61	3.22	1.92
0.233	1.76	1.233	24.03	2.233	3.61	3.23	1.92
0.250	1.76	1.250	24.03	2.250	3.61	3.25	1.92
0.267	1.88	1.267	77.76	2.267	3.34	3.27	1.85
0.283	1.88	1.283	77.76	2.283	3.34	3.28	1.85
0.300	1.88	1.300	77.76	2.300	3.34	3.30	1.85
0.317	1.88	1.317	77.76	2.317	3.34	3.32	1.85
0.333	1.88	1.333	77.76	2.333	3.34	3.33	1.85
0.350	2.03	1.350	31.02	2.350	3.12	3.35	1.79
0.367	2.03	1.367	31.02	2.367	3.12	3.37	1.79
0.383	2.03	1.383	31.02	2.383	3.12	3.38	1.79
0.400	2.03	1.400	31.02	2.400	3.12	3.40	1.79
0.417	2.03	1.417	31.02	2.417	3.12	3.42	1.79
0.433	2.20	1.433	17.08	2.433	2.92	3.43	1.73
0.450	2.20	1.450	17.08	2.450	2.92	3.45	1.73
0.467	2.20	1.467	17.08	2.467	2.92	3.47	1.73
0.483	2.20	1.483	17.08	2.483	2.92	3.48	1.73
0.500	2.20	1.500	17.08	2.500	2.92	3.50	1.73
0.517	2.41	1.517	11.78	2.517	2.76	3.52	1.68
0.533	2.41	1.533	11.77	2.533	2.76	3.53	1.68
0.550	2.41	1.550	11.77	2.550	2.76	3.55	1.68
0.567	2.41	1.567	11.77	2.567	2.76	3.57	1.68
0.583	2.41	1.583	11.77	2.583	2.76	3.58	1.68
0.600	2.68	1.600	9.02	2.600	2.61	3.60	1.63
0.617	2.68	1.617	9.02	2.617	2.61	3.62	1.63
0.633	2.68	1.633	9.02	2.633	2.61	3.63	1.63
0.650	2.68	1.650	9.02	2.650	2.61	3.65	1.63
0.667	2.68	1.667	9.02	2.667	2.61	3.67	1.63
0.683	3.02	1.683	7.34	2.683	2.48	3.68	1.58
0.700	3.02	1.700	7.34	2.700	2.48	3.70	1.58

0.717	3.02	1.717	7.34	2.717	2.48	3.72	1.58
0.733	3.02	1.733	7.34	2.733	2.48	3.73	1.58
0.750	3.02	1.750	7.34	2.750	2.48	3.75	1.58
0.767	3.47	1.767	6.21	2.767	2.36	3.77	1.54
0.783	3.47	1.783	6.21	2.783	2.36	3.78	1.54
0.800	3.47	1.800	6.21	2.800	2.36	3.80	1.54
0.817	3.47	1.817	6.21	2.817	2.36	3.82	1.54
0.833	3.47	1.833	6.21	2.833	2.36	3.83	1.54
0.850	4.11	1.850	5.40	2.850	2.25	3.85	1.50
0.867	4.11	1.867	5.40	2.867	2.25	3.87	1.50
0.883	4.11	1.883	5.40	2.883	2.25	3.88	1.50
0.900	4.11	1.900	5.40	2.900	2.25	3.90	1.50
0.917	4.11	1.917	5.40	2.917	2.25	3.92	1.50
0.933	5.09	1.933	4.79	2.933	2.16	3.93	1.46
0.950	5.09	1.950	4.79	2.950	2.16	3.95	1.46
0.967	5.09	1.967	4.79	2.967	2.16	3.97	1.46
0.983	5.09	1.983	4.79	2.983	2.16	3.98	1.46
1.000	5.09	2.000	4.79	3.000	2.16	4.00	1.46

Unit Hyd Qpeak (cms)= 0.024

PEAK FLOW (cms)= 0.000 (i)
TIME TO PEAK (hrs)= 1.350
RUNOFF VOLUME (mm)= 0.897
TOTAL RAINFALL (mm)= 24.998
RUNOFF COEFFICIENT = 0.036

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0206)	Area (ha)= 0.50
ID= 1 DT= 1.0 min	Total Imp(%)= 56.00 Dir. Conn.(%)= 0.10

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.28	0.22
Dep. Storage	(mm)=	2.00	5.93
Average Slope	(%)=	3.00	3.00
Length	(m)=	57.49	34.00
Mannings n	=	0.013	0.230

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	1.56	1.017	6.77	2.017	4.31	3.02	2.07
0.033	1.56	1.033	6.77	2.033	4.31	3.03	2.07
0.050	1.56	1.050	6.77	2.050	4.31	3.05	2.07
0.067	1.56	1.067	6.77	2.067	4.31	3.07	2.07
0.083	1.56	1.083	6.77	2.083	4.31	3.08	2.07
0.100	1.65	1.100	10.39	2.100	3.92	3.10	1.99
0.117	1.65	1.117	10.39	2.117	3.92	3.12	1.99
0.133	1.65	1.133	10.39	2.133	3.92	3.13	1.99
0.150	1.65	1.150	10.39	2.150	3.92	3.15	1.99
0.167	1.65	1.167	10.39	2.167	3.92	3.17	1.99
0.183	1.76	1.183	24.03	2.183	3.61	3.18	1.92
0.200	1.76	1.200	24.03	2.200	3.61	3.20	1.92
0.217	1.76	1.217	24.03	2.217	3.61	3.22	1.92
0.233	1.76	1.233	24.03	2.233	3.61	3.23	1.92
0.250	1.76	1.250	24.03	2.250	3.61	3.25	1.92
0.267	1.88	1.267	77.76	2.267	3.34	3.27	1.85

0.283	1.88	1.283	77.76	2.283	3.34	3.28	1.85
0.300	1.88	1.300	77.76	2.300	3.34	3.30	1.85
0.317	1.88	1.317	77.76	2.317	3.34	3.32	1.85
0.333	1.88	1.333	77.76	2.333	3.34	3.33	1.85
0.350	2.03	1.350	31.02	2.350	3.12	3.35	1.79
0.367	2.03	1.367	31.02	2.367	3.12	3.37	1.79
0.383	2.03	1.383	31.02	2.383	3.12	3.38	1.79
0.400	2.03	1.400	31.02	2.400	3.12	3.40	1.79
0.417	2.03	1.417	31.02	2.417	3.12	3.42	1.79
0.433	2.20	1.433	17.08	2.433	2.92	3.43	1.73
0.450	2.20	1.450	17.08	2.450	2.92	3.45	1.73
0.467	2.20	1.467	17.08	2.467	2.92	3.47	1.73
0.483	2.20	1.483	17.08	2.483	2.92	3.48	1.73
0.500	2.20	1.500	17.08	2.500	2.92	3.50	1.73
0.517	2.41	1.517	11.78	2.517	2.76	3.52	1.68
0.533	2.41	1.533	11.77	2.533	2.76	3.53	1.68
0.550	2.41	1.550	11.77	2.550	2.76	3.55	1.68
0.567	2.41	1.567	11.77	2.567	2.76	3.57	1.68
0.583	2.41	1.583	11.77	2.583	2.76	3.58	1.68
0.600	2.68	1.600	9.02	2.600	2.61	3.60	1.63
0.617	2.68	1.617	9.02	2.617	2.61	3.62	1.63
0.633	2.68	1.633	9.02	2.633	2.61	3.63	1.63
0.650	2.68	1.650	9.02	2.650	2.61	3.65	1.63
0.667	2.68	1.667	9.02	2.667	2.61	3.67	1.63
0.683	3.02	1.683	7.34	2.683	2.48	3.68	1.58
0.700	3.02	1.700	7.34	2.700	2.48	3.70	1.58
0.717	3.02	1.717	7.34	2.717	2.48	3.72	1.58
0.733	3.02	1.733	7.34	2.733	2.48	3.73	1.58
0.750	3.02	1.750	7.34	2.750	2.48	3.75	1.58
0.767	3.47	1.767	6.21	2.767	2.36	3.77	1.54
0.783	3.47	1.783	6.21	2.783	2.36	3.78	1.54
0.800	3.47	1.800	6.21	2.800	2.36	3.80	1.54
0.817	3.47	1.817	6.21	2.817	2.36	3.82	1.54
0.833	3.47	1.833	6.21	2.833	2.36	3.83	1.54
0.850	4.11	1.850	5.40	2.850	2.25	3.85	1.50
0.867	4.11	1.867	5.40	2.867	2.25	3.87	1.50
0.883	4.11	1.883	5.40	2.883	2.25	3.88	1.50
0.900	4.11	1.900	5.40	2.900	2.25	3.90	1.50
0.917	4.11	1.917	5.40	2.917	2.25	3.92	1.50
0.933	5.09	1.933	4.79	2.933	2.16	3.93	1.46
0.950	5.09	1.950	4.79	2.950	2.16	3.95	1.46
0.967	5.09	1.967	4.79	2.967	2.16	3.97	1.46
0.983	5.09	1.983	4.79	2.983	2.16	3.98	1.46
1.000	5.09	2.000	4.79	3.000	2.16	4.00	1.46

Max.Eff.Inten.(mm/hr)=	77.76	7.78	
over (min)	5.00	17.00	
Storage Coeff. (min)=	1.46 (ii)	16.44 (ii)	
Unit Hyd. Tpeak (min)=	5.00	17.00	
Unit Hyd. peak (cms)=	0.42	0.07	
			TOTALS
PEAK FLOW (cms)=	0.00	0.00	0.003 (iii)
TIME TO PEAK (hrs)=	1.35	1.67	1.67
RUNOFF VOLUME (mm)=	23.00	2.26	2.27
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.92	0.09	0.09

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 36.0 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.

ADD HYD (0005)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0203):	0.13	0.001	1.45	1.30
+ ID2= 2 (0204):	0.21	0.001	1.52	0.94
ID = 3 (0005):	0.34	0.001	1.48	1.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0005)					
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0005):	0.34	0.001	1.48	1.08
+ ID2= 2 (0205):	0.42	0.000	1.75	0.39
ID = 1 (0005):	0.76	0.001	1.50	0.70

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0005)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0005):	0.76	0.001	1.50	0.70
+ ID2= 2 (0206):	0.50	0.003	1.67	2.27
ID = 3 (0005):	1.26	0.004	1.62	1.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0005)					
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0005):	1.26	0.004	1.62	1.32
+ ID2= 2 (0207):	0.09	0.000	1.37	0.82
ID = 1 (0005):	1.35	0.004	1.60	1.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0005)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0005):	1.35	0.004	1.60	1.28
+ ID2= 2 (0208):	0.03	0.000	1.35	0.90
ID = 3 (0005):	1.38	0.004	1.60	1.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
STANDHYD (0202)	Area (ha)= 0.63
ID= 1 DT= 1.0 min	Total Imp(%)= 44.00 Dir. Conn.(%)= 3.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.28	0.35
Dep. Storage	(mm)=	2.00	5.37
Average Slope	(%)=	3.00	3.00
Length	(m)=	64.88	30.00
Mannings n	=	0.013	0.210

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	1.56	1.017	6.77	2.017	4.31	3.02	2.07
0.033	1.56	1.033	6.77	2.033	4.31	3.03	2.07
0.050	1.56	1.050	6.77	2.050	4.31	3.05	2.07
0.067	1.56	1.067	6.77	2.067	4.31	3.07	2.07
0.083	1.56	1.083	6.77	2.083	4.31	3.08	2.07
0.100	1.65	1.100	10.39	2.100	3.92	3.10	1.99
0.117	1.65	1.117	10.39	2.117	3.92	3.12	1.99
0.133	1.65	1.133	10.39	2.133	3.92	3.13	1.99
0.150	1.65	1.150	10.39	2.150	3.92	3.15	1.99
0.167	1.65	1.167	10.39	2.167	3.92	3.17	1.99
0.183	1.76	1.183	24.03	2.183	3.61	3.18	1.92
0.200	1.76	1.200	24.03	2.200	3.61	3.20	1.92
0.217	1.76	1.217	24.03	2.217	3.61	3.22	1.92
0.233	1.76	1.233	24.03	2.233	3.61	3.23	1.92
0.250	1.76	1.250	24.03	2.250	3.61	3.25	1.92
0.267	1.88	1.267	77.76	2.267	3.34	3.27	1.85
0.283	1.88	1.283	77.76	2.283	3.34	3.28	1.85
0.300	1.88	1.300	77.76	2.300	3.34	3.30	1.85
0.317	1.88	1.317	77.76	2.317	3.34	3.32	1.85
0.333	1.88	1.333	77.76	2.333	3.34	3.33	1.85
0.350	2.03	1.350	31.02	2.350	3.12	3.35	1.79
0.367	2.03	1.367	31.02	2.367	3.12	3.37	1.79
0.383	2.03	1.383	31.02	2.383	3.12	3.38	1.79
0.400	2.03	1.400	31.02	2.400	3.12	3.40	1.79
0.417	2.03	1.417	31.02	2.417	3.12	3.42	1.79
0.433	2.20	1.433	17.08	2.433	2.92	3.43	1.73
0.450	2.20	1.450	17.08	2.450	2.92	3.45	1.73
0.467	2.20	1.467	17.08	2.467	2.92	3.47	1.73
0.483	2.20	1.483	17.08	2.483	2.92	3.48	1.73
0.500	2.20	1.500	17.08	2.500	2.92	3.50	1.73
0.517	2.41	1.517	11.78	2.517	2.76	3.52	1.68
0.533	2.41	1.533	11.77	2.533	2.76	3.53	1.68
0.550	2.41	1.550	11.77	2.550	2.76	3.55	1.68
0.567	2.41	1.567	11.77	2.567	2.76	3.57	1.68
0.583	2.41	1.583	11.77	2.583	2.76	3.58	1.68
0.600	2.68	1.600	9.02	2.600	2.61	3.60	1.63
0.617	2.68	1.617	9.02	2.617	2.61	3.62	1.63
0.633	2.68	1.633	9.02	2.633	2.61	3.63	1.63
0.650	2.68	1.650	9.02	2.650	2.61	3.65	1.63
0.667	2.68	1.667	9.02	2.667	2.61	3.67	1.63
0.683	3.02	1.683	7.34	2.683	2.48	3.68	1.58
0.700	3.02	1.700	7.34	2.700	2.48	3.70	1.58
0.717	3.02	1.717	7.34	2.717	2.48	3.72	1.58
0.733	3.02	1.733	7.34	2.733	2.48	3.73	1.58
0.750	3.02	1.750	7.34	2.750	2.48	3.75	1.58
0.767	3.47	1.767	6.21	2.767	2.36	3.77	1.54
0.783	3.47	1.783	6.21	2.783	2.36	3.78	1.54

0.800	3.47	1.800	6.21	2.800	2.36	3.80	1.54
0.817	3.47	1.817	6.21	2.817	2.36	3.82	1.54
0.833	3.47	1.833	6.21	2.833	2.36	3.83	1.54
0.850	4.11	1.850	5.40	2.850	2.25	3.85	1.50
0.867	4.11	1.867	5.40	2.867	2.25	3.87	1.50
0.883	4.11	1.883	5.40	2.883	2.25	3.88	1.50
0.900	4.11	1.900	5.40	2.900	2.25	3.90	1.50
0.917	4.11	1.917	5.40	2.917	2.25	3.92	1.50
0.933	5.09	1.933	4.79	2.933	2.16	3.93	1.46
0.950	5.09	1.950	4.79	2.950	2.16	3.95	1.46
0.967	5.09	1.967	4.79	2.967	2.16	3.97	1.46
0.983	5.09	1.983	4.79	2.983	2.16	3.98	1.46
1.000	5.09	2.000	4.79	3.000	2.16	4.00	1.46

Max.Eff.Inten.(mm/hr)=	77.76	4.42	
over (min)	5.00	19.00	
Storage Coeff. (min)=	1.57 (ii)	18.06 (ii)	
Unit Hyd. Tpeak (min)=	5.00	19.00	
Unit Hyd. peak (cms)=	0.41	0.06	
			TOTALS
PEAK FLOW (cms)=	0.00	0.00	0.004 (iii)
TIME TO PEAK (hrs)=	1.35	1.70	1.37
RUNOFF VOLUME (mm)=	23.00	1.84	2.45
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.92	0.07	0.10

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 38.0 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.

CALIB	
STANDHYD (0201)	Area (ha)= 0.88
ID= 1 DT= 1.0 min	Total Imp(%)= 77.00 Dir. Conn.(%)= 51.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.68	0.20
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	0.50	2.00
Length	(m)=	76.61	20.00
Mannings n	=	0.013	0.190

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	1.56	1.017	6.77	2.017	4.31	3.02	2.07
0.033	1.56	1.033	6.77	2.033	4.31	3.03	2.07
0.050	1.56	1.050	6.77	2.050	4.31	3.05	2.07
0.067	1.56	1.067	6.77	2.067	4.31	3.07	2.07
0.083	1.56	1.083	6.77	2.083	4.31	3.08	2.07
0.100	1.65	1.100	10.39	2.100	3.92	3.10	1.99
0.117	1.65	1.117	10.39	2.117	3.92	3.12	1.99
0.133	1.65	1.133	10.39	2.133	3.92	3.13	1.99
0.150	1.65	1.150	10.39	2.150	3.92	3.15	1.99
0.167	1.65	1.167	10.39	2.167	3.92	3.17	1.99

0.183	1.76	1.183	24.03	2.183	3.61	3.18	1.92
0.200	1.76	1.200	24.03	2.200	3.61	3.20	1.92
0.217	1.76	1.217	24.03	2.217	3.61	3.22	1.92
0.233	1.76	1.233	24.03	2.233	3.61	3.23	1.92
0.250	1.76	1.250	24.03	2.250	3.61	3.25	1.92
0.267	1.88	1.267	77.76	2.267	3.34	3.27	1.85
0.283	1.88	1.283	77.76	2.283	3.34	3.28	1.85
0.300	1.88	1.300	77.76	2.300	3.34	3.30	1.85
0.317	1.88	1.317	77.76	2.317	3.34	3.32	1.85
0.333	1.88	1.333	77.76	2.333	3.34	3.33	1.85
0.350	2.03	1.350	31.02	2.350	3.12	3.35	1.79
0.367	2.03	1.367	31.02	2.367	3.12	3.37	1.79
0.383	2.03	1.383	31.02	2.383	3.12	3.38	1.79
0.400	2.03	1.400	31.02	2.400	3.12	3.40	1.79
0.417	2.03	1.417	31.02	2.417	3.12	3.42	1.79
0.433	2.20	1.433	17.08	2.433	2.92	3.43	1.73
0.450	2.20	1.450	17.08	2.450	2.92	3.45	1.73
0.467	2.20	1.467	17.08	2.467	2.92	3.47	1.73
0.483	2.20	1.483	17.08	2.483	2.92	3.48	1.73
0.500	2.20	1.500	17.08	2.500	2.92	3.50	1.73
0.517	2.41	1.517	11.78	2.517	2.76	3.52	1.68
0.533	2.41	1.533	11.77	2.533	2.76	3.53	1.68
0.550	2.41	1.550	11.77	2.550	2.76	3.55	1.68
0.567	2.41	1.567	11.77	2.567	2.76	3.57	1.68
0.583	2.41	1.583	11.77	2.583	2.76	3.58	1.68
0.600	2.68	1.600	9.02	2.600	2.61	3.60	1.63
0.617	2.68	1.617	9.02	2.617	2.61	3.62	1.63
0.633	2.68	1.633	9.02	2.633	2.61	3.63	1.63
0.650	2.68	1.650	9.02	2.650	2.61	3.65	1.63
0.667	2.68	1.667	9.02	2.667	2.61	3.67	1.63
0.683	3.02	1.683	7.34	2.683	2.48	3.68	1.58
0.700	3.02	1.700	7.34	2.700	2.48	3.70	1.58
0.717	3.02	1.717	7.34	2.717	2.48	3.72	1.58
0.733	3.02	1.733	7.34	2.733	2.48	3.73	1.58
0.750	3.02	1.750	7.34	2.750	2.48	3.75	1.58
0.767	3.47	1.767	6.21	2.767	2.36	3.77	1.54
0.783	3.47	1.783	6.21	2.783	2.36	3.78	1.54
0.800	3.47	1.800	6.21	2.800	2.36	3.80	1.54
0.817	3.47	1.817	6.21	2.817	2.36	3.82	1.54
0.833	3.47	1.833	6.21	2.833	2.36	3.83	1.54
0.850	4.11	1.850	5.40	2.850	2.25	3.85	1.50
0.867	4.11	1.867	5.40	2.867	2.25	3.87	1.50
0.883	4.11	1.883	5.40	2.883	2.25	3.88	1.50
0.900	4.11	1.900	5.40	2.900	2.25	3.90	1.50
0.917	4.11	1.917	5.40	2.917	2.25	3.92	1.50
0.933	5.09	1.933	4.79	2.933	2.16	3.93	1.46
0.950	5.09	1.950	4.79	2.950	2.16	3.95	1.46
0.967	5.09	1.967	4.79	2.967	2.16	3.97	1.46
0.983	5.09	1.983	4.79	2.983	2.16	3.98	1.46
1.000	5.09	2.000	4.79	3.000	2.16	4.00	1.46

Max.Eff.Inten.(mm/hr)=	77.76	9.58	
over (min)	5.00	7.00	
Storage Coeff. (min)=	2.96 (ii)	6.14 (ii)	
Unit Hyd. Tpeak (min)=	5.00	7.00	
Unit Hyd. peak (cms)=	0.31	0.18	
			TOTALS
PEAK FLOW (cms)=	0.07	0.00	0.077 (iii)
TIME TO PEAK (hrs)=	1.37	1.43	1.37
RUNOFF VOLUME (mm)=	23.00	2.45	12.93
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.92	0.10	0.52

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 39.0 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.

| CHAMBER(0010)|
|IN= 2--> OUT= 3 |
| DT= 2.0 min |

OUTFLOW: OFF, UNDERDRAIN: ON, INFIL: ON
CHAMBER:
MAX STO VOL (cu.m.)= 128.13 Bottom Area(m2) = 100.66

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1092.00	72.59
25.00	1.02	1118.00	74.39
51.00	2.04	1143.00	76.17
76.00	3.07	1168.00	77.95
102.00	4.09	1194.00	79.70
127.00	5.11	1219.00	81.45
152.00	6.13	1245.00	83.17
178.00	7.16	1270.00	84.88
203.00	8.18	1295.00	86.58
229.00	9.20	1321.00	88.25
254.00	10.22	1346.00	89.91
279.00	11.25	1372.00	91.55
305.00	12.27	1397.00	93.17
330.00	14.31	1422.00	94.77
356.00	16.34	1448.00	96.35
381.00	18.37	1473.00	97.90
406.00	20.39	1499.00	99.43
432.00	22.41	1524.00	100.93
457.00	24.43	1549.00	102.40
483.00	26.44	1575.00	103.85
508.00	28.45	1600.00	105.26
533.00	30.45	1626.00	106.63
559.00	32.44	1651.00	107.96
584.00	34.43	1676.00	109.24
610.00	36.42	1702.00	110.44
635.00	38.40	1727.00	111.57
660.00	40.37	1753.00	112.67
686.00	42.33	1778.00	113.76
711.00	44.29	1803.00	114.82
737.00	46.24	1829.00	115.86
762.00	48.18	1854.00	116.88
787.00	50.12	1880.00	117.91
813.00	52.05	1905.00	118.93
838.00	53.96	1930.00	119.95
864.00	55.87	1956.00	120.97
889.00	57.77	1981.00	122.00
914.00	59.66	2007.00	123.02
940.00	61.54	2032.00	124.04
965.00	63.41	2057.00	125.06
991.00	65.27	2083.00	126.09
1016.00	67.12	2108.00	127.11
1041.00	68.95	2134.00	128.13
1067.00	70.78	0.00	0.00

UNDERDRAIN LAYER:

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.206	0.146
0.019	0.001	0.225	0.167

```
                    0.038         0.005          |   0.244         0.188
                    0.056         0.012          |   0.262         0.208
                    0.075         0.022          |   0.281         0.226
                    0.094         0.034          |   0.300         0.242
                    0.112         0.049          |   0.319         0.256
                    0.131         0.066          |   0.337         0.264
                    0.150         0.084          |   0.356         0.266
                    0.169         0.104          |   0.375         0.248
                    0.188         0.125          |   0.000         0.000

                  NATIVE SOIL LAYER:
                  Infiltration (m/hr) = 0.0380

                       AREA          QPEAK            TPEAK          R.V.
                       (ha)          (cms)            (hrs)          (mm)
     INFLOW:ID= 2     0.88          0.077             1.37         12.93
  UNDERDRAIN:ID= 4    0.00          0.000             0.00          0.00
    OVERFLOW:ID= 3    0.00          0.000             0.00          0.00

             Volume Reduction Rate[(RVin-RVout)/RVin](%)=      100.00
             Time to reach Max storage                (Hr)=       4.08
             Volume of water for drawdown in LID (cu.m.)=      100.94
             Volume of maximum water storage     (cu.m.)=      101.38
             Calculated Drawdown Time                 (Hr)=      26.38

  --------------------------
  | Junction Command(0012) |
  --------------------------

                           AREA     QPEAK   TPEAK     R.V.
                           (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 4(  0010)    0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0012)    0.00      0.00    0.00     0.00

  ------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0004)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0012 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0004 = HYDROGRAPH 0202
       ID1= 1 (  0012):     0.00   0.000     0.00     0.00
     + ID2= 2 (  0202):     0.63   0.004     1.37     2.45
       ==================================================
       ID = 3 (  0004):     0.63   0.004     1.37     2.45

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0004):     0.63   0.004     1.37     2.45
     + ID2= 2 (  0005):     1.38   0.004     1.60     1.28
       ==================================================
       ID = 3 (  0001):     2.01   0.007     1.63     1.65

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0302)|   Area    (ha)=   1.68   Curve Number   (CN)= 27.0
```

|ID= 1 DT= 1.0 min | Ia (mm)= 9.55 # of Linear Res.(N)= 3.00
---------- U.H. Tp(hrs)= 0.28

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	1.56	1.017	6.77	2.017	4.31	3.02	2.07
0.033	1.56	1.033	6.77	2.033	4.31	3.03	2.07
0.050	1.56	1.050	6.77	2.050	4.31	3.05	2.07
0.067	1.56	1.067	6.77	2.067	4.31	3.07	2.07
0.083	1.56	1.083	6.77	2.083	4.31	3.08	2.07
0.100	1.65	1.100	10.39	2.100	3.92	3.10	1.99
0.117	1.65	1.117	10.39	2.117	3.92	3.12	1.99
0.133	1.65	1.133	10.39	2.133	3.92	3.13	1.99
0.150	1.65	1.150	10.39	2.150	3.92	3.15	1.99
0.167	1.65	1.167	10.39	2.167	3.92	3.17	1.99
0.183	1.76	1.183	24.03	2.183	3.61	3.18	1.92
0.200	1.76	1.200	24.03	2.200	3.61	3.20	1.92
0.217	1.76	1.217	24.03	2.217	3.61	3.22	1.92
0.233	1.76	1.233	24.03	2.233	3.61	3.23	1.92
0.250	1.76	1.250	24.03	2.250	3.61	3.25	1.92
0.267	1.88	1.267	77.76	2.267	3.34	3.27	1.85
0.283	1.88	1.283	77.76	2.283	3.34	3.28	1.85
0.300	1.88	1.300	77.76	2.300	3.34	3.30	1.85
0.317	1.88	1.317	77.76	2.317	3.34	3.32	1.85
0.333	1.88	1.333	77.76	2.333	3.34	3.33	1.85
0.350	2.03	1.350	31.02	2.350	3.12	3.35	1.79
0.367	2.03	1.367	31.02	2.367	3.12	3.37	1.79
0.383	2.03	1.383	31.02	2.383	3.12	3.38	1.79
0.400	2.03	1.400	31.02	2.400	3.12	3.40	1.79
0.417	2.03	1.417	31.02	2.417	3.12	3.42	1.79
0.433	2.20	1.433	17.08	2.433	2.92	3.43	1.73
0.450	2.20	1.450	17.08	2.450	2.92	3.45	1.73
0.467	2.20	1.467	17.08	2.467	2.92	3.47	1.73
0.483	2.20	1.483	17.08	2.483	2.92	3.48	1.73
0.500	2.20	1.500	17.08	2.500	2.92	3.50	1.73
0.517	2.41	1.517	11.78	2.517	2.76	3.52	1.68
0.533	2.41	1.533	11.77	2.533	2.76	3.53	1.68
0.550	2.41	1.550	11.77	2.550	2.76	3.55	1.68
0.567	2.41	1.567	11.77	2.567	2.76	3.57	1.68
0.583	2.41	1.583	11.77	2.583	2.76	3.58	1.68
0.600	2.68	1.600	9.02	2.600	2.61	3.60	1.63
0.617	2.68	1.617	9.02	2.617	2.61	3.62	1.63
0.633	2.68	1.633	9.02	2.633	2.61	3.63	1.63
0.650	2.68	1.650	9.02	2.650	2.61	3.65	1.63
0.667	2.68	1.667	9.02	2.667	2.61	3.67	1.63
0.683	3.02	1.683	7.34	2.683	2.48	3.68	1.58
0.700	3.02	1.700	7.34	2.700	2.48	3.70	1.58
0.717	3.02	1.717	7.34	2.717	2.48	3.72	1.58
0.733	3.02	1.733	7.34	2.733	2.48	3.73	1.58
0.750	3.02	1.750	7.34	2.750	2.48	3.75	1.58
0.767	3.47	1.767	6.21	2.767	2.36	3.77	1.54
0.783	3.47	1.783	6.21	2.783	2.36	3.78	1.54
0.800	3.47	1.800	6.21	2.800	2.36	3.80	1.54
0.817	3.47	1.817	6.21	2.817	2.36	3.82	1.54
0.833	3.47	1.833	6.21	2.833	2.36	3.83	1.54
0.850	4.11	1.850	5.40	2.850	2.25	3.85	1.50
0.867	4.11	1.867	5.40	2.867	2.25	3.87	1.50
0.883	4.11	1.883	5.40	2.883	2.25	3.88	1.50
0.900	4.11	1.900	5.40	2.900	2.25	3.90	1.50
0.917	4.11	1.917	5.40	2.917	2.25	3.92	1.50

0.933	5.09	1.933	4.79	2.933	2.16	3.93	1.46
0.950	5.09	1.950	4.79	2.950	2.16	3.95	1.46
0.967	5.09	1.967	4.79	2.967	2.16	3.97	1.46
0.983	5.09	1.983	4.79	2.983	2.16	3.98	1.46
1.000	5.09	2.000	4.79	3.000	2.16	4.00	1.46

Unit Hyd Qpeak (cms)= 0.229

PEAK FLOW (cms)= 0.001 (i)
TIME TO PEAK (hrs)= 1.883
RUNOFF VOLUME (mm)= 0.339
TOTAL RAINFALL (mm)= 24.998
RUNOFF COEFFICIENT = 0.014

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0003)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	2.01	0.007	1.63	1.65
+ ID2= 2 (0302):	1.68	0.001	1.88	0.34
ID = 3 (0003):	3.69	0.008	1.65	1.05

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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================================================================================
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output        filename:    C:\Users\mgallant\AppData\Local\Civica\VH5\6bb8133b-
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  Summary      filename:     C:\Users\mgallant\AppData\Local\Civica\VH5\6bb8133b-
c3b7-49cd-875d-ed11cb8c976b\02048207-e160-4631-a4c6-09d50bf11943\sce


DATE: 08-11-2022                              TIME: 04:55:44

USER:



COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------
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  ************************************************
  ** SIMULATION : Post-Dev-PF, 100yr 24hr SCS   **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\mgallant\AppD
|                  |              ata\Local\Temp\
|                  |              51905f4c-c89c-47cc-9eb9-2cfeae8d808c\804d1b39
| Ptotal=133.60 mm |    Comments: 100yr 24hr SCS Type II
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  6.08    2.40 | 12.17   19.24 | 18.25    2.40
                0.08    1.47 |  6.17    2.40 | 12.25   19.24 | 18.33    2.40
                0.17    1.47 |  6.25    2.40 | 12.33   19.24 | 18.42    2.40
                0.25    1.47 |  6.33    2.40 | 12.42   19.24 | 18.50    2.40
                0.33    1.47 |  6.42    2.40 | 12.50   19.24 | 18.58    2.40
                0.42    1.47 |  6.50    2.40 | 12.58    9.89 | 18.67    2.40
                0.50    1.47 |  6.58    2.40 | 12.67    9.89 | 18.75    2.40
                0.58    1.47 |  6.67    2.40 | 12.75    9.89 | 18.83    2.40
                0.67    1.47 |  6.75    2.40 | 12.83    9.89 | 18.92    2.40
                0.75    1.47 |  6.83    2.40 | 12.92    9.89 | 19.00    2.40
                0.83    1.47 |  6.92    2.40 | 13.00    9.89 | 19.08    2.40
                0.92    1.47 |  7.00    2.40 | 13.08    7.21 | 19.17    2.40
```

1.00	1.47	7.08	2.94	13.17	7.21	19.25	2.40
1.08	1.47	7.17	2.94	13.25	7.21	19.33	2.40
1.17	1.47	7.25	2.94	13.33	7.21	19.42	2.40
1.25	1.47	7.33	2.94	13.42	7.21	19.50	2.40
1.33	1.47	7.42	2.94	13.50	7.21	19.58	2.40
1.42	1.47	7.50	2.94	13.58	5.61	19.67	2.40
1.50	1.47	7.58	2.94	13.67	5.61	19.75	2.40
1.58	1.47	7.67	2.94	13.75	5.61	19.83	2.40
1.67	1.47	7.75	2.94	13.83	5.61	19.92	2.40
1.75	1.47	7.83	2.94	13.92	5.61	20.00	2.40
1.83	1.47	7.92	2.94	14.00	5.61	20.08	1.60
1.92	1.47	8.00	2.94	14.08	4.01	20.17	1.60
2.00	1.47	8.08	3.47	14.17	4.01	20.25	1.60
2.08	1.74	8.17	3.47	14.25	4.01	20.33	1.60
2.17	1.74	8.25	3.47	14.33	4.01	20.42	1.60
2.25	1.74	8.33	3.47	14.42	4.01	20.50	1.60
2.33	1.74	8.42	3.47	14.50	4.01	20.58	1.60
2.42	1.74	8.50	3.47	14.58	4.01	20.67	1.60
2.50	1.74	8.58	3.74	14.67	4.01	20.75	1.60
2.58	1.74	8.67	3.74	14.75	4.01	20.83	1.60
2.67	1.74	8.75	3.74	14.83	4.01	20.92	1.60
2.75	1.74	8.83	3.74	14.92	4.01	21.00	1.60
2.83	1.74	8.92	3.74	15.00	4.01	21.08	1.60
2.92	1.74	9.00	3.74	15.08	4.01	21.17	1.60
3.00	1.74	9.08	4.28	15.17	4.01	21.25	1.60
3.08	1.74	9.17	4.28	15.25	4.01	21.33	1.60
3.17	1.74	9.25	4.28	15.33	4.01	21.42	1.60
3.25	1.74	9.33	4.28	15.42	4.01	21.50	1.60
3.33	1.74	9.42	4.28	15.50	4.01	21.58	1.60
3.42	1.74	9.50	4.28	15.58	4.01	21.67	1.60
3.50	1.74	9.58	4.81	15.67	4.01	21.75	1.60
3.58	1.74	9.67	4.81	15.75	4.01	21.83	1.60
3.67	1.74	9.75	4.81	15.83	4.01	21.92	1.60
3.75	1.74	9.83	4.81	15.92	4.01	22.00	1.60
3.83	1.74	9.92	4.81	16.00	4.01	22.08	1.60
3.92	1.74	10.00	4.81	16.08	2.40	22.17	1.60
4.00	1.74	10.08	6.15	16.17	2.40	22.25	1.60
4.08	2.14	10.17	6.15	16.25	2.40	22.33	1.60
4.17	2.14	10.25	6.15	16.33	2.40	22.42	1.60
4.25	2.14	10.33	6.15	16.42	2.40	22.50	1.60
4.33	2.14	10.42	6.15	16.50	2.40	22.58	1.60
4.42	2.14	10.50	6.15	16.58	2.40	22.67	1.60
4.50	2.14	10.58	8.28	16.67	2.40	22.75	1.60
4.58	2.14	10.67	8.28	16.75	2.40	22.83	1.60
4.67	2.14	10.75	8.28	16.83	2.40	22.92	1.60
4.75	2.14	10.83	8.28	16.92	2.40	23.00	1.60
4.83	2.14	10.92	8.28	17.00	2.40	23.08	1.60
4.92	2.14	11.00	8.28	17.08	2.40	23.17	1.60
5.00	2.14	11.08	12.83	17.17	2.40	23.25	1.60
5.08	2.14	11.17	12.83	17.25	2.40	23.33	1.60
5.17	2.14	11.25	12.83	17.33	2.40	23.42	1.60
5.25	2.14	11.33	12.83	17.42	2.40	23.50	1.60
5.33	2.14	11.42	12.83	17.50	2.40	23.58	1.60
5.42	2.14	11.50	12.83	17.58	2.40	23.67	1.60
5.50	2.14	11.58	39.55	17.67	2.40	23.75	1.60
5.58	2.14	11.67	39.55	17.75	2.40	23.83	1.60
5.67	2.14	11.75	39.55	17.83	2.40	23.92	1.60
5.75	2.14	11.83	163.53	17.92	2.40	24.00	1.60
5.83	2.14	11.92	163.53	18.00	2.40		
5.92	2.14	12.00	163.53	18.08	2.40		
6.00	2.14	12.08	19.24	18.17	2.40		

CALIB			
NASHYD (0301)	Area (ha)=	6.32	Curve Number (CN)= 29.0
ID= 1 DT= 1.0 min	Ia (mm)=	9.42	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.27	

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	6.050	2.14	12.083	163.53	18.12	2.40
0.033	0.00	6.067	2.14	12.100	19.35	18.13	2.40
0.050	0.00	6.083	2.14	12.117	19.24	18.15	2.40
0.067	0.00	6.100	2.40	12.133	19.24	18.17	2.40
0.083	0.00	6.117	2.40	12.150	19.24	18.18	2.40
0.100	1.47	6.133	2.40	12.167	19.24	18.20	2.40
0.117	1.47	6.150	2.40	12.183	19.24	18.22	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.150	1.47	6.183	2.40	12.217	19.24	18.25	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.183	1.47	6.217	2.40	12.250	19.24	18.28	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.217	1.47	6.250	2.40	12.283	19.24	18.32	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.250	1.47	6.283	2.40	12.317	19.24	18.35	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.283	1.47	6.317	2.40	12.350	19.24	18.38	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.317	1.47	6.350	2.40	12.383	19.24	18.42	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.350	1.47	6.383	2.40	12.417	19.24	18.45	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.383	1.47	6.417	2.40	12.450	19.24	18.48	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.417	1.47	6.450	2.40	12.483	19.24	18.52	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.450	1.47	6.483	2.40	12.517	19.24	18.55	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.483	1.47	6.517	2.40	12.550	19.24	18.58	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.517	1.47	6.550	2.40	12.583	19.24	18.62	2.40
0.533	1.47	6.567	2.40	12.600	9.90	18.63	2.40
0.550	1.47	6.583	2.40	12.617	9.89	18.65	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.583	1.47	6.617	2.40	12.650	9.89	18.68	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.617	1.47	6.650	2.40	12.683	9.89	18.72	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.650	1.47	6.683	2.40	12.717	9.89	18.75	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.683	1.47	6.717	2.40	12.750	9.89	18.78	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.717	1.47	6.750	2.40	12.783	9.89	18.82	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.750	1.47	6.783	2.40	12.817	9.89	18.85	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.783	1.47	6.817	2.40	12.850	9.89	18.88	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.817	1.47	6.850	2.40	12.883	9.89	18.92	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.850	1.47	6.883	2.40	12.917	9.89	18.95	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40

0.883	1.47	6.917	2.40	12.950	9.89	18.98	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.917	1.47	6.950	2.40	12.983	9.89	19.02	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.950	1.47	6.983	2.40	13.017	9.89	19.05	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
0.983	1.47	7.017	2.40	13.050	9.89	19.08	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.017	1.47	7.050	2.40	13.083	9.89	19.12	2.40
1.033	1.47	7.067	2.40	13.100	7.22	19.13	2.40
1.050	1.47	7.083	2.41	13.117	7.21	19.15	2.40
1.067	1.47	7.100	2.94	13.133	7.21	19.17	2.40
1.083	1.47	7.117	2.94	13.150	7.21	19.18	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.117	1.47	7.150	2.94	13.183	7.21	19.22	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.150	1.47	7.183	2.94	13.217	7.21	19.25	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.183	1.47	7.217	2.94	13.250	7.21	19.28	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.217	1.47	7.250	2.94	13.283	7.21	19.32	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.250	1.47	7.283	2.94	13.317	7.21	19.35	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.283	1.47	7.317	2.94	13.350	7.21	19.38	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.317	1.47	7.350	2.94	13.383	7.21	19.42	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.350	1.47	7.383	2.94	13.417	7.21	19.45	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.383	1.47	7.417	2.94	13.450	7.21	19.48	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.417	1.47	7.450	2.94	13.483	7.21	19.52	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.450	1.47	7.483	2.94	13.517	7.21	19.55	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.483	1.47	7.517	2.94	13.550	7.21	19.58	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.517	1.47	7.550	2.94	13.583	7.21	19.62	2.40
1.533	1.47	7.567	2.94	13.600	5.61	19.63	2.40
1.550	1.47	7.583	2.94	13.617	5.61	19.65	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.583	1.47	7.617	2.94	13.650	5.61	19.68	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.617	1.47	7.650	2.94	13.683	5.61	19.72	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.650	1.47	7.683	2.94	13.717	5.61	19.75	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.683	1.47	7.717	2.94	13.750	5.61	19.78	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.717	1.47	7.750	2.94	13.783	5.61	19.82	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.750	1.47	7.783	2.94	13.817	5.61	19.85	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.783	1.47	7.817	2.94	13.850	5.61	19.88	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.817	1.47	7.850	2.94	13.883	5.61	19.92	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.850	1.47	7.883	2.94	13.917	5.61	19.95	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.883	1.47	7.917	2.94	13.950	5.61	19.98	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.917	1.47	7.950	2.94	13.983	5.61	20.02	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40

1.950	1.47	7.983	2.94	14.017	5.61	20.05	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
1.983	1.47	8.017	2.94	14.050	5.61	20.08	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	1.61
2.017	1.47	8.050	2.94	14.083	5.61	20.12	1.60
2.033	1.47	8.067	2.94	14.100	4.01	20.13	1.60
2.050	1.47	8.083	2.94	14.117	4.01	20.15	1.60
2.067	1.47	8.100	3.47	14.133	4.01	20.17	1.60
2.083	1.47	8.117	3.47	14.150	4.01	20.18	1.60
2.100	1.74	8.133	3.47	14.167	4.01	20.20	1.60
2.117	1.74	8.150	3.47	14.183	4.01	20.22	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.150	1.74	8.183	3.47	14.217	4.01	20.25	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.183	1.74	8.217	3.47	14.250	4.01	20.28	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.217	1.74	8.250	3.47	14.283	4.01	20.32	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.250	1.74	8.283	3.47	14.317	4.01	20.35	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.283	1.74	8.317	3.47	14.350	4.01	20.38	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.317	1.74	8.350	3.47	14.383	4.01	20.42	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.350	1.74	8.383	3.47	14.417	4.01	20.45	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.383	1.74	8.417	3.47	14.450	4.01	20.48	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.417	1.74	8.450	3.47	14.483	4.01	20.52	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.450	1.74	8.483	3.47	14.517	4.01	20.55	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.483	1.74	8.517	3.47	14.550	4.01	20.58	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.517	1.74	8.550	3.47	14.583	4.01	20.62	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.550	1.74	8.583	3.47	14.617	4.01	20.65	1.60
2.567	1.74	8.600	3.74	14.633	4.01	20.67	1.60
2.583	1.74	8.617	3.74	14.650	4.01	20.68	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.617	1.74	8.650	3.74	14.683	4.01	20.72	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.650	1.74	8.683	3.74	14.717	4.01	20.75	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.683	1.74	8.717	3.74	14.750	4.01	20.78	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.717	1.74	8.750	3.74	14.783	4.01	20.82	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.750	1.74	8.783	3.74	14.817	4.01	20.85	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.783	1.74	8.817	3.74	14.850	4.01	20.88	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.817	1.74	8.850	3.74	14.883	4.01	20.92	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.850	1.74	8.883	3.74	14.917	4.01	20.95	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.883	1.74	8.917	3.74	14.950	4.01	20.98	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.917	1.74	8.950	3.74	14.983	4.01	21.02	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.950	1.74	8.983	3.74	15.017	4.01	21.05	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
2.983	1.74	9.017	3.74	15.050	4.01	21.08	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60

3.017	1.74	9.050	3.74	15.083	4.01	21.12	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.050	1.74	9.083	3.74	15.117	4.01	21.15	1.60
3.067	1.74	9.100	4.28	15.133	4.01	21.17	1.60
3.083	1.74	9.117	4.28	15.150	4.01	21.18	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.117	1.74	9.150	4.28	15.183	4.01	21.22	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.150	1.74	9.183	4.28	15.217	4.01	21.25	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.183	1.74	9.217	4.28	15.250	4.01	21.28	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.217	1.74	9.250	4.28	15.283	4.01	21.32	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.250	1.74	9.283	4.28	15.317	4.01	21.35	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.283	1.74	9.317	4.28	15.350	4.01	21.38	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.317	1.74	9.350	4.28	15.383	4.01	21.42	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.350	1.74	9.383	4.28	15.417	4.01	21.45	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.383	1.74	9.417	4.28	15.450	4.01	21.48	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.417	1.74	9.450	4.28	15.483	4.01	21.52	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.450	1.74	9.483	4.28	15.517	4.01	21.55	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.483	1.74	9.517	4.28	15.550	4.01	21.58	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.517	1.74	9.550	4.28	15.583	4.01	21.62	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.550	1.74	9.583	4.28	15.617	4.01	21.65	1.60
3.567	1.74	9.600	4.81	15.633	4.01	21.67	1.60
3.583	1.74	9.617	4.81	15.650	4.01	21.68	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.617	1.74	9.650	4.81	15.683	4.01	21.72	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.650	1.74	9.683	4.81	15.717	4.01	21.75	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.683	1.74	9.717	4.81	15.750	4.01	21.78	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.717	1.74	9.750	4.81	15.783	4.01	21.82	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.750	1.74	9.783	4.81	15.817	4.01	21.85	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.783	1.74	9.817	4.81	15.850	4.01	21.88	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.817	1.74	9.850	4.81	15.883	4.01	21.92	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.850	1.74	9.883	4.81	15.917	4.01	21.95	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.883	1.74	9.917	4.81	15.950	4.01	21.98	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.917	1.74	9.950	4.81	15.983	4.01	22.02	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.950	1.74	9.983	4.81	16.017	4.01	22.05	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
3.983	1.74	10.017	4.81	16.050	4.01	22.08	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.017	1.74	10.050	4.81	16.083	4.01	22.12	1.60
4.033	1.74	10.067	4.81	16.100	2.41	22.13	1.60
4.050	1.74	10.083	4.81	16.117	2.40	22.15	1.60
4.067	1.74	10.100	6.15	16.133	2.40	22.17	1.60

4.083	1.74	10.117	6.15	16.150	2.40	22.18	1.60
4.100	2.14	10.133	6.15	16.167	2.40	22.20	1.60
4.117	2.14	10.150	6.15	16.183	2.40	22.22	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.150	2.14	10.183	6.15	16.217	2.40	22.25	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.183	2.14	10.217	6.15	16.250	2.40	22.28	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.217	2.14	10.250	6.15	16.283	2.40	22.32	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.250	2.14	10.283	6.15	16.317	2.40	22.35	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.283	2.14	10.317	6.15	16.350	2.40	22.38	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.317	2.14	10.350	6.15	16.383	2.40	22.42	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.350	2.14	10.383	6.15	16.417	2.40	22.45	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.383	2.14	10.417	6.15	16.450	2.40	22.48	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.417	2.14	10.450	6.15	16.483	2.40	22.52	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.450	2.14	10.483	6.15	16.517	2.40	22.55	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.483	2.14	10.517	6.15	16.550	2.40	22.58	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.517	2.14	10.550	6.15	16.583	2.40	22.62	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.550	2.14	10.583	6.15	16.617	2.40	22.65	1.60
4.567	2.14	10.600	8.28	16.633	2.40	22.67	1.60
4.583	2.14	10.617	8.28	16.650	2.40	22.68	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.617	2.14	10.650	8.28	16.683	2.40	22.72	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.650	2.14	10.683	8.28	16.717	2.40	22.75	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.683	2.14	10.717	8.28	16.750	2.40	22.78	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.717	2.14	10.750	8.28	16.783	2.40	22.82	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.750	2.14	10.783	8.28	16.817	2.40	22.85	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.783	2.14	10.817	8.28	16.850	2.40	22.88	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.817	2.14	10.850	8.28	16.883	2.40	22.92	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.850	2.14	10.883	8.28	16.917	2.40	22.95	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.883	2.14	10.917	8.28	16.950	2.40	22.98	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.917	2.14	10.950	8.28	16.983	2.40	23.02	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.950	2.14	10.983	8.28	17.017	2.40	23.05	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
4.983	2.14	11.017	8.28	17.050	2.40	23.08	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.017	2.14	11.050	8.28	17.083	2.40	23.12	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.050	2.14	11.083	8.28	17.117	2.40	23.15	1.60
5.067	2.14	11.100	12.83	17.133	2.40	23.17	1.60
5.083	2.14	11.117	12.83	17.150	2.40	23.18	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.117	2.14	11.150	12.83	17.183	2.40	23.22	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60

5.150	2.14	11.183	12.83	17.217	2.40	23.25	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.183	2.14	11.217	12.83	17.250	2.40	23.28	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.217	2.14	11.250	12.83	17.283	2.40	23.32	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.250	2.14	11.283	12.83	17.317	2.40	23.35	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.283	2.14	11.317	12.83	17.350	2.40	23.38	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.317	2.14	11.350	12.83	17.383	2.40	23.42	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.350	2.14	11.383	12.83	17.417	2.40	23.45	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.383	2.14	11.417	12.83	17.450	2.40	23.48	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.417	2.14	11.450	12.83	17.483	2.40	23.52	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.450	2.14	11.483	12.83	17.517	2.40	23.55	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.483	2.14	11.517	12.83	17.550	2.40	23.58	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.517	2.14	11.550	12.83	17.583	2.40	23.62	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.550	2.14	11.583	12.83	17.617	2.40	23.65	1.60
5.567	2.14	11.600	39.54	17.633	2.40	23.67	1.60
5.583	2.14	11.617	39.55	17.650	2.40	23.68	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.617	2.14	11.650	39.55	17.683	2.40	23.72	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.650	2.14	11.683	39.54	17.717	2.40	23.75	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.683	2.14	11.717	39.55	17.750	2.40	23.78	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.717	2.14	11.750	39.55	17.783	2.40	23.82	1.60
5.733	2.14	11.767	39.54	17.800	2.40	23.83	1.60
5.750	2.14	11.783	39.55	17.817	2.40	23.85	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.783	2.14	11.817	39.55	17.850	2.40	23.88	1.60
5.800	2.14	11.833	39.55	17.867	2.40	23.90	1.60
5.817	2.14	11.850	163.45	17.883	2.40	23.92	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.850	2.14	11.883	163.53	17.917	2.40	23.95	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.883	2.14	11.917	163.53	17.950	2.40	23.98	1.60
5.900	2.14	11.933	163.52	17.967	2.40	24.00	1.60
5.917	2.14	11.950	163.53	17.983	2.40	24.02	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.950	2.14	11.983	163.53	18.017	2.40	24.05	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
5.983	2.14	12.017	163.52	18.050	2.40	24.08	1.60
6.000	2.14	12.033	163.53	18.067	2.40		
6.017	2.14	12.050	163.53	18.083	2.40		
6.033	2.14	12.067	163.53	18.100	2.40		

Unit Hyd Qpeak (cms)= 0.894

PEAK FLOW (cms)= 0.253 (i)
TIME TO PEAK (hrs)= 12.267
RUNOFF VOLUME (mm)= 16.111
TOTAL RAINFALL (mm)= 133.601
RUNOFF COEFFICIENT = 0.121

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB              |
| NASHYD   (  0303)|   Area    (ha)=   0.33   Curve Number   (CN)= 25.0
|ID= 1 DT= 1.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.25

        NOTE:  RAINFALL WAS TRANSFORMED TO   1.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	6.050	2.14	12.083	163.53	18.12	2.40
0.033	0.00	6.067	2.14	12.100	19.35	18.13	2.40
0.050	0.00	6.083	2.14	12.117	19.24	18.15	2.40
0.067	0.00	6.100	2.40	12.133	19.24	18.17	2.40
0.083	0.00	6.117	2.40	12.150	19.24	18.18	2.40
0.100	1.47	6.133	2.40	12.167	19.24	18.20	2.40
0.117	1.47	6.150	2.40	12.183	19.24	18.22	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.150	1.47	6.183	2.40	12.217	19.24	18.25	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.183	1.47	6.217	2.40	12.250	19.24	18.28	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.217	1.47	6.250	2.40	12.283	19.24	18.32	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.250	1.47	6.283	2.40	12.317	19.24	18.35	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.283	1.47	6.317	2.40	12.350	19.24	18.38	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.317	1.47	6.350	2.40	12.383	19.24	18.42	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.350	1.47	6.383	2.40	12.417	19.24	18.45	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.383	1.47	6.417	2.40	12.450	19.24	18.48	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.417	1.47	6.450	2.40	12.483	19.24	18.52	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.450	1.47	6.483	2.40	12.517	19.24	18.55	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.483	1.47	6.517	2.40	12.550	19.24	18.58	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.517	1.47	6.550	2.40	12.583	19.24	18.62	2.40
0.533	1.47	6.567	2.40	12.600	9.90	18.63	2.40
0.550	1.47	6.583	2.40	12.617	9.89	18.65	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.583	1.47	6.617	2.40	12.650	9.89	18.68	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.617	1.47	6.650	2.40	12.683	9.89	18.72	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.650	1.47	6.683	2.40	12.717	9.89	18.75	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.683	1.47	6.717	2.40	12.750	9.89	18.78	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.717	1.47	6.750	2.40	12.783	9.89	18.82	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.750	1.47	6.783	2.40	12.817	9.89	18.85	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.783	1.47	6.817	2.40	12.850	9.89	18.88	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.817	1.47	6.850	2.40	12.883	9.89	18.92	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40

0.850	1.47	6.883	2.40	12.917	9.89	18.95	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.883	1.47	6.917	2.40	12.950	9.89	18.98	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.917	1.47	6.950	2.40	12.983	9.89	19.02	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.950	1.47	6.983	2.40	13.017	9.89	19.05	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
0.983	1.47	7.017	2.40	13.050	9.89	19.08	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.017	1.47	7.050	2.40	13.083	9.89	19.12	2.40
1.033	1.47	7.067	2.40	13.100	7.22	19.13	2.40
1.050	1.47	7.083	2.41	13.117	7.21	19.15	2.40
1.067	1.47	7.100	2.94	13.133	7.21	19.17	2.40
1.083	1.47	7.117	2.94	13.150	7.21	19.18	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.117	1.47	7.150	2.94	13.183	7.21	19.22	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.150	1.47	7.183	2.94	13.217	7.21	19.25	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.183	1.47	7.217	2.94	13.250	7.21	19.28	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.217	1.47	7.250	2.94	13.283	7.21	19.32	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.250	1.47	7.283	2.94	13.317	7.21	19.35	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.283	1.47	7.317	2.94	13.350	7.21	19.38	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.317	1.47	7.350	2.94	13.383	7.21	19.42	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.350	1.47	7.383	2.94	13.417	7.21	19.45	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.383	1.47	7.417	2.94	13.450	7.21	19.48	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.417	1.47	7.450	2.94	13.483	7.21	19.52	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.450	1.47	7.483	2.94	13.517	7.21	19.55	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.483	1.47	7.517	2.94	13.550	7.21	19.58	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.517	1.47	7.550	2.94	13.583	7.21	19.62	2.40
1.533	1.47	7.567	2.94	13.600	5.61	19.63	2.40
1.550	1.47	7.583	2.94	13.617	5.61	19.65	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.583	1.47	7.617	2.94	13.650	5.61	19.68	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.617	1.47	7.650	2.94	13.683	5.61	19.72	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.650	1.47	7.683	2.94	13.717	5.61	19.75	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.683	1.47	7.717	2.94	13.750	5.61	19.78	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.717	1.47	7.750	2.94	13.783	5.61	19.82	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.750	1.47	7.783	2.94	13.817	5.61	19.85	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.783	1.47	7.817	2.94	13.850	5.61	19.88	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.817	1.47	7.850	2.94	13.883	5.61	19.92	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.850	1.47	7.883	2.94	13.917	5.61	19.95	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.883	1.47	7.917	2.94	13.950	5.61	19.98	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40

1.917	1.47	7.950	2.94	13.983	5.61	20.02	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.950	1.47	7.983	2.94	14.017	5.61	20.05	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
1.983	1.47	8.017	2.94	14.050	5.61	20.08	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	1.61
2.017	1.47	8.050	2.94	14.083	5.61	20.12	1.60
2.033	1.47	8.067	2.94	14.100	4.01	20.13	1.60
2.050	1.47	8.083	2.94	14.117	4.01	20.15	1.60
2.067	1.47	8.100	3.47	14.133	4.01	20.17	1.60
2.083	1.47	8.117	3.47	14.150	4.01	20.18	1.60
2.100	1.74	8.133	3.47	14.167	4.01	20.20	1.60
2.117	1.74	8.150	3.47	14.183	4.01	20.22	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.150	1.74	8.183	3.47	14.217	4.01	20.25	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.183	1.74	8.217	3.47	14.250	4.01	20.28	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.217	1.74	8.250	3.47	14.283	4.01	20.32	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.250	1.74	8.283	3.47	14.317	4.01	20.35	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.283	1.74	8.317	3.47	14.350	4.01	20.38	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.317	1.74	8.350	3.47	14.383	4.01	20.42	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.350	1.74	8.383	3.47	14.417	4.01	20.45	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.383	1.74	8.417	3.47	14.450	4.01	20.48	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.417	1.74	8.450	3.47	14.483	4.01	20.52	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.450	1.74	8.483	3.47	14.517	4.01	20.55	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.483	1.74	8.517	3.47	14.550	4.01	20.58	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.517	1.74	8.550	3.47	14.583	4.01	20.62	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.550	1.74	8.583	3.47	14.617	4.01	20.65	1.60
2.567	1.74	8.600	3.74	14.633	4.01	20.67	1.60
2.583	1.74	8.617	3.74	14.650	4.01	20.68	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.617	1.74	8.650	3.74	14.683	4.01	20.72	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.650	1.74	8.683	3.74	14.717	4.01	20.75	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.683	1.74	8.717	3.74	14.750	4.01	20.78	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.717	1.74	8.750	3.74	14.783	4.01	20.82	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.750	1.74	8.783	3.74	14.817	4.01	20.85	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.783	1.74	8.817	3.74	14.850	4.01	20.88	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.817	1.74	8.850	3.74	14.883	4.01	20.92	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.850	1.74	8.883	3.74	14.917	4.01	20.95	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.883	1.74	8.917	3.74	14.950	4.01	20.98	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.917	1.74	8.950	3.74	14.983	4.01	21.02	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.950	1.74	8.983	3.74	15.017	4.01	21.05	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60

2.983	1.74	9.017	3.74	15.050	4.01	21.08	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.017	1.74	9.050	3.74	15.083	4.01	21.12	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.050	1.74	9.083	3.74	15.117	4.01	21.15	1.60
3.067	1.74	9.100	4.28	15.133	4.01	21.17	1.60
3.083	1.74	9.117	4.28	15.150	4.01	21.18	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.117	1.74	9.150	4.28	15.183	4.01	21.22	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.150	1.74	9.183	4.28	15.217	4.01	21.25	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.183	1.74	9.217	4.28	15.250	4.01	21.28	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.217	1.74	9.250	4.28	15.283	4.01	21.32	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.250	1.74	9.283	4.28	15.317	4.01	21.35	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.283	1.74	9.317	4.28	15.350	4.01	21.38	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.317	1.74	9.350	4.28	15.383	4.01	21.42	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.350	1.74	9.383	4.28	15.417	4.01	21.45	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.383	1.74	9.417	4.28	15.450	4.01	21.48	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.417	1.74	9.450	4.28	15.483	4.01	21.52	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.450	1.74	9.483	4.28	15.517	4.01	21.55	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.483	1.74	9.517	4.28	15.550	4.01	21.58	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.517	1.74	9.550	4.28	15.583	4.01	21.62	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.550	1.74	9.583	4.28	15.617	4.01	21.65	1.60
3.567	1.74	9.600	4.81	15.633	4.01	21.67	1.60
3.583	1.74	9.617	4.81	15.650	4.01	21.68	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.617	1.74	9.650	4.81	15.683	4.01	21.72	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.650	1.74	9.683	4.81	15.717	4.01	21.75	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.683	1.74	9.717	4.81	15.750	4.01	21.78	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.717	1.74	9.750	4.81	15.783	4.01	21.82	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.750	1.74	9.783	4.81	15.817	4.01	21.85	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.783	1.74	9.817	4.81	15.850	4.01	21.88	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.817	1.74	9.850	4.81	15.883	4.01	21.92	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.850	1.74	9.883	4.81	15.917	4.01	21.95	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.883	1.74	9.917	4.81	15.950	4.01	21.98	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.917	1.74	9.950	4.81	15.983	4.01	22.02	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.950	1.74	9.983	4.81	16.017	4.01	22.05	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
3.983	1.74	10.017	4.81	16.050	4.01	22.08	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.017	1.74	10.050	4.81	16.083	4.01	22.12	1.60
4.033	1.74	10.067	4.81	16.100	2.41	22.13	1.60

4.050	1.74	10.083	4.81	16.117	2.40	22.15	1.60
4.067	1.74	10.100	6.15	16.133	2.40	22.17	1.60
4.083	1.74	10.117	6.15	16.150	2.40	22.18	1.60
4.100	2.14	10.133	6.15	16.167	2.40	22.20	1.60
4.117	2.14	10.150	6.15	16.183	2.40	22.22	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.150	2.14	10.183	6.15	16.217	2.40	22.25	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.183	2.14	10.217	6.15	16.250	2.40	22.28	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.217	2.14	10.250	6.15	16.283	2.40	22.32	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.250	2.14	10.283	6.15	16.317	2.40	22.35	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.283	2.14	10.317	6.15	16.350	2.40	22.38	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.317	2.14	10.350	6.15	16.383	2.40	22.42	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.350	2.14	10.383	6.15	16.417	2.40	22.45	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.383	2.14	10.417	6.15	16.450	2.40	22.48	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.417	2.14	10.450	6.15	16.483	2.40	22.52	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.450	2.14	10.483	6.15	16.517	2.40	22.55	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.483	2.14	10.517	6.15	16.550	2.40	22.58	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.517	2.14	10.550	6.15	16.583	2.40	22.62	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.550	2.14	10.583	6.15	16.617	2.40	22.65	1.60
4.567	2.14	10.600	8.28	16.633	2.40	22.67	1.60
4.583	2.14	10.617	8.28	16.650	2.40	22.68	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.617	2.14	10.650	8.28	16.683	2.40	22.72	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.650	2.14	10.683	8.28	16.717	2.40	22.75	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.683	2.14	10.717	8.28	16.750	2.40	22.78	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.717	2.14	10.750	8.28	16.783	2.40	22.82	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.750	2.14	10.783	8.28	16.817	2.40	22.85	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.783	2.14	10.817	8.28	16.850	2.40	22.88	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.817	2.14	10.850	8.28	16.883	2.40	22.92	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.850	2.14	10.883	8.28	16.917	2.40	22.95	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.883	2.14	10.917	8.28	16.950	2.40	22.98	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.917	2.14	10.950	8.28	16.983	2.40	23.02	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.950	2.14	10.983	8.28	17.017	2.40	23.05	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
4.983	2.14	11.017	8.28	17.050	2.40	23.08	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.017	2.14	11.050	8.28	17.083	2.40	23.12	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.050	2.14	11.083	8.28	17.117	2.40	23.15	1.60
5.067	2.14	11.100	12.83	17.133	2.40	23.17	1.60
5.083	2.14	11.117	12.83	17.150	2.40	23.18	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60

5.117	2.14	11.150	12.83	17.183	2.40	23.22	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.150	2.14	11.183	12.83	17.217	2.40	23.25	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.183	2.14	11.217	12.83	17.250	2.40	23.28	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.217	2.14	11.250	12.83	17.283	2.40	23.32	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.250	2.14	11.283	12.83	17.317	2.40	23.35	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.283	2.14	11.317	12.83	17.350	2.40	23.38	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.317	2.14	11.350	12.83	17.383	2.40	23.42	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.350	2.14	11.383	12.83	17.417	2.40	23.45	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.383	2.14	11.417	12.83	17.450	2.40	23.48	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.417	2.14	11.450	12.83	17.483	2.40	23.52	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.450	2.14	11.483	12.83	17.517	2.40	23.55	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.483	2.14	11.517	12.83	17.550	2.40	23.58	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.517	2.14	11.550	12.83	17.583	2.40	23.62	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.550	2.14	11.583	12.83	17.617	2.40	23.65	1.60
5.567	2.14	11.600	39.54	17.633	2.40	23.67	1.60
5.583	2.14	11.617	39.55	17.650	2.40	23.68	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.617	2.14	11.650	39.55	17.683	2.40	23.72	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.650	2.14	11.683	39.54	17.717	2.40	23.75	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.683	2.14	11.717	39.55	17.750	2.40	23.78	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.717	2.14	11.750	39.55	17.783	2.40	23.82	1.60
5.733	2.14	11.767	39.54	17.800	2.40	23.83	1.60
5.750	2.14	11.783	39.55	17.817	2.40	23.85	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.783	2.14	11.817	39.55	17.850	2.40	23.88	1.60
5.800	2.14	11.833	39.55	17.867	2.40	23.90	1.60
5.817	2.14	11.850	163.45	17.883	2.40	23.92	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.850	2.14	11.883	163.53	17.917	2.40	23.95	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.883	2.14	11.917	163.53	17.950	2.40	23.98	1.60
5.900	2.14	11.933	163.52	17.967	2.40	24.00	1.60
5.917	2.14	11.950	163.53	17.983	2.40	24.02	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.950	2.14	11.983	163.53	18.017	2.40	24.05	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
5.983	2.14	12.017	163.52	18.050	2.40	24.08	1.60
6.000	2.14	12.033	163.53	18.067	2.40		
6.017	2.14	12.050	163.53	18.083	2.40		
6.033	2.14	12.067	163.53	18.100	2.40		

Unit Hyd Qpeak (cms)= 0.050

PEAK FLOW (cms)= 0.012 (i)
TIME TO PEAK (hrs)= 12.233
RUNOFF VOLUME (mm)= 13.403
TOTAL RAINFALL (mm)= 133.601
RUNOFF COEFFICIENT = 0.100

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0002)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0301):	6.32	0.253	12.27	16.11
	+ ID2= 2 (0303):	0.33	0.012	12.23	13.40
	ID = 3 (0002):	6.65	0.265	12.27	20.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0205)	Area (ha)= 0.42	Curve Number (CN)= 28.0
ID= 1 DT= 1.0 min	Ia (mm)= 8.86	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.22	

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	6.050	2.14	12.083	163.53	18.12	2.40
0.033	0.00	6.067	2.14	12.100	19.35	18.13	2.40
0.050	0.00	6.083	2.14	12.117	19.24	18.15	2.40
0.067	0.00	6.100	2.40	12.133	19.24	18.17	2.40
0.083	0.00	6.117	2.40	12.150	19.24	18.18	2.40
0.100	1.47	6.133	2.40	12.167	19.24	18.20	2.40
0.117	1.47	6.150	2.40	12.183	19.24	18.22	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.150	1.47	6.183	2.40	12.217	19.24	18.25	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.183	1.47	6.217	2.40	12.250	19.24	18.28	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.217	1.47	6.250	2.40	12.283	19.24	18.32	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.250	1.47	6.283	2.40	12.317	19.24	18.35	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.283	1.47	6.317	2.40	12.350	19.24	18.38	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.317	1.47	6.350	2.40	12.383	19.24	18.42	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.350	1.47	6.383	2.40	12.417	19.24	18.45	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.383	1.47	6.417	2.40	12.450	19.24	18.48	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.417	1.47	6.450	2.40	12.483	19.24	18.52	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.450	1.47	6.483	2.40	12.517	19.24	18.55	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.483	1.47	6.517	2.40	12.550	19.24	18.58	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.517	1.47	6.550	2.40	12.583	19.24	18.62	2.40
0.533	1.47	6.567	2.40	12.600	9.90	18.63	2.40
0.550	1.47	6.583	2.40	12.617	9.89	18.65	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.583	1.47	6.617	2.40	12.650	9.89	18.68	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40

0.617	1.47	6.650	2.40	12.683	9.89	18.72	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.650	1.47	6.683	2.40	12.717	9.89	18.75	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.683	1.47	6.717	2.40	12.750	9.89	18.78	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.717	1.47	6.750	2.40	12.783	9.89	18.82	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.750	1.47	6.783	2.40	12.817	9.89	18.85	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.783	1.47	6.817	2.40	12.850	9.89	18.88	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.817	1.47	6.850	2.40	12.883	9.89	18.92	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.850	1.47	6.883	2.40	12.917	9.89	18.95	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.883	1.47	6.917	2.40	12.950	9.89	18.98	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.917	1.47	6.950	2.40	12.983	9.89	19.02	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.950	1.47	6.983	2.40	13.017	9.89	19.05	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
0.983	1.47	7.017	2.40	13.050	9.89	19.08	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.017	1.47	7.050	2.40	13.083	9.89	19.12	2.40
1.033	1.47	7.067	2.40	13.100	7.22	19.13	2.40
1.050	1.47	7.083	2.41	13.117	7.21	19.15	2.40
1.067	1.47	7.100	2.94	13.133	7.21	19.17	2.40
1.083	1.47	7.117	2.94	13.150	7.21	19.18	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.117	1.47	7.150	2.94	13.183	7.21	19.22	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.150	1.47	7.183	2.94	13.217	7.21	19.25	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.183	1.47	7.217	2.94	13.250	7.21	19.28	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.217	1.47	7.250	2.94	13.283	7.21	19.32	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.250	1.47	7.283	2.94	13.317	7.21	19.35	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.283	1.47	7.317	2.94	13.350	7.21	19.38	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.317	1.47	7.350	2.94	13.383	7.21	19.42	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.350	1.47	7.383	2.94	13.417	7.21	19.45	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.383	1.47	7.417	2.94	13.450	7.21	19.48	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.417	1.47	7.450	2.94	13.483	7.21	19.52	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.450	1.47	7.483	2.94	13.517	7.21	19.55	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.483	1.47	7.517	2.94	13.550	7.21	19.58	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.517	1.47	7.550	2.94	13.583	7.21	19.62	2.40
1.533	1.47	7.567	2.94	13.600	5.61	19.63	2.40
1.550	1.47	7.583	2.94	13.617	5.61	19.65	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.583	1.47	7.617	2.94	13.650	5.61	19.68	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.617	1.47	7.650	2.94	13.683	5.61	19.72	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.650	1.47	7.683	2.94	13.717	5.61	19.75	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40

1.683	1.47	7.717	2.94	13.750	5.61	19.78	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.717	1.47	7.750	2.94	13.783	5.61	19.82	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.750	1.47	7.783	2.94	13.817	5.61	19.85	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.783	1.47	7.817	2.94	13.850	5.61	19.88	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.817	1.47	7.850	2.94	13.883	5.61	19.92	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.850	1.47	7.883	2.94	13.917	5.61	19.95	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.883	1.47	7.917	2.94	13.950	5.61	19.98	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.917	1.47	7.950	2.94	13.983	5.61	20.02	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.950	1.47	7.983	2.94	14.017	5.61	20.05	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
1.983	1.47	8.017	2.94	14.050	5.61	20.08	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	1.61
2.017	1.47	8.050	2.94	14.083	5.61	20.12	1.60
2.033	1.47	8.067	2.94	14.100	4.01	20.13	1.60
2.050	1.47	8.083	2.94	14.117	4.01	20.15	1.60
2.067	1.47	8.100	3.47	14.133	4.01	20.17	1.60
2.083	1.47	8.117	3.47	14.150	4.01	20.18	1.60
2.100	1.74	8.133	3.47	14.167	4.01	20.20	1.60
2.117	1.74	8.150	3.47	14.183	4.01	20.22	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.150	1.74	8.183	3.47	14.217	4.01	20.25	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.183	1.74	8.217	3.47	14.250	4.01	20.28	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.217	1.74	8.250	3.47	14.283	4.01	20.32	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.250	1.74	8.283	3.47	14.317	4.01	20.35	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.283	1.74	8.317	3.47	14.350	4.01	20.38	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.317	1.74	8.350	3.47	14.383	4.01	20.42	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.350	1.74	8.383	3.47	14.417	4.01	20.45	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.383	1.74	8.417	3.47	14.450	4.01	20.48	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.417	1.74	8.450	3.47	14.483	4.01	20.52	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.450	1.74	8.483	3.47	14.517	4.01	20.55	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.483	1.74	8.517	3.47	14.550	4.01	20.58	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.517	1.74	8.550	3.47	14.583	4.01	20.62	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.550	1.74	8.583	3.47	14.617	4.01	20.65	1.60
2.567	1.74	8.600	3.74	14.633	4.01	20.67	1.60
2.583	1.74	8.617	3.74	14.650	4.01	20.68	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.617	1.74	8.650	3.74	14.683	4.01	20.72	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.650	1.74	8.683	3.74	14.717	4.01	20.75	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.683	1.74	8.717	3.74	14.750	4.01	20.78	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.717	1.74	8.750	3.74	14.783	4.01	20.82	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60

2.750	1.74	8.783	3.74	14.817	4.01	20.85	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.783	1.74	8.817	3.74	14.850	4.01	20.88	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.817	1.74	8.850	3.74	14.883	4.01	20.92	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.850	1.74	8.883	3.74	14.917	4.01	20.95	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.883	1.74	8.917	3.74	14.950	4.01	20.98	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.917	1.74	8.950	3.74	14.983	4.01	21.02	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.950	1.74	8.983	3.74	15.017	4.01	21.05	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
2.983	1.74	9.017	3.74	15.050	4.01	21.08	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.017	1.74	9.050	3.74	15.083	4.01	21.12	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.050	1.74	9.083	3.74	15.117	4.01	21.15	1.60
3.067	1.74	9.100	4.28	15.133	4.01	21.17	1.60
3.083	1.74	9.117	4.28	15.150	4.01	21.18	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.117	1.74	9.150	4.28	15.183	4.01	21.22	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.150	1.74	9.183	4.28	15.217	4.01	21.25	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.183	1.74	9.217	4.28	15.250	4.01	21.28	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.217	1.74	9.250	4.28	15.283	4.01	21.32	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.250	1.74	9.283	4.28	15.317	4.01	21.35	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.283	1.74	9.317	4.28	15.350	4.01	21.38	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.317	1.74	9.350	4.28	15.383	4.01	21.42	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.350	1.74	9.383	4.28	15.417	4.01	21.45	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.383	1.74	9.417	4.28	15.450	4.01	21.48	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.417	1.74	9.450	4.28	15.483	4.01	21.52	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.450	1.74	9.483	4.28	15.517	4.01	21.55	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.483	1.74	9.517	4.28	15.550	4.01	21.58	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.517	1.74	9.550	4.28	15.583	4.01	21.62	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.550	1.74	9.583	4.28	15.617	4.01	21.65	1.60
3.567	1.74	9.600	4.81	15.633	4.01	21.67	1.60
3.583	1.74	9.617	4.81	15.650	4.01	21.68	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.617	1.74	9.650	4.81	15.683	4.01	21.72	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.650	1.74	9.683	4.81	15.717	4.01	21.75	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.683	1.74	9.717	4.81	15.750	4.01	21.78	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.717	1.74	9.750	4.81	15.783	4.01	21.82	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.750	1.74	9.783	4.81	15.817	4.01	21.85	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.783	1.74	9.817	4.81	15.850	4.01	21.88	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60

3.817	1.74	9.850	4.81	15.883	4.01	21.92	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.850	1.74	9.883	4.81	15.917	4.01	21.95	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.883	1.74	9.917	4.81	15.950	4.01	21.98	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.917	1.74	9.950	4.81	15.983	4.01	22.02	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.950	1.74	9.983	4.81	16.017	4.01	22.05	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
3.983	1.74	10.017	4.81	16.050	4.01	22.08	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.017	1.74	10.050	4.81	16.083	4.01	22.12	1.60
4.033	1.74	10.067	4.81	16.100	2.41	22.13	1.60
4.050	1.74	10.083	4.81	16.117	2.40	22.15	1.60
4.067	1.74	10.100	6.15	16.133	2.40	22.17	1.60
4.083	1.74	10.117	6.15	16.150	2.40	22.18	1.60
4.100	2.14	10.133	6.15	16.167	2.40	22.20	1.60
4.117	2.14	10.150	6.15	16.183	2.40	22.22	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.150	2.14	10.183	6.15	16.217	2.40	22.25	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.183	2.14	10.217	6.15	16.250	2.40	22.28	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.217	2.14	10.250	6.15	16.283	2.40	22.32	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.250	2.14	10.283	6.15	16.317	2.40	22.35	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.283	2.14	10.317	6.15	16.350	2.40	22.38	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.317	2.14	10.350	6.15	16.383	2.40	22.42	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.350	2.14	10.383	6.15	16.417	2.40	22.45	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.383	2.14	10.417	6.15	16.450	2.40	22.48	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.417	2.14	10.450	6.15	16.483	2.40	22.52	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.450	2.14	10.483	6.15	16.517	2.40	22.55	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.483	2.14	10.517	6.15	16.550	2.40	22.58	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.517	2.14	10.550	6.15	16.583	2.40	22.62	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.550	2.14	10.583	6.15	16.617	2.40	22.65	1.60
4.567	2.14	10.600	8.28	16.633	2.40	22.67	1.60
4.583	2.14	10.617	8.28	16.650	2.40	22.68	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.617	2.14	10.650	8.28	16.683	2.40	22.72	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.650	2.14	10.683	8.28	16.717	2.40	22.75	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.683	2.14	10.717	8.28	16.750	2.40	22.78	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.717	2.14	10.750	8.28	16.783	2.40	22.82	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.750	2.14	10.783	8.28	16.817	2.40	22.85	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.783	2.14	10.817	8.28	16.850	2.40	22.88	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.817	2.14	10.850	8.28	16.883	2.40	22.92	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.850	2.14	10.883	8.28	16.917	2.40	22.95	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60

4.883	2.14	10.917	8.28	16.950	2.40	22.98	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.917	2.14	10.950	8.28	16.983	2.40	23.02	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.950	2.14	10.983	8.28	17.017	2.40	23.05	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
4.983	2.14	11.017	8.28	17.050	2.40	23.08	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.017	2.14	11.050	8.28	17.083	2.40	23.12	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.050	2.14	11.083	8.28	17.117	2.40	23.15	1.60
5.067	2.14	11.100	12.83	17.133	2.40	23.17	1.60
5.083	2.14	11.117	12.83	17.150	2.40	23.18	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.117	2.14	11.150	12.83	17.183	2.40	23.22	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.150	2.14	11.183	12.83	17.217	2.40	23.25	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.183	2.14	11.217	12.83	17.250	2.40	23.28	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.217	2.14	11.250	12.83	17.283	2.40	23.32	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.250	2.14	11.283	12.83	17.317	2.40	23.35	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.283	2.14	11.317	12.83	17.350	2.40	23.38	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.317	2.14	11.350	12.83	17.383	2.40	23.42	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.350	2.14	11.383	12.83	17.417	2.40	23.45	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.383	2.14	11.417	12.83	17.450	2.40	23.48	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.417	2.14	11.450	12.83	17.483	2.40	23.52	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.450	2.14	11.483	12.83	17.517	2.40	23.55	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.483	2.14	11.517	12.83	17.550	2.40	23.58	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.517	2.14	11.550	12.83	17.583	2.40	23.62	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.550	2.14	11.583	12.83	17.617	2.40	23.65	1.60
5.567	2.14	11.600	39.54	17.633	2.40	23.67	1.60
5.583	2.14	11.617	39.55	17.650	2.40	23.68	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.617	2.14	11.650	39.55	17.683	2.40	23.72	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.650	2.14	11.683	39.54	17.717	2.40	23.75	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.683	2.14	11.717	39.55	17.750	2.40	23.78	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.717	2.14	11.750	39.55	17.783	2.40	23.82	1.60
5.733	2.14	11.767	39.54	17.800	2.40	23.83	1.60
5.750	2.14	11.783	39.55	17.817	2.40	23.85	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.783	2.14	11.817	39.55	17.850	2.40	23.88	1.60
5.800	2.14	11.833	39.55	17.867	2.40	23.90	1.60
5.817	2.14	11.850	163.45	17.883	2.40	23.92	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.850	2.14	11.883	163.53	17.917	2.40	23.95	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.883	2.14	11.917	163.53	17.950	2.40	23.98	1.60
5.900	2.14	11.933	163.52	17.967	2.40	24.00	1.60
5.917	2.14	11.950	163.53	17.983	2.40	24.02	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60

5.950	2.14	11.983	163.53	18.017	2.40	24.05	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
5.983	2.14	12.017	163.52	18.050	2.40	24.08	1.60
6.000	2.14	12.033	163.53	18.067	2.40		
6.017	2.14	12.050	163.53	18.083	2.40		
6.033	2.14	12.067	163.53	18.100	2.40		

Unit Hyd Qpeak (cms)= 0.073

PEAK FLOW (cms)= 0.019 (i)
TIME TO PEAK (hrs)= 12.217
RUNOFF VOLUME (mm)= 15.656
TOTAL RAINFALL (mm)= 133.601
RUNOFF COEFFICIENT = 0.117

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0203)
ID= 1 DT= 1.0 min

Area (ha)= 0.13 Curve Number (CN)= 46.0
Ia (mm)= 4.66 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.09

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	6.050	2.14	12.083	163.53	18.12	2.40
0.033	0.00	6.067	2.14	12.100	19.35	18.13	2.40
0.050	0.00	6.083	2.14	12.117	19.24	18.15	2.40
0.067	0.00	6.100	2.40	12.133	19.24	18.17	2.40
0.083	0.00	6.117	2.40	12.150	19.24	18.18	2.40
0.100	1.47	6.133	2.40	12.167	19.24	18.20	2.40
0.117	1.47	6.150	2.40	12.183	19.24	18.22	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.150	1.47	6.183	2.40	12.217	19.24	18.25	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.183	1.47	6.217	2.40	12.250	19.24	18.28	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.217	1.47	6.250	2.40	12.283	19.24	18.32	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.250	1.47	6.283	2.40	12.317	19.24	18.35	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.283	1.47	6.317	2.40	12.350	19.24	18.38	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.317	1.47	6.350	2.40	12.383	19.24	18.42	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.350	1.47	6.383	2.40	12.417	19.24	18.45	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.383	1.47	6.417	2.40	12.450	19.24	18.48	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.417	1.47	6.450	2.40	12.483	19.24	18.52	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.450	1.47	6.483	2.40	12.517	19.24	18.55	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.483	1.47	6.517	2.40	12.550	19.24	18.58	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.517	1.47	6.550	2.40	12.583	19.24	18.62	2.40
0.533	1.47	6.567	2.40	12.600	9.90	18.63	2.40
0.550	1.47	6.583	2.40	12.617	9.89	18.65	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40

0.583	1.47	6.617	2.40	12.650	9.89	18.68	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.617	1.47	6.650	2.40	12.683	9.89	18.72	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.650	1.47	6.683	2.40	12.717	9.89	18.75	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.683	1.47	6.717	2.40	12.750	9.89	18.78	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.717	1.47	6.750	2.40	12.783	9.89	18.82	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.750	1.47	6.783	2.40	12.817	9.89	18.85	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.783	1.47	6.817	2.40	12.850	9.89	18.88	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.817	1.47	6.850	2.40	12.883	9.89	18.92	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.850	1.47	6.883	2.40	12.917	9.89	18.95	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.883	1.47	6.917	2.40	12.950	9.89	18.98	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.917	1.47	6.950	2.40	12.983	9.89	19.02	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.950	1.47	6.983	2.40	13.017	9.89	19.05	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
0.983	1.47	7.017	2.40	13.050	9.89	19.08	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.017	1.47	7.050	2.40	13.083	9.89	19.12	2.40
1.033	1.47	7.067	2.40	13.100	7.22	19.13	2.40
1.050	1.47	7.083	2.41	13.117	7.21	19.15	2.40
1.067	1.47	7.100	2.94	13.133	7.21	19.17	2.40
1.083	1.47	7.117	2.94	13.150	7.21	19.18	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.117	1.47	7.150	2.94	13.183	7.21	19.22	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.150	1.47	7.183	2.94	13.217	7.21	19.25	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.183	1.47	7.217	2.94	13.250	7.21	19.28	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.217	1.47	7.250	2.94	13.283	7.21	19.32	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.250	1.47	7.283	2.94	13.317	7.21	19.35	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.283	1.47	7.317	2.94	13.350	7.21	19.38	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.317	1.47	7.350	2.94	13.383	7.21	19.42	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.350	1.47	7.383	2.94	13.417	7.21	19.45	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.383	1.47	7.417	2.94	13.450	7.21	19.48	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.417	1.47	7.450	2.94	13.483	7.21	19.52	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.450	1.47	7.483	2.94	13.517	7.21	19.55	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.483	1.47	7.517	2.94	13.550	7.21	19.58	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.517	1.47	7.550	2.94	13.583	7.21	19.62	2.40
1.533	1.47	7.567	2.94	13.600	5.61	19.63	2.40
1.550	1.47	7.583	2.94	13.617	5.61	19.65	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.583	1.47	7.617	2.94	13.650	5.61	19.68	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.617	1.47	7.650	2.94	13.683	5.61	19.72	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40

1.650	1.47	7.683	2.94	13.717	5.61	19.75	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.683	1.47	7.717	2.94	13.750	5.61	19.78	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.717	1.47	7.750	2.94	13.783	5.61	19.82	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.750	1.47	7.783	2.94	13.817	5.61	19.85	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.783	1.47	7.817	2.94	13.850	5.61	19.88	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.817	1.47	7.850	2.94	13.883	5.61	19.92	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.850	1.47	7.883	2.94	13.917	5.61	19.95	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.883	1.47	7.917	2.94	13.950	5.61	19.98	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.917	1.47	7.950	2.94	13.983	5.61	20.02	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.950	1.47	7.983	2.94	14.017	5.61	20.05	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
1.983	1.47	8.017	2.94	14.050	5.61	20.08	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	1.61
2.017	1.47	8.050	2.94	14.083	5.61	20.12	1.60
2.033	1.47	8.067	2.94	14.100	4.01	20.13	1.60
2.050	1.47	8.083	2.94	14.117	4.01	20.15	1.60
2.067	1.47	8.100	3.47	14.133	4.01	20.17	1.60
2.083	1.47	8.117	3.47	14.150	4.01	20.18	1.60
2.100	1.74	8.133	3.47	14.167	4.01	20.20	1.60
2.117	1.74	8.150	3.47	14.183	4.01	20.22	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.150	1.74	8.183	3.47	14.217	4.01	20.25	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.183	1.74	8.217	3.47	14.250	4.01	20.28	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.217	1.74	8.250	3.47	14.283	4.01	20.32	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.250	1.74	8.283	3.47	14.317	4.01	20.35	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.283	1.74	8.317	3.47	14.350	4.01	20.38	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.317	1.74	8.350	3.47	14.383	4.01	20.42	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.350	1.74	8.383	3.47	14.417	4.01	20.45	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.383	1.74	8.417	3.47	14.450	4.01	20.48	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.417	1.74	8.450	3.47	14.483	4.01	20.52	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.450	1.74	8.483	3.47	14.517	4.01	20.55	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.483	1.74	8.517	3.47	14.550	4.01	20.58	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.517	1.74	8.550	3.47	14.583	4.01	20.62	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.550	1.74	8.583	3.47	14.617	4.01	20.65	1.60
2.567	1.74	8.600	3.74	14.633	4.01	20.67	1.60
2.583	1.74	8.617	3.74	14.650	4.01	20.68	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.617	1.74	8.650	3.74	14.683	4.01	20.72	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.650	1.74	8.683	3.74	14.717	4.01	20.75	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.683	1.74	8.717	3.74	14.750	4.01	20.78	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60

2.717	1.74	8.750	3.74	14.783	4.01	20.82	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.750	1.74	8.783	3.74	14.817	4.01	20.85	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.783	1.74	8.817	3.74	14.850	4.01	20.88	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.817	1.74	8.850	3.74	14.883	4.01	20.92	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.850	1.74	8.883	3.74	14.917	4.01	20.95	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.883	1.74	8.917	3.74	14.950	4.01	20.98	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.917	1.74	8.950	3.74	14.983	4.01	21.02	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.950	1.74	8.983	3.74	15.017	4.01	21.05	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
2.983	1.74	9.017	3.74	15.050	4.01	21.08	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.017	1.74	9.050	3.74	15.083	4.01	21.12	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.050	1.74	9.083	3.74	15.117	4.01	21.15	1.60
3.067	1.74	9.100	4.28	15.133	4.01	21.17	1.60
3.083	1.74	9.117	4.28	15.150	4.01	21.18	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.117	1.74	9.150	4.28	15.183	4.01	21.22	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.150	1.74	9.183	4.28	15.217	4.01	21.25	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.183	1.74	9.217	4.28	15.250	4.01	21.28	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.217	1.74	9.250	4.28	15.283	4.01	21.32	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.250	1.74	9.283	4.28	15.317	4.01	21.35	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.283	1.74	9.317	4.28	15.350	4.01	21.38	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.317	1.74	9.350	4.28	15.383	4.01	21.42	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.350	1.74	9.383	4.28	15.417	4.01	21.45	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.383	1.74	9.417	4.28	15.450	4.01	21.48	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.417	1.74	9.450	4.28	15.483	4.01	21.52	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.450	1.74	9.483	4.28	15.517	4.01	21.55	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.483	1.74	9.517	4.28	15.550	4.01	21.58	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.517	1.74	9.550	4.28	15.583	4.01	21.62	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.550	1.74	9.583	4.28	15.617	4.01	21.65	1.60
3.567	1.74	9.600	4.81	15.633	4.01	21.67	1.60
3.583	1.74	9.617	4.81	15.650	4.01	21.68	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.617	1.74	9.650	4.81	15.683	4.01	21.72	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.650	1.74	9.683	4.81	15.717	4.01	21.75	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.683	1.74	9.717	4.81	15.750	4.01	21.78	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.717	1.74	9.750	4.81	15.783	4.01	21.82	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.750	1.74	9.783	4.81	15.817	4.01	21.85	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60

3.783	1.74	9.817	4.81	15.850	4.01	21.88	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.817	1.74	9.850	4.81	15.883	4.01	21.92	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.850	1.74	9.883	4.81	15.917	4.01	21.95	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.883	1.74	9.917	4.81	15.950	4.01	21.98	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.917	1.74	9.950	4.81	15.983	4.01	22.02	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.950	1.74	9.983	4.81	16.017	4.01	22.05	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
3.983	1.74	10.017	4.81	16.050	4.01	22.08	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.017	1.74	10.050	4.81	16.083	4.01	22.12	1.60
4.033	1.74	10.067	4.81	16.100	2.41	22.13	1.60
4.050	1.74	10.083	4.81	16.117	2.40	22.15	1.60
4.067	1.74	10.100	6.15	16.133	2.40	22.17	1.60
4.083	1.74	10.117	6.15	16.150	2.40	22.18	1.60
4.100	2.14	10.133	6.15	16.167	2.40	22.20	1.60
4.117	2.14	10.150	6.15	16.183	2.40	22.22	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.150	2.14	10.183	6.15	16.217	2.40	22.25	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.183	2.14	10.217	6.15	16.250	2.40	22.28	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.217	2.14	10.250	6.15	16.283	2.40	22.32	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.250	2.14	10.283	6.15	16.317	2.40	22.35	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.283	2.14	10.317	6.15	16.350	2.40	22.38	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.317	2.14	10.350	6.15	16.383	2.40	22.42	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.350	2.14	10.383	6.15	16.417	2.40	22.45	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.383	2.14	10.417	6.15	16.450	2.40	22.48	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.417	2.14	10.450	6.15	16.483	2.40	22.52	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.450	2.14	10.483	6.15	16.517	2.40	22.55	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.483	2.14	10.517	6.15	16.550	2.40	22.58	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.517	2.14	10.550	6.15	16.583	2.40	22.62	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.550	2.14	10.583	6.15	16.617	2.40	22.65	1.60
4.567	2.14	10.600	8.28	16.633	2.40	22.67	1.60
4.583	2.14	10.617	8.28	16.650	2.40	22.68	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.617	2.14	10.650	8.28	16.683	2.40	22.72	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.650	2.14	10.683	8.28	16.717	2.40	22.75	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.683	2.14	10.717	8.28	16.750	2.40	22.78	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.717	2.14	10.750	8.28	16.783	2.40	22.82	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.750	2.14	10.783	8.28	16.817	2.40	22.85	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.783	2.14	10.817	8.28	16.850	2.40	22.88	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.817	2.14	10.850	8.28	16.883	2.40	22.92	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60

4.850	2.14	10.883	8.28	16.917	2.40	22.95	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.883	2.14	10.917	8.28	16.950	2.40	22.98	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.917	2.14	10.950	8.28	16.983	2.40	23.02	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.950	2.14	10.983	8.28	17.017	2.40	23.05	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
4.983	2.14	11.017	8.28	17.050	2.40	23.08	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.017	2.14	11.050	8.28	17.083	2.40	23.12	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.050	2.14	11.083	8.28	17.117	2.40	23.15	1.60
5.067	2.14	11.100	12.83	17.133	2.40	23.17	1.60
5.083	2.14	11.117	12.83	17.150	2.40	23.18	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.117	2.14	11.150	12.83	17.183	2.40	23.22	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.150	2.14	11.183	12.83	17.217	2.40	23.25	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.183	2.14	11.217	12.83	17.250	2.40	23.28	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.217	2.14	11.250	12.83	17.283	2.40	23.32	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.250	2.14	11.283	12.83	17.317	2.40	23.35	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.283	2.14	11.317	12.83	17.350	2.40	23.38	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.317	2.14	11.350	12.83	17.383	2.40	23.42	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.350	2.14	11.383	12.83	17.417	2.40	23.45	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.383	2.14	11.417	12.83	17.450	2.40	23.48	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.417	2.14	11.450	12.83	17.483	2.40	23.52	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.450	2.14	11.483	12.83	17.517	2.40	23.55	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.483	2.14	11.517	12.83	17.550	2.40	23.58	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.517	2.14	11.550	12.83	17.583	2.40	23.62	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.550	2.14	11.583	12.83	17.617	2.40	23.65	1.60
5.567	2.14	11.600	39.54	17.633	2.40	23.67	1.60
5.583	2.14	11.617	39.55	17.650	2.40	23.68	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.617	2.14	11.650	39.55	17.683	2.40	23.72	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.650	2.14	11.683	39.54	17.717	2.40	23.75	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.683	2.14	11.717	39.55	17.750	2.40	23.78	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.717	2.14	11.750	39.55	17.783	2.40	23.82	1.60
5.733	2.14	11.767	39.54	17.800	2.40	23.83	1.60
5.750	2.14	11.783	39.55	17.817	2.40	23.85	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.783	2.14	11.817	39.55	17.850	2.40	23.88	1.60
5.800	2.14	11.833	39.55	17.867	2.40	23.90	1.60
5.817	2.14	11.850	163.45	17.883	2.40	23.92	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.850	2.14	11.883	163.53	17.917	2.40	23.95	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.883	2.14	11.917	163.53	17.950	2.40	23.98	1.60
5.900	2.14	11.933	163.52	17.967	2.40	24.00	1.60

5.917	2.14	11.950	163.53	17.983	2.40	24.02	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.950	2.14	11.983	163.53	18.017	2.40	24.05	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
5.983	2.14	12.017	163.52	18.050	2.40	24.08	1.60
6.000	2.14	12.033	163.53	18.067	2.40		
6.017	2.14	12.050	163.53	18.083	2.40		
6.033	2.14	12.067	163.53	18.100	2.40		

Unit Hyd Qpeak (cms)= 0.055

PEAK FLOW (cms)= 0.018 (i)
TIME TO PEAK (hrs)= 12.100
RUNOFF VOLUME (mm)= 31.502
TOTAL RAINFALL (mm)= 133.601
RUNOFF COEFFICIENT = 0.236

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0207)	Area (ha)= 0.09	Curve Number (CN)= 37.0	
ID= 1 DT= 1.0 min	Ia (mm)= 5.68	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.04		

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	6.050	2.14	12.083	163.53	18.12	2.40
0.033	0.00	6.067	2.14	12.100	19.35	18.13	2.40
0.050	0.00	6.083	2.14	12.117	19.24	18.15	2.40
0.067	0.00	6.100	2.40	12.133	19.24	18.17	2.40
0.083	0.00	6.117	2.40	12.150	19.24	18.18	2.40
0.100	1.47	6.133	2.40	12.167	19.24	18.20	2.40
0.117	1.47	6.150	2.40	12.183	19.24	18.22	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.150	1.47	6.183	2.40	12.217	19.24	18.25	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.183	1.47	6.217	2.40	12.250	19.24	18.28	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.217	1.47	6.250	2.40	12.283	19.24	18.32	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.250	1.47	6.283	2.40	12.317	19.24	18.35	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.283	1.47	6.317	2.40	12.350	19.24	18.38	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.317	1.47	6.350	2.40	12.383	19.24	18.42	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.350	1.47	6.383	2.40	12.417	19.24	18.45	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.383	1.47	6.417	2.40	12.450	19.24	18.48	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.417	1.47	6.450	2.40	12.483	19.24	18.52	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.450	1.47	6.483	2.40	12.517	19.24	18.55	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.483	1.47	6.517	2.40	12.550	19.24	18.58	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.517	1.47	6.550	2.40	12.583	19.24	18.62	2.40
0.533	1.47	6.567	2.40	12.600	9.90	18.63	2.40

0.550	1.47	6.583	2.40	12.617	9.89	18.65	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.583	1.47	6.617	2.40	12.650	9.89	18.68	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.617	1.47	6.650	2.40	12.683	9.89	18.72	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.650	1.47	6.683	2.40	12.717	9.89	18.75	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.683	1.47	6.717	2.40	12.750	9.89	18.78	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.717	1.47	6.750	2.40	12.783	9.89	18.82	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.750	1.47	6.783	2.40	12.817	9.89	18.85	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.783	1.47	6.817	2.40	12.850	9.89	18.88	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.817	1.47	6.850	2.40	12.883	9.89	18.92	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.850	1.47	6.883	2.40	12.917	9.89	18.95	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.883	1.47	6.917	2.40	12.950	9.89	18.98	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.917	1.47	6.950	2.40	12.983	9.89	19.02	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.950	1.47	6.983	2.40	13.017	9.89	19.05	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
0.983	1.47	7.017	2.40	13.050	9.89	19.08	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.017	1.47	7.050	2.40	13.083	9.89	19.12	2.40
1.033	1.47	7.067	2.40	13.100	7.22	19.13	2.40
1.050	1.47	7.083	2.41	13.117	7.21	19.15	2.40
1.067	1.47	7.100	2.94	13.133	7.21	19.17	2.40
1.083	1.47	7.117	2.94	13.150	7.21	19.18	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.117	1.47	7.150	2.94	13.183	7.21	19.22	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.150	1.47	7.183	2.94	13.217	7.21	19.25	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.183	1.47	7.217	2.94	13.250	7.21	19.28	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.217	1.47	7.250	2.94	13.283	7.21	19.32	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.250	1.47	7.283	2.94	13.317	7.21	19.35	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.283	1.47	7.317	2.94	13.350	7.21	19.38	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.317	1.47	7.350	2.94	13.383	7.21	19.42	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.350	1.47	7.383	2.94	13.417	7.21	19.45	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.383	1.47	7.417	2.94	13.450	7.21	19.48	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.417	1.47	7.450	2.94	13.483	7.21	19.52	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.450	1.47	7.483	2.94	13.517	7.21	19.55	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.483	1.47	7.517	2.94	13.550	7.21	19.58	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.517	1.47	7.550	2.94	13.583	7.21	19.62	2.40
1.533	1.47	7.567	2.94	13.600	5.61	19.63	2.40
1.550	1.47	7.583	2.94	13.617	5.61	19.65	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.583	1.47	7.617	2.94	13.650	5.61	19.68	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40

1.617	1.47	7.650	2.94	13.683	5.61	19.72	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.650	1.47	7.683	2.94	13.717	5.61	19.75	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.683	1.47	7.717	2.94	13.750	5.61	19.78	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.717	1.47	7.750	2.94	13.783	5.61	19.82	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.750	1.47	7.783	2.94	13.817	5.61	19.85	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.783	1.47	7.817	2.94	13.850	5.61	19.88	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.817	1.47	7.850	2.94	13.883	5.61	19.92	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.850	1.47	7.883	2.94	13.917	5.61	19.95	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.883	1.47	7.917	2.94	13.950	5.61	19.98	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.917	1.47	7.950	2.94	13.983	5.61	20.02	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.950	1.47	7.983	2.94	14.017	5.61	20.05	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
1.983	1.47	8.017	2.94	14.050	5.61	20.08	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	1.61
2.017	1.47	8.050	2.94	14.083	5.61	20.12	1.60
2.033	1.47	8.067	2.94	14.100	4.01	20.13	1.60
2.050	1.47	8.083	2.94	14.117	4.01	20.15	1.60
2.067	1.47	8.100	3.47	14.133	4.01	20.17	1.60
2.083	1.47	8.117	3.47	14.150	4.01	20.18	1.60
2.100	1.74	8.133	3.47	14.167	4.01	20.20	1.60
2.117	1.74	8.150	3.47	14.183	4.01	20.22	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.150	1.74	8.183	3.47	14.217	4.01	20.25	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.183	1.74	8.217	3.47	14.250	4.01	20.28	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.217	1.74	8.250	3.47	14.283	4.01	20.32	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.250	1.74	8.283	3.47	14.317	4.01	20.35	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.283	1.74	8.317	3.47	14.350	4.01	20.38	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.317	1.74	8.350	3.47	14.383	4.01	20.42	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.350	1.74	8.383	3.47	14.417	4.01	20.45	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.383	1.74	8.417	3.47	14.450	4.01	20.48	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.417	1.74	8.450	3.47	14.483	4.01	20.52	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.450	1.74	8.483	3.47	14.517	4.01	20.55	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.483	1.74	8.517	3.47	14.550	4.01	20.58	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.517	1.74	8.550	3.47	14.583	4.01	20.62	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.550	1.74	8.583	3.47	14.617	4.01	20.65	1.60
2.567	1.74	8.600	3.74	14.633	4.01	20.67	1.60
2.583	1.74	8.617	3.74	14.650	4.01	20.68	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.617	1.74	8.650	3.74	14.683	4.01	20.72	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.650	1.74	8.683	3.74	14.717	4.01	20.75	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60

2.683	1.74	8.717	3.74	14.750	4.01	20.78	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.717	1.74	8.750	3.74	14.783	4.01	20.82	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.750	1.74	8.783	3.74	14.817	4.01	20.85	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.783	1.74	8.817	3.74	14.850	4.01	20.88	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.817	1.74	8.850	3.74	14.883	4.01	20.92	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.850	1.74	8.883	3.74	14.917	4.01	20.95	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.883	1.74	8.917	3.74	14.950	4.01	20.98	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.917	1.74	8.950	3.74	14.983	4.01	21.02	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.950	1.74	8.983	3.74	15.017	4.01	21.05	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
2.983	1.74	9.017	3.74	15.050	4.01	21.08	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.017	1.74	9.050	3.74	15.083	4.01	21.12	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.050	1.74	9.083	3.74	15.117	4.01	21.15	1.60
3.067	1.74	9.100	4.28	15.133	4.01	21.17	1.60
3.083	1.74	9.117	4.28	15.150	4.01	21.18	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.117	1.74	9.150	4.28	15.183	4.01	21.22	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.150	1.74	9.183	4.28	15.217	4.01	21.25	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.183	1.74	9.217	4.28	15.250	4.01	21.28	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.217	1.74	9.250	4.28	15.283	4.01	21.32	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.250	1.74	9.283	4.28	15.317	4.01	21.35	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.283	1.74	9.317	4.28	15.350	4.01	21.38	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.317	1.74	9.350	4.28	15.383	4.01	21.42	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.350	1.74	9.383	4.28	15.417	4.01	21.45	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.383	1.74	9.417	4.28	15.450	4.01	21.48	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.417	1.74	9.450	4.28	15.483	4.01	21.52	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.450	1.74	9.483	4.28	15.517	4.01	21.55	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.483	1.74	9.517	4.28	15.550	4.01	21.58	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.517	1.74	9.550	4.28	15.583	4.01	21.62	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.550	1.74	9.583	4.28	15.617	4.01	21.65	1.60
3.567	1.74	9.600	4.81	15.633	4.01	21.67	1.60
3.583	1.74	9.617	4.81	15.650	4.01	21.68	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.617	1.74	9.650	4.81	15.683	4.01	21.72	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.650	1.74	9.683	4.81	15.717	4.01	21.75	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.683	1.74	9.717	4.81	15.750	4.01	21.78	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.717	1.74	9.750	4.81	15.783	4.01	21.82	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60

3.750	1.74	9.783	4.81	15.817	4.01	21.85	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.783	1.74	9.817	4.81	15.850	4.01	21.88	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.817	1.74	9.850	4.81	15.883	4.01	21.92	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.850	1.74	9.883	4.81	15.917	4.01	21.95	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.883	1.74	9.917	4.81	15.950	4.01	21.98	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.917	1.74	9.950	4.81	15.983	4.01	22.02	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.950	1.74	9.983	4.81	16.017	4.01	22.05	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
3.983	1.74	10.017	4.81	16.050	4.01	22.08	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.017	1.74	10.050	4.81	16.083	4.01	22.12	1.60
4.033	1.74	10.067	4.81	16.100	2.41	22.13	1.60
4.050	1.74	10.083	4.81	16.117	2.40	22.15	1.60
4.067	1.74	10.100	6.15	16.133	2.40	22.17	1.60
4.083	1.74	10.117	6.15	16.150	2.40	22.18	1.60
4.100	2.14	10.133	6.15	16.167	2.40	22.20	1.60
4.117	2.14	10.150	6.15	16.183	2.40	22.22	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.150	2.14	10.183	6.15	16.217	2.40	22.25	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.183	2.14	10.217	6.15	16.250	2.40	22.28	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.217	2.14	10.250	6.15	16.283	2.40	22.32	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.250	2.14	10.283	6.15	16.317	2.40	22.35	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.283	2.14	10.317	6.15	16.350	2.40	22.38	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.317	2.14	10.350	6.15	16.383	2.40	22.42	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.350	2.14	10.383	6.15	16.417	2.40	22.45	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.383	2.14	10.417	6.15	16.450	2.40	22.48	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.417	2.14	10.450	6.15	16.483	2.40	22.52	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.450	2.14	10.483	6.15	16.517	2.40	22.55	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.483	2.14	10.517	6.15	16.550	2.40	22.58	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.517	2.14	10.550	6.15	16.583	2.40	22.62	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.550	2.14	10.583	6.15	16.617	2.40	22.65	1.60
4.567	2.14	10.600	8.28	16.633	2.40	22.67	1.60
4.583	2.14	10.617	8.28	16.650	2.40	22.68	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.617	2.14	10.650	8.28	16.683	2.40	22.72	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.650	2.14	10.683	8.28	16.717	2.40	22.75	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.683	2.14	10.717	8.28	16.750	2.40	22.78	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.717	2.14	10.750	8.28	16.783	2.40	22.82	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.750	2.14	10.783	8.28	16.817	2.40	22.85	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.783	2.14	10.817	8.28	16.850	2.40	22.88	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60

4.817	2.14	10.850	8.28	16.883	2.40	22.92	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.850	2.14	10.883	8.28	16.917	2.40	22.95	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.883	2.14	10.917	8.28	16.950	2.40	22.98	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.917	2.14	10.950	8.28	16.983	2.40	23.02	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.950	2.14	10.983	8.28	17.017	2.40	23.05	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
4.983	2.14	11.017	8.28	17.050	2.40	23.08	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.017	2.14	11.050	8.28	17.083	2.40	23.12	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.050	2.14	11.083	8.28	17.117	2.40	23.15	1.60
5.067	2.14	11.100	12.83	17.133	2.40	23.17	1.60
5.083	2.14	11.117	12.83	17.150	2.40	23.18	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.117	2.14	11.150	12.83	17.183	2.40	23.22	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.150	2.14	11.183	12.83	17.217	2.40	23.25	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.183	2.14	11.217	12.83	17.250	2.40	23.28	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.217	2.14	11.250	12.83	17.283	2.40	23.32	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.250	2.14	11.283	12.83	17.317	2.40	23.35	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.283	2.14	11.317	12.83	17.350	2.40	23.38	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.317	2.14	11.350	12.83	17.383	2.40	23.42	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.350	2.14	11.383	12.83	17.417	2.40	23.45	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.383	2.14	11.417	12.83	17.450	2.40	23.48	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.417	2.14	11.450	12.83	17.483	2.40	23.52	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.450	2.14	11.483	12.83	17.517	2.40	23.55	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.483	2.14	11.517	12.83	17.550	2.40	23.58	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.517	2.14	11.550	12.83	17.583	2.40	23.62	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.550	2.14	11.583	12.83	17.617	2.40	23.65	1.60
5.567	2.14	11.600	39.54	17.633	2.40	23.67	1.60
5.583	2.14	11.617	39.55	17.650	2.40	23.68	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.617	2.14	11.650	39.55	17.683	2.40	23.72	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.650	2.14	11.683	39.54	17.717	2.40	23.75	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.683	2.14	11.717	39.55	17.750	2.40	23.78	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.717	2.14	11.750	39.55	17.783	2.40	23.82	1.60
5.733	2.14	11.767	39.54	17.800	2.40	23.83	1.60
5.750	2.14	11.783	39.55	17.817	2.40	23.85	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.783	2.14	11.817	39.55	17.850	2.40	23.88	1.60
5.800	2.14	11.833	39.55	17.867	2.40	23.90	1.60
5.817	2.14	11.850	163.45	17.883	2.40	23.92	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.850	2.14	11.883	163.53	17.917	2.40	23.95	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60

5.883	2.14	11.917	163.53	17.950	2.40	23.98	1.60
5.900	2.14	11.933	163.52	17.967	2.40	24.00	1.60
5.917	2.14	11.950	163.53	17.983	2.40	24.02	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.950	2.14	11.983	163.53	18.017	2.40	24.05	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
5.983	2.14	12.017	163.52	18.050	2.40	24.08	1.60
6.000	2.14	12.033	163.53	18.067	2.40		
6.017	2.14	12.050	163.53	18.083	2.40		
6.033	2.14	12.067	163.53	18.100	2.40		

Unit Hyd Qpeak (cms)= 0.087

PEAK FLOW (cms)= 0.011 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 23.403
TOTAL RAINFALL (mm)= 133.601
RUNOFF COEFFICIENT = 0.175

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0204)	Area (ha)=	0.21	Curve Number (CN)=	42.0
ID= 1 DT= 1.0 min	Ia (mm)=	6.31	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.11		

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	6.050	2.14	12.083	163.53	18.12	2.40
0.033	0.00	6.067	2.14	12.100	19.35	18.13	2.40
0.050	0.00	6.083	2.14	12.117	19.24	18.15	2.40
0.067	0.00	6.100	2.40	12.133	19.24	18.17	2.40
0.083	0.00	6.117	2.40	12.150	19.24	18.18	2.40
0.100	1.47	6.133	2.40	12.167	19.24	18.20	2.40
0.117	1.47	6.150	2.40	12.183	19.24	18.22	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.150	1.47	6.183	2.40	12.217	19.24	18.25	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.183	1.47	6.217	2.40	12.250	19.24	18.28	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.217	1.47	6.250	2.40	12.283	19.24	18.32	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.250	1.47	6.283	2.40	12.317	19.24	18.35	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.283	1.47	6.317	2.40	12.350	19.24	18.38	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.317	1.47	6.350	2.40	12.383	19.24	18.42	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.350	1.47	6.383	2.40	12.417	19.24	18.45	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.383	1.47	6.417	2.40	12.450	19.24	18.48	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.417	1.47	6.450	2.40	12.483	19.24	18.52	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.450	1.47	6.483	2.40	12.517	19.24	18.55	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.483	1.47	6.517	2.40	12.550	19.24	18.58	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40

0.517	1.47	6.550	2.40	12.583	19.24	18.62	2.40
0.533	1.47	6.567	2.40	12.600	9.90	18.63	2.40
0.550	1.47	6.583	2.40	12.617	9.89	18.65	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.583	1.47	6.617	2.40	12.650	9.89	18.68	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.617	1.47	6.650	2.40	12.683	9.89	18.72	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.650	1.47	6.683	2.40	12.717	9.89	18.75	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.683	1.47	6.717	2.40	12.750	9.89	18.78	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.717	1.47	6.750	2.40	12.783	9.89	18.82	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.750	1.47	6.783	2.40	12.817	9.89	18.85	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.783	1.47	6.817	2.40	12.850	9.89	18.88	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.817	1.47	6.850	2.40	12.883	9.89	18.92	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.850	1.47	6.883	2.40	12.917	9.89	18.95	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.883	1.47	6.917	2.40	12.950	9.89	18.98	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.917	1.47	6.950	2.40	12.983	9.89	19.02	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.950	1.47	6.983	2.40	13.017	9.89	19.05	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
0.983	1.47	7.017	2.40	13.050	9.89	19.08	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.017	1.47	7.050	2.40	13.083	9.89	19.12	2.40
1.033	1.47	7.067	2.40	13.100	7.22	19.13	2.40
1.050	1.47	7.083	2.41	13.117	7.21	19.15	2.40
1.067	1.47	7.100	2.94	13.133	7.21	19.17	2.40
1.083	1.47	7.117	2.94	13.150	7.21	19.18	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.117	1.47	7.150	2.94	13.183	7.21	19.22	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.150	1.47	7.183	2.94	13.217	7.21	19.25	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.183	1.47	7.217	2.94	13.250	7.21	19.28	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.217	1.47	7.250	2.94	13.283	7.21	19.32	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.250	1.47	7.283	2.94	13.317	7.21	19.35	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.283	1.47	7.317	2.94	13.350	7.21	19.38	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.317	1.47	7.350	2.94	13.383	7.21	19.42	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.350	1.47	7.383	2.94	13.417	7.21	19.45	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.383	1.47	7.417	2.94	13.450	7.21	19.48	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.417	1.47	7.450	2.94	13.483	7.21	19.52	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.450	1.47	7.483	2.94	13.517	7.21	19.55	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.483	1.47	7.517	2.94	13.550	7.21	19.58	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.517	1.47	7.550	2.94	13.583	7.21	19.62	2.40
1.533	1.47	7.567	2.94	13.600	5.61	19.63	2.40
1.550	1.47	7.583	2.94	13.617	5.61	19.65	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40

1.583	1.47	7.617	2.94	13.650	5.61	19.68	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.617	1.47	7.650	2.94	13.683	5.61	19.72	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.650	1.47	7.683	2.94	13.717	5.61	19.75	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.683	1.47	7.717	2.94	13.750	5.61	19.78	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.717	1.47	7.750	2.94	13.783	5.61	19.82	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.750	1.47	7.783	2.94	13.817	5.61	19.85	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.783	1.47	7.817	2.94	13.850	5.61	19.88	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.817	1.47	7.850	2.94	13.883	5.61	19.92	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.850	1.47	7.883	2.94	13.917	5.61	19.95	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.883	1.47	7.917	2.94	13.950	5.61	19.98	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.917	1.47	7.950	2.94	13.983	5.61	20.02	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.950	1.47	7.983	2.94	14.017	5.61	20.05	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
1.983	1.47	8.017	2.94	14.050	5.61	20.08	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	1.61
2.017	1.47	8.050	2.94	14.083	5.61	20.12	1.60
2.033	1.47	8.067	2.94	14.100	4.01	20.13	1.60
2.050	1.47	8.083	2.94	14.117	4.01	20.15	1.60
2.067	1.47	8.100	3.47	14.133	4.01	20.17	1.60
2.083	1.47	8.117	3.47	14.150	4.01	20.18	1.60
2.100	1.74	8.133	3.47	14.167	4.01	20.20	1.60
2.117	1.74	8.150	3.47	14.183	4.01	20.22	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.150	1.74	8.183	3.47	14.217	4.01	20.25	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.183	1.74	8.217	3.47	14.250	4.01	20.28	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.217	1.74	8.250	3.47	14.283	4.01	20.32	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.250	1.74	8.283	3.47	14.317	4.01	20.35	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.283	1.74	8.317	3.47	14.350	4.01	20.38	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.317	1.74	8.350	3.47	14.383	4.01	20.42	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.350	1.74	8.383	3.47	14.417	4.01	20.45	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.383	1.74	8.417	3.47	14.450	4.01	20.48	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.417	1.74	8.450	3.47	14.483	4.01	20.52	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.450	1.74	8.483	3.47	14.517	4.01	20.55	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.483	1.74	8.517	3.47	14.550	4.01	20.58	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.517	1.74	8.550	3.47	14.583	4.01	20.62	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.550	1.74	8.583	3.47	14.617	4.01	20.65	1.60
2.567	1.74	8.600	3.74	14.633	4.01	20.67	1.60
2.583	1.74	8.617	3.74	14.650	4.01	20.68	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.617	1.74	8.650	3.74	14.683	4.01	20.72	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60

2.650	1.74	8.683	3.74	14.717	4.01	20.75	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.683	1.74	8.717	3.74	14.750	4.01	20.78	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.717	1.74	8.750	3.74	14.783	4.01	20.82	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.750	1.74	8.783	3.74	14.817	4.01	20.85	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.783	1.74	8.817	3.74	14.850	4.01	20.88	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.817	1.74	8.850	3.74	14.883	4.01	20.92	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.850	1.74	8.883	3.74	14.917	4.01	20.95	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.883	1.74	8.917	3.74	14.950	4.01	20.98	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.917	1.74	8.950	3.74	14.983	4.01	21.02	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.950	1.74	8.983	3.74	15.017	4.01	21.05	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
2.983	1.74	9.017	3.74	15.050	4.01	21.08	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.017	1.74	9.050	3.74	15.083	4.01	21.12	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.050	1.74	9.083	3.74	15.117	4.01	21.15	1.60
3.067	1.74	9.100	4.28	15.133	4.01	21.17	1.60
3.083	1.74	9.117	4.28	15.150	4.01	21.18	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.117	1.74	9.150	4.28	15.183	4.01	21.22	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.150	1.74	9.183	4.28	15.217	4.01	21.25	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.183	1.74	9.217	4.28	15.250	4.01	21.28	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.217	1.74	9.250	4.28	15.283	4.01	21.32	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.250	1.74	9.283	4.28	15.317	4.01	21.35	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.283	1.74	9.317	4.28	15.350	4.01	21.38	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.317	1.74	9.350	4.28	15.383	4.01	21.42	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.350	1.74	9.383	4.28	15.417	4.01	21.45	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.383	1.74	9.417	4.28	15.450	4.01	21.48	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.417	1.74	9.450	4.28	15.483	4.01	21.52	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.450	1.74	9.483	4.28	15.517	4.01	21.55	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.483	1.74	9.517	4.28	15.550	4.01	21.58	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.517	1.74	9.550	4.28	15.583	4.01	21.62	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.550	1.74	9.583	4.28	15.617	4.01	21.65	1.60
3.567	1.74	9.600	4.81	15.633	4.01	21.67	1.60
3.583	1.74	9.617	4.81	15.650	4.01	21.68	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.617	1.74	9.650	4.81	15.683	4.01	21.72	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.650	1.74	9.683	4.81	15.717	4.01	21.75	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.683	1.74	9.717	4.81	15.750	4.01	21.78	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60

3.717	1.74	9.750	4.81	15.783	4.01	21.82	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.750	1.74	9.783	4.81	15.817	4.01	21.85	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.783	1.74	9.817	4.81	15.850	4.01	21.88	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.817	1.74	9.850	4.81	15.883	4.01	21.92	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.850	1.74	9.883	4.81	15.917	4.01	21.95	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.883	1.74	9.917	4.81	15.950	4.01	21.98	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.917	1.74	9.950	4.81	15.983	4.01	22.02	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.950	1.74	9.983	4.81	16.017	4.01	22.05	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
3.983	1.74	10.017	4.81	16.050	4.01	22.08	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.017	1.74	10.050	4.81	16.083	4.01	22.12	1.60
4.033	1.74	10.067	4.81	16.100	2.41	22.13	1.60
4.050	1.74	10.083	4.81	16.117	2.40	22.15	1.60
4.067	1.74	10.100	6.15	16.133	2.40	22.17	1.60
4.083	1.74	10.117	6.15	16.150	2.40	22.18	1.60
4.100	2.14	10.133	6.15	16.167	2.40	22.20	1.60
4.117	2.14	10.150	6.15	16.183	2.40	22.22	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.150	2.14	10.183	6.15	16.217	2.40	22.25	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.183	2.14	10.217	6.15	16.250	2.40	22.28	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.217	2.14	10.250	6.15	16.283	2.40	22.32	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.250	2.14	10.283	6.15	16.317	2.40	22.35	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.283	2.14	10.317	6.15	16.350	2.40	22.38	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.317	2.14	10.350	6.15	16.383	2.40	22.42	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.350	2.14	10.383	6.15	16.417	2.40	22.45	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.383	2.14	10.417	6.15	16.450	2.40	22.48	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.417	2.14	10.450	6.15	16.483	2.40	22.52	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.450	2.14	10.483	6.15	16.517	2.40	22.55	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.483	2.14	10.517	6.15	16.550	2.40	22.58	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.517	2.14	10.550	6.15	16.583	2.40	22.62	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.550	2.14	10.583	6.15	16.617	2.40	22.65	1.60
4.567	2.14	10.600	8.28	16.633	2.40	22.67	1.60
4.583	2.14	10.617	8.28	16.650	2.40	22.68	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.617	2.14	10.650	8.28	16.683	2.40	22.72	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.650	2.14	10.683	8.28	16.717	2.40	22.75	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.683	2.14	10.717	8.28	16.750	2.40	22.78	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.717	2.14	10.750	8.28	16.783	2.40	22.82	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.750	2.14	10.783	8.28	16.817	2.40	22.85	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60

4.783	2.14	10.817	8.28	16.850	2.40	22.88	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.817	2.14	10.850	8.28	16.883	2.40	22.92	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.850	2.14	10.883	8.28	16.917	2.40	22.95	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.883	2.14	10.917	8.28	16.950	2.40	22.98	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.917	2.14	10.950	8.28	16.983	2.40	23.02	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.950	2.14	10.983	8.28	17.017	2.40	23.05	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
4.983	2.14	11.017	8.28	17.050	2.40	23.08	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.017	2.14	11.050	8.28	17.083	2.40	23.12	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.050	2.14	11.083	8.28	17.117	2.40	23.15	1.60
5.067	2.14	11.100	12.83	17.133	2.40	23.17	1.60
5.083	2.14	11.117	12.83	17.150	2.40	23.18	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.117	2.14	11.150	12.83	17.183	2.40	23.22	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.150	2.14	11.183	12.83	17.217	2.40	23.25	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.183	2.14	11.217	12.83	17.250	2.40	23.28	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.217	2.14	11.250	12.83	17.283	2.40	23.32	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.250	2.14	11.283	12.83	17.317	2.40	23.35	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.283	2.14	11.317	12.83	17.350	2.40	23.38	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.317	2.14	11.350	12.83	17.383	2.40	23.42	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.350	2.14	11.383	12.83	17.417	2.40	23.45	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.383	2.14	11.417	12.83	17.450	2.40	23.48	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.417	2.14	11.450	12.83	17.483	2.40	23.52	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.450	2.14	11.483	12.83	17.517	2.40	23.55	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.483	2.14	11.517	12.83	17.550	2.40	23.58	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.517	2.14	11.550	12.83	17.583	2.40	23.62	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.550	2.14	11.583	12.83	17.617	2.40	23.65	1.60
5.567	2.14	11.600	39.54	17.633	2.40	23.67	1.60
5.583	2.14	11.617	39.55	17.650	2.40	23.68	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.617	2.14	11.650	39.55	17.683	2.40	23.72	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.650	2.14	11.683	39.54	17.717	2.40	23.75	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.683	2.14	11.717	39.55	17.750	2.40	23.78	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.717	2.14	11.750	39.55	17.783	2.40	23.82	1.60
5.733	2.14	11.767	39.54	17.800	2.40	23.83	1.60
5.750	2.14	11.783	39.55	17.817	2.40	23.85	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.783	2.14	11.817	39.55	17.850	2.40	23.88	1.60
5.800	2.14	11.833	39.55	17.867	2.40	23.90	1.60
5.817	2.14	11.850	163.45	17.883	2.40	23.92	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60

5.850	2.14	11.883	163.53	17.917	2.40	23.95	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.883	2.14	11.917	163.53	17.950	2.40	23.98	1.60
5.900	2.14	11.933	163.52	17.967	2.40	24.00	1.60
5.917	2.14	11.950	163.53	17.983	2.40	24.02	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.950	2.14	11.983	163.53	18.017	2.40	24.05	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
5.983	2.14	12.017	163.52	18.050	2.40	24.08	1.60
6.000	2.14	12.033	163.53	18.067	2.40		
6.017	2.14	12.050	163.53	18.083	2.40		
6.033	2.14	12.067	163.53	18.100	2.40		

Unit Hyd Qpeak (cms)= 0.074

PEAK FLOW (cms)= 0.024 (i)
TIME TO PEAK (hrs)= 12.117
RUNOFF VOLUME (mm)= 27.201
TOTAL RAINFALL (mm)= 133.601
RUNOFF COEFFICIENT = 0.204

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0208)	Area (ha)=	0.03	Curve Number (CN)=	39.0	
ID= 1 DT= 1.0 min	Ia (mm)=	5.14	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.04			

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	6.050	2.14	12.083	163.53	18.12	2.40
0.033	0.00	6.067	2.14	12.100	19.35	18.13	2.40
0.050	0.00	6.083	2.14	12.117	19.24	18.15	2.40
0.067	0.00	6.100	2.40	12.133	19.24	18.17	2.40
0.083	0.00	6.117	2.40	12.150	19.24	18.18	2.40
0.100	1.47	6.133	2.40	12.167	19.24	18.20	2.40
0.117	1.47	6.150	2.40	12.183	19.24	18.22	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.150	1.47	6.183	2.40	12.217	19.24	18.25	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.183	1.47	6.217	2.40	12.250	19.24	18.28	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.217	1.47	6.250	2.40	12.283	19.24	18.32	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.250	1.47	6.283	2.40	12.317	19.24	18.35	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.283	1.47	6.317	2.40	12.350	19.24	18.38	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.317	1.47	6.350	2.40	12.383	19.24	18.42	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.350	1.47	6.383	2.40	12.417	19.24	18.45	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.383	1.47	6.417	2.40	12.450	19.24	18.48	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.417	1.47	6.450	2.40	12.483	19.24	18.52	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.450	1.47	6.483	2.40	12.517	19.24	18.55	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40

0.483	1.47	6.517	2.40	12.550	19.24	18.58	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.517	1.47	6.550	2.40	12.583	19.24	18.62	2.40
0.533	1.47	6.567	2.40	12.600	9.90	18.63	2.40
0.550	1.47	6.583	2.40	12.617	9.89	18.65	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.583	1.47	6.617	2.40	12.650	9.89	18.68	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.617	1.47	6.650	2.40	12.683	9.89	18.72	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.650	1.47	6.683	2.40	12.717	9.89	18.75	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.683	1.47	6.717	2.40	12.750	9.89	18.78	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.717	1.47	6.750	2.40	12.783	9.89	18.82	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.750	1.47	6.783	2.40	12.817	9.89	18.85	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.783	1.47	6.817	2.40	12.850	9.89	18.88	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.817	1.47	6.850	2.40	12.883	9.89	18.92	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.850	1.47	6.883	2.40	12.917	9.89	18.95	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.883	1.47	6.917	2.40	12.950	9.89	18.98	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.917	1.47	6.950	2.40	12.983	9.89	19.02	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.950	1.47	6.983	2.40	13.017	9.89	19.05	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
0.983	1.47	7.017	2.40	13.050	9.89	19.08	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.017	1.47	7.050	2.40	13.083	9.89	19.12	2.40
1.033	1.47	7.067	2.40	13.100	7.22	19.13	2.40
1.050	1.47	7.083	2.41	13.117	7.21	19.15	2.40
1.067	1.47	7.100	2.94	13.133	7.21	19.17	2.40
1.083	1.47	7.117	2.94	13.150	7.21	19.18	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.117	1.47	7.150	2.94	13.183	7.21	19.22	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.150	1.47	7.183	2.94	13.217	7.21	19.25	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.183	1.47	7.217	2.94	13.250	7.21	19.28	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.217	1.47	7.250	2.94	13.283	7.21	19.32	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.250	1.47	7.283	2.94	13.317	7.21	19.35	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.283	1.47	7.317	2.94	13.350	7.21	19.38	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.317	1.47	7.350	2.94	13.383	7.21	19.42	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.350	1.47	7.383	2.94	13.417	7.21	19.45	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.383	1.47	7.417	2.94	13.450	7.21	19.48	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.417	1.47	7.450	2.94	13.483	7.21	19.52	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.450	1.47	7.483	2.94	13.517	7.21	19.55	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.483	1.47	7.517	2.94	13.550	7.21	19.58	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.517	1.47	7.550	2.94	13.583	7.21	19.62	2.40
1.533	1.47	7.567	2.94	13.600	5.61	19.63	2.40

1.550	1.47	7.583	2.94	13.617	5.61	19.65	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.583	1.47	7.617	2.94	13.650	5.61	19.68	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.617	1.47	7.650	2.94	13.683	5.61	19.72	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.650	1.47	7.683	2.94	13.717	5.61	19.75	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.683	1.47	7.717	2.94	13.750	5.61	19.78	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.717	1.47	7.750	2.94	13.783	5.61	19.82	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.750	1.47	7.783	2.94	13.817	5.61	19.85	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.783	1.47	7.817	2.94	13.850	5.61	19.88	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.817	1.47	7.850	2.94	13.883	5.61	19.92	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.850	1.47	7.883	2.94	13.917	5.61	19.95	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.883	1.47	7.917	2.94	13.950	5.61	19.98	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.917	1.47	7.950	2.94	13.983	5.61	20.02	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.950	1.47	7.983	2.94	14.017	5.61	20.05	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
1.983	1.47	8.017	2.94	14.050	5.61	20.08	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	1.61
2.017	1.47	8.050	2.94	14.083	5.61	20.12	1.60
2.033	1.47	8.067	2.94	14.100	4.01	20.13	1.60
2.050	1.47	8.083	2.94	14.117	4.01	20.15	1.60
2.067	1.47	8.100	3.47	14.133	4.01	20.17	1.60
2.083	1.47	8.117	3.47	14.150	4.01	20.18	1.60
2.100	1.74	8.133	3.47	14.167	4.01	20.20	1.60
2.117	1.74	8.150	3.47	14.183	4.01	20.22	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.150	1.74	8.183	3.47	14.217	4.01	20.25	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.183	1.74	8.217	3.47	14.250	4.01	20.28	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.217	1.74	8.250	3.47	14.283	4.01	20.32	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.250	1.74	8.283	3.47	14.317	4.01	20.35	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.283	1.74	8.317	3.47	14.350	4.01	20.38	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.317	1.74	8.350	3.47	14.383	4.01	20.42	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.350	1.74	8.383	3.47	14.417	4.01	20.45	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.383	1.74	8.417	3.47	14.450	4.01	20.48	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.417	1.74	8.450	3.47	14.483	4.01	20.52	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.450	1.74	8.483	3.47	14.517	4.01	20.55	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.483	1.74	8.517	3.47	14.550	4.01	20.58	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.517	1.74	8.550	3.47	14.583	4.01	20.62	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.550	1.74	8.583	3.47	14.617	4.01	20.65	1.60
2.567	1.74	8.600	3.74	14.633	4.01	20.67	1.60
2.583	1.74	8.617	3.74	14.650	4.01	20.68	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60

2.617	1.74	8.650	3.74	14.683	4.01	20.72	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.650	1.74	8.683	3.74	14.717	4.01	20.75	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.683	1.74	8.717	3.74	14.750	4.01	20.78	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.717	1.74	8.750	3.74	14.783	4.01	20.82	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.750	1.74	8.783	3.74	14.817	4.01	20.85	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.783	1.74	8.817	3.74	14.850	4.01	20.88	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.817	1.74	8.850	3.74	14.883	4.01	20.92	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.850	1.74	8.883	3.74	14.917	4.01	20.95	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.883	1.74	8.917	3.74	14.950	4.01	20.98	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.917	1.74	8.950	3.74	14.983	4.01	21.02	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.950	1.74	8.983	3.74	15.017	4.01	21.05	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
2.983	1.74	9.017	3.74	15.050	4.01	21.08	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.017	1.74	9.050	3.74	15.083	4.01	21.12	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.050	1.74	9.083	3.74	15.117	4.01	21.15	1.60
3.067	1.74	9.100	4.28	15.133	4.01	21.17	1.60
3.083	1.74	9.117	4.28	15.150	4.01	21.18	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.117	1.74	9.150	4.28	15.183	4.01	21.22	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.150	1.74	9.183	4.28	15.217	4.01	21.25	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.183	1.74	9.217	4.28	15.250	4.01	21.28	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.217	1.74	9.250	4.28	15.283	4.01	21.32	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.250	1.74	9.283	4.28	15.317	4.01	21.35	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.283	1.74	9.317	4.28	15.350	4.01	21.38	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.317	1.74	9.350	4.28	15.383	4.01	21.42	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.350	1.74	9.383	4.28	15.417	4.01	21.45	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.383	1.74	9.417	4.28	15.450	4.01	21.48	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.417	1.74	9.450	4.28	15.483	4.01	21.52	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.450	1.74	9.483	4.28	15.517	4.01	21.55	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.483	1.74	9.517	4.28	15.550	4.01	21.58	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.517	1.74	9.550	4.28	15.583	4.01	21.62	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.550	1.74	9.583	4.28	15.617	4.01	21.65	1.60
3.567	1.74	9.600	4.81	15.633	4.01	21.67	1.60
3.583	1.74	9.617	4.81	15.650	4.01	21.68	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.617	1.74	9.650	4.81	15.683	4.01	21.72	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.650	1.74	9.683	4.81	15.717	4.01	21.75	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60

3.683	1.74	9.717	4.81	15.750	4.01	21.78	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.717	1.74	9.750	4.81	15.783	4.01	21.82	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.750	1.74	9.783	4.81	15.817	4.01	21.85	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.783	1.74	9.817	4.81	15.850	4.01	21.88	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.817	1.74	9.850	4.81	15.883	4.01	21.92	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.850	1.74	9.883	4.81	15.917	4.01	21.95	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.883	1.74	9.917	4.81	15.950	4.01	21.98	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.917	1.74	9.950	4.81	15.983	4.01	22.02	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.950	1.74	9.983	4.81	16.017	4.01	22.05	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
3.983	1.74	10.017	4.81	16.050	4.01	22.08	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.017	1.74	10.050	4.81	16.083	4.01	22.12	1.60
4.033	1.74	10.067	4.81	16.100	2.41	22.13	1.60
4.050	1.74	10.083	4.81	16.117	2.40	22.15	1.60
4.067	1.74	10.100	6.15	16.133	2.40	22.17	1.60
4.083	1.74	10.117	6.15	16.150	2.40	22.18	1.60
4.100	2.14	10.133	6.15	16.167	2.40	22.20	1.60
4.117	2.14	10.150	6.15	16.183	2.40	22.22	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.150	2.14	10.183	6.15	16.217	2.40	22.25	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.183	2.14	10.217	6.15	16.250	2.40	22.28	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.217	2.14	10.250	6.15	16.283	2.40	22.32	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.250	2.14	10.283	6.15	16.317	2.40	22.35	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.283	2.14	10.317	6.15	16.350	2.40	22.38	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.317	2.14	10.350	6.15	16.383	2.40	22.42	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.350	2.14	10.383	6.15	16.417	2.40	22.45	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.383	2.14	10.417	6.15	16.450	2.40	22.48	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.417	2.14	10.450	6.15	16.483	2.40	22.52	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.450	2.14	10.483	6.15	16.517	2.40	22.55	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.483	2.14	10.517	6.15	16.550	2.40	22.58	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.517	2.14	10.550	6.15	16.583	2.40	22.62	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.550	2.14	10.583	6.15	16.617	2.40	22.65	1.60
4.567	2.14	10.600	8.28	16.633	2.40	22.67	1.60
4.583	2.14	10.617	8.28	16.650	2.40	22.68	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.617	2.14	10.650	8.28	16.683	2.40	22.72	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.650	2.14	10.683	8.28	16.717	2.40	22.75	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.683	2.14	10.717	8.28	16.750	2.40	22.78	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.717	2.14	10.750	8.28	16.783	2.40	22.82	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60

4.750	2.14	10.783	8.28	16.817	2.40	22.85	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.783	2.14	10.817	8.28	16.850	2.40	22.88	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.817	2.14	10.850	8.28	16.883	2.40	22.92	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.850	2.14	10.883	8.28	16.917	2.40	22.95	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.883	2.14	10.917	8.28	16.950	2.40	22.98	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.917	2.14	10.950	8.28	16.983	2.40	23.02	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.950	2.14	10.983	8.28	17.017	2.40	23.05	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
4.983	2.14	11.017	8.28	17.050	2.40	23.08	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.017	2.14	11.050	8.28	17.083	2.40	23.12	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.050	2.14	11.083	8.28	17.117	2.40	23.15	1.60
5.067	2.14	11.100	12.83	17.133	2.40	23.17	1.60
5.083	2.14	11.117	12.83	17.150	2.40	23.18	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.117	2.14	11.150	12.83	17.183	2.40	23.22	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.150	2.14	11.183	12.83	17.217	2.40	23.25	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.183	2.14	11.217	12.83	17.250	2.40	23.28	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.217	2.14	11.250	12.83	17.283	2.40	23.32	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.250	2.14	11.283	12.83	17.317	2.40	23.35	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.283	2.14	11.317	12.83	17.350	2.40	23.38	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.317	2.14	11.350	12.83	17.383	2.40	23.42	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.350	2.14	11.383	12.83	17.417	2.40	23.45	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.383	2.14	11.417	12.83	17.450	2.40	23.48	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.417	2.14	11.450	12.83	17.483	2.40	23.52	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.450	2.14	11.483	12.83	17.517	2.40	23.55	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.483	2.14	11.517	12.83	17.550	2.40	23.58	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.517	2.14	11.550	12.83	17.583	2.40	23.62	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.550	2.14	11.583	12.83	17.617	2.40	23.65	1.60
5.567	2.14	11.600	39.54	17.633	2.40	23.67	1.60
5.583	2.14	11.617	39.55	17.650	2.40	23.68	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.617	2.14	11.650	39.55	17.683	2.40	23.72	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.650	2.14	11.683	39.54	17.717	2.40	23.75	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.683	2.14	11.717	39.55	17.750	2.40	23.78	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.717	2.14	11.750	39.55	17.783	2.40	23.82	1.60
5.733	2.14	11.767	39.54	17.800	2.40	23.83	1.60
5.750	2.14	11.783	39.55	17.817	2.40	23.85	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.783	2.14	11.817	39.55	17.850	2.40	23.88	1.60
5.800	2.14	11.833	39.55	17.867	2.40	23.90	1.60

5.817	2.14	11.850	163.45	17.883	2.40	23.92	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.850	2.14	11.883	163.53	17.917	2.40	23.95	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.883	2.14	11.917	163.53	17.950	2.40	23.98	1.60
5.900	2.14	11.933	163.52	17.967	2.40	24.00	1.60
5.917	2.14	11.950	163.53	17.983	2.40	24.02	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.950	2.14	11.983	163.53	18.017	2.40	24.05	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
5.983	2.14	12.017	163.52	18.050	2.40	24.08	1.60
6.000	2.14	12.033	163.53	18.067	2.40		
6.017	2.14	12.050	163.53	18.083	2.40		
6.033	2.14	12.067	163.53	18.100	2.40		

Unit Hyd Qpeak (cms)= 0.024

PEAK FLOW (cms)= 0.003 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 25.230
TOTAL RAINFALL (mm)= 133.601
RUNOFF COEFFICIENT = 0.189

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0206)	Area (ha)= 0.50
ID= 1 DT= 1.0 min	Total Imp(%)= 56.00 Dir. Conn.(%)= 0.10

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.28	0.22
Dep. Storage	(mm)=	2.00	5.93
Average Slope	(%)=	3.00	3.00
Length	(m)=	57.49	34.00
Mannings n	=	0.013	0.230

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	6.050	2.14	12.083	163.53	18.12	2.40
0.033	0.00	6.067	2.14	12.100	19.35	18.13	2.40
0.050	0.00	6.083	2.14	12.117	19.24	18.15	2.40
0.067	0.00	6.100	2.40	12.133	19.24	18.17	2.40
0.083	0.00	6.117	2.40	12.150	19.24	18.18	2.40
0.100	1.47	6.133	2.40	12.167	19.24	18.20	2.40
0.117	1.47	6.150	2.40	12.183	19.24	18.22	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.150	1.47	6.183	2.40	12.217	19.24	18.25	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.183	1.47	6.217	2.40	12.250	19.24	18.28	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.217	1.47	6.250	2.40	12.283	19.24	18.32	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.250	1.47	6.283	2.40	12.317	19.24	18.35	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.283	1.47	6.317	2.40	12.350	19.24	18.38	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.317	1.47	6.350	2.40	12.383	19.24	18.42	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40

0.350	1.47	6.383	2.40	12.417	19.24	18.45	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.383	1.47	6.417	2.40	12.450	19.24	18.48	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.417	1.47	6.450	2.40	12.483	19.24	18.52	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.450	1.47	6.483	2.40	12.517	19.24	18.55	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.483	1.47	6.517	2.40	12.550	19.24	18.58	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.517	1.47	6.550	2.40	12.583	19.24	18.62	2.40
0.533	1.47	6.567	2.40	12.600	9.90	18.63	2.40
0.550	1.47	6.583	2.40	12.617	9.89	18.65	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.583	1.47	6.617	2.40	12.650	9.89	18.68	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.617	1.47	6.650	2.40	12.683	9.89	18.72	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.650	1.47	6.683	2.40	12.717	9.89	18.75	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.683	1.47	6.717	2.40	12.750	9.89	18.78	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.717	1.47	6.750	2.40	12.783	9.89	18.82	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.750	1.47	6.783	2.40	12.817	9.89	18.85	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.783	1.47	6.817	2.40	12.850	9.89	18.88	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.817	1.47	6.850	2.40	12.883	9.89	18.92	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.850	1.47	6.883	2.40	12.917	9.89	18.95	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.883	1.47	6.917	2.40	12.950	9.89	18.98	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.917	1.47	6.950	2.40	12.983	9.89	19.02	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.950	1.47	6.983	2.40	13.017	9.89	19.05	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
0.983	1.47	7.017	2.40	13.050	9.89	19.08	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.017	1.47	7.050	2.40	13.083	9.89	19.12	2.40
1.033	1.47	7.067	2.40	13.100	7.22	19.13	2.40
1.050	1.47	7.083	2.41	13.117	7.21	19.15	2.40
1.067	1.47	7.100	2.94	13.133	7.21	19.17	2.40
1.083	1.47	7.117	2.94	13.150	7.21	19.18	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.117	1.47	7.150	2.94	13.183	7.21	19.22	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.150	1.47	7.183	2.94	13.217	7.21	19.25	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.183	1.47	7.217	2.94	13.250	7.21	19.28	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.217	1.47	7.250	2.94	13.283	7.21	19.32	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.250	1.47	7.283	2.94	13.317	7.21	19.35	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.283	1.47	7.317	2.94	13.350	7.21	19.38	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.317	1.47	7.350	2.94	13.383	7.21	19.42	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.350	1.47	7.383	2.94	13.417	7.21	19.45	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.383	1.47	7.417	2.94	13.450	7.21	19.48	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40

1.417	1.47	7.450	2.94	13.483	7.21	19.52	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.450	1.47	7.483	2.94	13.517	7.21	19.55	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.483	1.47	7.517	2.94	13.550	7.21	19.58	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.517	1.47	7.550	2.94	13.583	7.21	19.62	2.40
1.533	1.47	7.567	2.94	13.600	5.61	19.63	2.40
1.550	1.47	7.583	2.94	13.617	5.61	19.65	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.583	1.47	7.617	2.94	13.650	5.61	19.68	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.617	1.47	7.650	2.94	13.683	5.61	19.72	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.650	1.47	7.683	2.94	13.717	5.61	19.75	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.683	1.47	7.717	2.94	13.750	5.61	19.78	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.717	1.47	7.750	2.94	13.783	5.61	19.82	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.750	1.47	7.783	2.94	13.817	5.61	19.85	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.783	1.47	7.817	2.94	13.850	5.61	19.88	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.817	1.47	7.850	2.94	13.883	5.61	19.92	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.850	1.47	7.883	2.94	13.917	5.61	19.95	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.883	1.47	7.917	2.94	13.950	5.61	19.98	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.917	1.47	7.950	2.94	13.983	5.61	20.02	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.950	1.47	7.983	2.94	14.017	5.61	20.05	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
1.983	1.47	8.017	2.94	14.050	5.61	20.08	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	1.61
2.017	1.47	8.050	2.94	14.083	5.61	20.12	1.60
2.033	1.47	8.067	2.94	14.100	4.01	20.13	1.60
2.050	1.47	8.083	2.94	14.117	4.01	20.15	1.60
2.067	1.47	8.100	3.47	14.133	4.01	20.17	1.60
2.083	1.47	8.117	3.47	14.150	4.01	20.18	1.60
2.100	1.74	8.133	3.47	14.167	4.01	20.20	1.60
2.117	1.74	8.150	3.47	14.183	4.01	20.22	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.150	1.74	8.183	3.47	14.217	4.01	20.25	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.183	1.74	8.217	3.47	14.250	4.01	20.28	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.217	1.74	8.250	3.47	14.283	4.01	20.32	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.250	1.74	8.283	3.47	14.317	4.01	20.35	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.283	1.74	8.317	3.47	14.350	4.01	20.38	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.317	1.74	8.350	3.47	14.383	4.01	20.42	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.350	1.74	8.383	3.47	14.417	4.01	20.45	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.383	1.74	8.417	3.47	14.450	4.01	20.48	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.417	1.74	8.450	3.47	14.483	4.01	20.52	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.450	1.74	8.483	3.47	14.517	4.01	20.55	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60

2.483	1.74	8.517	3.47	14.550	4.01	20.58	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.517	1.74	8.550	3.47	14.583	4.01	20.62	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.550	1.74	8.583	3.47	14.617	4.01	20.65	1.60
2.567	1.74	8.600	3.74	14.633	4.01	20.67	1.60
2.583	1.74	8.617	3.74	14.650	4.01	20.68	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.617	1.74	8.650	3.74	14.683	4.01	20.72	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.650	1.74	8.683	3.74	14.717	4.01	20.75	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.683	1.74	8.717	3.74	14.750	4.01	20.78	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.717	1.74	8.750	3.74	14.783	4.01	20.82	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.750	1.74	8.783	3.74	14.817	4.01	20.85	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.783	1.74	8.817	3.74	14.850	4.01	20.88	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.817	1.74	8.850	3.74	14.883	4.01	20.92	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.850	1.74	8.883	3.74	14.917	4.01	20.95	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.883	1.74	8.917	3.74	14.950	4.01	20.98	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.917	1.74	8.950	3.74	14.983	4.01	21.02	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.950	1.74	8.983	3.74	15.017	4.01	21.05	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
2.983	1.74	9.017	3.74	15.050	4.01	21.08	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.017	1.74	9.050	3.74	15.083	4.01	21.12	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.050	1.74	9.083	3.74	15.117	4.01	21.15	1.60
3.067	1.74	9.100	4.28	15.133	4.01	21.17	1.60
3.083	1.74	9.117	4.28	15.150	4.01	21.18	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.117	1.74	9.150	4.28	15.183	4.01	21.22	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.150	1.74	9.183	4.28	15.217	4.01	21.25	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.183	1.74	9.217	4.28	15.250	4.01	21.28	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.217	1.74	9.250	4.28	15.283	4.01	21.32	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.250	1.74	9.283	4.28	15.317	4.01	21.35	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.283	1.74	9.317	4.28	15.350	4.01	21.38	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.317	1.74	9.350	4.28	15.383	4.01	21.42	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.350	1.74	9.383	4.28	15.417	4.01	21.45	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.383	1.74	9.417	4.28	15.450	4.01	21.48	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.417	1.74	9.450	4.28	15.483	4.01	21.52	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.450	1.74	9.483	4.28	15.517	4.01	21.55	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.483	1.74	9.517	4.28	15.550	4.01	21.58	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.517	1.74	9.550	4.28	15.583	4.01	21.62	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60

3.550	1.74	9.583	4.28	15.617	4.01	21.65	1.60
3.567	1.74	9.600	4.81	15.633	4.01	21.67	1.60
3.583	1.74	9.617	4.81	15.650	4.01	21.68	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.617	1.74	9.650	4.81	15.683	4.01	21.72	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.650	1.74	9.683	4.81	15.717	4.01	21.75	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.683	1.74	9.717	4.81	15.750	4.01	21.78	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.717	1.74	9.750	4.81	15.783	4.01	21.82	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.750	1.74	9.783	4.81	15.817	4.01	21.85	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.783	1.74	9.817	4.81	15.850	4.01	21.88	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.817	1.74	9.850	4.81	15.883	4.01	21.92	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.850	1.74	9.883	4.81	15.917	4.01	21.95	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.883	1.74	9.917	4.81	15.950	4.01	21.98	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.917	1.74	9.950	4.81	15.983	4.01	22.02	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.950	1.74	9.983	4.81	16.017	4.01	22.05	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
3.983	1.74	10.017	4.81	16.050	4.01	22.08	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.017	1.74	10.050	4.81	16.083	4.01	22.12	1.60
4.033	1.74	10.067	4.81	16.100	2.41	22.13	1.60
4.050	1.74	10.083	4.81	16.117	2.40	22.15	1.60
4.067	1.74	10.100	6.15	16.133	2.40	22.17	1.60
4.083	1.74	10.117	6.15	16.150	2.40	22.18	1.60
4.100	2.14	10.133	6.15	16.167	2.40	22.20	1.60
4.117	2.14	10.150	6.15	16.183	2.40	22.22	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.150	2.14	10.183	6.15	16.217	2.40	22.25	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.183	2.14	10.217	6.15	16.250	2.40	22.28	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.217	2.14	10.250	6.15	16.283	2.40	22.32	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.250	2.14	10.283	6.15	16.317	2.40	22.35	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.283	2.14	10.317	6.15	16.350	2.40	22.38	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.317	2.14	10.350	6.15	16.383	2.40	22.42	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.350	2.14	10.383	6.15	16.417	2.40	22.45	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.383	2.14	10.417	6.15	16.450	2.40	22.48	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.417	2.14	10.450	6.15	16.483	2.40	22.52	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.450	2.14	10.483	6.15	16.517	2.40	22.55	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.483	2.14	10.517	6.15	16.550	2.40	22.58	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.517	2.14	10.550	6.15	16.583	2.40	22.62	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.550	2.14	10.583	6.15	16.617	2.40	22.65	1.60
4.567	2.14	10.600	8.28	16.633	2.40	22.67	1.60
4.583	2.14	10.617	8.28	16.650	2.40	22.68	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60

4.617	2.14	10.650	8.28	16.683	2.40	22.72	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.650	2.14	10.683	8.28	16.717	2.40	22.75	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.683	2.14	10.717	8.28	16.750	2.40	22.78	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.717	2.14	10.750	8.28	16.783	2.40	22.82	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.750	2.14	10.783	8.28	16.817	2.40	22.85	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.783	2.14	10.817	8.28	16.850	2.40	22.88	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.817	2.14	10.850	8.28	16.883	2.40	22.92	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.850	2.14	10.883	8.28	16.917	2.40	22.95	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.883	2.14	10.917	8.28	16.950	2.40	22.98	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.917	2.14	10.950	8.28	16.983	2.40	23.02	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.950	2.14	10.983	8.28	17.017	2.40	23.05	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
4.983	2.14	11.017	8.28	17.050	2.40	23.08	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.017	2.14	11.050	8.28	17.083	2.40	23.12	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.050	2.14	11.083	8.28	17.117	2.40	23.15	1.60
5.067	2.14	11.100	12.83	17.133	2.40	23.17	1.60
5.083	2.14	11.117	12.83	17.150	2.40	23.18	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.117	2.14	11.150	12.83	17.183	2.40	23.22	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.150	2.14	11.183	12.83	17.217	2.40	23.25	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.183	2.14	11.217	12.83	17.250	2.40	23.28	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.217	2.14	11.250	12.83	17.283	2.40	23.32	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.250	2.14	11.283	12.83	17.317	2.40	23.35	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.283	2.14	11.317	12.83	17.350	2.40	23.38	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.317	2.14	11.350	12.83	17.383	2.40	23.42	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.350	2.14	11.383	12.83	17.417	2.40	23.45	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.383	2.14	11.417	12.83	17.450	2.40	23.48	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.417	2.14	11.450	12.83	17.483	2.40	23.52	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.450	2.14	11.483	12.83	17.517	2.40	23.55	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.483	2.14	11.517	12.83	17.550	2.40	23.58	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.517	2.14	11.550	12.83	17.583	2.40	23.62	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.550	2.14	11.583	12.83	17.617	2.40	23.65	1.60
5.567	2.14	11.600	39.54	17.633	2.40	23.67	1.60
5.583	2.14	11.617	39.55	17.650	2.40	23.68	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.617	2.14	11.650	39.55	17.683	2.40	23.72	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.650	2.14	11.683	39.54	17.717	2.40	23.75	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60

5.683	2.14	11.717	39.55	17.750	2.40	23.78	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.717	2.14	11.750	39.55	17.783	2.40	23.82	1.60
5.733	2.14	11.767	39.54	17.800	2.40	23.83	1.60
5.750	2.14	11.783	39.55	17.817	2.40	23.85	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.783	2.14	11.817	39.55	17.850	2.40	23.88	1.60
5.800	2.14	11.833	39.55	17.867	2.40	23.90	1.60
5.817	2.14	11.850	163.45	17.883	2.40	23.92	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.850	2.14	11.883	163.53	17.917	2.40	23.95	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.883	2.14	11.917	163.53	17.950	2.40	23.98	1.60
5.900	2.14	11.933	163.52	17.967	2.40	24.00	1.60
5.917	2.14	11.950	163.53	17.983	2.40	24.02	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.950	2.14	11.983	163.53	18.017	2.40	24.05	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
5.983	2.14	12.017	163.52	18.050	2.40	24.08	1.60
6.000	2.14	12.033	163.53	18.067	2.40		
6.017	2.14	12.050	163.53	18.083	2.40		
6.033	2.14	12.067	163.53	18.100	2.40		

Max.Eff.Inten.(mm/hr)=	163.53	171.13	
over (min)	5.00	6.00	
Storage Coeff. (min)=	1.08 (ii)	5.43 (ii)	
Unit Hyd. Tpeak (min)=	5.00	6.00	
Unit Hyd. peak (cms)=	0.46	0.20	
			TOTALS
PEAK FLOW (cms)=	0.00	0.09	0.091 (iii)
TIME TO PEAK (hrs)=	12.03	12.10	12.10
RUNOFF VOLUME (mm)=	131.60	52.01	52.09
TOTAL RAINFALL (mm)=	133.60	133.60	133.60
RUNOFF COEFFICIENT =	0.99	0.39	0.39

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 36.0 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.

ADD HYD (0005)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0203):	0.13	0.018	12.10	31.50
+ ID2= 2 (0204):	0.21	0.024	12.12	27.20
ID = 3 (0005):	0.34	0.043	12.10	35.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0005)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0005):	0.34	0.043	12.10	35.79
+ ID2= 2 (0205):	0.42	0.019	12.22	15.66

```
        ================================================
        ID = 1 (  0005):     0.76   0.059    12.12    27.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0005)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0005):     0.76   0.059    12.12    27.12
      + ID2= 2 (  0206):     0.50   0.091    12.10    52.09
        ================================================
        ID = 3 (  0005):     1.26   0.149    12.12    36.95

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0005)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0005):     1.26   0.149    12.12    36.95
      + ID2= 2 (  0207):     0.09   0.011    12.08    23.40
        ================================================
        ID = 1 (  0005):     1.35   0.159    12.10    36.43

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0005)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0005):     1.35   0.159    12.10    36.43
      + ID2= 2 (  0208):     0.03   0.003    12.08    25.23
        ================================================
        ID = 3 (  0005):     1.38   0.162    12.10    36.33

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=   0.63
|ID= 1 DT= 1.0 min |   Total Imp(%)=  44.00   Dir. Conn.(%)=   3.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.28         0.35
     Dep. Storage     (mm)=       2.00         5.37
     Average Slope     (%)=       3.00         3.00
     Length            (m)=      64.88        30.00
     Mannings n             =     0.013        0.210

         NOTE:  RAINFALL WAS TRANSFORMED TO   1.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.017    0.00 | 6.050    2.14 |12.083  163.53 | 18.12    2.40
              0.033    0.00 | 6.067    2.14 |12.100   19.35 | 18.13    2.40
              0.050    0.00 | 6.083    2.14 |12.117   19.24 | 18.15    2.40
              0.067    0.00 | 6.100    2.40 |12.133   19.24 | 18.17    2.40
              0.083    0.00 | 6.117    2.40 |12.150   19.24 | 18.18    2.40
```

0.100	1.47	6.133	2.40	12.167	19.24	18.20	2.40
0.117	1.47	6.150	2.40	12.183	19.24	18.22	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.150	1.47	6.183	2.40	12.217	19.24	18.25	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.183	1.47	6.217	2.40	12.250	19.24	18.28	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.217	1.47	6.250	2.40	12.283	19.24	18.32	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.250	1.47	6.283	2.40	12.317	19.24	18.35	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.283	1.47	6.317	2.40	12.350	19.24	18.38	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.317	1.47	6.350	2.40	12.383	19.24	18.42	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.350	1.47	6.383	2.40	12.417	19.24	18.45	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.383	1.47	6.417	2.40	12.450	19.24	18.48	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.417	1.47	6.450	2.40	12.483	19.24	18.52	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.450	1.47	6.483	2.40	12.517	19.24	18.55	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.483	1.47	6.517	2.40	12.550	19.24	18.58	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.517	1.47	6.550	2.40	12.583	19.24	18.62	2.40
0.533	1.47	6.567	2.40	12.600	9.90	18.63	2.40
0.550	1.47	6.583	2.40	12.617	9.89	18.65	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.583	1.47	6.617	2.40	12.650	9.89	18.68	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.617	1.47	6.650	2.40	12.683	9.89	18.72	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.650	1.47	6.683	2.40	12.717	9.89	18.75	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.683	1.47	6.717	2.40	12.750	9.89	18.78	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.717	1.47	6.750	2.40	12.783	9.89	18.82	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.750	1.47	6.783	2.40	12.817	9.89	18.85	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.783	1.47	6.817	2.40	12.850	9.89	18.88	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.817	1.47	6.850	2.40	12.883	9.89	18.92	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.850	1.47	6.883	2.40	12.917	9.89	18.95	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.883	1.47	6.917	2.40	12.950	9.89	18.98	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.917	1.47	6.950	2.40	12.983	9.89	19.02	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.950	1.47	6.983	2.40	13.017	9.89	19.05	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
0.983	1.47	7.017	2.40	13.050	9.89	19.08	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.017	1.47	7.050	2.40	13.083	9.89	19.12	2.40
1.033	1.47	7.067	2.40	13.100	7.22	19.13	2.40
1.050	1.47	7.083	2.41	13.117	7.21	19.15	2.40
1.067	1.47	7.100	2.94	13.133	7.21	19.17	2.40
1.083	1.47	7.117	2.94	13.150	7.21	19.18	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.117	1.47	7.150	2.94	13.183	7.21	19.22	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.150	1.47	7.183	2.94	13.217	7.21	19.25	2.40

1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.183	1.47	7.217	2.94	13.250	7.21	19.28	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.217	1.47	7.250	2.94	13.283	7.21	19.32	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.250	1.47	7.283	2.94	13.317	7.21	19.35	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.283	1.47	7.317	2.94	13.350	7.21	19.38	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.317	1.47	7.350	2.94	13.383	7.21	19.42	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.350	1.47	7.383	2.94	13.417	7.21	19.45	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.383	1.47	7.417	2.94	13.450	7.21	19.48	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.417	1.47	7.450	2.94	13.483	7.21	19.52	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.450	1.47	7.483	2.94	13.517	7.21	19.55	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.483	1.47	7.517	2.94	13.550	7.21	19.58	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.517	1.47	7.550	2.94	13.583	7.21	19.62	2.40
1.533	1.47	7.567	2.94	13.600	5.61	19.63	2.40
1.550	1.47	7.583	2.94	13.617	5.61	19.65	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.583	1.47	7.617	2.94	13.650	5.61	19.68	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.617	1.47	7.650	2.94	13.683	5.61	19.72	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.650	1.47	7.683	2.94	13.717	5.61	19.75	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.683	1.47	7.717	2.94	13.750	5.61	19.78	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.717	1.47	7.750	2.94	13.783	5.61	19.82	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.750	1.47	7.783	2.94	13.817	5.61	19.85	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.783	1.47	7.817	2.94	13.850	5.61	19.88	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.817	1.47	7.850	2.94	13.883	5.61	19.92	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.850	1.47	7.883	2.94	13.917	5.61	19.95	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.883	1.47	7.917	2.94	13.950	5.61	19.98	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.917	1.47	7.950	2.94	13.983	5.61	20.02	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.950	1.47	7.983	2.94	14.017	5.61	20.05	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
1.983	1.47	8.017	2.94	14.050	5.61	20.08	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	1.61
2.017	1.47	8.050	2.94	14.083	5.61	20.12	1.60
2.033	1.47	8.067	2.94	14.100	4.01	20.13	1.60
2.050	1.47	8.083	2.94	14.117	4.01	20.15	1.60
2.067	1.47	8.100	3.47	14.133	4.01	20.17	1.60
2.083	1.47	8.117	3.47	14.150	4.01	20.18	1.60
2.100	1.74	8.133	3.47	14.167	4.01	20.20	1.60
2.117	1.74	8.150	3.47	14.183	4.01	20.22	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.150	1.74	8.183	3.47	14.217	4.01	20.25	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.183	1.74	8.217	3.47	14.250	4.01	20.28	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.217	1.74	8.250	3.47	14.283	4.01	20.32	1.60

2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.250	1.74	8.283	3.47	14.317	4.01	20.35	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.283	1.74	8.317	3.47	14.350	4.01	20.38	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.317	1.74	8.350	3.47	14.383	4.01	20.42	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.350	1.74	8.383	3.47	14.417	4.01	20.45	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.383	1.74	8.417	3.47	14.450	4.01	20.48	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.417	1.74	8.450	3.47	14.483	4.01	20.52	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.450	1.74	8.483	3.47	14.517	4.01	20.55	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.483	1.74	8.517	3.47	14.550	4.01	20.58	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.517	1.74	8.550	3.47	14.583	4.01	20.62	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.550	1.74	8.583	3.47	14.617	4.01	20.65	1.60
2.567	1.74	8.600	3.74	14.633	4.01	20.67	1.60
2.583	1.74	8.617	3.74	14.650	4.01	20.68	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.617	1.74	8.650	3.74	14.683	4.01	20.72	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.650	1.74	8.683	3.74	14.717	4.01	20.75	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.683	1.74	8.717	3.74	14.750	4.01	20.78	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.717	1.74	8.750	3.74	14.783	4.01	20.82	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.750	1.74	8.783	3.74	14.817	4.01	20.85	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.783	1.74	8.817	3.74	14.850	4.01	20.88	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.817	1.74	8.850	3.74	14.883	4.01	20.92	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.850	1.74	8.883	3.74	14.917	4.01	20.95	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.883	1.74	8.917	3.74	14.950	4.01	20.98	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.917	1.74	8.950	3.74	14.983	4.01	21.02	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.950	1.74	8.983	3.74	15.017	4.01	21.05	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
2.983	1.74	9.017	3.74	15.050	4.01	21.08	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.017	1.74	9.050	3.74	15.083	4.01	21.12	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.050	1.74	9.083	3.74	15.117	4.01	21.15	1.60
3.067	1.74	9.100	4.28	15.133	4.01	21.17	1.60
3.083	1.74	9.117	4.28	15.150	4.01	21.18	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.117	1.74	9.150	4.28	15.183	4.01	21.22	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.150	1.74	9.183	4.28	15.217	4.01	21.25	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.183	1.74	9.217	4.28	15.250	4.01	21.28	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.217	1.74	9.250	4.28	15.283	4.01	21.32	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.250	1.74	9.283	4.28	15.317	4.01	21.35	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.283	1.74	9.317	4.28	15.350	4.01	21.38	1.60

3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.317	1.74	9.350	4.28	15.383	4.01	21.42	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.350	1.74	9.383	4.28	15.417	4.01	21.45	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.383	1.74	9.417	4.28	15.450	4.01	21.48	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.417	1.74	9.450	4.28	15.483	4.01	21.52	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.450	1.74	9.483	4.28	15.517	4.01	21.55	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.483	1.74	9.517	4.28	15.550	4.01	21.58	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.517	1.74	9.550	4.28	15.583	4.01	21.62	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.550	1.74	9.583	4.28	15.617	4.01	21.65	1.60
3.567	1.74	9.600	4.81	15.633	4.01	21.67	1.60
3.583	1.74	9.617	4.81	15.650	4.01	21.68	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.617	1.74	9.650	4.81	15.683	4.01	21.72	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.650	1.74	9.683	4.81	15.717	4.01	21.75	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.683	1.74	9.717	4.81	15.750	4.01	21.78	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.717	1.74	9.750	4.81	15.783	4.01	21.82	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.750	1.74	9.783	4.81	15.817	4.01	21.85	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.783	1.74	9.817	4.81	15.850	4.01	21.88	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.817	1.74	9.850	4.81	15.883	4.01	21.92	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.850	1.74	9.883	4.81	15.917	4.01	21.95	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.883	1.74	9.917	4.81	15.950	4.01	21.98	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.917	1.74	9.950	4.81	15.983	4.01	22.02	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.950	1.74	9.983	4.81	16.017	4.01	22.05	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
3.983	1.74	10.017	4.81	16.050	4.01	22.08	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.017	1.74	10.050	4.81	16.083	4.01	22.12	1.60
4.033	1.74	10.067	4.81	16.100	2.41	22.13	1.60
4.050	1.74	10.083	4.81	16.117	2.40	22.15	1.60
4.067	1.74	10.100	6.15	16.133	2.40	22.17	1.60
4.083	1.74	10.117	6.15	16.150	2.40	22.18	1.60
4.100	2.14	10.133	6.15	16.167	2.40	22.20	1.60
4.117	2.14	10.150	6.15	16.183	2.40	22.22	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.150	2.14	10.183	6.15	16.217	2.40	22.25	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.183	2.14	10.217	6.15	16.250	2.40	22.28	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.217	2.14	10.250	6.15	16.283	2.40	22.32	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.250	2.14	10.283	6.15	16.317	2.40	22.35	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.283	2.14	10.317	6.15	16.350	2.40	22.38	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.317	2.14	10.350	6.15	16.383	2.40	22.42	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.350	2.14	10.383	6.15	16.417	2.40	22.45	1.60

4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.383	2.14	10.417	6.15	16.450	2.40	22.48	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.417	2.14	10.450	6.15	16.483	2.40	22.52	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.450	2.14	10.483	6.15	16.517	2.40	22.55	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.483	2.14	10.517	6.15	16.550	2.40	22.58	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.517	2.14	10.550	6.15	16.583	2.40	22.62	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.550	2.14	10.583	6.15	16.617	2.40	22.65	1.60
4.567	2.14	10.600	8.28	16.633	2.40	22.67	1.60
4.583	2.14	10.617	8.28	16.650	2.40	22.68	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.617	2.14	10.650	8.28	16.683	2.40	22.72	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.650	2.14	10.683	8.28	16.717	2.40	22.75	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.683	2.14	10.717	8.28	16.750	2.40	22.78	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.717	2.14	10.750	8.28	16.783	2.40	22.82	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.750	2.14	10.783	8.28	16.817	2.40	22.85	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.783	2.14	10.817	8.28	16.850	2.40	22.88	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.817	2.14	10.850	8.28	16.883	2.40	22.92	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.850	2.14	10.883	8.28	16.917	2.40	22.95	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.883	2.14	10.917	8.28	16.950	2.40	22.98	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.917	2.14	10.950	8.28	16.983	2.40	23.02	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.950	2.14	10.983	8.28	17.017	2.40	23.05	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
4.983	2.14	11.017	8.28	17.050	2.40	23.08	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.017	2.14	11.050	8.28	17.083	2.40	23.12	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.050	2.14	11.083	8.28	17.117	2.40	23.15	1.60
5.067	2.14	11.100	12.83	17.133	2.40	23.17	1.60
5.083	2.14	11.117	12.83	17.150	2.40	23.18	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.117	2.14	11.150	12.83	17.183	2.40	23.22	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.150	2.14	11.183	12.83	17.217	2.40	23.25	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.183	2.14	11.217	12.83	17.250	2.40	23.28	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.217	2.14	11.250	12.83	17.283	2.40	23.32	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.250	2.14	11.283	12.83	17.317	2.40	23.35	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.283	2.14	11.317	12.83	17.350	2.40	23.38	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.317	2.14	11.350	12.83	17.383	2.40	23.42	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.350	2.14	11.383	12.83	17.417	2.40	23.45	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.383	2.14	11.417	12.83	17.450	2.40	23.48	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.417	2.14	11.450	12.83	17.483	2.40	23.52	1.60

5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.450	2.14	11.483	12.83	17.517	2.40	23.55	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.483	2.14	11.517	12.83	17.550	2.40	23.58	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.517	2.14	11.550	12.83	17.583	2.40	23.62	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.550	2.14	11.583	12.83	17.617	2.40	23.65	1.60
5.567	2.14	11.600	39.54	17.633	2.40	23.67	1.60
5.583	2.14	11.617	39.55	17.650	2.40	23.68	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.617	2.14	11.650	39.55	17.683	2.40	23.72	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.650	2.14	11.683	39.54	17.717	2.40	23.75	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.683	2.14	11.717	39.55	17.750	2.40	23.78	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.717	2.14	11.750	39.55	17.783	2.40	23.82	1.60
5.733	2.14	11.767	39.54	17.800	2.40	23.83	1.60
5.750	2.14	11.783	39.55	17.817	2.40	23.85	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.783	2.14	11.817	39.55	17.850	2.40	23.88	1.60
5.800	2.14	11.833	39.55	17.867	2.40	23.90	1.60
5.817	2.14	11.850	163.45	17.883	2.40	23.92	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.850	2.14	11.883	163.53	17.917	2.40	23.95	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.883	2.14	11.917	163.53	17.950	2.40	23.98	1.60
5.900	2.14	11.933	163.52	17.967	2.40	24.00	1.60
5.917	2.14	11.950	163.53	17.983	2.40	24.02	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.950	2.14	11.983	163.53	18.017	2.40	24.05	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
5.983	2.14	12.017	163.52	18.050	2.40	24.08	1.60
6.000	2.14	12.033	163.53	18.067	2.40		
6.017	2.14	12.050	163.53	18.083	2.40		
6.033	2.14	12.067	163.53	18.100	2.40		

Max.Eff.Inten.(mm/hr)=	163.53	115.40	
over (min)	5.00	6.00	
Storage Coeff. (min)=	1.16 (ii)	5.64 (ii)	
Unit Hyd. Tpeak (min)=	5.00	6.00	
Unit Hyd. peak (cms)=	0.45	0.20	
			TOTALS
PEAK FLOW (cms)=	0.01	0.10	0.107 (iii)
TIME TO PEAK (hrs)=	12.08	12.10	12.10
RUNOFF VOLUME (mm)=	131.60	46.05	48.62
TOTAL RAINFALL (mm)=	133.60	133.60	133.60
RUNOFF COEFFICIENT =	0.98	0.34	0.36

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 38.0 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.

CALIB	
STANDHYD (0201)	Area (ha)= 0.88
ID= 1 DT= 1.0 min	Total Imp(%)= 77.00 Dir. Conn.(%)= 51.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.68	0.20
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	0.50	2.00
Length	(m)=	76.61	20.00
Mannings n	=	0.013	0.190

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	6.050	2.14	12.083	163.53	18.12	2.40
0.033	0.00	6.067	2.14	12.100	19.35	18.13	2.40
0.050	0.00	6.083	2.14	12.117	19.24	18.15	2.40
0.067	0.00	6.100	2.40	12.133	19.24	18.17	2.40
0.083	0.00	6.117	2.40	12.150	19.24	18.18	2.40
0.100	1.47	6.133	2.40	12.167	19.24	18.20	2.40
0.117	1.47	6.150	2.40	12.183	19.24	18.22	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.150	1.47	6.183	2.40	12.217	19.24	18.25	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.183	1.47	6.217	2.40	12.250	19.24	18.28	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.217	1.47	6.250	2.40	12.283	19.24	18.32	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.250	1.47	6.283	2.40	12.317	19.24	18.35	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.283	1.47	6.317	2.40	12.350	19.24	18.38	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.317	1.47	6.350	2.40	12.383	19.24	18.42	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.350	1.47	6.383	2.40	12.417	19.24	18.45	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.383	1.47	6.417	2.40	12.450	19.24	18.48	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.417	1.47	6.450	2.40	12.483	19.24	18.52	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.450	1.47	6.483	2.40	12.517	19.24	18.55	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.483	1.47	6.517	2.40	12.550	19.24	18.58	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.517	1.47	6.550	2.40	12.583	19.24	18.62	2.40
0.533	1.47	6.567	2.40	12.600	9.90	18.63	2.40
0.550	1.47	6.583	2.40	12.617	9.89	18.65	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.583	1.47	6.617	2.40	12.650	9.89	18.68	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.617	1.47	6.650	2.40	12.683	9.89	18.72	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.650	1.47	6.683	2.40	12.717	9.89	18.75	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.683	1.47	6.717	2.40	12.750	9.89	18.78	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.717	1.47	6.750	2.40	12.783	9.89	18.82	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.750	1.47	6.783	2.40	12.817	9.89	18.85	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.783	1.47	6.817	2.40	12.850	9.89	18.88	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.817	1.47	6.850	2.40	12.883	9.89	18.92	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40

0.850	1.47	6.883	2.40	12.917	9.89	18.95	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.883	1.47	6.917	2.40	12.950	9.89	18.98	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.917	1.47	6.950	2.40	12.983	9.89	19.02	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.950	1.47	6.983	2.40	13.017	9.89	19.05	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
0.983	1.47	7.017	2.40	13.050	9.89	19.08	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.017	1.47	7.050	2.40	13.083	9.89	19.12	2.40
1.033	1.47	7.067	2.40	13.100	7.22	19.13	2.40
1.050	1.47	7.083	2.41	13.117	7.21	19.15	2.40
1.067	1.47	7.100	2.94	13.133	7.21	19.17	2.40
1.083	1.47	7.117	2.94	13.150	7.21	19.18	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.117	1.47	7.150	2.94	13.183	7.21	19.22	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.150	1.47	7.183	2.94	13.217	7.21	19.25	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.183	1.47	7.217	2.94	13.250	7.21	19.28	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.217	1.47	7.250	2.94	13.283	7.21	19.32	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.250	1.47	7.283	2.94	13.317	7.21	19.35	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.283	1.47	7.317	2.94	13.350	7.21	19.38	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.317	1.47	7.350	2.94	13.383	7.21	19.42	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.350	1.47	7.383	2.94	13.417	7.21	19.45	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.383	1.47	7.417	2.94	13.450	7.21	19.48	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.417	1.47	7.450	2.94	13.483	7.21	19.52	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.450	1.47	7.483	2.94	13.517	7.21	19.55	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.483	1.47	7.517	2.94	13.550	7.21	19.58	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.517	1.47	7.550	2.94	13.583	7.21	19.62	2.40
1.533	1.47	7.567	2.94	13.600	5.61	19.63	2.40
1.550	1.47	7.583	2.94	13.617	5.61	19.65	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.583	1.47	7.617	2.94	13.650	5.61	19.68	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.617	1.47	7.650	2.94	13.683	5.61	19.72	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.650	1.47	7.683	2.94	13.717	5.61	19.75	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.683	1.47	7.717	2.94	13.750	5.61	19.78	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.717	1.47	7.750	2.94	13.783	5.61	19.82	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.750	1.47	7.783	2.94	13.817	5.61	19.85	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.783	1.47	7.817	2.94	13.850	5.61	19.88	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.817	1.47	7.850	2.94	13.883	5.61	19.92	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.850	1.47	7.883	2.94	13.917	5.61	19.95	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.883	1.47	7.917	2.94	13.950	5.61	19.98	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40

1.917	1.47	7.950	2.94	13.983	5.61	20.02	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.950	1.47	7.983	2.94	14.017	5.61	20.05	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
1.983	1.47	8.017	2.94	14.050	5.61	20.08	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	1.61
2.017	1.47	8.050	2.94	14.083	5.61	20.12	1.60
2.033	1.47	8.067	2.94	14.100	4.01	20.13	1.60
2.050	1.47	8.083	2.94	14.117	4.01	20.15	1.60
2.067	1.47	8.100	3.47	14.133	4.01	20.17	1.60
2.083	1.47	8.117	3.47	14.150	4.01	20.18	1.60
2.100	1.74	8.133	3.47	14.167	4.01	20.20	1.60
2.117	1.74	8.150	3.47	14.183	4.01	20.22	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.150	1.74	8.183	3.47	14.217	4.01	20.25	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.183	1.74	8.217	3.47	14.250	4.01	20.28	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.217	1.74	8.250	3.47	14.283	4.01	20.32	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.250	1.74	8.283	3.47	14.317	4.01	20.35	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.283	1.74	8.317	3.47	14.350	4.01	20.38	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.317	1.74	8.350	3.47	14.383	4.01	20.42	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.350	1.74	8.383	3.47	14.417	4.01	20.45	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.383	1.74	8.417	3.47	14.450	4.01	20.48	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.417	1.74	8.450	3.47	14.483	4.01	20.52	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.450	1.74	8.483	3.47	14.517	4.01	20.55	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.483	1.74	8.517	3.47	14.550	4.01	20.58	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.517	1.74	8.550	3.47	14.583	4.01	20.62	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.550	1.74	8.583	3.47	14.617	4.01	20.65	1.60
2.567	1.74	8.600	3.74	14.633	4.01	20.67	1.60
2.583	1.74	8.617	3.74	14.650	4.01	20.68	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.617	1.74	8.650	3.74	14.683	4.01	20.72	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.650	1.74	8.683	3.74	14.717	4.01	20.75	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.683	1.74	8.717	3.74	14.750	4.01	20.78	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.717	1.74	8.750	3.74	14.783	4.01	20.82	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.750	1.74	8.783	3.74	14.817	4.01	20.85	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.783	1.74	8.817	3.74	14.850	4.01	20.88	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.817	1.74	8.850	3.74	14.883	4.01	20.92	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.850	1.74	8.883	3.74	14.917	4.01	20.95	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.883	1.74	8.917	3.74	14.950	4.01	20.98	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.917	1.74	8.950	3.74	14.983	4.01	21.02	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.950	1.74	8.983	3.74	15.017	4.01	21.05	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60

2.983	1.74	9.017	3.74	15.050	4.01	21.08	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.017	1.74	9.050	3.74	15.083	4.01	21.12	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.050	1.74	9.083	3.74	15.117	4.01	21.15	1.60
3.067	1.74	9.100	4.28	15.133	4.01	21.17	1.60
3.083	1.74	9.117	4.28	15.150	4.01	21.18	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.117	1.74	9.150	4.28	15.183	4.01	21.22	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.150	1.74	9.183	4.28	15.217	4.01	21.25	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.183	1.74	9.217	4.28	15.250	4.01	21.28	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.217	1.74	9.250	4.28	15.283	4.01	21.32	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.250	1.74	9.283	4.28	15.317	4.01	21.35	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.283	1.74	9.317	4.28	15.350	4.01	21.38	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.317	1.74	9.350	4.28	15.383	4.01	21.42	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.350	1.74	9.383	4.28	15.417	4.01	21.45	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.383	1.74	9.417	4.28	15.450	4.01	21.48	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.417	1.74	9.450	4.28	15.483	4.01	21.52	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.450	1.74	9.483	4.28	15.517	4.01	21.55	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.483	1.74	9.517	4.28	15.550	4.01	21.58	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.517	1.74	9.550	4.28	15.583	4.01	21.62	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.550	1.74	9.583	4.28	15.617	4.01	21.65	1.60
3.567	1.74	9.600	4.81	15.633	4.01	21.67	1.60
3.583	1.74	9.617	4.81	15.650	4.01	21.68	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.617	1.74	9.650	4.81	15.683	4.01	21.72	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.650	1.74	9.683	4.81	15.717	4.01	21.75	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.683	1.74	9.717	4.81	15.750	4.01	21.78	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.717	1.74	9.750	4.81	15.783	4.01	21.82	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.750	1.74	9.783	4.81	15.817	4.01	21.85	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.783	1.74	9.817	4.81	15.850	4.01	21.88	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.817	1.74	9.850	4.81	15.883	4.01	21.92	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.850	1.74	9.883	4.81	15.917	4.01	21.95	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.883	1.74	9.917	4.81	15.950	4.01	21.98	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.917	1.74	9.950	4.81	15.983	4.01	22.02	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.950	1.74	9.983	4.81	16.017	4.01	22.05	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
3.983	1.74	10.017	4.81	16.050	4.01	22.08	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.017	1.74	10.050	4.81	16.083	4.01	22.12	1.60
4.033	1.74	10.067	4.81	16.100	2.41	22.13	1.60

4.050	1.74	10.083	4.81	16.117	2.40	22.15	1.60
4.067	1.74	10.100	6.15	16.133	2.40	22.17	1.60
4.083	1.74	10.117	6.15	16.150	2.40	22.18	1.60
4.100	2.14	10.133	6.15	16.167	2.40	22.20	1.60
4.117	2.14	10.150	6.15	16.183	2.40	22.22	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.150	2.14	10.183	6.15	16.217	2.40	22.25	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.183	2.14	10.217	6.15	16.250	2.40	22.28	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.217	2.14	10.250	6.15	16.283	2.40	22.32	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.250	2.14	10.283	6.15	16.317	2.40	22.35	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.283	2.14	10.317	6.15	16.350	2.40	22.38	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.317	2.14	10.350	6.15	16.383	2.40	22.42	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.350	2.14	10.383	6.15	16.417	2.40	22.45	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.383	2.14	10.417	6.15	16.450	2.40	22.48	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.417	2.14	10.450	6.15	16.483	2.40	22.52	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.450	2.14	10.483	6.15	16.517	2.40	22.55	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.483	2.14	10.517	6.15	16.550	2.40	22.58	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.517	2.14	10.550	6.15	16.583	2.40	22.62	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.550	2.14	10.583	6.15	16.617	2.40	22.65	1.60
4.567	2.14	10.600	8.28	16.633	2.40	22.67	1.60
4.583	2.14	10.617	8.28	16.650	2.40	22.68	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.617	2.14	10.650	8.28	16.683	2.40	22.72	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.650	2.14	10.683	8.28	16.717	2.40	22.75	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.683	2.14	10.717	8.28	16.750	2.40	22.78	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.717	2.14	10.750	8.28	16.783	2.40	22.82	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.750	2.14	10.783	8.28	16.817	2.40	22.85	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.783	2.14	10.817	8.28	16.850	2.40	22.88	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.817	2.14	10.850	8.28	16.883	2.40	22.92	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.850	2.14	10.883	8.28	16.917	2.40	22.95	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.883	2.14	10.917	8.28	16.950	2.40	22.98	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.917	2.14	10.950	8.28	16.983	2.40	23.02	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.950	2.14	10.983	8.28	17.017	2.40	23.05	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
4.983	2.14	11.017	8.28	17.050	2.40	23.08	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.017	2.14	11.050	8.28	17.083	2.40	23.12	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.050	2.14	11.083	8.28	17.117	2.40	23.15	1.60
5.067	2.14	11.100	12.83	17.133	2.40	23.17	1.60
5.083	2.14	11.117	12.83	17.150	2.40	23.18	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60

5.117	2.14	11.150	12.83	17.183	2.40	23.22	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.150	2.14	11.183	12.83	17.217	2.40	23.25	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.183	2.14	11.217	12.83	17.250	2.40	23.28	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.217	2.14	11.250	12.83	17.283	2.40	23.32	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.250	2.14	11.283	12.83	17.317	2.40	23.35	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.283	2.14	11.317	12.83	17.350	2.40	23.38	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.317	2.14	11.350	12.83	17.383	2.40	23.42	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.350	2.14	11.383	12.83	17.417	2.40	23.45	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.383	2.14	11.417	12.83	17.450	2.40	23.48	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.417	2.14	11.450	12.83	17.483	2.40	23.52	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.450	2.14	11.483	12.83	17.517	2.40	23.55	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.483	2.14	11.517	12.83	17.550	2.40	23.58	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.517	2.14	11.550	12.83	17.583	2.40	23.62	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.550	2.14	11.583	12.83	17.617	2.40	23.65	1.60
5.567	2.14	11.600	39.54	17.633	2.40	23.67	1.60
5.583	2.14	11.617	39.55	17.650	2.40	23.68	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.617	2.14	11.650	39.55	17.683	2.40	23.72	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.650	2.14	11.683	39.54	17.717	2.40	23.75	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.683	2.14	11.717	39.55	17.750	2.40	23.78	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.717	2.14	11.750	39.55	17.783	2.40	23.82	1.60
5.733	2.14	11.767	39.54	17.800	2.40	23.83	1.60
5.750	2.14	11.783	39.55	17.817	2.40	23.85	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.783	2.14	11.817	39.55	17.850	2.40	23.88	1.60
5.800	2.14	11.833	39.55	17.867	2.40	23.90	1.60
5.817	2.14	11.850	163.45	17.883	2.40	23.92	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.850	2.14	11.883	163.53	17.917	2.40	23.95	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.883	2.14	11.917	163.53	17.950	2.40	23.98	1.60
5.900	2.14	11.933	163.52	17.967	2.40	24.00	1.60
5.917	2.14	11.950	163.53	17.983	2.40	24.02	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.950	2.14	11.983	163.53	18.017	2.40	24.05	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
5.983	2.14	12.017	163.52	18.050	2.40	24.08	1.60
6.000	2.14	12.033	163.53	18.067	2.40		
6.017	2.14	12.050	163.53	18.083	2.40		
6.033	2.14	12.067	163.53	18.100	2.40		

Max.Eff.Inten.(mm/hr)=	163.53	167.39	
over (min)	5.00	5.00	
Storage Coeff. (min)=	2.20 (ii)	4.56 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.36	0.24	
			TOTALS
PEAK FLOW (cms)=	0.20	0.09	0.290 (iii)

TIME TO PEAK (hrs)=	12.08	12.10	12.08
RUNOFF VOLUME (mm)=	131.58	54.22	93.68
TOTAL RAINFALL (mm)=	133.60	133.60	133.60
RUNOFF COEFFICIENT =	0.98	0.41	0.70

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 39.0 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.

CHAMBER(0010)	OUTFLOW: OFF, UNDERDRAIN: ON, INFIL: ON
IN= 2--> OUT= 3	CHAMBER:
DT= 2.0 min	MAX STO VOL (cu.m.)= 128.13 Bottom Area(m2) = 100.66

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1092.00	72.59
25.00	1.02	1118.00	74.39
51.00	2.04	1143.00	76.17
76.00	3.07	1168.00	77.95
102.00	4.09	1194.00	79.70
127.00	5.11	1219.00	81.45
152.00	6.13	1245.00	83.17
178.00	7.16	1270.00	84.88
203.00	8.18	1295.00	86.58
229.00	9.20	1321.00	88.25
254.00	10.22	1346.00	89.91
279.00	11.25	1372.00	91.55
305.00	12.27	1397.00	93.17
330.00	14.31	1422.00	94.77
356.00	16.34	1448.00	96.35
381.00	18.37	1473.00	97.90
406.00	20.39	1499.00	99.43
432.00	22.41	1524.00	100.93
457.00	24.43	1549.00	102.40
483.00	26.44	1575.00	103.85
508.00	28.45	1600.00	105.26
533.00	30.45	1626.00	106.63
559.00	32.44	1651.00	107.96
584.00	34.43	1676.00	109.24
610.00	36.42	1702.00	110.44
635.00	38.40	1727.00	111.57
660.00	40.37	1753.00	112.67
686.00	42.33	1778.00	113.76
711.00	44.29	1803.00	114.82
737.00	46.24	1829.00	115.86
762.00	48.18	1854.00	116.88
787.00	50.12	1880.00	117.91
813.00	52.05	1905.00	118.93
838.00	53.96	1930.00	119.95
864.00	55.87	1956.00	120.97
889.00	57.77	1981.00	122.00
914.00	59.66	2007.00	123.02
940.00	61.54	2032.00	124.04
965.00	63.41	2057.00	125.06
991.00	65.27	2083.00	126.09
1016.00	67.12	2108.00	127.11
1041.00	68.95	2134.00	128.13
1067.00	70.78	0.00	0.00

UNDERDRAIN LAYER:

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.206	0.146
0.019	0.001	0.225	0.167
0.038	0.005	0.244	0.188
0.056	0.012	0.262	0.208
0.075	0.022	0.281	0.226
0.094	0.034	0.300	0.242
0.112	0.049	0.319	0.256
0.131	0.066	0.337	0.264
0.150	0.084	0.356	0.266
0.169	0.104	0.375	0.248
0.188	0.125	0.000	0.000

NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0380

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	0.88	0.290	12.08	93.68
UNDERDRAIN:ID= 4	0.78	0.265	12.02	72.09
OVERFLOW:ID= 3	0.10	0.235	12.10	72.09

Volume Reduction Rate[(RVin-RVout)/RVin](%)= 23.04
Time to reach Max storage (Hr)= 12.08
Volume of water for drawdown in LID (cu.m.)= 102.73
Volume of maximum water storage (cu.m.)= 125.32
Calculated Drawdown Time (Hr)= 26.85

| Junction Command(0012) |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 4(0010)	0.10	0.24	12.10	72.09
OUTFLOW: ID= 2(0012)	0.10	0.24	12.10	72.09

| ADD HYD (0004)|
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	0.10	0.235	12.10	72.09
+ ID2= 2 (0202):	0.63	0.107	12.10	48.62
ID = 3 (0004):	0.73	0.342	12.10	51.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0001)|
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0004):	0.73	0.342	12.10	51.85
+ ID2= 2 (0005):	1.38	0.162	12.10	36.33
ID = 3 (0001):	2.11	0.504	12.10	41.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0302)	Area (ha)=	1.68	Curve Number (CN)=	27.0	
ID= 1 DT= 1.0 min	Ia (mm)=	9.55	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.28			

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	6.050	2.14	12.083	163.53	18.12	2.40
0.033	0.00	6.067	2.14	12.100	19.35	18.13	2.40
0.050	0.00	6.083	2.14	12.117	19.24	18.15	2.40
0.067	0.00	6.100	2.40	12.133	19.24	18.17	2.40
0.083	0.00	6.117	2.40	12.150	19.24	18.18	2.40
0.100	1.47	6.133	2.40	12.167	19.24	18.20	2.40
0.117	1.47	6.150	2.40	12.183	19.24	18.22	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.150	1.47	6.183	2.40	12.217	19.24	18.25	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.183	1.47	6.217	2.40	12.250	19.24	18.28	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.217	1.47	6.250	2.40	12.283	19.24	18.32	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.250	1.47	6.283	2.40	12.317	19.24	18.35	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.283	1.47	6.317	2.40	12.350	19.24	18.38	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.317	1.47	6.350	2.40	12.383	19.24	18.42	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.350	1.47	6.383	2.40	12.417	19.24	18.45	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.383	1.47	6.417	2.40	12.450	19.24	18.48	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.417	1.47	6.450	2.40	12.483	19.24	18.52	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.450	1.47	6.483	2.40	12.517	19.24	18.55	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.483	1.47	6.517	2.40	12.550	19.24	18.58	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.517	1.47	6.550	2.40	12.583	19.24	18.62	2.40
0.533	1.47	6.567	2.40	12.600	9.90	18.63	2.40
0.550	1.47	6.583	2.40	12.617	9.89	18.65	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.583	1.47	6.617	2.40	12.650	9.89	18.68	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.617	1.47	6.650	2.40	12.683	9.89	18.72	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.650	1.47	6.683	2.40	12.717	9.89	18.75	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.683	1.47	6.717	2.40	12.750	9.89	18.78	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.717	1.47	6.750	2.40	12.783	9.89	18.82	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.750	1.47	6.783	2.40	12.817	9.89	18.85	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.783	1.47	6.817	2.40	12.850	9.89	18.88	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.817	1.47	6.850	2.40	12.883	9.89	18.92	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.850	1.47	6.883	2.40	12.917	9.89	18.95	2.40

0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.883	1.47	6.917	2.40	12.950	9.89	18.98	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.917	1.47	6.950	2.40	12.983	9.89	19.02	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.950	1.47	6.983	2.40	13.017	9.89	19.05	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
0.983	1.47	7.017	2.40	13.050	9.89	19.08	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.017	1.47	7.050	2.40	13.083	9.89	19.12	2.40
1.033	1.47	7.067	2.40	13.100	7.22	19.13	2.40
1.050	1.47	7.083	2.41	13.117	7.21	19.15	2.40
1.067	1.47	7.100	2.94	13.133	7.21	19.17	2.40
1.083	1.47	7.117	2.94	13.150	7.21	19.18	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.117	1.47	7.150	2.94	13.183	7.21	19.22	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.150	1.47	7.183	2.94	13.217	7.21	19.25	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.183	1.47	7.217	2.94	13.250	7.21	19.28	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.217	1.47	7.250	2.94	13.283	7.21	19.32	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.250	1.47	7.283	2.94	13.317	7.21	19.35	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.283	1.47	7.317	2.94	13.350	7.21	19.38	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.317	1.47	7.350	2.94	13.383	7.21	19.42	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.350	1.47	7.383	2.94	13.417	7.21	19.45	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.383	1.47	7.417	2.94	13.450	7.21	19.48	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.417	1.47	7.450	2.94	13.483	7.21	19.52	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.450	1.47	7.483	2.94	13.517	7.21	19.55	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.483	1.47	7.517	2.94	13.550	7.21	19.58	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.517	1.47	7.550	2.94	13.583	7.21	19.62	2.40
1.533	1.47	7.567	2.94	13.600	5.61	19.63	2.40
1.550	1.47	7.583	2.94	13.617	5.61	19.65	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.583	1.47	7.617	2.94	13.650	5.61	19.68	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.617	1.47	7.650	2.94	13.683	5.61	19.72	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.650	1.47	7.683	2.94	13.717	5.61	19.75	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.683	1.47	7.717	2.94	13.750	5.61	19.78	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.717	1.47	7.750	2.94	13.783	5.61	19.82	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.750	1.47	7.783	2.94	13.817	5.61	19.85	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.783	1.47	7.817	2.94	13.850	5.61	19.88	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.817	1.47	7.850	2.94	13.883	5.61	19.92	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.850	1.47	7.883	2.94	13.917	5.61	19.95	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.883	1.47	7.917	2.94	13.950	5.61	19.98	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.917	1.47	7.950	2.94	13.983	5.61	20.02	2.40

1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.950	1.47	7.983	2.94	14.017	5.61	20.05	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
1.983	1.47	8.017	2.94	14.050	5.61	20.08	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	1.61
2.017	1.47	8.050	2.94	14.083	5.61	20.12	1.60
2.033	1.47	8.067	2.94	14.100	4.01	20.13	1.60
2.050	1.47	8.083	2.94	14.117	4.01	20.15	1.60
2.067	1.47	8.100	3.47	14.133	4.01	20.17	1.60
2.083	1.47	8.117	3.47	14.150	4.01	20.18	1.60
2.100	1.74	8.133	3.47	14.167	4.01	20.20	1.60
2.117	1.74	8.150	3.47	14.183	4.01	20.22	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.150	1.74	8.183	3.47	14.217	4.01	20.25	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.183	1.74	8.217	3.47	14.250	4.01	20.28	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.217	1.74	8.250	3.47	14.283	4.01	20.32	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.250	1.74	8.283	3.47	14.317	4.01	20.35	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.283	1.74	8.317	3.47	14.350	4.01	20.38	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.317	1.74	8.350	3.47	14.383	4.01	20.42	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.350	1.74	8.383	3.47	14.417	4.01	20.45	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.383	1.74	8.417	3.47	14.450	4.01	20.48	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.417	1.74	8.450	3.47	14.483	4.01	20.52	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.450	1.74	8.483	3.47	14.517	4.01	20.55	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.483	1.74	8.517	3.47	14.550	4.01	20.58	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.517	1.74	8.550	3.47	14.583	4.01	20.62	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.550	1.74	8.583	3.47	14.617	4.01	20.65	1.60
2.567	1.74	8.600	3.74	14.633	4.01	20.67	1.60
2.583	1.74	8.617	3.74	14.650	4.01	20.68	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.617	1.74	8.650	3.74	14.683	4.01	20.72	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.650	1.74	8.683	3.74	14.717	4.01	20.75	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.683	1.74	8.717	3.74	14.750	4.01	20.78	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.717	1.74	8.750	3.74	14.783	4.01	20.82	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.750	1.74	8.783	3.74	14.817	4.01	20.85	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.783	1.74	8.817	3.74	14.850	4.01	20.88	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.817	1.74	8.850	3.74	14.883	4.01	20.92	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.850	1.74	8.883	3.74	14.917	4.01	20.95	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.883	1.74	8.917	3.74	14.950	4.01	20.98	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.917	1.74	8.950	3.74	14.983	4.01	21.02	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.950	1.74	8.983	3.74	15.017	4.01	21.05	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
2.983	1.74	9.017	3.74	15.050	4.01	21.08	1.60

3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.017	1.74	9.050	3.74	15.083	4.01	21.12	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.050	1.74	9.083	3.74	15.117	4.01	21.15	1.60
3.067	1.74	9.100	4.28	15.133	4.01	21.17	1.60
3.083	1.74	9.117	4.28	15.150	4.01	21.18	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.117	1.74	9.150	4.28	15.183	4.01	21.22	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.150	1.74	9.183	4.28	15.217	4.01	21.25	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.183	1.74	9.217	4.28	15.250	4.01	21.28	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.217	1.74	9.250	4.28	15.283	4.01	21.32	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.250	1.74	9.283	4.28	15.317	4.01	21.35	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.283	1.74	9.317	4.28	15.350	4.01	21.38	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.317	1.74	9.350	4.28	15.383	4.01	21.42	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.350	1.74	9.383	4.28	15.417	4.01	21.45	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.383	1.74	9.417	4.28	15.450	4.01	21.48	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.417	1.74	9.450	4.28	15.483	4.01	21.52	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.450	1.74	9.483	4.28	15.517	4.01	21.55	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.483	1.74	9.517	4.28	15.550	4.01	21.58	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.517	1.74	9.550	4.28	15.583	4.01	21.62	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.550	1.74	9.583	4.28	15.617	4.01	21.65	1.60
3.567	1.74	9.600	4.81	15.633	4.01	21.67	1.60
3.583	1.74	9.617	4.81	15.650	4.01	21.68	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.617	1.74	9.650	4.81	15.683	4.01	21.72	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.650	1.74	9.683	4.81	15.717	4.01	21.75	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.683	1.74	9.717	4.81	15.750	4.01	21.78	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.717	1.74	9.750	4.81	15.783	4.01	21.82	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.750	1.74	9.783	4.81	15.817	4.01	21.85	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.783	1.74	9.817	4.81	15.850	4.01	21.88	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.817	1.74	9.850	4.81	15.883	4.01	21.92	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.850	1.74	9.883	4.81	15.917	4.01	21.95	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.883	1.74	9.917	4.81	15.950	4.01	21.98	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.917	1.74	9.950	4.81	15.983	4.01	22.02	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.950	1.74	9.983	4.81	16.017	4.01	22.05	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
3.983	1.74	10.017	4.81	16.050	4.01	22.08	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.017	1.74	10.050	4.81	16.083	4.01	22.12	1.60
4.033	1.74	10.067	4.81	16.100	2.41	22.13	1.60
4.050	1.74	10.083	4.81	16.117	2.40	22.15	1.60

4.067	1.74	10.100	6.15	16.133	2.40	22.17	1.60
4.083	1.74	10.117	6.15	16.150	2.40	22.18	1.60
4.100	2.14	10.133	6.15	16.167	2.40	22.20	1.60
4.117	2.14	10.150	6.15	16.183	2.40	22.22	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.150	2.14	10.183	6.15	16.217	2.40	22.25	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.183	2.14	10.217	6.15	16.250	2.40	22.28	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.217	2.14	10.250	6.15	16.283	2.40	22.32	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.250	2.14	10.283	6.15	16.317	2.40	22.35	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.283	2.14	10.317	6.15	16.350	2.40	22.38	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.317	2.14	10.350	6.15	16.383	2.40	22.42	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.350	2.14	10.383	6.15	16.417	2.40	22.45	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.383	2.14	10.417	6.15	16.450	2.40	22.48	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.417	2.14	10.450	6.15	16.483	2.40	22.52	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.450	2.14	10.483	6.15	16.517	2.40	22.55	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.483	2.14	10.517	6.15	16.550	2.40	22.58	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.517	2.14	10.550	6.15	16.583	2.40	22.62	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.550	2.14	10.583	6.15	16.617	2.40	22.65	1.60
4.567	2.14	10.600	8.28	16.633	2.40	22.67	1.60
4.583	2.14	10.617	8.28	16.650	2.40	22.68	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.617	2.14	10.650	8.28	16.683	2.40	22.72	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.650	2.14	10.683	8.28	16.717	2.40	22.75	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.683	2.14	10.717	8.28	16.750	2.40	22.78	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.717	2.14	10.750	8.28	16.783	2.40	22.82	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.750	2.14	10.783	8.28	16.817	2.40	22.85	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.783	2.14	10.817	8.28	16.850	2.40	22.88	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.817	2.14	10.850	8.28	16.883	2.40	22.92	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.850	2.14	10.883	8.28	16.917	2.40	22.95	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.883	2.14	10.917	8.28	16.950	2.40	22.98	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.917	2.14	10.950	8.28	16.983	2.40	23.02	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.950	2.14	10.983	8.28	17.017	2.40	23.05	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
4.983	2.14	11.017	8.28	17.050	2.40	23.08	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.017	2.14	11.050	8.28	17.083	2.40	23.12	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.050	2.14	11.083	8.28	17.117	2.40	23.15	1.60
5.067	2.14	11.100	12.83	17.133	2.40	23.17	1.60
5.083	2.14	11.117	12.83	17.150	2.40	23.18	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.117	2.14	11.150	12.83	17.183	2.40	23.22	1.60

5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.150	2.14	11.183	12.83	17.217	2.40	23.25	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.183	2.14	11.217	12.83	17.250	2.40	23.28	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.217	2.14	11.250	12.83	17.283	2.40	23.32	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.250	2.14	11.283	12.83	17.317	2.40	23.35	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.283	2.14	11.317	12.83	17.350	2.40	23.38	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.317	2.14	11.350	12.83	17.383	2.40	23.42	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.350	2.14	11.383	12.83	17.417	2.40	23.45	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.383	2.14	11.417	12.83	17.450	2.40	23.48	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.417	2.14	11.450	12.83	17.483	2.40	23.52	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.450	2.14	11.483	12.83	17.517	2.40	23.55	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.483	2.14	11.517	12.83	17.550	2.40	23.58	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.517	2.14	11.550	12.83	17.583	2.40	23.62	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.550	2.14	11.583	12.83	17.617	2.40	23.65	1.60
5.567	2.14	11.600	39.54	17.633	2.40	23.67	1.60
5.583	2.14	11.617	39.55	17.650	2.40	23.68	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.617	2.14	11.650	39.55	17.683	2.40	23.72	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.650	2.14	11.683	39.54	17.717	2.40	23.75	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.683	2.14	11.717	39.55	17.750	2.40	23.78	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.717	2.14	11.750	39.55	17.783	2.40	23.82	1.60
5.733	2.14	11.767	39.54	17.800	2.40	23.83	1.60
5.750	2.14	11.783	39.55	17.817	2.40	23.85	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.783	2.14	11.817	39.55	17.850	2.40	23.88	1.60
5.800	2.14	11.833	39.55	17.867	2.40	23.90	1.60
5.817	2.14	11.850	163.45	17.883	2.40	23.92	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.850	2.14	11.883	163.53	17.917	2.40	23.95	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.883	2.14	11.917	163.53	17.950	2.40	23.98	1.60
5.900	2.14	11.933	163.52	17.967	2.40	24.00	1.60
5.917	2.14	11.950	163.53	17.983	2.40	24.02	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.950	2.14	11.983	163.53	18.017	2.40	24.05	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
5.983	2.14	12.017	163.52	18.050	2.40	24.08	1.60
6.000	2.14	12.033	163.53	18.067	2.40		
6.017	2.14	12.050	163.53	18.083	2.40		
6.033	2.14	12.067	163.53	18.100	2.40		

Unit Hyd Qpeak (cms)= 0.229

PEAK FLOW (cms)= 0.060 (i)
TIME TO PEAK (hrs)= 12.267
RUNOFF VOLUME (mm)= 14.752
TOTAL RAINFALL (mm)= 133.601
RUNOFF COEFFICIENT = 0.110

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0003)|	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0001):	2.11	0.504	12.10	41.72
	+ ID2= 2 (0302):	1.68	0.060	12.27	14.75
	ID = 3 (0003):	3.79	0.545	12.10	31.63

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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================================================================================
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output        filename:    C:\Users\mgallant\AppData\Local\Civica\VH5\6bb8133b-
c3b7-49cd-875d-ed11cb8c976b\2da43934-10bf-4fbe-860e-4a2b6bb3ce44\sce
  Summary      filename:     C:\Users\mgallant\AppData\Local\Civica\VH5\6bb8133b-
c3b7-49cd-875d-ed11cb8c976b\2da43934-10bf-4fbe-860e-4a2b6bb3ce44\sce


DATE: 08-11-2022                              TIME: 02:29:31

USER:



COMMENTS: _____________________________________________________________


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  ************************************************
  ** SIMULATION : Post-Dev-PF, Hazel AMCIII     **
  ************************************************


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|    READ STORM    |    Filename: C:\Users\mgallant\AppD
|                  |              ata\Local\Temp\
|                  |              029c108b-cb4d-438c-bdee-8713a52fb232\c4cd6a53
| Ptotal=212.00 mm |    Comments: Hazel
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  4.00   13.00 |  8.00   13.00 | 12.00   13.00
                1.00    6.00 |  5.00   17.00 |  9.00   13.00 |
                2.00    4.00 |  6.00   13.00 | 10.00   53.00 |
                3.00    6.00 |  7.00   23.00 | 11.00   38.00 |

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| CALIB              |
| NASHYD   (  0301)|   Area    (ha)=   6.32   Curve Number   (CN)= 48.0
|ID= 1 DT= 1.0 min |   Ia      (mm)=   9.42   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.27
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NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	3.267	6.00	6.517	13.00	9.77	13.00
0.033	0.00	3.283	6.00	6.533	13.00	9.78	13.00
0.050	0.00	3.300	6.00	6.550	13.00	9.80	13.00
0.067	0.00	3.317	6.00	6.567	13.00	9.82	13.00
0.083	0.00	3.333	6.00	6.583	13.00	9.83	13.00
0.100	0.00	3.350	6.00	6.600	13.00	9.85	13.00
0.117	0.00	3.367	6.00	6.617	13.00	9.87	13.00
0.133	0.00	3.383	6.00	6.633	13.00	9.88	13.00
0.150	0.00	3.400	6.00	6.650	13.00	9.90	13.00
0.167	0.00	3.417	6.00	6.667	13.00	9.92	13.00
0.183	0.00	3.433	6.00	6.683	13.00	9.93	13.00
0.200	0.00	3.450	6.00	6.700	13.00	9.95	13.00
0.217	0.00	3.467	6.00	6.717	13.00	9.97	13.00
0.233	0.00	3.483	6.00	6.733	13.00	9.98	13.00
0.250	0.00	3.500	6.00	6.750	13.00	10.00	13.05
0.267	0.00	3.517	6.00	6.767	13.00	10.02	53.00
0.283	0.00	3.533	6.00	6.783	13.00	10.03	53.00
0.300	0.00	3.550	6.00	6.800	13.00	10.05	53.00
0.317	0.00	3.567	6.00	6.817	13.00	10.07	53.00
0.333	0.00	3.583	6.00	6.833	13.00	10.08	53.00
0.350	0.00	3.600	6.00	6.850	13.00	10.10	53.00
0.367	0.00	3.617	6.00	6.867	13.00	10.12	53.00
0.383	0.00	3.633	6.00	6.883	13.00	10.13	53.00
0.400	0.00	3.650	6.00	6.900	13.00	10.15	53.00
0.417	0.00	3.667	6.00	6.917	13.00	10.17	53.00
0.433	0.00	3.683	6.00	6.933	13.00	10.18	53.00
0.450	0.00	3.700	6.00	6.950	13.00	10.20	53.00
0.467	0.00	3.717	6.00	6.967	13.00	10.22	53.00
0.483	0.00	3.733	6.00	6.983	13.00	10.23	53.00
0.500	0.00	3.750	6.00	7.000	13.02	10.25	53.00
0.517	0.00	3.767	6.00	7.017	23.00	10.27	53.00
0.533	0.00	3.783	6.00	7.033	23.00	10.28	53.00
0.550	0.00	3.800	6.00	7.050	23.00	10.30	53.00
0.567	0.00	3.817	6.00	7.067	23.00	10.32	53.00
0.583	0.00	3.833	6.00	7.083	23.00	10.33	53.00
0.600	0.00	3.850	6.00	7.100	23.00	10.35	53.00
0.617	0.00	3.867	6.00	7.117	23.00	10.37	53.00
0.633	0.00	3.883	6.00	7.133	23.00	10.38	53.00
0.650	0.00	3.900	6.00	7.150	23.00	10.40	53.00
0.667	0.00	3.917	6.00	7.167	23.00	10.42	53.00
0.683	0.00	3.933	6.00	7.183	23.00	10.43	53.00
0.700	0.00	3.950	6.00	7.200	23.00	10.45	53.00
0.717	0.00	3.967	6.00	7.217	23.00	10.47	53.00
0.733	0.00	3.983	6.00	7.233	23.00	10.48	53.00
0.750	0.00	4.000	6.00	7.250	23.00	10.50	53.00
0.767	0.00	4.017	13.00	7.267	23.00	10.52	53.00
0.783	0.00	4.033	13.00	7.283	23.00	10.53	53.00
0.800	0.00	4.050	13.00	7.300	23.00	10.55	53.00
0.817	0.00	4.067	13.00	7.317	23.00	10.57	53.00
0.833	0.00	4.083	13.00	7.333	23.00	10.58	53.00
0.850	0.00	4.100	13.00	7.350	23.00	10.60	53.00
0.867	0.00	4.117	13.00	7.367	23.00	10.62	53.00
0.883	0.00	4.133	13.00	7.383	23.00	10.63	53.00
0.900	0.00	4.150	13.00	7.400	23.00	10.65	53.00
0.917	0.00	4.167	13.00	7.417	23.00	10.67	53.00
0.933	0.00	4.183	13.00	7.433	23.00	10.68	53.00
0.950	0.00	4.200	13.00	7.450	23.00	10.70	53.00

0.967	0.00	4.217	13.00	7.467	23.00	10.72	53.00
0.983	0.00	4.233	13.00	7.483	23.00	10.73	53.00
1.000	0.00	4.250	13.00	7.500	23.00	10.75	53.00
1.017	6.00	4.267	13.00	7.517	23.00	10.77	53.00
1.033	6.00	4.283	13.00	7.533	23.00	10.78	53.00
1.050	6.00	4.300	13.00	7.550	23.00	10.80	53.00
1.067	6.00	4.317	13.00	7.567	23.00	10.82	53.00
1.083	6.00	4.333	13.00	7.583	23.00	10.83	53.00
1.100	6.00	4.350	13.00	7.600	23.00	10.85	53.00
1.117	6.00	4.367	13.00	7.617	23.00	10.87	53.00
1.133	6.00	4.383	13.00	7.633	23.00	10.88	53.00
1.150	6.00	4.400	13.00	7.650	23.00	10.90	53.00
1.167	6.00	4.417	13.00	7.667	23.00	10.92	53.00
1.183	6.00	4.433	13.00	7.683	23.00	10.93	53.00
1.200	6.00	4.450	13.00	7.700	23.00	10.95	53.00
1.217	6.00	4.467	13.00	7.717	23.00	10.97	53.00
1.233	6.00	4.483	13.00	7.733	23.00	10.98	53.00
1.250	6.00	4.500	13.00	7.750	23.00	11.00	53.00
1.267	6.00	4.517	13.00	7.767	23.00	11.02	38.00
1.283	6.00	4.533	13.00	7.783	23.00	11.03	38.00
1.300	6.00	4.550	13.00	7.800	23.00	11.05	38.00
1.317	6.00	4.567	13.00	7.817	23.00	11.07	38.00
1.333	6.00	4.583	13.00	7.833	23.00	11.08	38.00
1.350	6.00	4.600	13.00	7.850	23.00	11.10	38.00
1.367	6.00	4.617	13.00	7.867	23.00	11.12	38.00
1.383	6.00	4.633	13.00	7.883	23.00	11.13	38.00
1.400	6.00	4.650	13.00	7.900	23.00	11.15	38.00
1.417	6.00	4.667	13.00	7.917	23.00	11.17	38.00
1.433	6.00	4.683	13.00	7.933	23.00	11.18	38.00
1.450	6.00	4.700	13.00	7.950	23.00	11.20	38.00
1.467	6.00	4.717	13.00	7.967	23.00	11.22	38.00
1.483	6.00	4.733	13.00	7.983	23.00	11.23	38.00
1.500	6.00	4.750	13.00	8.000	22.97	11.25	38.00
1.517	6.00	4.767	13.00	8.017	13.00	11.27	38.00
1.533	6.00	4.783	13.00	8.033	13.00	11.28	38.00
1.550	6.00	4.800	13.00	8.050	13.00	11.30	38.00
1.567	6.00	4.817	13.00	8.067	13.00	11.32	38.00
1.583	6.00	4.833	13.00	8.083	13.00	11.33	38.00
1.600	6.00	4.850	13.00	8.100	13.00	11.35	38.00
1.617	6.00	4.867	13.00	8.117	13.00	11.37	38.00
1.633	6.00	4.883	13.00	8.133	13.00	11.38	38.00
1.650	6.00	4.900	13.00	8.150	13.00	11.40	38.00
1.667	6.00	4.917	13.00	8.167	13.00	11.42	38.00
1.683	6.00	4.933	13.00	8.183	13.00	11.43	38.00
1.700	6.00	4.950	13.00	8.200	13.00	11.45	38.00
1.717	6.00	4.967	13.00	8.217	13.00	11.47	38.00
1.733	6.00	4.983	13.00	8.233	13.00	11.48	38.00
1.750	6.00	5.000	13.00	8.250	13.00	11.50	38.00
1.767	6.00	5.017	17.00	8.267	13.00	11.52	38.00
1.783	6.00	5.033	17.00	8.283	13.00	11.53	38.00
1.800	6.00	5.050	17.00	8.300	13.00	11.55	38.00
1.817	6.00	5.067	17.00	8.317	13.00	11.57	38.00
1.833	6.00	5.083	17.00	8.333	13.00	11.58	38.00
1.850	6.00	5.100	17.00	8.350	13.00	11.60	38.00
1.867	6.00	5.117	17.00	8.367	13.00	11.62	38.00
1.883	6.00	5.133	17.00	8.383	13.00	11.63	38.00
1.900	6.00	5.150	17.00	8.400	13.00	11.65	38.00
1.917	6.00	5.167	17.00	8.417	13.00	11.67	38.00
1.933	6.00	5.183	17.00	8.433	13.00	11.68	38.00
1.950	6.00	5.200	17.00	8.450	13.00	11.70	38.00
1.967	6.00	5.217	17.00	8.467	13.00	11.72	38.00
1.983	6.00	5.233	17.00	8.483	13.00	11.73	38.00
2.000	6.00	5.250	17.00	8.500	13.00	11.75	38.00
2.017	4.00	5.267	17.00	8.517	13.00	11.77	38.00

2.033	4.00	5.283	17.00	8.533	13.00	11.78	38.00
2.050	4.00	5.300	17.00	8.550	13.00	11.80	38.00
2.067	4.00	5.317	17.00	8.567	13.00	11.82	38.00
2.083	4.00	5.333	17.00	8.583	13.00	11.83	38.00
2.100	4.00	5.350	17.00	8.600	13.00	11.85	38.00
2.117	4.00	5.367	17.00	8.617	13.00	11.87	38.00
2.133	4.00	5.383	17.00	8.633	13.00	11.88	38.00
2.150	4.00	5.400	17.00	8.650	13.00	11.90	38.00
2.167	4.00	5.417	17.00	8.667	13.00	11.92	38.00
2.183	4.00	5.433	17.00	8.683	13.00	11.93	38.00
2.200	4.00	5.450	17.00	8.700	13.00	11.95	38.00
2.217	4.00	5.467	17.00	8.717	13.00	11.97	38.00
2.233	4.00	5.483	17.00	8.733	13.00	11.98	38.00
2.250	4.00	5.500	17.00	8.750	13.00	12.00	38.00
2.267	4.00	5.517	17.00	8.767	13.00	12.02	13.02
2.283	4.00	5.533	17.00	8.783	13.00	12.03	13.00
2.300	4.00	5.550	17.00	8.800	13.00	12.05	13.00
2.317	4.00	5.567	17.00	8.817	13.00	12.07	13.00
2.333	4.00	5.583	17.00	8.833	13.00	12.08	13.00
2.350	4.00	5.600	17.00	8.850	13.00	12.10	13.00
2.367	4.00	5.617	17.00	8.867	13.00	12.12	13.00
2.383	4.00	5.633	17.00	8.883	13.00	12.13	13.00
2.400	4.00	5.650	17.00	8.900	13.00	12.15	13.00
2.417	4.00	5.667	17.00	8.917	13.00	12.17	13.00
2.433	4.00	5.683	17.00	8.933	13.00	12.18	13.00
2.450	4.00	5.700	17.00	8.950	13.00	12.20	13.00
2.467	4.00	5.717	17.00	8.967	13.00	12.22	13.00
2.483	4.00	5.733	17.00	8.983	13.00	12.23	13.00
2.500	4.00	5.750	17.00	9.000	13.00	12.25	13.00
2.517	4.00	5.767	17.00	9.017	13.00	12.27	13.00
2.533	4.00	5.783	17.00	9.033	13.00	12.28	13.00
2.550	4.00	5.800	17.00	9.050	13.00	12.30	13.00
2.567	4.00	5.817	17.00	9.067	13.00	12.32	13.00
2.583	4.00	5.833	17.00	9.083	13.00	12.33	13.00
2.600	4.00	5.850	17.00	9.100	13.00	12.35	13.00
2.617	4.00	5.867	17.00	9.117	13.00	12.37	13.00
2.633	4.00	5.883	17.00	9.133	13.00	12.38	13.00
2.650	4.00	5.900	17.00	9.150	13.00	12.40	13.00
2.667	4.00	5.917	17.00	9.167	13.00	12.42	13.00
2.683	4.00	5.933	17.00	9.183	13.00	12.43	13.00
2.700	4.00	5.950	17.00	9.200	13.00	12.45	13.00
2.717	4.00	5.967	17.00	9.217	13.00	12.47	13.00
2.733	4.00	5.983	17.00	9.233	13.00	12.48	13.00
2.750	4.00	6.000	16.99	9.250	13.00	12.50	13.00
2.767	4.00	6.017	13.00	9.267	13.00	12.52	13.00
2.783	4.00	6.033	13.00	9.283	13.00	12.53	13.00
2.800	4.00	6.050	13.00	9.300	13.00	12.55	13.00
2.817	4.00	6.067	13.00	9.317	13.00	12.57	13.00
2.833	4.00	6.083	13.00	9.333	13.00	12.58	13.00
2.850	4.00	6.100	13.00	9.350	13.00	12.60	13.00
2.867	4.00	6.117	13.00	9.367	13.00	12.62	13.00
2.883	4.00	6.133	13.00	9.383	13.00	12.63	13.00
2.900	4.00	6.150	13.00	9.400	13.00	12.65	13.00
2.917	4.00	6.167	13.00	9.417	13.00	12.67	13.00
2.933	4.00	6.183	13.00	9.433	13.00	12.68	13.00
2.950	4.00	6.200	13.00	9.450	13.00	12.70	13.00
2.967	4.00	6.217	13.00	9.467	13.00	12.72	13.00
2.983	4.00	6.233	13.00	9.483	13.00	12.73	13.00
3.000	4.00	6.250	13.00	9.500	13.00	12.75	13.00
3.017	6.00	6.267	13.00	9.517	13.00	12.77	13.00
3.033	6.00	6.283	13.00	9.533	13.00	12.78	13.00
3.050	6.00	6.300	13.00	9.550	13.00	12.80	13.00
3.067	6.00	6.317	13.00	9.567	13.00	12.82	13.00
3.083	6.00	6.333	13.00	9.583	13.00	12.83	13.00

3.100	6.00	6.350	13.00	9.600	13.00	12.85	13.00
3.117	6.00	6.367	13.00	9.617	13.00	12.87	13.00
3.133	6.00	6.383	13.00	9.633	13.00	12.88	13.00
3.150	6.00	6.400	13.00	9.650	13.00	12.90	13.00
3.167	6.00	6.417	13.00	9.667	13.00	12.92	13.00
3.183	6.00	6.433	13.00	9.683	13.00	12.93	13.00
3.200	6.00	6.450	13.00	9.700	13.00	12.95	13.00
3.217	6.00	6.467	13.00	9.717	13.00	12.97	13.00
3.233	6.00	6.483	13.00	9.733	13.00	12.98	13.00
3.250	6.00	6.500	13.00	9.750	13.00	13.00	13.00

Unit Hyd Qpeak (cms)= 0.894

PEAK FLOW (cms)= 0.502 (i)
TIME TO PEAK (hrs)= 11.083
RUNOFF VOLUME (mm)= 85.901
TOTAL RAINFALL (mm)= 212.001
RUNOFF COEFFICIENT = 0.405

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0303)	Area (ha)= 0.33	Curve Number (CN)= 43.0	
ID= 1 DT= 1.0 min	Ia (mm)= 10.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.25		

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	3.267	6.00	6.517	13.00	9.77	13.00
0.033	0.00	3.283	6.00	6.533	13.00	9.78	13.00
0.050	0.00	3.300	6.00	6.550	13.00	9.80	13.00
0.067	0.00	3.317	6.00	6.567	13.00	9.82	13.00
0.083	0.00	3.333	6.00	6.583	13.00	9.83	13.00
0.100	0.00	3.350	6.00	6.600	13.00	9.85	13.00
0.117	0.00	3.367	6.00	6.617	13.00	9.87	13.00
0.133	0.00	3.383	6.00	6.633	13.00	9.88	13.00
0.150	0.00	3.400	6.00	6.650	13.00	9.90	13.00
0.167	0.00	3.417	6.00	6.667	13.00	9.92	13.00
0.183	0.00	3.433	6.00	6.683	13.00	9.93	13.00
0.200	0.00	3.450	6.00	6.700	13.00	9.95	13.00
0.217	0.00	3.467	6.00	6.717	13.00	9.97	13.00
0.233	0.00	3.483	6.00	6.733	13.00	9.98	13.00
0.250	0.00	3.500	6.00	6.750	13.00	10.00	13.05
0.267	0.00	3.517	6.00	6.767	13.00	10.02	53.00
0.283	0.00	3.533	6.00	6.783	13.00	10.03	53.00
0.300	0.00	3.550	6.00	6.800	13.00	10.05	53.00
0.317	0.00	3.567	6.00	6.817	13.00	10.07	53.00
0.333	0.00	3.583	6.00	6.833	13.00	10.08	53.00
0.350	0.00	3.600	6.00	6.850	13.00	10.10	53.00
0.367	0.00	3.617	6.00	6.867	13.00	10.12	53.00
0.383	0.00	3.633	6.00	6.883	13.00	10.13	53.00
0.400	0.00	3.650	6.00	6.900	13.00	10.15	53.00
0.417	0.00	3.667	6.00	6.917	13.00	10.17	53.00
0.433	0.00	3.683	6.00	6.933	13.00	10.18	53.00
0.450	0.00	3.700	6.00	6.950	13.00	10.20	53.00
0.467	0.00	3.717	6.00	6.967	13.00	10.22	53.00
0.483	0.00	3.733	6.00	6.983	13.00	10.23	53.00
0.500	0.00	3.750	6.00	7.000	13.02	10.25	53.00

0.517	0.00	3.767	6.00	7.017	23.00	10.27	53.00
0.533	0.00	3.783	6.00	7.033	23.00	10.28	53.00
0.550	0.00	3.800	6.00	7.050	23.00	10.30	53.00
0.567	0.00	3.817	6.00	7.067	23.00	10.32	53.00
0.583	0.00	3.833	6.00	7.083	23.00	10.33	53.00
0.600	0.00	3.850	6.00	7.100	23.00	10.35	53.00
0.617	0.00	3.867	6.00	7.117	23.00	10.37	53.00
0.633	0.00	3.883	6.00	7.133	23.00	10.38	53.00
0.650	0.00	3.900	6.00	7.150	23.00	10.40	53.00
0.667	0.00	3.917	6.00	7.167	23.00	10.42	53.00
0.683	0.00	3.933	6.00	7.183	23.00	10.43	53.00
0.700	0.00	3.950	6.00	7.200	23.00	10.45	53.00
0.717	0.00	3.967	6.00	7.217	23.00	10.47	53.00
0.733	0.00	3.983	6.00	7.233	23.00	10.48	53.00
0.750	0.00	4.000	6.00	7.250	23.00	10.50	53.00
0.767	0.00	4.017	13.00	7.267	23.00	10.52	53.00
0.783	0.00	4.033	13.00	7.283	23.00	10.53	53.00
0.800	0.00	4.050	13.00	7.300	23.00	10.55	53.00
0.817	0.00	4.067	13.00	7.317	23.00	10.57	53.00
0.833	0.00	4.083	13.00	7.333	23.00	10.58	53.00
0.850	0.00	4.100	13.00	7.350	23.00	10.60	53.00
0.867	0.00	4.117	13.00	7.367	23.00	10.62	53.00
0.883	0.00	4.133	13.00	7.383	23.00	10.63	53.00
0.900	0.00	4.150	13.00	7.400	23.00	10.65	53.00
0.917	0.00	4.167	13.00	7.417	23.00	10.67	53.00
0.933	0.00	4.183	13.00	7.433	23.00	10.68	53.00
0.950	0.00	4.200	13.00	7.450	23.00	10.70	53.00
0.967	0.00	4.217	13.00	7.467	23.00	10.72	53.00
0.983	0.00	4.233	13.00	7.483	23.00	10.73	53.00
1.000	0.00	4.250	13.00	7.500	23.00	10.75	53.00
1.017	6.00	4.267	13.00	7.517	23.00	10.77	53.00
1.033	6.00	4.283	13.00	7.533	23.00	10.78	53.00
1.050	6.00	4.300	13.00	7.550	23.00	10.80	53.00
1.067	6.00	4.317	13.00	7.567	23.00	10.82	53.00
1.083	6.00	4.333	13.00	7.583	23.00	10.83	53.00
1.100	6.00	4.350	13.00	7.600	23.00	10.85	53.00
1.117	6.00	4.367	13.00	7.617	23.00	10.87	53.00
1.133	6.00	4.383	13.00	7.633	23.00	10.88	53.00
1.150	6.00	4.400	13.00	7.650	23.00	10.90	53.00
1.167	6.00	4.417	13.00	7.667	23.00	10.92	53.00
1.183	6.00	4.433	13.00	7.683	23.00	10.93	53.00
1.200	6.00	4.450	13.00	7.700	23.00	10.95	53.00
1.217	6.00	4.467	13.00	7.717	23.00	10.97	53.00
1.233	6.00	4.483	13.00	7.733	23.00	10.98	53.00
1.250	6.00	4.500	13.00	7.750	23.00	11.00	53.00
1.267	6.00	4.517	13.00	7.767	23.00	11.02	38.00
1.283	6.00	4.533	13.00	7.783	23.00	11.03	38.00
1.300	6.00	4.550	13.00	7.800	23.00	11.05	38.00
1.317	6.00	4.567	13.00	7.817	23.00	11.07	38.00
1.333	6.00	4.583	13.00	7.833	23.00	11.08	38.00
1.350	6.00	4.600	13.00	7.850	23.00	11.10	38.00
1.367	6.00	4.617	13.00	7.867	23.00	11.12	38.00
1.383	6.00	4.633	13.00	7.883	23.00	11.13	38.00
1.400	6.00	4.650	13.00	7.900	23.00	11.15	38.00
1.417	6.00	4.667	13.00	7.917	23.00	11.17	38.00
1.433	6.00	4.683	13.00	7.933	23.00	11.18	38.00
1.450	6.00	4.700	13.00	7.950	23.00	11.20	38.00
1.467	6.00	4.717	13.00	7.967	23.00	11.22	38.00
1.483	6.00	4.733	13.00	7.983	23.00	11.23	38.00
1.500	6.00	4.750	13.00	8.000	22.97	11.25	38.00
1.517	6.00	4.767	13.00	8.017	13.00	11.27	38.00
1.533	6.00	4.783	13.00	8.033	13.00	11.28	38.00
1.550	6.00	4.800	13.00	8.050	13.00	11.30	38.00
1.567	6.00	4.817	13.00	8.067	13.00	11.32	38.00

1.583	6.00	4.833	13.00	8.083	13.00	11.33	38.00
1.600	6.00	4.850	13.00	8.100	13.00	11.35	38.00
1.617	6.00	4.867	13.00	8.117	13.00	11.37	38.00
1.633	6.00	4.883	13.00	8.133	13.00	11.38	38.00
1.650	6.00	4.900	13.00	8.150	13.00	11.40	38.00
1.667	6.00	4.917	13.00	8.167	13.00	11.42	38.00
1.683	6.00	4.933	13.00	8.183	13.00	11.43	38.00
1.700	6.00	4.950	13.00	8.200	13.00	11.45	38.00
1.717	6.00	4.967	13.00	8.217	13.00	11.47	38.00
1.733	6.00	4.983	13.00	8.233	13.00	11.48	38.00
1.750	6.00	5.000	13.00	8.250	13.00	11.50	38.00
1.767	6.00	5.017	17.00	8.267	13.00	11.52	38.00
1.783	6.00	5.033	17.00	8.283	13.00	11.53	38.00
1.800	6.00	5.050	17.00	8.300	13.00	11.55	38.00
1.817	6.00	5.067	17.00	8.317	13.00	11.57	38.00
1.833	6.00	5.083	17.00	8.333	13.00	11.58	38.00
1.850	6.00	5.100	17.00	8.350	13.00	11.60	38.00
1.867	6.00	5.117	17.00	8.367	13.00	11.62	38.00
1.883	6.00	5.133	17.00	8.383	13.00	11.63	38.00
1.900	6.00	5.150	17.00	8.400	13.00	11.65	38.00
1.917	6.00	5.167	17.00	8.417	13.00	11.67	38.00
1.933	6.00	5.183	17.00	8.433	13.00	11.68	38.00
1.950	6.00	5.200	17.00	8.450	13.00	11.70	38.00
1.967	6.00	5.217	17.00	8.467	13.00	11.72	38.00
1.983	6.00	5.233	17.00	8.483	13.00	11.73	38.00
2.000	6.00	5.250	17.00	8.500	13.00	11.75	38.00
2.017	4.00	5.267	17.00	8.517	13.00	11.77	38.00
2.033	4.00	5.283	17.00	8.533	13.00	11.78	38.00
2.050	4.00	5.300	17.00	8.550	13.00	11.80	38.00
2.067	4.00	5.317	17.00	8.567	13.00	11.82	38.00
2.083	4.00	5.333	17.00	8.583	13.00	11.83	38.00
2.100	4.00	5.350	17.00	8.600	13.00	11.85	38.00
2.117	4.00	5.367	17.00	8.617	13.00	11.87	38.00
2.133	4.00	5.383	17.00	8.633	13.00	11.88	38.00
2.150	4.00	5.400	17.00	8.650	13.00	11.90	38.00
2.167	4.00	5.417	17.00	8.667	13.00	11.92	38.00
2.183	4.00	5.433	17.00	8.683	13.00	11.93	38.00
2.200	4.00	5.450	17.00	8.700	13.00	11.95	38.00
2.217	4.00	5.467	17.00	8.717	13.00	11.97	38.00
2.233	4.00	5.483	17.00	8.733	13.00	11.98	38.00
2.250	4.00	5.500	17.00	8.750	13.00	12.00	38.00
2.267	4.00	5.517	17.00	8.767	13.00	12.02	13.02
2.283	4.00	5.533	17.00	8.783	13.00	12.03	13.00
2.300	4.00	5.550	17.00	8.800	13.00	12.05	13.00
2.317	4.00	5.567	17.00	8.817	13.00	12.07	13.00
2.333	4.00	5.583	17.00	8.833	13.00	12.08	13.00
2.350	4.00	5.600	17.00	8.850	13.00	12.10	13.00
2.367	4.00	5.617	17.00	8.867	13.00	12.12	13.00
2.383	4.00	5.633	17.00	8.883	13.00	12.13	13.00
2.400	4.00	5.650	17.00	8.900	13.00	12.15	13.00
2.417	4.00	5.667	17.00	8.917	13.00	12.17	13.00
2.433	4.00	5.683	17.00	8.933	13.00	12.18	13.00
2.450	4.00	5.700	17.00	8.950	13.00	12.20	13.00
2.467	4.00	5.717	17.00	8.967	13.00	12.22	13.00
2.483	4.00	5.733	17.00	8.983	13.00	12.23	13.00
2.500	4.00	5.750	17.00	9.000	13.00	12.25	13.00
2.517	4.00	5.767	17.00	9.017	13.00	12.27	13.00
2.533	4.00	5.783	17.00	9.033	13.00	12.28	13.00
2.550	4.00	5.800	17.00	9.050	13.00	12.30	13.00
2.567	4.00	5.817	17.00	9.067	13.00	12.32	13.00
2.583	4.00	5.833	17.00	9.083	13.00	12.33	13.00
2.600	4.00	5.850	17.00	9.100	13.00	12.35	13.00
2.617	4.00	5.867	17.00	9.117	13.00	12.37	13.00
2.633	4.00	5.883	17.00	9.133	13.00	12.38	13.00

2.650	4.00	5.900	17.00	9.150	13.00	12.40	13.00
2.667	4.00	5.917	17.00	9.167	13.00	12.42	13.00
2.683	4.00	5.933	17.00	9.183	13.00	12.43	13.00
2.700	4.00	5.950	17.00	9.200	13.00	12.45	13.00
2.717	4.00	5.967	17.00	9.217	13.00	12.47	13.00
2.733	4.00	5.983	17.00	9.233	13.00	12.48	13.00
2.750	4.00	6.000	16.99	9.250	13.00	12.50	13.00
2.767	4.00	6.017	13.00	9.267	13.00	12.52	13.00
2.783	4.00	6.033	13.00	9.283	13.00	12.53	13.00
2.800	4.00	6.050	13.00	9.300	13.00	12.55	13.00
2.817	4.00	6.067	13.00	9.317	13.00	12.57	13.00
2.833	4.00	6.083	13.00	9.333	13.00	12.58	13.00
2.850	4.00	6.100	13.00	9.350	13.00	12.60	13.00
2.867	4.00	6.117	13.00	9.367	13.00	12.62	13.00
2.883	4.00	6.133	13.00	9.383	13.00	12.63	13.00
2.900	4.00	6.150	13.00	9.400	13.00	12.65	13.00
2.917	4.00	6.167	13.00	9.417	13.00	12.67	13.00
2.933	4.00	6.183	13.00	9.433	13.00	12.68	13.00
2.950	4.00	6.200	13.00	9.450	13.00	12.70	13.00
2.967	4.00	6.217	13.00	9.467	13.00	12.72	13.00
2.983	4.00	6.233	13.00	9.483	13.00	12.73	13.00
3.000	4.00	6.250	13.00	9.500	13.00	12.75	13.00
3.017	6.00	6.267	13.00	9.517	13.00	12.77	13.00
3.033	6.00	6.283	13.00	9.533	13.00	12.78	13.00
3.050	6.00	6.300	13.00	9.550	13.00	12.80	13.00
3.067	6.00	6.317	13.00	9.567	13.00	12.82	13.00
3.083	6.00	6.333	13.00	9.583	13.00	12.83	13.00
3.100	6.00	6.350	13.00	9.600	13.00	12.85	13.00
3.117	6.00	6.367	13.00	9.617	13.00	12.87	13.00
3.133	6.00	6.383	13.00	9.633	13.00	12.88	13.00
3.150	6.00	6.400	13.00	9.650	13.00	12.90	13.00
3.167	6.00	6.417	13.00	9.667	13.00	12.92	13.00
3.183	6.00	6.433	13.00	9.683	13.00	12.93	13.00
3.200	6.00	6.450	13.00	9.700	13.00	12.95	13.00
3.217	6.00	6.467	13.00	9.717	13.00	12.97	13.00
3.233	6.00	6.483	13.00	9.733	13.00	12.98	13.00
3.250	6.00	6.500	13.00	9.750	13.00	13.00	13.00

Unit Hyd Qpeak (cms)= 0.050

PEAK FLOW (cms)= 0.024 (i)
TIME TO PEAK (hrs)= 11.067
RUNOFF VOLUME (mm)= 75.744
TOTAL RAINFALL (mm)= 212.001
RUNOFF COEFFICIENT = 0.357

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0002)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0301):	6.32	0.502	11.08	85.90
	+ ID2= 2 (0303):	0.33	0.024	11.07	75.74
	ID = 3 (0002):	6.65	0.525	11.08	85.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0205)	Area (ha)= 0.42	Curve Number (CN)= 47.0

|ID= 1 DT= 1.0 min | Ia (mm)= 8.86 # of Linear Res.(N)= 3.00
---------- U.H. Tp(hrs)= 0.22

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	3.267	6.00	6.517	13.00	9.77	13.00
0.033	0.00	3.283	6.00	6.533	13.00	9.78	13.00
0.050	0.00	3.300	6.00	6.550	13.00	9.80	13.00
0.067	0.00	3.317	6.00	6.567	13.00	9.82	13.00
0.083	0.00	3.333	6.00	6.583	13.00	9.83	13.00
0.100	0.00	3.350	6.00	6.600	13.00	9.85	13.00
0.117	0.00	3.367	6.00	6.617	13.00	9.87	13.00
0.133	0.00	3.383	6.00	6.633	13.00	9.88	13.00
0.150	0.00	3.400	6.00	6.650	13.00	9.90	13.00
0.167	0.00	3.417	6.00	6.667	13.00	9.92	13.00
0.183	0.00	3.433	6.00	6.683	13.00	9.93	13.00
0.200	0.00	3.450	6.00	6.700	13.00	9.95	13.00
0.217	0.00	3.467	6.00	6.717	13.00	9.97	13.00
0.233	0.00	3.483	6.00	6.733	13.00	9.98	13.00
0.250	0.00	3.500	6.00	6.750	13.00	10.00	13.05
0.267	0.00	3.517	6.00	6.767	13.00	10.02	53.00
0.283	0.00	3.533	6.00	6.783	13.00	10.03	53.00
0.300	0.00	3.550	6.00	6.800	13.00	10.05	53.00
0.317	0.00	3.567	6.00	6.817	13.00	10.07	53.00
0.333	0.00	3.583	6.00	6.833	13.00	10.08	53.00
0.350	0.00	3.600	6.00	6.850	13.00	10.10	53.00
0.367	0.00	3.617	6.00	6.867	13.00	10.12	53.00
0.383	0.00	3.633	6.00	6.883	13.00	10.13	53.00
0.400	0.00	3.650	6.00	6.900	13.00	10.15	53.00
0.417	0.00	3.667	6.00	6.917	13.00	10.17	53.00
0.433	0.00	3.683	6.00	6.933	13.00	10.18	53.00
0.450	0.00	3.700	6.00	6.950	13.00	10.20	53.00
0.467	0.00	3.717	6.00	6.967	13.00	10.22	53.00
0.483	0.00	3.733	6.00	6.983	13.00	10.23	53.00
0.500	0.00	3.750	6.00	7.000	13.02	10.25	53.00
0.517	0.00	3.767	6.00	7.017	23.00	10.27	53.00
0.533	0.00	3.783	6.00	7.033	23.00	10.28	53.00
0.550	0.00	3.800	6.00	7.050	23.00	10.30	53.00
0.567	0.00	3.817	6.00	7.067	23.00	10.32	53.00
0.583	0.00	3.833	6.00	7.083	23.00	10.33	53.00
0.600	0.00	3.850	6.00	7.100	23.00	10.35	53.00
0.617	0.00	3.867	6.00	7.117	23.00	10.37	53.00
0.633	0.00	3.883	6.00	7.133	23.00	10.38	53.00
0.650	0.00	3.900	6.00	7.150	23.00	10.40	53.00
0.667	0.00	3.917	6.00	7.167	23.00	10.42	53.00
0.683	0.00	3.933	6.00	7.183	23.00	10.43	53.00
0.700	0.00	3.950	6.00	7.200	23.00	10.45	53.00
0.717	0.00	3.967	6.00	7.217	23.00	10.47	53.00
0.733	0.00	3.983	6.00	7.233	23.00	10.48	53.00
0.750	0.00	4.000	6.00	7.250	23.00	10.50	53.00
0.767	0.00	4.017	13.00	7.267	23.00	10.52	53.00
0.783	0.00	4.033	13.00	7.283	23.00	10.53	53.00
0.800	0.00	4.050	13.00	7.300	23.00	10.55	53.00
0.817	0.00	4.067	13.00	7.317	23.00	10.57	53.00
0.833	0.00	4.083	13.00	7.333	23.00	10.58	53.00
0.850	0.00	4.100	13.00	7.350	23.00	10.60	53.00
0.867	0.00	4.117	13.00	7.367	23.00	10.62	53.00
0.883	0.00	4.133	13.00	7.383	23.00	10.63	53.00
0.900	0.00	4.150	13.00	7.400	23.00	10.65	53.00
0.917	0.00	4.167	13.00	7.417	23.00	10.67	53.00

0.933	0.00	4.183	13.00	7.433	23.00	10.68	53.00
0.950	0.00	4.200	13.00	7.450	23.00	10.70	53.00
0.967	0.00	4.217	13.00	7.467	23.00	10.72	53.00
0.983	0.00	4.233	13.00	7.483	23.00	10.73	53.00
1.000	0.00	4.250	13.00	7.500	23.00	10.75	53.00
1.017	6.00	4.267	13.00	7.517	23.00	10.77	53.00
1.033	6.00	4.283	13.00	7.533	23.00	10.78	53.00
1.050	6.00	4.300	13.00	7.550	23.00	10.80	53.00
1.067	6.00	4.317	13.00	7.567	23.00	10.82	53.00
1.083	6.00	4.333	13.00	7.583	23.00	10.83	53.00
1.100	6.00	4.350	13.00	7.600	23.00	10.85	53.00
1.117	6.00	4.367	13.00	7.617	23.00	10.87	53.00
1.133	6.00	4.383	13.00	7.633	23.00	10.88	53.00
1.150	6.00	4.400	13.00	7.650	23.00	10.90	53.00
1.167	6.00	4.417	13.00	7.667	23.00	10.92	53.00
1.183	6.00	4.433	13.00	7.683	23.00	10.93	53.00
1.200	6.00	4.450	13.00	7.700	23.00	10.95	53.00
1.217	6.00	4.467	13.00	7.717	23.00	10.97	53.00
1.233	6.00	4.483	13.00	7.733	23.00	10.98	53.00
1.250	6.00	4.500	13.00	7.750	23.00	11.00	53.00
1.267	6.00	4.517	13.00	7.767	23.00	11.02	38.00
1.283	6.00	4.533	13.00	7.783	23.00	11.03	38.00
1.300	6.00	4.550	13.00	7.800	23.00	11.05	38.00
1.317	6.00	4.567	13.00	7.817	23.00	11.07	38.00
1.333	6.00	4.583	13.00	7.833	23.00	11.08	38.00
1.350	6.00	4.600	13.00	7.850	23.00	11.10	38.00
1.367	6.00	4.617	13.00	7.867	23.00	11.12	38.00
1.383	6.00	4.633	13.00	7.883	23.00	11.13	38.00
1.400	6.00	4.650	13.00	7.900	23.00	11.15	38.00
1.417	6.00	4.667	13.00	7.917	23.00	11.17	38.00
1.433	6.00	4.683	13.00	7.933	23.00	11.18	38.00
1.450	6.00	4.700	13.00	7.950	23.00	11.20	38.00
1.467	6.00	4.717	13.00	7.967	23.00	11.22	38.00
1.483	6.00	4.733	13.00	7.983	23.00	11.23	38.00
1.500	6.00	4.750	13.00	8.000	22.97	11.25	38.00
1.517	6.00	4.767	13.00	8.017	13.00	11.27	38.00
1.533	6.00	4.783	13.00	8.033	13.00	11.28	38.00
1.550	6.00	4.800	13.00	8.050	13.00	11.30	38.00
1.567	6.00	4.817	13.00	8.067	13.00	11.32	38.00
1.583	6.00	4.833	13.00	8.083	13.00	11.33	38.00
1.600	6.00	4.850	13.00	8.100	13.00	11.35	38.00
1.617	6.00	4.867	13.00	8.117	13.00	11.37	38.00
1.633	6.00	4.883	13.00	8.133	13.00	11.38	38.00
1.650	6.00	4.900	13.00	8.150	13.00	11.40	38.00
1.667	6.00	4.917	13.00	8.167	13.00	11.42	38.00
1.683	6.00	4.933	13.00	8.183	13.00	11.43	38.00
1.700	6.00	4.950	13.00	8.200	13.00	11.45	38.00
1.717	6.00	4.967	13.00	8.217	13.00	11.47	38.00
1.733	6.00	4.983	13.00	8.233	13.00	11.48	38.00
1.750	6.00	5.000	13.00	8.250	13.00	11.50	38.00
1.767	6.00	5.017	17.00	8.267	13.00	11.52	38.00
1.783	6.00	5.033	17.00	8.283	13.00	11.53	38.00
1.800	6.00	5.050	17.00	8.300	13.00	11.55	38.00
1.817	6.00	5.067	17.00	8.317	13.00	11.57	38.00
1.833	6.00	5.083	17.00	8.333	13.00	11.58	38.00
1.850	6.00	5.100	17.00	8.350	13.00	11.60	38.00
1.867	6.00	5.117	17.00	8.367	13.00	11.62	38.00
1.883	6.00	5.133	17.00	8.383	13.00	11.63	38.00
1.900	6.00	5.150	17.00	8.400	13.00	11.65	38.00
1.917	6.00	5.167	17.00	8.417	13.00	11.67	38.00
1.933	6.00	5.183	17.00	8.433	13.00	11.68	38.00
1.950	6.00	5.200	17.00	8.450	13.00	11.70	38.00
1.967	6.00	5.217	17.00	8.467	13.00	11.72	38.00
1.983	6.00	5.233	17.00	8.483	13.00	11.73	38.00

2.000	6.00	5.250	17.00	8.500	13.00	11.75	38.00
2.017	4.00	5.267	17.00	8.517	13.00	11.77	38.00
2.033	4.00	5.283	17.00	8.533	13.00	11.78	38.00
2.050	4.00	5.300	17.00	8.550	13.00	11.80	38.00
2.067	4.00	5.317	17.00	8.567	13.00	11.82	38.00
2.083	4.00	5.333	17.00	8.583	13.00	11.83	38.00
2.100	4.00	5.350	17.00	8.600	13.00	11.85	38.00
2.117	4.00	5.367	17.00	8.617	13.00	11.87	38.00
2.133	4.00	5.383	17.00	8.633	13.00	11.88	38.00
2.150	4.00	5.400	17.00	8.650	13.00	11.90	38.00
2.167	4.00	5.417	17.00	8.667	13.00	11.92	38.00
2.183	4.00	5.433	17.00	8.683	13.00	11.93	38.00
2.200	4.00	5.450	17.00	8.700	13.00	11.95	38.00
2.217	4.00	5.467	17.00	8.717	13.00	11.97	38.00
2.233	4.00	5.483	17.00	8.733	13.00	11.98	38.00
2.250	4.00	5.500	17.00	8.750	13.00	12.00	38.00
2.267	4.00	5.517	17.00	8.767	13.00	12.02	13.02
2.283	4.00	5.533	17.00	8.783	13.00	12.03	13.00
2.300	4.00	5.550	17.00	8.800	13.00	12.05	13.00
2.317	4.00	5.567	17.00	8.817	13.00	12.07	13.00
2.333	4.00	5.583	17.00	8.833	13.00	12.08	13.00
2.350	4.00	5.600	17.00	8.850	13.00	12.10	13.00
2.367	4.00	5.617	17.00	8.867	13.00	12.12	13.00
2.383	4.00	5.633	17.00	8.883	13.00	12.13	13.00
2.400	4.00	5.650	17.00	8.900	13.00	12.15	13.00
2.417	4.00	5.667	17.00	8.917	13.00	12.17	13.00
2.433	4.00	5.683	17.00	8.933	13.00	12.18	13.00
2.450	4.00	5.700	17.00	8.950	13.00	12.20	13.00
2.467	4.00	5.717	17.00	8.967	13.00	12.22	13.00
2.483	4.00	5.733	17.00	8.983	13.00	12.23	13.00
2.500	4.00	5.750	17.00	9.000	13.00	12.25	13.00
2.517	4.00	5.767	17.00	9.017	13.00	12.27	13.00
2.533	4.00	5.783	17.00	9.033	13.00	12.28	13.00
2.550	4.00	5.800	17.00	9.050	13.00	12.30	13.00
2.567	4.00	5.817	17.00	9.067	13.00	12.32	13.00
2.583	4.00	5.833	17.00	9.083	13.00	12.33	13.00
2.600	4.00	5.850	17.00	9.100	13.00	12.35	13.00
2.617	4.00	5.867	17.00	9.117	13.00	12.37	13.00
2.633	4.00	5.883	17.00	9.133	13.00	12.38	13.00
2.650	4.00	5.900	17.00	9.150	13.00	12.40	13.00
2.667	4.00	5.917	17.00	9.167	13.00	12.42	13.00
2.683	4.00	5.933	17.00	9.183	13.00	12.43	13.00
2.700	4.00	5.950	17.00	9.200	13.00	12.45	13.00
2.717	4.00	5.967	17.00	9.217	13.00	12.47	13.00
2.733	4.00	5.983	17.00	9.233	13.00	12.48	13.00
2.750	4.00	6.000	16.99	9.250	13.00	12.50	13.00
2.767	4.00	6.017	13.00	9.267	13.00	12.52	13.00
2.783	4.00	6.033	13.00	9.283	13.00	12.53	13.00
2.800	4.00	6.050	13.00	9.300	13.00	12.55	13.00
2.817	4.00	6.067	13.00	9.317	13.00	12.57	13.00
2.833	4.00	6.083	13.00	9.333	13.00	12.58	13.00
2.850	4.00	6.100	13.00	9.350	13.00	12.60	13.00
2.867	4.00	6.117	13.00	9.367	13.00	12.62	13.00
2.883	4.00	6.133	13.00	9.383	13.00	12.63	13.00
2.900	4.00	6.150	13.00	9.400	13.00	12.65	13.00
2.917	4.00	6.167	13.00	9.417	13.00	12.67	13.00
2.933	4.00	6.183	13.00	9.433	13.00	12.68	13.00
2.950	4.00	6.200	13.00	9.450	13.00	12.70	13.00
2.967	4.00	6.217	13.00	9.467	13.00	12.72	13.00
2.983	4.00	6.233	13.00	9.483	13.00	12.73	13.00
3.000	4.00	6.250	13.00	9.500	13.00	12.75	13.00
3.017	6.00	6.267	13.00	9.517	13.00	12.77	13.00
3.033	6.00	6.283	13.00	9.533	13.00	12.78	13.00
3.050	6.00	6.300	13.00	9.550	13.00	12.80	13.00

3.067	6.00	6.317	13.00	9.567	13.00	12.82	13.00
3.083	6.00	6.333	13.00	9.583	13.00	12.83	13.00
3.100	6.00	6.350	13.00	9.600	13.00	12.85	13.00
3.117	6.00	6.367	13.00	9.617	13.00	12.87	13.00
3.133	6.00	6.383	13.00	9.633	13.00	12.88	13.00
3.150	6.00	6.400	13.00	9.650	13.00	12.90	13.00
3.167	6.00	6.417	13.00	9.667	13.00	12.92	13.00
3.183	6.00	6.433	13.00	9.683	13.00	12.93	13.00
3.200	6.00	6.450	13.00	9.700	13.00	12.95	13.00
3.217	6.00	6.467	13.00	9.717	13.00	12.97	13.00
3.233	6.00	6.483	13.00	9.733	13.00	12.98	13.00
3.250	6.00	6.500	13.00	9.750	13.00	13.00	13.00

Unit Hyd Qpeak (cms)= 0.073

PEAK FLOW (cms)= 0.033 (i)
TIME TO PEAK (hrs)= 11.050
RUNOFF VOLUME (mm)= 84.290
TOTAL RAINFALL (mm)= 212.001
RUNOFF COEFFICIENT = 0.398

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0203)	Area (ha)= 0.13 Curve Number (CN)= 66.0
ID= 1 DT= 1.0 min	Ia (mm)= 4.66 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.09

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	3.267	6.00	6.517	13.00	9.77	13.00
0.033	0.00	3.283	6.00	6.533	13.00	9.78	13.00
0.050	0.00	3.300	6.00	6.550	13.00	9.80	13.00
0.067	0.00	3.317	6.00	6.567	13.00	9.82	13.00
0.083	0.00	3.333	6.00	6.583	13.00	9.83	13.00
0.100	0.00	3.350	6.00	6.600	13.00	9.85	13.00
0.117	0.00	3.367	6.00	6.617	13.00	9.87	13.00
0.133	0.00	3.383	6.00	6.633	13.00	9.88	13.00
0.150	0.00	3.400	6.00	6.650	13.00	9.90	13.00
0.167	0.00	3.417	6.00	6.667	13.00	9.92	13.00
0.183	0.00	3.433	6.00	6.683	13.00	9.93	13.00
0.200	0.00	3.450	6.00	6.700	13.00	9.95	13.00
0.217	0.00	3.467	6.00	6.717	13.00	9.97	13.00
0.233	0.00	3.483	6.00	6.733	13.00	9.98	13.00
0.250	0.00	3.500	6.00	6.750	13.00	10.00	13.05
0.267	0.00	3.517	6.00	6.767	13.00	10.02	53.00
0.283	0.00	3.533	6.00	6.783	13.00	10.03	53.00
0.300	0.00	3.550	6.00	6.800	13.00	10.05	53.00
0.317	0.00	3.567	6.00	6.817	13.00	10.07	53.00
0.333	0.00	3.583	6.00	6.833	13.00	10.08	53.00
0.350	0.00	3.600	6.00	6.850	13.00	10.10	53.00
0.367	0.00	3.617	6.00	6.867	13.00	10.12	53.00
0.383	0.00	3.633	6.00	6.883	13.00	10.13	53.00
0.400	0.00	3.650	6.00	6.900	13.00	10.15	53.00
0.417	0.00	3.667	6.00	6.917	13.00	10.17	53.00
0.433	0.00	3.683	6.00	6.933	13.00	10.18	53.00
0.450	0.00	3.700	6.00	6.950	13.00	10.20	53.00
0.467	0.00	3.717	6.00	6.967	13.00	10.22	53.00

0.483	0.00	3.733	6.00	6.983	13.00	10.23	53.00
0.500	0.00	3.750	6.00	7.000	13.02	10.25	53.00
0.517	0.00	3.767	6.00	7.017	23.00	10.27	53.00
0.533	0.00	3.783	6.00	7.033	23.00	10.28	53.00
0.550	0.00	3.800	6.00	7.050	23.00	10.30	53.00
0.567	0.00	3.817	6.00	7.067	23.00	10.32	53.00
0.583	0.00	3.833	6.00	7.083	23.00	10.33	53.00
0.600	0.00	3.850	6.00	7.100	23.00	10.35	53.00
0.617	0.00	3.867	6.00	7.117	23.00	10.37	53.00
0.633	0.00	3.883	6.00	7.133	23.00	10.38	53.00
0.650	0.00	3.900	6.00	7.150	23.00	10.40	53.00
0.667	0.00	3.917	6.00	7.167	23.00	10.42	53.00
0.683	0.00	3.933	6.00	7.183	23.00	10.43	53.00
0.700	0.00	3.950	6.00	7.200	23.00	10.45	53.00
0.717	0.00	3.967	6.00	7.217	23.00	10.47	53.00
0.733	0.00	3.983	6.00	7.233	23.00	10.48	53.00
0.750	0.00	4.000	6.00	7.250	23.00	10.50	53.00
0.767	0.00	4.017	13.00	7.267	23.00	10.52	53.00
0.783	0.00	4.033	13.00	7.283	23.00	10.53	53.00
0.800	0.00	4.050	13.00	7.300	23.00	10.55	53.00
0.817	0.00	4.067	13.00	7.317	23.00	10.57	53.00
0.833	0.00	4.083	13.00	7.333	23.00	10.58	53.00
0.850	0.00	4.100	13.00	7.350	23.00	10.60	53.00
0.867	0.00	4.117	13.00	7.367	23.00	10.62	53.00
0.883	0.00	4.133	13.00	7.383	23.00	10.63	53.00
0.900	0.00	4.150	13.00	7.400	23.00	10.65	53.00
0.917	0.00	4.167	13.00	7.417	23.00	10.67	53.00
0.933	0.00	4.183	13.00	7.433	23.00	10.68	53.00
0.950	0.00	4.200	13.00	7.450	23.00	10.70	53.00
0.967	0.00	4.217	13.00	7.467	23.00	10.72	53.00
0.983	0.00	4.233	13.00	7.483	23.00	10.73	53.00
1.000	0.00	4.250	13.00	7.500	23.00	10.75	53.00
1.017	6.00	4.267	13.00	7.517	23.00	10.77	53.00
1.033	6.00	4.283	13.00	7.533	23.00	10.78	53.00
1.050	6.00	4.300	13.00	7.550	23.00	10.80	53.00
1.067	6.00	4.317	13.00	7.567	23.00	10.82	53.00
1.083	6.00	4.333	13.00	7.583	23.00	10.83	53.00
1.100	6.00	4.350	13.00	7.600	23.00	10.85	53.00
1.117	6.00	4.367	13.00	7.617	23.00	10.87	53.00
1.133	6.00	4.383	13.00	7.633	23.00	10.88	53.00
1.150	6.00	4.400	13.00	7.650	23.00	10.90	53.00
1.167	6.00	4.417	13.00	7.667	23.00	10.92	53.00
1.183	6.00	4.433	13.00	7.683	23.00	10.93	53.00
1.200	6.00	4.450	13.00	7.700	23.00	10.95	53.00
1.217	6.00	4.467	13.00	7.717	23.00	10.97	53.00
1.233	6.00	4.483	13.00	7.733	23.00	10.98	53.00
1.250	6.00	4.500	13.00	7.750	23.00	11.00	53.00
1.267	6.00	4.517	13.00	7.767	23.00	11.02	38.00
1.283	6.00	4.533	13.00	7.783	23.00	11.03	38.00
1.300	6.00	4.550	13.00	7.800	23.00	11.05	38.00
1.317	6.00	4.567	13.00	7.817	23.00	11.07	38.00
1.333	6.00	4.583	13.00	7.833	23.00	11.08	38.00
1.350	6.00	4.600	13.00	7.850	23.00	11.10	38.00
1.367	6.00	4.617	13.00	7.867	23.00	11.12	38.00
1.383	6.00	4.633	13.00	7.883	23.00	11.13	38.00
1.400	6.00	4.650	13.00	7.900	23.00	11.15	38.00
1.417	6.00	4.667	13.00	7.917	23.00	11.17	38.00
1.433	6.00	4.683	13.00	7.933	23.00	11.18	38.00
1.450	6.00	4.700	13.00	7.950	23.00	11.20	38.00
1.467	6.00	4.717	13.00	7.967	23.00	11.22	38.00
1.483	6.00	4.733	13.00	7.983	23.00	11.23	38.00
1.500	6.00	4.750	13.00	8.000	22.97	11.25	38.00
1.517	6.00	4.767	13.00	8.017	13.00	11.27	38.00
1.533	6.00	4.783	13.00	8.033	13.00	11.28	38.00

1.550	6.00	4.800	13.00	8.050	13.00	11.30	38.00
1.567	6.00	4.817	13.00	8.067	13.00	11.32	38.00
1.583	6.00	4.833	13.00	8.083	13.00	11.33	38.00
1.600	6.00	4.850	13.00	8.100	13.00	11.35	38.00
1.617	6.00	4.867	13.00	8.117	13.00	11.37	38.00
1.633	6.00	4.883	13.00	8.133	13.00	11.38	38.00
1.650	6.00	4.900	13.00	8.150	13.00	11.40	38.00
1.667	6.00	4.917	13.00	8.167	13.00	11.42	38.00
1.683	6.00	4.933	13.00	8.183	13.00	11.43	38.00
1.700	6.00	4.950	13.00	8.200	13.00	11.45	38.00
1.717	6.00	4.967	13.00	8.217	13.00	11.47	38.00
1.733	6.00	4.983	13.00	8.233	13.00	11.48	38.00
1.750	6.00	5.000	13.00	8.250	13.00	11.50	38.00
1.767	6.00	5.017	17.00	8.267	13.00	11.52	38.00
1.783	6.00	5.033	17.00	8.283	13.00	11.53	38.00
1.800	6.00	5.050	17.00	8.300	13.00	11.55	38.00
1.817	6.00	5.067	17.00	8.317	13.00	11.57	38.00
1.833	6.00	5.083	17.00	8.333	13.00	11.58	38.00
1.850	6.00	5.100	17.00	8.350	13.00	11.60	38.00
1.867	6.00	5.117	17.00	8.367	13.00	11.62	38.00
1.883	6.00	5.133	17.00	8.383	13.00	11.63	38.00
1.900	6.00	5.150	17.00	8.400	13.00	11.65	38.00
1.917	6.00	5.167	17.00	8.417	13.00	11.67	38.00
1.933	6.00	5.183	17.00	8.433	13.00	11.68	38.00
1.950	6.00	5.200	17.00	8.450	13.00	11.70	38.00
1.967	6.00	5.217	17.00	8.467	13.00	11.72	38.00
1.983	6.00	5.233	17.00	8.483	13.00	11.73	38.00
2.000	6.00	5.250	17.00	8.500	13.00	11.75	38.00
2.017	4.00	5.267	17.00	8.517	13.00	11.77	38.00
2.033	4.00	5.283	17.00	8.533	13.00	11.78	38.00
2.050	4.00	5.300	17.00	8.550	13.00	11.80	38.00
2.067	4.00	5.317	17.00	8.567	13.00	11.82	38.00
2.083	4.00	5.333	17.00	8.583	13.00	11.83	38.00
2.100	4.00	5.350	17.00	8.600	13.00	11.85	38.00
2.117	4.00	5.367	17.00	8.617	13.00	11.87	38.00
2.133	4.00	5.383	17.00	8.633	13.00	11.88	38.00
2.150	4.00	5.400	17.00	8.650	13.00	11.90	38.00
2.167	4.00	5.417	17.00	8.667	13.00	11.92	38.00
2.183	4.00	5.433	17.00	8.683	13.00	11.93	38.00
2.200	4.00	5.450	17.00	8.700	13.00	11.95	38.00
2.217	4.00	5.467	17.00	8.717	13.00	11.97	38.00
2.233	4.00	5.483	17.00	8.733	13.00	11.98	38.00
2.250	4.00	5.500	17.00	8.750	13.00	12.00	38.00
2.267	4.00	5.517	17.00	8.767	13.00	12.02	13.02
2.283	4.00	5.533	17.00	8.783	13.00	12.03	13.00
2.300	4.00	5.550	17.00	8.800	13.00	12.05	13.00
2.317	4.00	5.567	17.00	8.817	13.00	12.07	13.00
2.333	4.00	5.583	17.00	8.833	13.00	12.08	13.00
2.350	4.00	5.600	17.00	8.850	13.00	12.10	13.00
2.367	4.00	5.617	17.00	8.867	13.00	12.12	13.00
2.383	4.00	5.633	17.00	8.883	13.00	12.13	13.00
2.400	4.00	5.650	17.00	8.900	13.00	12.15	13.00
2.417	4.00	5.667	17.00	8.917	13.00	12.17	13.00
2.433	4.00	5.683	17.00	8.933	13.00	12.18	13.00
2.450	4.00	5.700	17.00	8.950	13.00	12.20	13.00
2.467	4.00	5.717	17.00	8.967	13.00	12.22	13.00
2.483	4.00	5.733	17.00	8.983	13.00	12.23	13.00
2.500	4.00	5.750	17.00	9.000	13.00	12.25	13.00
2.517	4.00	5.767	17.00	9.017	13.00	12.27	13.00
2.533	4.00	5.783	17.00	9.033	13.00	12.28	13.00
2.550	4.00	5.800	17.00	9.050	13.00	12.30	13.00
2.567	4.00	5.817	17.00	9.067	13.00	12.32	13.00
2.583	4.00	5.833	17.00	9.083	13.00	12.33	13.00
2.600	4.00	5.850	17.00	9.100	13.00	12.35	13.00

2.617	4.00	5.867	17.00	9.117	13.00	12.37	13.00
2.633	4.00	5.883	17.00	9.133	13.00	12.38	13.00
2.650	4.00	5.900	17.00	9.150	13.00	12.40	13.00
2.667	4.00	5.917	17.00	9.167	13.00	12.42	13.00
2.683	4.00	5.933	17.00	9.183	13.00	12.43	13.00
2.700	4.00	5.950	17.00	9.200	13.00	12.45	13.00
2.717	4.00	5.967	17.00	9.217	13.00	12.47	13.00
2.733	4.00	5.983	17.00	9.233	13.00	12.48	13.00
2.750	4.00	6.000	16.99	9.250	13.00	12.50	13.00
2.767	4.00	6.017	13.00	9.267	13.00	12.52	13.00
2.783	4.00	6.033	13.00	9.283	13.00	12.53	13.00
2.800	4.00	6.050	13.00	9.300	13.00	12.55	13.00
2.817	4.00	6.067	13.00	9.317	13.00	12.57	13.00
2.833	4.00	6.083	13.00	9.333	13.00	12.58	13.00
2.850	4.00	6.100	13.00	9.350	13.00	12.60	13.00
2.867	4.00	6.117	13.00	9.367	13.00	12.62	13.00
2.883	4.00	6.133	13.00	9.383	13.00	12.63	13.00
2.900	4.00	6.150	13.00	9.400	13.00	12.65	13.00
2.917	4.00	6.167	13.00	9.417	13.00	12.67	13.00
2.933	4.00	6.183	13.00	9.433	13.00	12.68	13.00
2.950	4.00	6.200	13.00	9.450	13.00	12.70	13.00
2.967	4.00	6.217	13.00	9.467	13.00	12.72	13.00
2.983	4.00	6.233	13.00	9.483	13.00	12.73	13.00
3.000	4.00	6.250	13.00	9.500	13.00	12.75	13.00
3.017	6.00	6.267	13.00	9.517	13.00	12.77	13.00
3.033	6.00	6.283	13.00	9.533	13.00	12.78	13.00
3.050	6.00	6.300	13.00	9.550	13.00	12.80	13.00
3.067	6.00	6.317	13.00	9.567	13.00	12.82	13.00
3.083	6.00	6.333	13.00	9.583	13.00	12.83	13.00
3.100	6.00	6.350	13.00	9.600	13.00	12.85	13.00
3.117	6.00	6.367	13.00	9.617	13.00	12.87	13.00
3.133	6.00	6.383	13.00	9.633	13.00	12.88	13.00
3.150	6.00	6.400	13.00	9.650	13.00	12.90	13.00
3.167	6.00	6.417	13.00	9.667	13.00	12.92	13.00
3.183	6.00	6.433	13.00	9.683	13.00	12.93	13.00
3.200	6.00	6.450	13.00	9.700	13.00	12.95	13.00
3.217	6.00	6.467	13.00	9.717	13.00	12.97	13.00
3.233	6.00	6.483	13.00	9.733	13.00	12.98	13.00
3.250	6.00	6.500	13.00	9.750	13.00	13.00	13.00

Unit Hyd Qpeak (cms)= 0.055

PEAK FLOW (cms)= 0.015 (i)
TIME TO PEAK (hrs)= 11.000
RUNOFF VOLUME (mm)= 127.106
TOTAL RAINFALL (mm)= 212.001
RUNOFF COEFFICIENT = 0.600

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0207)	Area (ha)= 0.09 Curve Number (CN)= 57.0
ID= 1 DT= 1.0 min	Ia (mm)= 5.68 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.04

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	3.267	6.00	6.517	13.00	9.77	13.00

0.033	0.00	3.283	6.00	6.533	13.00	9.78	13.00
0.050	0.00	3.300	6.00	6.550	13.00	9.80	13.00
0.067	0.00	3.317	6.00	6.567	13.00	9.82	13.00
0.083	0.00	3.333	6.00	6.583	13.00	9.83	13.00
0.100	0.00	3.350	6.00	6.600	13.00	9.85	13.00
0.117	0.00	3.367	6.00	6.617	13.00	9.87	13.00
0.133	0.00	3.383	6.00	6.633	13.00	9.88	13.00
0.150	0.00	3.400	6.00	6.650	13.00	9.90	13.00
0.167	0.00	3.417	6.00	6.667	13.00	9.92	13.00
0.183	0.00	3.433	6.00	6.683	13.00	9.93	13.00
0.200	0.00	3.450	6.00	6.700	13.00	9.95	13.00
0.217	0.00	3.467	6.00	6.717	13.00	9.97	13.00
0.233	0.00	3.483	6.00	6.733	13.00	9.98	13.00
0.250	0.00	3.500	6.00	6.750	13.00	10.00	13.05
0.267	0.00	3.517	6.00	6.767	13.00	10.02	53.00
0.283	0.00	3.533	6.00	6.783	13.00	10.03	53.00
0.300	0.00	3.550	6.00	6.800	13.00	10.05	53.00
0.317	0.00	3.567	6.00	6.817	13.00	10.07	53.00
0.333	0.00	3.583	6.00	6.833	13.00	10.08	53.00
0.350	0.00	3.600	6.00	6.850	13.00	10.10	53.00
0.367	0.00	3.617	6.00	6.867	13.00	10.12	53.00
0.383	0.00	3.633	6.00	6.883	13.00	10.13	53.00
0.400	0.00	3.650	6.00	6.900	13.00	10.15	53.00
0.417	0.00	3.667	6.00	6.917	13.00	10.17	53.00
0.433	0.00	3.683	6.00	6.933	13.00	10.18	53.00
0.450	0.00	3.700	6.00	6.950	13.00	10.20	53.00
0.467	0.00	3.717	6.00	6.967	13.00	10.22	53.00
0.483	0.00	3.733	6.00	6.983	13.00	10.23	53.00
0.500	0.00	3.750	6.00	7.000	13.02	10.25	53.00
0.517	0.00	3.767	6.00	7.017	23.00	10.27	53.00
0.533	0.00	3.783	6.00	7.033	23.00	10.28	53.00
0.550	0.00	3.800	6.00	7.050	23.00	10.30	53.00
0.567	0.00	3.817	6.00	7.067	23.00	10.32	53.00
0.583	0.00	3.833	6.00	7.083	23.00	10.33	53.00
0.600	0.00	3.850	6.00	7.100	23.00	10.35	53.00
0.617	0.00	3.867	6.00	7.117	23.00	10.37	53.00
0.633	0.00	3.883	6.00	7.133	23.00	10.38	53.00
0.650	0.00	3.900	6.00	7.150	23.00	10.40	53.00
0.667	0.00	3.917	6.00	7.167	23.00	10.42	53.00
0.683	0.00	3.933	6.00	7.183	23.00	10.43	53.00
0.700	0.00	3.950	6.00	7.200	23.00	10.45	53.00
0.717	0.00	3.967	6.00	7.217	23.00	10.47	53.00
0.733	0.00	3.983	6.00	7.233	23.00	10.48	53.00
0.750	0.00	4.000	6.00	7.250	23.00	10.50	53.00
0.767	0.00	4.017	13.00	7.267	23.00	10.52	53.00
0.783	0.00	4.033	13.00	7.283	23.00	10.53	53.00
0.800	0.00	4.050	13.00	7.300	23.00	10.55	53.00
0.817	0.00	4.067	13.00	7.317	23.00	10.57	53.00
0.833	0.00	4.083	13.00	7.333	23.00	10.58	53.00
0.850	0.00	4.100	13.00	7.350	23.00	10.60	53.00
0.867	0.00	4.117	13.00	7.367	23.00	10.62	53.00
0.883	0.00	4.133	13.00	7.383	23.00	10.63	53.00
0.900	0.00	4.150	13.00	7.400	23.00	10.65	53.00
0.917	0.00	4.167	13.00	7.417	23.00	10.67	53.00
0.933	0.00	4.183	13.00	7.433	23.00	10.68	53.00
0.950	0.00	4.200	13.00	7.450	23.00	10.70	53.00
0.967	0.00	4.217	13.00	7.467	23.00	10.72	53.00
0.983	0.00	4.233	13.00	7.483	23.00	10.73	53.00
1.000	0.00	4.250	13.00	7.500	23.00	10.75	53.00
1.017	6.00	4.267	13.00	7.517	23.00	10.77	53.00
1.033	6.00	4.283	13.00	7.533	23.00	10.78	53.00
1.050	6.00	4.300	13.00	7.550	23.00	10.80	53.00
1.067	6.00	4.317	13.00	7.567	23.00	10.82	53.00
1.083	6.00	4.333	13.00	7.583	23.00	10.83	53.00

1.100	6.00	4.350	13.00	7.600	23.00	10.85	53.00
1.117	6.00	4.367	13.00	7.617	23.00	10.87	53.00
1.133	6.00	4.383	13.00	7.633	23.00	10.88	53.00
1.150	6.00	4.400	13.00	7.650	23.00	10.90	53.00
1.167	6.00	4.417	13.00	7.667	23.00	10.92	53.00
1.183	6.00	4.433	13.00	7.683	23.00	10.93	53.00
1.200	6.00	4.450	13.00	7.700	23.00	10.95	53.00
1.217	6.00	4.467	13.00	7.717	23.00	10.97	53.00
1.233	6.00	4.483	13.00	7.733	23.00	10.98	53.00
1.250	6.00	4.500	13.00	7.750	23.00	11.00	53.00
1.267	6.00	4.517	13.00	7.767	23.00	11.02	38.00
1.283	6.00	4.533	13.00	7.783	23.00	11.03	38.00
1.300	6.00	4.550	13.00	7.800	23.00	11.05	38.00
1.317	6.00	4.567	13.00	7.817	23.00	11.07	38.00
1.333	6.00	4.583	13.00	7.833	23.00	11.08	38.00
1.350	6.00	4.600	13.00	7.850	23.00	11.10	38.00
1.367	6.00	4.617	13.00	7.867	23.00	11.12	38.00
1.383	6.00	4.633	13.00	7.883	23.00	11.13	38.00
1.400	6.00	4.650	13.00	7.900	23.00	11.15	38.00
1.417	6.00	4.667	13.00	7.917	23.00	11.17	38.00
1.433	6.00	4.683	13.00	7.933	23.00	11.18	38.00
1.450	6.00	4.700	13.00	7.950	23.00	11.20	38.00
1.467	6.00	4.717	13.00	7.967	23.00	11.22	38.00
1.483	6.00	4.733	13.00	7.983	23.00	11.23	38.00
1.500	6.00	4.750	13.00	8.000	22.97	11.25	38.00
1.517	6.00	4.767	13.00	8.017	13.00	11.27	38.00
1.533	6.00	4.783	13.00	8.033	13.00	11.28	38.00
1.550	6.00	4.800	13.00	8.050	13.00	11.30	38.00
1.567	6.00	4.817	13.00	8.067	13.00	11.32	38.00
1.583	6.00	4.833	13.00	8.083	13.00	11.33	38.00
1.600	6.00	4.850	13.00	8.100	13.00	11.35	38.00
1.617	6.00	4.867	13.00	8.117	13.00	11.37	38.00
1.633	6.00	4.883	13.00	8.133	13.00	11.38	38.00
1.650	6.00	4.900	13.00	8.150	13.00	11.40	38.00
1.667	6.00	4.917	13.00	8.167	13.00	11.42	38.00
1.683	6.00	4.933	13.00	8.183	13.00	11.43	38.00
1.700	6.00	4.950	13.00	8.200	13.00	11.45	38.00
1.717	6.00	4.967	13.00	8.217	13.00	11.47	38.00
1.733	6.00	4.983	13.00	8.233	13.00	11.48	38.00
1.750	6.00	5.000	13.00	8.250	13.00	11.50	38.00
1.767	6.00	5.017	17.00	8.267	13.00	11.52	38.00
1.783	6.00	5.033	17.00	8.283	13.00	11.53	38.00
1.800	6.00	5.050	17.00	8.300	13.00	11.55	38.00
1.817	6.00	5.067	17.00	8.317	13.00	11.57	38.00
1.833	6.00	5.083	17.00	8.333	13.00	11.58	38.00
1.850	6.00	5.100	17.00	8.350	13.00	11.60	38.00
1.867	6.00	5.117	17.00	8.367	13.00	11.62	38.00
1.883	6.00	5.133	17.00	8.383	13.00	11.63	38.00
1.900	6.00	5.150	17.00	8.400	13.00	11.65	38.00
1.917	6.00	5.167	17.00	8.417	13.00	11.67	38.00
1.933	6.00	5.183	17.00	8.433	13.00	11.68	38.00
1.950	6.00	5.200	17.00	8.450	13.00	11.70	38.00
1.967	6.00	5.217	17.00	8.467	13.00	11.72	38.00
1.983	6.00	5.233	17.00	8.483	13.00	11.73	38.00
2.000	6.00	5.250	17.00	8.500	13.00	11.75	38.00
2.017	4.00	5.267	17.00	8.517	13.00	11.77	38.00
2.033	4.00	5.283	17.00	8.533	13.00	11.78	38.00
2.050	4.00	5.300	17.00	8.550	13.00	11.80	38.00
2.067	4.00	5.317	17.00	8.567	13.00	11.82	38.00
2.083	4.00	5.333	17.00	8.583	13.00	11.83	38.00
2.100	4.00	5.350	17.00	8.600	13.00	11.85	38.00
2.117	4.00	5.367	17.00	8.617	13.00	11.87	38.00
2.133	4.00	5.383	17.00	8.633	13.00	11.88	38.00
2.150	4.00	5.400	17.00	8.650	13.00	11.90	38.00

2.167	4.00	5.417	17.00	8.667	13.00	11.92	38.00
2.183	4.00	5.433	17.00	8.683	13.00	11.93	38.00
2.200	4.00	5.450	17.00	8.700	13.00	11.95	38.00
2.217	4.00	5.467	17.00	8.717	13.00	11.97	38.00
2.233	4.00	5.483	17.00	8.733	13.00	11.98	38.00
2.250	4.00	5.500	17.00	8.750	13.00	12.00	38.00
2.267	4.00	5.517	17.00	8.767	13.00	12.02	13.02
2.283	4.00	5.533	17.00	8.783	13.00	12.03	13.00
2.300	4.00	5.550	17.00	8.800	13.00	12.05	13.00
2.317	4.00	5.567	17.00	8.817	13.00	12.07	13.00
2.333	4.00	5.583	17.00	8.833	13.00	12.08	13.00
2.350	4.00	5.600	17.00	8.850	13.00	12.10	13.00
2.367	4.00	5.617	17.00	8.867	13.00	12.12	13.00
2.383	4.00	5.633	17.00	8.883	13.00	12.13	13.00
2.400	4.00	5.650	17.00	8.900	13.00	12.15	13.00
2.417	4.00	5.667	17.00	8.917	13.00	12.17	13.00
2.433	4.00	5.683	17.00	8.933	13.00	12.18	13.00
2.450	4.00	5.700	17.00	8.950	13.00	12.20	13.00
2.467	4.00	5.717	17.00	8.967	13.00	12.22	13.00
2.483	4.00	5.733	17.00	8.983	13.00	12.23	13.00
2.500	4.00	5.750	17.00	9.000	13.00	12.25	13.00
2.517	4.00	5.767	17.00	9.017	13.00	12.27	13.00
2.533	4.00	5.783	17.00	9.033	13.00	12.28	13.00
2.550	4.00	5.800	17.00	9.050	13.00	12.30	13.00
2.567	4.00	5.817	17.00	9.067	13.00	12.32	13.00
2.583	4.00	5.833	17.00	9.083	13.00	12.33	13.00
2.600	4.00	5.850	17.00	9.100	13.00	12.35	13.00
2.617	4.00	5.867	17.00	9.117	13.00	12.37	13.00
2.633	4.00	5.883	17.00	9.133	13.00	12.38	13.00
2.650	4.00	5.900	17.00	9.150	13.00	12.40	13.00
2.667	4.00	5.917	17.00	9.167	13.00	12.42	13.00
2.683	4.00	5.933	17.00	9.183	13.00	12.43	13.00
2.700	4.00	5.950	17.00	9.200	13.00	12.45	13.00
2.717	4.00	5.967	17.00	9.217	13.00	12.47	13.00
2.733	4.00	5.983	17.00	9.233	13.00	12.48	13.00
2.750	4.00	6.000	16.99	9.250	13.00	12.50	13.00
2.767	4.00	6.017	13.00	9.267	13.00	12.52	13.00
2.783	4.00	6.033	13.00	9.283	13.00	12.53	13.00
2.800	4.00	6.050	13.00	9.300	13.00	12.55	13.00
2.817	4.00	6.067	13.00	9.317	13.00	12.57	13.00
2.833	4.00	6.083	13.00	9.333	13.00	12.58	13.00
2.850	4.00	6.100	13.00	9.350	13.00	12.60	13.00
2.867	4.00	6.117	13.00	9.367	13.00	12.62	13.00
2.883	4.00	6.133	13.00	9.383	13.00	12.63	13.00
2.900	4.00	6.150	13.00	9.400	13.00	12.65	13.00
2.917	4.00	6.167	13.00	9.417	13.00	12.67	13.00
2.933	4.00	6.183	13.00	9.433	13.00	12.68	13.00
2.950	4.00	6.200	13.00	9.450	13.00	12.70	13.00
2.967	4.00	6.217	13.00	9.467	13.00	12.72	13.00
2.983	4.00	6.233	13.00	9.483	13.00	12.73	13.00
3.000	4.00	6.250	13.00	9.500	13.00	12.75	13.00
3.017	6.00	6.267	13.00	9.517	13.00	12.77	13.00
3.033	6.00	6.283	13.00	9.533	13.00	12.78	13.00
3.050	6.00	6.300	13.00	9.550	13.00	12.80	13.00
3.067	6.00	6.317	13.00	9.567	13.00	12.82	13.00
3.083	6.00	6.333	13.00	9.583	13.00	12.83	13.00
3.100	6.00	6.350	13.00	9.600	13.00	12.85	13.00
3.117	6.00	6.367	13.00	9.617	13.00	12.87	13.00
3.133	6.00	6.383	13.00	9.633	13.00	12.88	13.00
3.150	6.00	6.400	13.00	9.650	13.00	12.90	13.00
3.167	6.00	6.417	13.00	9.667	13.00	12.92	13.00
3.183	6.00	6.433	13.00	9.683	13.00	12.93	13.00
3.200	6.00	6.450	13.00	9.700	13.00	12.95	13.00
3.217	6.00	6.467	13.00	9.717	13.00	12.97	13.00

3.233	6.00	6.483	13.00	9.733	13.00	12.98	13.00
3.250	6.00	6.500	13.00	9.750	13.00	13.00	13.00

Unit Hyd Qpeak (cms)= 0.087

PEAK FLOW (cms)= 0.009 (i)
TIME TO PEAK (hrs)= 11.000
RUNOFF VOLUME (mm)= 106.768
TOTAL RAINFALL (mm)= 212.001
RUNOFF COEFFICIENT = 0.504

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0204)	Area (ha)=	0.21	Curve Number (CN)= 62.0
ID= 1 DT= 1.0 min	Ia (mm)=	6.31	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.11	

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	3.267	6.00	6.517	13.00	9.77	13.00
0.033	0.00	3.283	6.00	6.533	13.00	9.78	13.00
0.050	0.00	3.300	6.00	6.550	13.00	9.80	13.00
0.067	0.00	3.317	6.00	6.567	13.00	9.82	13.00
0.083	0.00	3.333	6.00	6.583	13.00	9.83	13.00
0.100	0.00	3.350	6.00	6.600	13.00	9.85	13.00
0.117	0.00	3.367	6.00	6.617	13.00	9.87	13.00
0.133	0.00	3.383	6.00	6.633	13.00	9.88	13.00
0.150	0.00	3.400	6.00	6.650	13.00	9.90	13.00
0.167	0.00	3.417	6.00	6.667	13.00	9.92	13.00
0.183	0.00	3.433	6.00	6.683	13.00	9.93	13.00
0.200	0.00	3.450	6.00	6.700	13.00	9.95	13.00
0.217	0.00	3.467	6.00	6.717	13.00	9.97	13.00
0.233	0.00	3.483	6.00	6.733	13.00	9.98	13.00
0.250	0.00	3.500	6.00	6.750	13.00	10.00	13.05
0.267	0.00	3.517	6.00	6.767	13.00	10.02	53.00
0.283	0.00	3.533	6.00	6.783	13.00	10.03	53.00
0.300	0.00	3.550	6.00	6.800	13.00	10.05	53.00
0.317	0.00	3.567	6.00	6.817	13.00	10.07	53.00
0.333	0.00	3.583	6.00	6.833	13.00	10.08	53.00
0.350	0.00	3.600	6.00	6.850	13.00	10.10	53.00
0.367	0.00	3.617	6.00	6.867	13.00	10.12	53.00
0.383	0.00	3.633	6.00	6.883	13.00	10.13	53.00
0.400	0.00	3.650	6.00	6.900	13.00	10.15	53.00
0.417	0.00	3.667	6.00	6.917	13.00	10.17	53.00
0.433	0.00	3.683	6.00	6.933	13.00	10.18	53.00
0.450	0.00	3.700	6.00	6.950	13.00	10.20	53.00
0.467	0.00	3.717	6.00	6.967	13.00	10.22	53.00
0.483	0.00	3.733	6.00	6.983	13.00	10.23	53.00
0.500	0.00	3.750	6.00	7.000	13.02	10.25	53.00
0.517	0.00	3.767	6.00	7.017	23.00	10.27	53.00
0.533	0.00	3.783	6.00	7.033	23.00	10.28	53.00
0.550	0.00	3.800	6.00	7.050	23.00	10.30	53.00
0.567	0.00	3.817	6.00	7.067	23.00	10.32	53.00
0.583	0.00	3.833	6.00	7.083	23.00	10.33	53.00
0.600	0.00	3.850	6.00	7.100	23.00	10.35	53.00
0.617	0.00	3.867	6.00	7.117	23.00	10.37	53.00
0.633	0.00	3.883	6.00	7.133	23.00	10.38	53.00

0.650	0.00	3.900	6.00	7.150	23.00	10.40	53.00
0.667	0.00	3.917	6.00	7.167	23.00	10.42	53.00
0.683	0.00	3.933	6.00	7.183	23.00	10.43	53.00
0.700	0.00	3.950	6.00	7.200	23.00	10.45	53.00
0.717	0.00	3.967	6.00	7.217	23.00	10.47	53.00
0.733	0.00	3.983	6.00	7.233	23.00	10.48	53.00
0.750	0.00	4.000	6.00	7.250	23.00	10.50	53.00
0.767	0.00	4.017	13.00	7.267	23.00	10.52	53.00
0.783	0.00	4.033	13.00	7.283	23.00	10.53	53.00
0.800	0.00	4.050	13.00	7.300	23.00	10.55	53.00
0.817	0.00	4.067	13.00	7.317	23.00	10.57	53.00
0.833	0.00	4.083	13.00	7.333	23.00	10.58	53.00
0.850	0.00	4.100	13.00	7.350	23.00	10.60	53.00
0.867	0.00	4.117	13.00	7.367	23.00	10.62	53.00
0.883	0.00	4.133	13.00	7.383	23.00	10.63	53.00
0.900	0.00	4.150	13.00	7.400	23.00	10.65	53.00
0.917	0.00	4.167	13.00	7.417	23.00	10.67	53.00
0.933	0.00	4.183	13.00	7.433	23.00	10.68	53.00
0.950	0.00	4.200	13.00	7.450	23.00	10.70	53.00
0.967	0.00	4.217	13.00	7.467	23.00	10.72	53.00
0.983	0.00	4.233	13.00	7.483	23.00	10.73	53.00
1.000	0.00	4.250	13.00	7.500	23.00	10.75	53.00
1.017	6.00	4.267	13.00	7.517	23.00	10.77	53.00
1.033	6.00	4.283	13.00	7.533	23.00	10.78	53.00
1.050	6.00	4.300	13.00	7.550	23.00	10.80	53.00
1.067	6.00	4.317	13.00	7.567	23.00	10.82	53.00
1.083	6.00	4.333	13.00	7.583	23.00	10.83	53.00
1.100	6.00	4.350	13.00	7.600	23.00	10.85	53.00
1.117	6.00	4.367	13.00	7.617	23.00	10.87	53.00
1.133	6.00	4.383	13.00	7.633	23.00	10.88	53.00
1.150	6.00	4.400	13.00	7.650	23.00	10.90	53.00
1.167	6.00	4.417	13.00	7.667	23.00	10.92	53.00
1.183	6.00	4.433	13.00	7.683	23.00	10.93	53.00
1.200	6.00	4.450	13.00	7.700	23.00	10.95	53.00
1.217	6.00	4.467	13.00	7.717	23.00	10.97	53.00
1.233	6.00	4.483	13.00	7.733	23.00	10.98	53.00
1.250	6.00	4.500	13.00	7.750	23.00	11.00	53.00
1.267	6.00	4.517	13.00	7.767	23.00	11.02	38.00
1.283	6.00	4.533	13.00	7.783	23.00	11.03	38.00
1.300	6.00	4.550	13.00	7.800	23.00	11.05	38.00
1.317	6.00	4.567	13.00	7.817	23.00	11.07	38.00
1.333	6.00	4.583	13.00	7.833	23.00	11.08	38.00
1.350	6.00	4.600	13.00	7.850	23.00	11.10	38.00
1.367	6.00	4.617	13.00	7.867	23.00	11.12	38.00
1.383	6.00	4.633	13.00	7.883	23.00	11.13	38.00
1.400	6.00	4.650	13.00	7.900	23.00	11.15	38.00
1.417	6.00	4.667	13.00	7.917	23.00	11.17	38.00
1.433	6.00	4.683	13.00	7.933	23.00	11.18	38.00
1.450	6.00	4.700	13.00	7.950	23.00	11.20	38.00
1.467	6.00	4.717	13.00	7.967	23.00	11.22	38.00
1.483	6.00	4.733	13.00	7.983	23.00	11.23	38.00
1.500	6.00	4.750	13.00	8.000	22.97	11.25	38.00
1.517	6.00	4.767	13.00	8.017	13.00	11.27	38.00
1.533	6.00	4.783	13.00	8.033	13.00	11.28	38.00
1.550	6.00	4.800	13.00	8.050	13.00	11.30	38.00
1.567	6.00	4.817	13.00	8.067	13.00	11.32	38.00
1.583	6.00	4.833	13.00	8.083	13.00	11.33	38.00
1.600	6.00	4.850	13.00	8.100	13.00	11.35	38.00
1.617	6.00	4.867	13.00	8.117	13.00	11.37	38.00
1.633	6.00	4.883	13.00	8.133	13.00	11.38	38.00
1.650	6.00	4.900	13.00	8.150	13.00	11.40	38.00
1.667	6.00	4.917	13.00	8.167	13.00	11.42	38.00
1.683	6.00	4.933	13.00	8.183	13.00	11.43	38.00
1.700	6.00	4.950	13.00	8.200	13.00	11.45	38.00

1.717	6.00	4.967	13.00	8.217	13.00	11.47	38.00
1.733	6.00	4.983	13.00	8.233	13.00	11.48	38.00
1.750	6.00	5.000	13.00	8.250	13.00	11.50	38.00
1.767	6.00	5.017	17.00	8.267	13.00	11.52	38.00
1.783	6.00	5.033	17.00	8.283	13.00	11.53	38.00
1.800	6.00	5.050	17.00	8.300	13.00	11.55	38.00
1.817	6.00	5.067	17.00	8.317	13.00	11.57	38.00
1.833	6.00	5.083	17.00	8.333	13.00	11.58	38.00
1.850	6.00	5.100	17.00	8.350	13.00	11.60	38.00
1.867	6.00	5.117	17.00	8.367	13.00	11.62	38.00
1.883	6.00	5.133	17.00	8.383	13.00	11.63	38.00
1.900	6.00	5.150	17.00	8.400	13.00	11.65	38.00
1.917	6.00	5.167	17.00	8.417	13.00	11.67	38.00
1.933	6.00	5.183	17.00	8.433	13.00	11.68	38.00
1.950	6.00	5.200	17.00	8.450	13.00	11.70	38.00
1.967	6.00	5.217	17.00	8.467	13.00	11.72	38.00
1.983	6.00	5.233	17.00	8.483	13.00	11.73	38.00
2.000	6.00	5.250	17.00	8.500	13.00	11.75	38.00
2.017	4.00	5.267	17.00	8.517	13.00	11.77	38.00
2.033	4.00	5.283	17.00	8.533	13.00	11.78	38.00
2.050	4.00	5.300	17.00	8.550	13.00	11.80	38.00
2.067	4.00	5.317	17.00	8.567	13.00	11.82	38.00
2.083	4.00	5.333	17.00	8.583	13.00	11.83	38.00
2.100	4.00	5.350	17.00	8.600	13.00	11.85	38.00
2.117	4.00	5.367	17.00	8.617	13.00	11.87	38.00
2.133	4.00	5.383	17.00	8.633	13.00	11.88	38.00
2.150	4.00	5.400	17.00	8.650	13.00	11.90	38.00
2.167	4.00	5.417	17.00	8.667	13.00	11.92	38.00
2.183	4.00	5.433	17.00	8.683	13.00	11.93	38.00
2.200	4.00	5.450	17.00	8.700	13.00	11.95	38.00
2.217	4.00	5.467	17.00	8.717	13.00	11.97	38.00
2.233	4.00	5.483	17.00	8.733	13.00	11.98	38.00
2.250	4.00	5.500	17.00	8.750	13.00	12.00	38.00
2.267	4.00	5.517	17.00	8.767	13.00	12.02	13.02
2.283	4.00	5.533	17.00	8.783	13.00	12.03	13.00
2.300	4.00	5.550	17.00	8.800	13.00	12.05	13.00
2.317	4.00	5.567	17.00	8.817	13.00	12.07	13.00
2.333	4.00	5.583	17.00	8.833	13.00	12.08	13.00
2.350	4.00	5.600	17.00	8.850	13.00	12.10	13.00
2.367	4.00	5.617	17.00	8.867	13.00	12.12	13.00
2.383	4.00	5.633	17.00	8.883	13.00	12.13	13.00
2.400	4.00	5.650	17.00	8.900	13.00	12.15	13.00
2.417	4.00	5.667	17.00	8.917	13.00	12.17	13.00
2.433	4.00	5.683	17.00	8.933	13.00	12.18	13.00
2.450	4.00	5.700	17.00	8.950	13.00	12.20	13.00
2.467	4.00	5.717	17.00	8.967	13.00	12.22	13.00
2.483	4.00	5.733	17.00	8.983	13.00	12.23	13.00
2.500	4.00	5.750	17.00	9.000	13.00	12.25	13.00
2.517	4.00	5.767	17.00	9.017	13.00	12.27	13.00
2.533	4.00	5.783	17.00	9.033	13.00	12.28	13.00
2.550	4.00	5.800	17.00	9.050	13.00	12.30	13.00
2.567	4.00	5.817	17.00	9.067	13.00	12.32	13.00
2.583	4.00	5.833	17.00	9.083	13.00	12.33	13.00
2.600	4.00	5.850	17.00	9.100	13.00	12.35	13.00
2.617	4.00	5.867	17.00	9.117	13.00	12.37	13.00
2.633	4.00	5.883	17.00	9.133	13.00	12.38	13.00
2.650	4.00	5.900	17.00	9.150	13.00	12.40	13.00
2.667	4.00	5.917	17.00	9.167	13.00	12.42	13.00
2.683	4.00	5.933	17.00	9.183	13.00	12.43	13.00
2.700	4.00	5.950	17.00	9.200	13.00	12.45	13.00
2.717	4.00	5.967	17.00	9.217	13.00	12.47	13.00
2.733	4.00	5.983	17.00	9.233	13.00	12.48	13.00
2.750	4.00	6.000	16.99	9.250	13.00	12.50	13.00
2.767	4.00	6.017	13.00	9.267	13.00	12.52	13.00

2.783	4.00	6.033	13.00	9.283	13.00	12.53	13.00
2.800	4.00	6.050	13.00	9.300	13.00	12.55	13.00
2.817	4.00	6.067	13.00	9.317	13.00	12.57	13.00
2.833	4.00	6.083	13.00	9.333	13.00	12.58	13.00
2.850	4.00	6.100	13.00	9.350	13.00	12.60	13.00
2.867	4.00	6.117	13.00	9.367	13.00	12.62	13.00
2.883	4.00	6.133	13.00	9.383	13.00	12.63	13.00
2.900	4.00	6.150	13.00	9.400	13.00	12.65	13.00
2.917	4.00	6.167	13.00	9.417	13.00	12.67	13.00
2.933	4.00	6.183	13.00	9.433	13.00	12.68	13.00
2.950	4.00	6.200	13.00	9.450	13.00	12.70	13.00
2.967	4.00	6.217	13.00	9.467	13.00	12.72	13.00
2.983	4.00	6.233	13.00	9.483	13.00	12.73	13.00
3.000	4.00	6.250	13.00	9.500	13.00	12.75	13.00
3.017	6.00	6.267	13.00	9.517	13.00	12.77	13.00
3.033	6.00	6.283	13.00	9.533	13.00	12.78	13.00
3.050	6.00	6.300	13.00	9.550	13.00	12.80	13.00
3.067	6.00	6.317	13.00	9.567	13.00	12.82	13.00
3.083	6.00	6.333	13.00	9.583	13.00	12.83	13.00
3.100	6.00	6.350	13.00	9.600	13.00	12.85	13.00
3.117	6.00	6.367	13.00	9.617	13.00	12.87	13.00
3.133	6.00	6.383	13.00	9.633	13.00	12.88	13.00
3.150	6.00	6.400	13.00	9.650	13.00	12.90	13.00
3.167	6.00	6.417	13.00	9.667	13.00	12.92	13.00
3.183	6.00	6.433	13.00	9.683	13.00	12.93	13.00
3.200	6.00	6.450	13.00	9.700	13.00	12.95	13.00
3.217	6.00	6.467	13.00	9.717	13.00	12.97	13.00
3.233	6.00	6.483	13.00	9.733	13.00	12.98	13.00
3.250	6.00	6.500	13.00	9.750	13.00	13.00	13.00

Unit Hyd Qpeak (cms)= 0.074

PEAK FLOW (cms)= 0.023 (i)
TIME TO PEAK (hrs)= 11.000
RUNOFF VOLUME (mm)= 117.073
TOTAL RAINFALL (mm)= 212.001
RUNOFF COEFFICIENT = 0.552

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0208)	Area (ha)= 0.03	Curve Number (CN)= 60.0
ID= 1 DT= 1.0 min	Ia (mm)= 5.14	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.04	

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	3.267	6.00	6.517	13.00	9.77	13.00
0.033	0.00	3.283	6.00	6.533	13.00	9.78	13.00
0.050	0.00	3.300	6.00	6.550	13.00	9.80	13.00
0.067	0.00	3.317	6.00	6.567	13.00	9.82	13.00
0.083	0.00	3.333	6.00	6.583	13.00	9.83	13.00
0.100	0.00	3.350	6.00	6.600	13.00	9.85	13.00
0.117	0.00	3.367	6.00	6.617	13.00	9.87	13.00
0.133	0.00	3.383	6.00	6.633	13.00	9.88	13.00
0.150	0.00	3.400	6.00	6.650	13.00	9.90	13.00
0.167	0.00	3.417	6.00	6.667	13.00	9.92	13.00
0.183	0.00	3.433	6.00	6.683	13.00	9.93	13.00

0.200	0.00	3.450	6.00	6.700	13.00	9.95	13.00
0.217	0.00	3.467	6.00	6.717	13.00	9.97	13.00
0.233	0.00	3.483	6.00	6.733	13.00	9.98	13.00
0.250	0.00	3.500	6.00	6.750	13.00	10.00	13.05
0.267	0.00	3.517	6.00	6.767	13.00	10.02	53.00
0.283	0.00	3.533	6.00	6.783	13.00	10.03	53.00
0.300	0.00	3.550	6.00	6.800	13.00	10.05	53.00
0.317	0.00	3.567	6.00	6.817	13.00	10.07	53.00
0.333	0.00	3.583	6.00	6.833	13.00	10.08	53.00
0.350	0.00	3.600	6.00	6.850	13.00	10.10	53.00
0.367	0.00	3.617	6.00	6.867	13.00	10.12	53.00
0.383	0.00	3.633	6.00	6.883	13.00	10.13	53.00
0.400	0.00	3.650	6.00	6.900	13.00	10.15	53.00
0.417	0.00	3.667	6.00	6.917	13.00	10.17	53.00
0.433	0.00	3.683	6.00	6.933	13.00	10.18	53.00
0.450	0.00	3.700	6.00	6.950	13.00	10.20	53.00
0.467	0.00	3.717	6.00	6.967	13.00	10.22	53.00
0.483	0.00	3.733	6.00	6.983	13.00	10.23	53.00
0.500	0.00	3.750	6.00	7.000	13.02	10.25	53.00
0.517	0.00	3.767	6.00	7.017	23.00	10.27	53.00
0.533	0.00	3.783	6.00	7.033	23.00	10.28	53.00
0.550	0.00	3.800	6.00	7.050	23.00	10.30	53.00
0.567	0.00	3.817	6.00	7.067	23.00	10.32	53.00
0.583	0.00	3.833	6.00	7.083	23.00	10.33	53.00
0.600	0.00	3.850	6.00	7.100	23.00	10.35	53.00
0.617	0.00	3.867	6.00	7.117	23.00	10.37	53.00
0.633	0.00	3.883	6.00	7.133	23.00	10.38	53.00
0.650	0.00	3.900	6.00	7.150	23.00	10.40	53.00
0.667	0.00	3.917	6.00	7.167	23.00	10.42	53.00
0.683	0.00	3.933	6.00	7.183	23.00	10.43	53.00
0.700	0.00	3.950	6.00	7.200	23.00	10.45	53.00
0.717	0.00	3.967	6.00	7.217	23.00	10.47	53.00
0.733	0.00	3.983	6.00	7.233	23.00	10.48	53.00
0.750	0.00	4.000	6.00	7.250	23.00	10.50	53.00
0.767	0.00	4.017	13.00	7.267	23.00	10.52	53.00
0.783	0.00	4.033	13.00	7.283	23.00	10.53	53.00
0.800	0.00	4.050	13.00	7.300	23.00	10.55	53.00
0.817	0.00	4.067	13.00	7.317	23.00	10.57	53.00
0.833	0.00	4.083	13.00	7.333	23.00	10.58	53.00
0.850	0.00	4.100	13.00	7.350	23.00	10.60	53.00
0.867	0.00	4.117	13.00	7.367	23.00	10.62	53.00
0.883	0.00	4.133	13.00	7.383	23.00	10.63	53.00
0.900	0.00	4.150	13.00	7.400	23.00	10.65	53.00
0.917	0.00	4.167	13.00	7.417	23.00	10.67	53.00
0.933	0.00	4.183	13.00	7.433	23.00	10.68	53.00
0.950	0.00	4.200	13.00	7.450	23.00	10.70	53.00
0.967	0.00	4.217	13.00	7.467	23.00	10.72	53.00
0.983	0.00	4.233	13.00	7.483	23.00	10.73	53.00
1.000	0.00	4.250	13.00	7.500	23.00	10.75	53.00
1.017	6.00	4.267	13.00	7.517	23.00	10.77	53.00
1.033	6.00	4.283	13.00	7.533	23.00	10.78	53.00
1.050	6.00	4.300	13.00	7.550	23.00	10.80	53.00
1.067	6.00	4.317	13.00	7.567	23.00	10.82	53.00
1.083	6.00	4.333	13.00	7.583	23.00	10.83	53.00
1.100	6.00	4.350	13.00	7.600	23.00	10.85	53.00
1.117	6.00	4.367	13.00	7.617	23.00	10.87	53.00
1.133	6.00	4.383	13.00	7.633	23.00	10.88	53.00
1.150	6.00	4.400	13.00	7.650	23.00	10.90	53.00
1.167	6.00	4.417	13.00	7.667	23.00	10.92	53.00
1.183	6.00	4.433	13.00	7.683	23.00	10.93	53.00
1.200	6.00	4.450	13.00	7.700	23.00	10.95	53.00
1.217	6.00	4.467	13.00	7.717	23.00	10.97	53.00
1.233	6.00	4.483	13.00	7.733	23.00	10.98	53.00
1.250	6.00	4.500	13.00	7.750	23.00	11.00	53.00

1.267	6.00	4.517	13.00	7.767	23.00	11.02	38.00
1.283	6.00	4.533	13.00	7.783	23.00	11.03	38.00
1.300	6.00	4.550	13.00	7.800	23.00	11.05	38.00
1.317	6.00	4.567	13.00	7.817	23.00	11.07	38.00
1.333	6.00	4.583	13.00	7.833	23.00	11.08	38.00
1.350	6.00	4.600	13.00	7.850	23.00	11.10	38.00
1.367	6.00	4.617	13.00	7.867	23.00	11.12	38.00
1.383	6.00	4.633	13.00	7.883	23.00	11.13	38.00
1.400	6.00	4.650	13.00	7.900	23.00	11.15	38.00
1.417	6.00	4.667	13.00	7.917	23.00	11.17	38.00
1.433	6.00	4.683	13.00	7.933	23.00	11.18	38.00
1.450	6.00	4.700	13.00	7.950	23.00	11.20	38.00
1.467	6.00	4.717	13.00	7.967	23.00	11.22	38.00
1.483	6.00	4.733	13.00	7.983	23.00	11.23	38.00
1.500	6.00	4.750	13.00	8.000	22.97	11.25	38.00
1.517	6.00	4.767	13.00	8.017	13.00	11.27	38.00
1.533	6.00	4.783	13.00	8.033	13.00	11.28	38.00
1.550	6.00	4.800	13.00	8.050	13.00	11.30	38.00
1.567	6.00	4.817	13.00	8.067	13.00	11.32	38.00
1.583	6.00	4.833	13.00	8.083	13.00	11.33	38.00
1.600	6.00	4.850	13.00	8.100	13.00	11.35	38.00
1.617	6.00	4.867	13.00	8.117	13.00	11.37	38.00
1.633	6.00	4.883	13.00	8.133	13.00	11.38	38.00
1.650	6.00	4.900	13.00	8.150	13.00	11.40	38.00
1.667	6.00	4.917	13.00	8.167	13.00	11.42	38.00
1.683	6.00	4.933	13.00	8.183	13.00	11.43	38.00
1.700	6.00	4.950	13.00	8.200	13.00	11.45	38.00
1.717	6.00	4.967	13.00	8.217	13.00	11.47	38.00
1.733	6.00	4.983	13.00	8.233	13.00	11.48	38.00
1.750	6.00	5.000	13.00	8.250	13.00	11.50	38.00
1.767	6.00	5.017	17.00	8.267	13.00	11.52	38.00
1.783	6.00	5.033	17.00	8.283	13.00	11.53	38.00
1.800	6.00	5.050	17.00	8.300	13.00	11.55	38.00
1.817	6.00	5.067	17.00	8.317	13.00	11.57	38.00
1.833	6.00	5.083	17.00	8.333	13.00	11.58	38.00
1.850	6.00	5.100	17.00	8.350	13.00	11.60	38.00
1.867	6.00	5.117	17.00	8.367	13.00	11.62	38.00
1.883	6.00	5.133	17.00	8.383	13.00	11.63	38.00
1.900	6.00	5.150	17.00	8.400	13.00	11.65	38.00
1.917	6.00	5.167	17.00	8.417	13.00	11.67	38.00
1.933	6.00	5.183	17.00	8.433	13.00	11.68	38.00
1.950	6.00	5.200	17.00	8.450	13.00	11.70	38.00
1.967	6.00	5.217	17.00	8.467	13.00	11.72	38.00
1.983	6.00	5.233	17.00	8.483	13.00	11.73	38.00
2.000	6.00	5.250	17.00	8.500	13.00	11.75	38.00
2.017	4.00	5.267	17.00	8.517	13.00	11.77	38.00
2.033	4.00	5.283	17.00	8.533	13.00	11.78	38.00
2.050	4.00	5.300	17.00	8.550	13.00	11.80	38.00
2.067	4.00	5.317	17.00	8.567	13.00	11.82	38.00
2.083	4.00	5.333	17.00	8.583	13.00	11.83	38.00
2.100	4.00	5.350	17.00	8.600	13.00	11.85	38.00
2.117	4.00	5.367	17.00	8.617	13.00	11.87	38.00
2.133	4.00	5.383	17.00	8.633	13.00	11.88	38.00
2.150	4.00	5.400	17.00	8.650	13.00	11.90	38.00
2.167	4.00	5.417	17.00	8.667	13.00	11.92	38.00
2.183	4.00	5.433	17.00	8.683	13.00	11.93	38.00
2.200	4.00	5.450	17.00	8.700	13.00	11.95	38.00
2.217	4.00	5.467	17.00	8.717	13.00	11.97	38.00
2.233	4.00	5.483	17.00	8.733	13.00	11.98	38.00
2.250	4.00	5.500	17.00	8.750	13.00	12.00	38.00
2.267	4.00	5.517	17.00	8.767	13.00	12.02	13.02
2.283	4.00	5.533	17.00	8.783	13.00	12.03	13.00
2.300	4.00	5.550	17.00	8.800	13.00	12.05	13.00
2.317	4.00	5.567	17.00	8.817	13.00	12.07	13.00

2.333	4.00	5.583	17.00	8.833	13.00	12.08	13.00
2.350	4.00	5.600	17.00	8.850	13.00	12.10	13.00
2.367	4.00	5.617	17.00	8.867	13.00	12.12	13.00
2.383	4.00	5.633	17.00	8.883	13.00	12.13	13.00
2.400	4.00	5.650	17.00	8.900	13.00	12.15	13.00
2.417	4.00	5.667	17.00	8.917	13.00	12.17	13.00
2.433	4.00	5.683	17.00	8.933	13.00	12.18	13.00
2.450	4.00	5.700	17.00	8.950	13.00	12.20	13.00
2.467	4.00	5.717	17.00	8.967	13.00	12.22	13.00
2.483	4.00	5.733	17.00	8.983	13.00	12.23	13.00
2.500	4.00	5.750	17.00	9.000	13.00	12.25	13.00
2.517	4.00	5.767	17.00	9.017	13.00	12.27	13.00
2.533	4.00	5.783	17.00	9.033	13.00	12.28	13.00
2.550	4.00	5.800	17.00	9.050	13.00	12.30	13.00
2.567	4.00	5.817	17.00	9.067	13.00	12.32	13.00
2.583	4.00	5.833	17.00	9.083	13.00	12.33	13.00
2.600	4.00	5.850	17.00	9.100	13.00	12.35	13.00
2.617	4.00	5.867	17.00	9.117	13.00	12.37	13.00
2.633	4.00	5.883	17.00	9.133	13.00	12.38	13.00
2.650	4.00	5.900	17.00	9.150	13.00	12.40	13.00
2.667	4.00	5.917	17.00	9.167	13.00	12.42	13.00
2.683	4.00	5.933	17.00	9.183	13.00	12.43	13.00
2.700	4.00	5.950	17.00	9.200	13.00	12.45	13.00
2.717	4.00	5.967	17.00	9.217	13.00	12.47	13.00
2.733	4.00	5.983	17.00	9.233	13.00	12.48	13.00
2.750	4.00	6.000	16.99	9.250	13.00	12.50	13.00
2.767	4.00	6.017	13.00	9.267	13.00	12.52	13.00
2.783	4.00	6.033	13.00	9.283	13.00	12.53	13.00
2.800	4.00	6.050	13.00	9.300	13.00	12.55	13.00
2.817	4.00	6.067	13.00	9.317	13.00	12.57	13.00
2.833	4.00	6.083	13.00	9.333	13.00	12.58	13.00
2.850	4.00	6.100	13.00	9.350	13.00	12.60	13.00
2.867	4.00	6.117	13.00	9.367	13.00	12.62	13.00
2.883	4.00	6.133	13.00	9.383	13.00	12.63	13.00
2.900	4.00	6.150	13.00	9.400	13.00	12.65	13.00
2.917	4.00	6.167	13.00	9.417	13.00	12.67	13.00
2.933	4.00	6.183	13.00	9.433	13.00	12.68	13.00
2.950	4.00	6.200	13.00	9.450	13.00	12.70	13.00
2.967	4.00	6.217	13.00	9.467	13.00	12.72	13.00
2.983	4.00	6.233	13.00	9.483	13.00	12.73	13.00
3.000	4.00	6.250	13.00	9.500	13.00	12.75	13.00
3.017	6.00	6.267	13.00	9.517	13.00	12.77	13.00
3.033	6.00	6.283	13.00	9.533	13.00	12.78	13.00
3.050	6.00	6.300	13.00	9.550	13.00	12.80	13.00
3.067	6.00	6.317	13.00	9.567	13.00	12.82	13.00
3.083	6.00	6.333	13.00	9.583	13.00	12.83	13.00
3.100	6.00	6.350	13.00	9.600	13.00	12.85	13.00
3.117	6.00	6.367	13.00	9.617	13.00	12.87	13.00
3.133	6.00	6.383	13.00	9.633	13.00	12.88	13.00
3.150	6.00	6.400	13.00	9.650	13.00	12.90	13.00
3.167	6.00	6.417	13.00	9.667	13.00	12.92	13.00
3.183	6.00	6.433	13.00	9.683	13.00	12.93	13.00
3.200	6.00	6.450	13.00	9.700	13.00	12.95	13.00
3.217	6.00	6.467	13.00	9.717	13.00	12.97	13.00
3.233	6.00	6.483	13.00	9.733	13.00	12.98	13.00
3.250	6.00	6.500	13.00	9.750	13.00	13.00	13.00

Unit Hyd Qpeak (cms)= 0.024

PEAK FLOW (cms)= 0.003 (i)
TIME TO PEAK (hrs)= 11.000
RUNOFF VOLUME (mm)= 113.523
TOTAL RAINFALL (mm)= 212.001
RUNOFF COEFFICIENT = 0.535

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0206)	Area (ha)= 0.50
ID= 1 DT= 1.0 min	Total Imp(%)= 56.00 Dir. Conn.(%)= 0.10

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.28	0.22
Dep. Storage	(mm)=	2.00	5.93
Average Slope	(%)=	3.00	3.00
Length	(m)=	57.49	34.00
Mannings n	=	0.013	0.230

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	3.267	6.00	6.517	13.00	9.77	13.00
0.033	0.00	3.283	6.00	6.533	13.00	9.78	13.00
0.050	0.00	3.300	6.00	6.550	13.00	9.80	13.00
0.067	0.00	3.317	6.00	6.567	13.00	9.82	13.00
0.083	0.00	3.333	6.00	6.583	13.00	9.83	13.00
0.100	0.00	3.350	6.00	6.600	13.00	9.85	13.00
0.117	0.00	3.367	6.00	6.617	13.00	9.87	13.00
0.133	0.00	3.383	6.00	6.633	13.00	9.88	13.00
0.150	0.00	3.400	6.00	6.650	13.00	9.90	13.00
0.167	0.00	3.417	6.00	6.667	13.00	9.92	13.00
0.183	0.00	3.433	6.00	6.683	13.00	9.93	13.00
0.200	0.00	3.450	6.00	6.700	13.00	9.95	13.00
0.217	0.00	3.467	6.00	6.717	13.00	9.97	13.00
0.233	0.00	3.483	6.00	6.733	13.00	9.98	13.00
0.250	0.00	3.500	6.00	6.750	13.00	10.00	13.05
0.267	0.00	3.517	6.00	6.767	13.00	10.02	53.00
0.283	0.00	3.533	6.00	6.783	13.00	10.03	53.00
0.300	0.00	3.550	6.00	6.800	13.00	10.05	53.00
0.317	0.00	3.567	6.00	6.817	13.00	10.07	53.00
0.333	0.00	3.583	6.00	6.833	13.00	10.08	53.00
0.350	0.00	3.600	6.00	6.850	13.00	10.10	53.00
0.367	0.00	3.617	6.00	6.867	13.00	10.12	53.00
0.383	0.00	3.633	6.00	6.883	13.00	10.13	53.00
0.400	0.00	3.650	6.00	6.900	13.00	10.15	53.00
0.417	0.00	3.667	6.00	6.917	13.00	10.17	53.00
0.433	0.00	3.683	6.00	6.933	13.00	10.18	53.00
0.450	0.00	3.700	6.00	6.950	13.00	10.20	53.00
0.467	0.00	3.717	6.00	6.967	13.00	10.22	53.00
0.483	0.00	3.733	6.00	6.983	13.00	10.23	53.00
0.500	0.00	3.750	6.00	7.000	13.02	10.25	53.00
0.517	0.00	3.767	6.00	7.017	23.00	10.27	53.00
0.533	0.00	3.783	6.00	7.033	23.00	10.28	53.00
0.550	0.00	3.800	6.00	7.050	23.00	10.30	53.00
0.567	0.00	3.817	6.00	7.067	23.00	10.32	53.00
0.583	0.00	3.833	6.00	7.083	23.00	10.33	53.00
0.600	0.00	3.850	6.00	7.100	23.00	10.35	53.00
0.617	0.00	3.867	6.00	7.117	23.00	10.37	53.00
0.633	0.00	3.883	6.00	7.133	23.00	10.38	53.00
0.650	0.00	3.900	6.00	7.150	23.00	10.40	53.00
0.667	0.00	3.917	6.00	7.167	23.00	10.42	53.00
0.683	0.00	3.933	6.00	7.183	23.00	10.43	53.00
0.700	0.00	3.950	6.00	7.200	23.00	10.45	53.00

0.717	0.00	3.967	6.00	7.217	23.00	10.47	53.00
0.733	0.00	3.983	6.00	7.233	23.00	10.48	53.00
0.750	0.00	4.000	6.00	7.250	23.00	10.50	53.00
0.767	0.00	4.017	13.00	7.267	23.00	10.52	53.00
0.783	0.00	4.033	13.00	7.283	23.00	10.53	53.00
0.800	0.00	4.050	13.00	7.300	23.00	10.55	53.00
0.817	0.00	4.067	13.00	7.317	23.00	10.57	53.00
0.833	0.00	4.083	13.00	7.333	23.00	10.58	53.00
0.850	0.00	4.100	13.00	7.350	23.00	10.60	53.00
0.867	0.00	4.117	13.00	7.367	23.00	10.62	53.00
0.883	0.00	4.133	13.00	7.383	23.00	10.63	53.00
0.900	0.00	4.150	13.00	7.400	23.00	10.65	53.00
0.917	0.00	4.167	13.00	7.417	23.00	10.67	53.00
0.933	0.00	4.183	13.00	7.433	23.00	10.68	53.00
0.950	0.00	4.200	13.00	7.450	23.00	10.70	53.00
0.967	0.00	4.217	13.00	7.467	23.00	10.72	53.00
0.983	0.00	4.233	13.00	7.483	23.00	10.73	53.00
1.000	0.00	4.250	13.00	7.500	23.00	10.75	53.00
1.017	6.00	4.267	13.00	7.517	23.00	10.77	53.00
1.033	6.00	4.283	13.00	7.533	23.00	10.78	53.00
1.050	6.00	4.300	13.00	7.550	23.00	10.80	53.00
1.067	6.00	4.317	13.00	7.567	23.00	10.82	53.00
1.083	6.00	4.333	13.00	7.583	23.00	10.83	53.00
1.100	6.00	4.350	13.00	7.600	23.00	10.85	53.00
1.117	6.00	4.367	13.00	7.617	23.00	10.87	53.00
1.133	6.00	4.383	13.00	7.633	23.00	10.88	53.00
1.150	6.00	4.400	13.00	7.650	23.00	10.90	53.00
1.167	6.00	4.417	13.00	7.667	23.00	10.92	53.00
1.183	6.00	4.433	13.00	7.683	23.00	10.93	53.00
1.200	6.00	4.450	13.00	7.700	23.00	10.95	53.00
1.217	6.00	4.467	13.00	7.717	23.00	10.97	53.00
1.233	6.00	4.483	13.00	7.733	23.00	10.98	53.00
1.250	6.00	4.500	13.00	7.750	23.00	11.00	53.00
1.267	6.00	4.517	13.00	7.767	23.00	11.02	38.00
1.283	6.00	4.533	13.00	7.783	23.00	11.03	38.00
1.300	6.00	4.550	13.00	7.800	23.00	11.05	38.00
1.317	6.00	4.567	13.00	7.817	23.00	11.07	38.00
1.333	6.00	4.583	13.00	7.833	23.00	11.08	38.00
1.350	6.00	4.600	13.00	7.850	23.00	11.10	38.00
1.367	6.00	4.617	13.00	7.867	23.00	11.12	38.00
1.383	6.00	4.633	13.00	7.883	23.00	11.13	38.00
1.400	6.00	4.650	13.00	7.900	23.00	11.15	38.00
1.417	6.00	4.667	13.00	7.917	23.00	11.17	38.00
1.433	6.00	4.683	13.00	7.933	23.00	11.18	38.00
1.450	6.00	4.700	13.00	7.950	23.00	11.20	38.00
1.467	6.00	4.717	13.00	7.967	23.00	11.22	38.00
1.483	6.00	4.733	13.00	7.983	23.00	11.23	38.00
1.500	6.00	4.750	13.00	8.000	22.97	11.25	38.00
1.517	6.00	4.767	13.00	8.017	13.00	11.27	38.00
1.533	6.00	4.783	13.00	8.033	13.00	11.28	38.00
1.550	6.00	4.800	13.00	8.050	13.00	11.30	38.00
1.567	6.00	4.817	13.00	8.067	13.00	11.32	38.00
1.583	6.00	4.833	13.00	8.083	13.00	11.33	38.00
1.600	6.00	4.850	13.00	8.100	13.00	11.35	38.00
1.617	6.00	4.867	13.00	8.117	13.00	11.37	38.00
1.633	6.00	4.883	13.00	8.133	13.00	11.38	38.00
1.650	6.00	4.900	13.00	8.150	13.00	11.40	38.00
1.667	6.00	4.917	13.00	8.167	13.00	11.42	38.00
1.683	6.00	4.933	13.00	8.183	13.00	11.43	38.00
1.700	6.00	4.950	13.00	8.200	13.00	11.45	38.00
1.717	6.00	4.967	13.00	8.217	13.00	11.47	38.00
1.733	6.00	4.983	13.00	8.233	13.00	11.48	38.00
1.750	6.00	5.000	13.00	8.250	13.00	11.50	38.00
1.767	6.00	5.017	17.00	8.267	13.00	11.52	38.00

1.783	6.00	5.033	17.00	8.283	13.00	11.53	38.00
1.800	6.00	5.050	17.00	8.300	13.00	11.55	38.00
1.817	6.00	5.067	17.00	8.317	13.00	11.57	38.00
1.833	6.00	5.083	17.00	8.333	13.00	11.58	38.00
1.850	6.00	5.100	17.00	8.350	13.00	11.60	38.00
1.867	6.00	5.117	17.00	8.367	13.00	11.62	38.00
1.883	6.00	5.133	17.00	8.383	13.00	11.63	38.00
1.900	6.00	5.150	17.00	8.400	13.00	11.65	38.00
1.917	6.00	5.167	17.00	8.417	13.00	11.67	38.00
1.933	6.00	5.183	17.00	8.433	13.00	11.68	38.00
1.950	6.00	5.200	17.00	8.450	13.00	11.70	38.00
1.967	6.00	5.217	17.00	8.467	13.00	11.72	38.00
1.983	6.00	5.233	17.00	8.483	13.00	11.73	38.00
2.000	6.00	5.250	17.00	8.500	13.00	11.75	38.00
2.017	4.00	5.267	17.00	8.517	13.00	11.77	38.00
2.033	4.00	5.283	17.00	8.533	13.00	11.78	38.00
2.050	4.00	5.300	17.00	8.550	13.00	11.80	38.00
2.067	4.00	5.317	17.00	8.567	13.00	11.82	38.00
2.083	4.00	5.333	17.00	8.583	13.00	11.83	38.00
2.100	4.00	5.350	17.00	8.600	13.00	11.85	38.00
2.117	4.00	5.367	17.00	8.617	13.00	11.87	38.00
2.133	4.00	5.383	17.00	8.633	13.00	11.88	38.00
2.150	4.00	5.400	17.00	8.650	13.00	11.90	38.00
2.167	4.00	5.417	17.00	8.667	13.00	11.92	38.00
2.183	4.00	5.433	17.00	8.683	13.00	11.93	38.00
2.200	4.00	5.450	17.00	8.700	13.00	11.95	38.00
2.217	4.00	5.467	17.00	8.717	13.00	11.97	38.00
2.233	4.00	5.483	17.00	8.733	13.00	11.98	38.00
2.250	4.00	5.500	17.00	8.750	13.00	12.00	38.00
2.267	4.00	5.517	17.00	8.767	13.00	12.02	13.02
2.283	4.00	5.533	17.00	8.783	13.00	12.03	13.00
2.300	4.00	5.550	17.00	8.800	13.00	12.05	13.00
2.317	4.00	5.567	17.00	8.817	13.00	12.07	13.00
2.333	4.00	5.583	17.00	8.833	13.00	12.08	13.00
2.350	4.00	5.600	17.00	8.850	13.00	12.10	13.00
2.367	4.00	5.617	17.00	8.867	13.00	12.12	13.00
2.383	4.00	5.633	17.00	8.883	13.00	12.13	13.00
2.400	4.00	5.650	17.00	8.900	13.00	12.15	13.00
2.417	4.00	5.667	17.00	8.917	13.00	12.17	13.00
2.433	4.00	5.683	17.00	8.933	13.00	12.18	13.00
2.450	4.00	5.700	17.00	8.950	13.00	12.20	13.00
2.467	4.00	5.717	17.00	8.967	13.00	12.22	13.00
2.483	4.00	5.733	17.00	8.983	13.00	12.23	13.00
2.500	4.00	5.750	17.00	9.000	13.00	12.25	13.00
2.517	4.00	5.767	17.00	9.017	13.00	12.27	13.00
2.533	4.00	5.783	17.00	9.033	13.00	12.28	13.00
2.550	4.00	5.800	17.00	9.050	13.00	12.30	13.00
2.567	4.00	5.817	17.00	9.067	13.00	12.32	13.00
2.583	4.00	5.833	17.00	9.083	13.00	12.33	13.00
2.600	4.00	5.850	17.00	9.100	13.00	12.35	13.00
2.617	4.00	5.867	17.00	9.117	13.00	12.37	13.00
2.633	4.00	5.883	17.00	9.133	13.00	12.38	13.00
2.650	4.00	5.900	17.00	9.150	13.00	12.40	13.00
2.667	4.00	5.917	17.00	9.167	13.00	12.42	13.00
2.683	4.00	5.933	17.00	9.183	13.00	12.43	13.00
2.700	4.00	5.950	17.00	9.200	13.00	12.45	13.00
2.717	4.00	5.967	17.00	9.217	13.00	12.47	13.00
2.733	4.00	5.983	17.00	9.233	13.00	12.48	13.00
2.750	4.00	6.000	16.99	9.250	13.00	12.50	13.00
2.767	4.00	6.017	13.00	9.267	13.00	12.52	13.00
2.783	4.00	6.033	13.00	9.283	13.00	12.53	13.00
2.800	4.00	6.050	13.00	9.300	13.00	12.55	13.00
2.817	4.00	6.067	13.00	9.317	13.00	12.57	13.00
2.833	4.00	6.083	13.00	9.333	13.00	12.58	13.00

2.850	4.00	6.100	13.00	9.350	13.00	12.60	13.00
2.867	4.00	6.117	13.00	9.367	13.00	12.62	13.00
2.883	4.00	6.133	13.00	9.383	13.00	12.63	13.00
2.900	4.00	6.150	13.00	9.400	13.00	12.65	13.00
2.917	4.00	6.167	13.00	9.417	13.00	12.67	13.00
2.933	4.00	6.183	13.00	9.433	13.00	12.68	13.00
2.950	4.00	6.200	13.00	9.450	13.00	12.70	13.00
2.967	4.00	6.217	13.00	9.467	13.00	12.72	13.00
2.983	4.00	6.233	13.00	9.483	13.00	12.73	13.00
3.000	4.00	6.250	13.00	9.500	13.00	12.75	13.00
3.017	6.00	6.267	13.00	9.517	13.00	12.77	13.00
3.033	6.00	6.283	13.00	9.533	13.00	12.78	13.00
3.050	6.00	6.300	13.00	9.550	13.00	12.80	13.00
3.067	6.00	6.317	13.00	9.567	13.00	12.82	13.00
3.083	6.00	6.333	13.00	9.583	13.00	12.83	13.00
3.100	6.00	6.350	13.00	9.600	13.00	12.85	13.00
3.117	6.00	6.367	13.00	9.617	13.00	12.87	13.00
3.133	6.00	6.383	13.00	9.633	13.00	12.88	13.00
3.150	6.00	6.400	13.00	9.650	13.00	12.90	13.00
3.167	6.00	6.417	13.00	9.667	13.00	12.92	13.00
3.183	6.00	6.433	13.00	9.683	13.00	12.93	13.00
3.200	6.00	6.450	13.00	9.700	13.00	12.95	13.00
3.217	6.00	6.467	13.00	9.717	13.00	12.97	13.00
3.233	6.00	6.483	13.00	9.733	13.00	12.98	13.00
3.250	6.00	6.500	13.00	9.750	13.00	13.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	104.44	
over (min)	5.00	7.00	
Storage Coeff. (min)=	1.70 (ii)	7.00 (ii)	
Unit Hyd. Tpeak (min)=	5.00	7.00	
Unit Hyd. peak (cms)=	0.40	0.16	
			TOTALS
PEAK FLOW (cms)=	0.00	0.06	0.063 (iii)
TIME TO PEAK (hrs)=	10.25	11.00	11.00
RUNOFF VOLUME (mm)=	210.00	147.47	147.53
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	0.99	0.70	0.70

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 56.0 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.

ADD HYD (0005)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0203):		0.13	0.015	11.00	127.11
+ ID2= 2 (0204):		0.21	0.023	11.00	117.07
ID = 3 (0005):		0.34	0.038	11.00	120.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0005)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1					

```
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0005):     0.34   0.038    11.00   120.87
     + ID2= 2 (  0205):     0.42   0.033    11.05    84.29
       ================================================
       ID = 1 (  0005):     0.76   0.071    11.02   100.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0005)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0005):     0.76   0.071    11.02   100.78
     + ID2= 2 (  0206):     0.50   0.063    11.00   147.53
       ================================================
       ID = 3 (  0005):     1.26   0.134    11.00   119.19

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0005)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0005):     1.26   0.134    11.00   119.19
     + ID2= 2 (  0207):     0.09   0.009    11.00   106.77
       ================================================
       ID = 1 (  0005):     1.35   0.143    11.00   118.35

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0005)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0005):     1.35   0.143    11.00   118.35
     + ID2= 2 (  0208):     0.03   0.003    11.00   113.52
       ================================================
       ID = 3 (  0005):     1.38   0.146    11.00   118.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=   0.63
|ID= 1 DT= 1.0 min |   Total Imp(%)=  44.00   Dir. Conn.(%)=   3.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.28         0.35
     Dep. Storage     (mm)=       2.00         5.37
     Average Slope     (%)=       3.00         3.00
     Length            (m)=      64.88        30.00
     Mannings n           =      0.013        0.210

         NOTE:  RAINFALL WAS TRANSFORMED TO   1.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.017    0.00 | 3.267    6.00 | 6.517   13.00 |  9.77   13.00
     0.033    0.00 | 3.283    6.00 | 6.533   13.00 |  9.78   13.00
```

0.050	0.00	3.300	6.00	6.550	13.00	9.80	13.00
0.067	0.00	3.317	6.00	6.567	13.00	9.82	13.00
0.083	0.00	3.333	6.00	6.583	13.00	9.83	13.00
0.100	0.00	3.350	6.00	6.600	13.00	9.85	13.00
0.117	0.00	3.367	6.00	6.617	13.00	9.87	13.00
0.133	0.00	3.383	6.00	6.633	13.00	9.88	13.00
0.150	0.00	3.400	6.00	6.650	13.00	9.90	13.00
0.167	0.00	3.417	6.00	6.667	13.00	9.92	13.00
0.183	0.00	3.433	6.00	6.683	13.00	9.93	13.00
0.200	0.00	3.450	6.00	6.700	13.00	9.95	13.00
0.217	0.00	3.467	6.00	6.717	13.00	9.97	13.00
0.233	0.00	3.483	6.00	6.733	13.00	9.98	13.00
0.250	0.00	3.500	6.00	6.750	13.00	10.00	13.05
0.267	0.00	3.517	6.00	6.767	13.00	10.02	53.00
0.283	0.00	3.533	6.00	6.783	13.00	10.03	53.00
0.300	0.00	3.550	6.00	6.800	13.00	10.05	53.00
0.317	0.00	3.567	6.00	6.817	13.00	10.07	53.00
0.333	0.00	3.583	6.00	6.833	13.00	10.08	53.00
0.350	0.00	3.600	6.00	6.850	13.00	10.10	53.00
0.367	0.00	3.617	6.00	6.867	13.00	10.12	53.00
0.383	0.00	3.633	6.00	6.883	13.00	10.13	53.00
0.400	0.00	3.650	6.00	6.900	13.00	10.15	53.00
0.417	0.00	3.667	6.00	6.917	13.00	10.17	53.00
0.433	0.00	3.683	6.00	6.933	13.00	10.18	53.00
0.450	0.00	3.700	6.00	6.950	13.00	10.20	53.00
0.467	0.00	3.717	6.00	6.967	13.00	10.22	53.00
0.483	0.00	3.733	6.00	6.983	13.00	10.23	53.00
0.500	0.00	3.750	6.00	7.000	13.02	10.25	53.00
0.517	0.00	3.767	6.00	7.017	23.00	10.27	53.00
0.533	0.00	3.783	6.00	7.033	23.00	10.28	53.00
0.550	0.00	3.800	6.00	7.050	23.00	10.30	53.00
0.567	0.00	3.817	6.00	7.067	23.00	10.32	53.00
0.583	0.00	3.833	6.00	7.083	23.00	10.33	53.00
0.600	0.00	3.850	6.00	7.100	23.00	10.35	53.00
0.617	0.00	3.867	6.00	7.117	23.00	10.37	53.00
0.633	0.00	3.883	6.00	7.133	23.00	10.38	53.00
0.650	0.00	3.900	6.00	7.150	23.00	10.40	53.00
0.667	0.00	3.917	6.00	7.167	23.00	10.42	53.00
0.683	0.00	3.933	6.00	7.183	23.00	10.43	53.00
0.700	0.00	3.950	6.00	7.200	23.00	10.45	53.00
0.717	0.00	3.967	6.00	7.217	23.00	10.47	53.00
0.733	0.00	3.983	6.00	7.233	23.00	10.48	53.00
0.750	0.00	4.000	6.00	7.250	23.00	10.50	53.00
0.767	0.00	4.017	13.00	7.267	23.00	10.52	53.00
0.783	0.00	4.033	13.00	7.283	23.00	10.53	53.00
0.800	0.00	4.050	13.00	7.300	23.00	10.55	53.00
0.817	0.00	4.067	13.00	7.317	23.00	10.57	53.00
0.833	0.00	4.083	13.00	7.333	23.00	10.58	53.00
0.850	0.00	4.100	13.00	7.350	23.00	10.60	53.00
0.867	0.00	4.117	13.00	7.367	23.00	10.62	53.00
0.883	0.00	4.133	13.00	7.383	23.00	10.63	53.00
0.900	0.00	4.150	13.00	7.400	23.00	10.65	53.00
0.917	0.00	4.167	13.00	7.417	23.00	10.67	53.00
0.933	0.00	4.183	13.00	7.433	23.00	10.68	53.00
0.950	0.00	4.200	13.00	7.450	23.00	10.70	53.00
0.967	0.00	4.217	13.00	7.467	23.00	10.72	53.00
0.983	0.00	4.233	13.00	7.483	23.00	10.73	53.00
1.000	0.00	4.250	13.00	7.500	23.00	10.75	53.00
1.017	6.00	4.267	13.00	7.517	23.00	10.77	53.00
1.033	6.00	4.283	13.00	7.533	23.00	10.78	53.00
1.050	6.00	4.300	13.00	7.550	23.00	10.80	53.00
1.067	6.00	4.317	13.00	7.567	23.00	10.82	53.00
1.083	6.00	4.333	13.00	7.583	23.00	10.83	53.00
1.100	6.00	4.350	13.00	7.600	23.00	10.85	53.00

1.117	6.00	4.367	13.00	7.617	23.00	10.87	53.00
1.133	6.00	4.383	13.00	7.633	23.00	10.88	53.00
1.150	6.00	4.400	13.00	7.650	23.00	10.90	53.00
1.167	6.00	4.417	13.00	7.667	23.00	10.92	53.00
1.183	6.00	4.433	13.00	7.683	23.00	10.93	53.00
1.200	6.00	4.450	13.00	7.700	23.00	10.95	53.00
1.217	6.00	4.467	13.00	7.717	23.00	10.97	53.00
1.233	6.00	4.483	13.00	7.733	23.00	10.98	53.00
1.250	6.00	4.500	13.00	7.750	23.00	11.00	53.00
1.267	6.00	4.517	13.00	7.767	23.00	11.02	38.00
1.283	6.00	4.533	13.00	7.783	23.00	11.03	38.00
1.300	6.00	4.550	13.00	7.800	23.00	11.05	38.00
1.317	6.00	4.567	13.00	7.817	23.00	11.07	38.00
1.333	6.00	4.583	13.00	7.833	23.00	11.08	38.00
1.350	6.00	4.600	13.00	7.850	23.00	11.10	38.00
1.367	6.00	4.617	13.00	7.867	23.00	11.12	38.00
1.383	6.00	4.633	13.00	7.883	23.00	11.13	38.00
1.400	6.00	4.650	13.00	7.900	23.00	11.15	38.00
1.417	6.00	4.667	13.00	7.917	23.00	11.17	38.00
1.433	6.00	4.683	13.00	7.933	23.00	11.18	38.00
1.450	6.00	4.700	13.00	7.950	23.00	11.20	38.00
1.467	6.00	4.717	13.00	7.967	23.00	11.22	38.00
1.483	6.00	4.733	13.00	7.983	23.00	11.23	38.00
1.500	6.00	4.750	13.00	8.000	22.97	11.25	38.00
1.517	6.00	4.767	13.00	8.017	13.00	11.27	38.00
1.533	6.00	4.783	13.00	8.033	13.00	11.28	38.00
1.550	6.00	4.800	13.00	8.050	13.00	11.30	38.00
1.567	6.00	4.817	13.00	8.067	13.00	11.32	38.00
1.583	6.00	4.833	13.00	8.083	13.00	11.33	38.00
1.600	6.00	4.850	13.00	8.100	13.00	11.35	38.00
1.617	6.00	4.867	13.00	8.117	13.00	11.37	38.00
1.633	6.00	4.883	13.00	8.133	13.00	11.38	38.00
1.650	6.00	4.900	13.00	8.150	13.00	11.40	38.00
1.667	6.00	4.917	13.00	8.167	13.00	11.42	38.00
1.683	6.00	4.933	13.00	8.183	13.00	11.43	38.00
1.700	6.00	4.950	13.00	8.200	13.00	11.45	38.00
1.717	6.00	4.967	13.00	8.217	13.00	11.47	38.00
1.733	6.00	4.983	13.00	8.233	13.00	11.48	38.00
1.750	6.00	5.000	13.00	8.250	13.00	11.50	38.00
1.767	6.00	5.017	17.00	8.267	13.00	11.52	38.00
1.783	6.00	5.033	17.00	8.283	13.00	11.53	38.00
1.800	6.00	5.050	17.00	8.300	13.00	11.55	38.00
1.817	6.00	5.067	17.00	8.317	13.00	11.57	38.00
1.833	6.00	5.083	17.00	8.333	13.00	11.58	38.00
1.850	6.00	5.100	17.00	8.350	13.00	11.60	38.00
1.867	6.00	5.117	17.00	8.367	13.00	11.62	38.00
1.883	6.00	5.133	17.00	8.383	13.00	11.63	38.00
1.900	6.00	5.150	17.00	8.400	13.00	11.65	38.00
1.917	6.00	5.167	17.00	8.417	13.00	11.67	38.00
1.933	6.00	5.183	17.00	8.433	13.00	11.68	38.00
1.950	6.00	5.200	17.00	8.450	13.00	11.70	38.00
1.967	6.00	5.217	17.00	8.467	13.00	11.72	38.00
1.983	6.00	5.233	17.00	8.483	13.00	11.73	38.00
2.000	6.00	5.250	17.00	8.500	13.00	11.75	38.00
2.017	4.00	5.267	17.00	8.517	13.00	11.77	38.00
2.033	4.00	5.283	17.00	8.533	13.00	11.78	38.00
2.050	4.00	5.300	17.00	8.550	13.00	11.80	38.00
2.067	4.00	5.317	17.00	8.567	13.00	11.82	38.00
2.083	4.00	5.333	17.00	8.583	13.00	11.83	38.00
2.100	4.00	5.350	17.00	8.600	13.00	11.85	38.00
2.117	4.00	5.367	17.00	8.617	13.00	11.87	38.00
2.133	4.00	5.383	17.00	8.633	13.00	11.88	38.00
2.150	4.00	5.400	17.00	8.650	13.00	11.90	38.00
2.167	4.00	5.417	17.00	8.667	13.00	11.92	38.00

2.183	4.00	5.433	17.00	8.683	13.00	11.93	38.00
2.200	4.00	5.450	17.00	8.700	13.00	11.95	38.00
2.217	4.00	5.467	17.00	8.717	13.00	11.97	38.00
2.233	4.00	5.483	17.00	8.733	13.00	11.98	38.00
2.250	4.00	5.500	17.00	8.750	13.00	12.00	38.00
2.267	4.00	5.517	17.00	8.767	13.00	12.02	13.02
2.283	4.00	5.533	17.00	8.783	13.00	12.03	13.00
2.300	4.00	5.550	17.00	8.800	13.00	12.05	13.00
2.317	4.00	5.567	17.00	8.817	13.00	12.07	13.00
2.333	4.00	5.583	17.00	8.833	13.00	12.08	13.00
2.350	4.00	5.600	17.00	8.850	13.00	12.10	13.00
2.367	4.00	5.617	17.00	8.867	13.00	12.12	13.00
2.383	4.00	5.633	17.00	8.883	13.00	12.13	13.00
2.400	4.00	5.650	17.00	8.900	13.00	12.15	13.00
2.417	4.00	5.667	17.00	8.917	13.00	12.17	13.00
2.433	4.00	5.683	17.00	8.933	13.00	12.18	13.00
2.450	4.00	5.700	17.00	8.950	13.00	12.20	13.00
2.467	4.00	5.717	17.00	8.967	13.00	12.22	13.00
2.483	4.00	5.733	17.00	8.983	13.00	12.23	13.00
2.500	4.00	5.750	17.00	9.000	13.00	12.25	13.00
2.517	4.00	5.767	17.00	9.017	13.00	12.27	13.00
2.533	4.00	5.783	17.00	9.033	13.00	12.28	13.00
2.550	4.00	5.800	17.00	9.050	13.00	12.30	13.00
2.567	4.00	5.817	17.00	9.067	13.00	12.32	13.00
2.583	4.00	5.833	17.00	9.083	13.00	12.33	13.00
2.600	4.00	5.850	17.00	9.100	13.00	12.35	13.00
2.617	4.00	5.867	17.00	9.117	13.00	12.37	13.00
2.633	4.00	5.883	17.00	9.133	13.00	12.38	13.00
2.650	4.00	5.900	17.00	9.150	13.00	12.40	13.00
2.667	4.00	5.917	17.00	9.167	13.00	12.42	13.00
2.683	4.00	5.933	17.00	9.183	13.00	12.43	13.00
2.700	4.00	5.950	17.00	9.200	13.00	12.45	13.00
2.717	4.00	5.967	17.00	9.217	13.00	12.47	13.00
2.733	4.00	5.983	17.00	9.233	13.00	12.48	13.00
2.750	4.00	6.000	16.99	9.250	13.00	12.50	13.00
2.767	4.00	6.017	13.00	9.267	13.00	12.52	13.00
2.783	4.00	6.033	13.00	9.283	13.00	12.53	13.00
2.800	4.00	6.050	13.00	9.300	13.00	12.55	13.00
2.817	4.00	6.067	13.00	9.317	13.00	12.57	13.00
2.833	4.00	6.083	13.00	9.333	13.00	12.58	13.00
2.850	4.00	6.100	13.00	9.350	13.00	12.60	13.00
2.867	4.00	6.117	13.00	9.367	13.00	12.62	13.00
2.883	4.00	6.133	13.00	9.383	13.00	12.63	13.00
2.900	4.00	6.150	13.00	9.400	13.00	12.65	13.00
2.917	4.00	6.167	13.00	9.417	13.00	12.67	13.00
2.933	4.00	6.183	13.00	9.433	13.00	12.68	13.00
2.950	4.00	6.200	13.00	9.450	13.00	12.70	13.00
2.967	4.00	6.217	13.00	9.467	13.00	12.72	13.00
2.983	4.00	6.233	13.00	9.483	13.00	12.73	13.00
3.000	4.00	6.250	13.00	9.500	13.00	12.75	13.00
3.017	6.00	6.267	13.00	9.517	13.00	12.77	13.00
3.033	6.00	6.283	13.00	9.533	13.00	12.78	13.00
3.050	6.00	6.300	13.00	9.550	13.00	12.80	13.00
3.067	6.00	6.317	13.00	9.567	13.00	12.82	13.00
3.083	6.00	6.333	13.00	9.583	13.00	12.83	13.00
3.100	6.00	6.350	13.00	9.600	13.00	12.85	13.00
3.117	6.00	6.367	13.00	9.617	13.00	12.87	13.00
3.133	6.00	6.383	13.00	9.633	13.00	12.88	13.00
3.150	6.00	6.400	13.00	9.650	13.00	12.90	13.00
3.167	6.00	6.417	13.00	9.667	13.00	12.92	13.00
3.183	6.00	6.433	13.00	9.683	13.00	12.93	13.00
3.200	6.00	6.450	13.00	9.700	13.00	12.95	13.00
3.217	6.00	6.467	13.00	9.717	13.00	12.97	13.00
3.233	6.00	6.483	13.00	9.733	13.00	12.98	13.00

3.250	6.00	6.500	13.00	9.750	13.00	13.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	77.18	
over (min)	5.00	8.00	
Storage Coeff. (min)=	1.83 (ii)	7.08 (ii)	
Unit Hyd. Tpeak (min)=	5.00	8.00	
Unit Hyd. peak (cms)=	0.39	0.15	
			TOTALS
PEAK FLOW (cms)=	0.00	0.08	0.078 (iii)
TIME TO PEAK (hrs)=	10.38	11.00	11.00
RUNOFF VOLUME (mm)=	210.00	140.40	142.49
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	0.99	0.66	0.67

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 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.

CALIB
STANDHYD (0201)
ID= 1 DT= 1.0 min

Area (ha)= 0.88
Total Imp(%)= 77.00 Dir. Conn.(%)= 51.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.68	0.20
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	0.50	2.00
Length	(m)=	76.61	20.00
Mannings n	=	0.013	0.190

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	3.267	6.00	6.517	13.00	9.77	13.00
0.033	0.00	3.283	6.00	6.533	13.00	9.78	13.00
0.050	0.00	3.300	6.00	6.550	13.00	9.80	13.00
0.067	0.00	3.317	6.00	6.567	13.00	9.82	13.00
0.083	0.00	3.333	6.00	6.583	13.00	9.83	13.00
0.100	0.00	3.350	6.00	6.600	13.00	9.85	13.00
0.117	0.00	3.367	6.00	6.617	13.00	9.87	13.00
0.133	0.00	3.383	6.00	6.633	13.00	9.88	13.00
0.150	0.00	3.400	6.00	6.650	13.00	9.90	13.00
0.167	0.00	3.417	6.00	6.667	13.00	9.92	13.00
0.183	0.00	3.433	6.00	6.683	13.00	9.93	13.00
0.200	0.00	3.450	6.00	6.700	13.00	9.95	13.00
0.217	0.00	3.467	6.00	6.717	13.00	9.97	13.00
0.233	0.00	3.483	6.00	6.733	13.00	9.98	13.00
0.250	0.00	3.500	6.00	6.750	13.00	10.00	13.05
0.267	0.00	3.517	6.00	6.767	13.00	10.02	53.00
0.283	0.00	3.533	6.00	6.783	13.00	10.03	53.00
0.300	0.00	3.550	6.00	6.800	13.00	10.05	53.00
0.317	0.00	3.567	6.00	6.817	13.00	10.07	53.00
0.333	0.00	3.583	6.00	6.833	13.00	10.08	53.00
0.350	0.00	3.600	6.00	6.850	13.00	10.10	53.00
0.367	0.00	3.617	6.00	6.867	13.00	10.12	53.00

0.383	0.00	3.633	6.00	6.883	13.00	10.13	53.00
0.400	0.00	3.650	6.00	6.900	13.00	10.15	53.00
0.417	0.00	3.667	6.00	6.917	13.00	10.17	53.00
0.433	0.00	3.683	6.00	6.933	13.00	10.18	53.00
0.450	0.00	3.700	6.00	6.950	13.00	10.20	53.00
0.467	0.00	3.717	6.00	6.967	13.00	10.22	53.00
0.483	0.00	3.733	6.00	6.983	13.00	10.23	53.00
0.500	0.00	3.750	6.00	7.000	13.02	10.25	53.00
0.517	0.00	3.767	6.00	7.017	23.00	10.27	53.00
0.533	0.00	3.783	6.00	7.033	23.00	10.28	53.00
0.550	0.00	3.800	6.00	7.050	23.00	10.30	53.00
0.567	0.00	3.817	6.00	7.067	23.00	10.32	53.00
0.583	0.00	3.833	6.00	7.083	23.00	10.33	53.00
0.600	0.00	3.850	6.00	7.100	23.00	10.35	53.00
0.617	0.00	3.867	6.00	7.117	23.00	10.37	53.00
0.633	0.00	3.883	6.00	7.133	23.00	10.38	53.00
0.650	0.00	3.900	6.00	7.150	23.00	10.40	53.00
0.667	0.00	3.917	6.00	7.167	23.00	10.42	53.00
0.683	0.00	3.933	6.00	7.183	23.00	10.43	53.00
0.700	0.00	3.950	6.00	7.200	23.00	10.45	53.00
0.717	0.00	3.967	6.00	7.217	23.00	10.47	53.00
0.733	0.00	3.983	6.00	7.233	23.00	10.48	53.00
0.750	0.00	4.000	6.00	7.250	23.00	10.50	53.00
0.767	0.00	4.017	13.00	7.267	23.00	10.52	53.00
0.783	0.00	4.033	13.00	7.283	23.00	10.53	53.00
0.800	0.00	4.050	13.00	7.300	23.00	10.55	53.00
0.817	0.00	4.067	13.00	7.317	23.00	10.57	53.00
0.833	0.00	4.083	13.00	7.333	23.00	10.58	53.00
0.850	0.00	4.100	13.00	7.350	23.00	10.60	53.00
0.867	0.00	4.117	13.00	7.367	23.00	10.62	53.00
0.883	0.00	4.133	13.00	7.383	23.00	10.63	53.00
0.900	0.00	4.150	13.00	7.400	23.00	10.65	53.00
0.917	0.00	4.167	13.00	7.417	23.00	10.67	53.00
0.933	0.00	4.183	13.00	7.433	23.00	10.68	53.00
0.950	0.00	4.200	13.00	7.450	23.00	10.70	53.00
0.967	0.00	4.217	13.00	7.467	23.00	10.72	53.00
0.983	0.00	4.233	13.00	7.483	23.00	10.73	53.00
1.000	0.00	4.250	13.00	7.500	23.00	10.75	53.00
1.017	6.00	4.267	13.00	7.517	23.00	10.77	53.00
1.033	6.00	4.283	13.00	7.533	23.00	10.78	53.00
1.050	6.00	4.300	13.00	7.550	23.00	10.80	53.00
1.067	6.00	4.317	13.00	7.567	23.00	10.82	53.00
1.083	6.00	4.333	13.00	7.583	23.00	10.83	53.00
1.100	6.00	4.350	13.00	7.600	23.00	10.85	53.00
1.117	6.00	4.367	13.00	7.617	23.00	10.87	53.00
1.133	6.00	4.383	13.00	7.633	23.00	10.88	53.00
1.150	6.00	4.400	13.00	7.650	23.00	10.90	53.00
1.167	6.00	4.417	13.00	7.667	23.00	10.92	53.00
1.183	6.00	4.433	13.00	7.683	23.00	10.93	53.00
1.200	6.00	4.450	13.00	7.700	23.00	10.95	53.00
1.217	6.00	4.467	13.00	7.717	23.00	10.97	53.00
1.233	6.00	4.483	13.00	7.733	23.00	10.98	53.00
1.250	6.00	4.500	13.00	7.750	23.00	11.00	53.00
1.267	6.00	4.517	13.00	7.767	23.00	11.02	38.00
1.283	6.00	4.533	13.00	7.783	23.00	11.03	38.00
1.300	6.00	4.550	13.00	7.800	23.00	11.05	38.00
1.317	6.00	4.567	13.00	7.817	23.00	11.07	38.00
1.333	6.00	4.583	13.00	7.833	23.00	11.08	38.00
1.350	6.00	4.600	13.00	7.850	23.00	11.10	38.00
1.367	6.00	4.617	13.00	7.867	23.00	11.12	38.00
1.383	6.00	4.633	13.00	7.883	23.00	11.13	38.00
1.400	6.00	4.650	13.00	7.900	23.00	11.15	38.00
1.417	6.00	4.667	13.00	7.917	23.00	11.17	38.00
1.433	6.00	4.683	13.00	7.933	23.00	11.18	38.00

1.450	6.00	4.700	13.00	7.950	23.00	11.20	38.00
1.467	6.00	4.717	13.00	7.967	23.00	11.22	38.00
1.483	6.00	4.733	13.00	7.983	23.00	11.23	38.00
1.500	6.00	4.750	13.00	8.000	22.97	11.25	38.00
1.517	6.00	4.767	13.00	8.017	13.00	11.27	38.00
1.533	6.00	4.783	13.00	8.033	13.00	11.28	38.00
1.550	6.00	4.800	13.00	8.050	13.00	11.30	38.00
1.567	6.00	4.817	13.00	8.067	13.00	11.32	38.00
1.583	6.00	4.833	13.00	8.083	13.00	11.33	38.00
1.600	6.00	4.850	13.00	8.100	13.00	11.35	38.00
1.617	6.00	4.867	13.00	8.117	13.00	11.37	38.00
1.633	6.00	4.883	13.00	8.133	13.00	11.38	38.00
1.650	6.00	4.900	13.00	8.150	13.00	11.40	38.00
1.667	6.00	4.917	13.00	8.167	13.00	11.42	38.00
1.683	6.00	4.933	13.00	8.183	13.00	11.43	38.00
1.700	6.00	4.950	13.00	8.200	13.00	11.45	38.00
1.717	6.00	4.967	13.00	8.217	13.00	11.47	38.00
1.733	6.00	4.983	13.00	8.233	13.00	11.48	38.00
1.750	6.00	5.000	13.00	8.250	13.00	11.50	38.00
1.767	6.00	5.017	17.00	8.267	13.00	11.52	38.00
1.783	6.00	5.033	17.00	8.283	13.00	11.53	38.00
1.800	6.00	5.050	17.00	8.300	13.00	11.55	38.00
1.817	6.00	5.067	17.00	8.317	13.00	11.57	38.00
1.833	6.00	5.083	17.00	8.333	13.00	11.58	38.00
1.850	6.00	5.100	17.00	8.350	13.00	11.60	38.00
1.867	6.00	5.117	17.00	8.367	13.00	11.62	38.00
1.883	6.00	5.133	17.00	8.383	13.00	11.63	38.00
1.900	6.00	5.150	17.00	8.400	13.00	11.65	38.00
1.917	6.00	5.167	17.00	8.417	13.00	11.67	38.00
1.933	6.00	5.183	17.00	8.433	13.00	11.68	38.00
1.950	6.00	5.200	17.00	8.450	13.00	11.70	38.00
1.967	6.00	5.217	17.00	8.467	13.00	11.72	38.00
1.983	6.00	5.233	17.00	8.483	13.00	11.73	38.00
2.000	6.00	5.250	17.00	8.500	13.00	11.75	38.00
2.017	4.00	5.267	17.00	8.517	13.00	11.77	38.00
2.033	4.00	5.283	17.00	8.533	13.00	11.78	38.00
2.050	4.00	5.300	17.00	8.550	13.00	11.80	38.00
2.067	4.00	5.317	17.00	8.567	13.00	11.82	38.00
2.083	4.00	5.333	17.00	8.583	13.00	11.83	38.00
2.100	4.00	5.350	17.00	8.600	13.00	11.85	38.00
2.117	4.00	5.367	17.00	8.617	13.00	11.87	38.00
2.133	4.00	5.383	17.00	8.633	13.00	11.88	38.00
2.150	4.00	5.400	17.00	8.650	13.00	11.90	38.00
2.167	4.00	5.417	17.00	8.667	13.00	11.92	38.00
2.183	4.00	5.433	17.00	8.683	13.00	11.93	38.00
2.200	4.00	5.450	17.00	8.700	13.00	11.95	38.00
2.217	4.00	5.467	17.00	8.717	13.00	11.97	38.00
2.233	4.00	5.483	17.00	8.733	13.00	11.98	38.00
2.250	4.00	5.500	17.00	8.750	13.00	12.00	38.00
2.267	4.00	5.517	17.00	8.767	13.00	12.02	13.02
2.283	4.00	5.533	17.00	8.783	13.00	12.03	13.00
2.300	4.00	5.550	17.00	8.800	13.00	12.05	13.00
2.317	4.00	5.567	17.00	8.817	13.00	12.07	13.00
2.333	4.00	5.583	17.00	8.833	13.00	12.08	13.00
2.350	4.00	5.600	17.00	8.850	13.00	12.10	13.00
2.367	4.00	5.617	17.00	8.867	13.00	12.12	13.00
2.383	4.00	5.633	17.00	8.883	13.00	12.13	13.00
2.400	4.00	5.650	17.00	8.900	13.00	12.15	13.00
2.417	4.00	5.667	17.00	8.917	13.00	12.17	13.00
2.433	4.00	5.683	17.00	8.933	13.00	12.18	13.00
2.450	4.00	5.700	17.00	8.950	13.00	12.20	13.00
2.467	4.00	5.717	17.00	8.967	13.00	12.22	13.00
2.483	4.00	5.733	17.00	8.983	13.00	12.23	13.00
2.500	4.00	5.750	17.00	9.000	13.00	12.25	13.00

2.517	4.00	5.767	17.00	9.017	13.00	12.27	13.00
2.533	4.00	5.783	17.00	9.033	13.00	12.28	13.00
2.550	4.00	5.800	17.00	9.050	13.00	12.30	13.00
2.567	4.00	5.817	17.00	9.067	13.00	12.32	13.00
2.583	4.00	5.833	17.00	9.083	13.00	12.33	13.00
2.600	4.00	5.850	17.00	9.100	13.00	12.35	13.00
2.617	4.00	5.867	17.00	9.117	13.00	12.37	13.00
2.633	4.00	5.883	17.00	9.133	13.00	12.38	13.00
2.650	4.00	5.900	17.00	9.150	13.00	12.40	13.00
2.667	4.00	5.917	17.00	9.167	13.00	12.42	13.00
2.683	4.00	5.933	17.00	9.183	13.00	12.43	13.00
2.700	4.00	5.950	17.00	9.200	13.00	12.45	13.00
2.717	4.00	5.967	17.00	9.217	13.00	12.47	13.00
2.733	4.00	5.983	17.00	9.233	13.00	12.48	13.00
2.750	4.00	6.000	16.99	9.250	13.00	12.50	13.00
2.767	4.00	6.017	13.00	9.267	13.00	12.52	13.00
2.783	4.00	6.033	13.00	9.283	13.00	12.53	13.00
2.800	4.00	6.050	13.00	9.300	13.00	12.55	13.00
2.817	4.00	6.067	13.00	9.317	13.00	12.57	13.00
2.833	4.00	6.083	13.00	9.333	13.00	12.58	13.00
2.850	4.00	6.100	13.00	9.350	13.00	12.60	13.00
2.867	4.00	6.117	13.00	9.367	13.00	12.62	13.00
2.883	4.00	6.133	13.00	9.383	13.00	12.63	13.00
2.900	4.00	6.150	13.00	9.400	13.00	12.65	13.00
2.917	4.00	6.167	13.00	9.417	13.00	12.67	13.00
2.933	4.00	6.183	13.00	9.433	13.00	12.68	13.00
2.950	4.00	6.200	13.00	9.450	13.00	12.70	13.00
2.967	4.00	6.217	13.00	9.467	13.00	12.72	13.00
2.983	4.00	6.233	13.00	9.483	13.00	12.73	13.00
3.000	4.00	6.250	13.00	9.500	13.00	12.75	13.00
3.017	6.00	6.267	13.00	9.517	13.00	12.77	13.00
3.033	6.00	6.283	13.00	9.533	13.00	12.78	13.00
3.050	6.00	6.300	13.00	9.550	13.00	12.80	13.00
3.067	6.00	6.317	13.00	9.567	13.00	12.82	13.00
3.083	6.00	6.333	13.00	9.583	13.00	12.83	13.00
3.100	6.00	6.350	13.00	9.600	13.00	12.85	13.00
3.117	6.00	6.367	13.00	9.617	13.00	12.87	13.00
3.133	6.00	6.383	13.00	9.633	13.00	12.88	13.00
3.150	6.00	6.400	13.00	9.650	13.00	12.90	13.00
3.167	6.00	6.417	13.00	9.667	13.00	12.92	13.00
3.183	6.00	6.433	13.00	9.683	13.00	12.93	13.00
3.200	6.00	6.450	13.00	9.700	13.00	12.95	13.00
3.217	6.00	6.467	13.00	9.717	13.00	12.97	13.00
3.233	6.00	6.483	13.00	9.733	13.00	12.98	13.00
3.250	6.00	6.500	13.00	9.750	13.00	13.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	99.85	
over (min)	5.00	8.00	
Storage Coeff. (min)=	3.46 (ii)	7.16 (ii)	
Unit Hyd. Tpeak (min)=	5.00	8.00	
Unit Hyd. peak (cms)=	0.28	0.15	
			TOTALS
PEAK FLOW (cms)=	0.07	0.06	0.122 (iii)
TIME TO PEAK (hrs)=	10.80	11.00	11.00
RUNOFF VOLUME (mm)=	210.00	152.02	181.59
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	0.99	0.72	0.86

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.0 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.

| CHAMBER(0010)|IN= 2--> OUT= 3 | DT= 2.0 min |

OUTFLOW: OFF, UNDERDRAIN: ON, INFIL: ON
CHAMBER:
MAX STO VOL (cu.m.)= 128.13 Bottom Area(m2) = 100.66

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1092.00	72.59
25.00	1.02	1118.00	74.39
51.00	2.04	1143.00	76.17
76.00	3.07	1168.00	77.95
102.00	4.09	1194.00	79.70
127.00	5.11	1219.00	81.45
152.00	6.13	1245.00	83.17
178.00	7.16	1270.00	84.88
203.00	8.18	1295.00	86.58
229.00	9.20	1321.00	88.25
254.00	10.22	1346.00	89.91
279.00	11.25	1372.00	91.55
305.00	12.27	1397.00	93.17
330.00	14.31	1422.00	94.77
356.00	16.34	1448.00	96.35
381.00	18.37	1473.00	97.90
406.00	20.39	1499.00	99.43
432.00	22.41	1524.00	100.93
457.00	24.43	1549.00	102.40
483.00	26.44	1575.00	103.85
508.00	28.45	1600.00	105.26
533.00	30.45	1626.00	106.63
559.00	32.44	1651.00	107.96
584.00	34.43	1676.00	109.24
610.00	36.42	1702.00	110.44
635.00	38.40	1727.00	111.57
660.00	40.37	1753.00	112.67
686.00	42.33	1778.00	113.76
711.00	44.29	1803.00	114.82
737.00	46.24	1829.00	115.86
762.00	48.18	1854.00	116.88
787.00	50.12	1880.00	117.91
813.00	52.05	1905.00	118.93
838.00	53.96	1930.00	119.95
864.00	55.87	1956.00	120.97
889.00	57.77	1981.00	122.00
914.00	59.66	2007.00	123.02
940.00	61.54	2032.00	124.04
965.00	63.41	2057.00	125.06
991.00	65.27	2083.00	126.09
1016.00	67.12	2108.00	127.11
1041.00	68.95	2134.00	128.13
1067.00	70.78	0.00	0.00

UNDERDRAIN LAYER:

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.206	0.146
0.019	0.001	0.225	0.167
0.038	0.005	0.244	0.188
0.056	0.012	0.262	0.208
0.075	0.022	0.281	0.226
0.094	0.034	0.300	0.242
0.112	0.049	0.319	0.256

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                    0.131         0.066          |   0.337         0.264
                    0.150         0.084          |   0.356         0.266
                    0.169         0.104          |   0.375         0.248
                    0.188         0.125          |   0.000         0.000

                  NATIVE SOIL LAYER:
                  Infiltration (m/hr) = 0.0380

                       AREA          QPEAK            TPEAK          R.V.
                       (ha)          (cms)            (hrs)          (mm)
     INFLOW:ID= 2     0.88          0.122            11.00        181.59
  UNDERDRAIN:ID= 4    0.88          0.121            11.00        164.61
    OVERFLOW:ID= 3    0.00          0.000             0.00          0.00

             Volume Reduction Rate[(RVin-RVout)/RVin](%)=         9.35
             Time to reach Max storage                (Hr)=       12.15
             Volume of water for drawdown in LID (cu.m.)=       102.34
             Volume of maximum water storage     (cu.m.)=       105.61
             Calculated Drawdown Time                 (Hr)=       26.75

  -------------------------
  | Junction Command(0012) |
  -------------------------

                           AREA     QPEAK   TPEAK     R.V.
                           (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 4(  0010)    0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0012)    0.00      0.00    0.00     0.00

  ------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0004)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0012 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0004 = HYDROGRAPH 0202
       ID1= 1 (  0012):     0.00   0.000     0.00     0.00
     + ID2= 2 (  0202):     0.63   0.078    11.00   142.49
       ==========================================================
       ID = 3 (  0004):     0.63   0.078    11.00   142.49

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0004):     0.63   0.078    11.00   142.49
     + ID2= 2 (  0005):     1.38   0.146    11.00   118.26
       ==========================================================
       ID = 3 (  0001):     2.01   0.224    11.00   125.89

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| CALIB              |
| NASHYD   (  0302)|   Area    (ha)=   1.68   Curve Number   (CN)= 46.0
|ID= 1 DT= 1.0 min |   Ia      (mm)=   9.55   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.28

         NOTE:  RAINFALL WAS TRANSFORMED TO   1.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	3.267	6.00	6.517	13.00	9.77	13.00
0.033	0.00	3.283	6.00	6.533	13.00	9.78	13.00
0.050	0.00	3.300	6.00	6.550	13.00	9.80	13.00
0.067	0.00	3.317	6.00	6.567	13.00	9.82	13.00
0.083	0.00	3.333	6.00	6.583	13.00	9.83	13.00
0.100	0.00	3.350	6.00	6.600	13.00	9.85	13.00
0.117	0.00	3.367	6.00	6.617	13.00	9.87	13.00
0.133	0.00	3.383	6.00	6.633	13.00	9.88	13.00
0.150	0.00	3.400	6.00	6.650	13.00	9.90	13.00
0.167	0.00	3.417	6.00	6.667	13.00	9.92	13.00
0.183	0.00	3.433	6.00	6.683	13.00	9.93	13.00
0.200	0.00	3.450	6.00	6.700	13.00	9.95	13.00
0.217	0.00	3.467	6.00	6.717	13.00	9.97	13.00
0.233	0.00	3.483	6.00	6.733	13.00	9.98	13.00
0.250	0.00	3.500	6.00	6.750	13.00	10.00	13.05
0.267	0.00	3.517	6.00	6.767	13.00	10.02	53.00
0.283	0.00	3.533	6.00	6.783	13.00	10.03	53.00
0.300	0.00	3.550	6.00	6.800	13.00	10.05	53.00
0.317	0.00	3.567	6.00	6.817	13.00	10.07	53.00
0.333	0.00	3.583	6.00	6.833	13.00	10.08	53.00
0.350	0.00	3.600	6.00	6.850	13.00	10.10	53.00
0.367	0.00	3.617	6.00	6.867	13.00	10.12	53.00
0.383	0.00	3.633	6.00	6.883	13.00	10.13	53.00
0.400	0.00	3.650	6.00	6.900	13.00	10.15	53.00
0.417	0.00	3.667	6.00	6.917	13.00	10.17	53.00
0.433	0.00	3.683	6.00	6.933	13.00	10.18	53.00
0.450	0.00	3.700	6.00	6.950	13.00	10.20	53.00
0.467	0.00	3.717	6.00	6.967	13.00	10.22	53.00
0.483	0.00	3.733	6.00	6.983	13.00	10.23	53.00
0.500	0.00	3.750	6.00	7.000	13.02	10.25	53.00
0.517	0.00	3.767	6.00	7.017	23.00	10.27	53.00
0.533	0.00	3.783	6.00	7.033	23.00	10.28	53.00
0.550	0.00	3.800	6.00	7.050	23.00	10.30	53.00
0.567	0.00	3.817	6.00	7.067	23.00	10.32	53.00
0.583	0.00	3.833	6.00	7.083	23.00	10.33	53.00
0.600	0.00	3.850	6.00	7.100	23.00	10.35	53.00
0.617	0.00	3.867	6.00	7.117	23.00	10.37	53.00
0.633	0.00	3.883	6.00	7.133	23.00	10.38	53.00
0.650	0.00	3.900	6.00	7.150	23.00	10.40	53.00
0.667	0.00	3.917	6.00	7.167	23.00	10.42	53.00
0.683	0.00	3.933	6.00	7.183	23.00	10.43	53.00
0.700	0.00	3.950	6.00	7.200	23.00	10.45	53.00
0.717	0.00	3.967	6.00	7.217	23.00	10.47	53.00
0.733	0.00	3.983	6.00	7.233	23.00	10.48	53.00
0.750	0.00	4.000	6.00	7.250	23.00	10.50	53.00
0.767	0.00	4.017	13.00	7.267	23.00	10.52	53.00
0.783	0.00	4.033	13.00	7.283	23.00	10.53	53.00
0.800	0.00	4.050	13.00	7.300	23.00	10.55	53.00
0.817	0.00	4.067	13.00	7.317	23.00	10.57	53.00
0.833	0.00	4.083	13.00	7.333	23.00	10.58	53.00
0.850	0.00	4.100	13.00	7.350	23.00	10.60	53.00
0.867	0.00	4.117	13.00	7.367	23.00	10.62	53.00
0.883	0.00	4.133	13.00	7.383	23.00	10.63	53.00
0.900	0.00	4.150	13.00	7.400	23.00	10.65	53.00
0.917	0.00	4.167	13.00	7.417	23.00	10.67	53.00
0.933	0.00	4.183	13.00	7.433	23.00	10.68	53.00
0.950	0.00	4.200	13.00	7.450	23.00	10.70	53.00
0.967	0.00	4.217	13.00	7.467	23.00	10.72	53.00
0.983	0.00	4.233	13.00	7.483	23.00	10.73	53.00
1.000	0.00	4.250	13.00	7.500	23.00	10.75	53.00

1.017	6.00	4.267	13.00	7.517	23.00	10.77	53.00
1.033	6.00	4.283	13.00	7.533	23.00	10.78	53.00
1.050	6.00	4.300	13.00	7.550	23.00	10.80	53.00
1.067	6.00	4.317	13.00	7.567	23.00	10.82	53.00
1.083	6.00	4.333	13.00	7.583	23.00	10.83	53.00
1.100	6.00	4.350	13.00	7.600	23.00	10.85	53.00
1.117	6.00	4.367	13.00	7.617	23.00	10.87	53.00
1.133	6.00	4.383	13.00	7.633	23.00	10.88	53.00
1.150	6.00	4.400	13.00	7.650	23.00	10.90	53.00
1.167	6.00	4.417	13.00	7.667	23.00	10.92	53.00
1.183	6.00	4.433	13.00	7.683	23.00	10.93	53.00
1.200	6.00	4.450	13.00	7.700	23.00	10.95	53.00
1.217	6.00	4.467	13.00	7.717	23.00	10.97	53.00
1.233	6.00	4.483	13.00	7.733	23.00	10.98	53.00
1.250	6.00	4.500	13.00	7.750	23.00	11.00	53.00
1.267	6.00	4.517	13.00	7.767	23.00	11.02	38.00
1.283	6.00	4.533	13.00	7.783	23.00	11.03	38.00
1.300	6.00	4.550	13.00	7.800	23.00	11.05	38.00
1.317	6.00	4.567	13.00	7.817	23.00	11.07	38.00
1.333	6.00	4.583	13.00	7.833	23.00	11.08	38.00
1.350	6.00	4.600	13.00	7.850	23.00	11.10	38.00
1.367	6.00	4.617	13.00	7.867	23.00	11.12	38.00
1.383	6.00	4.633	13.00	7.883	23.00	11.13	38.00
1.400	6.00	4.650	13.00	7.900	23.00	11.15	38.00
1.417	6.00	4.667	13.00	7.917	23.00	11.17	38.00
1.433	6.00	4.683	13.00	7.933	23.00	11.18	38.00
1.450	6.00	4.700	13.00	7.950	23.00	11.20	38.00
1.467	6.00	4.717	13.00	7.967	23.00	11.22	38.00
1.483	6.00	4.733	13.00	7.983	23.00	11.23	38.00
1.500	6.00	4.750	13.00	8.000	22.97	11.25	38.00
1.517	6.00	4.767	13.00	8.017	13.00	11.27	38.00
1.533	6.00	4.783	13.00	8.033	13.00	11.28	38.00
1.550	6.00	4.800	13.00	8.050	13.00	11.30	38.00
1.567	6.00	4.817	13.00	8.067	13.00	11.32	38.00
1.583	6.00	4.833	13.00	8.083	13.00	11.33	38.00
1.600	6.00	4.850	13.00	8.100	13.00	11.35	38.00
1.617	6.00	4.867	13.00	8.117	13.00	11.37	38.00
1.633	6.00	4.883	13.00	8.133	13.00	11.38	38.00
1.650	6.00	4.900	13.00	8.150	13.00	11.40	38.00
1.667	6.00	4.917	13.00	8.167	13.00	11.42	38.00
1.683	6.00	4.933	13.00	8.183	13.00	11.43	38.00
1.700	6.00	4.950	13.00	8.200	13.00	11.45	38.00
1.717	6.00	4.967	13.00	8.217	13.00	11.47	38.00
1.733	6.00	4.983	13.00	8.233	13.00	11.48	38.00
1.750	6.00	5.000	13.00	8.250	13.00	11.50	38.00
1.767	6.00	5.017	17.00	8.267	13.00	11.52	38.00
1.783	6.00	5.033	17.00	8.283	13.00	11.53	38.00
1.800	6.00	5.050	17.00	8.300	13.00	11.55	38.00
1.817	6.00	5.067	17.00	8.317	13.00	11.57	38.00
1.833	6.00	5.083	17.00	8.333	13.00	11.58	38.00
1.850	6.00	5.100	17.00	8.350	13.00	11.60	38.00
1.867	6.00	5.117	17.00	8.367	13.00	11.62	38.00
1.883	6.00	5.133	17.00	8.383	13.00	11.63	38.00
1.900	6.00	5.150	17.00	8.400	13.00	11.65	38.00
1.917	6.00	5.167	17.00	8.417	13.00	11.67	38.00
1.933	6.00	5.183	17.00	8.433	13.00	11.68	38.00
1.950	6.00	5.200	17.00	8.450	13.00	11.70	38.00
1.967	6.00	5.217	17.00	8.467	13.00	11.72	38.00
1.983	6.00	5.233	17.00	8.483	13.00	11.73	38.00
2.000	6.00	5.250	17.00	8.500	13.00	11.75	38.00
2.017	4.00	5.267	17.00	8.517	13.00	11.77	38.00
2.033	4.00	5.283	17.00	8.533	13.00	11.78	38.00
2.050	4.00	5.300	17.00	8.550	13.00	11.80	38.00
2.067	4.00	5.317	17.00	8.567	13.00	11.82	38.00

2.083	4.00	5.333	17.00	8.583	13.00	11.83	38.00
2.100	4.00	5.350	17.00	8.600	13.00	11.85	38.00
2.117	4.00	5.367	17.00	8.617	13.00	11.87	38.00
2.133	4.00	5.383	17.00	8.633	13.00	11.88	38.00
2.150	4.00	5.400	17.00	8.650	13.00	11.90	38.00
2.167	4.00	5.417	17.00	8.667	13.00	11.92	38.00
2.183	4.00	5.433	17.00	8.683	13.00	11.93	38.00
2.200	4.00	5.450	17.00	8.700	13.00	11.95	38.00
2.217	4.00	5.467	17.00	8.717	13.00	11.97	38.00
2.233	4.00	5.483	17.00	8.733	13.00	11.98	38.00
2.250	4.00	5.500	17.00	8.750	13.00	12.00	38.00
2.267	4.00	5.517	17.00	8.767	13.00	12.02	13.02
2.283	4.00	5.533	17.00	8.783	13.00	12.03	13.00
2.300	4.00	5.550	17.00	8.800	13.00	12.05	13.00
2.317	4.00	5.567	17.00	8.817	13.00	12.07	13.00
2.333	4.00	5.583	17.00	8.833	13.00	12.08	13.00
2.350	4.00	5.600	17.00	8.850	13.00	12.10	13.00
2.367	4.00	5.617	17.00	8.867	13.00	12.12	13.00
2.383	4.00	5.633	17.00	8.883	13.00	12.13	13.00
2.400	4.00	5.650	17.00	8.900	13.00	12.15	13.00
2.417	4.00	5.667	17.00	8.917	13.00	12.17	13.00
2.433	4.00	5.683	17.00	8.933	13.00	12.18	13.00
2.450	4.00	5.700	17.00	8.950	13.00	12.20	13.00
2.467	4.00	5.717	17.00	8.967	13.00	12.22	13.00
2.483	4.00	5.733	17.00	8.983	13.00	12.23	13.00
2.500	4.00	5.750	17.00	9.000	13.00	12.25	13.00
2.517	4.00	5.767	17.00	9.017	13.00	12.27	13.00
2.533	4.00	5.783	17.00	9.033	13.00	12.28	13.00
2.550	4.00	5.800	17.00	9.050	13.00	12.30	13.00
2.567	4.00	5.817	17.00	9.067	13.00	12.32	13.00
2.583	4.00	5.833	17.00	9.083	13.00	12.33	13.00
2.600	4.00	5.850	17.00	9.100	13.00	12.35	13.00
2.617	4.00	5.867	17.00	9.117	13.00	12.37	13.00
2.633	4.00	5.883	17.00	9.133	13.00	12.38	13.00
2.650	4.00	5.900	17.00	9.150	13.00	12.40	13.00
2.667	4.00	5.917	17.00	9.167	13.00	12.42	13.00
2.683	4.00	5.933	17.00	9.183	13.00	12.43	13.00
2.700	4.00	5.950	17.00	9.200	13.00	12.45	13.00
2.717	4.00	5.967	17.00	9.217	13.00	12.47	13.00
2.733	4.00	5.983	17.00	9.233	13.00	12.48	13.00
2.750	4.00	6.000	16.99	9.250	13.00	12.50	13.00
2.767	4.00	6.017	13.00	9.267	13.00	12.52	13.00
2.783	4.00	6.033	13.00	9.283	13.00	12.53	13.00
2.800	4.00	6.050	13.00	9.300	13.00	12.55	13.00
2.817	4.00	6.067	13.00	9.317	13.00	12.57	13.00
2.833	4.00	6.083	13.00	9.333	13.00	12.58	13.00
2.850	4.00	6.100	13.00	9.350	13.00	12.60	13.00
2.867	4.00	6.117	13.00	9.367	13.00	12.62	13.00
2.883	4.00	6.133	13.00	9.383	13.00	12.63	13.00
2.900	4.00	6.150	13.00	9.400	13.00	12.65	13.00
2.917	4.00	6.167	13.00	9.417	13.00	12.67	13.00
2.933	4.00	6.183	13.00	9.433	13.00	12.68	13.00
2.950	4.00	6.200	13.00	9.450	13.00	12.70	13.00
2.967	4.00	6.217	13.00	9.467	13.00	12.72	13.00
2.983	4.00	6.233	13.00	9.483	13.00	12.73	13.00
3.000	4.00	6.250	13.00	9.500	13.00	12.75	13.00
3.017	6.00	6.267	13.00	9.517	13.00	12.77	13.00
3.033	6.00	6.283	13.00	9.533	13.00	12.78	13.00
3.050	6.00	6.300	13.00	9.550	13.00	12.80	13.00
3.067	6.00	6.317	13.00	9.567	13.00	12.82	13.00
3.083	6.00	6.333	13.00	9.583	13.00	12.83	13.00
3.100	6.00	6.350	13.00	9.600	13.00	12.85	13.00
3.117	6.00	6.367	13.00	9.617	13.00	12.87	13.00
3.133	6.00	6.383	13.00	9.633	13.00	12.88	13.00

3.150	6.00	6.400	13.00	9.650	13.00	12.90	13.00
3.167	6.00	6.417	13.00	9.667	13.00	12.92	13.00
3.183	6.00	6.433	13.00	9.683	13.00	12.93	13.00
3.200	6.00	6.450	13.00	9.700	13.00	12.95	13.00
3.217	6.00	6.467	13.00	9.717	13.00	12.97	13.00
3.233	6.00	6.483	13.00	9.733	13.00	12.98	13.00
3.250	6.00	6.500	13.00	9.750	13.00	13.00	13.00

Unit Hyd Qpeak (cms)= 0.229

PEAK FLOW (cms)= 0.127 (i)
TIME TO PEAK (hrs)= 11.083
RUNOFF VOLUME (mm)= 81.870
TOTAL RAINFALL (mm)= 212.001
RUNOFF COEFFICIENT = 0.386

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0003)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0001):		2.01	0.224	11.00	125.89
+ ID2= 2 (0302):		1.68	0.127	11.08	81.87
ID = 3 (0003):		3.69	0.349	11.00	105.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH

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*********************************************
** SIMULATION:Post-Dev-PF, 100yr 12hr SCS **
*********************************************

-------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0004):     0.63   0.087     6.10    36.61
      + ID2= 2 (  0005):     1.38   0.134     6.10    26.81
        ================================================
        ID = 3 (  0001):     2.01   0.221     6.10    29.89

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
*********************************************
** SIMULATION:Post-Dev-PF, 100yr 24hr SCS **
*********************************************

-------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0004):     0.73   0.342    12.10    51.85
      + ID2= 2 (  0005):     1.38   0.162    12.10    36.33
        ================================================
        ID = 3 (  0001):     2.11   0.504    12.10    41.72

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
*********************************************
** SIMULATION:Post-Dev-PF, 100yr 4hr CHI **
*********************************************

-------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0004):     0.91   0.314     1.37    29.93
      + ID2= 2 (  0005):     1.38   0.082     1.43    16.98
        ================================================
        ID = 3 (  0001):     2.29   0.378     1.37    22.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
*********************************************
** SIMULATION:Post-Dev-PF, 100yr 6hr SCS **
*********************************************

-------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0004):     0.74   0.310     3.12    36.96
      + ID2= 2 (  0005):     1.38   0.145     3.10    24.29
        ================================================
        ID = 3 (  0001):     2.12   0.453     3.12    28.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
*********************************************
** SIMULATION:Post-Dev-PF, 10yr 12hr SCS **
*********************************************
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-------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0004):     0.63   0.040     6.12    18.73
     + ID2= 2 (  0005):     1.38   0.061     6.12    13.00
       ================================================
       ID = 3 (  0001):     2.01   0.101     6.12    14.80

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
****************************************
** SIMULATION:Post-Dev-PF, 10yr 24hr SCS **
****************************************

-------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0004):     0.63   0.049    12.12    25.04
     + ID2= 2 (  0005):     1.38   0.075    12.10    17.82
       ================================================
       ID = 3 (  0001):     2.01   0.124    12.12    20.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
****************************************
** SIMULATION:Post-Dev-PF, 10yr 4hr CHI **
****************************************

-------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0004):     0.63   0.025     1.47    12.23
     + ID2= 2 (  0005):     1.38   0.036     1.47     8.15
       ================================================
       ID = 3 (  0001):     2.01   0.061     1.47     9.43

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
****************************************
** SIMULATION:Post-Dev-PF, 10yr 6hr SCS **
****************************************

-------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0004):     0.63   0.042     3.12    16.54
     + ID2= 2 (  0005):     1.38   0.063     3.12    11.35
       ================================================
       ID = 3 (  0001):     2.01   0.106     3.12    12.99

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
****************************************
** SIMULATION:Post-Dev-PF, 25yr 12hr SCS **
****************************************

-------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
```

ID1= 1 (0004):	0.63	0.058	6.12	25.43
+ ID2= 2 (0005):	1.38	0.088	6.10	18.11
ID = 3 (0001):	2.01	0.146	6.10	20.41

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, 25yr 24hr SCS **
****

ADD HYD (0001)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0004):	0.63	0.070	12.10	33.92
+ ID2= 2 (0005):	1.38	0.107	12.10	24.71
ID = 3 (0001):	2.01	0.177	12.10	27.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, 25yr 4hr CHI **
****

ADD HYD (0001)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0004):	0.63	0.037	1.45	16.73
+ ID2= 2 (0005):	1.38	0.053	1.45	11.49
ID = 3 (0001):	2.01	0.090	1.45	13.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, 25yr 6hr SCS **
****

ADD HYD (0001)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0004):	0.63	0.062	3.12	22.84
+ ID2= 2 (0005):	1.38	0.093	3.10	16.12
ID = 3 (0001):	2.01	0.155	3.10	18.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, 2yr 12hr SCS **
****

ADD HYD (0001)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0004):	0.63	0.014	6.13	7.85
+ ID2= 2 (0005):	1.38	0.020	6.12	4.97
ID = 3 (0001):	2.01	0.034	6.12	5.88

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, 2yr 24hr SCS **
****

ADD HYD (0001)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0004):	0.63	0.017	12.13	10.55
	+ ID2= 2 (0005):	1.38	0.026	12.12	6.92
	ID = 3 (0001):	2.01	0.043	12.12	8.07

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, 2yr 4hr CHI **
****

ADD HYD (0001)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0004):	0.63	0.008	1.53	5.11
	+ ID2= 2 (0005):	1.38	0.012	1.52	3.05
	ID = 3 (0001):	2.01	0.020	1.53	3.70

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, 2yr 6hr SCS **
****

ADD HYD (0001)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0004):	0.63	0.014	3.13	6.55
	+ ID2= 2 (0005):	1.38	0.020	3.13	4.05
	ID = 3 (0001):	2.01	0.033	3.13	4.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, 50yr 12hr SCS **
****

ADD HYD (0001)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0004):	0.63	0.072	6.10	30.90
	+ ID2= 2 (0005):	1.38	0.110	6.10	22.35
	ID = 3 (0001):	2.01	0.182	6.10	25.04

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****

** SIMULATION:Post-Dev-PF, 50yr 24hr SCS **
****

ADD HYD (0001)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0004):		0.63	0.087	12.10	41.09
+ ID2= 2 (0005):		1.38	0.134	12.10	30.35
ID = 3 (0001):		2.01	0.221	12.10	33.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, 50yr 4hr CHI **
****

ADD HYD (0001)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0004):		0.85	0.243	1.40	24.62
+ ID2= 2 (0005):		1.38	0.067	1.43	14.15
ID = 3 (0001):		2.23	0.305	1.40	18.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, 50yr 6hr SCS **
****

ADD HYD (0001)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0004):		0.63	0.078	3.12	27.97
+ ID2= 2 (0005):		1.38	0.119	3.10	20.07
ID = 3 (0001):		2.01	0.196	3.10	22.56

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, 5yr 12hr SCS **
****

ADD HYD (0001)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0004):		0.63	0.028	6.12	13.95
+ ID2= 2 (0005):		1.38	0.043	6.12	9.42
ID = 3 (0001):		2.01	0.071	6.12	10.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, 5yr 24hr SCS **
****

| ADD HYD (0001)|
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0004):	0.63	0.034	12.12	18.73
+ ID2= 2 (0005):	1.38	0.053	12.12	13.00
ID = 3 (0001):	2.01	0.087	12.12	14.80

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, 5yr 4hr CHI **
****

| ADD HYD (0001)|
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0004):	0.63	0.017	1.48	9.06
+ ID2= 2 (0005):	1.38	0.025	1.47	5.84
ID = 3 (0001):	2.01	0.043	1.47	6.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, 5yr 6hr SCS **
****

| ADD HYD (0001)|
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0004):	0.63	0.029	3.12	12.15
+ ID2= 2 (0005):	1.38	0.043	3.12	8.09
ID = 3 (0001):	2.01	0.072	3.12	9.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, WQE 25mm 4hr CHI **
****

| ADD HYD (0001)|
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0004):	0.63	0.004	1.37	2.45
+ ID2= 2 (0005):	1.38	0.004	1.60	1.28
ID = 3 (0001):	2.01	0.007	1.63	1.65

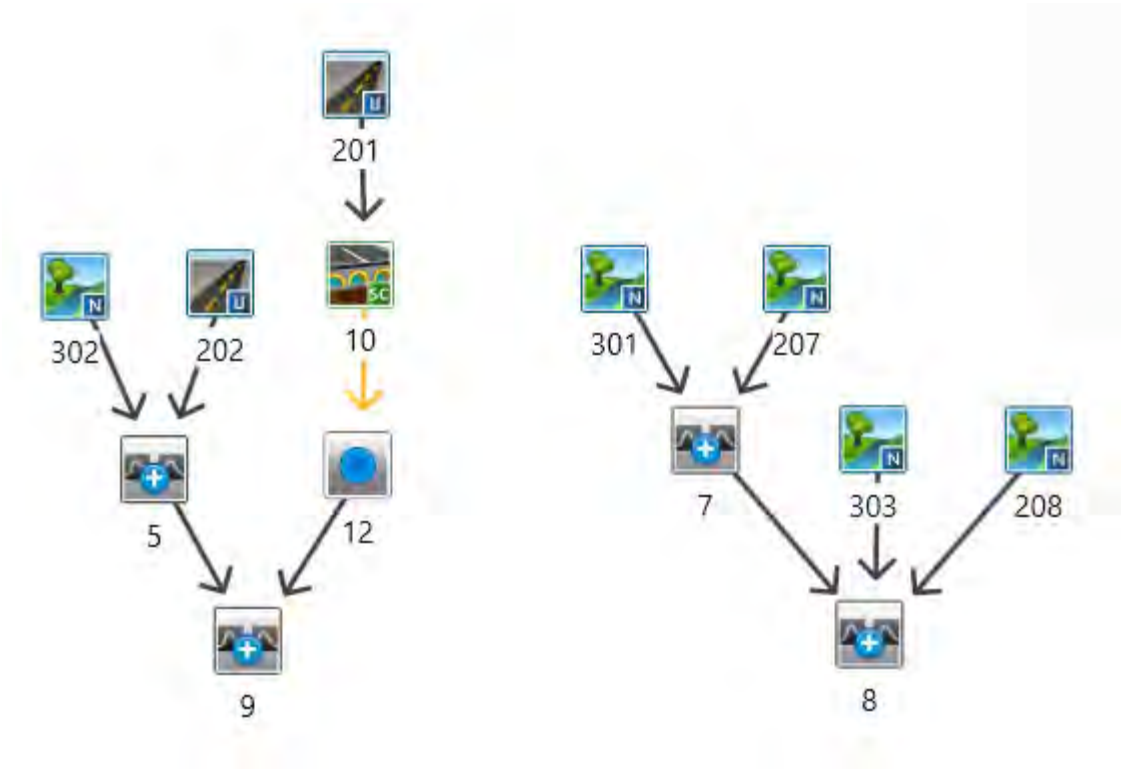
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
*******************************************
** SIMULATION:Post-Dev-PF, Hazel AMCIII **
*******************************************

--------------------
| ADD HYD  (  0001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0004):     0.63   0.078    11.00   142.49
      + ID2= 2 (  0005):     1.38   0.146    11.00   118.26
        ==========================================================
        ID = 3 (  0001):     2.01   0.224    11.00   125.89

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
```

Post-Dev-PF Channel & *Post-Dev-PF Channel Hazel AMCIII* Model Schematics



```
================================================================================
==========================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output        filename:    C:\Users\mgallant\AppData\Local\Civica\VH5\6bb8133b-
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  Summary      filename:     C:\Users\mgallant\AppData\Local\Civica\VH5\6bb8133b-
c3b7-49cd-875d-ed11cb8c976b\fadff640-b245-4d14-96b6-a9c97b85071e\sce


DATE: 08-11-2022                              TIME: 02:31:49

USER:



COMMENTS: _____________________________________________________________________

--------------------------------------------------------------------------------
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  ************************************************
  ** SIMULATION : Post-Dev-PF, Channels 100yr 2 **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\mgallant\AppD
|                  |              ata\Local\Temp\
|                  |              34c0d8b7-d6dc-4508-9a8d-a81fcdc14051\804d1b39
| Ptotal=133.60 mm |    Comments: 100yr 24hr SCS Type II
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  6.08    2.40 | 12.17   19.24 | 18.25    2.40
                0.08    1.47 |  6.17    2.40 | 12.25   19.24 | 18.33    2.40
                0.17    1.47 |  6.25    2.40 | 12.33   19.24 | 18.42    2.40
                0.25    1.47 |  6.33    2.40 | 12.42   19.24 | 18.50    2.40
                0.33    1.47 |  6.42    2.40 | 12.50   19.24 | 18.58    2.40
                0.42    1.47 |  6.50    2.40 | 12.58    9.89 | 18.67    2.40
                0.50    1.47 |  6.58    2.40 | 12.67    9.89 | 18.75    2.40
                0.58    1.47 |  6.67    2.40 | 12.75    9.89 | 18.83    2.40
                0.67    1.47 |  6.75    2.40 | 12.83    9.89 | 18.92    2.40
                0.75    1.47 |  6.83    2.40 | 12.92    9.89 | 19.00    2.40
                0.83    1.47 |  6.92    2.40 | 13.00    9.89 | 19.08    2.40
                0.92    1.47 |  7.00    2.40 | 13.08    7.21 | 19.17    2.40
```

1.00	1.47	7.08	2.94	13.17	7.21	19.25	2.40
1.08	1.47	7.17	2.94	13.25	7.21	19.33	2.40
1.17	1.47	7.25	2.94	13.33	7.21	19.42	2.40
1.25	1.47	7.33	2.94	13.42	7.21	19.50	2.40
1.33	1.47	7.42	2.94	13.50	7.21	19.58	2.40
1.42	1.47	7.50	2.94	13.58	5.61	19.67	2.40
1.50	1.47	7.58	2.94	13.67	5.61	19.75	2.40
1.58	1.47	7.67	2.94	13.75	5.61	19.83	2.40
1.67	1.47	7.75	2.94	13.83	5.61	19.92	2.40
1.75	1.47	7.83	2.94	13.92	5.61	20.00	2.40
1.83	1.47	7.92	2.94	14.00	5.61	20.08	1.60
1.92	1.47	8.00	2.94	14.08	4.01	20.17	1.60
2.00	1.47	8.08	3.47	14.17	4.01	20.25	1.60
2.08	1.74	8.17	3.47	14.25	4.01	20.33	1.60
2.17	1.74	8.25	3.47	14.33	4.01	20.42	1.60
2.25	1.74	8.33	3.47	14.42	4.01	20.50	1.60
2.33	1.74	8.42	3.47	14.50	4.01	20.58	1.60
2.42	1.74	8.50	3.47	14.58	4.01	20.67	1.60
2.50	1.74	8.58	3.74	14.67	4.01	20.75	1.60
2.58	1.74	8.67	3.74	14.75	4.01	20.83	1.60
2.67	1.74	8.75	3.74	14.83	4.01	20.92	1.60
2.75	1.74	8.83	3.74	14.92	4.01	21.00	1.60
2.83	1.74	8.92	3.74	15.00	4.01	21.08	1.60
2.92	1.74	9.00	3.74	15.08	4.01	21.17	1.60
3.00	1.74	9.08	4.28	15.17	4.01	21.25	1.60
3.08	1.74	9.17	4.28	15.25	4.01	21.33	1.60
3.17	1.74	9.25	4.28	15.33	4.01	21.42	1.60
3.25	1.74	9.33	4.28	15.42	4.01	21.50	1.60
3.33	1.74	9.42	4.28	15.50	4.01	21.58	1.60
3.42	1.74	9.50	4.28	15.58	4.01	21.67	1.60
3.50	1.74	9.58	4.81	15.67	4.01	21.75	1.60
3.58	1.74	9.67	4.81	15.75	4.01	21.83	1.60
3.67	1.74	9.75	4.81	15.83	4.01	21.92	1.60
3.75	1.74	9.83	4.81	15.92	4.01	22.00	1.60
3.83	1.74	9.92	4.81	16.00	4.01	22.08	1.60
3.92	1.74	10.00	4.81	16.08	2.40	22.17	1.60
4.00	1.74	10.08	6.15	16.17	2.40	22.25	1.60
4.08	2.14	10.17	6.15	16.25	2.40	22.33	1.60
4.17	2.14	10.25	6.15	16.33	2.40	22.42	1.60
4.25	2.14	10.33	6.15	16.42	2.40	22.50	1.60
4.33	2.14	10.42	6.15	16.50	2.40	22.58	1.60
4.42	2.14	10.50	6.15	16.58	2.40	22.67	1.60
4.50	2.14	10.58	8.28	16.67	2.40	22.75	1.60
4.58	2.14	10.67	8.28	16.75	2.40	22.83	1.60
4.67	2.14	10.75	8.28	16.83	2.40	22.92	1.60
4.75	2.14	10.83	8.28	16.92	2.40	23.00	1.60
4.83	2.14	10.92	8.28	17.00	2.40	23.08	1.60
4.92	2.14	11.00	8.28	17.08	2.40	23.17	1.60
5.00	2.14	11.08	12.83	17.17	2.40	23.25	1.60
5.08	2.14	11.17	12.83	17.25	2.40	23.33	1.60
5.17	2.14	11.25	12.83	17.33	2.40	23.42	1.60
5.25	2.14	11.33	12.83	17.42	2.40	23.50	1.60
5.33	2.14	11.42	12.83	17.50	2.40	23.58	1.60
5.42	2.14	11.50	12.83	17.58	2.40	23.67	1.60
5.50	2.14	11.58	39.55	17.67	2.40	23.75	1.60
5.58	2.14	11.67	39.55	17.75	2.40	23.83	1.60
5.67	2.14	11.75	39.55	17.83	2.40	23.92	1.60
5.75	2.14	11.83	163.53	17.92	2.40	24.00	1.60
5.83	2.14	11.92	163.53	18.00	2.40		
5.92	2.14	12.00	163.53	18.08	2.40		
6.00	2.14	12.08	19.24	18.17	2.40		

CALIB			
NASHYD (0301)	Area (ha)=	6.32	Curve Number (CN)= 29.0
ID= 1 DT= 1.0 min	Ia (mm)=	9.42	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.27	

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	6.050	2.14	12.083	163.53	18.12	2.40
0.033	0.00	6.067	2.14	12.100	19.35	18.13	2.40
0.050	0.00	6.083	2.14	12.117	19.24	18.15	2.40
0.067	0.00	6.100	2.40	12.133	19.24	18.17	2.40
0.083	0.00	6.117	2.40	12.150	19.24	18.18	2.40
0.100	1.47	6.133	2.40	12.167	19.24	18.20	2.40
0.117	1.47	6.150	2.40	12.183	19.24	18.22	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.150	1.47	6.183	2.40	12.217	19.24	18.25	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.183	1.47	6.217	2.40	12.250	19.24	18.28	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.217	1.47	6.250	2.40	12.283	19.24	18.32	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.250	1.47	6.283	2.40	12.317	19.24	18.35	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.283	1.47	6.317	2.40	12.350	19.24	18.38	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.317	1.47	6.350	2.40	12.383	19.24	18.42	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.350	1.47	6.383	2.40	12.417	19.24	18.45	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.383	1.47	6.417	2.40	12.450	19.24	18.48	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.417	1.47	6.450	2.40	12.483	19.24	18.52	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.450	1.47	6.483	2.40	12.517	19.24	18.55	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.483	1.47	6.517	2.40	12.550	19.24	18.58	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.517	1.47	6.550	2.40	12.583	19.24	18.62	2.40
0.533	1.47	6.567	2.40	12.600	9.90	18.63	2.40
0.550	1.47	6.583	2.40	12.617	9.89	18.65	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.583	1.47	6.617	2.40	12.650	9.89	18.68	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.617	1.47	6.650	2.40	12.683	9.89	18.72	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.650	1.47	6.683	2.40	12.717	9.89	18.75	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.683	1.47	6.717	2.40	12.750	9.89	18.78	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.717	1.47	6.750	2.40	12.783	9.89	18.82	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.750	1.47	6.783	2.40	12.817	9.89	18.85	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.783	1.47	6.817	2.40	12.850	9.89	18.88	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.817	1.47	6.850	2.40	12.883	9.89	18.92	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.850	1.47	6.883	2.40	12.917	9.89	18.95	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40

0.883	1.47	6.917	2.40	12.950	9.89	18.98	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.917	1.47	6.950	2.40	12.983	9.89	19.02	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.950	1.47	6.983	2.40	13.017	9.89	19.05	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
0.983	1.47	7.017	2.40	13.050	9.89	19.08	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.017	1.47	7.050	2.40	13.083	9.89	19.12	2.40
1.033	1.47	7.067	2.40	13.100	7.22	19.13	2.40
1.050	1.47	7.083	2.41	13.117	7.21	19.15	2.40
1.067	1.47	7.100	2.94	13.133	7.21	19.17	2.40
1.083	1.47	7.117	2.94	13.150	7.21	19.18	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.117	1.47	7.150	2.94	13.183	7.21	19.22	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.150	1.47	7.183	2.94	13.217	7.21	19.25	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.183	1.47	7.217	2.94	13.250	7.21	19.28	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.217	1.47	7.250	2.94	13.283	7.21	19.32	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.250	1.47	7.283	2.94	13.317	7.21	19.35	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.283	1.47	7.317	2.94	13.350	7.21	19.38	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.317	1.47	7.350	2.94	13.383	7.21	19.42	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.350	1.47	7.383	2.94	13.417	7.21	19.45	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.383	1.47	7.417	2.94	13.450	7.21	19.48	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.417	1.47	7.450	2.94	13.483	7.21	19.52	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.450	1.47	7.483	2.94	13.517	7.21	19.55	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.483	1.47	7.517	2.94	13.550	7.21	19.58	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.517	1.47	7.550	2.94	13.583	7.21	19.62	2.40
1.533	1.47	7.567	2.94	13.600	5.61	19.63	2.40
1.550	1.47	7.583	2.94	13.617	5.61	19.65	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.583	1.47	7.617	2.94	13.650	5.61	19.68	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.617	1.47	7.650	2.94	13.683	5.61	19.72	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.650	1.47	7.683	2.94	13.717	5.61	19.75	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.683	1.47	7.717	2.94	13.750	5.61	19.78	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.717	1.47	7.750	2.94	13.783	5.61	19.82	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.750	1.47	7.783	2.94	13.817	5.61	19.85	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.783	1.47	7.817	2.94	13.850	5.61	19.88	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.817	1.47	7.850	2.94	13.883	5.61	19.92	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.850	1.47	7.883	2.94	13.917	5.61	19.95	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.883	1.47	7.917	2.94	13.950	5.61	19.98	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.917	1.47	7.950	2.94	13.983	5.61	20.02	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40

1.950	1.47	7.983	2.94	14.017	5.61	20.05	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
1.983	1.47	8.017	2.94	14.050	5.61	20.08	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	1.61
2.017	1.47	8.050	2.94	14.083	5.61	20.12	1.60
2.033	1.47	8.067	2.94	14.100	4.01	20.13	1.60
2.050	1.47	8.083	2.94	14.117	4.01	20.15	1.60
2.067	1.47	8.100	3.47	14.133	4.01	20.17	1.60
2.083	1.47	8.117	3.47	14.150	4.01	20.18	1.60
2.100	1.74	8.133	3.47	14.167	4.01	20.20	1.60
2.117	1.74	8.150	3.47	14.183	4.01	20.22	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.150	1.74	8.183	3.47	14.217	4.01	20.25	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.183	1.74	8.217	3.47	14.250	4.01	20.28	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.217	1.74	8.250	3.47	14.283	4.01	20.32	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.250	1.74	8.283	3.47	14.317	4.01	20.35	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.283	1.74	8.317	3.47	14.350	4.01	20.38	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.317	1.74	8.350	3.47	14.383	4.01	20.42	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.350	1.74	8.383	3.47	14.417	4.01	20.45	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.383	1.74	8.417	3.47	14.450	4.01	20.48	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.417	1.74	8.450	3.47	14.483	4.01	20.52	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.450	1.74	8.483	3.47	14.517	4.01	20.55	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.483	1.74	8.517	3.47	14.550	4.01	20.58	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.517	1.74	8.550	3.47	14.583	4.01	20.62	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.550	1.74	8.583	3.47	14.617	4.01	20.65	1.60
2.567	1.74	8.600	3.74	14.633	4.01	20.67	1.60
2.583	1.74	8.617	3.74	14.650	4.01	20.68	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.617	1.74	8.650	3.74	14.683	4.01	20.72	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.650	1.74	8.683	3.74	14.717	4.01	20.75	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.683	1.74	8.717	3.74	14.750	4.01	20.78	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.717	1.74	8.750	3.74	14.783	4.01	20.82	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.750	1.74	8.783	3.74	14.817	4.01	20.85	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.783	1.74	8.817	3.74	14.850	4.01	20.88	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.817	1.74	8.850	3.74	14.883	4.01	20.92	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.850	1.74	8.883	3.74	14.917	4.01	20.95	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.883	1.74	8.917	3.74	14.950	4.01	20.98	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.917	1.74	8.950	3.74	14.983	4.01	21.02	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.950	1.74	8.983	3.74	15.017	4.01	21.05	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
2.983	1.74	9.017	3.74	15.050	4.01	21.08	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60

3.017	1.74	9.050	3.74	15.083	4.01	21.12	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.050	1.74	9.083	3.74	15.117	4.01	21.15	1.60
3.067	1.74	9.100	4.28	15.133	4.01	21.17	1.60
3.083	1.74	9.117	4.28	15.150	4.01	21.18	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.117	1.74	9.150	4.28	15.183	4.01	21.22	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.150	1.74	9.183	4.28	15.217	4.01	21.25	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.183	1.74	9.217	4.28	15.250	4.01	21.28	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.217	1.74	9.250	4.28	15.283	4.01	21.32	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.250	1.74	9.283	4.28	15.317	4.01	21.35	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.283	1.74	9.317	4.28	15.350	4.01	21.38	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.317	1.74	9.350	4.28	15.383	4.01	21.42	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.350	1.74	9.383	4.28	15.417	4.01	21.45	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.383	1.74	9.417	4.28	15.450	4.01	21.48	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.417	1.74	9.450	4.28	15.483	4.01	21.52	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.450	1.74	9.483	4.28	15.517	4.01	21.55	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.483	1.74	9.517	4.28	15.550	4.01	21.58	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.517	1.74	9.550	4.28	15.583	4.01	21.62	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.550	1.74	9.583	4.28	15.617	4.01	21.65	1.60
3.567	1.74	9.600	4.81	15.633	4.01	21.67	1.60
3.583	1.74	9.617	4.81	15.650	4.01	21.68	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.617	1.74	9.650	4.81	15.683	4.01	21.72	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.650	1.74	9.683	4.81	15.717	4.01	21.75	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.683	1.74	9.717	4.81	15.750	4.01	21.78	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.717	1.74	9.750	4.81	15.783	4.01	21.82	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.750	1.74	9.783	4.81	15.817	4.01	21.85	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.783	1.74	9.817	4.81	15.850	4.01	21.88	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.817	1.74	9.850	4.81	15.883	4.01	21.92	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.850	1.74	9.883	4.81	15.917	4.01	21.95	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.883	1.74	9.917	4.81	15.950	4.01	21.98	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.917	1.74	9.950	4.81	15.983	4.01	22.02	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.950	1.74	9.983	4.81	16.017	4.01	22.05	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
3.983	1.74	10.017	4.81	16.050	4.01	22.08	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.017	1.74	10.050	4.81	16.083	4.01	22.12	1.60
4.033	1.74	10.067	4.81	16.100	2.41	22.13	1.60
4.050	1.74	10.083	4.81	16.117	2.40	22.15	1.60
4.067	1.74	10.100	6.15	16.133	2.40	22.17	1.60

4.083	1.74	10.117	6.15	16.150	2.40	22.18	1.60
4.100	2.14	10.133	6.15	16.167	2.40	22.20	1.60
4.117	2.14	10.150	6.15	16.183	2.40	22.22	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.150	2.14	10.183	6.15	16.217	2.40	22.25	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.183	2.14	10.217	6.15	16.250	2.40	22.28	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.217	2.14	10.250	6.15	16.283	2.40	22.32	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.250	2.14	10.283	6.15	16.317	2.40	22.35	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.283	2.14	10.317	6.15	16.350	2.40	22.38	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.317	2.14	10.350	6.15	16.383	2.40	22.42	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.350	2.14	10.383	6.15	16.417	2.40	22.45	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.383	2.14	10.417	6.15	16.450	2.40	22.48	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.417	2.14	10.450	6.15	16.483	2.40	22.52	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.450	2.14	10.483	6.15	16.517	2.40	22.55	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.483	2.14	10.517	6.15	16.550	2.40	22.58	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.517	2.14	10.550	6.15	16.583	2.40	22.62	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.550	2.14	10.583	6.15	16.617	2.40	22.65	1.60
4.567	2.14	10.600	8.28	16.633	2.40	22.67	1.60
4.583	2.14	10.617	8.28	16.650	2.40	22.68	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.617	2.14	10.650	8.28	16.683	2.40	22.72	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.650	2.14	10.683	8.28	16.717	2.40	22.75	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.683	2.14	10.717	8.28	16.750	2.40	22.78	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.717	2.14	10.750	8.28	16.783	2.40	22.82	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.750	2.14	10.783	8.28	16.817	2.40	22.85	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.783	2.14	10.817	8.28	16.850	2.40	22.88	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.817	2.14	10.850	8.28	16.883	2.40	22.92	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.850	2.14	10.883	8.28	16.917	2.40	22.95	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.883	2.14	10.917	8.28	16.950	2.40	22.98	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.917	2.14	10.950	8.28	16.983	2.40	23.02	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.950	2.14	10.983	8.28	17.017	2.40	23.05	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
4.983	2.14	11.017	8.28	17.050	2.40	23.08	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.017	2.14	11.050	8.28	17.083	2.40	23.12	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.050	2.14	11.083	8.28	17.117	2.40	23.15	1.60
5.067	2.14	11.100	12.83	17.133	2.40	23.17	1.60
5.083	2.14	11.117	12.83	17.150	2.40	23.18	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.117	2.14	11.150	12.83	17.183	2.40	23.22	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60

5.150	2.14	11.183	12.83	17.217	2.40	23.25	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.183	2.14	11.217	12.83	17.250	2.40	23.28	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.217	2.14	11.250	12.83	17.283	2.40	23.32	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.250	2.14	11.283	12.83	17.317	2.40	23.35	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.283	2.14	11.317	12.83	17.350	2.40	23.38	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.317	2.14	11.350	12.83	17.383	2.40	23.42	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.350	2.14	11.383	12.83	17.417	2.40	23.45	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.383	2.14	11.417	12.83	17.450	2.40	23.48	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.417	2.14	11.450	12.83	17.483	2.40	23.52	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.450	2.14	11.483	12.83	17.517	2.40	23.55	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.483	2.14	11.517	12.83	17.550	2.40	23.58	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.517	2.14	11.550	12.83	17.583	2.40	23.62	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.550	2.14	11.583	12.83	17.617	2.40	23.65	1.60
5.567	2.14	11.600	39.54	17.633	2.40	23.67	1.60
5.583	2.14	11.617	39.55	17.650	2.40	23.68	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.617	2.14	11.650	39.55	17.683	2.40	23.72	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.650	2.14	11.683	39.54	17.717	2.40	23.75	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.683	2.14	11.717	39.55	17.750	2.40	23.78	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.717	2.14	11.750	39.55	17.783	2.40	23.82	1.60
5.733	2.14	11.767	39.54	17.800	2.40	23.83	1.60
5.750	2.14	11.783	39.55	17.817	2.40	23.85	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.783	2.14	11.817	39.55	17.850	2.40	23.88	1.60
5.800	2.14	11.833	39.55	17.867	2.40	23.90	1.60
5.817	2.14	11.850	163.45	17.883	2.40	23.92	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.850	2.14	11.883	163.53	17.917	2.40	23.95	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.883	2.14	11.917	163.53	17.950	2.40	23.98	1.60
5.900	2.14	11.933	163.52	17.967	2.40	24.00	1.60
5.917	2.14	11.950	163.53	17.983	2.40	24.02	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.950	2.14	11.983	163.53	18.017	2.40	24.05	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
5.983	2.14	12.017	163.52	18.050	2.40	24.08	1.60
6.000	2.14	12.033	163.53	18.067	2.40		
6.017	2.14	12.050	163.53	18.083	2.40		
6.033	2.14	12.067	163.53	18.100	2.40		

Unit Hyd Qpeak (cms)= 0.894

PEAK FLOW (cms)= 0.253 (i)
TIME TO PEAK (hrs)= 12.267
RUNOFF VOLUME (mm)= 16.111
TOTAL RAINFALL (mm)= 133.601
RUNOFF COEFFICIENT = 0.121

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB              |
| NASHYD   (  0207)|   Area    (ha)=   0.09   Curve Number   (CN)= 37.0
|ID= 1 DT= 1.0 min |   Ia      (mm)=   5.68   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.04

        NOTE:  RAINFALL WAS TRANSFORMED TO   1.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	6.050	2.14	12.083	163.53	18.12	2.40
0.033	0.00	6.067	2.14	12.100	19.35	18.13	2.40
0.050	0.00	6.083	2.14	12.117	19.24	18.15	2.40
0.067	0.00	6.100	2.40	12.133	19.24	18.17	2.40
0.083	0.00	6.117	2.40	12.150	19.24	18.18	2.40
0.100	1.47	6.133	2.40	12.167	19.24	18.20	2.40
0.117	1.47	6.150	2.40	12.183	19.24	18.22	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.150	1.47	6.183	2.40	12.217	19.24	18.25	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.183	1.47	6.217	2.40	12.250	19.24	18.28	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.217	1.47	6.250	2.40	12.283	19.24	18.32	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.250	1.47	6.283	2.40	12.317	19.24	18.35	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.283	1.47	6.317	2.40	12.350	19.24	18.38	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.317	1.47	6.350	2.40	12.383	19.24	18.42	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.350	1.47	6.383	2.40	12.417	19.24	18.45	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.383	1.47	6.417	2.40	12.450	19.24	18.48	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.417	1.47	6.450	2.40	12.483	19.24	18.52	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.450	1.47	6.483	2.40	12.517	19.24	18.55	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.483	1.47	6.517	2.40	12.550	19.24	18.58	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.517	1.47	6.550	2.40	12.583	19.24	18.62	2.40
0.533	1.47	6.567	2.40	12.600	9.90	18.63	2.40
0.550	1.47	6.583	2.40	12.617	9.89	18.65	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.583	1.47	6.617	2.40	12.650	9.89	18.68	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.617	1.47	6.650	2.40	12.683	9.89	18.72	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.650	1.47	6.683	2.40	12.717	9.89	18.75	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.683	1.47	6.717	2.40	12.750	9.89	18.78	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.717	1.47	6.750	2.40	12.783	9.89	18.82	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.750	1.47	6.783	2.40	12.817	9.89	18.85	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.783	1.47	6.817	2.40	12.850	9.89	18.88	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.817	1.47	6.850	2.40	12.883	9.89	18.92	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40

0.850	1.47	6.883	2.40	12.917	9.89	18.95	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.883	1.47	6.917	2.40	12.950	9.89	18.98	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.917	1.47	6.950	2.40	12.983	9.89	19.02	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.950	1.47	6.983	2.40	13.017	9.89	19.05	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
0.983	1.47	7.017	2.40	13.050	9.89	19.08	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.017	1.47	7.050	2.40	13.083	9.89	19.12	2.40
1.033	1.47	7.067	2.40	13.100	7.22	19.13	2.40
1.050	1.47	7.083	2.41	13.117	7.21	19.15	2.40
1.067	1.47	7.100	2.94	13.133	7.21	19.17	2.40
1.083	1.47	7.117	2.94	13.150	7.21	19.18	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.117	1.47	7.150	2.94	13.183	7.21	19.22	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.150	1.47	7.183	2.94	13.217	7.21	19.25	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.183	1.47	7.217	2.94	13.250	7.21	19.28	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.217	1.47	7.250	2.94	13.283	7.21	19.32	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.250	1.47	7.283	2.94	13.317	7.21	19.35	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.283	1.47	7.317	2.94	13.350	7.21	19.38	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.317	1.47	7.350	2.94	13.383	7.21	19.42	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.350	1.47	7.383	2.94	13.417	7.21	19.45	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.383	1.47	7.417	2.94	13.450	7.21	19.48	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.417	1.47	7.450	2.94	13.483	7.21	19.52	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.450	1.47	7.483	2.94	13.517	7.21	19.55	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.483	1.47	7.517	2.94	13.550	7.21	19.58	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.517	1.47	7.550	2.94	13.583	7.21	19.62	2.40
1.533	1.47	7.567	2.94	13.600	5.61	19.63	2.40
1.550	1.47	7.583	2.94	13.617	5.61	19.65	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.583	1.47	7.617	2.94	13.650	5.61	19.68	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.617	1.47	7.650	2.94	13.683	5.61	19.72	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.650	1.47	7.683	2.94	13.717	5.61	19.75	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.683	1.47	7.717	2.94	13.750	5.61	19.78	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.717	1.47	7.750	2.94	13.783	5.61	19.82	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.750	1.47	7.783	2.94	13.817	5.61	19.85	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.783	1.47	7.817	2.94	13.850	5.61	19.88	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.817	1.47	7.850	2.94	13.883	5.61	19.92	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.850	1.47	7.883	2.94	13.917	5.61	19.95	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.883	1.47	7.917	2.94	13.950	5.61	19.98	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40

1.917	1.47	7.950	2.94	13.983	5.61	20.02	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.950	1.47	7.983	2.94	14.017	5.61	20.05	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
1.983	1.47	8.017	2.94	14.050	5.61	20.08	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	1.61
2.017	1.47	8.050	2.94	14.083	5.61	20.12	1.60
2.033	1.47	8.067	2.94	14.100	4.01	20.13	1.60
2.050	1.47	8.083	2.94	14.117	4.01	20.15	1.60
2.067	1.47	8.100	3.47	14.133	4.01	20.17	1.60
2.083	1.47	8.117	3.47	14.150	4.01	20.18	1.60
2.100	1.74	8.133	3.47	14.167	4.01	20.20	1.60
2.117	1.74	8.150	3.47	14.183	4.01	20.22	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.150	1.74	8.183	3.47	14.217	4.01	20.25	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.183	1.74	8.217	3.47	14.250	4.01	20.28	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.217	1.74	8.250	3.47	14.283	4.01	20.32	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.250	1.74	8.283	3.47	14.317	4.01	20.35	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.283	1.74	8.317	3.47	14.350	4.01	20.38	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.317	1.74	8.350	3.47	14.383	4.01	20.42	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.350	1.74	8.383	3.47	14.417	4.01	20.45	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.383	1.74	8.417	3.47	14.450	4.01	20.48	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.417	1.74	8.450	3.47	14.483	4.01	20.52	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.450	1.74	8.483	3.47	14.517	4.01	20.55	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.483	1.74	8.517	3.47	14.550	4.01	20.58	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.517	1.74	8.550	3.47	14.583	4.01	20.62	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.550	1.74	8.583	3.47	14.617	4.01	20.65	1.60
2.567	1.74	8.600	3.74	14.633	4.01	20.67	1.60
2.583	1.74	8.617	3.74	14.650	4.01	20.68	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.617	1.74	8.650	3.74	14.683	4.01	20.72	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.650	1.74	8.683	3.74	14.717	4.01	20.75	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.683	1.74	8.717	3.74	14.750	4.01	20.78	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.717	1.74	8.750	3.74	14.783	4.01	20.82	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.750	1.74	8.783	3.74	14.817	4.01	20.85	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.783	1.74	8.817	3.74	14.850	4.01	20.88	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.817	1.74	8.850	3.74	14.883	4.01	20.92	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.850	1.74	8.883	3.74	14.917	4.01	20.95	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.883	1.74	8.917	3.74	14.950	4.01	20.98	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.917	1.74	8.950	3.74	14.983	4.01	21.02	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.950	1.74	8.983	3.74	15.017	4.01	21.05	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60

2.983	1.74	9.017	3.74	15.050	4.01	21.08	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.017	1.74	9.050	3.74	15.083	4.01	21.12	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.050	1.74	9.083	3.74	15.117	4.01	21.15	1.60
3.067	1.74	9.100	4.28	15.133	4.01	21.17	1.60
3.083	1.74	9.117	4.28	15.150	4.01	21.18	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.117	1.74	9.150	4.28	15.183	4.01	21.22	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.150	1.74	9.183	4.28	15.217	4.01	21.25	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.183	1.74	9.217	4.28	15.250	4.01	21.28	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.217	1.74	9.250	4.28	15.283	4.01	21.32	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.250	1.74	9.283	4.28	15.317	4.01	21.35	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.283	1.74	9.317	4.28	15.350	4.01	21.38	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.317	1.74	9.350	4.28	15.383	4.01	21.42	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.350	1.74	9.383	4.28	15.417	4.01	21.45	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.383	1.74	9.417	4.28	15.450	4.01	21.48	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.417	1.74	9.450	4.28	15.483	4.01	21.52	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.450	1.74	9.483	4.28	15.517	4.01	21.55	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.483	1.74	9.517	4.28	15.550	4.01	21.58	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.517	1.74	9.550	4.28	15.583	4.01	21.62	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.550	1.74	9.583	4.28	15.617	4.01	21.65	1.60
3.567	1.74	9.600	4.81	15.633	4.01	21.67	1.60
3.583	1.74	9.617	4.81	15.650	4.01	21.68	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.617	1.74	9.650	4.81	15.683	4.01	21.72	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.650	1.74	9.683	4.81	15.717	4.01	21.75	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.683	1.74	9.717	4.81	15.750	4.01	21.78	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.717	1.74	9.750	4.81	15.783	4.01	21.82	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.750	1.74	9.783	4.81	15.817	4.01	21.85	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.783	1.74	9.817	4.81	15.850	4.01	21.88	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.817	1.74	9.850	4.81	15.883	4.01	21.92	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.850	1.74	9.883	4.81	15.917	4.01	21.95	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.883	1.74	9.917	4.81	15.950	4.01	21.98	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.917	1.74	9.950	4.81	15.983	4.01	22.02	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.950	1.74	9.983	4.81	16.017	4.01	22.05	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
3.983	1.74	10.017	4.81	16.050	4.01	22.08	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.017	1.74	10.050	4.81	16.083	4.01	22.12	1.60
4.033	1.74	10.067	4.81	16.100	2.41	22.13	1.60

4.050	1.74	10.083	4.81	16.117	2.40	22.15	1.60
4.067	1.74	10.100	6.15	16.133	2.40	22.17	1.60
4.083	1.74	10.117	6.15	16.150	2.40	22.18	1.60
4.100	2.14	10.133	6.15	16.167	2.40	22.20	1.60
4.117	2.14	10.150	6.15	16.183	2.40	22.22	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.150	2.14	10.183	6.15	16.217	2.40	22.25	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.183	2.14	10.217	6.15	16.250	2.40	22.28	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.217	2.14	10.250	6.15	16.283	2.40	22.32	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.250	2.14	10.283	6.15	16.317	2.40	22.35	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.283	2.14	10.317	6.15	16.350	2.40	22.38	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.317	2.14	10.350	6.15	16.383	2.40	22.42	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.350	2.14	10.383	6.15	16.417	2.40	22.45	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.383	2.14	10.417	6.15	16.450	2.40	22.48	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.417	2.14	10.450	6.15	16.483	2.40	22.52	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.450	2.14	10.483	6.15	16.517	2.40	22.55	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.483	2.14	10.517	6.15	16.550	2.40	22.58	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.517	2.14	10.550	6.15	16.583	2.40	22.62	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.550	2.14	10.583	6.15	16.617	2.40	22.65	1.60
4.567	2.14	10.600	8.28	16.633	2.40	22.67	1.60
4.583	2.14	10.617	8.28	16.650	2.40	22.68	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.617	2.14	10.650	8.28	16.683	2.40	22.72	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.650	2.14	10.683	8.28	16.717	2.40	22.75	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.683	2.14	10.717	8.28	16.750	2.40	22.78	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.717	2.14	10.750	8.28	16.783	2.40	22.82	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.750	2.14	10.783	8.28	16.817	2.40	22.85	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.783	2.14	10.817	8.28	16.850	2.40	22.88	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.817	2.14	10.850	8.28	16.883	2.40	22.92	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.850	2.14	10.883	8.28	16.917	2.40	22.95	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.883	2.14	10.917	8.28	16.950	2.40	22.98	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.917	2.14	10.950	8.28	16.983	2.40	23.02	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.950	2.14	10.983	8.28	17.017	2.40	23.05	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
4.983	2.14	11.017	8.28	17.050	2.40	23.08	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.017	2.14	11.050	8.28	17.083	2.40	23.12	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.050	2.14	11.083	8.28	17.117	2.40	23.15	1.60
5.067	2.14	11.100	12.83	17.133	2.40	23.17	1.60
5.083	2.14	11.117	12.83	17.150	2.40	23.18	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60

5.117	2.14	11.150	12.83	17.183	2.40	23.22	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.150	2.14	11.183	12.83	17.217	2.40	23.25	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.183	2.14	11.217	12.83	17.250	2.40	23.28	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.217	2.14	11.250	12.83	17.283	2.40	23.32	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.250	2.14	11.283	12.83	17.317	2.40	23.35	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.283	2.14	11.317	12.83	17.350	2.40	23.38	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.317	2.14	11.350	12.83	17.383	2.40	23.42	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.350	2.14	11.383	12.83	17.417	2.40	23.45	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.383	2.14	11.417	12.83	17.450	2.40	23.48	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.417	2.14	11.450	12.83	17.483	2.40	23.52	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.450	2.14	11.483	12.83	17.517	2.40	23.55	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.483	2.14	11.517	12.83	17.550	2.40	23.58	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.517	2.14	11.550	12.83	17.583	2.40	23.62	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.550	2.14	11.583	12.83	17.617	2.40	23.65	1.60
5.567	2.14	11.600	39.54	17.633	2.40	23.67	1.60
5.583	2.14	11.617	39.55	17.650	2.40	23.68	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.617	2.14	11.650	39.55	17.683	2.40	23.72	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.650	2.14	11.683	39.54	17.717	2.40	23.75	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.683	2.14	11.717	39.55	17.750	2.40	23.78	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.717	2.14	11.750	39.55	17.783	2.40	23.82	1.60
5.733	2.14	11.767	39.54	17.800	2.40	23.83	1.60
5.750	2.14	11.783	39.55	17.817	2.40	23.85	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.783	2.14	11.817	39.55	17.850	2.40	23.88	1.60
5.800	2.14	11.833	39.55	17.867	2.40	23.90	1.60
5.817	2.14	11.850	163.45	17.883	2.40	23.92	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.850	2.14	11.883	163.53	17.917	2.40	23.95	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.883	2.14	11.917	163.53	17.950	2.40	23.98	1.60
5.900	2.14	11.933	163.52	17.967	2.40	24.00	1.60
5.917	2.14	11.950	163.53	17.983	2.40	24.02	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.950	2.14	11.983	163.53	18.017	2.40	24.05	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
5.983	2.14	12.017	163.52	18.050	2.40	24.08	1.60
6.000	2.14	12.033	163.53	18.067	2.40		
6.017	2.14	12.050	163.53	18.083	2.40		
6.033	2.14	12.067	163.53	18.100	2.40		

Unit Hyd Qpeak (cms)= 0.087

PEAK FLOW (cms)= 0.011 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 23.403
TOTAL RAINFALL (mm)= 133.601
RUNOFF COEFFICIENT = 0.175

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0007)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0207):	0.09	0.011	12.08	23.40
	+ ID2= 2 (0301):	6.32	0.253	12.27	16.11
	ID = 3 (0007):	6.41	0.255	12.27	20.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0303)				
ID= 1 DT= 1.0 min	Area (ha)= 0.33	Curve Number (CN)= 25.0		
	Ia (mm)= 10.00	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 0.25			

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	6.050	2.14	12.083	163.53	18.12	2.40
0.033	0.00	6.067	2.14	12.100	19.35	18.13	2.40
0.050	0.00	6.083	2.14	12.117	19.24	18.15	2.40
0.067	0.00	6.100	2.40	12.133	19.24	18.17	2.40
0.083	0.00	6.117	2.40	12.150	19.24	18.18	2.40
0.100	1.47	6.133	2.40	12.167	19.24	18.20	2.40
0.117	1.47	6.150	2.40	12.183	19.24	18.22	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.150	1.47	6.183	2.40	12.217	19.24	18.25	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.183	1.47	6.217	2.40	12.250	19.24	18.28	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.217	1.47	6.250	2.40	12.283	19.24	18.32	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.250	1.47	6.283	2.40	12.317	19.24	18.35	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.283	1.47	6.317	2.40	12.350	19.24	18.38	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.317	1.47	6.350	2.40	12.383	19.24	18.42	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.350	1.47	6.383	2.40	12.417	19.24	18.45	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.383	1.47	6.417	2.40	12.450	19.24	18.48	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.417	1.47	6.450	2.40	12.483	19.24	18.52	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.450	1.47	6.483	2.40	12.517	19.24	18.55	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.483	1.47	6.517	2.40	12.550	19.24	18.58	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.517	1.47	6.550	2.40	12.583	19.24	18.62	2.40
0.533	1.47	6.567	2.40	12.600	9.90	18.63	2.40
0.550	1.47	6.583	2.40	12.617	9.89	18.65	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.583	1.47	6.617	2.40	12.650	9.89	18.68	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40

0.617	1.47	6.650	2.40	12.683	9.89	18.72	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.650	1.47	6.683	2.40	12.717	9.89	18.75	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.683	1.47	6.717	2.40	12.750	9.89	18.78	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.717	1.47	6.750	2.40	12.783	9.89	18.82	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.750	1.47	6.783	2.40	12.817	9.89	18.85	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.783	1.47	6.817	2.40	12.850	9.89	18.88	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.817	1.47	6.850	2.40	12.883	9.89	18.92	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.850	1.47	6.883	2.40	12.917	9.89	18.95	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.883	1.47	6.917	2.40	12.950	9.89	18.98	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.917	1.47	6.950	2.40	12.983	9.89	19.02	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.950	1.47	6.983	2.40	13.017	9.89	19.05	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
0.983	1.47	7.017	2.40	13.050	9.89	19.08	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.017	1.47	7.050	2.40	13.083	9.89	19.12	2.40
1.033	1.47	7.067	2.40	13.100	7.22	19.13	2.40
1.050	1.47	7.083	2.41	13.117	7.21	19.15	2.40
1.067	1.47	7.100	2.94	13.133	7.21	19.17	2.40
1.083	1.47	7.117	2.94	13.150	7.21	19.18	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.117	1.47	7.150	2.94	13.183	7.21	19.22	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.150	1.47	7.183	2.94	13.217	7.21	19.25	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.183	1.47	7.217	2.94	13.250	7.21	19.28	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.217	1.47	7.250	2.94	13.283	7.21	19.32	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.250	1.47	7.283	2.94	13.317	7.21	19.35	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.283	1.47	7.317	2.94	13.350	7.21	19.38	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.317	1.47	7.350	2.94	13.383	7.21	19.42	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.350	1.47	7.383	2.94	13.417	7.21	19.45	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.383	1.47	7.417	2.94	13.450	7.21	19.48	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.417	1.47	7.450	2.94	13.483	7.21	19.52	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.450	1.47	7.483	2.94	13.517	7.21	19.55	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.483	1.47	7.517	2.94	13.550	7.21	19.58	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.517	1.47	7.550	2.94	13.583	7.21	19.62	2.40
1.533	1.47	7.567	2.94	13.600	5.61	19.63	2.40
1.550	1.47	7.583	2.94	13.617	5.61	19.65	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.583	1.47	7.617	2.94	13.650	5.61	19.68	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.617	1.47	7.650	2.94	13.683	5.61	19.72	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.650	1.47	7.683	2.94	13.717	5.61	19.75	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40

1.683	1.47	7.717	2.94	13.750	5.61	19.78	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.717	1.47	7.750	2.94	13.783	5.61	19.82	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.750	1.47	7.783	2.94	13.817	5.61	19.85	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.783	1.47	7.817	2.94	13.850	5.61	19.88	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.817	1.47	7.850	2.94	13.883	5.61	19.92	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.850	1.47	7.883	2.94	13.917	5.61	19.95	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.883	1.47	7.917	2.94	13.950	5.61	19.98	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.917	1.47	7.950	2.94	13.983	5.61	20.02	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.950	1.47	7.983	2.94	14.017	5.61	20.05	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
1.983	1.47	8.017	2.94	14.050	5.61	20.08	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	1.61
2.017	1.47	8.050	2.94	14.083	5.61	20.12	1.60
2.033	1.47	8.067	2.94	14.100	4.01	20.13	1.60
2.050	1.47	8.083	2.94	14.117	4.01	20.15	1.60
2.067	1.47	8.100	3.47	14.133	4.01	20.17	1.60
2.083	1.47	8.117	3.47	14.150	4.01	20.18	1.60
2.100	1.74	8.133	3.47	14.167	4.01	20.20	1.60
2.117	1.74	8.150	3.47	14.183	4.01	20.22	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.150	1.74	8.183	3.47	14.217	4.01	20.25	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.183	1.74	8.217	3.47	14.250	4.01	20.28	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.217	1.74	8.250	3.47	14.283	4.01	20.32	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.250	1.74	8.283	3.47	14.317	4.01	20.35	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.283	1.74	8.317	3.47	14.350	4.01	20.38	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.317	1.74	8.350	3.47	14.383	4.01	20.42	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.350	1.74	8.383	3.47	14.417	4.01	20.45	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.383	1.74	8.417	3.47	14.450	4.01	20.48	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.417	1.74	8.450	3.47	14.483	4.01	20.52	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.450	1.74	8.483	3.47	14.517	4.01	20.55	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.483	1.74	8.517	3.47	14.550	4.01	20.58	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.517	1.74	8.550	3.47	14.583	4.01	20.62	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.550	1.74	8.583	3.47	14.617	4.01	20.65	1.60
2.567	1.74	8.600	3.74	14.633	4.01	20.67	1.60
2.583	1.74	8.617	3.74	14.650	4.01	20.68	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.617	1.74	8.650	3.74	14.683	4.01	20.72	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.650	1.74	8.683	3.74	14.717	4.01	20.75	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.683	1.74	8.717	3.74	14.750	4.01	20.78	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.717	1.74	8.750	3.74	14.783	4.01	20.82	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60

2.750	1.74	8.783	3.74	14.817	4.01	20.85	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.783	1.74	8.817	3.74	14.850	4.01	20.88	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.817	1.74	8.850	3.74	14.883	4.01	20.92	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.850	1.74	8.883	3.74	14.917	4.01	20.95	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.883	1.74	8.917	3.74	14.950	4.01	20.98	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.917	1.74	8.950	3.74	14.983	4.01	21.02	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.950	1.74	8.983	3.74	15.017	4.01	21.05	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
2.983	1.74	9.017	3.74	15.050	4.01	21.08	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.017	1.74	9.050	3.74	15.083	4.01	21.12	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.050	1.74	9.083	3.74	15.117	4.01	21.15	1.60
3.067	1.74	9.100	4.28	15.133	4.01	21.17	1.60
3.083	1.74	9.117	4.28	15.150	4.01	21.18	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.117	1.74	9.150	4.28	15.183	4.01	21.22	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.150	1.74	9.183	4.28	15.217	4.01	21.25	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.183	1.74	9.217	4.28	15.250	4.01	21.28	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.217	1.74	9.250	4.28	15.283	4.01	21.32	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.250	1.74	9.283	4.28	15.317	4.01	21.35	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.283	1.74	9.317	4.28	15.350	4.01	21.38	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.317	1.74	9.350	4.28	15.383	4.01	21.42	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.350	1.74	9.383	4.28	15.417	4.01	21.45	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.383	1.74	9.417	4.28	15.450	4.01	21.48	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.417	1.74	9.450	4.28	15.483	4.01	21.52	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.450	1.74	9.483	4.28	15.517	4.01	21.55	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.483	1.74	9.517	4.28	15.550	4.01	21.58	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.517	1.74	9.550	4.28	15.583	4.01	21.62	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.550	1.74	9.583	4.28	15.617	4.01	21.65	1.60
3.567	1.74	9.600	4.81	15.633	4.01	21.67	1.60
3.583	1.74	9.617	4.81	15.650	4.01	21.68	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.617	1.74	9.650	4.81	15.683	4.01	21.72	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.650	1.74	9.683	4.81	15.717	4.01	21.75	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.683	1.74	9.717	4.81	15.750	4.01	21.78	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.717	1.74	9.750	4.81	15.783	4.01	21.82	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.750	1.74	9.783	4.81	15.817	4.01	21.85	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.783	1.74	9.817	4.81	15.850	4.01	21.88	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60

3.817	1.74	9.850	4.81	15.883	4.01	21.92	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.850	1.74	9.883	4.81	15.917	4.01	21.95	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.883	1.74	9.917	4.81	15.950	4.01	21.98	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.917	1.74	9.950	4.81	15.983	4.01	22.02	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.950	1.74	9.983	4.81	16.017	4.01	22.05	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
3.983	1.74	10.017	4.81	16.050	4.01	22.08	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.017	1.74	10.050	4.81	16.083	4.01	22.12	1.60
4.033	1.74	10.067	4.81	16.100	2.41	22.13	1.60
4.050	1.74	10.083	4.81	16.117	2.40	22.15	1.60
4.067	1.74	10.100	6.15	16.133	2.40	22.17	1.60
4.083	1.74	10.117	6.15	16.150	2.40	22.18	1.60
4.100	2.14	10.133	6.15	16.167	2.40	22.20	1.60
4.117	2.14	10.150	6.15	16.183	2.40	22.22	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.150	2.14	10.183	6.15	16.217	2.40	22.25	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.183	2.14	10.217	6.15	16.250	2.40	22.28	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.217	2.14	10.250	6.15	16.283	2.40	22.32	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.250	2.14	10.283	6.15	16.317	2.40	22.35	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.283	2.14	10.317	6.15	16.350	2.40	22.38	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.317	2.14	10.350	6.15	16.383	2.40	22.42	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.350	2.14	10.383	6.15	16.417	2.40	22.45	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.383	2.14	10.417	6.15	16.450	2.40	22.48	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.417	2.14	10.450	6.15	16.483	2.40	22.52	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.450	2.14	10.483	6.15	16.517	2.40	22.55	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.483	2.14	10.517	6.15	16.550	2.40	22.58	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.517	2.14	10.550	6.15	16.583	2.40	22.62	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.550	2.14	10.583	6.15	16.617	2.40	22.65	1.60
4.567	2.14	10.600	8.28	16.633	2.40	22.67	1.60
4.583	2.14	10.617	8.28	16.650	2.40	22.68	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.617	2.14	10.650	8.28	16.683	2.40	22.72	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.650	2.14	10.683	8.28	16.717	2.40	22.75	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.683	2.14	10.717	8.28	16.750	2.40	22.78	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.717	2.14	10.750	8.28	16.783	2.40	22.82	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.750	2.14	10.783	8.28	16.817	2.40	22.85	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.783	2.14	10.817	8.28	16.850	2.40	22.88	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.817	2.14	10.850	8.28	16.883	2.40	22.92	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.850	2.14	10.883	8.28	16.917	2.40	22.95	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60

4.883	2.14	10.917	8.28	16.950	2.40	22.98	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.917	2.14	10.950	8.28	16.983	2.40	23.02	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.950	2.14	10.983	8.28	17.017	2.40	23.05	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
4.983	2.14	11.017	8.28	17.050	2.40	23.08	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.017	2.14	11.050	8.28	17.083	2.40	23.12	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.050	2.14	11.083	8.28	17.117	2.40	23.15	1.60
5.067	2.14	11.100	12.83	17.133	2.40	23.17	1.60
5.083	2.14	11.117	12.83	17.150	2.40	23.18	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.117	2.14	11.150	12.83	17.183	2.40	23.22	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.150	2.14	11.183	12.83	17.217	2.40	23.25	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.183	2.14	11.217	12.83	17.250	2.40	23.28	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.217	2.14	11.250	12.83	17.283	2.40	23.32	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.250	2.14	11.283	12.83	17.317	2.40	23.35	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.283	2.14	11.317	12.83	17.350	2.40	23.38	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.317	2.14	11.350	12.83	17.383	2.40	23.42	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.350	2.14	11.383	12.83	17.417	2.40	23.45	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.383	2.14	11.417	12.83	17.450	2.40	23.48	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.417	2.14	11.450	12.83	17.483	2.40	23.52	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.450	2.14	11.483	12.83	17.517	2.40	23.55	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.483	2.14	11.517	12.83	17.550	2.40	23.58	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.517	2.14	11.550	12.83	17.583	2.40	23.62	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.550	2.14	11.583	12.83	17.617	2.40	23.65	1.60
5.567	2.14	11.600	39.54	17.633	2.40	23.67	1.60
5.583	2.14	11.617	39.55	17.650	2.40	23.68	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.617	2.14	11.650	39.55	17.683	2.40	23.72	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.650	2.14	11.683	39.54	17.717	2.40	23.75	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.683	2.14	11.717	39.55	17.750	2.40	23.78	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.717	2.14	11.750	39.55	17.783	2.40	23.82	1.60
5.733	2.14	11.767	39.54	17.800	2.40	23.83	1.60
5.750	2.14	11.783	39.55	17.817	2.40	23.85	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.783	2.14	11.817	39.55	17.850	2.40	23.88	1.60
5.800	2.14	11.833	39.55	17.867	2.40	23.90	1.60
5.817	2.14	11.850	163.45	17.883	2.40	23.92	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.850	2.14	11.883	163.53	17.917	2.40	23.95	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.883	2.14	11.917	163.53	17.950	2.40	23.98	1.60
5.900	2.14	11.933	163.52	17.967	2.40	24.00	1.60
5.917	2.14	11.950	163.53	17.983	2.40	24.02	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60

5.950	2.14	11.983	163.53	18.017	2.40	24.05	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
5.983	2.14	12.017	163.52	18.050	2.40	24.08	1.60
6.000	2.14	12.033	163.53	18.067	2.40		
6.017	2.14	12.050	163.53	18.083	2.40		
6.033	2.14	12.067	163.53	18.100	2.40		

Unit Hyd Qpeak (cms)= 0.050

PEAK FLOW (cms)= 0.012 (i)
TIME TO PEAK (hrs)= 12.233
RUNOFF VOLUME (mm)= 13.403
TOTAL RAINFALL (mm)= 133.601
RUNOFF COEFFICIENT = 0.100

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0208) ID= 1 DT= 1.0 min	Area (ha)= 0.03	Curve Number (CN)= 39.0
	Ia (mm)= 5.14	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.04	

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	6.050	2.14	12.083	163.53	18.12	2.40
0.033	0.00	6.067	2.14	12.100	19.35	18.13	2.40
0.050	0.00	6.083	2.14	12.117	19.24	18.15	2.40
0.067	0.00	6.100	2.40	12.133	19.24	18.17	2.40
0.083	0.00	6.117	2.40	12.150	19.24	18.18	2.40
0.100	1.47	6.133	2.40	12.167	19.24	18.20	2.40
0.117	1.47	6.150	2.40	12.183	19.24	18.22	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.150	1.47	6.183	2.40	12.217	19.24	18.25	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.183	1.47	6.217	2.40	12.250	19.24	18.28	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.217	1.47	6.250	2.40	12.283	19.24	18.32	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.250	1.47	6.283	2.40	12.317	19.24	18.35	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.283	1.47	6.317	2.40	12.350	19.24	18.38	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.317	1.47	6.350	2.40	12.383	19.24	18.42	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.350	1.47	6.383	2.40	12.417	19.24	18.45	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.383	1.47	6.417	2.40	12.450	19.24	18.48	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.417	1.47	6.450	2.40	12.483	19.24	18.52	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.450	1.47	6.483	2.40	12.517	19.24	18.55	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.483	1.47	6.517	2.40	12.550	19.24	18.58	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.517	1.47	6.550	2.40	12.583	19.24	18.62	2.40
0.533	1.47	6.567	2.40	12.600	9.90	18.63	2.40
0.550	1.47	6.583	2.40	12.617	9.89	18.65	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40

0.583	1.47	6.617	2.40	12.650	9.89	18.68	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.617	1.47	6.650	2.40	12.683	9.89	18.72	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.650	1.47	6.683	2.40	12.717	9.89	18.75	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.683	1.47	6.717	2.40	12.750	9.89	18.78	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.717	1.47	6.750	2.40	12.783	9.89	18.82	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.750	1.47	6.783	2.40	12.817	9.89	18.85	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.783	1.47	6.817	2.40	12.850	9.89	18.88	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.817	1.47	6.850	2.40	12.883	9.89	18.92	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.850	1.47	6.883	2.40	12.917	9.89	18.95	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.883	1.47	6.917	2.40	12.950	9.89	18.98	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.917	1.47	6.950	2.40	12.983	9.89	19.02	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.950	1.47	6.983	2.40	13.017	9.89	19.05	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
0.983	1.47	7.017	2.40	13.050	9.89	19.08	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.017	1.47	7.050	2.40	13.083	9.89	19.12	2.40
1.033	1.47	7.067	2.40	13.100	7.22	19.13	2.40
1.050	1.47	7.083	2.41	13.117	7.21	19.15	2.40
1.067	1.47	7.100	2.94	13.133	7.21	19.17	2.40
1.083	1.47	7.117	2.94	13.150	7.21	19.18	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.117	1.47	7.150	2.94	13.183	7.21	19.22	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.150	1.47	7.183	2.94	13.217	7.21	19.25	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.183	1.47	7.217	2.94	13.250	7.21	19.28	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.217	1.47	7.250	2.94	13.283	7.21	19.32	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.250	1.47	7.283	2.94	13.317	7.21	19.35	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.283	1.47	7.317	2.94	13.350	7.21	19.38	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.317	1.47	7.350	2.94	13.383	7.21	19.42	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.350	1.47	7.383	2.94	13.417	7.21	19.45	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.383	1.47	7.417	2.94	13.450	7.21	19.48	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.417	1.47	7.450	2.94	13.483	7.21	19.52	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.450	1.47	7.483	2.94	13.517	7.21	19.55	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.483	1.47	7.517	2.94	13.550	7.21	19.58	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.517	1.47	7.550	2.94	13.583	7.21	19.62	2.40
1.533	1.47	7.567	2.94	13.600	5.61	19.63	2.40
1.550	1.47	7.583	2.94	13.617	5.61	19.65	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.583	1.47	7.617	2.94	13.650	5.61	19.68	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.617	1.47	7.650	2.94	13.683	5.61	19.72	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40

1.650	1.47	7.683	2.94	13.717	5.61	19.75	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.683	1.47	7.717	2.94	13.750	5.61	19.78	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.717	1.47	7.750	2.94	13.783	5.61	19.82	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.750	1.47	7.783	2.94	13.817	5.61	19.85	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.783	1.47	7.817	2.94	13.850	5.61	19.88	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.817	1.47	7.850	2.94	13.883	5.61	19.92	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.850	1.47	7.883	2.94	13.917	5.61	19.95	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.883	1.47	7.917	2.94	13.950	5.61	19.98	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.917	1.47	7.950	2.94	13.983	5.61	20.02	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.950	1.47	7.983	2.94	14.017	5.61	20.05	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
1.983	1.47	8.017	2.94	14.050	5.61	20.08	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	1.61
2.017	1.47	8.050	2.94	14.083	5.61	20.12	1.60
2.033	1.47	8.067	2.94	14.100	4.01	20.13	1.60
2.050	1.47	8.083	2.94	14.117	4.01	20.15	1.60
2.067	1.47	8.100	3.47	14.133	4.01	20.17	1.60
2.083	1.47	8.117	3.47	14.150	4.01	20.18	1.60
2.100	1.74	8.133	3.47	14.167	4.01	20.20	1.60
2.117	1.74	8.150	3.47	14.183	4.01	20.22	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.150	1.74	8.183	3.47	14.217	4.01	20.25	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.183	1.74	8.217	3.47	14.250	4.01	20.28	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.217	1.74	8.250	3.47	14.283	4.01	20.32	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.250	1.74	8.283	3.47	14.317	4.01	20.35	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.283	1.74	8.317	3.47	14.350	4.01	20.38	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.317	1.74	8.350	3.47	14.383	4.01	20.42	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.350	1.74	8.383	3.47	14.417	4.01	20.45	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.383	1.74	8.417	3.47	14.450	4.01	20.48	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.417	1.74	8.450	3.47	14.483	4.01	20.52	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.450	1.74	8.483	3.47	14.517	4.01	20.55	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.483	1.74	8.517	3.47	14.550	4.01	20.58	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.517	1.74	8.550	3.47	14.583	4.01	20.62	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.550	1.74	8.583	3.47	14.617	4.01	20.65	1.60
2.567	1.74	8.600	3.74	14.633	4.01	20.67	1.60
2.583	1.74	8.617	3.74	14.650	4.01	20.68	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.617	1.74	8.650	3.74	14.683	4.01	20.72	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.650	1.74	8.683	3.74	14.717	4.01	20.75	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.683	1.74	8.717	3.74	14.750	4.01	20.78	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60

2.717	1.74	8.750	3.74	14.783	4.01	20.82	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.750	1.74	8.783	3.74	14.817	4.01	20.85	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.783	1.74	8.817	3.74	14.850	4.01	20.88	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.817	1.74	8.850	3.74	14.883	4.01	20.92	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.850	1.74	8.883	3.74	14.917	4.01	20.95	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.883	1.74	8.917	3.74	14.950	4.01	20.98	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.917	1.74	8.950	3.74	14.983	4.01	21.02	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.950	1.74	8.983	3.74	15.017	4.01	21.05	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
2.983	1.74	9.017	3.74	15.050	4.01	21.08	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.017	1.74	9.050	3.74	15.083	4.01	21.12	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.050	1.74	9.083	3.74	15.117	4.01	21.15	1.60
3.067	1.74	9.100	4.28	15.133	4.01	21.17	1.60
3.083	1.74	9.117	4.28	15.150	4.01	21.18	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.117	1.74	9.150	4.28	15.183	4.01	21.22	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.150	1.74	9.183	4.28	15.217	4.01	21.25	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.183	1.74	9.217	4.28	15.250	4.01	21.28	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.217	1.74	9.250	4.28	15.283	4.01	21.32	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.250	1.74	9.283	4.28	15.317	4.01	21.35	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.283	1.74	9.317	4.28	15.350	4.01	21.38	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.317	1.74	9.350	4.28	15.383	4.01	21.42	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.350	1.74	9.383	4.28	15.417	4.01	21.45	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.383	1.74	9.417	4.28	15.450	4.01	21.48	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.417	1.74	9.450	4.28	15.483	4.01	21.52	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.450	1.74	9.483	4.28	15.517	4.01	21.55	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.483	1.74	9.517	4.28	15.550	4.01	21.58	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.517	1.74	9.550	4.28	15.583	4.01	21.62	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.550	1.74	9.583	4.28	15.617	4.01	21.65	1.60
3.567	1.74	9.600	4.81	15.633	4.01	21.67	1.60
3.583	1.74	9.617	4.81	15.650	4.01	21.68	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.617	1.74	9.650	4.81	15.683	4.01	21.72	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.650	1.74	9.683	4.81	15.717	4.01	21.75	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.683	1.74	9.717	4.81	15.750	4.01	21.78	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.717	1.74	9.750	4.81	15.783	4.01	21.82	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.750	1.74	9.783	4.81	15.817	4.01	21.85	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60

3.783	1.74	9.817	4.81	15.850	4.01	21.88	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.817	1.74	9.850	4.81	15.883	4.01	21.92	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.850	1.74	9.883	4.81	15.917	4.01	21.95	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.883	1.74	9.917	4.81	15.950	4.01	21.98	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.917	1.74	9.950	4.81	15.983	4.01	22.02	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.950	1.74	9.983	4.81	16.017	4.01	22.05	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
3.983	1.74	10.017	4.81	16.050	4.01	22.08	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.017	1.74	10.050	4.81	16.083	4.01	22.12	1.60
4.033	1.74	10.067	4.81	16.100	2.41	22.13	1.60
4.050	1.74	10.083	4.81	16.117	2.40	22.15	1.60
4.067	1.74	10.100	6.15	16.133	2.40	22.17	1.60
4.083	1.74	10.117	6.15	16.150	2.40	22.18	1.60
4.100	2.14	10.133	6.15	16.167	2.40	22.20	1.60
4.117	2.14	10.150	6.15	16.183	2.40	22.22	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.150	2.14	10.183	6.15	16.217	2.40	22.25	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.183	2.14	10.217	6.15	16.250	2.40	22.28	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.217	2.14	10.250	6.15	16.283	2.40	22.32	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.250	2.14	10.283	6.15	16.317	2.40	22.35	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.283	2.14	10.317	6.15	16.350	2.40	22.38	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.317	2.14	10.350	6.15	16.383	2.40	22.42	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.350	2.14	10.383	6.15	16.417	2.40	22.45	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.383	2.14	10.417	6.15	16.450	2.40	22.48	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.417	2.14	10.450	6.15	16.483	2.40	22.52	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.450	2.14	10.483	6.15	16.517	2.40	22.55	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.483	2.14	10.517	6.15	16.550	2.40	22.58	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.517	2.14	10.550	6.15	16.583	2.40	22.62	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.550	2.14	10.583	6.15	16.617	2.40	22.65	1.60
4.567	2.14	10.600	8.28	16.633	2.40	22.67	1.60
4.583	2.14	10.617	8.28	16.650	2.40	22.68	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.617	2.14	10.650	8.28	16.683	2.40	22.72	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.650	2.14	10.683	8.28	16.717	2.40	22.75	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.683	2.14	10.717	8.28	16.750	2.40	22.78	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.717	2.14	10.750	8.28	16.783	2.40	22.82	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.750	2.14	10.783	8.28	16.817	2.40	22.85	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.783	2.14	10.817	8.28	16.850	2.40	22.88	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.817	2.14	10.850	8.28	16.883	2.40	22.92	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60

4.850	2.14	10.883	8.28	16.917	2.40	22.95	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.883	2.14	10.917	8.28	16.950	2.40	22.98	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.917	2.14	10.950	8.28	16.983	2.40	23.02	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.950	2.14	10.983	8.28	17.017	2.40	23.05	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
4.983	2.14	11.017	8.28	17.050	2.40	23.08	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.017	2.14	11.050	8.28	17.083	2.40	23.12	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.050	2.14	11.083	8.28	17.117	2.40	23.15	1.60
5.067	2.14	11.100	12.83	17.133	2.40	23.17	1.60
5.083	2.14	11.117	12.83	17.150	2.40	23.18	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.117	2.14	11.150	12.83	17.183	2.40	23.22	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.150	2.14	11.183	12.83	17.217	2.40	23.25	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.183	2.14	11.217	12.83	17.250	2.40	23.28	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.217	2.14	11.250	12.83	17.283	2.40	23.32	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.250	2.14	11.283	12.83	17.317	2.40	23.35	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.283	2.14	11.317	12.83	17.350	2.40	23.38	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.317	2.14	11.350	12.83	17.383	2.40	23.42	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.350	2.14	11.383	12.83	17.417	2.40	23.45	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.383	2.14	11.417	12.83	17.450	2.40	23.48	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.417	2.14	11.450	12.83	17.483	2.40	23.52	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.450	2.14	11.483	12.83	17.517	2.40	23.55	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.483	2.14	11.517	12.83	17.550	2.40	23.58	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.517	2.14	11.550	12.83	17.583	2.40	23.62	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.550	2.14	11.583	12.83	17.617	2.40	23.65	1.60
5.567	2.14	11.600	39.54	17.633	2.40	23.67	1.60
5.583	2.14	11.617	39.55	17.650	2.40	23.68	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.617	2.14	11.650	39.55	17.683	2.40	23.72	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.650	2.14	11.683	39.54	17.717	2.40	23.75	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.683	2.14	11.717	39.55	17.750	2.40	23.78	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.717	2.14	11.750	39.55	17.783	2.40	23.82	1.60
5.733	2.14	11.767	39.54	17.800	2.40	23.83	1.60
5.750	2.14	11.783	39.55	17.817	2.40	23.85	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.783	2.14	11.817	39.55	17.850	2.40	23.88	1.60
5.800	2.14	11.833	39.55	17.867	2.40	23.90	1.60
5.817	2.14	11.850	163.45	17.883	2.40	23.92	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.850	2.14	11.883	163.53	17.917	2.40	23.95	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.883	2.14	11.917	163.53	17.950	2.40	23.98	1.60
5.900	2.14	11.933	163.52	17.967	2.40	24.00	1.60

5.917	2.14	11.950	163.53	17.983	2.40	24.02	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.950	2.14	11.983	163.53	18.017	2.40	24.05	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
5.983	2.14	12.017	163.52	18.050	2.40	24.08	1.60
6.000	2.14	12.033	163.53	18.067	2.40		
6.017	2.14	12.050	163.53	18.083	2.40		
6.033	2.14	12.067	163.53	18.100	2.40		

Unit Hyd Qpeak (cms)= 0.024

PEAK FLOW (cms)= 0.003 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 25.230
TOTAL RAINFALL (mm)= 133.601
RUNOFF COEFFICIENT = 0.189

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0008)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0208):	0.03	0.003	12.08	25.23
+ ID2= 2 (0303):	0.33	0.012	12.23	13.40
ID = 3 (0008):	0.36	0.012	12.23	18.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0008)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0008):	0.36	0.012	12.23	18.24
+ ID2= 2 (0007):	6.41	0.255	12.27	20.79
ID = 1 (0008):	6.77	0.267	12.27	20.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0302) | ID= 1 DT= 1.0 min

Area (ha)= 1.68 Curve Number (CN)= 27.0
Ia (mm)= 9.55 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.28

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	6.050	2.14	12.083	163.53	18.12	2.40
0.033	0.00	6.067	2.14	12.100	19.35	18.13	2.40
0.050	0.00	6.083	2.14	12.117	19.24	18.15	2.40
0.067	0.00	6.100	2.40	12.133	19.24	18.17	2.40
0.083	0.00	6.117	2.40	12.150	19.24	18.18	2.40
0.100	1.47	6.133	2.40	12.167	19.24	18.20	2.40
0.117	1.47	6.150	2.40	12.183	19.24	18.22	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40

0.150	1.47	6.183	2.40	12.217	19.24	18.25	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.183	1.47	6.217	2.40	12.250	19.24	18.28	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.217	1.47	6.250	2.40	12.283	19.24	18.32	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.250	1.47	6.283	2.40	12.317	19.24	18.35	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.283	1.47	6.317	2.40	12.350	19.24	18.38	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.317	1.47	6.350	2.40	12.383	19.24	18.42	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.350	1.47	6.383	2.40	12.417	19.24	18.45	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.383	1.47	6.417	2.40	12.450	19.24	18.48	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.417	1.47	6.450	2.40	12.483	19.24	18.52	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.450	1.47	6.483	2.40	12.517	19.24	18.55	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.483	1.47	6.517	2.40	12.550	19.24	18.58	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.517	1.47	6.550	2.40	12.583	19.24	18.62	2.40
0.533	1.47	6.567	2.40	12.600	9.90	18.63	2.40
0.550	1.47	6.583	2.40	12.617	9.89	18.65	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.583	1.47	6.617	2.40	12.650	9.89	18.68	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.617	1.47	6.650	2.40	12.683	9.89	18.72	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.650	1.47	6.683	2.40	12.717	9.89	18.75	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.683	1.47	6.717	2.40	12.750	9.89	18.78	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.717	1.47	6.750	2.40	12.783	9.89	18.82	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.750	1.47	6.783	2.40	12.817	9.89	18.85	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.783	1.47	6.817	2.40	12.850	9.89	18.88	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.817	1.47	6.850	2.40	12.883	9.89	18.92	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.850	1.47	6.883	2.40	12.917	9.89	18.95	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.883	1.47	6.917	2.40	12.950	9.89	18.98	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.917	1.47	6.950	2.40	12.983	9.89	19.02	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.950	1.47	6.983	2.40	13.017	9.89	19.05	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
0.983	1.47	7.017	2.40	13.050	9.89	19.08	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.017	1.47	7.050	2.40	13.083	9.89	19.12	2.40
1.033	1.47	7.067	2.40	13.100	7.22	19.13	2.40
1.050	1.47	7.083	2.41	13.117	7.21	19.15	2.40
1.067	1.47	7.100	2.94	13.133	7.21	19.17	2.40
1.083	1.47	7.117	2.94	13.150	7.21	19.18	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.117	1.47	7.150	2.94	13.183	7.21	19.22	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.150	1.47	7.183	2.94	13.217	7.21	19.25	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.183	1.47	7.217	2.94	13.250	7.21	19.28	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40

1.217	1.47	7.250	2.94	13.283	7.21	19.32	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.250	1.47	7.283	2.94	13.317	7.21	19.35	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.283	1.47	7.317	2.94	13.350	7.21	19.38	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.317	1.47	7.350	2.94	13.383	7.21	19.42	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.350	1.47	7.383	2.94	13.417	7.21	19.45	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.383	1.47	7.417	2.94	13.450	7.21	19.48	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.417	1.47	7.450	2.94	13.483	7.21	19.52	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.450	1.47	7.483	2.94	13.517	7.21	19.55	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.483	1.47	7.517	2.94	13.550	7.21	19.58	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.517	1.47	7.550	2.94	13.583	7.21	19.62	2.40
1.533	1.47	7.567	2.94	13.600	5.61	19.63	2.40
1.550	1.47	7.583	2.94	13.617	5.61	19.65	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.583	1.47	7.617	2.94	13.650	5.61	19.68	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.617	1.47	7.650	2.94	13.683	5.61	19.72	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.650	1.47	7.683	2.94	13.717	5.61	19.75	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.683	1.47	7.717	2.94	13.750	5.61	19.78	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.717	1.47	7.750	2.94	13.783	5.61	19.82	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.750	1.47	7.783	2.94	13.817	5.61	19.85	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.783	1.47	7.817	2.94	13.850	5.61	19.88	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.817	1.47	7.850	2.94	13.883	5.61	19.92	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.850	1.47	7.883	2.94	13.917	5.61	19.95	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.883	1.47	7.917	2.94	13.950	5.61	19.98	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.917	1.47	7.950	2.94	13.983	5.61	20.02	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.950	1.47	7.983	2.94	14.017	5.61	20.05	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
1.983	1.47	8.017	2.94	14.050	5.61	20.08	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	1.61
2.017	1.47	8.050	2.94	14.083	5.61	20.12	1.60
2.033	1.47	8.067	2.94	14.100	4.01	20.13	1.60
2.050	1.47	8.083	2.94	14.117	4.01	20.15	1.60
2.067	1.47	8.100	3.47	14.133	4.01	20.17	1.60
2.083	1.47	8.117	3.47	14.150	4.01	20.18	1.60
2.100	1.74	8.133	3.47	14.167	4.01	20.20	1.60
2.117	1.74	8.150	3.47	14.183	4.01	20.22	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.150	1.74	8.183	3.47	14.217	4.01	20.25	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.183	1.74	8.217	3.47	14.250	4.01	20.28	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.217	1.74	8.250	3.47	14.283	4.01	20.32	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.250	1.74	8.283	3.47	14.317	4.01	20.35	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60

2.283	1.74	8.317	3.47	14.350	4.01	20.38	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.317	1.74	8.350	3.47	14.383	4.01	20.42	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.350	1.74	8.383	3.47	14.417	4.01	20.45	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.383	1.74	8.417	3.47	14.450	4.01	20.48	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.417	1.74	8.450	3.47	14.483	4.01	20.52	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.450	1.74	8.483	3.47	14.517	4.01	20.55	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.483	1.74	8.517	3.47	14.550	4.01	20.58	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.517	1.74	8.550	3.47	14.583	4.01	20.62	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.550	1.74	8.583	3.47	14.617	4.01	20.65	1.60
2.567	1.74	8.600	3.74	14.633	4.01	20.67	1.60
2.583	1.74	8.617	3.74	14.650	4.01	20.68	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.617	1.74	8.650	3.74	14.683	4.01	20.72	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.650	1.74	8.683	3.74	14.717	4.01	20.75	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.683	1.74	8.717	3.74	14.750	4.01	20.78	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.717	1.74	8.750	3.74	14.783	4.01	20.82	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.750	1.74	8.783	3.74	14.817	4.01	20.85	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.783	1.74	8.817	3.74	14.850	4.01	20.88	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.817	1.74	8.850	3.74	14.883	4.01	20.92	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.850	1.74	8.883	3.74	14.917	4.01	20.95	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.883	1.74	8.917	3.74	14.950	4.01	20.98	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.917	1.74	8.950	3.74	14.983	4.01	21.02	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.950	1.74	8.983	3.74	15.017	4.01	21.05	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
2.983	1.74	9.017	3.74	15.050	4.01	21.08	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.017	1.74	9.050	3.74	15.083	4.01	21.12	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.050	1.74	9.083	3.74	15.117	4.01	21.15	1.60
3.067	1.74	9.100	4.28	15.133	4.01	21.17	1.60
3.083	1.74	9.117	4.28	15.150	4.01	21.18	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.117	1.74	9.150	4.28	15.183	4.01	21.22	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.150	1.74	9.183	4.28	15.217	4.01	21.25	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.183	1.74	9.217	4.28	15.250	4.01	21.28	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.217	1.74	9.250	4.28	15.283	4.01	21.32	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.250	1.74	9.283	4.28	15.317	4.01	21.35	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.283	1.74	9.317	4.28	15.350	4.01	21.38	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.317	1.74	9.350	4.28	15.383	4.01	21.42	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60

3.350	1.74	9.383	4.28	15.417	4.01	21.45	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.383	1.74	9.417	4.28	15.450	4.01	21.48	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.417	1.74	9.450	4.28	15.483	4.01	21.52	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.450	1.74	9.483	4.28	15.517	4.01	21.55	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.483	1.74	9.517	4.28	15.550	4.01	21.58	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.517	1.74	9.550	4.28	15.583	4.01	21.62	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.550	1.74	9.583	4.28	15.617	4.01	21.65	1.60
3.567	1.74	9.600	4.81	15.633	4.01	21.67	1.60
3.583	1.74	9.617	4.81	15.650	4.01	21.68	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.617	1.74	9.650	4.81	15.683	4.01	21.72	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.650	1.74	9.683	4.81	15.717	4.01	21.75	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.683	1.74	9.717	4.81	15.750	4.01	21.78	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.717	1.74	9.750	4.81	15.783	4.01	21.82	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.750	1.74	9.783	4.81	15.817	4.01	21.85	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.783	1.74	9.817	4.81	15.850	4.01	21.88	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.817	1.74	9.850	4.81	15.883	4.01	21.92	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.850	1.74	9.883	4.81	15.917	4.01	21.95	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.883	1.74	9.917	4.81	15.950	4.01	21.98	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.917	1.74	9.950	4.81	15.983	4.01	22.02	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.950	1.74	9.983	4.81	16.017	4.01	22.05	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
3.983	1.74	10.017	4.81	16.050	4.01	22.08	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.017	1.74	10.050	4.81	16.083	4.01	22.12	1.60
4.033	1.74	10.067	4.81	16.100	2.41	22.13	1.60
4.050	1.74	10.083	4.81	16.117	2.40	22.15	1.60
4.067	1.74	10.100	6.15	16.133	2.40	22.17	1.60
4.083	1.74	10.117	6.15	16.150	2.40	22.18	1.60
4.100	2.14	10.133	6.15	16.167	2.40	22.20	1.60
4.117	2.14	10.150	6.15	16.183	2.40	22.22	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.150	2.14	10.183	6.15	16.217	2.40	22.25	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.183	2.14	10.217	6.15	16.250	2.40	22.28	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.217	2.14	10.250	6.15	16.283	2.40	22.32	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.250	2.14	10.283	6.15	16.317	2.40	22.35	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.283	2.14	10.317	6.15	16.350	2.40	22.38	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.317	2.14	10.350	6.15	16.383	2.40	22.42	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.350	2.14	10.383	6.15	16.417	2.40	22.45	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.383	2.14	10.417	6.15	16.450	2.40	22.48	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60

4.417	2.14	10.450	6.15	16.483	2.40	22.52	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.450	2.14	10.483	6.15	16.517	2.40	22.55	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.483	2.14	10.517	6.15	16.550	2.40	22.58	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.517	2.14	10.550	6.15	16.583	2.40	22.62	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.550	2.14	10.583	6.15	16.617	2.40	22.65	1.60
4.567	2.14	10.600	8.28	16.633	2.40	22.67	1.60
4.583	2.14	10.617	8.28	16.650	2.40	22.68	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.617	2.14	10.650	8.28	16.683	2.40	22.72	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.650	2.14	10.683	8.28	16.717	2.40	22.75	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.683	2.14	10.717	8.28	16.750	2.40	22.78	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.717	2.14	10.750	8.28	16.783	2.40	22.82	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.750	2.14	10.783	8.28	16.817	2.40	22.85	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.783	2.14	10.817	8.28	16.850	2.40	22.88	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.817	2.14	10.850	8.28	16.883	2.40	22.92	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.850	2.14	10.883	8.28	16.917	2.40	22.95	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.883	2.14	10.917	8.28	16.950	2.40	22.98	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.917	2.14	10.950	8.28	16.983	2.40	23.02	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.950	2.14	10.983	8.28	17.017	2.40	23.05	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
4.983	2.14	11.017	8.28	17.050	2.40	23.08	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.017	2.14	11.050	8.28	17.083	2.40	23.12	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.050	2.14	11.083	8.28	17.117	2.40	23.15	1.60
5.067	2.14	11.100	12.83	17.133	2.40	23.17	1.60
5.083	2.14	11.117	12.83	17.150	2.40	23.18	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.117	2.14	11.150	12.83	17.183	2.40	23.22	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.150	2.14	11.183	12.83	17.217	2.40	23.25	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.183	2.14	11.217	12.83	17.250	2.40	23.28	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.217	2.14	11.250	12.83	17.283	2.40	23.32	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.250	2.14	11.283	12.83	17.317	2.40	23.35	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.283	2.14	11.317	12.83	17.350	2.40	23.38	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.317	2.14	11.350	12.83	17.383	2.40	23.42	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.350	2.14	11.383	12.83	17.417	2.40	23.45	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.383	2.14	11.417	12.83	17.450	2.40	23.48	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.417	2.14	11.450	12.83	17.483	2.40	23.52	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.450	2.14	11.483	12.83	17.517	2.40	23.55	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60

5.483	2.14	11.517	12.83	17.550	2.40	23.58	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.517	2.14	11.550	12.83	17.583	2.40	23.62	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.550	2.14	11.583	12.83	17.617	2.40	23.65	1.60
5.567	2.14	11.600	39.54	17.633	2.40	23.67	1.60
5.583	2.14	11.617	39.55	17.650	2.40	23.68	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.617	2.14	11.650	39.55	17.683	2.40	23.72	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.650	2.14	11.683	39.54	17.717	2.40	23.75	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.683	2.14	11.717	39.55	17.750	2.40	23.78	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.717	2.14	11.750	39.55	17.783	2.40	23.82	1.60
5.733	2.14	11.767	39.54	17.800	2.40	23.83	1.60
5.750	2.14	11.783	39.55	17.817	2.40	23.85	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.783	2.14	11.817	39.55	17.850	2.40	23.88	1.60
5.800	2.14	11.833	39.55	17.867	2.40	23.90	1.60
5.817	2.14	11.850	163.45	17.883	2.40	23.92	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.850	2.14	11.883	163.53	17.917	2.40	23.95	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.883	2.14	11.917	163.53	17.950	2.40	23.98	1.60
5.900	2.14	11.933	163.52	17.967	2.40	24.00	1.60
5.917	2.14	11.950	163.53	17.983	2.40	24.02	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.950	2.14	11.983	163.53	18.017	2.40	24.05	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
5.983	2.14	12.017	163.52	18.050	2.40	24.08	1.60
6.000	2.14	12.033	163.53	18.067	2.40		
6.017	2.14	12.050	163.53	18.083	2.40		
6.033	2.14	12.067	163.53	18.100	2.40		

Unit Hyd Qpeak (cms)= 0.229

PEAK FLOW (cms)= 0.060 (i)
TIME TO PEAK (hrs)= 12.267
RUNOFF VOLUME (mm)= 14.752
TOTAL RAINFALL (mm)= 133.601
RUNOFF COEFFICIENT = 0.110

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB STANDHYD (0202)	Area (ha)= 0.63
ID= 1 DT= 1.0 min	Total Imp(%)= 44.00 Dir. Conn.(%)= 3.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.28	0.35
Dep. Storage	(mm)=	2.00	5.37
Average Slope	(%)=	3.00	3.00
Length	(m)=	64.88	30.00
Mannings n	=	0.013	0.210

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr

0.017	0.00	6.050	2.14	12.083	163.53	18.12	2.40
0.033	0.00	6.067	2.14	12.100	19.35	18.13	2.40
0.050	0.00	6.083	2.14	12.117	19.24	18.15	2.40
0.067	0.00	6.100	2.40	12.133	19.24	18.17	2.40
0.083	0.00	6.117	2.40	12.150	19.24	18.18	2.40
0.100	1.47	6.133	2.40	12.167	19.24	18.20	2.40
0.117	1.47	6.150	2.40	12.183	19.24	18.22	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.150	1.47	6.183	2.40	12.217	19.24	18.25	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.183	1.47	6.217	2.40	12.250	19.24	18.28	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.217	1.47	6.250	2.40	12.283	19.24	18.32	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.250	1.47	6.283	2.40	12.317	19.24	18.35	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.283	1.47	6.317	2.40	12.350	19.24	18.38	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.317	1.47	6.350	2.40	12.383	19.24	18.42	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.350	1.47	6.383	2.40	12.417	19.24	18.45	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.383	1.47	6.417	2.40	12.450	19.24	18.48	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.417	1.47	6.450	2.40	12.483	19.24	18.52	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.450	1.47	6.483	2.40	12.517	19.24	18.55	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.483	1.47	6.517	2.40	12.550	19.24	18.58	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.517	1.47	6.550	2.40	12.583	19.24	18.62	2.40
0.533	1.47	6.567	2.40	12.600	9.90	18.63	2.40
0.550	1.47	6.583	2.40	12.617	9.89	18.65	2.40
0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.583	1.47	6.617	2.40	12.650	9.89	18.68	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.617	1.47	6.650	2.40	12.683	9.89	18.72	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.650	1.47	6.683	2.40	12.717	9.89	18.75	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.683	1.47	6.717	2.40	12.750	9.89	18.78	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.717	1.47	6.750	2.40	12.783	9.89	18.82	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.750	1.47	6.783	2.40	12.817	9.89	18.85	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.783	1.47	6.817	2.40	12.850	9.89	18.88	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.817	1.47	6.850	2.40	12.883	9.89	18.92	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.850	1.47	6.883	2.40	12.917	9.89	18.95	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.883	1.47	6.917	2.40	12.950	9.89	18.98	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.917	1.47	6.950	2.40	12.983	9.89	19.02	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.950	1.47	6.983	2.40	13.017	9.89	19.05	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
0.983	1.47	7.017	2.40	13.050	9.89	19.08	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.017	1.47	7.050	2.40	13.083	9.89	19.12	2.40
1.033	1.47	7.067	2.40	13.100	7.22	19.13	2.40
1.050	1.47	7.083	2.41	13.117	7.21	19.15	2.40
1.067	1.47	7.100	2.94	13.133	7.21	19.17	2.40

1.083	1.47	7.117	2.94	13.150	7.21	19.18	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.117	1.47	7.150	2.94	13.183	7.21	19.22	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.150	1.47	7.183	2.94	13.217	7.21	19.25	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.183	1.47	7.217	2.94	13.250	7.21	19.28	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.217	1.47	7.250	2.94	13.283	7.21	19.32	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.250	1.47	7.283	2.94	13.317	7.21	19.35	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.283	1.47	7.317	2.94	13.350	7.21	19.38	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.317	1.47	7.350	2.94	13.383	7.21	19.42	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.350	1.47	7.383	2.94	13.417	7.21	19.45	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.383	1.47	7.417	2.94	13.450	7.21	19.48	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.417	1.47	7.450	2.94	13.483	7.21	19.52	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.450	1.47	7.483	2.94	13.517	7.21	19.55	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.483	1.47	7.517	2.94	13.550	7.21	19.58	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.517	1.47	7.550	2.94	13.583	7.21	19.62	2.40
1.533	1.47	7.567	2.94	13.600	5.61	19.63	2.40
1.550	1.47	7.583	2.94	13.617	5.61	19.65	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.583	1.47	7.617	2.94	13.650	5.61	19.68	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.617	1.47	7.650	2.94	13.683	5.61	19.72	2.40
1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.650	1.47	7.683	2.94	13.717	5.61	19.75	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.683	1.47	7.717	2.94	13.750	5.61	19.78	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.717	1.47	7.750	2.94	13.783	5.61	19.82	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.750	1.47	7.783	2.94	13.817	5.61	19.85	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.783	1.47	7.817	2.94	13.850	5.61	19.88	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.817	1.47	7.850	2.94	13.883	5.61	19.92	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.850	1.47	7.883	2.94	13.917	5.61	19.95	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.883	1.47	7.917	2.94	13.950	5.61	19.98	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.917	1.47	7.950	2.94	13.983	5.61	20.02	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.950	1.47	7.983	2.94	14.017	5.61	20.05	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
1.983	1.47	8.017	2.94	14.050	5.61	20.08	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	1.61
2.017	1.47	8.050	2.94	14.083	5.61	20.12	1.60
2.033	1.47	8.067	2.94	14.100	4.01	20.13	1.60
2.050	1.47	8.083	2.94	14.117	4.01	20.15	1.60
2.067	1.47	8.100	3.47	14.133	4.01	20.17	1.60
2.083	1.47	8.117	3.47	14.150	4.01	20.18	1.60
2.100	1.74	8.133	3.47	14.167	4.01	20.20	1.60
2.117	1.74	8.150	3.47	14.183	4.01	20.22	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60

2.150	1.74	8.183	3.47	14.217	4.01	20.25	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.183	1.74	8.217	3.47	14.250	4.01	20.28	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.217	1.74	8.250	3.47	14.283	4.01	20.32	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.250	1.74	8.283	3.47	14.317	4.01	20.35	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.283	1.74	8.317	3.47	14.350	4.01	20.38	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.317	1.74	8.350	3.47	14.383	4.01	20.42	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.350	1.74	8.383	3.47	14.417	4.01	20.45	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.383	1.74	8.417	3.47	14.450	4.01	20.48	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.417	1.74	8.450	3.47	14.483	4.01	20.52	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.450	1.74	8.483	3.47	14.517	4.01	20.55	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.483	1.74	8.517	3.47	14.550	4.01	20.58	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.517	1.74	8.550	3.47	14.583	4.01	20.62	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.550	1.74	8.583	3.47	14.617	4.01	20.65	1.60
2.567	1.74	8.600	3.74	14.633	4.01	20.67	1.60
2.583	1.74	8.617	3.74	14.650	4.01	20.68	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.617	1.74	8.650	3.74	14.683	4.01	20.72	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.650	1.74	8.683	3.74	14.717	4.01	20.75	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.683	1.74	8.717	3.74	14.750	4.01	20.78	1.60
2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.717	1.74	8.750	3.74	14.783	4.01	20.82	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.750	1.74	8.783	3.74	14.817	4.01	20.85	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.783	1.74	8.817	3.74	14.850	4.01	20.88	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.817	1.74	8.850	3.74	14.883	4.01	20.92	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.850	1.74	8.883	3.74	14.917	4.01	20.95	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.883	1.74	8.917	3.74	14.950	4.01	20.98	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.917	1.74	8.950	3.74	14.983	4.01	21.02	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.950	1.74	8.983	3.74	15.017	4.01	21.05	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
2.983	1.74	9.017	3.74	15.050	4.01	21.08	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.017	1.74	9.050	3.74	15.083	4.01	21.12	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.050	1.74	9.083	3.74	15.117	4.01	21.15	1.60
3.067	1.74	9.100	4.28	15.133	4.01	21.17	1.60
3.083	1.74	9.117	4.28	15.150	4.01	21.18	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.117	1.74	9.150	4.28	15.183	4.01	21.22	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.150	1.74	9.183	4.28	15.217	4.01	21.25	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.183	1.74	9.217	4.28	15.250	4.01	21.28	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60

3.217	1.74	9.250	4.28	15.283	4.01	21.32	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.250	1.74	9.283	4.28	15.317	4.01	21.35	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.283	1.74	9.317	4.28	15.350	4.01	21.38	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.317	1.74	9.350	4.28	15.383	4.01	21.42	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.350	1.74	9.383	4.28	15.417	4.01	21.45	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.383	1.74	9.417	4.28	15.450	4.01	21.48	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.417	1.74	9.450	4.28	15.483	4.01	21.52	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.450	1.74	9.483	4.28	15.517	4.01	21.55	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.483	1.74	9.517	4.28	15.550	4.01	21.58	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.517	1.74	9.550	4.28	15.583	4.01	21.62	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.550	1.74	9.583	4.28	15.617	4.01	21.65	1.60
3.567	1.74	9.600	4.81	15.633	4.01	21.67	1.60
3.583	1.74	9.617	4.81	15.650	4.01	21.68	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.617	1.74	9.650	4.81	15.683	4.01	21.72	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.650	1.74	9.683	4.81	15.717	4.01	21.75	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.683	1.74	9.717	4.81	15.750	4.01	21.78	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.717	1.74	9.750	4.81	15.783	4.01	21.82	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.750	1.74	9.783	4.81	15.817	4.01	21.85	1.60
3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.783	1.74	9.817	4.81	15.850	4.01	21.88	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.817	1.74	9.850	4.81	15.883	4.01	21.92	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.850	1.74	9.883	4.81	15.917	4.01	21.95	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.883	1.74	9.917	4.81	15.950	4.01	21.98	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.917	1.74	9.950	4.81	15.983	4.01	22.02	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.950	1.74	9.983	4.81	16.017	4.01	22.05	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
3.983	1.74	10.017	4.81	16.050	4.01	22.08	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.017	1.74	10.050	4.81	16.083	4.01	22.12	1.60
4.033	1.74	10.067	4.81	16.100	2.41	22.13	1.60
4.050	1.74	10.083	4.81	16.117	2.40	22.15	1.60
4.067	1.74	10.100	6.15	16.133	2.40	22.17	1.60
4.083	1.74	10.117	6.15	16.150	2.40	22.18	1.60
4.100	2.14	10.133	6.15	16.167	2.40	22.20	1.60
4.117	2.14	10.150	6.15	16.183	2.40	22.22	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.150	2.14	10.183	6.15	16.217	2.40	22.25	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.183	2.14	10.217	6.15	16.250	2.40	22.28	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.217	2.14	10.250	6.15	16.283	2.40	22.32	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.250	2.14	10.283	6.15	16.317	2.40	22.35	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60

4.283	2.14	10.317	6.15	16.350	2.40	22.38	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.317	2.14	10.350	6.15	16.383	2.40	22.42	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.350	2.14	10.383	6.15	16.417	2.40	22.45	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.383	2.14	10.417	6.15	16.450	2.40	22.48	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.417	2.14	10.450	6.15	16.483	2.40	22.52	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.450	2.14	10.483	6.15	16.517	2.40	22.55	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.483	2.14	10.517	6.15	16.550	2.40	22.58	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.517	2.14	10.550	6.15	16.583	2.40	22.62	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.550	2.14	10.583	6.15	16.617	2.40	22.65	1.60
4.567	2.14	10.600	8.28	16.633	2.40	22.67	1.60
4.583	2.14	10.617	8.28	16.650	2.40	22.68	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.617	2.14	10.650	8.28	16.683	2.40	22.72	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.650	2.14	10.683	8.28	16.717	2.40	22.75	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.683	2.14	10.717	8.28	16.750	2.40	22.78	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.717	2.14	10.750	8.28	16.783	2.40	22.82	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.750	2.14	10.783	8.28	16.817	2.40	22.85	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.783	2.14	10.817	8.28	16.850	2.40	22.88	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.817	2.14	10.850	8.28	16.883	2.40	22.92	1.60
4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.850	2.14	10.883	8.28	16.917	2.40	22.95	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.883	2.14	10.917	8.28	16.950	2.40	22.98	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.917	2.14	10.950	8.28	16.983	2.40	23.02	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.950	2.14	10.983	8.28	17.017	2.40	23.05	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
4.983	2.14	11.017	8.28	17.050	2.40	23.08	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.017	2.14	11.050	8.28	17.083	2.40	23.12	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.050	2.14	11.083	8.28	17.117	2.40	23.15	1.60
5.067	2.14	11.100	12.83	17.133	2.40	23.17	1.60
5.083	2.14	11.117	12.83	17.150	2.40	23.18	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.117	2.14	11.150	12.83	17.183	2.40	23.22	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.150	2.14	11.183	12.83	17.217	2.40	23.25	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.183	2.14	11.217	12.83	17.250	2.40	23.28	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.217	2.14	11.250	12.83	17.283	2.40	23.32	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.250	2.14	11.283	12.83	17.317	2.40	23.35	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.283	2.14	11.317	12.83	17.350	2.40	23.38	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.317	2.14	11.350	12.83	17.383	2.40	23.42	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60

5.350	2.14	11.383	12.83	17.417	2.40	23.45	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.383	2.14	11.417	12.83	17.450	2.40	23.48	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.417	2.14	11.450	12.83	17.483	2.40	23.52	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.450	2.14	11.483	12.83	17.517	2.40	23.55	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.483	2.14	11.517	12.83	17.550	2.40	23.58	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.517	2.14	11.550	12.83	17.583	2.40	23.62	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.550	2.14	11.583	12.83	17.617	2.40	23.65	1.60
5.567	2.14	11.600	39.54	17.633	2.40	23.67	1.60
5.583	2.14	11.617	39.55	17.650	2.40	23.68	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.617	2.14	11.650	39.55	17.683	2.40	23.72	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.650	2.14	11.683	39.54	17.717	2.40	23.75	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.683	2.14	11.717	39.55	17.750	2.40	23.78	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.717	2.14	11.750	39.55	17.783	2.40	23.82	1.60
5.733	2.14	11.767	39.54	17.800	2.40	23.83	1.60
5.750	2.14	11.783	39.55	17.817	2.40	23.85	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.783	2.14	11.817	39.55	17.850	2.40	23.88	1.60
5.800	2.14	11.833	39.55	17.867	2.40	23.90	1.60
5.817	2.14	11.850	163.45	17.883	2.40	23.92	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.850	2.14	11.883	163.53	17.917	2.40	23.95	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.883	2.14	11.917	163.53	17.950	2.40	23.98	1.60
5.900	2.14	11.933	163.52	17.967	2.40	24.00	1.60
5.917	2.14	11.950	163.53	17.983	2.40	24.02	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.950	2.14	11.983	163.53	18.017	2.40	24.05	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
5.983	2.14	12.017	163.52	18.050	2.40	24.08	1.60
6.000	2.14	12.033	163.53	18.067	2.40		
6.017	2.14	12.050	163.53	18.083	2.40		
6.033	2.14	12.067	163.53	18.100	2.40		

Max.Eff.Inten.(mm/hr)=	163.53	115.40	
over (min)	5.00	6.00	
Storage Coeff. (min)=	1.16 (ii)	5.64 (ii)	
Unit Hyd. Tpeak (min)=	5.00	6.00	
Unit Hyd. peak (cms)=	0.45	0.20	
			TOTALS
PEAK FLOW (cms)=	0.01	0.10	0.107 (iii)
TIME TO PEAK (hrs)=	12.08	12.10	12.10
RUNOFF VOLUME (mm)=	131.60	46.05	48.62
TOTAL RAINFALL (mm)=	133.60	133.60	133.60
RUNOFF COEFFICIENT =	0.98	0.34	0.36

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 38.0 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.

ADD HYD (0005)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	0.63	0.107	12.10	48.62
+ ID2= 2 (0302):	1.68	0.060	12.27	14.75
ID = 3 (0005):	2.31	0.150	12.12	27.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB STANDHYD (0201)
ID= 1 DT= 1.0 min

Area (ha)= 0.88
Total Imp(%)= 77.00 Dir. Conn.(%)= 51.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.68	0.20
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	0.50	2.00
Length	(m)=	76.61	20.00
Mannings n	=	0.013	0.190

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	6.050	2.14	12.083	163.53	18.12	2.40
0.033	0.00	6.067	2.14	12.100	19.35	18.13	2.40
0.050	0.00	6.083	2.14	12.117	19.24	18.15	2.40
0.067	0.00	6.100	2.40	12.133	19.24	18.17	2.40
0.083	0.00	6.117	2.40	12.150	19.24	18.18	2.40
0.100	1.47	6.133	2.40	12.167	19.24	18.20	2.40
0.117	1.47	6.150	2.40	12.183	19.24	18.22	2.40
0.133	1.47	6.167	2.40	12.200	19.24	18.23	2.40
0.150	1.47	6.183	2.40	12.217	19.24	18.25	2.40
0.167	1.47	6.200	2.40	12.233	19.24	18.27	2.40
0.183	1.47	6.217	2.40	12.250	19.24	18.28	2.40
0.200	1.47	6.233	2.40	12.267	19.24	18.30	2.40
0.217	1.47	6.250	2.40	12.283	19.24	18.32	2.40
0.233	1.47	6.267	2.40	12.300	19.24	18.33	2.40
0.250	1.47	6.283	2.40	12.317	19.24	18.35	2.40
0.267	1.47	6.300	2.40	12.333	19.24	18.37	2.40
0.283	1.47	6.317	2.40	12.350	19.24	18.38	2.40
0.300	1.47	6.333	2.40	12.367	19.24	18.40	2.40
0.317	1.47	6.350	2.40	12.383	19.24	18.42	2.40
0.333	1.47	6.367	2.40	12.400	19.24	18.43	2.40
0.350	1.47	6.383	2.40	12.417	19.24	18.45	2.40
0.367	1.47	6.400	2.40	12.433	19.24	18.47	2.40
0.383	1.47	6.417	2.40	12.450	19.24	18.48	2.40
0.400	1.47	6.433	2.40	12.467	19.24	18.50	2.40
0.417	1.47	6.450	2.40	12.483	19.24	18.52	2.40
0.433	1.47	6.467	2.40	12.500	19.24	18.53	2.40
0.450	1.47	6.483	2.40	12.517	19.24	18.55	2.40
0.467	1.47	6.500	2.40	12.533	19.24	18.57	2.40
0.483	1.47	6.517	2.40	12.550	19.24	18.58	2.40
0.500	1.47	6.533	2.40	12.567	19.24	18.60	2.40
0.517	1.47	6.550	2.40	12.583	19.24	18.62	2.40
0.533	1.47	6.567	2.40	12.600	9.90	18.63	2.40
0.550	1.47	6.583	2.40	12.617	9.89	18.65	2.40

0.567	1.47	6.600	2.40	12.633	9.89	18.67	2.40
0.583	1.47	6.617	2.40	12.650	9.89	18.68	2.40
0.600	1.47	6.633	2.40	12.667	9.89	18.70	2.40
0.617	1.47	6.650	2.40	12.683	9.89	18.72	2.40
0.633	1.47	6.667	2.40	12.700	9.89	18.73	2.40
0.650	1.47	6.683	2.40	12.717	9.89	18.75	2.40
0.667	1.47	6.700	2.40	12.733	9.89	18.77	2.40
0.683	1.47	6.717	2.40	12.750	9.89	18.78	2.40
0.700	1.47	6.733	2.40	12.767	9.89	18.80	2.40
0.717	1.47	6.750	2.40	12.783	9.89	18.82	2.40
0.733	1.47	6.767	2.40	12.800	9.89	18.83	2.40
0.750	1.47	6.783	2.40	12.817	9.89	18.85	2.40
0.767	1.47	6.800	2.40	12.833	9.89	18.87	2.40
0.783	1.47	6.817	2.40	12.850	9.89	18.88	2.40
0.800	1.47	6.833	2.40	12.867	9.89	18.90	2.40
0.817	1.47	6.850	2.40	12.883	9.89	18.92	2.40
0.833	1.47	6.867	2.40	12.900	9.89	18.93	2.40
0.850	1.47	6.883	2.40	12.917	9.89	18.95	2.40
0.867	1.47	6.900	2.40	12.933	9.89	18.97	2.40
0.883	1.47	6.917	2.40	12.950	9.89	18.98	2.40
0.900	1.47	6.933	2.40	12.967	9.89	19.00	2.40
0.917	1.47	6.950	2.40	12.983	9.89	19.02	2.40
0.933	1.47	6.967	2.40	13.000	9.89	19.03	2.40
0.950	1.47	6.983	2.40	13.017	9.89	19.05	2.40
0.967	1.47	7.000	2.40	13.033	9.89	19.07	2.40
0.983	1.47	7.017	2.40	13.050	9.89	19.08	2.40
1.000	1.47	7.033	2.40	13.067	9.89	19.10	2.40
1.017	1.47	7.050	2.40	13.083	9.89	19.12	2.40
1.033	1.47	7.067	2.40	13.100	7.22	19.13	2.40
1.050	1.47	7.083	2.41	13.117	7.21	19.15	2.40
1.067	1.47	7.100	2.94	13.133	7.21	19.17	2.40
1.083	1.47	7.117	2.94	13.150	7.21	19.18	2.40
1.100	1.47	7.133	2.94	13.167	7.21	19.20	2.40
1.117	1.47	7.150	2.94	13.183	7.21	19.22	2.40
1.133	1.47	7.167	2.94	13.200	7.21	19.23	2.40
1.150	1.47	7.183	2.94	13.217	7.21	19.25	2.40
1.167	1.47	7.200	2.94	13.233	7.21	19.27	2.40
1.183	1.47	7.217	2.94	13.250	7.21	19.28	2.40
1.200	1.47	7.233	2.94	13.267	7.21	19.30	2.40
1.217	1.47	7.250	2.94	13.283	7.21	19.32	2.40
1.233	1.47	7.267	2.94	13.300	7.21	19.33	2.40
1.250	1.47	7.283	2.94	13.317	7.21	19.35	2.40
1.267	1.47	7.300	2.94	13.333	7.21	19.37	2.40
1.283	1.47	7.317	2.94	13.350	7.21	19.38	2.40
1.300	1.47	7.333	2.94	13.367	7.21	19.40	2.40
1.317	1.47	7.350	2.94	13.383	7.21	19.42	2.40
1.333	1.47	7.367	2.94	13.400	7.21	19.43	2.40
1.350	1.47	7.383	2.94	13.417	7.21	19.45	2.40
1.367	1.47	7.400	2.94	13.433	7.21	19.47	2.40
1.383	1.47	7.417	2.94	13.450	7.21	19.48	2.40
1.400	1.47	7.433	2.94	13.467	7.21	19.50	2.40
1.417	1.47	7.450	2.94	13.483	7.21	19.52	2.40
1.433	1.47	7.467	2.94	13.500	7.21	19.53	2.40
1.450	1.47	7.483	2.94	13.517	7.21	19.55	2.40
1.467	1.47	7.500	2.94	13.533	7.21	19.57	2.40
1.483	1.47	7.517	2.94	13.550	7.21	19.58	2.40
1.500	1.47	7.533	2.94	13.567	7.21	19.60	2.40
1.517	1.47	7.550	2.94	13.583	7.21	19.62	2.40
1.533	1.47	7.567	2.94	13.600	5.61	19.63	2.40
1.550	1.47	7.583	2.94	13.617	5.61	19.65	2.40
1.567	1.47	7.600	2.94	13.633	5.61	19.67	2.40
1.583	1.47	7.617	2.94	13.650	5.61	19.68	2.40
1.600	1.47	7.633	2.94	13.667	5.61	19.70	2.40
1.617	1.47	7.650	2.94	13.683	5.61	19.72	2.40

1.633	1.47	7.667	2.94	13.700	5.61	19.73	2.40
1.650	1.47	7.683	2.94	13.717	5.61	19.75	2.40
1.667	1.47	7.700	2.94	13.733	5.61	19.77	2.40
1.683	1.47	7.717	2.94	13.750	5.61	19.78	2.40
1.700	1.47	7.733	2.94	13.767	5.61	19.80	2.40
1.717	1.47	7.750	2.94	13.783	5.61	19.82	2.40
1.733	1.47	7.767	2.94	13.800	5.61	19.83	2.40
1.750	1.47	7.783	2.94	13.817	5.61	19.85	2.40
1.767	1.47	7.800	2.94	13.833	5.61	19.87	2.40
1.783	1.47	7.817	2.94	13.850	5.61	19.88	2.40
1.800	1.47	7.833	2.94	13.867	5.61	19.90	2.40
1.817	1.47	7.850	2.94	13.883	5.61	19.92	2.40
1.833	1.47	7.867	2.94	13.900	5.61	19.93	2.40
1.850	1.47	7.883	2.94	13.917	5.61	19.95	2.40
1.867	1.47	7.900	2.94	13.933	5.61	19.97	2.40
1.883	1.47	7.917	2.94	13.950	5.61	19.98	2.40
1.900	1.47	7.933	2.94	13.967	5.61	20.00	2.40
1.917	1.47	7.950	2.94	13.983	5.61	20.02	2.40
1.933	1.47	7.967	2.94	14.000	5.61	20.03	2.40
1.950	1.47	7.983	2.94	14.017	5.61	20.05	2.40
1.967	1.47	8.000	2.94	14.033	5.61	20.07	2.40
1.983	1.47	8.017	2.94	14.050	5.61	20.08	2.40
2.000	1.47	8.033	2.94	14.067	5.61	20.10	1.61
2.017	1.47	8.050	2.94	14.083	5.61	20.12	1.60
2.033	1.47	8.067	2.94	14.100	4.01	20.13	1.60
2.050	1.47	8.083	2.94	14.117	4.01	20.15	1.60
2.067	1.47	8.100	3.47	14.133	4.01	20.17	1.60
2.083	1.47	8.117	3.47	14.150	4.01	20.18	1.60
2.100	1.74	8.133	3.47	14.167	4.01	20.20	1.60
2.117	1.74	8.150	3.47	14.183	4.01	20.22	1.60
2.133	1.74	8.167	3.47	14.200	4.01	20.23	1.60
2.150	1.74	8.183	3.47	14.217	4.01	20.25	1.60
2.167	1.74	8.200	3.47	14.233	4.01	20.27	1.60
2.183	1.74	8.217	3.47	14.250	4.01	20.28	1.60
2.200	1.74	8.233	3.47	14.267	4.01	20.30	1.60
2.217	1.74	8.250	3.47	14.283	4.01	20.32	1.60
2.233	1.74	8.267	3.47	14.300	4.01	20.33	1.60
2.250	1.74	8.283	3.47	14.317	4.01	20.35	1.60
2.267	1.74	8.300	3.47	14.333	4.01	20.37	1.60
2.283	1.74	8.317	3.47	14.350	4.01	20.38	1.60
2.300	1.74	8.333	3.47	14.367	4.01	20.40	1.60
2.317	1.74	8.350	3.47	14.383	4.01	20.42	1.60
2.333	1.74	8.367	3.47	14.400	4.01	20.43	1.60
2.350	1.74	8.383	3.47	14.417	4.01	20.45	1.60
2.367	1.74	8.400	3.47	14.433	4.01	20.47	1.60
2.383	1.74	8.417	3.47	14.450	4.01	20.48	1.60
2.400	1.74	8.433	3.47	14.467	4.01	20.50	1.60
2.417	1.74	8.450	3.47	14.483	4.01	20.52	1.60
2.433	1.74	8.467	3.47	14.500	4.01	20.53	1.60
2.450	1.74	8.483	3.47	14.517	4.01	20.55	1.60
2.467	1.74	8.500	3.47	14.533	4.01	20.57	1.60
2.483	1.74	8.517	3.47	14.550	4.01	20.58	1.60
2.500	1.74	8.533	3.47	14.567	4.01	20.60	1.60
2.517	1.74	8.550	3.47	14.583	4.01	20.62	1.60
2.533	1.74	8.567	3.47	14.600	4.01	20.63	1.60
2.550	1.74	8.583	3.47	14.617	4.01	20.65	1.60
2.567	1.74	8.600	3.74	14.633	4.01	20.67	1.60
2.583	1.74	8.617	3.74	14.650	4.01	20.68	1.60
2.600	1.74	8.633	3.74	14.667	4.01	20.70	1.60
2.617	1.74	8.650	3.74	14.683	4.01	20.72	1.60
2.633	1.74	8.667	3.74	14.700	4.01	20.73	1.60
2.650	1.74	8.683	3.74	14.717	4.01	20.75	1.60
2.667	1.74	8.700	3.74	14.733	4.01	20.77	1.60
2.683	1.74	8.717	3.74	14.750	4.01	20.78	1.60

2.700	1.74	8.733	3.74	14.767	4.01	20.80	1.60
2.717	1.74	8.750	3.74	14.783	4.01	20.82	1.60
2.733	1.74	8.767	3.74	14.800	4.01	20.83	1.60
2.750	1.74	8.783	3.74	14.817	4.01	20.85	1.60
2.767	1.74	8.800	3.74	14.833	4.01	20.87	1.60
2.783	1.74	8.817	3.74	14.850	4.01	20.88	1.60
2.800	1.74	8.833	3.74	14.867	4.01	20.90	1.60
2.817	1.74	8.850	3.74	14.883	4.01	20.92	1.60
2.833	1.74	8.867	3.74	14.900	4.01	20.93	1.60
2.850	1.74	8.883	3.74	14.917	4.01	20.95	1.60
2.867	1.74	8.900	3.74	14.933	4.01	20.97	1.60
2.883	1.74	8.917	3.74	14.950	4.01	20.98	1.60
2.900	1.74	8.933	3.74	14.967	4.01	21.00	1.60
2.917	1.74	8.950	3.74	14.983	4.01	21.02	1.60
2.933	1.74	8.967	3.74	15.000	4.01	21.03	1.60
2.950	1.74	8.983	3.74	15.017	4.01	21.05	1.60
2.967	1.74	9.000	3.74	15.033	4.01	21.07	1.60
2.983	1.74	9.017	3.74	15.050	4.01	21.08	1.60
3.000	1.74	9.033	3.74	15.067	4.01	21.10	1.60
3.017	1.74	9.050	3.74	15.083	4.01	21.12	1.60
3.033	1.74	9.067	3.74	15.100	4.01	21.13	1.60
3.050	1.74	9.083	3.74	15.117	4.01	21.15	1.60
3.067	1.74	9.100	4.28	15.133	4.01	21.17	1.60
3.083	1.74	9.117	4.28	15.150	4.01	21.18	1.60
3.100	1.74	9.133	4.28	15.167	4.01	21.20	1.60
3.117	1.74	9.150	4.28	15.183	4.01	21.22	1.60
3.133	1.74	9.167	4.28	15.200	4.01	21.23	1.60
3.150	1.74	9.183	4.28	15.217	4.01	21.25	1.60
3.167	1.74	9.200	4.28	15.233	4.01	21.27	1.60
3.183	1.74	9.217	4.28	15.250	4.01	21.28	1.60
3.200	1.74	9.233	4.28	15.267	4.01	21.30	1.60
3.217	1.74	9.250	4.28	15.283	4.01	21.32	1.60
3.233	1.74	9.267	4.28	15.300	4.01	21.33	1.60
3.250	1.74	9.283	4.28	15.317	4.01	21.35	1.60
3.267	1.74	9.300	4.28	15.333	4.01	21.37	1.60
3.283	1.74	9.317	4.28	15.350	4.01	21.38	1.60
3.300	1.74	9.333	4.28	15.367	4.01	21.40	1.60
3.317	1.74	9.350	4.28	15.383	4.01	21.42	1.60
3.333	1.74	9.367	4.28	15.400	4.01	21.43	1.60
3.350	1.74	9.383	4.28	15.417	4.01	21.45	1.60
3.367	1.74	9.400	4.28	15.433	4.01	21.47	1.60
3.383	1.74	9.417	4.28	15.450	4.01	21.48	1.60
3.400	1.74	9.433	4.28	15.467	4.01	21.50	1.60
3.417	1.74	9.450	4.28	15.483	4.01	21.52	1.60
3.433	1.74	9.467	4.28	15.500	4.01	21.53	1.60
3.450	1.74	9.483	4.28	15.517	4.01	21.55	1.60
3.467	1.74	9.500	4.28	15.533	4.01	21.57	1.60
3.483	1.74	9.517	4.28	15.550	4.01	21.58	1.60
3.500	1.74	9.533	4.28	15.567	4.01	21.60	1.60
3.517	1.74	9.550	4.28	15.583	4.01	21.62	1.60
3.533	1.74	9.567	4.28	15.600	4.01	21.63	1.60
3.550	1.74	9.583	4.28	15.617	4.01	21.65	1.60
3.567	1.74	9.600	4.81	15.633	4.01	21.67	1.60
3.583	1.74	9.617	4.81	15.650	4.01	21.68	1.60
3.600	1.74	9.633	4.81	15.667	4.01	21.70	1.60
3.617	1.74	9.650	4.81	15.683	4.01	21.72	1.60
3.633	1.74	9.667	4.81	15.700	4.01	21.73	1.60
3.650	1.74	9.683	4.81	15.717	4.01	21.75	1.60
3.667	1.74	9.700	4.81	15.733	4.01	21.77	1.60
3.683	1.74	9.717	4.81	15.750	4.01	21.78	1.60
3.700	1.74	9.733	4.81	15.767	4.01	21.80	1.60
3.717	1.74	9.750	4.81	15.783	4.01	21.82	1.60
3.733	1.74	9.767	4.81	15.800	4.01	21.83	1.60
3.750	1.74	9.783	4.81	15.817	4.01	21.85	1.60

3.767	1.74	9.800	4.81	15.833	4.01	21.87	1.60
3.783	1.74	9.817	4.81	15.850	4.01	21.88	1.60
3.800	1.74	9.833	4.81	15.867	4.01	21.90	1.60
3.817	1.74	9.850	4.81	15.883	4.01	21.92	1.60
3.833	1.74	9.867	4.81	15.900	4.01	21.93	1.60
3.850	1.74	9.883	4.81	15.917	4.01	21.95	1.60
3.867	1.74	9.900	4.81	15.933	4.01	21.97	1.60
3.883	1.74	9.917	4.81	15.950	4.01	21.98	1.60
3.900	1.74	9.933	4.81	15.967	4.01	22.00	1.60
3.917	1.74	9.950	4.81	15.983	4.01	22.02	1.60
3.933	1.74	9.967	4.81	16.000	4.01	22.03	1.60
3.950	1.74	9.983	4.81	16.017	4.01	22.05	1.60
3.967	1.74	10.000	4.81	16.033	4.01	22.07	1.60
3.983	1.74	10.017	4.81	16.050	4.01	22.08	1.60
4.000	1.74	10.033	4.81	16.067	4.01	22.10	1.60
4.017	1.74	10.050	4.81	16.083	4.01	22.12	1.60
4.033	1.74	10.067	4.81	16.100	2.41	22.13	1.60
4.050	1.74	10.083	4.81	16.117	2.40	22.15	1.60
4.067	1.74	10.100	6.15	16.133	2.40	22.17	1.60
4.083	1.74	10.117	6.15	16.150	2.40	22.18	1.60
4.100	2.14	10.133	6.15	16.167	2.40	22.20	1.60
4.117	2.14	10.150	6.15	16.183	2.40	22.22	1.60
4.133	2.14	10.167	6.15	16.200	2.40	22.23	1.60
4.150	2.14	10.183	6.15	16.217	2.40	22.25	1.60
4.167	2.14	10.200	6.15	16.233	2.40	22.27	1.60
4.183	2.14	10.217	6.15	16.250	2.40	22.28	1.60
4.200	2.14	10.233	6.15	16.267	2.40	22.30	1.60
4.217	2.14	10.250	6.15	16.283	2.40	22.32	1.60
4.233	2.14	10.267	6.15	16.300	2.40	22.33	1.60
4.250	2.14	10.283	6.15	16.317	2.40	22.35	1.60
4.267	2.14	10.300	6.15	16.333	2.40	22.37	1.60
4.283	2.14	10.317	6.15	16.350	2.40	22.38	1.60
4.300	2.14	10.333	6.15	16.367	2.40	22.40	1.60
4.317	2.14	10.350	6.15	16.383	2.40	22.42	1.60
4.333	2.14	10.367	6.15	16.400	2.40	22.43	1.60
4.350	2.14	10.383	6.15	16.417	2.40	22.45	1.60
4.367	2.14	10.400	6.15	16.433	2.40	22.47	1.60
4.383	2.14	10.417	6.15	16.450	2.40	22.48	1.60
4.400	2.14	10.433	6.15	16.467	2.40	22.50	1.60
4.417	2.14	10.450	6.15	16.483	2.40	22.52	1.60
4.433	2.14	10.467	6.15	16.500	2.40	22.53	1.60
4.450	2.14	10.483	6.15	16.517	2.40	22.55	1.60
4.467	2.14	10.500	6.15	16.533	2.40	22.57	1.60
4.483	2.14	10.517	6.15	16.550	2.40	22.58	1.60
4.500	2.14	10.533	6.15	16.567	2.40	22.60	1.60
4.517	2.14	10.550	6.15	16.583	2.40	22.62	1.60
4.533	2.14	10.567	6.15	16.600	2.40	22.63	1.60
4.550	2.14	10.583	6.15	16.617	2.40	22.65	1.60
4.567	2.14	10.600	8.28	16.633	2.40	22.67	1.60
4.583	2.14	10.617	8.28	16.650	2.40	22.68	1.60
4.600	2.14	10.633	8.28	16.667	2.40	22.70	1.60
4.617	2.14	10.650	8.28	16.683	2.40	22.72	1.60
4.633	2.14	10.667	8.28	16.700	2.40	22.73	1.60
4.650	2.14	10.683	8.28	16.717	2.40	22.75	1.60
4.667	2.14	10.700	8.28	16.733	2.40	22.77	1.60
4.683	2.14	10.717	8.28	16.750	2.40	22.78	1.60
4.700	2.14	10.733	8.28	16.767	2.40	22.80	1.60
4.717	2.14	10.750	8.28	16.783	2.40	22.82	1.60
4.733	2.14	10.767	8.28	16.800	2.40	22.83	1.60
4.750	2.14	10.783	8.28	16.817	2.40	22.85	1.60
4.767	2.14	10.800	8.28	16.833	2.40	22.87	1.60
4.783	2.14	10.817	8.28	16.850	2.40	22.88	1.60
4.800	2.14	10.833	8.28	16.867	2.40	22.90	1.60
4.817	2.14	10.850	8.28	16.883	2.40	22.92	1.60

4.833	2.14	10.867	8.28	16.900	2.40	22.93	1.60
4.850	2.14	10.883	8.28	16.917	2.40	22.95	1.60
4.867	2.14	10.900	8.28	16.933	2.40	22.97	1.60
4.883	2.14	10.917	8.28	16.950	2.40	22.98	1.60
4.900	2.14	10.933	8.28	16.967	2.40	23.00	1.60
4.917	2.14	10.950	8.28	16.983	2.40	23.02	1.60
4.933	2.14	10.967	8.28	17.000	2.40	23.03	1.60
4.950	2.14	10.983	8.28	17.017	2.40	23.05	1.60
4.967	2.14	11.000	8.28	17.033	2.40	23.07	1.60
4.983	2.14	11.017	8.28	17.050	2.40	23.08	1.60
5.000	2.14	11.033	8.28	17.067	2.40	23.10	1.60
5.017	2.14	11.050	8.28	17.083	2.40	23.12	1.60
5.033	2.14	11.067	8.28	17.100	2.40	23.13	1.60
5.050	2.14	11.083	8.28	17.117	2.40	23.15	1.60
5.067	2.14	11.100	12.83	17.133	2.40	23.17	1.60
5.083	2.14	11.117	12.83	17.150	2.40	23.18	1.60
5.100	2.14	11.133	12.83	17.167	2.40	23.20	1.60
5.117	2.14	11.150	12.83	17.183	2.40	23.22	1.60
5.133	2.14	11.167	12.83	17.200	2.40	23.23	1.60
5.150	2.14	11.183	12.83	17.217	2.40	23.25	1.60
5.167	2.14	11.200	12.83	17.233	2.40	23.27	1.60
5.183	2.14	11.217	12.83	17.250	2.40	23.28	1.60
5.200	2.14	11.233	12.83	17.267	2.40	23.30	1.60
5.217	2.14	11.250	12.83	17.283	2.40	23.32	1.60
5.233	2.14	11.267	12.83	17.300	2.40	23.33	1.60
5.250	2.14	11.283	12.83	17.317	2.40	23.35	1.60
5.267	2.14	11.300	12.83	17.333	2.40	23.37	1.60
5.283	2.14	11.317	12.83	17.350	2.40	23.38	1.60
5.300	2.14	11.333	12.83	17.367	2.40	23.40	1.60
5.317	2.14	11.350	12.83	17.383	2.40	23.42	1.60
5.333	2.14	11.367	12.83	17.400	2.40	23.43	1.60
5.350	2.14	11.383	12.83	17.417	2.40	23.45	1.60
5.367	2.14	11.400	12.83	17.433	2.40	23.47	1.60
5.383	2.14	11.417	12.83	17.450	2.40	23.48	1.60
5.400	2.14	11.433	12.83	17.467	2.40	23.50	1.60
5.417	2.14	11.450	12.83	17.483	2.40	23.52	1.60
5.433	2.14	11.467	12.83	17.500	2.40	23.53	1.60
5.450	2.14	11.483	12.83	17.517	2.40	23.55	1.60
5.467	2.14	11.500	12.83	17.533	2.40	23.57	1.60
5.483	2.14	11.517	12.83	17.550	2.40	23.58	1.60
5.500	2.14	11.533	12.83	17.567	2.40	23.60	1.60
5.517	2.14	11.550	12.83	17.583	2.40	23.62	1.60
5.533	2.14	11.567	12.83	17.600	2.40	23.63	1.60
5.550	2.14	11.583	12.83	17.617	2.40	23.65	1.60
5.567	2.14	11.600	39.54	17.633	2.40	23.67	1.60
5.583	2.14	11.617	39.55	17.650	2.40	23.68	1.60
5.600	2.14	11.633	39.55	17.667	2.40	23.70	1.60
5.617	2.14	11.650	39.55	17.683	2.40	23.72	1.60
5.633	2.14	11.667	39.55	17.700	2.40	23.73	1.60
5.650	2.14	11.683	39.54	17.717	2.40	23.75	1.60
5.667	2.14	11.700	39.55	17.733	2.40	23.77	1.60
5.683	2.14	11.717	39.55	17.750	2.40	23.78	1.60
5.700	2.14	11.733	39.55	17.767	2.40	23.80	1.60
5.717	2.14	11.750	39.55	17.783	2.40	23.82	1.60
5.733	2.14	11.767	39.54	17.800	2.40	23.83	1.60
5.750	2.14	11.783	39.55	17.817	2.40	23.85	1.60
5.767	2.14	11.800	39.55	17.833	2.40	23.87	1.60
5.783	2.14	11.817	39.55	17.850	2.40	23.88	1.60
5.800	2.14	11.833	39.55	17.867	2.40	23.90	1.60
5.817	2.14	11.850	163.45	17.883	2.40	23.92	1.60
5.833	2.14	11.867	163.53	17.900	2.40	23.93	1.60
5.850	2.14	11.883	163.53	17.917	2.40	23.95	1.60
5.867	2.14	11.900	163.53	17.933	2.40	23.97	1.60
5.883	2.14	11.917	163.53	17.950	2.40	23.98	1.60

5.900	2.14	11.933	163.52	17.967	2.40	24.00	1.60
5.917	2.14	11.950	163.53	17.983	2.40	24.02	1.60
5.933	2.14	11.967	163.53	18.000	2.40	24.03	1.60
5.950	2.14	11.983	163.53	18.017	2.40	24.05	1.60
5.967	2.14	12.000	163.53	18.033	2.40	24.07	1.60
5.983	2.14	12.017	163.52	18.050	2.40	24.08	1.60
6.000	2.14	12.033	163.53	18.067	2.40		
6.017	2.14	12.050	163.53	18.083	2.40		
6.033	2.14	12.067	163.53	18.100	2.40		

Max.Eff.Inten.(mm/hr)=	163.53	167.39	
over (min)	5.00	5.00	
Storage Coeff. (min)=	2.20 (ii)	4.56 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.36	0.24	
			TOTALS
PEAK FLOW (cms)=	0.20	0.09	0.290 (iii)
TIME TO PEAK (hrs)=	12.08	12.10	12.08
RUNOFF VOLUME (mm)=	131.58	54.22	93.68
TOTAL RAINFALL (mm)=	133.60	133.60	133.60
RUNOFF COEFFICIENT =	0.98	0.41	0.70

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 39.0 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.

CHAMBER(0010)	OUTFLOW: OFF, UNDERDRAIN: ON, INFIL: ON
IN= 2--> OUT= 3	CHAMBER:
DT= 2.0 min	MAX STO VOL (cu.m.)= 128.13 Bottom Area(m2) = 100.66

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1092.00	72.59
25.00	1.02	1118.00	74.39
51.00	2.04	1143.00	76.17
76.00	3.07	1168.00	77.95
102.00	4.09	1194.00	79.70
127.00	5.11	1219.00	81.45
152.00	6.13	1245.00	83.17
178.00	7.16	1270.00	84.88
203.00	8.18	1295.00	86.58
229.00	9.20	1321.00	88.25
254.00	10.22	1346.00	89.91
279.00	11.25	1372.00	91.55
305.00	12.27	1397.00	93.17
330.00	14.31	1422.00	94.77
356.00	16.34	1448.00	96.35
381.00	18.37	1473.00	97.90
406.00	20.39	1499.00	99.43
432.00	22.41	1524.00	100.93
457.00	24.43	1549.00	102.40
483.00	26.44	1575.00	103.85
508.00	28.45	1600.00	105.26
533.00	30.45	1626.00	106.63
559.00	32.44	1651.00	107.96
584.00	34.43	1676.00	109.24
610.00	36.42	1702.00	110.44
635.00	38.40	1727.00	111.57
660.00	40.37	1753.00	112.67

686.00	42.33	|	1778.00	113.76
711.00	44.29	|	1803.00	114.82
737.00	46.24	|	1829.00	115.86
762.00	48.18	|	1854.00	116.88
787.00	50.12	|	1880.00	117.91
813.00	52.05	|	1905.00	118.93
838.00	53.96	|	1930.00	119.95
864.00	55.87	|	1956.00	120.97
889.00	57.77	|	1981.00	122.00
914.00	59.66	|	2007.00	123.02
940.00	61.54	|	2032.00	124.04
965.00	63.41	|	2057.00	125.06
991.00	65.27	|	2083.00	126.09
1016.00	67.12	|	2108.00	127.11
1041.00	68.95	|	2134.00	128.13
1067.00	70.78	|	0.00	0.00

UNDERDRAIN LAYER:

DEPTH (m)	DISCHARGE (cms)	|	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	|	0.206	0.146
0.019	0.001	|	0.225	0.167
0.038	0.005	|	0.244	0.188
0.056	0.012	|	0.262	0.208
0.075	0.022	|	0.281	0.226
0.094	0.034	|	0.300	0.242
0.112	0.049	|	0.319	0.256
0.131	0.066	|	0.337	0.264
0.150	0.084	|	0.356	0.266
0.169	0.104	|	0.375	0.248
0.188	0.125	|	0.000	0.000

NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0380

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	0.88	0.290	12.08	93.68
UNDERDRAIN:ID= 4	0.78	0.265	12.02	72.09
OVERFLOW:ID= 3	0.10	0.235	12.10	72.09

Volume Reduction Rate[(RVin-RVout)/RVin](%)=	23.04
Time to reach Max storage (Hr)=	12.08
Volume of water for drawdown in LID (cu.m.)=	102.73
Volume of maximum water storage (cu.m.)=	125.32
Calculated Drawdown Time (Hr)=	26.85

Junction Command(0012)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 4(0010)	0.10	0.24	12.10	72.09
OUTFLOW: ID= 2(0012)	0.10	0.24	12.10	72.09

ADD HYD (0009) | 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	0.10	0.235	12.10	72.09

```
      + ID2= 2 (  0005):     2.31   0.150    12.12    27.08
        ==========================================================
        ID = 3 (  0009):     2.41   0.383    12.10    28.96

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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 FINISH
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output        filename:    C:\Users\mgallant\AppData\Local\Civica\VH5\6bb8133b-
c3b7-49cd-875d-ed11cb8c976b\69c8b182-9488-48f3-a825-a86d65f981c9\sce
  Summary      filename:     C:\Users\mgallant\AppData\Local\Civica\VH5\6bb8133b-
c3b7-49cd-875d-ed11cb8c976b\69c8b182-9488-48f3-a825-a86d65f981c9\sce


DATE: 08-11-2022                              TIME: 02:32:46

USER:



COMMENTS: _____________________________________________________________


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  ************************************************
  ** SIMULATION : Post-Dev-PF, Channel Hazel AM **
  ************************************************



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|    READ STORM    |    Filename: C:\Users\mgallant\AppD
|                  |              ata\Local\Temp\
|                  |              4855bc2c-b78e-4b19-a094-4b1b6534621c\c4cd6a53
| Ptotal=212.00 mm |    Comments: Hazel
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  4.00   13.00 |  8.00   13.00 | 12.00   13.00
                1.00    6.00 |  5.00   17.00 |  9.00   13.00 |
                2.00    4.00 |  6.00   13.00 | 10.00   53.00 |
                3.00    6.00 |  7.00   23.00 | 11.00   38.00 |

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| CALIB              |
| NASHYD   (  0301)|   Area    (ha)=   6.32   Curve Number   (CN)= 48.0
|ID= 1 DT= 1.0 min |   Ia      (mm)=   9.42   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.27
```

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	3.267	6.00	6.517	13.00	9.77	13.00
0.033	0.00	3.283	6.00	6.533	13.00	9.78	13.00
0.050	0.00	3.300	6.00	6.550	13.00	9.80	13.00
0.067	0.00	3.317	6.00	6.567	13.00	9.82	13.00
0.083	0.00	3.333	6.00	6.583	13.00	9.83	13.00
0.100	0.00	3.350	6.00	6.600	13.00	9.85	13.00
0.117	0.00	3.367	6.00	6.617	13.00	9.87	13.00
0.133	0.00	3.383	6.00	6.633	13.00	9.88	13.00
0.150	0.00	3.400	6.00	6.650	13.00	9.90	13.00
0.167	0.00	3.417	6.00	6.667	13.00	9.92	13.00
0.183	0.00	3.433	6.00	6.683	13.00	9.93	13.00
0.200	0.00	3.450	6.00	6.700	13.00	9.95	13.00
0.217	0.00	3.467	6.00	6.717	13.00	9.97	13.00
0.233	0.00	3.483	6.00	6.733	13.00	9.98	13.00
0.250	0.00	3.500	6.00	6.750	13.00	10.00	13.05
0.267	0.00	3.517	6.00	6.767	13.00	10.02	53.00
0.283	0.00	3.533	6.00	6.783	13.00	10.03	53.00
0.300	0.00	3.550	6.00	6.800	13.00	10.05	53.00
0.317	0.00	3.567	6.00	6.817	13.00	10.07	53.00
0.333	0.00	3.583	6.00	6.833	13.00	10.08	53.00
0.350	0.00	3.600	6.00	6.850	13.00	10.10	53.00
0.367	0.00	3.617	6.00	6.867	13.00	10.12	53.00
0.383	0.00	3.633	6.00	6.883	13.00	10.13	53.00
0.400	0.00	3.650	6.00	6.900	13.00	10.15	53.00
0.417	0.00	3.667	6.00	6.917	13.00	10.17	53.00
0.433	0.00	3.683	6.00	6.933	13.00	10.18	53.00
0.450	0.00	3.700	6.00	6.950	13.00	10.20	53.00
0.467	0.00	3.717	6.00	6.967	13.00	10.22	53.00
0.483	0.00	3.733	6.00	6.983	13.00	10.23	53.00
0.500	0.00	3.750	6.00	7.000	13.02	10.25	53.00
0.517	0.00	3.767	6.00	7.017	23.00	10.27	53.00
0.533	0.00	3.783	6.00	7.033	23.00	10.28	53.00
0.550	0.00	3.800	6.00	7.050	23.00	10.30	53.00
0.567	0.00	3.817	6.00	7.067	23.00	10.32	53.00
0.583	0.00	3.833	6.00	7.083	23.00	10.33	53.00
0.600	0.00	3.850	6.00	7.100	23.00	10.35	53.00
0.617	0.00	3.867	6.00	7.117	23.00	10.37	53.00
0.633	0.00	3.883	6.00	7.133	23.00	10.38	53.00
0.650	0.00	3.900	6.00	7.150	23.00	10.40	53.00
0.667	0.00	3.917	6.00	7.167	23.00	10.42	53.00
0.683	0.00	3.933	6.00	7.183	23.00	10.43	53.00
0.700	0.00	3.950	6.00	7.200	23.00	10.45	53.00
0.717	0.00	3.967	6.00	7.217	23.00	10.47	53.00
0.733	0.00	3.983	6.00	7.233	23.00	10.48	53.00
0.750	0.00	4.000	6.00	7.250	23.00	10.50	53.00
0.767	0.00	4.017	13.00	7.267	23.00	10.52	53.00
0.783	0.00	4.033	13.00	7.283	23.00	10.53	53.00
0.800	0.00	4.050	13.00	7.300	23.00	10.55	53.00
0.817	0.00	4.067	13.00	7.317	23.00	10.57	53.00
0.833	0.00	4.083	13.00	7.333	23.00	10.58	53.00
0.850	0.00	4.100	13.00	7.350	23.00	10.60	53.00
0.867	0.00	4.117	13.00	7.367	23.00	10.62	53.00
0.883	0.00	4.133	13.00	7.383	23.00	10.63	53.00
0.900	0.00	4.150	13.00	7.400	23.00	10.65	53.00
0.917	0.00	4.167	13.00	7.417	23.00	10.67	53.00
0.933	0.00	4.183	13.00	7.433	23.00	10.68	53.00
0.950	0.00	4.200	13.00	7.450	23.00	10.70	53.00

0.967	0.00	4.217	13.00	7.467	23.00	10.72	53.00
0.983	0.00	4.233	13.00	7.483	23.00	10.73	53.00
1.000	0.00	4.250	13.00	7.500	23.00	10.75	53.00
1.017	6.00	4.267	13.00	7.517	23.00	10.77	53.00
1.033	6.00	4.283	13.00	7.533	23.00	10.78	53.00
1.050	6.00	4.300	13.00	7.550	23.00	10.80	53.00
1.067	6.00	4.317	13.00	7.567	23.00	10.82	53.00
1.083	6.00	4.333	13.00	7.583	23.00	10.83	53.00
1.100	6.00	4.350	13.00	7.600	23.00	10.85	53.00
1.117	6.00	4.367	13.00	7.617	23.00	10.87	53.00
1.133	6.00	4.383	13.00	7.633	23.00	10.88	53.00
1.150	6.00	4.400	13.00	7.650	23.00	10.90	53.00
1.167	6.00	4.417	13.00	7.667	23.00	10.92	53.00
1.183	6.00	4.433	13.00	7.683	23.00	10.93	53.00
1.200	6.00	4.450	13.00	7.700	23.00	10.95	53.00
1.217	6.00	4.467	13.00	7.717	23.00	10.97	53.00
1.233	6.00	4.483	13.00	7.733	23.00	10.98	53.00
1.250	6.00	4.500	13.00	7.750	23.00	11.00	53.00
1.267	6.00	4.517	13.00	7.767	23.00	11.02	38.00
1.283	6.00	4.533	13.00	7.783	23.00	11.03	38.00
1.300	6.00	4.550	13.00	7.800	23.00	11.05	38.00
1.317	6.00	4.567	13.00	7.817	23.00	11.07	38.00
1.333	6.00	4.583	13.00	7.833	23.00	11.08	38.00
1.350	6.00	4.600	13.00	7.850	23.00	11.10	38.00
1.367	6.00	4.617	13.00	7.867	23.00	11.12	38.00
1.383	6.00	4.633	13.00	7.883	23.00	11.13	38.00
1.400	6.00	4.650	13.00	7.900	23.00	11.15	38.00
1.417	6.00	4.667	13.00	7.917	23.00	11.17	38.00
1.433	6.00	4.683	13.00	7.933	23.00	11.18	38.00
1.450	6.00	4.700	13.00	7.950	23.00	11.20	38.00
1.467	6.00	4.717	13.00	7.967	23.00	11.22	38.00
1.483	6.00	4.733	13.00	7.983	23.00	11.23	38.00
1.500	6.00	4.750	13.00	8.000	22.97	11.25	38.00
1.517	6.00	4.767	13.00	8.017	13.00	11.27	38.00
1.533	6.00	4.783	13.00	8.033	13.00	11.28	38.00
1.550	6.00	4.800	13.00	8.050	13.00	11.30	38.00
1.567	6.00	4.817	13.00	8.067	13.00	11.32	38.00
1.583	6.00	4.833	13.00	8.083	13.00	11.33	38.00
1.600	6.00	4.850	13.00	8.100	13.00	11.35	38.00
1.617	6.00	4.867	13.00	8.117	13.00	11.37	38.00
1.633	6.00	4.883	13.00	8.133	13.00	11.38	38.00
1.650	6.00	4.900	13.00	8.150	13.00	11.40	38.00
1.667	6.00	4.917	13.00	8.167	13.00	11.42	38.00
1.683	6.00	4.933	13.00	8.183	13.00	11.43	38.00
1.700	6.00	4.950	13.00	8.200	13.00	11.45	38.00
1.717	6.00	4.967	13.00	8.217	13.00	11.47	38.00
1.733	6.00	4.983	13.00	8.233	13.00	11.48	38.00
1.750	6.00	5.000	13.00	8.250	13.00	11.50	38.00
1.767	6.00	5.017	17.00	8.267	13.00	11.52	38.00
1.783	6.00	5.033	17.00	8.283	13.00	11.53	38.00
1.800	6.00	5.050	17.00	8.300	13.00	11.55	38.00
1.817	6.00	5.067	17.00	8.317	13.00	11.57	38.00
1.833	6.00	5.083	17.00	8.333	13.00	11.58	38.00
1.850	6.00	5.100	17.00	8.350	13.00	11.60	38.00
1.867	6.00	5.117	17.00	8.367	13.00	11.62	38.00
1.883	6.00	5.133	17.00	8.383	13.00	11.63	38.00
1.900	6.00	5.150	17.00	8.400	13.00	11.65	38.00
1.917	6.00	5.167	17.00	8.417	13.00	11.67	38.00
1.933	6.00	5.183	17.00	8.433	13.00	11.68	38.00
1.950	6.00	5.200	17.00	8.450	13.00	11.70	38.00
1.967	6.00	5.217	17.00	8.467	13.00	11.72	38.00
1.983	6.00	5.233	17.00	8.483	13.00	11.73	38.00
2.000	6.00	5.250	17.00	8.500	13.00	11.75	38.00
2.017	4.00	5.267	17.00	8.517	13.00	11.77	38.00

2.033	4.00	5.283	17.00	8.533	13.00	11.78	38.00
2.050	4.00	5.300	17.00	8.550	13.00	11.80	38.00
2.067	4.00	5.317	17.00	8.567	13.00	11.82	38.00
2.083	4.00	5.333	17.00	8.583	13.00	11.83	38.00
2.100	4.00	5.350	17.00	8.600	13.00	11.85	38.00
2.117	4.00	5.367	17.00	8.617	13.00	11.87	38.00
2.133	4.00	5.383	17.00	8.633	13.00	11.88	38.00
2.150	4.00	5.400	17.00	8.650	13.00	11.90	38.00
2.167	4.00	5.417	17.00	8.667	13.00	11.92	38.00
2.183	4.00	5.433	17.00	8.683	13.00	11.93	38.00
2.200	4.00	5.450	17.00	8.700	13.00	11.95	38.00
2.217	4.00	5.467	17.00	8.717	13.00	11.97	38.00
2.233	4.00	5.483	17.00	8.733	13.00	11.98	38.00
2.250	4.00	5.500	17.00	8.750	13.00	12.00	38.00
2.267	4.00	5.517	17.00	8.767	13.00	12.02	13.02
2.283	4.00	5.533	17.00	8.783	13.00	12.03	13.00
2.300	4.00	5.550	17.00	8.800	13.00	12.05	13.00
2.317	4.00	5.567	17.00	8.817	13.00	12.07	13.00
2.333	4.00	5.583	17.00	8.833	13.00	12.08	13.00
2.350	4.00	5.600	17.00	8.850	13.00	12.10	13.00
2.367	4.00	5.617	17.00	8.867	13.00	12.12	13.00
2.383	4.00	5.633	17.00	8.883	13.00	12.13	13.00
2.400	4.00	5.650	17.00	8.900	13.00	12.15	13.00
2.417	4.00	5.667	17.00	8.917	13.00	12.17	13.00
2.433	4.00	5.683	17.00	8.933	13.00	12.18	13.00
2.450	4.00	5.700	17.00	8.950	13.00	12.20	13.00
2.467	4.00	5.717	17.00	8.967	13.00	12.22	13.00
2.483	4.00	5.733	17.00	8.983	13.00	12.23	13.00
2.500	4.00	5.750	17.00	9.000	13.00	12.25	13.00
2.517	4.00	5.767	17.00	9.017	13.00	12.27	13.00
2.533	4.00	5.783	17.00	9.033	13.00	12.28	13.00
2.550	4.00	5.800	17.00	9.050	13.00	12.30	13.00
2.567	4.00	5.817	17.00	9.067	13.00	12.32	13.00
2.583	4.00	5.833	17.00	9.083	13.00	12.33	13.00
2.600	4.00	5.850	17.00	9.100	13.00	12.35	13.00
2.617	4.00	5.867	17.00	9.117	13.00	12.37	13.00
2.633	4.00	5.883	17.00	9.133	13.00	12.38	13.00
2.650	4.00	5.900	17.00	9.150	13.00	12.40	13.00
2.667	4.00	5.917	17.00	9.167	13.00	12.42	13.00
2.683	4.00	5.933	17.00	9.183	13.00	12.43	13.00
2.700	4.00	5.950	17.00	9.200	13.00	12.45	13.00
2.717	4.00	5.967	17.00	9.217	13.00	12.47	13.00
2.733	4.00	5.983	17.00	9.233	13.00	12.48	13.00
2.750	4.00	6.000	16.99	9.250	13.00	12.50	13.00
2.767	4.00	6.017	13.00	9.267	13.00	12.52	13.00
2.783	4.00	6.033	13.00	9.283	13.00	12.53	13.00
2.800	4.00	6.050	13.00	9.300	13.00	12.55	13.00
2.817	4.00	6.067	13.00	9.317	13.00	12.57	13.00
2.833	4.00	6.083	13.00	9.333	13.00	12.58	13.00
2.850	4.00	6.100	13.00	9.350	13.00	12.60	13.00
2.867	4.00	6.117	13.00	9.367	13.00	12.62	13.00
2.883	4.00	6.133	13.00	9.383	13.00	12.63	13.00
2.900	4.00	6.150	13.00	9.400	13.00	12.65	13.00
2.917	4.00	6.167	13.00	9.417	13.00	12.67	13.00
2.933	4.00	6.183	13.00	9.433	13.00	12.68	13.00
2.950	4.00	6.200	13.00	9.450	13.00	12.70	13.00
2.967	4.00	6.217	13.00	9.467	13.00	12.72	13.00
2.983	4.00	6.233	13.00	9.483	13.00	12.73	13.00
3.000	4.00	6.250	13.00	9.500	13.00	12.75	13.00
3.017	6.00	6.267	13.00	9.517	13.00	12.77	13.00
3.033	6.00	6.283	13.00	9.533	13.00	12.78	13.00
3.050	6.00	6.300	13.00	9.550	13.00	12.80	13.00
3.067	6.00	6.317	13.00	9.567	13.00	12.82	13.00
3.083	6.00	6.333	13.00	9.583	13.00	12.83	13.00

3.100	6.00	6.350	13.00	9.600	13.00	12.85	13.00
3.117	6.00	6.367	13.00	9.617	13.00	12.87	13.00
3.133	6.00	6.383	13.00	9.633	13.00	12.88	13.00
3.150	6.00	6.400	13.00	9.650	13.00	12.90	13.00
3.167	6.00	6.417	13.00	9.667	13.00	12.92	13.00
3.183	6.00	6.433	13.00	9.683	13.00	12.93	13.00
3.200	6.00	6.450	13.00	9.700	13.00	12.95	13.00
3.217	6.00	6.467	13.00	9.717	13.00	12.97	13.00
3.233	6.00	6.483	13.00	9.733	13.00	12.98	13.00
3.250	6.00	6.500	13.00	9.750	13.00	13.00	13.00

Unit Hyd Qpeak (cms)= 0.894

PEAK FLOW (cms)= 0.502 (i)
TIME TO PEAK (hrs)= 11.083
RUNOFF VOLUME (mm)= 85.901
TOTAL RAINFALL (mm)= 212.001
RUNOFF COEFFICIENT = 0.405

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0207)	Area (ha)=	0.09	Curve Number (CN)=	57.0	
ID= 1 DT= 1.0 min	Ia (mm)=	5.68	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.04			

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	3.267	6.00	6.517	13.00	9.77	13.00
0.033	0.00	3.283	6.00	6.533	13.00	9.78	13.00
0.050	0.00	3.300	6.00	6.550	13.00	9.80	13.00
0.067	0.00	3.317	6.00	6.567	13.00	9.82	13.00
0.083	0.00	3.333	6.00	6.583	13.00	9.83	13.00
0.100	0.00	3.350	6.00	6.600	13.00	9.85	13.00
0.117	0.00	3.367	6.00	6.617	13.00	9.87	13.00
0.133	0.00	3.383	6.00	6.633	13.00	9.88	13.00
0.150	0.00	3.400	6.00	6.650	13.00	9.90	13.00
0.167	0.00	3.417	6.00	6.667	13.00	9.92	13.00
0.183	0.00	3.433	6.00	6.683	13.00	9.93	13.00
0.200	0.00	3.450	6.00	6.700	13.00	9.95	13.00
0.217	0.00	3.467	6.00	6.717	13.00	9.97	13.00
0.233	0.00	3.483	6.00	6.733	13.00	9.98	13.00
0.250	0.00	3.500	6.00	6.750	13.00	10.00	13.05
0.267	0.00	3.517	6.00	6.767	13.00	10.02	53.00
0.283	0.00	3.533	6.00	6.783	13.00	10.03	53.00
0.300	0.00	3.550	6.00	6.800	13.00	10.05	53.00
0.317	0.00	3.567	6.00	6.817	13.00	10.07	53.00
0.333	0.00	3.583	6.00	6.833	13.00	10.08	53.00
0.350	0.00	3.600	6.00	6.850	13.00	10.10	53.00
0.367	0.00	3.617	6.00	6.867	13.00	10.12	53.00
0.383	0.00	3.633	6.00	6.883	13.00	10.13	53.00
0.400	0.00	3.650	6.00	6.900	13.00	10.15	53.00
0.417	0.00	3.667	6.00	6.917	13.00	10.17	53.00
0.433	0.00	3.683	6.00	6.933	13.00	10.18	53.00
0.450	0.00	3.700	6.00	6.950	13.00	10.20	53.00
0.467	0.00	3.717	6.00	6.967	13.00	10.22	53.00
0.483	0.00	3.733	6.00	6.983	13.00	10.23	53.00
0.500	0.00	3.750	6.00	7.000	13.02	10.25	53.00

0.517	0.00	3.767	6.00	7.017	23.00	10.27	53.00
0.533	0.00	3.783	6.00	7.033	23.00	10.28	53.00
0.550	0.00	3.800	6.00	7.050	23.00	10.30	53.00
0.567	0.00	3.817	6.00	7.067	23.00	10.32	53.00
0.583	0.00	3.833	6.00	7.083	23.00	10.33	53.00
0.600	0.00	3.850	6.00	7.100	23.00	10.35	53.00
0.617	0.00	3.867	6.00	7.117	23.00	10.37	53.00
0.633	0.00	3.883	6.00	7.133	23.00	10.38	53.00
0.650	0.00	3.900	6.00	7.150	23.00	10.40	53.00
0.667	0.00	3.917	6.00	7.167	23.00	10.42	53.00
0.683	0.00	3.933	6.00	7.183	23.00	10.43	53.00
0.700	0.00	3.950	6.00	7.200	23.00	10.45	53.00
0.717	0.00	3.967	6.00	7.217	23.00	10.47	53.00
0.733	0.00	3.983	6.00	7.233	23.00	10.48	53.00
0.750	0.00	4.000	6.00	7.250	23.00	10.50	53.00
0.767	0.00	4.017	13.00	7.267	23.00	10.52	53.00
0.783	0.00	4.033	13.00	7.283	23.00	10.53	53.00
0.800	0.00	4.050	13.00	7.300	23.00	10.55	53.00
0.817	0.00	4.067	13.00	7.317	23.00	10.57	53.00
0.833	0.00	4.083	13.00	7.333	23.00	10.58	53.00
0.850	0.00	4.100	13.00	7.350	23.00	10.60	53.00
0.867	0.00	4.117	13.00	7.367	23.00	10.62	53.00
0.883	0.00	4.133	13.00	7.383	23.00	10.63	53.00
0.900	0.00	4.150	13.00	7.400	23.00	10.65	53.00
0.917	0.00	4.167	13.00	7.417	23.00	10.67	53.00
0.933	0.00	4.183	13.00	7.433	23.00	10.68	53.00
0.950	0.00	4.200	13.00	7.450	23.00	10.70	53.00
0.967	0.00	4.217	13.00	7.467	23.00	10.72	53.00
0.983	0.00	4.233	13.00	7.483	23.00	10.73	53.00
1.000	0.00	4.250	13.00	7.500	23.00	10.75	53.00
1.017	6.00	4.267	13.00	7.517	23.00	10.77	53.00
1.033	6.00	4.283	13.00	7.533	23.00	10.78	53.00
1.050	6.00	4.300	13.00	7.550	23.00	10.80	53.00
1.067	6.00	4.317	13.00	7.567	23.00	10.82	53.00
1.083	6.00	4.333	13.00	7.583	23.00	10.83	53.00
1.100	6.00	4.350	13.00	7.600	23.00	10.85	53.00
1.117	6.00	4.367	13.00	7.617	23.00	10.87	53.00
1.133	6.00	4.383	13.00	7.633	23.00	10.88	53.00
1.150	6.00	4.400	13.00	7.650	23.00	10.90	53.00
1.167	6.00	4.417	13.00	7.667	23.00	10.92	53.00
1.183	6.00	4.433	13.00	7.683	23.00	10.93	53.00
1.200	6.00	4.450	13.00	7.700	23.00	10.95	53.00
1.217	6.00	4.467	13.00	7.717	23.00	10.97	53.00
1.233	6.00	4.483	13.00	7.733	23.00	10.98	53.00
1.250	6.00	4.500	13.00	7.750	23.00	11.00	53.00
1.267	6.00	4.517	13.00	7.767	23.00	11.02	38.00
1.283	6.00	4.533	13.00	7.783	23.00	11.03	38.00
1.300	6.00	4.550	13.00	7.800	23.00	11.05	38.00
1.317	6.00	4.567	13.00	7.817	23.00	11.07	38.00
1.333	6.00	4.583	13.00	7.833	23.00	11.08	38.00
1.350	6.00	4.600	13.00	7.850	23.00	11.10	38.00
1.367	6.00	4.617	13.00	7.867	23.00	11.12	38.00
1.383	6.00	4.633	13.00	7.883	23.00	11.13	38.00
1.400	6.00	4.650	13.00	7.900	23.00	11.15	38.00
1.417	6.00	4.667	13.00	7.917	23.00	11.17	38.00
1.433	6.00	4.683	13.00	7.933	23.00	11.18	38.00
1.450	6.00	4.700	13.00	7.950	23.00	11.20	38.00
1.467	6.00	4.717	13.00	7.967	23.00	11.22	38.00
1.483	6.00	4.733	13.00	7.983	23.00	11.23	38.00
1.500	6.00	4.750	13.00	8.000	22.97	11.25	38.00
1.517	6.00	4.767	13.00	8.017	13.00	11.27	38.00
1.533	6.00	4.783	13.00	8.033	13.00	11.28	38.00
1.550	6.00	4.800	13.00	8.050	13.00	11.30	38.00
1.567	6.00	4.817	13.00	8.067	13.00	11.32	38.00

1.583	6.00	4.833	13.00	8.083	13.00	11.33	38.00
1.600	6.00	4.850	13.00	8.100	13.00	11.35	38.00
1.617	6.00	4.867	13.00	8.117	13.00	11.37	38.00
1.633	6.00	4.883	13.00	8.133	13.00	11.38	38.00
1.650	6.00	4.900	13.00	8.150	13.00	11.40	38.00
1.667	6.00	4.917	13.00	8.167	13.00	11.42	38.00
1.683	6.00	4.933	13.00	8.183	13.00	11.43	38.00
1.700	6.00	4.950	13.00	8.200	13.00	11.45	38.00
1.717	6.00	4.967	13.00	8.217	13.00	11.47	38.00
1.733	6.00	4.983	13.00	8.233	13.00	11.48	38.00
1.750	6.00	5.000	13.00	8.250	13.00	11.50	38.00
1.767	6.00	5.017	17.00	8.267	13.00	11.52	38.00
1.783	6.00	5.033	17.00	8.283	13.00	11.53	38.00
1.800	6.00	5.050	17.00	8.300	13.00	11.55	38.00
1.817	6.00	5.067	17.00	8.317	13.00	11.57	38.00
1.833	6.00	5.083	17.00	8.333	13.00	11.58	38.00
1.850	6.00	5.100	17.00	8.350	13.00	11.60	38.00
1.867	6.00	5.117	17.00	8.367	13.00	11.62	38.00
1.883	6.00	5.133	17.00	8.383	13.00	11.63	38.00
1.900	6.00	5.150	17.00	8.400	13.00	11.65	38.00
1.917	6.00	5.167	17.00	8.417	13.00	11.67	38.00
1.933	6.00	5.183	17.00	8.433	13.00	11.68	38.00
1.950	6.00	5.200	17.00	8.450	13.00	11.70	38.00
1.967	6.00	5.217	17.00	8.467	13.00	11.72	38.00
1.983	6.00	5.233	17.00	8.483	13.00	11.73	38.00
2.000	6.00	5.250	17.00	8.500	13.00	11.75	38.00
2.017	4.00	5.267	17.00	8.517	13.00	11.77	38.00
2.033	4.00	5.283	17.00	8.533	13.00	11.78	38.00
2.050	4.00	5.300	17.00	8.550	13.00	11.80	38.00
2.067	4.00	5.317	17.00	8.567	13.00	11.82	38.00
2.083	4.00	5.333	17.00	8.583	13.00	11.83	38.00
2.100	4.00	5.350	17.00	8.600	13.00	11.85	38.00
2.117	4.00	5.367	17.00	8.617	13.00	11.87	38.00
2.133	4.00	5.383	17.00	8.633	13.00	11.88	38.00
2.150	4.00	5.400	17.00	8.650	13.00	11.90	38.00
2.167	4.00	5.417	17.00	8.667	13.00	11.92	38.00
2.183	4.00	5.433	17.00	8.683	13.00	11.93	38.00
2.200	4.00	5.450	17.00	8.700	13.00	11.95	38.00
2.217	4.00	5.467	17.00	8.717	13.00	11.97	38.00
2.233	4.00	5.483	17.00	8.733	13.00	11.98	38.00
2.250	4.00	5.500	17.00	8.750	13.00	12.00	38.00
2.267	4.00	5.517	17.00	8.767	13.00	12.02	13.02
2.283	4.00	5.533	17.00	8.783	13.00	12.03	13.00
2.300	4.00	5.550	17.00	8.800	13.00	12.05	13.00
2.317	4.00	5.567	17.00	8.817	13.00	12.07	13.00
2.333	4.00	5.583	17.00	8.833	13.00	12.08	13.00
2.350	4.00	5.600	17.00	8.850	13.00	12.10	13.00
2.367	4.00	5.617	17.00	8.867	13.00	12.12	13.00
2.383	4.00	5.633	17.00	8.883	13.00	12.13	13.00
2.400	4.00	5.650	17.00	8.900	13.00	12.15	13.00
2.417	4.00	5.667	17.00	8.917	13.00	12.17	13.00
2.433	4.00	5.683	17.00	8.933	13.00	12.18	13.00
2.450	4.00	5.700	17.00	8.950	13.00	12.20	13.00
2.467	4.00	5.717	17.00	8.967	13.00	12.22	13.00
2.483	4.00	5.733	17.00	8.983	13.00	12.23	13.00
2.500	4.00	5.750	17.00	9.000	13.00	12.25	13.00
2.517	4.00	5.767	17.00	9.017	13.00	12.27	13.00
2.533	4.00	5.783	17.00	9.033	13.00	12.28	13.00
2.550	4.00	5.800	17.00	9.050	13.00	12.30	13.00
2.567	4.00	5.817	17.00	9.067	13.00	12.32	13.00
2.583	4.00	5.833	17.00	9.083	13.00	12.33	13.00
2.600	4.00	5.850	17.00	9.100	13.00	12.35	13.00
2.617	4.00	5.867	17.00	9.117	13.00	12.37	13.00
2.633	4.00	5.883	17.00	9.133	13.00	12.38	13.00

2.650	4.00	5.900	17.00	9.150	13.00	12.40	13.00
2.667	4.00	5.917	17.00	9.167	13.00	12.42	13.00
2.683	4.00	5.933	17.00	9.183	13.00	12.43	13.00
2.700	4.00	5.950	17.00	9.200	13.00	12.45	13.00
2.717	4.00	5.967	17.00	9.217	13.00	12.47	13.00
2.733	4.00	5.983	17.00	9.233	13.00	12.48	13.00
2.750	4.00	6.000	16.99	9.250	13.00	12.50	13.00
2.767	4.00	6.017	13.00	9.267	13.00	12.52	13.00
2.783	4.00	6.033	13.00	9.283	13.00	12.53	13.00
2.800	4.00	6.050	13.00	9.300	13.00	12.55	13.00
2.817	4.00	6.067	13.00	9.317	13.00	12.57	13.00
2.833	4.00	6.083	13.00	9.333	13.00	12.58	13.00
2.850	4.00	6.100	13.00	9.350	13.00	12.60	13.00
2.867	4.00	6.117	13.00	9.367	13.00	12.62	13.00
2.883	4.00	6.133	13.00	9.383	13.00	12.63	13.00
2.900	4.00	6.150	13.00	9.400	13.00	12.65	13.00
2.917	4.00	6.167	13.00	9.417	13.00	12.67	13.00
2.933	4.00	6.183	13.00	9.433	13.00	12.68	13.00
2.950	4.00	6.200	13.00	9.450	13.00	12.70	13.00
2.967	4.00	6.217	13.00	9.467	13.00	12.72	13.00
2.983	4.00	6.233	13.00	9.483	13.00	12.73	13.00
3.000	4.00	6.250	13.00	9.500	13.00	12.75	13.00
3.017	6.00	6.267	13.00	9.517	13.00	12.77	13.00
3.033	6.00	6.283	13.00	9.533	13.00	12.78	13.00
3.050	6.00	6.300	13.00	9.550	13.00	12.80	13.00
3.067	6.00	6.317	13.00	9.567	13.00	12.82	13.00
3.083	6.00	6.333	13.00	9.583	13.00	12.83	13.00
3.100	6.00	6.350	13.00	9.600	13.00	12.85	13.00
3.117	6.00	6.367	13.00	9.617	13.00	12.87	13.00
3.133	6.00	6.383	13.00	9.633	13.00	12.88	13.00
3.150	6.00	6.400	13.00	9.650	13.00	12.90	13.00
3.167	6.00	6.417	13.00	9.667	13.00	12.92	13.00
3.183	6.00	6.433	13.00	9.683	13.00	12.93	13.00
3.200	6.00	6.450	13.00	9.700	13.00	12.95	13.00
3.217	6.00	6.467	13.00	9.717	13.00	12.97	13.00
3.233	6.00	6.483	13.00	9.733	13.00	12.98	13.00
3.250	6.00	6.500	13.00	9.750	13.00	13.00	13.00

Unit Hyd Qpeak (cms)= 0.087

PEAK FLOW (cms)= 0.009 (i)
TIME TO PEAK (hrs)= 11.000
RUNOFF VOLUME (mm)= 106.768
TOTAL RAINFALL (mm)= 212.001
RUNOFF COEFFICIENT = 0.504

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0007)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0207):	0.09	0.009	11.00	106.77
	+ ID2= 2 (0301):	6.32	0.502	11.08	85.90
	ID = 3 (0007):	6.41	0.509	11.07	86.20

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0303)	Area (ha)= 0.33	Curve Number (CN)= 43.0

|ID= 1 DT= 1.0 min | Ia (mm)= 10.00 # of Linear Res.(N)= 3.00
--- U.H. Tp(hrs)= 0.25

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	3.267	6.00	6.517	13.00	9.77	13.00
0.033	0.00	3.283	6.00	6.533	13.00	9.78	13.00
0.050	0.00	3.300	6.00	6.550	13.00	9.80	13.00
0.067	0.00	3.317	6.00	6.567	13.00	9.82	13.00
0.083	0.00	3.333	6.00	6.583	13.00	9.83	13.00
0.100	0.00	3.350	6.00	6.600	13.00	9.85	13.00
0.117	0.00	3.367	6.00	6.617	13.00	9.87	13.00
0.133	0.00	3.383	6.00	6.633	13.00	9.88	13.00
0.150	0.00	3.400	6.00	6.650	13.00	9.90	13.00
0.167	0.00	3.417	6.00	6.667	13.00	9.92	13.00
0.183	0.00	3.433	6.00	6.683	13.00	9.93	13.00
0.200	0.00	3.450	6.00	6.700	13.00	9.95	13.00
0.217	0.00	3.467	6.00	6.717	13.00	9.97	13.00
0.233	0.00	3.483	6.00	6.733	13.00	9.98	13.00
0.250	0.00	3.500	6.00	6.750	13.00	10.00	13.05
0.267	0.00	3.517	6.00	6.767	13.00	10.02	53.00
0.283	0.00	3.533	6.00	6.783	13.00	10.03	53.00
0.300	0.00	3.550	6.00	6.800	13.00	10.05	53.00
0.317	0.00	3.567	6.00	6.817	13.00	10.07	53.00
0.333	0.00	3.583	6.00	6.833	13.00	10.08	53.00
0.350	0.00	3.600	6.00	6.850	13.00	10.10	53.00
0.367	0.00	3.617	6.00	6.867	13.00	10.12	53.00
0.383	0.00	3.633	6.00	6.883	13.00	10.13	53.00
0.400	0.00	3.650	6.00	6.900	13.00	10.15	53.00
0.417	0.00	3.667	6.00	6.917	13.00	10.17	53.00
0.433	0.00	3.683	6.00	6.933	13.00	10.18	53.00
0.450	0.00	3.700	6.00	6.950	13.00	10.20	53.00
0.467	0.00	3.717	6.00	6.967	13.00	10.22	53.00
0.483	0.00	3.733	6.00	6.983	13.00	10.23	53.00
0.500	0.00	3.750	6.00	7.000	13.02	10.25	53.00
0.517	0.00	3.767	6.00	7.017	23.00	10.27	53.00
0.533	0.00	3.783	6.00	7.033	23.00	10.28	53.00
0.550	0.00	3.800	6.00	7.050	23.00	10.30	53.00
0.567	0.00	3.817	6.00	7.067	23.00	10.32	53.00
0.583	0.00	3.833	6.00	7.083	23.00	10.33	53.00
0.600	0.00	3.850	6.00	7.100	23.00	10.35	53.00
0.617	0.00	3.867	6.00	7.117	23.00	10.37	53.00
0.633	0.00	3.883	6.00	7.133	23.00	10.38	53.00
0.650	0.00	3.900	6.00	7.150	23.00	10.40	53.00
0.667	0.00	3.917	6.00	7.167	23.00	10.42	53.00
0.683	0.00	3.933	6.00	7.183	23.00	10.43	53.00
0.700	0.00	3.950	6.00	7.200	23.00	10.45	53.00
0.717	0.00	3.967	6.00	7.217	23.00	10.47	53.00
0.733	0.00	3.983	6.00	7.233	23.00	10.48	53.00
0.750	0.00	4.000	6.00	7.250	23.00	10.50	53.00
0.767	0.00	4.017	13.00	7.267	23.00	10.52	53.00
0.783	0.00	4.033	13.00	7.283	23.00	10.53	53.00
0.800	0.00	4.050	13.00	7.300	23.00	10.55	53.00
0.817	0.00	4.067	13.00	7.317	23.00	10.57	53.00
0.833	0.00	4.083	13.00	7.333	23.00	10.58	53.00
0.850	0.00	4.100	13.00	7.350	23.00	10.60	53.00
0.867	0.00	4.117	13.00	7.367	23.00	10.62	53.00
0.883	0.00	4.133	13.00	7.383	23.00	10.63	53.00
0.900	0.00	4.150	13.00	7.400	23.00	10.65	53.00
0.917	0.00	4.167	13.00	7.417	23.00	10.67	53.00

0.933	0.00	4.183	13.00	7.433	23.00	10.68	53.00
0.950	0.00	4.200	13.00	7.450	23.00	10.70	53.00
0.967	0.00	4.217	13.00	7.467	23.00	10.72	53.00
0.983	0.00	4.233	13.00	7.483	23.00	10.73	53.00
1.000	0.00	4.250	13.00	7.500	23.00	10.75	53.00
1.017	6.00	4.267	13.00	7.517	23.00	10.77	53.00
1.033	6.00	4.283	13.00	7.533	23.00	10.78	53.00
1.050	6.00	4.300	13.00	7.550	23.00	10.80	53.00
1.067	6.00	4.317	13.00	7.567	23.00	10.82	53.00
1.083	6.00	4.333	13.00	7.583	23.00	10.83	53.00
1.100	6.00	4.350	13.00	7.600	23.00	10.85	53.00
1.117	6.00	4.367	13.00	7.617	23.00	10.87	53.00
1.133	6.00	4.383	13.00	7.633	23.00	10.88	53.00
1.150	6.00	4.400	13.00	7.650	23.00	10.90	53.00
1.167	6.00	4.417	13.00	7.667	23.00	10.92	53.00
1.183	6.00	4.433	13.00	7.683	23.00	10.93	53.00
1.200	6.00	4.450	13.00	7.700	23.00	10.95	53.00
1.217	6.00	4.467	13.00	7.717	23.00	10.97	53.00
1.233	6.00	4.483	13.00	7.733	23.00	10.98	53.00
1.250	6.00	4.500	13.00	7.750	23.00	11.00	53.00
1.267	6.00	4.517	13.00	7.767	23.00	11.02	38.00
1.283	6.00	4.533	13.00	7.783	23.00	11.03	38.00
1.300	6.00	4.550	13.00	7.800	23.00	11.05	38.00
1.317	6.00	4.567	13.00	7.817	23.00	11.07	38.00
1.333	6.00	4.583	13.00	7.833	23.00	11.08	38.00
1.350	6.00	4.600	13.00	7.850	23.00	11.10	38.00
1.367	6.00	4.617	13.00	7.867	23.00	11.12	38.00
1.383	6.00	4.633	13.00	7.883	23.00	11.13	38.00
1.400	6.00	4.650	13.00	7.900	23.00	11.15	38.00
1.417	6.00	4.667	13.00	7.917	23.00	11.17	38.00
1.433	6.00	4.683	13.00	7.933	23.00	11.18	38.00
1.450	6.00	4.700	13.00	7.950	23.00	11.20	38.00
1.467	6.00	4.717	13.00	7.967	23.00	11.22	38.00
1.483	6.00	4.733	13.00	7.983	23.00	11.23	38.00
1.500	6.00	4.750	13.00	8.000	22.97	11.25	38.00
1.517	6.00	4.767	13.00	8.017	13.00	11.27	38.00
1.533	6.00	4.783	13.00	8.033	13.00	11.28	38.00
1.550	6.00	4.800	13.00	8.050	13.00	11.30	38.00
1.567	6.00	4.817	13.00	8.067	13.00	11.32	38.00
1.583	6.00	4.833	13.00	8.083	13.00	11.33	38.00
1.600	6.00	4.850	13.00	8.100	13.00	11.35	38.00
1.617	6.00	4.867	13.00	8.117	13.00	11.37	38.00
1.633	6.00	4.883	13.00	8.133	13.00	11.38	38.00
1.650	6.00	4.900	13.00	8.150	13.00	11.40	38.00
1.667	6.00	4.917	13.00	8.167	13.00	11.42	38.00
1.683	6.00	4.933	13.00	8.183	13.00	11.43	38.00
1.700	6.00	4.950	13.00	8.200	13.00	11.45	38.00
1.717	6.00	4.967	13.00	8.217	13.00	11.47	38.00
1.733	6.00	4.983	13.00	8.233	13.00	11.48	38.00
1.750	6.00	5.000	13.00	8.250	13.00	11.50	38.00
1.767	6.00	5.017	17.00	8.267	13.00	11.52	38.00
1.783	6.00	5.033	17.00	8.283	13.00	11.53	38.00
1.800	6.00	5.050	17.00	8.300	13.00	11.55	38.00
1.817	6.00	5.067	17.00	8.317	13.00	11.57	38.00
1.833	6.00	5.083	17.00	8.333	13.00	11.58	38.00
1.850	6.00	5.100	17.00	8.350	13.00	11.60	38.00
1.867	6.00	5.117	17.00	8.367	13.00	11.62	38.00
1.883	6.00	5.133	17.00	8.383	13.00	11.63	38.00
1.900	6.00	5.150	17.00	8.400	13.00	11.65	38.00
1.917	6.00	5.167	17.00	8.417	13.00	11.67	38.00
1.933	6.00	5.183	17.00	8.433	13.00	11.68	38.00
1.950	6.00	5.200	17.00	8.450	13.00	11.70	38.00
1.967	6.00	5.217	17.00	8.467	13.00	11.72	38.00
1.983	6.00	5.233	17.00	8.483	13.00	11.73	38.00

2.000	6.00	5.250	17.00	8.500	13.00	11.75	38.00
2.017	4.00	5.267	17.00	8.517	13.00	11.77	38.00
2.033	4.00	5.283	17.00	8.533	13.00	11.78	38.00
2.050	4.00	5.300	17.00	8.550	13.00	11.80	38.00
2.067	4.00	5.317	17.00	8.567	13.00	11.82	38.00
2.083	4.00	5.333	17.00	8.583	13.00	11.83	38.00
2.100	4.00	5.350	17.00	8.600	13.00	11.85	38.00
2.117	4.00	5.367	17.00	8.617	13.00	11.87	38.00
2.133	4.00	5.383	17.00	8.633	13.00	11.88	38.00
2.150	4.00	5.400	17.00	8.650	13.00	11.90	38.00
2.167	4.00	5.417	17.00	8.667	13.00	11.92	38.00
2.183	4.00	5.433	17.00	8.683	13.00	11.93	38.00
2.200	4.00	5.450	17.00	8.700	13.00	11.95	38.00
2.217	4.00	5.467	17.00	8.717	13.00	11.97	38.00
2.233	4.00	5.483	17.00	8.733	13.00	11.98	38.00
2.250	4.00	5.500	17.00	8.750	13.00	12.00	38.00
2.267	4.00	5.517	17.00	8.767	13.00	12.02	13.02
2.283	4.00	5.533	17.00	8.783	13.00	12.03	13.00
2.300	4.00	5.550	17.00	8.800	13.00	12.05	13.00
2.317	4.00	5.567	17.00	8.817	13.00	12.07	13.00
2.333	4.00	5.583	17.00	8.833	13.00	12.08	13.00
2.350	4.00	5.600	17.00	8.850	13.00	12.10	13.00
2.367	4.00	5.617	17.00	8.867	13.00	12.12	13.00
2.383	4.00	5.633	17.00	8.883	13.00	12.13	13.00
2.400	4.00	5.650	17.00	8.900	13.00	12.15	13.00
2.417	4.00	5.667	17.00	8.917	13.00	12.17	13.00
2.433	4.00	5.683	17.00	8.933	13.00	12.18	13.00
2.450	4.00	5.700	17.00	8.950	13.00	12.20	13.00
2.467	4.00	5.717	17.00	8.967	13.00	12.22	13.00
2.483	4.00	5.733	17.00	8.983	13.00	12.23	13.00
2.500	4.00	5.750	17.00	9.000	13.00	12.25	13.00
2.517	4.00	5.767	17.00	9.017	13.00	12.27	13.00
2.533	4.00	5.783	17.00	9.033	13.00	12.28	13.00
2.550	4.00	5.800	17.00	9.050	13.00	12.30	13.00
2.567	4.00	5.817	17.00	9.067	13.00	12.32	13.00
2.583	4.00	5.833	17.00	9.083	13.00	12.33	13.00
2.600	4.00	5.850	17.00	9.100	13.00	12.35	13.00
2.617	4.00	5.867	17.00	9.117	13.00	12.37	13.00
2.633	4.00	5.883	17.00	9.133	13.00	12.38	13.00
2.650	4.00	5.900	17.00	9.150	13.00	12.40	13.00
2.667	4.00	5.917	17.00	9.167	13.00	12.42	13.00
2.683	4.00	5.933	17.00	9.183	13.00	12.43	13.00
2.700	4.00	5.950	17.00	9.200	13.00	12.45	13.00
2.717	4.00	5.967	17.00	9.217	13.00	12.47	13.00
2.733	4.00	5.983	17.00	9.233	13.00	12.48	13.00
2.750	4.00	6.000	16.99	9.250	13.00	12.50	13.00
2.767	4.00	6.017	13.00	9.267	13.00	12.52	13.00
2.783	4.00	6.033	13.00	9.283	13.00	12.53	13.00
2.800	4.00	6.050	13.00	9.300	13.00	12.55	13.00
2.817	4.00	6.067	13.00	9.317	13.00	12.57	13.00
2.833	4.00	6.083	13.00	9.333	13.00	12.58	13.00
2.850	4.00	6.100	13.00	9.350	13.00	12.60	13.00
2.867	4.00	6.117	13.00	9.367	13.00	12.62	13.00
2.883	4.00	6.133	13.00	9.383	13.00	12.63	13.00
2.900	4.00	6.150	13.00	9.400	13.00	12.65	13.00
2.917	4.00	6.167	13.00	9.417	13.00	12.67	13.00
2.933	4.00	6.183	13.00	9.433	13.00	12.68	13.00
2.950	4.00	6.200	13.00	9.450	13.00	12.70	13.00
2.967	4.00	6.217	13.00	9.467	13.00	12.72	13.00
2.983	4.00	6.233	13.00	9.483	13.00	12.73	13.00
3.000	4.00	6.250	13.00	9.500	13.00	12.75	13.00
3.017	6.00	6.267	13.00	9.517	13.00	12.77	13.00
3.033	6.00	6.283	13.00	9.533	13.00	12.78	13.00
3.050	6.00	6.300	13.00	9.550	13.00	12.80	13.00

3.067	6.00	6.317	13.00	9.567	13.00	12.82	13.00
3.083	6.00	6.333	13.00	9.583	13.00	12.83	13.00
3.100	6.00	6.350	13.00	9.600	13.00	12.85	13.00
3.117	6.00	6.367	13.00	9.617	13.00	12.87	13.00
3.133	6.00	6.383	13.00	9.633	13.00	12.88	13.00
3.150	6.00	6.400	13.00	9.650	13.00	12.90	13.00
3.167	6.00	6.417	13.00	9.667	13.00	12.92	13.00
3.183	6.00	6.433	13.00	9.683	13.00	12.93	13.00
3.200	6.00	6.450	13.00	9.700	13.00	12.95	13.00
3.217	6.00	6.467	13.00	9.717	13.00	12.97	13.00
3.233	6.00	6.483	13.00	9.733	13.00	12.98	13.00
3.250	6.00	6.500	13.00	9.750	13.00	13.00	13.00

Unit Hyd Qpeak (cms)= 0.050

PEAK FLOW (cms)= 0.024 (i)
TIME TO PEAK (hrs)= 11.067
RUNOFF VOLUME (mm)= 75.744
TOTAL RAINFALL (mm)= 212.001
RUNOFF COEFFICIENT = 0.357

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0208)	Area (ha)=	0.03	Curve Number (CN)= 60.0
ID= 1 DT= 1.0 min	Ia (mm)=	5.14	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.04	

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	3.267	6.00	6.517	13.00	9.77	13.00
0.033	0.00	3.283	6.00	6.533	13.00	9.78	13.00
0.050	0.00	3.300	6.00	6.550	13.00	9.80	13.00
0.067	0.00	3.317	6.00	6.567	13.00	9.82	13.00
0.083	0.00	3.333	6.00	6.583	13.00	9.83	13.00
0.100	0.00	3.350	6.00	6.600	13.00	9.85	13.00
0.117	0.00	3.367	6.00	6.617	13.00	9.87	13.00
0.133	0.00	3.383	6.00	6.633	13.00	9.88	13.00
0.150	0.00	3.400	6.00	6.650	13.00	9.90	13.00
0.167	0.00	3.417	6.00	6.667	13.00	9.92	13.00
0.183	0.00	3.433	6.00	6.683	13.00	9.93	13.00
0.200	0.00	3.450	6.00	6.700	13.00	9.95	13.00
0.217	0.00	3.467	6.00	6.717	13.00	9.97	13.00
0.233	0.00	3.483	6.00	6.733	13.00	9.98	13.00
0.250	0.00	3.500	6.00	6.750	13.00	10.00	13.05
0.267	0.00	3.517	6.00	6.767	13.00	10.02	53.00
0.283	0.00	3.533	6.00	6.783	13.00	10.03	53.00
0.300	0.00	3.550	6.00	6.800	13.00	10.05	53.00
0.317	0.00	3.567	6.00	6.817	13.00	10.07	53.00
0.333	0.00	3.583	6.00	6.833	13.00	10.08	53.00
0.350	0.00	3.600	6.00	6.850	13.00	10.10	53.00
0.367	0.00	3.617	6.00	6.867	13.00	10.12	53.00
0.383	0.00	3.633	6.00	6.883	13.00	10.13	53.00
0.400	0.00	3.650	6.00	6.900	13.00	10.15	53.00
0.417	0.00	3.667	6.00	6.917	13.00	10.17	53.00
0.433	0.00	3.683	6.00	6.933	13.00	10.18	53.00
0.450	0.00	3.700	6.00	6.950	13.00	10.20	53.00
0.467	0.00	3.717	6.00	6.967	13.00	10.22	53.00

0.483	0.00	3.733	6.00	6.983	13.00	10.23	53.00
0.500	0.00	3.750	6.00	7.000	13.02	10.25	53.00
0.517	0.00	3.767	6.00	7.017	23.00	10.27	53.00
0.533	0.00	3.783	6.00	7.033	23.00	10.28	53.00
0.550	0.00	3.800	6.00	7.050	23.00	10.30	53.00
0.567	0.00	3.817	6.00	7.067	23.00	10.32	53.00
0.583	0.00	3.833	6.00	7.083	23.00	10.33	53.00
0.600	0.00	3.850	6.00	7.100	23.00	10.35	53.00
0.617	0.00	3.867	6.00	7.117	23.00	10.37	53.00
0.633	0.00	3.883	6.00	7.133	23.00	10.38	53.00
0.650	0.00	3.900	6.00	7.150	23.00	10.40	53.00
0.667	0.00	3.917	6.00	7.167	23.00	10.42	53.00
0.683	0.00	3.933	6.00	7.183	23.00	10.43	53.00
0.700	0.00	3.950	6.00	7.200	23.00	10.45	53.00
0.717	0.00	3.967	6.00	7.217	23.00	10.47	53.00
0.733	0.00	3.983	6.00	7.233	23.00	10.48	53.00
0.750	0.00	4.000	6.00	7.250	23.00	10.50	53.00
0.767	0.00	4.017	13.00	7.267	23.00	10.52	53.00
0.783	0.00	4.033	13.00	7.283	23.00	10.53	53.00
0.800	0.00	4.050	13.00	7.300	23.00	10.55	53.00
0.817	0.00	4.067	13.00	7.317	23.00	10.57	53.00
0.833	0.00	4.083	13.00	7.333	23.00	10.58	53.00
0.850	0.00	4.100	13.00	7.350	23.00	10.60	53.00
0.867	0.00	4.117	13.00	7.367	23.00	10.62	53.00
0.883	0.00	4.133	13.00	7.383	23.00	10.63	53.00
0.900	0.00	4.150	13.00	7.400	23.00	10.65	53.00
0.917	0.00	4.167	13.00	7.417	23.00	10.67	53.00
0.933	0.00	4.183	13.00	7.433	23.00	10.68	53.00
0.950	0.00	4.200	13.00	7.450	23.00	10.70	53.00
0.967	0.00	4.217	13.00	7.467	23.00	10.72	53.00
0.983	0.00	4.233	13.00	7.483	23.00	10.73	53.00
1.000	0.00	4.250	13.00	7.500	23.00	10.75	53.00
1.017	6.00	4.267	13.00	7.517	23.00	10.77	53.00
1.033	6.00	4.283	13.00	7.533	23.00	10.78	53.00
1.050	6.00	4.300	13.00	7.550	23.00	10.80	53.00
1.067	6.00	4.317	13.00	7.567	23.00	10.82	53.00
1.083	6.00	4.333	13.00	7.583	23.00	10.83	53.00
1.100	6.00	4.350	13.00	7.600	23.00	10.85	53.00
1.117	6.00	4.367	13.00	7.617	23.00	10.87	53.00
1.133	6.00	4.383	13.00	7.633	23.00	10.88	53.00
1.150	6.00	4.400	13.00	7.650	23.00	10.90	53.00
1.167	6.00	4.417	13.00	7.667	23.00	10.92	53.00
1.183	6.00	4.433	13.00	7.683	23.00	10.93	53.00
1.200	6.00	4.450	13.00	7.700	23.00	10.95	53.00
1.217	6.00	4.467	13.00	7.717	23.00	10.97	53.00
1.233	6.00	4.483	13.00	7.733	23.00	10.98	53.00
1.250	6.00	4.500	13.00	7.750	23.00	11.00	53.00
1.267	6.00	4.517	13.00	7.767	23.00	11.02	38.00
1.283	6.00	4.533	13.00	7.783	23.00	11.03	38.00
1.300	6.00	4.550	13.00	7.800	23.00	11.05	38.00
1.317	6.00	4.567	13.00	7.817	23.00	11.07	38.00
1.333	6.00	4.583	13.00	7.833	23.00	11.08	38.00
1.350	6.00	4.600	13.00	7.850	23.00	11.10	38.00
1.367	6.00	4.617	13.00	7.867	23.00	11.12	38.00
1.383	6.00	4.633	13.00	7.883	23.00	11.13	38.00
1.400	6.00	4.650	13.00	7.900	23.00	11.15	38.00
1.417	6.00	4.667	13.00	7.917	23.00	11.17	38.00
1.433	6.00	4.683	13.00	7.933	23.00	11.18	38.00
1.450	6.00	4.700	13.00	7.950	23.00	11.20	38.00
1.467	6.00	4.717	13.00	7.967	23.00	11.22	38.00
1.483	6.00	4.733	13.00	7.983	23.00	11.23	38.00
1.500	6.00	4.750	13.00	8.000	22.97	11.25	38.00
1.517	6.00	4.767	13.00	8.017	13.00	11.27	38.00
1.533	6.00	4.783	13.00	8.033	13.00	11.28	38.00

1.550	6.00	4.800	13.00	8.050	13.00	11.30	38.00
1.567	6.00	4.817	13.00	8.067	13.00	11.32	38.00
1.583	6.00	4.833	13.00	8.083	13.00	11.33	38.00
1.600	6.00	4.850	13.00	8.100	13.00	11.35	38.00
1.617	6.00	4.867	13.00	8.117	13.00	11.37	38.00
1.633	6.00	4.883	13.00	8.133	13.00	11.38	38.00
1.650	6.00	4.900	13.00	8.150	13.00	11.40	38.00
1.667	6.00	4.917	13.00	8.167	13.00	11.42	38.00
1.683	6.00	4.933	13.00	8.183	13.00	11.43	38.00
1.700	6.00	4.950	13.00	8.200	13.00	11.45	38.00
1.717	6.00	4.967	13.00	8.217	13.00	11.47	38.00
1.733	6.00	4.983	13.00	8.233	13.00	11.48	38.00
1.750	6.00	5.000	13.00	8.250	13.00	11.50	38.00
1.767	6.00	5.017	17.00	8.267	13.00	11.52	38.00
1.783	6.00	5.033	17.00	8.283	13.00	11.53	38.00
1.800	6.00	5.050	17.00	8.300	13.00	11.55	38.00
1.817	6.00	5.067	17.00	8.317	13.00	11.57	38.00
1.833	6.00	5.083	17.00	8.333	13.00	11.58	38.00
1.850	6.00	5.100	17.00	8.350	13.00	11.60	38.00
1.867	6.00	5.117	17.00	8.367	13.00	11.62	38.00
1.883	6.00	5.133	17.00	8.383	13.00	11.63	38.00
1.900	6.00	5.150	17.00	8.400	13.00	11.65	38.00
1.917	6.00	5.167	17.00	8.417	13.00	11.67	38.00
1.933	6.00	5.183	17.00	8.433	13.00	11.68	38.00
1.950	6.00	5.200	17.00	8.450	13.00	11.70	38.00
1.967	6.00	5.217	17.00	8.467	13.00	11.72	38.00
1.983	6.00	5.233	17.00	8.483	13.00	11.73	38.00
2.000	6.00	5.250	17.00	8.500	13.00	11.75	38.00
2.017	4.00	5.267	17.00	8.517	13.00	11.77	38.00
2.033	4.00	5.283	17.00	8.533	13.00	11.78	38.00
2.050	4.00	5.300	17.00	8.550	13.00	11.80	38.00
2.067	4.00	5.317	17.00	8.567	13.00	11.82	38.00
2.083	4.00	5.333	17.00	8.583	13.00	11.83	38.00
2.100	4.00	5.350	17.00	8.600	13.00	11.85	38.00
2.117	4.00	5.367	17.00	8.617	13.00	11.87	38.00
2.133	4.00	5.383	17.00	8.633	13.00	11.88	38.00
2.150	4.00	5.400	17.00	8.650	13.00	11.90	38.00
2.167	4.00	5.417	17.00	8.667	13.00	11.92	38.00
2.183	4.00	5.433	17.00	8.683	13.00	11.93	38.00
2.200	4.00	5.450	17.00	8.700	13.00	11.95	38.00
2.217	4.00	5.467	17.00	8.717	13.00	11.97	38.00
2.233	4.00	5.483	17.00	8.733	13.00	11.98	38.00
2.250	4.00	5.500	17.00	8.750	13.00	12.00	38.00
2.267	4.00	5.517	17.00	8.767	13.00	12.02	13.02
2.283	4.00	5.533	17.00	8.783	13.00	12.03	13.00
2.300	4.00	5.550	17.00	8.800	13.00	12.05	13.00
2.317	4.00	5.567	17.00	8.817	13.00	12.07	13.00
2.333	4.00	5.583	17.00	8.833	13.00	12.08	13.00
2.350	4.00	5.600	17.00	8.850	13.00	12.10	13.00
2.367	4.00	5.617	17.00	8.867	13.00	12.12	13.00
2.383	4.00	5.633	17.00	8.883	13.00	12.13	13.00
2.400	4.00	5.650	17.00	8.900	13.00	12.15	13.00
2.417	4.00	5.667	17.00	8.917	13.00	12.17	13.00
2.433	4.00	5.683	17.00	8.933	13.00	12.18	13.00
2.450	4.00	5.700	17.00	8.950	13.00	12.20	13.00
2.467	4.00	5.717	17.00	8.967	13.00	12.22	13.00
2.483	4.00	5.733	17.00	8.983	13.00	12.23	13.00
2.500	4.00	5.750	17.00	9.000	13.00	12.25	13.00
2.517	4.00	5.767	17.00	9.017	13.00	12.27	13.00
2.533	4.00	5.783	17.00	9.033	13.00	12.28	13.00
2.550	4.00	5.800	17.00	9.050	13.00	12.30	13.00
2.567	4.00	5.817	17.00	9.067	13.00	12.32	13.00
2.583	4.00	5.833	17.00	9.083	13.00	12.33	13.00
2.600	4.00	5.850	17.00	9.100	13.00	12.35	13.00

2.617	4.00	5.867	17.00	9.117	13.00	12.37	13.00
2.633	4.00	5.883	17.00	9.133	13.00	12.38	13.00
2.650	4.00	5.900	17.00	9.150	13.00	12.40	13.00
2.667	4.00	5.917	17.00	9.167	13.00	12.42	13.00
2.683	4.00	5.933	17.00	9.183	13.00	12.43	13.00
2.700	4.00	5.950	17.00	9.200	13.00	12.45	13.00
2.717	4.00	5.967	17.00	9.217	13.00	12.47	13.00
2.733	4.00	5.983	17.00	9.233	13.00	12.48	13.00
2.750	4.00	6.000	16.99	9.250	13.00	12.50	13.00
2.767	4.00	6.017	13.00	9.267	13.00	12.52	13.00
2.783	4.00	6.033	13.00	9.283	13.00	12.53	13.00
2.800	4.00	6.050	13.00	9.300	13.00	12.55	13.00
2.817	4.00	6.067	13.00	9.317	13.00	12.57	13.00
2.833	4.00	6.083	13.00	9.333	13.00	12.58	13.00
2.850	4.00	6.100	13.00	9.350	13.00	12.60	13.00
2.867	4.00	6.117	13.00	9.367	13.00	12.62	13.00
2.883	4.00	6.133	13.00	9.383	13.00	12.63	13.00
2.900	4.00	6.150	13.00	9.400	13.00	12.65	13.00
2.917	4.00	6.167	13.00	9.417	13.00	12.67	13.00
2.933	4.00	6.183	13.00	9.433	13.00	12.68	13.00
2.950	4.00	6.200	13.00	9.450	13.00	12.70	13.00
2.967	4.00	6.217	13.00	9.467	13.00	12.72	13.00
2.983	4.00	6.233	13.00	9.483	13.00	12.73	13.00
3.000	4.00	6.250	13.00	9.500	13.00	12.75	13.00
3.017	6.00	6.267	13.00	9.517	13.00	12.77	13.00
3.033	6.00	6.283	13.00	9.533	13.00	12.78	13.00
3.050	6.00	6.300	13.00	9.550	13.00	12.80	13.00
3.067	6.00	6.317	13.00	9.567	13.00	12.82	13.00
3.083	6.00	6.333	13.00	9.583	13.00	12.83	13.00
3.100	6.00	6.350	13.00	9.600	13.00	12.85	13.00
3.117	6.00	6.367	13.00	9.617	13.00	12.87	13.00
3.133	6.00	6.383	13.00	9.633	13.00	12.88	13.00
3.150	6.00	6.400	13.00	9.650	13.00	12.90	13.00
3.167	6.00	6.417	13.00	9.667	13.00	12.92	13.00
3.183	6.00	6.433	13.00	9.683	13.00	12.93	13.00
3.200	6.00	6.450	13.00	9.700	13.00	12.95	13.00
3.217	6.00	6.467	13.00	9.717	13.00	12.97	13.00
3.233	6.00	6.483	13.00	9.733	13.00	12.98	13.00
3.250	6.00	6.500	13.00	9.750	13.00	13.00	13.00

Unit Hyd Qpeak (cms)= 0.024

PEAK FLOW (cms)= 0.003 (i)
TIME TO PEAK (hrs)= 11.000
RUNOFF VOLUME (mm)= 113.523
TOTAL RAINFALL (mm)= 212.001
RUNOFF COEFFICIENT = 0.535

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0008)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0208):	0.03	0.003	11.00	113.52
	+ ID2= 2 (0303):	0.33	0.024	11.07	75.74
	ID = 3 (0008):	0.36	0.026	11.02	78.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
        ID1= 3 (  0008):      0.36    0.026     11.02     78.40
      + ID2= 2 (  0007):      6.41    0.509     11.07     86.20
        ==========================================================
        ID = 1 (  0008):      6.77    0.535     11.07     85.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
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| CALIB            |
| NASHYD   (  0302)|   Area    (ha)=   1.68   Curve Number   (CN)= 46.0
|ID= 1 DT= 1.0 min |   Ia      (mm)=   9.55   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.28

         NOTE:  RAINFALL WAS TRANSFORMED TO   1.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	3.267	6.00	6.517	13.00	9.77	13.00
0.033	0.00	3.283	6.00	6.533	13.00	9.78	13.00
0.050	0.00	3.300	6.00	6.550	13.00	9.80	13.00
0.067	0.00	3.317	6.00	6.567	13.00	9.82	13.00
0.083	0.00	3.333	6.00	6.583	13.00	9.83	13.00
0.100	0.00	3.350	6.00	6.600	13.00	9.85	13.00
0.117	0.00	3.367	6.00	6.617	13.00	9.87	13.00
0.133	0.00	3.383	6.00	6.633	13.00	9.88	13.00
0.150	0.00	3.400	6.00	6.650	13.00	9.90	13.00
0.167	0.00	3.417	6.00	6.667	13.00	9.92	13.00
0.183	0.00	3.433	6.00	6.683	13.00	9.93	13.00
0.200	0.00	3.450	6.00	6.700	13.00	9.95	13.00
0.217	0.00	3.467	6.00	6.717	13.00	9.97	13.00
0.233	0.00	3.483	6.00	6.733	13.00	9.98	13.00
0.250	0.00	3.500	6.00	6.750	13.00	10.00	13.05
0.267	0.00	3.517	6.00	6.767	13.00	10.02	53.00
0.283	0.00	3.533	6.00	6.783	13.00	10.03	53.00
0.300	0.00	3.550	6.00	6.800	13.00	10.05	53.00
0.317	0.00	3.567	6.00	6.817	13.00	10.07	53.00
0.333	0.00	3.583	6.00	6.833	13.00	10.08	53.00
0.350	0.00	3.600	6.00	6.850	13.00	10.10	53.00
0.367	0.00	3.617	6.00	6.867	13.00	10.12	53.00
0.383	0.00	3.633	6.00	6.883	13.00	10.13	53.00
0.400	0.00	3.650	6.00	6.900	13.00	10.15	53.00
0.417	0.00	3.667	6.00	6.917	13.00	10.17	53.00
0.433	0.00	3.683	6.00	6.933	13.00	10.18	53.00
0.450	0.00	3.700	6.00	6.950	13.00	10.20	53.00
0.467	0.00	3.717	6.00	6.967	13.00	10.22	53.00
0.483	0.00	3.733	6.00	6.983	13.00	10.23	53.00
0.500	0.00	3.750	6.00	7.000	13.02	10.25	53.00
0.517	0.00	3.767	6.00	7.017	23.00	10.27	53.00
0.533	0.00	3.783	6.00	7.033	23.00	10.28	53.00
0.550	0.00	3.800	6.00	7.050	23.00	10.30	53.00
0.567	0.00	3.817	6.00	7.067	23.00	10.32	53.00
0.583	0.00	3.833	6.00	7.083	23.00	10.33	53.00
0.600	0.00	3.850	6.00	7.100	23.00	10.35	53.00
0.617	0.00	3.867	6.00	7.117	23.00	10.37	53.00
0.633	0.00	3.883	6.00	7.133	23.00	10.38	53.00
0.650	0.00	3.900	6.00	7.150	23.00	10.40	53.00
0.667	0.00	3.917	6.00	7.167	23.00	10.42	53.00
0.683	0.00	3.933	6.00	7.183	23.00	10.43	53.00

0.700	0.00	3.950	6.00	7.200	23.00	10.45	53.00
0.717	0.00	3.967	6.00	7.217	23.00	10.47	53.00
0.733	0.00	3.983	6.00	7.233	23.00	10.48	53.00
0.750	0.00	4.000	6.00	7.250	23.00	10.50	53.00
0.767	0.00	4.017	13.00	7.267	23.00	10.52	53.00
0.783	0.00	4.033	13.00	7.283	23.00	10.53	53.00
0.800	0.00	4.050	13.00	7.300	23.00	10.55	53.00
0.817	0.00	4.067	13.00	7.317	23.00	10.57	53.00
0.833	0.00	4.083	13.00	7.333	23.00	10.58	53.00
0.850	0.00	4.100	13.00	7.350	23.00	10.60	53.00
0.867	0.00	4.117	13.00	7.367	23.00	10.62	53.00
0.883	0.00	4.133	13.00	7.383	23.00	10.63	53.00
0.900	0.00	4.150	13.00	7.400	23.00	10.65	53.00
0.917	0.00	4.167	13.00	7.417	23.00	10.67	53.00
0.933	0.00	4.183	13.00	7.433	23.00	10.68	53.00
0.950	0.00	4.200	13.00	7.450	23.00	10.70	53.00
0.967	0.00	4.217	13.00	7.467	23.00	10.72	53.00
0.983	0.00	4.233	13.00	7.483	23.00	10.73	53.00
1.000	0.00	4.250	13.00	7.500	23.00	10.75	53.00
1.017	6.00	4.267	13.00	7.517	23.00	10.77	53.00
1.033	6.00	4.283	13.00	7.533	23.00	10.78	53.00
1.050	6.00	4.300	13.00	7.550	23.00	10.80	53.00
1.067	6.00	4.317	13.00	7.567	23.00	10.82	53.00
1.083	6.00	4.333	13.00	7.583	23.00	10.83	53.00
1.100	6.00	4.350	13.00	7.600	23.00	10.85	53.00
1.117	6.00	4.367	13.00	7.617	23.00	10.87	53.00
1.133	6.00	4.383	13.00	7.633	23.00	10.88	53.00
1.150	6.00	4.400	13.00	7.650	23.00	10.90	53.00
1.167	6.00	4.417	13.00	7.667	23.00	10.92	53.00
1.183	6.00	4.433	13.00	7.683	23.00	10.93	53.00
1.200	6.00	4.450	13.00	7.700	23.00	10.95	53.00
1.217	6.00	4.467	13.00	7.717	23.00	10.97	53.00
1.233	6.00	4.483	13.00	7.733	23.00	10.98	53.00
1.250	6.00	4.500	13.00	7.750	23.00	11.00	53.00
1.267	6.00	4.517	13.00	7.767	23.00	11.02	38.00
1.283	6.00	4.533	13.00	7.783	23.00	11.03	38.00
1.300	6.00	4.550	13.00	7.800	23.00	11.05	38.00
1.317	6.00	4.567	13.00	7.817	23.00	11.07	38.00
1.333	6.00	4.583	13.00	7.833	23.00	11.08	38.00
1.350	6.00	4.600	13.00	7.850	23.00	11.10	38.00
1.367	6.00	4.617	13.00	7.867	23.00	11.12	38.00
1.383	6.00	4.633	13.00	7.883	23.00	11.13	38.00
1.400	6.00	4.650	13.00	7.900	23.00	11.15	38.00
1.417	6.00	4.667	13.00	7.917	23.00	11.17	38.00
1.433	6.00	4.683	13.00	7.933	23.00	11.18	38.00
1.450	6.00	4.700	13.00	7.950	23.00	11.20	38.00
1.467	6.00	4.717	13.00	7.967	23.00	11.22	38.00
1.483	6.00	4.733	13.00	7.983	23.00	11.23	38.00
1.500	6.00	4.750	13.00	8.000	22.97	11.25	38.00
1.517	6.00	4.767	13.00	8.017	13.00	11.27	38.00
1.533	6.00	4.783	13.00	8.033	13.00	11.28	38.00
1.550	6.00	4.800	13.00	8.050	13.00	11.30	38.00
1.567	6.00	4.817	13.00	8.067	13.00	11.32	38.00
1.583	6.00	4.833	13.00	8.083	13.00	11.33	38.00
1.600	6.00	4.850	13.00	8.100	13.00	11.35	38.00
1.617	6.00	4.867	13.00	8.117	13.00	11.37	38.00
1.633	6.00	4.883	13.00	8.133	13.00	11.38	38.00
1.650	6.00	4.900	13.00	8.150	13.00	11.40	38.00
1.667	6.00	4.917	13.00	8.167	13.00	11.42	38.00
1.683	6.00	4.933	13.00	8.183	13.00	11.43	38.00
1.700	6.00	4.950	13.00	8.200	13.00	11.45	38.00
1.717	6.00	4.967	13.00	8.217	13.00	11.47	38.00
1.733	6.00	4.983	13.00	8.233	13.00	11.48	38.00
1.750	6.00	5.000	13.00	8.250	13.00	11.50	38.00

1.767	6.00	5.017	17.00	8.267	13.00	11.52	38.00
1.783	6.00	5.033	17.00	8.283	13.00	11.53	38.00
1.800	6.00	5.050	17.00	8.300	13.00	11.55	38.00
1.817	6.00	5.067	17.00	8.317	13.00	11.57	38.00
1.833	6.00	5.083	17.00	8.333	13.00	11.58	38.00
1.850	6.00	5.100	17.00	8.350	13.00	11.60	38.00
1.867	6.00	5.117	17.00	8.367	13.00	11.62	38.00
1.883	6.00	5.133	17.00	8.383	13.00	11.63	38.00
1.900	6.00	5.150	17.00	8.400	13.00	11.65	38.00
1.917	6.00	5.167	17.00	8.417	13.00	11.67	38.00
1.933	6.00	5.183	17.00	8.433	13.00	11.68	38.00
1.950	6.00	5.200	17.00	8.450	13.00	11.70	38.00
1.967	6.00	5.217	17.00	8.467	13.00	11.72	38.00
1.983	6.00	5.233	17.00	8.483	13.00	11.73	38.00
2.000	6.00	5.250	17.00	8.500	13.00	11.75	38.00
2.017	4.00	5.267	17.00	8.517	13.00	11.77	38.00
2.033	4.00	5.283	17.00	8.533	13.00	11.78	38.00
2.050	4.00	5.300	17.00	8.550	13.00	11.80	38.00
2.067	4.00	5.317	17.00	8.567	13.00	11.82	38.00
2.083	4.00	5.333	17.00	8.583	13.00	11.83	38.00
2.100	4.00	5.350	17.00	8.600	13.00	11.85	38.00
2.117	4.00	5.367	17.00	8.617	13.00	11.87	38.00
2.133	4.00	5.383	17.00	8.633	13.00	11.88	38.00
2.150	4.00	5.400	17.00	8.650	13.00	11.90	38.00
2.167	4.00	5.417	17.00	8.667	13.00	11.92	38.00
2.183	4.00	5.433	17.00	8.683	13.00	11.93	38.00
2.200	4.00	5.450	17.00	8.700	13.00	11.95	38.00
2.217	4.00	5.467	17.00	8.717	13.00	11.97	38.00
2.233	4.00	5.483	17.00	8.733	13.00	11.98	38.00
2.250	4.00	5.500	17.00	8.750	13.00	12.00	38.00
2.267	4.00	5.517	17.00	8.767	13.00	12.02	13.02
2.283	4.00	5.533	17.00	8.783	13.00	12.03	13.00
2.300	4.00	5.550	17.00	8.800	13.00	12.05	13.00
2.317	4.00	5.567	17.00	8.817	13.00	12.07	13.00
2.333	4.00	5.583	17.00	8.833	13.00	12.08	13.00
2.350	4.00	5.600	17.00	8.850	13.00	12.10	13.00
2.367	4.00	5.617	17.00	8.867	13.00	12.12	13.00
2.383	4.00	5.633	17.00	8.883	13.00	12.13	13.00
2.400	4.00	5.650	17.00	8.900	13.00	12.15	13.00
2.417	4.00	5.667	17.00	8.917	13.00	12.17	13.00
2.433	4.00	5.683	17.00	8.933	13.00	12.18	13.00
2.450	4.00	5.700	17.00	8.950	13.00	12.20	13.00
2.467	4.00	5.717	17.00	8.967	13.00	12.22	13.00
2.483	4.00	5.733	17.00	8.983	13.00	12.23	13.00
2.500	4.00	5.750	17.00	9.000	13.00	12.25	13.00
2.517	4.00	5.767	17.00	9.017	13.00	12.27	13.00
2.533	4.00	5.783	17.00	9.033	13.00	12.28	13.00
2.550	4.00	5.800	17.00	9.050	13.00	12.30	13.00
2.567	4.00	5.817	17.00	9.067	13.00	12.32	13.00
2.583	4.00	5.833	17.00	9.083	13.00	12.33	13.00
2.600	4.00	5.850	17.00	9.100	13.00	12.35	13.00
2.617	4.00	5.867	17.00	9.117	13.00	12.37	13.00
2.633	4.00	5.883	17.00	9.133	13.00	12.38	13.00
2.650	4.00	5.900	17.00	9.150	13.00	12.40	13.00
2.667	4.00	5.917	17.00	9.167	13.00	12.42	13.00
2.683	4.00	5.933	17.00	9.183	13.00	12.43	13.00
2.700	4.00	5.950	17.00	9.200	13.00	12.45	13.00
2.717	4.00	5.967	17.00	9.217	13.00	12.47	13.00
2.733	4.00	5.983	17.00	9.233	13.00	12.48	13.00
2.750	4.00	6.000	16.99	9.250	13.00	12.50	13.00
2.767	4.00	6.017	13.00	9.267	13.00	12.52	13.00
2.783	4.00	6.033	13.00	9.283	13.00	12.53	13.00
2.800	4.00	6.050	13.00	9.300	13.00	12.55	13.00
2.817	4.00	6.067	13.00	9.317	13.00	12.57	13.00

2.833	4.00	6.083	13.00	9.333	13.00	12.58	13.00
2.850	4.00	6.100	13.00	9.350	13.00	12.60	13.00
2.867	4.00	6.117	13.00	9.367	13.00	12.62	13.00
2.883	4.00	6.133	13.00	9.383	13.00	12.63	13.00
2.900	4.00	6.150	13.00	9.400	13.00	12.65	13.00
2.917	4.00	6.167	13.00	9.417	13.00	12.67	13.00
2.933	4.00	6.183	13.00	9.433	13.00	12.68	13.00
2.950	4.00	6.200	13.00	9.450	13.00	12.70	13.00
2.967	4.00	6.217	13.00	9.467	13.00	12.72	13.00
2.983	4.00	6.233	13.00	9.483	13.00	12.73	13.00
3.000	4.00	6.250	13.00	9.500	13.00	12.75	13.00
3.017	6.00	6.267	13.00	9.517	13.00	12.77	13.00
3.033	6.00	6.283	13.00	9.533	13.00	12.78	13.00
3.050	6.00	6.300	13.00	9.550	13.00	12.80	13.00
3.067	6.00	6.317	13.00	9.567	13.00	12.82	13.00
3.083	6.00	6.333	13.00	9.583	13.00	12.83	13.00
3.100	6.00	6.350	13.00	9.600	13.00	12.85	13.00
3.117	6.00	6.367	13.00	9.617	13.00	12.87	13.00
3.133	6.00	6.383	13.00	9.633	13.00	12.88	13.00
3.150	6.00	6.400	13.00	9.650	13.00	12.90	13.00
3.167	6.00	6.417	13.00	9.667	13.00	12.92	13.00
3.183	6.00	6.433	13.00	9.683	13.00	12.93	13.00
3.200	6.00	6.450	13.00	9.700	13.00	12.95	13.00
3.217	6.00	6.467	13.00	9.717	13.00	12.97	13.00
3.233	6.00	6.483	13.00	9.733	13.00	12.98	13.00
3.250	6.00	6.500	13.00	9.750	13.00	13.00	13.00

Unit Hyd Qpeak (cms)= 0.229

PEAK FLOW (cms)= 0.127 (i)
TIME TO PEAK (hrs)= 11.083
RUNOFF VOLUME (mm)= 81.870
TOTAL RAINFALL (mm)= 212.001
RUNOFF COEFFICIENT = 0.386

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB STANDHYD (0202) | ID= 1 DT= 1.0 min	Area (ha)= 0.63 Total Imp(%)= 44.00 Dir. Conn.(%)= 3.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.28	0.35
Dep. Storage	(mm)=	2.00	5.37
Average Slope	(%)=	3.00	3.00
Length	(m)=	64.88	30.00
Mannings n	=	0.013	0.210

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	3.267	6.00	6.517	13.00	9.77	13.00
0.033	0.00	3.283	6.00	6.533	13.00	9.78	13.00
0.050	0.00	3.300	6.00	6.550	13.00	9.80	13.00
0.067	0.00	3.317	6.00	6.567	13.00	9.82	13.00
0.083	0.00	3.333	6.00	6.583	13.00	9.83	13.00
0.100	0.00	3.350	6.00	6.600	13.00	9.85	13.00
0.117	0.00	3.367	6.00	6.617	13.00	9.87	13.00
0.133	0.00	3.383	6.00	6.633	13.00	9.88	13.00

0.150	0.00	3.400	6.00	6.650	13.00	9.90	13.00
0.167	0.00	3.417	6.00	6.667	13.00	9.92	13.00
0.183	0.00	3.433	6.00	6.683	13.00	9.93	13.00
0.200	0.00	3.450	6.00	6.700	13.00	9.95	13.00
0.217	0.00	3.467	6.00	6.717	13.00	9.97	13.00
0.233	0.00	3.483	6.00	6.733	13.00	9.98	13.00
0.250	0.00	3.500	6.00	6.750	13.00	10.00	13.05
0.267	0.00	3.517	6.00	6.767	13.00	10.02	53.00
0.283	0.00	3.533	6.00	6.783	13.00	10.03	53.00
0.300	0.00	3.550	6.00	6.800	13.00	10.05	53.00
0.317	0.00	3.567	6.00	6.817	13.00	10.07	53.00
0.333	0.00	3.583	6.00	6.833	13.00	10.08	53.00
0.350	0.00	3.600	6.00	6.850	13.00	10.10	53.00
0.367	0.00	3.617	6.00	6.867	13.00	10.12	53.00
0.383	0.00	3.633	6.00	6.883	13.00	10.13	53.00
0.400	0.00	3.650	6.00	6.900	13.00	10.15	53.00
0.417	0.00	3.667	6.00	6.917	13.00	10.17	53.00
0.433	0.00	3.683	6.00	6.933	13.00	10.18	53.00
0.450	0.00	3.700	6.00	6.950	13.00	10.20	53.00
0.467	0.00	3.717	6.00	6.967	13.00	10.22	53.00
0.483	0.00	3.733	6.00	6.983	13.00	10.23	53.00
0.500	0.00	3.750	6.00	7.000	13.02	10.25	53.00
0.517	0.00	3.767	6.00	7.017	23.00	10.27	53.00
0.533	0.00	3.783	6.00	7.033	23.00	10.28	53.00
0.550	0.00	3.800	6.00	7.050	23.00	10.30	53.00
0.567	0.00	3.817	6.00	7.067	23.00	10.32	53.00
0.583	0.00	3.833	6.00	7.083	23.00	10.33	53.00
0.600	0.00	3.850	6.00	7.100	23.00	10.35	53.00
0.617	0.00	3.867	6.00	7.117	23.00	10.37	53.00
0.633	0.00	3.883	6.00	7.133	23.00	10.38	53.00
0.650	0.00	3.900	6.00	7.150	23.00	10.40	53.00
0.667	0.00	3.917	6.00	7.167	23.00	10.42	53.00
0.683	0.00	3.933	6.00	7.183	23.00	10.43	53.00
0.700	0.00	3.950	6.00	7.200	23.00	10.45	53.00
0.717	0.00	3.967	6.00	7.217	23.00	10.47	53.00
0.733	0.00	3.983	6.00	7.233	23.00	10.48	53.00
0.750	0.00	4.000	6.00	7.250	23.00	10.50	53.00
0.767	0.00	4.017	13.00	7.267	23.00	10.52	53.00
0.783	0.00	4.033	13.00	7.283	23.00	10.53	53.00
0.800	0.00	4.050	13.00	7.300	23.00	10.55	53.00
0.817	0.00	4.067	13.00	7.317	23.00	10.57	53.00
0.833	0.00	4.083	13.00	7.333	23.00	10.58	53.00
0.850	0.00	4.100	13.00	7.350	23.00	10.60	53.00
0.867	0.00	4.117	13.00	7.367	23.00	10.62	53.00
0.883	0.00	4.133	13.00	7.383	23.00	10.63	53.00
0.900	0.00	4.150	13.00	7.400	23.00	10.65	53.00
0.917	0.00	4.167	13.00	7.417	23.00	10.67	53.00
0.933	0.00	4.183	13.00	7.433	23.00	10.68	53.00
0.950	0.00	4.200	13.00	7.450	23.00	10.70	53.00
0.967	0.00	4.217	13.00	7.467	23.00	10.72	53.00
0.983	0.00	4.233	13.00	7.483	23.00	10.73	53.00
1.000	0.00	4.250	13.00	7.500	23.00	10.75	53.00
1.017	6.00	4.267	13.00	7.517	23.00	10.77	53.00
1.033	6.00	4.283	13.00	7.533	23.00	10.78	53.00
1.050	6.00	4.300	13.00	7.550	23.00	10.80	53.00
1.067	6.00	4.317	13.00	7.567	23.00	10.82	53.00
1.083	6.00	4.333	13.00	7.583	23.00	10.83	53.00
1.100	6.00	4.350	13.00	7.600	23.00	10.85	53.00
1.117	6.00	4.367	13.00	7.617	23.00	10.87	53.00
1.133	6.00	4.383	13.00	7.633	23.00	10.88	53.00
1.150	6.00	4.400	13.00	7.650	23.00	10.90	53.00
1.167	6.00	4.417	13.00	7.667	23.00	10.92	53.00
1.183	6.00	4.433	13.00	7.683	23.00	10.93	53.00
1.200	6.00	4.450	13.00	7.700	23.00	10.95	53.00

1.217	6.00	4.467	13.00	7.717	23.00	10.97	53.00
1.233	6.00	4.483	13.00	7.733	23.00	10.98	53.00
1.250	6.00	4.500	13.00	7.750	23.00	11.00	53.00
1.267	6.00	4.517	13.00	7.767	23.00	11.02	38.00
1.283	6.00	4.533	13.00	7.783	23.00	11.03	38.00
1.300	6.00	4.550	13.00	7.800	23.00	11.05	38.00
1.317	6.00	4.567	13.00	7.817	23.00	11.07	38.00
1.333	6.00	4.583	13.00	7.833	23.00	11.08	38.00
1.350	6.00	4.600	13.00	7.850	23.00	11.10	38.00
1.367	6.00	4.617	13.00	7.867	23.00	11.12	38.00
1.383	6.00	4.633	13.00	7.883	23.00	11.13	38.00
1.400	6.00	4.650	13.00	7.900	23.00	11.15	38.00
1.417	6.00	4.667	13.00	7.917	23.00	11.17	38.00
1.433	6.00	4.683	13.00	7.933	23.00	11.18	38.00
1.450	6.00	4.700	13.00	7.950	23.00	11.20	38.00
1.467	6.00	4.717	13.00	7.967	23.00	11.22	38.00
1.483	6.00	4.733	13.00	7.983	23.00	11.23	38.00
1.500	6.00	4.750	13.00	8.000	22.97	11.25	38.00
1.517	6.00	4.767	13.00	8.017	13.00	11.27	38.00
1.533	6.00	4.783	13.00	8.033	13.00	11.28	38.00
1.550	6.00	4.800	13.00	8.050	13.00	11.30	38.00
1.567	6.00	4.817	13.00	8.067	13.00	11.32	38.00
1.583	6.00	4.833	13.00	8.083	13.00	11.33	38.00
1.600	6.00	4.850	13.00	8.100	13.00	11.35	38.00
1.617	6.00	4.867	13.00	8.117	13.00	11.37	38.00
1.633	6.00	4.883	13.00	8.133	13.00	11.38	38.00
1.650	6.00	4.900	13.00	8.150	13.00	11.40	38.00
1.667	6.00	4.917	13.00	8.167	13.00	11.42	38.00
1.683	6.00	4.933	13.00	8.183	13.00	11.43	38.00
1.700	6.00	4.950	13.00	8.200	13.00	11.45	38.00
1.717	6.00	4.967	13.00	8.217	13.00	11.47	38.00
1.733	6.00	4.983	13.00	8.233	13.00	11.48	38.00
1.750	6.00	5.000	13.00	8.250	13.00	11.50	38.00
1.767	6.00	5.017	17.00	8.267	13.00	11.52	38.00
1.783	6.00	5.033	17.00	8.283	13.00	11.53	38.00
1.800	6.00	5.050	17.00	8.300	13.00	11.55	38.00
1.817	6.00	5.067	17.00	8.317	13.00	11.57	38.00
1.833	6.00	5.083	17.00	8.333	13.00	11.58	38.00
1.850	6.00	5.100	17.00	8.350	13.00	11.60	38.00
1.867	6.00	5.117	17.00	8.367	13.00	11.62	38.00
1.883	6.00	5.133	17.00	8.383	13.00	11.63	38.00
1.900	6.00	5.150	17.00	8.400	13.00	11.65	38.00
1.917	6.00	5.167	17.00	8.417	13.00	11.67	38.00
1.933	6.00	5.183	17.00	8.433	13.00	11.68	38.00
1.950	6.00	5.200	17.00	8.450	13.00	11.70	38.00
1.967	6.00	5.217	17.00	8.467	13.00	11.72	38.00
1.983	6.00	5.233	17.00	8.483	13.00	11.73	38.00
2.000	6.00	5.250	17.00	8.500	13.00	11.75	38.00
2.017	4.00	5.267	17.00	8.517	13.00	11.77	38.00
2.033	4.00	5.283	17.00	8.533	13.00	11.78	38.00
2.050	4.00	5.300	17.00	8.550	13.00	11.80	38.00
2.067	4.00	5.317	17.00	8.567	13.00	11.82	38.00
2.083	4.00	5.333	17.00	8.583	13.00	11.83	38.00
2.100	4.00	5.350	17.00	8.600	13.00	11.85	38.00
2.117	4.00	5.367	17.00	8.617	13.00	11.87	38.00
2.133	4.00	5.383	17.00	8.633	13.00	11.88	38.00
2.150	4.00	5.400	17.00	8.650	13.00	11.90	38.00
2.167	4.00	5.417	17.00	8.667	13.00	11.92	38.00
2.183	4.00	5.433	17.00	8.683	13.00	11.93	38.00
2.200	4.00	5.450	17.00	8.700	13.00	11.95	38.00
2.217	4.00	5.467	17.00	8.717	13.00	11.97	38.00
2.233	4.00	5.483	17.00	8.733	13.00	11.98	38.00
2.250	4.00	5.500	17.00	8.750	13.00	12.00	38.00
2.267	4.00	5.517	17.00	8.767	13.00	12.02	13.02

2.283	4.00	5.533	17.00	8.783	13.00	12.03	13.00
2.300	4.00	5.550	17.00	8.800	13.00	12.05	13.00
2.317	4.00	5.567	17.00	8.817	13.00	12.07	13.00
2.333	4.00	5.583	17.00	8.833	13.00	12.08	13.00
2.350	4.00	5.600	17.00	8.850	13.00	12.10	13.00
2.367	4.00	5.617	17.00	8.867	13.00	12.12	13.00
2.383	4.00	5.633	17.00	8.883	13.00	12.13	13.00
2.400	4.00	5.650	17.00	8.900	13.00	12.15	13.00
2.417	4.00	5.667	17.00	8.917	13.00	12.17	13.00
2.433	4.00	5.683	17.00	8.933	13.00	12.18	13.00
2.450	4.00	5.700	17.00	8.950	13.00	12.20	13.00
2.467	4.00	5.717	17.00	8.967	13.00	12.22	13.00
2.483	4.00	5.733	17.00	8.983	13.00	12.23	13.00
2.500	4.00	5.750	17.00	9.000	13.00	12.25	13.00
2.517	4.00	5.767	17.00	9.017	13.00	12.27	13.00
2.533	4.00	5.783	17.00	9.033	13.00	12.28	13.00
2.550	4.00	5.800	17.00	9.050	13.00	12.30	13.00
2.567	4.00	5.817	17.00	9.067	13.00	12.32	13.00
2.583	4.00	5.833	17.00	9.083	13.00	12.33	13.00
2.600	4.00	5.850	17.00	9.100	13.00	12.35	13.00
2.617	4.00	5.867	17.00	9.117	13.00	12.37	13.00
2.633	4.00	5.883	17.00	9.133	13.00	12.38	13.00
2.650	4.00	5.900	17.00	9.150	13.00	12.40	13.00
2.667	4.00	5.917	17.00	9.167	13.00	12.42	13.00
2.683	4.00	5.933	17.00	9.183	13.00	12.43	13.00
2.700	4.00	5.950	17.00	9.200	13.00	12.45	13.00
2.717	4.00	5.967	17.00	9.217	13.00	12.47	13.00
2.733	4.00	5.983	17.00	9.233	13.00	12.48	13.00
2.750	4.00	6.000	16.99	9.250	13.00	12.50	13.00
2.767	4.00	6.017	13.00	9.267	13.00	12.52	13.00
2.783	4.00	6.033	13.00	9.283	13.00	12.53	13.00
2.800	4.00	6.050	13.00	9.300	13.00	12.55	13.00
2.817	4.00	6.067	13.00	9.317	13.00	12.57	13.00
2.833	4.00	6.083	13.00	9.333	13.00	12.58	13.00
2.850	4.00	6.100	13.00	9.350	13.00	12.60	13.00
2.867	4.00	6.117	13.00	9.367	13.00	12.62	13.00
2.883	4.00	6.133	13.00	9.383	13.00	12.63	13.00
2.900	4.00	6.150	13.00	9.400	13.00	12.65	13.00
2.917	4.00	6.167	13.00	9.417	13.00	12.67	13.00
2.933	4.00	6.183	13.00	9.433	13.00	12.68	13.00
2.950	4.00	6.200	13.00	9.450	13.00	12.70	13.00
2.967	4.00	6.217	13.00	9.467	13.00	12.72	13.00
2.983	4.00	6.233	13.00	9.483	13.00	12.73	13.00
3.000	4.00	6.250	13.00	9.500	13.00	12.75	13.00
3.017	6.00	6.267	13.00	9.517	13.00	12.77	13.00
3.033	6.00	6.283	13.00	9.533	13.00	12.78	13.00
3.050	6.00	6.300	13.00	9.550	13.00	12.80	13.00
3.067	6.00	6.317	13.00	9.567	13.00	12.82	13.00
3.083	6.00	6.333	13.00	9.583	13.00	12.83	13.00
3.100	6.00	6.350	13.00	9.600	13.00	12.85	13.00
3.117	6.00	6.367	13.00	9.617	13.00	12.87	13.00
3.133	6.00	6.383	13.00	9.633	13.00	12.88	13.00
3.150	6.00	6.400	13.00	9.650	13.00	12.90	13.00
3.167	6.00	6.417	13.00	9.667	13.00	12.92	13.00
3.183	6.00	6.433	13.00	9.683	13.00	12.93	13.00
3.200	6.00	6.450	13.00	9.700	13.00	12.95	13.00
3.217	6.00	6.467	13.00	9.717	13.00	12.97	13.00
3.233	6.00	6.483	13.00	9.733	13.00	12.98	13.00
3.250	6.00	6.500	13.00	9.750	13.00	13.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	77.18
over (min)	5.00	8.00
Storage Coeff. (min)=	1.83 (ii)	7.08 (ii)
Unit Hyd. Tpeak (min)=	5.00	8.00

Unit Hyd. peak (cms)=	0.39	0.15		
			TOTALS	
PEAK FLOW (cms)=	0.00	0.08	0.078	(iii)
TIME TO PEAK (hrs)=	10.38	11.00	11.00	
RUNOFF VOLUME (mm)=	210.00	140.40	142.49	
TOTAL RAINFALL (mm)=	212.00	212.00	212.00	
RUNOFF COEFFICIENT =	0.99	0.66	0.67	

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 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.

ADD HYD (0005)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
1 + 2 = 3	ID1= 1 (0202):	0.63	0.078	11.00	142.49
	+ ID2= 2 (0302):	1.68	0.127	11.08	81.87
	ID = 3 (0005):	2.31	0.203	11.03	98.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB STANDHYD (0201)	Area (ha)= 0.88			
ID= 1 DT= 1.0 min	Total Imp(%)= 77.00	Dir. Conn.(%)= 51.00		
		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.68	0.20	
Dep. Storage	(mm)=	2.00	5.00	
Average Slope	(%)=	0.50	2.00	
Length	(m)=	76.61	20.00	
Mannings n	=	0.013	0.190	

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.00	3.267	6.00	6.517	13.00	9.77	13.00
0.033	0.00	3.283	6.00	6.533	13.00	9.78	13.00
0.050	0.00	3.300	6.00	6.550	13.00	9.80	13.00
0.067	0.00	3.317	6.00	6.567	13.00	9.82	13.00
0.083	0.00	3.333	6.00	6.583	13.00	9.83	13.00
0.100	0.00	3.350	6.00	6.600	13.00	9.85	13.00
0.117	0.00	3.367	6.00	6.617	13.00	9.87	13.00
0.133	0.00	3.383	6.00	6.633	13.00	9.88	13.00
0.150	0.00	3.400	6.00	6.650	13.00	9.90	13.00
0.167	0.00	3.417	6.00	6.667	13.00	9.92	13.00
0.183	0.00	3.433	6.00	6.683	13.00	9.93	13.00
0.200	0.00	3.450	6.00	6.700	13.00	9.95	13.00
0.217	0.00	3.467	6.00	6.717	13.00	9.97	13.00
0.233	0.00	3.483	6.00	6.733	13.00	9.98	13.00
0.250	0.00	3.500	6.00	6.750	13.00	10.00	13.05
0.267	0.00	3.517	6.00	6.767	13.00	10.02	53.00

0.283	0.00	3.533	6.00	6.783	13.00	10.03	53.00
0.300	0.00	3.550	6.00	6.800	13.00	10.05	53.00
0.317	0.00	3.567	6.00	6.817	13.00	10.07	53.00
0.333	0.00	3.583	6.00	6.833	13.00	10.08	53.00
0.350	0.00	3.600	6.00	6.850	13.00	10.10	53.00
0.367	0.00	3.617	6.00	6.867	13.00	10.12	53.00
0.383	0.00	3.633	6.00	6.883	13.00	10.13	53.00
0.400	0.00	3.650	6.00	6.900	13.00	10.15	53.00
0.417	0.00	3.667	6.00	6.917	13.00	10.17	53.00
0.433	0.00	3.683	6.00	6.933	13.00	10.18	53.00
0.450	0.00	3.700	6.00	6.950	13.00	10.20	53.00
0.467	0.00	3.717	6.00	6.967	13.00	10.22	53.00
0.483	0.00	3.733	6.00	6.983	13.00	10.23	53.00
0.500	0.00	3.750	6.00	7.000	13.02	10.25	53.00
0.517	0.00	3.767	6.00	7.017	23.00	10.27	53.00
0.533	0.00	3.783	6.00	7.033	23.00	10.28	53.00
0.550	0.00	3.800	6.00	7.050	23.00	10.30	53.00
0.567	0.00	3.817	6.00	7.067	23.00	10.32	53.00
0.583	0.00	3.833	6.00	7.083	23.00	10.33	53.00
0.600	0.00	3.850	6.00	7.100	23.00	10.35	53.00
0.617	0.00	3.867	6.00	7.117	23.00	10.37	53.00
0.633	0.00	3.883	6.00	7.133	23.00	10.38	53.00
0.650	0.00	3.900	6.00	7.150	23.00	10.40	53.00
0.667	0.00	3.917	6.00	7.167	23.00	10.42	53.00
0.683	0.00	3.933	6.00	7.183	23.00	10.43	53.00
0.700	0.00	3.950	6.00	7.200	23.00	10.45	53.00
0.717	0.00	3.967	6.00	7.217	23.00	10.47	53.00
0.733	0.00	3.983	6.00	7.233	23.00	10.48	53.00
0.750	0.00	4.000	6.00	7.250	23.00	10.50	53.00
0.767	0.00	4.017	13.00	7.267	23.00	10.52	53.00
0.783	0.00	4.033	13.00	7.283	23.00	10.53	53.00
0.800	0.00	4.050	13.00	7.300	23.00	10.55	53.00
0.817	0.00	4.067	13.00	7.317	23.00	10.57	53.00
0.833	0.00	4.083	13.00	7.333	23.00	10.58	53.00
0.850	0.00	4.100	13.00	7.350	23.00	10.60	53.00
0.867	0.00	4.117	13.00	7.367	23.00	10.62	53.00
0.883	0.00	4.133	13.00	7.383	23.00	10.63	53.00
0.900	0.00	4.150	13.00	7.400	23.00	10.65	53.00
0.917	0.00	4.167	13.00	7.417	23.00	10.67	53.00
0.933	0.00	4.183	13.00	7.433	23.00	10.68	53.00
0.950	0.00	4.200	13.00	7.450	23.00	10.70	53.00
0.967	0.00	4.217	13.00	7.467	23.00	10.72	53.00
0.983	0.00	4.233	13.00	7.483	23.00	10.73	53.00
1.000	0.00	4.250	13.00	7.500	23.00	10.75	53.00
1.017	6.00	4.267	13.00	7.517	23.00	10.77	53.00
1.033	6.00	4.283	13.00	7.533	23.00	10.78	53.00
1.050	6.00	4.300	13.00	7.550	23.00	10.80	53.00
1.067	6.00	4.317	13.00	7.567	23.00	10.82	53.00
1.083	6.00	4.333	13.00	7.583	23.00	10.83	53.00
1.100	6.00	4.350	13.00	7.600	23.00	10.85	53.00
1.117	6.00	4.367	13.00	7.617	23.00	10.87	53.00
1.133	6.00	4.383	13.00	7.633	23.00	10.88	53.00
1.150	6.00	4.400	13.00	7.650	23.00	10.90	53.00
1.167	6.00	4.417	13.00	7.667	23.00	10.92	53.00
1.183	6.00	4.433	13.00	7.683	23.00	10.93	53.00
1.200	6.00	4.450	13.00	7.700	23.00	10.95	53.00
1.217	6.00	4.467	13.00	7.717	23.00	10.97	53.00
1.233	6.00	4.483	13.00	7.733	23.00	10.98	53.00
1.250	6.00	4.500	13.00	7.750	23.00	11.00	53.00
1.267	6.00	4.517	13.00	7.767	23.00	11.02	38.00
1.283	6.00	4.533	13.00	7.783	23.00	11.03	38.00
1.300	6.00	4.550	13.00	7.800	23.00	11.05	38.00
1.317	6.00	4.567	13.00	7.817	23.00	11.07	38.00
1.333	6.00	4.583	13.00	7.833	23.00	11.08	38.00

1.350	6.00	4.600	13.00	7.850	23.00	11.10	38.00
1.367	6.00	4.617	13.00	7.867	23.00	11.12	38.00
1.383	6.00	4.633	13.00	7.883	23.00	11.13	38.00
1.400	6.00	4.650	13.00	7.900	23.00	11.15	38.00
1.417	6.00	4.667	13.00	7.917	23.00	11.17	38.00
1.433	6.00	4.683	13.00	7.933	23.00	11.18	38.00
1.450	6.00	4.700	13.00	7.950	23.00	11.20	38.00
1.467	6.00	4.717	13.00	7.967	23.00	11.22	38.00
1.483	6.00	4.733	13.00	7.983	23.00	11.23	38.00
1.500	6.00	4.750	13.00	8.000	22.97	11.25	38.00
1.517	6.00	4.767	13.00	8.017	13.00	11.27	38.00
1.533	6.00	4.783	13.00	8.033	13.00	11.28	38.00
1.550	6.00	4.800	13.00	8.050	13.00	11.30	38.00
1.567	6.00	4.817	13.00	8.067	13.00	11.32	38.00
1.583	6.00	4.833	13.00	8.083	13.00	11.33	38.00
1.600	6.00	4.850	13.00	8.100	13.00	11.35	38.00
1.617	6.00	4.867	13.00	8.117	13.00	11.37	38.00
1.633	6.00	4.883	13.00	8.133	13.00	11.38	38.00
1.650	6.00	4.900	13.00	8.150	13.00	11.40	38.00
1.667	6.00	4.917	13.00	8.167	13.00	11.42	38.00
1.683	6.00	4.933	13.00	8.183	13.00	11.43	38.00
1.700	6.00	4.950	13.00	8.200	13.00	11.45	38.00
1.717	6.00	4.967	13.00	8.217	13.00	11.47	38.00
1.733	6.00	4.983	13.00	8.233	13.00	11.48	38.00
1.750	6.00	5.000	13.00	8.250	13.00	11.50	38.00
1.767	6.00	5.017	17.00	8.267	13.00	11.52	38.00
1.783	6.00	5.033	17.00	8.283	13.00	11.53	38.00
1.800	6.00	5.050	17.00	8.300	13.00	11.55	38.00
1.817	6.00	5.067	17.00	8.317	13.00	11.57	38.00
1.833	6.00	5.083	17.00	8.333	13.00	11.58	38.00
1.850	6.00	5.100	17.00	8.350	13.00	11.60	38.00
1.867	6.00	5.117	17.00	8.367	13.00	11.62	38.00
1.883	6.00	5.133	17.00	8.383	13.00	11.63	38.00
1.900	6.00	5.150	17.00	8.400	13.00	11.65	38.00
1.917	6.00	5.167	17.00	8.417	13.00	11.67	38.00
1.933	6.00	5.183	17.00	8.433	13.00	11.68	38.00
1.950	6.00	5.200	17.00	8.450	13.00	11.70	38.00
1.967	6.00	5.217	17.00	8.467	13.00	11.72	38.00
1.983	6.00	5.233	17.00	8.483	13.00	11.73	38.00
2.000	6.00	5.250	17.00	8.500	13.00	11.75	38.00
2.017	4.00	5.267	17.00	8.517	13.00	11.77	38.00
2.033	4.00	5.283	17.00	8.533	13.00	11.78	38.00
2.050	4.00	5.300	17.00	8.550	13.00	11.80	38.00
2.067	4.00	5.317	17.00	8.567	13.00	11.82	38.00
2.083	4.00	5.333	17.00	8.583	13.00	11.83	38.00
2.100	4.00	5.350	17.00	8.600	13.00	11.85	38.00
2.117	4.00	5.367	17.00	8.617	13.00	11.87	38.00
2.133	4.00	5.383	17.00	8.633	13.00	11.88	38.00
2.150	4.00	5.400	17.00	8.650	13.00	11.90	38.00
2.167	4.00	5.417	17.00	8.667	13.00	11.92	38.00
2.183	4.00	5.433	17.00	8.683	13.00	11.93	38.00
2.200	4.00	5.450	17.00	8.700	13.00	11.95	38.00
2.217	4.00	5.467	17.00	8.717	13.00	11.97	38.00
2.233	4.00	5.483	17.00	8.733	13.00	11.98	38.00
2.250	4.00	5.500	17.00	8.750	13.00	12.00	38.00
2.267	4.00	5.517	17.00	8.767	13.00	12.02	13.02
2.283	4.00	5.533	17.00	8.783	13.00	12.03	13.00
2.300	4.00	5.550	17.00	8.800	13.00	12.05	13.00
2.317	4.00	5.567	17.00	8.817	13.00	12.07	13.00
2.333	4.00	5.583	17.00	8.833	13.00	12.08	13.00
2.350	4.00	5.600	17.00	8.850	13.00	12.10	13.00
2.367	4.00	5.617	17.00	8.867	13.00	12.12	13.00
2.383	4.00	5.633	17.00	8.883	13.00	12.13	13.00
2.400	4.00	5.650	17.00	8.900	13.00	12.15	13.00

2.417	4.00	5.667	17.00	8.917	13.00	12.17	13.00
2.433	4.00	5.683	17.00	8.933	13.00	12.18	13.00
2.450	4.00	5.700	17.00	8.950	13.00	12.20	13.00
2.467	4.00	5.717	17.00	8.967	13.00	12.22	13.00
2.483	4.00	5.733	17.00	8.983	13.00	12.23	13.00
2.500	4.00	5.750	17.00	9.000	13.00	12.25	13.00
2.517	4.00	5.767	17.00	9.017	13.00	12.27	13.00
2.533	4.00	5.783	17.00	9.033	13.00	12.28	13.00
2.550	4.00	5.800	17.00	9.050	13.00	12.30	13.00
2.567	4.00	5.817	17.00	9.067	13.00	12.32	13.00
2.583	4.00	5.833	17.00	9.083	13.00	12.33	13.00
2.600	4.00	5.850	17.00	9.100	13.00	12.35	13.00
2.617	4.00	5.867	17.00	9.117	13.00	12.37	13.00
2.633	4.00	5.883	17.00	9.133	13.00	12.38	13.00
2.650	4.00	5.900	17.00	9.150	13.00	12.40	13.00
2.667	4.00	5.917	17.00	9.167	13.00	12.42	13.00
2.683	4.00	5.933	17.00	9.183	13.00	12.43	13.00
2.700	4.00	5.950	17.00	9.200	13.00	12.45	13.00
2.717	4.00	5.967	17.00	9.217	13.00	12.47	13.00
2.733	4.00	5.983	17.00	9.233	13.00	12.48	13.00
2.750	4.00	6.000	16.99	9.250	13.00	12.50	13.00
2.767	4.00	6.017	13.00	9.267	13.00	12.52	13.00
2.783	4.00	6.033	13.00	9.283	13.00	12.53	13.00
2.800	4.00	6.050	13.00	9.300	13.00	12.55	13.00
2.817	4.00	6.067	13.00	9.317	13.00	12.57	13.00
2.833	4.00	6.083	13.00	9.333	13.00	12.58	13.00
2.850	4.00	6.100	13.00	9.350	13.00	12.60	13.00
2.867	4.00	6.117	13.00	9.367	13.00	12.62	13.00
2.883	4.00	6.133	13.00	9.383	13.00	12.63	13.00
2.900	4.00	6.150	13.00	9.400	13.00	12.65	13.00
2.917	4.00	6.167	13.00	9.417	13.00	12.67	13.00
2.933	4.00	6.183	13.00	9.433	13.00	12.68	13.00
2.950	4.00	6.200	13.00	9.450	13.00	12.70	13.00
2.967	4.00	6.217	13.00	9.467	13.00	12.72	13.00
2.983	4.00	6.233	13.00	9.483	13.00	12.73	13.00
3.000	4.00	6.250	13.00	9.500	13.00	12.75	13.00
3.017	6.00	6.267	13.00	9.517	13.00	12.77	13.00
3.033	6.00	6.283	13.00	9.533	13.00	12.78	13.00
3.050	6.00	6.300	13.00	9.550	13.00	12.80	13.00
3.067	6.00	6.317	13.00	9.567	13.00	12.82	13.00
3.083	6.00	6.333	13.00	9.583	13.00	12.83	13.00
3.100	6.00	6.350	13.00	9.600	13.00	12.85	13.00
3.117	6.00	6.367	13.00	9.617	13.00	12.87	13.00
3.133	6.00	6.383	13.00	9.633	13.00	12.88	13.00
3.150	6.00	6.400	13.00	9.650	13.00	12.90	13.00
3.167	6.00	6.417	13.00	9.667	13.00	12.92	13.00
3.183	6.00	6.433	13.00	9.683	13.00	12.93	13.00
3.200	6.00	6.450	13.00	9.700	13.00	12.95	13.00
3.217	6.00	6.467	13.00	9.717	13.00	12.97	13.00
3.233	6.00	6.483	13.00	9.733	13.00	12.98	13.00
3.250	6.00	6.500	13.00	9.750	13.00	13.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	99.85	
over (min)	5.00	8.00	
Storage Coeff. (min)=	3.46 (ii)	7.16 (ii)	
Unit Hyd. Tpeak (min)=	5.00	8.00	
Unit Hyd. peak (cms)=	0.28	0.15	
			TOTALS
PEAK FLOW (cms)=	0.07	0.06	0.122 (iii)
TIME TO PEAK (hrs)=	10.80	11.00	11.00
RUNOFF VOLUME (mm)=	210.00	152.02	181.59
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	0.99	0.72	0.86

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.0 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.

| CHAMBER(0010)|
|IN= 2--> OUT= 3 |
| DT= 2.0 min |

OUTFLOW: OFF, UNDERDRAIN: ON, INFIL: ON
CHAMBER:
MAX STO VOL (cu.m.)= 128.13 Bottom Area(m2) = 100.66

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1092.00	72.59
25.00	1.02	1118.00	74.39
51.00	2.04	1143.00	76.17
76.00	3.07	1168.00	77.95
102.00	4.09	1194.00	79.70
127.00	5.11	1219.00	81.45
152.00	6.13	1245.00	83.17
178.00	7.16	1270.00	84.88
203.00	8.18	1295.00	86.58
229.00	9.20	1321.00	88.25
254.00	10.22	1346.00	89.91
279.00	11.25	1372.00	91.55
305.00	12.27	1397.00	93.17
330.00	14.31	1422.00	94.77
356.00	16.34	1448.00	96.35
381.00	18.37	1473.00	97.90
406.00	20.39	1499.00	99.43
432.00	22.41	1524.00	100.93
457.00	24.43	1549.00	102.40
483.00	26.44	1575.00	103.85
508.00	28.45	1600.00	105.26
533.00	30.45	1626.00	106.63
559.00	32.44	1651.00	107.96
584.00	34.43	1676.00	109.24
610.00	36.42	1702.00	110.44
635.00	38.40	1727.00	111.57
660.00	40.37	1753.00	112.67
686.00	42.33	1778.00	113.76
711.00	44.29	1803.00	114.82
737.00	46.24	1829.00	115.86
762.00	48.18	1854.00	116.88
787.00	50.12	1880.00	117.91
813.00	52.05	1905.00	118.93
838.00	53.96	1930.00	119.95
864.00	55.87	1956.00	120.97
889.00	57.77	1981.00	122.00
914.00	59.66	2007.00	123.02
940.00	61.54	2032.00	124.04
965.00	63.41	2057.00	125.06
991.00	65.27	2083.00	126.09
1016.00	67.12	2108.00	127.11
1041.00	68.95	2134.00	128.13
1067.00	70.78	0.00	0.00

UNDERDRAIN LAYER:

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.206	0.146

0.019	0.001	|	0.225	0.167
0.038	0.005	|	0.244	0.188
0.056	0.012	|	0.262	0.208
0.075	0.022	|	0.281	0.226
0.094	0.034	|	0.300	0.242
0.112	0.049	|	0.319	0.256
0.131	0.066	|	0.337	0.264
0.150	0.084	|	0.356	0.266
0.169	0.104	|	0.375	0.248
0.188	0.125	|	0.000	0.000

NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0380

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	0.88	0.122	11.00	181.59
UNDERDRAIN:ID= 4	0.88	0.121	11.00	164.61
OVERFLOW:ID= 3	0.00	0.000	0.00	0.00

Volume Reduction Rate[(RVin-RVout)/RVin](%)= 9.35
Time to reach Max storage (Hr)= 12.15
Volume of water for drawdown in LID (cu.m.)= 102.34
Volume of maximum water storage (cu.m.)= 105.61
Calculated Drawdown Time (Hr)= 26.75

| Junction Command(0012) |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 4(0010)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0012)	0.00	0.00	0.00	0.00

| ADD HYD (0009)|
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
*** W A R N I N G : HYDROGRAPH 0012 <ID= 1> IS DRY.				
*** W A R N I N G : HYDROGRAPH 0009 = HYDROGRAPH 0005				
ID1= 1 (0012):	0.00	0.000	0.00	0.00
+ ID2= 2 (0005):	2.31	0.203	11.03	98.43
ID = 3 (0009):	2.31	0.203	11.03	98.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH
==========
==========

```
**************************************************
** SIMULATION:Post-Dev-PF, Channels 100yr 12hr SCS **
**************************************************

-------------------
| ADD HYD  (  0005)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0202):     0.63   0.087     6.10    36.61
     + ID2= 2 (  0302):     1.68   0.049     6.27    13.42
       ================================================
       ID = 3 (  0005):     2.31   0.124     6.13    19.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 100yr 24hr SCS **
**************************************************

-------------------
| ADD HYD  (  0005)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0202):     0.63   0.107    12.10    48.62
     + ID2= 2 (  0302):     1.68   0.060    12.27    14.75
       ================================================
       ID = 3 (  0005):     2.31   0.150    12.12    27.08

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 100yr 4hr CHI **
**************************************************

-------------------
| ADD HYD  (  0005)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0202):     0.63   0.057     1.43    23.96
     + ID2= 2 (  0302):     1.68   0.028     1.73     7.97
       ================================================
       ID = 3 (  0005):     2.31   0.070     1.48    12.33

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 100yr 6hr SCS **
**************************************************

-------------------
| ADD HYD  (  0005)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0202):     0.63   0.097     3.10    33.40
     + ID2= 2 (  0302):     1.68   0.052     3.28    11.99
       ================================================
       ID = 3 (  0005):     2.31   0.133     3.12    17.84

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 10yr 12hr SCS **
**************************************************
```

```
------------------
| ADD HYD  (  0005)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0202):     0.63   0.040     6.12    18.73
      + ID2= 2 (  0302):     1.68   0.021     6.28     5.86
        ==========================================================
        ID = 3 (  0005):     2.31   0.057     6.13     9.38

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 10yr 24hr SCS **
**************************************************

------------------
| ADD HYD  (  0005)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0202):     0.63   0.049    12.12    25.04
      + ID2= 2 (  0302):     1.68   0.026    12.28     6.43
        ==========================================================
        ID = 3 (  0005):     2.31   0.069    12.13    12.96

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 10yr 4hr CHI **
**************************************************

------------------
| ADD HYD  (  0005)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0202):     0.63   0.025     1.47    12.23
      + ID2= 2 (  0302):     1.68   0.012     1.75     3.41
        ==========================================================
        ID = 3 (  0005):     2.31   0.032     1.53     5.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 10yr 6hr SCS **
**************************************************

------------------
| ADD HYD  (  0005)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0202):     0.63   0.042     3.12    16.54
      + ID2= 2 (  0302):     1.68   0.021     3.30     5.02
        ==========================================================
        ID = 3 (  0005):     2.31   0.058     3.13     8.16

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 25yr 12hr SCS **
**************************************************

------------------
| ADD HYD  (  0005)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
------------------           (ha)    (cms)    (hrs)     (mm)
```

ID1= 1 (0202):	0.63	0.058	6.12	25.43
+ ID2= 2 (0302):	1.68	0.031	6.28	8.58
ID = 3 (0005):	2.31	0.082	6.13	13.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 25yr 24hr SCS **
****

ADD HYD (0005)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	0.63	0.070	12.10	33.92
+ ID2= 2 (0302):	1.68	0.038	12.27	9.42
ID = 3 (0005):	2.31	0.099	12.13	18.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 25yr 4hr CHI **
****

ADD HYD (0005)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	0.63	0.037	1.45	16.73
+ ID2= 2 (0302):	1.68	0.018	1.73	5.09
ID = 3 (0005):	2.31	0.046	1.48	8.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 25yr 6hr SCS **
****

ADD HYD (0005)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	0.63	0.062	3.12	22.84
+ ID2= 2 (0302):	1.68	0.032	3.28	7.51
ID = 3 (0005):	2.31	0.085	3.13	11.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 2yr 12hr SCS **
****

ADD HYD (0005)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	0.63	0.014	6.13	7.85
+ ID2= 2 (0302):	1.68	0.007	6.30	1.91
ID = 3 (0005):	2.31	0.019	6.15	3.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 2yr 24hr SCS **
****

ADD HYD (0005)|	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0202):		0.63	0.017	12.13	10.55
+ ID2= 2 (0302):		1.68	0.008	12.28	2.09
ID = 3 (0005):		2.31	0.023	12.15	4.93

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 2yr 4hr CHI **
****

ADD HYD (0005)|	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0202):		0.63	0.008	1.53	5.11
+ ID2= 2 (0302):		1.68	0.003	1.78	1.05
ID = 3 (0005):		2.31	0.011	1.60	2.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 2yr 6hr SCS **
****

ADD HYD (0005)|	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0202):		0.63	0.014	3.13	6.55
+ ID2= 2 (0302):		1.68	0.006	3.32	1.49
ID = 3 (0005):		2.31	0.018	3.15	2.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 50yr 12hr SCS **
****

ADD HYD (0005)|	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0202):		0.63	0.072	6.10	30.90
+ ID2= 2 (0302):		1.68	0.040	6.28	10.90
ID = 3 (0005):		2.31	0.102	6.13	16.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****

** SIMULATION:Post-Dev-PF, Channels 50yr 24hr SCS **
****

ADD HYD (0005)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	0.63	0.087	12.10	41.09
+ ID2= 2 (0302):	1.68	0.049	12.27	11.97
ID = 3 (0005):	2.31	0.123	12.13	22.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 50yr 4hr CHI **
****

ADD HYD (0005)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	0.63	0.047	1.43	20.24
+ ID2= 2 (0302):	1.68	0.023	1.73	6.46
ID = 3 (0005):	2.31	0.057	1.48	10.23

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 50yr 6hr SCS **
****

ADD HYD (0005)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	0.63	0.078	3.12	27.97
+ ID2= 2 (0302):	1.68	0.041	3.28	9.64
ID = 3 (0005):	2.31	0.108	3.13	14.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 5yr 12hr SCS **
****

ADD HYD (0005)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	0.63	0.028	6.12	13.95
+ ID2= 2 (0302):	1.68	0.014	6.28	4.04
ID = 3 (0005):	2.31	0.039	6.15	6.75

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 5yr 24hr SCS **
****

| ADD HYD (0005)|
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	0.63	0.034	12.12	18.73
+ ID2= 2 (0302):	1.68	0.018	12.28	4.44
ID = 3 (0005):	2.31	0.048	12.15	9.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 5yr 4hr CHI **
****

| ADD HYD (0005)|
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	0.63	0.017	1.48	9.06
+ ID2= 2 (0302):	1.68	0.008	1.77	2.31
ID = 3 (0005):	2.31	0.022	1.55	4.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 5yr 6hr SCS **
****

| ADD HYD (0005)|
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	0.63	0.029	3.12	12.15
+ ID2= 2 (0302):	1.68	0.014	3.30	3.39
ID = 3 (0005):	2.31	0.039	3.15	5.78

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels WQE 25mm 4hr CHI **
****

| ADD HYD (0005)|
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	0.63	0.004	1.37	2.45
+ ID2= 2 (0302):	1.68	0.001	1.88	0.34
ID = 3 (0005):	2.31	0.004	1.37	0.92

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
**************************************************
** SIMULATION:Post-Dev-PF, Channel Hazel AMCIII **
**************************************************

--------------------
| ADD HYD  (  0005)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0202):     0.63   0.078    11.00   142.49
      + ID2= 2 (  0302):     1.68   0.127    11.08    81.87
        ==========================================================
        ID = 3 (  0005):     2.31   0.203    11.03    98.43

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
```

```
**************************************************
** SIMULATION:Post-Dev-PF, Channels 100yr 12hr SCS **
**************************************************

-------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):     0.09   0.009     6.08    21.12
     + ID2= 2 (  0301):     6.32   0.209     6.27    14.66
       ================================================
       ID = 3 (  0007):     6.41   0.210     6.27    14.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 100yr 24hr SCS **
**************************************************

-------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):     0.09   0.011    12.08    23.40
     + ID2= 2 (  0301):     6.32   0.253    12.27    16.11
       ================================================
       ID = 3 (  0007):     6.41   0.255    12.27    20.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 100yr 4hr CHI **
**************************************************

-------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):     0.09   0.006     1.35    13.02
     + ID2= 2 (  0301):     6.32   0.120     1.72     8.73
       ================================================
       ID = 3 (  0007):     6.41   0.122     1.72     8.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 100yr 6hr SCS **
**************************************************

-------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):     0.09   0.010     3.08    19.02
     + ID2= 2 (  0301):     6.32   0.218     3.27    13.11
       ================================================
       ID = 3 (  0007):     6.41   0.220     3.27    13.19

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 10yr 12hr SCS **
**************************************************
```

```
-------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):     0.09   0.004     6.08     9.81
     + ID2= 2 (  0301):     6.32   0.090     6.27     6.44
       ================================================
       ID = 3 (  0007):     6.41   0.091     6.27     6.49

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
************************************************
** SIMULATION:Post-Dev-PF, Channels 10yr 24hr SCS **
************************************************

-------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):     0.09   0.005    12.08    10.86
     + ID2= 2 (  0301):     6.32   0.111    12.27     7.07
       ================================================
       ID = 3 (  0007):     6.41   0.112    12.27     9.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
************************************************
** SIMULATION:Post-Dev-PF, Channels 10yr 4hr CHI **
************************************************

-------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):     0.09   0.003     1.35     5.99
     + ID2= 2 (  0301):     6.32   0.050     1.73     3.76
       ================================================
       ID = 3 (  0007):     6.41   0.051     1.73     3.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
************************************************
** SIMULATION:Post-Dev-PF, Channels 10yr 6hr SCS **
************************************************

-------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):     0.09   0.005     3.08     8.50
     + ID2= 2 (  0301):     6.32   0.090     3.28     5.51
       ================================================
       ID = 3 (  0007):     6.41   0.091     3.28     5.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
************************************************
** SIMULATION:Post-Dev-PF, Channels 25yr 12hr SCS **
************************************************

-------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
```

ID1= 1 (0207):	0.09	0.006	6.08	13.94
+ ID2= 2 (0301):	6.32	0.133	6.27	9.40
ID = 3 (0007):	6.41	0.134	6.27	9.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 25yr 24hr SCS **
****

ADD HYD (0007)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0207):	0.09	0.008	12.08	15.44
+ ID2= 2 (0301):	6.32	0.162	12.27	10.32
ID = 3 (0007):	6.41	0.163	12.27	13.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 25yr 4hr CHI **
****

ADD HYD (0007)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0207):	0.09	0.004	1.35	8.62
+ ID2= 2 (0301):	6.32	0.075	1.72	5.59
ID = 3 (0007):	6.41	0.076	1.72	5.64

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 25yr 6hr SCS **
****

ADD HYD (0007)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0207):	0.09	0.007	3.08	12.33
+ ID2= 2 (0301):	6.32	0.136	3.28	8.23
ID = 3 (0007):	6.41	0.137	3.28	8.29

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 2yr 12hr SCS **
****

ADD HYD (0007)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0207):	0.09	0.002	6.08	3.55
+ ID2= 2 (0301):	6.32	0.028	6.28	2.11
ID = 3 (0007):	6.41	0.028	6.28	2.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 2yr 24hr SCS **
****

ADD HYD (0007)|	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0207):		0.09	0.002	12.08	3.92
+ ID2= 2 (0301):		6.32	0.036	12.27	2.31
ID = 3 (0007):		6.41	0.036	12.27	3.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 2yr 4hr CHI **
****

ADD HYD (0007)|	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0207):		0.09	0.001	1.35	2.11
+ ID2= 2 (0301):		6.32	0.015	1.77	1.17
ID = 3 (0007):		6.41	0.015	1.77	1.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 2yr 6hr SCS **
****

ADD HYD (0007)|	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0207):		0.09	0.002	3.08	2.85
+ ID2= 2 (0301):		6.32	0.025	3.30	1.65
ID = 3 (0007):		6.41	0.026	3.30	1.67

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 50yr 12hr SCS **
****

ADD HYD (0007)|	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0207):		0.09	0.008	6.08	17.41
+ ID2= 2 (0301):		6.32	0.169	6.27	11.92
ID = 3 (0007):		6.41	0.171	6.27	12.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****

** SIMULATION:Post-Dev-PF, Channels 50yr 24hr SCS **
****

ADD HYD (0007)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0207):	0.09	0.009	12.08	19.27
+ ID2= 2 (0301):	6.32	0.206	12.27	13.09
ID = 3 (0007):	6.41	0.207	12.27	16.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 50yr 4hr CHI **
****

ADD HYD (0007)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0207):	0.09	0.005	1.35	10.73
+ ID2= 2 (0301):	6.32	0.096	1.72	7.09
ID = 3 (0007):	6.41	0.097	1.72	7.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 50yr 6hr SCS **
****

ADD HYD (0007)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0207):	0.09	0.008	3.08	15.54
+ ID2= 2 (0301):	6.32	0.175	3.27	10.56
ID = 3 (0007):	6.41	0.176	3.27	10.63

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 5yr 12hr SCS **
****

ADD HYD (0007)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0207):	0.09	0.003	6.08	6.98
+ ID2= 2 (0301):	6.32	0.062	6.27	4.45
ID = 3 (0007):	6.41	0.062	6.27	4.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 5yr 24hr SCS **
****

ADD HYD (0007)					

| ADD HYD (0007)|
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0207):	0.09	0.004	12.08	7.73
+ ID2= 2 (0301):	6.32	0.077	12.27	4.89
ID = 3 (0007):	6.41	0.077	12.27	6.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 5yr 4hr CHI **
****

| ADD HYD (0007)|
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0207):	0.09	0.002	1.35	4.21
+ ID2= 2 (0301):	6.32	0.033	1.75	2.55
ID = 3 (0007):	6.41	0.034	1.75	2.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 5yr 6hr SCS **
****

| ADD HYD (0007)|
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0207):	0.09	0.003	3.08	5.94
+ ID2= 2 (0301):	6.32	0.060	3.28	3.73
ID = 3 (0007):	6.41	0.061	3.28	3.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels WQE 25mm 4hr CHI **
****

| ADD HYD (0007)|
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0207):	0.09	0.000	1.37	0.82
+ ID2= 2 (0301):	6.32	0.004	1.87	0.38
ID = 3 (0007):	6.41	0.004	1.87	0.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
**************************************************
** SIMULATION:Post-Dev-PF, Channel Hazel AMCIII **
**************************************************

--------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0207):     0.09   0.009    11.00   106.77
      + ID2= 2 (  0301):     6.32   0.502    11.08    85.90
        ==========================================================
        ID = 3 (  0007):     6.41   0.509    11.07    86.20

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
```

```
**************************************************
** SIMULATION:Post-Dev-PF, Channels 100yr 12hr SCS **
**************************************************

-------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0208):     0.03   0.003     6.08    22.79
      + ID2= 2 (  0303):     0.33   0.009     6.25    12.15
        ================================================
        ID = 3 (  0008):     0.36   0.010     6.23    12.90

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0008):     0.36   0.010     6.23    12.90
      + ID2= 2 (  0007):     6.41   0.210     6.27    14.75
        ================================================
        ID = 1 (  0008):     6.77   0.220     6.27    14.65

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 100yr 24hr SCS **
**************************************************

-------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0208):     0.03   0.003    12.08    25.23
      + ID2= 2 (  0303):     0.33   0.012    12.23    13.40
        ================================================
        ID = 3 (  0008):     0.36   0.012    12.23    18.24

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0008):     0.36   0.012    12.23    18.24
      + ID2= 2 (  0007):     6.41   0.255    12.27    20.79
        ================================================
        ID = 1 (  0008):     6.77   0.267    12.27    20.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 100yr 4hr CHI **
**************************************************

-------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0208):     0.03   0.002     1.35    14.14
      + ID2= 2 (  0303):     0.33   0.005     1.68     7.17
```

```
        ==============================================
        ID = 3 (  0008):     0.36   0.006     1.67     7.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0008):     0.36   0.006     1.67     7.66
      + ID2= 2 (  0007):     6.41   0.122     1.72     8.79
        ==============================================
        ID = 1 (  0008):     6.77   0.127     1.72     8.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**********************************************
** SIMULATION:Post-Dev-PF, Channels 100yr 6hr SCS **
**********************************************


--------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0208):     0.03   0.003     3.08    20.56
      + ID2= 2 (  0303):     0.33   0.010     3.25    10.85
        ==============================================
        ID = 3 (  0008):     0.36   0.010     3.25    11.53

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0008):     0.36   0.010     3.25    11.53
      + ID2= 2 (  0007):     6.41   0.220     3.27    13.19
        ==============================================
        ID = 1 (  0008):     6.77   0.230     3.27    13.11

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**********************************************
** SIMULATION:Post-Dev-PF, Channels 10yr 12hr SCS **
**********************************************


--------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0208):     0.03   0.001     6.08    10.70
      + ID2= 2 (  0303):     0.33   0.004     6.25     5.26
        ==============================================
        ID = 3 (  0008):     0.36   0.004     6.25     5.64

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
```

ID1= 3 (0008):	0.36	0.004	6.25	5.64
+ ID2= 2 (0007):	6.41	0.091	6.27	6.49
ID = 1 (0008):	6.77	0.095	6.27	6.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****

** SIMULATION:Post-Dev-PF, Channels 10yr 24hr SCS **

****

ADD HYD (0008)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0208):	0.03	0.002	12.08	11.83
+ ID2= 2 (0303):	0.33	0.005	12.25	5.79
ID = 3 (0008):	0.36	0.005	12.23	8.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0008)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0008):	0.36	0.005	12.23	8.10
+ ID2= 2 (0007):	6.41	0.112	12.27	9.29
ID = 1 (0008):	6.77	0.117	12.27	9.22

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****

** SIMULATION:Post-Dev-PF, Channels 10yr 4hr CHI **

****

ADD HYD (0008)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0208):	0.03	0.001	1.35	6.57
+ ID2= 2 (0303):	0.33	0.002	1.70	3.04
ID = 3 (0008):	0.36	0.002	1.68	3.29

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0008)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0008):	0.36	0.002	1.68	3.29
+ ID2= 2 (0007):	6.41	0.051	1.73	3.79
ID = 1 (0008):	6.77	0.053	1.73	3.77

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****

** SIMULATION:Post-Dev-PF, Channels 10yr 6hr SCS **

****

```
--------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0208):     0.03   0.001     3.08     9.29
     + ID2= 2 (  0303):     0.33   0.004     3.27     4.49
       ================================================
       ID = 3 (  0008):     0.36   0.004     3.25     4.83

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0008):     0.36   0.004     3.25     4.83
     + ID2= 2 (  0007):     6.41   0.091     3.28     5.56
       ================================================
       ID = 1 (  0008):     6.77   0.095     3.28     5.52

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
*************************************************
** SIMULATION:Post-Dev-PF, Channels 25yr 12hr SCS **
*************************************************


--------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0208):     0.03   0.002     6.08    15.13
     + ID2= 2 (  0303):     0.33   0.006     6.25     7.73
       ================================================
       ID = 3 (  0008):     0.36   0.006     6.23     8.25

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0008):     0.36   0.006     6.23     8.25
     + ID2= 2 (  0007):     6.41   0.134     6.27     9.46
       ================================================
       ID = 1 (  0008):     6.77   0.140     6.27     9.40

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
*************************************************
** SIMULATION:Post-Dev-PF, Channels 25yr 24hr SCS **
*************************************************


--------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0208):     0.03   0.002    12.08    16.74
     + ID2= 2 (  0303):     0.33   0.007    12.25     8.52
       ================================================
       ID = 3 (  0008):     0.36   0.008    12.23    11.76
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0008)					
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0008):	0.36	0.008	12.23	11.76
+ ID2= 2 (0007):	6.41	0.163	12.27	13.45
ID = 1 (0008):	6.77	0.171	12.27	13.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 25yr 4hr CHI **
****

ADD HYD (0008)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0208):	0.03	0.001	1.35	9.41
+ ID2= 2 (0303):	0.33	0.003	1.70	4.56
ID = 3 (0008):	0.36	0.004	1.68	4.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0008)					
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0008):	0.36	0.004	1.68	4.90
+ ID2= 2 (0007):	6.41	0.076	1.72	5.64
ID = 1 (0008):	6.77	0.080	1.72	5.60

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 25yr 6hr SCS **
****

ADD HYD (0008)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0208):	0.03	0.002	3.08	13.40
+ ID2= 2 (0303):	0.33	0.006	3.25	6.75
ID = 3 (0008):	0.36	0.006	3.25	7.22

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0008)					
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0008):	0.36	0.006	3.25	7.22
+ ID2= 2 (0007):	6.41	0.137	3.28	8.29

```
        ID = 1 (  0008):     6.77   0.143     3.27     8.23

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**********************************************
** SIMULATION:Post-Dev-PF, Channels 2yr 12hr SCS **
**********************************************

-------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0208):     0.03   0.000     6.08     3.92
      + ID2= 2 (  0303):     0.33   0.001     6.27     1.68
        ================================================
        ID = 3 (  0008):     0.36   0.001     6.25     1.84

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0008):     0.36   0.001     6.25     1.84
      + ID2= 2 (  0007):     6.41   0.028     6.28     2.13
        ================================================
        ID = 1 (  0008):     6.77   0.030     6.28     2.11

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**********************************************
** SIMULATION:Post-Dev-PF, Channels 2yr 24hr SCS **
**********************************************

-------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0208):     0.03   0.001    12.08     4.33
      + ID2= 2 (  0303):     0.33   0.002    12.25     1.86
        ================================================
        ID = 3 (  0008):     0.36   0.002    12.25     2.72

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0008):     0.36   0.002    12.25     2.72
      + ID2= 2 (  0007):     6.41   0.036    12.27     3.14
        ================================================
        ID = 1 (  0008):     6.77   0.038    12.27     3.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**********************************************
** SIMULATION:Post-Dev-PF, Channels 2yr 4hr CHI **
**********************************************

-------------------
| ADD HYD  (  0008)|
```

```
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
------------------           (ha)     (cms)     (hrs)      (mm)
        ID1= 1 (  0208):     0.03     0.000     1.35      2.35
      + ID2= 2 (  0303):     0.33     0.001     1.75      0.92
        ================================================
        ID = 3 (  0008):     0.36     0.001     1.73      1.02

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA     QPEAK     TPEAK      R.V.
------------------           (ha)     (cms)     (hrs)      (mm)
        ID1= 3 (  0008):     0.36     0.001     1.73      1.02
      + ID2= 2 (  0007):     6.41     0.015     1.77      1.18
        ================================================
        ID = 1 (  0008):     6.77     0.016     1.77      1.17

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
************************************************
** SIMULATION:Post-Dev-PF, Channels 2yr 6hr SCS **
************************************************


--------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
------------------           (ha)     (cms)     (hrs)      (mm)
        ID1= 1 (  0208):     0.03     0.000     3.08      3.17
      + ID2= 2 (  0303):     0.33     0.001     3.28      1.31
        ================================================
        ID = 3 (  0008):     0.36     0.001     3.28      1.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA     QPEAK     TPEAK      R.V.
------------------           (ha)     (cms)     (hrs)      (mm)
        ID1= 3 (  0008):     0.36     0.001     3.28      1.44
      + ID2= 2 (  0007):     6.41     0.026     3.30      1.67
        ================================================
        ID = 1 (  0008):     6.77     0.027     3.30      1.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
************************************************
** SIMULATION:Post-Dev-PF, Channels 50yr 12hr SCS **
************************************************


--------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
------------------           (ha)     (cms)     (hrs)      (mm)
        ID1= 1 (  0208):     0.03     0.002     6.08     18.84
      + ID2= 2 (  0303):     0.33     0.008     6.25      9.85
        ================================================
        ID = 3 (  0008):     0.36     0.008     6.23     10.48

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
```

```
--------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0008):     0.36   0.008     6.23    10.48
      + ID2= 2 (  0007):     6.41   0.171     6.27    12.00
        ==========================================================
        ID = 1 (  0008):     6.77   0.178     6.27    11.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**********************************************
** SIMULATION:Post-Dev-PF, Channels 50yr 24hr SCS **
**********************************************

--------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0208):     0.03   0.003    12.08    20.83
      + ID2= 2 (  0303):     0.33   0.009    12.25    10.85
        ==========================================================
        ID = 3 (  0008):     0.36   0.010    12.23    14.86

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0008):     0.36   0.010    12.23    14.86
      + ID2= 2 (  0007):     6.41   0.207    12.27    16.97
        ==========================================================
        ID = 1 (  0008):     6.77   0.217    12.27    16.85

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**********************************************
** SIMULATION:Post-Dev-PF, Channels 50yr 4hr CHI **
**********************************************

--------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0208):     0.03   0.002     1.35    11.69
      + ID2= 2 (  0303):     0.33   0.004     1.68     5.80
        ==========================================================
        ID = 3 (  0008):     0.36   0.005     1.67     6.22

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0008):     0.36   0.005     1.67     6.22
      + ID2= 2 (  0007):     6.41   0.097     1.72     7.14
        ==========================================================
        ID = 1 (  0008):     6.77   0.102     1.72     7.10

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 50yr 6hr SCS **
**************************************************

--------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0208):     0.03   0.002     3.08    16.84
     + ID2= 2 (  0303):     0.33   0.008     3.25     8.70
       ================================================
       ID = 3 (  0008):     0.36   0.008     3.25     9.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0008):     0.36   0.008     3.25     9.27
     + ID2= 2 (  0007):     6.41   0.176     3.27    10.63
       ================================================
       ID = 1 (  0008):     6.77   0.185     3.27    10.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 5yr 12hr SCS **
**************************************************

--------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0208):     0.03   0.001     6.08     7.65
     + ID2= 2 (  0303):     0.33   0.003     6.25     3.61
       ================================================
       ID = 3 (  0008):     0.36   0.003     6.25     3.89

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0008):     0.36   0.003     6.25     3.89
     + ID2= 2 (  0007):     6.41   0.062     6.27     4.49
       ================================================
       ID = 1 (  0008):     6.77   0.065     6.27     4.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 5yr 24hr SCS **
**************************************************

--------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0208):     0.03   0.001    12.08     8.46
```

```
      + ID2= 2 (  0303):     0.33   0.003    12.25     3.98
        ==========================================================
        ID = 3 (  0008):     0.36   0.004    12.25     5.64

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0008):     0.36   0.004    12.25     5.64
      + ID2= 2 (  0007):     6.41   0.077    12.27     6.49
        ==========================================================
        ID = 1 (  0008):     6.77   0.081    12.27     6.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
************************************************
** SIMULATION:Post-Dev-PF, Channels 5yr 4hr CHI **
************************************************


--------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0208):     0.03   0.001     1.35     4.64
      + ID2= 2 (  0303):     0.33   0.001     1.72     2.05
        ==========================================================
        ID = 3 (  0008):     0.36   0.002     1.68     2.23

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0008):     0.36   0.002     1.68     2.23
      + ID2= 2 (  0007):     6.41   0.034     1.75     2.57
        ==========================================================
        ID = 1 (  0008):     6.77   0.035     1.73     2.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
************************************************
** SIMULATION:Post-Dev-PF, Channels 5yr 6hr SCS **
************************************************


--------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0208):     0.03   0.001     3.08     6.53
      + ID2= 2 (  0303):     0.33   0.003     3.27     3.02
        ==========================================================
        ID = 3 (  0008):     0.36   0.003     3.27     3.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
```

```
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0008):     0.36   0.003     3.27     3.26
      + ID2= 2 (  0007):     6.41   0.061     3.28     3.76
        ==========================================================
        ID = 1 (  0008):     6.77   0.063     3.28     3.74

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**********************************************************
** SIMULATION:Post-Dev-PF, Channels WQE 25mm 4hr CHI **
**********************************************************


--------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0208):     0.03   0.000     1.35     0.90
      + ID2= 2 (  0303):     0.33   0.000     1.85     0.29
        ==========================================================
        ID = 3 (  0008):     0.36   0.000     1.83     0.33

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0008):     0.36   0.000     1.83     0.33
      + ID2= 2 (  0007):     6.41   0.004     1.87     0.39
        ==========================================================
        ID = 1 (  0008):     6.77   0.004     1.85     0.38

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
```

```
**************************************************
** SIMULATION:Post-Dev-PF, Channel Hazel AMCIII **
**************************************************

--------------------
| ADD HYD  (  0008)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0208):     0.03   0.003    11.00   113.52
      + ID2= 2 (  0303):     0.33   0.024    11.07    75.74
        ==================================================
        ID = 3 (  0008):     0.36   0.026    11.02    78.40

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0008)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0008):     0.36   0.026    11.02    78.40
      + ID2= 2 (  0007):     6.41   0.509    11.07    86.20
        ==================================================
        ID = 1 (  0008):     6.77   0.535    11.07    85.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
```

```
**************************************************
** SIMULATION:Post-Dev-PF, Channels 100yr 12hr SCS **
**************************************************

-------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0012 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0009 = HYDROGRAPH 0005
        ID1= 1 (  0012):     0.00   0.000     0.00     0.00
      + ID2= 2 (  0005):     2.31   0.124     6.13    19.75
        ==========================================================
        ID = 3 (  0009):     2.31   0.124     6.13    19.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 100yr 24hr SCS **
**************************************************

-------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0012):     0.10   0.235    12.10    72.09
      + ID2= 2 (  0005):     2.31   0.150    12.12    27.08
        ==========================================================
        ID = 3 (  0009):     2.41   0.383    12.10    28.96

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 100yr 4hr CHI **
**************************************************

-------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0012):     0.28   0.265     1.37    43.36
      + ID2= 2 (  0005):     2.31   0.070     1.48    12.33
        ==========================================================
        ID = 3 (  0009):     2.59   0.319     1.37    15.69

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 100yr 6hr SCS **
**************************************************

-------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0012):     0.11   0.214     3.12    57.38
      + ID2= 2 (  0005):     2.31   0.133     3.12    17.84
        ==========================================================
        ID = 3 (  0009):     2.42   0.347     3.12    19.64

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 10yr 12hr SCS **
```

```
**************************************************

--------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0012 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0009 = HYDROGRAPH 0005
        ID1= 1 (  0012):     0.00   0.000     0.00     0.00
      + ID2= 2 (  0005):     2.31   0.057     6.13     9.38
        ==========================================================
        ID = 3 (  0009):     2.31   0.057     6.13     9.38

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 10yr 24hr SCS **
**************************************************

--------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0012 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0009 = HYDROGRAPH 0005
        ID1= 1 (  0012):     0.00   0.000     0.00     0.00
      + ID2= 2 (  0005):     2.31   0.069    12.13    12.96
        ==========================================================
        ID = 3 (  0009):     2.31   0.069    12.13    12.96

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 10yr 4hr CHI **
**************************************************

--------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0012 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0009 = HYDROGRAPH 0005
        ID1= 1 (  0012):     0.00   0.000     0.00     0.00
      + ID2= 2 (  0005):     2.31   0.032     1.53     5.82
        ==========================================================
        ID = 3 (  0009):     2.31   0.032     1.53     5.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 10yr 6hr SCS **
**************************************************

--------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0012 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0009 = HYDROGRAPH 0005
        ID1= 1 (  0012):     0.00   0.000     0.00     0.00
      + ID2= 2 (  0005):     2.31   0.058     3.13     8.16
        ==========================================================
        ID = 3 (  0009):     2.31   0.058     3.13     8.16
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 25yr 12hr SCS **
****

ADD HYD (0009)|	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)

*** W A R N I N G : HYDROGRAPH 0012 <ID= 1> IS DRY.
*** W A R N I N G : HYDROGRAPH 0009 = HYDROGRAPH 0005

ID1= 1 (0012):	0.00	0.000	0.00	0.00
+ ID2= 2 (0005):	2.31	0.082	6.13	13.18
ID = 3 (0009):	2.31	0.082	6.13	13.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 25yr 24hr SCS **
****

ADD HYD (0009)|	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)

*** W A R N I N G : HYDROGRAPH 0012 <ID= 1> IS DRY.
*** W A R N I N G : HYDROGRAPH 0009 = HYDROGRAPH 0005

ID1= 1 (0012):	0.00	0.000	0.00	0.00
+ ID2= 2 (0005):	2.31	0.099	12.13	18.15
ID = 3 (0009):	2.31	0.099	12.13	18.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 25yr 4hr CHI **
****

ADD HYD (0009)|	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)

*** W A R N I N G : HYDROGRAPH 0012 <ID= 1> IS DRY.
*** W A R N I N G : HYDROGRAPH 0009 = HYDROGRAPH 0005

ID1= 1 (0012):	0.00	0.000	0.00	0.00
+ ID2= 2 (0005):	2.31	0.046	1.48	8.27
ID = 3 (0009):	2.31	0.046	1.48	8.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:Post-Dev-PF, Channels 25yr 6hr SCS **
****

ADD HYD (0009)|	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)

*** W A R N I N G : HYDROGRAPH 0012 <ID= 1> IS DRY.
*** W A R N I N G : HYDROGRAPH 0009 = HYDROGRAPH 0005

ID1= 1 (0012):	0.00	0.000	0.00	0.00

```
      + ID2= 2 (  0005):     2.31   0.085     3.13    11.69
        ==========================================================
        ID = 3 (  0009):     2.31   0.085     3.13    11.69

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
************************************************
** SIMULATION:Post-Dev-PF, Channels 2yr 12hr SCS **
************************************************

--------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0012 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0009 = HYDROGRAPH 0005
        ID1= 1 (  0012):     0.00   0.000     0.00     0.00
      + ID2= 2 (  0005):     2.31   0.019     6.15     3.53
        ==========================================================
        ID = 3 (  0009):     2.31   0.019     6.15     3.53

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
************************************************
** SIMULATION:Post-Dev-PF, Channels 2yr 24hr SCS **
************************************************

--------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0012 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0009 = HYDROGRAPH 0005
        ID1= 1 (  0012):     0.00   0.000     0.00     0.00
      + ID2= 2 (  0005):     2.31   0.023    12.15     4.93
        ==========================================================
        ID = 3 (  0009):     2.31   0.023    12.15     4.93

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
************************************************
** SIMULATION:Post-Dev-PF, Channels 2yr 4hr CHI **
************************************************

--------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0012 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0009 = HYDROGRAPH 0005
        ID1= 1 (  0012):     0.00   0.000     0.00     0.00
      + ID2= 2 (  0005):     2.31   0.011     1.60     2.16
        ==========================================================
        ID = 3 (  0009):     2.31   0.011     1.60     2.16

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
************************************************
** SIMULATION:Post-Dev-PF, Channels 2yr 6hr SCS **
************************************************

--------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
```

```
-------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0012 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0009 = HYDROGRAPH 0005
       ID1= 1 (  0012):     0.00   0.000     0.00     0.00
     + ID2= 2 (  0005):     2.31   0.018     3.15     2.87
       ==========================================================
       ID = 3 (  0009):     2.31   0.018     3.15     2.87

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 50yr 12hr SCS **
**************************************************

-------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0012 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0009 = HYDROGRAPH 0005
       ID1= 1 (  0012):     0.00   0.000     0.00     0.00
     + ID2= 2 (  0005):     2.31   0.102     6.13    16.36
       ==========================================================
       ID = 3 (  0009):     2.31   0.102     6.13    16.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 50yr 24hr SCS **
**************************************************

-------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0012 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0009 = HYDROGRAPH 0005
       ID1= 1 (  0012):     0.00   0.000     0.00     0.00
     + ID2= 2 (  0005):     2.31   0.123    12.13    22.46
       ==========================================================
       ID = 3 (  0009):     2.31   0.123    12.13    22.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 50yr 4hr CHI **
**************************************************

-------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0012):     0.22   0.197     1.40    37.17
     + ID2= 2 (  0005):     2.31   0.057     1.48    10.23
       ==========================================================
       ID = 3 (  0009):     2.53   0.250     1.40    12.57

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**************************************************
** SIMULATION:Post-Dev-PF, Channels 50yr 6hr SCS **
**************************************************

-------------------
```

```
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0012 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0009 = HYDROGRAPH 0005
        ID1= 1 (  0012):     0.00   0.000     0.00     0.00
      + ID2= 2 (  0005):     2.31   0.108     3.13    14.65
        ==============================================
        ID = 3 (  0009):     2.31   0.108     3.13    14.65

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**********************************************
** SIMULATION:Post-Dev-PF, Channels 5yr 12hr SCS **
**********************************************


-------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0012 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0009 = HYDROGRAPH 0005
        ID1= 1 (  0012):     0.00   0.000     0.00     0.00
      + ID2= 2 (  0005):     2.31   0.039     6.15     6.75
        ==============================================
        ID = 3 (  0009):     2.31   0.039     6.15     6.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**********************************************
** SIMULATION:Post-Dev-PF, Channels 5yr 24hr SCS **
**********************************************


-------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0012 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0009 = HYDROGRAPH 0005
        ID1= 1 (  0012):     0.00   0.000     0.00     0.00
      + ID2= 2 (  0005):     2.31   0.048    12.15     9.38
        ==============================================
        ID = 3 (  0009):     2.31   0.048    12.15     9.38

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**********************************************
** SIMULATION:Post-Dev-PF, Channels 5yr 4hr CHI **
**********************************************


-------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0012 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0009 = HYDROGRAPH 0005
        ID1= 1 (  0012):     0.00   0.000     0.00     0.00
      + ID2= 2 (  0005):     2.31   0.022     1.55     4.15
        ==============================================
        ID = 3 (  0009):     2.31   0.022     1.55     4.15

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
**********************************************
```

```
** SIMULATION:Post-Dev-PF, Channels 5yr 6hr SCS **
************************************************

--------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0012 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0009 = HYDROGRAPH 0005
        ID1= 1 (  0012):     0.00   0.000     0.00     0.00
      + ID2= 2 (  0005):     2.31   0.039     3.15     5.78
        ==========================================================
        ID = 3 (  0009):     2.31   0.039     3.15     5.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
************************************************
** SIMULATION:Post-Dev-PF, Channels WQE 25mm 4hr CHI **
************************************************

--------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0012 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0009 = HYDROGRAPH 0005
        ID1= 1 (  0012):     0.00   0.000     0.00     0.00
      + ID2= 2 (  0005):     2.31   0.004     1.37     0.92
        ==========================================================
        ID = 3 (  0009):     2.31   0.004     1.37     0.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
```

```
**************************************************
** SIMULATION:Post-Dev-PF, Channel Hazel AMCIII **
**************************************************

--------------------
| ADD HYD  (  0009)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
*** W A R N I N G :  HYDROGRAPH   0012 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0009 = HYDROGRAPH 0005
        ID1= 1 (  0012):     0.00    0.000     0.00     0.00
      + ID2= 2 (  0005):     2.31    0.203    11.03    98.43
        ==========================================================
        ID = 3 (  0009):     2.31    0.203    11.03    98.43

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
```

Appendix E

Supporting Sanitary Servicing Calculations

- Simcoe Shores - Phase 2 Subdivision, *Sanitary Sewer Design Sheet*, The Jones Consulting Group Ltd., dated June 25th, 2002
- *Pressure Sewer Preliminary Cost and Design Analysis for Pioneer Trail Ontario,* Environment One Corporation, dated April 12th, 2021
- Email Correspondence With Patrick Kelly of John Brooks Company Limited received February 3rd, 2022

K39
OMD 0214

n=0.013

M=1+(14/(4+(P/1000)^0.5)) (2<="M"<=4)

Qp=P*Q*M/86400 (Q=225 l/day/person)

Ql=L/1000*I*DIAMETER/86400 (I=180 l/day/mm(dia.)/km)

(Includes peaking factor)

Qtot=Qp+Ql

CITY OF BARRIE

SANITARY SEWER DESIGN
LEVEL - 3

REGISTERED PROFESSIONAL ENGINEER
R. J. LACKEY
06/25/2002
PROVINCE OF ONTARIO

DESIGN SHEET NO. 1-4
FILE ROY-99151
CONTRACT/PROJECT SIMCOE SHORES PH2

STREETS	MANHOLE FROM	MANHOLE TO	DWELLING UNITS	DENSITY P.P.U	POP. (P)	POP. (ACC.)	M	Qp (l/s)	LENGTH (m)	LENGTH (ACC.) (m)	Ql (l/s)	TOTAL Q (l/s)	D (mm)	S (%)	Q FULL (l/s)	V FULL (m/s)	% UTILIZATION
EXTERNAL #1 (OMD LANDS)	STUB	SAH03008	40	3.50	140.00	140.00	4.00	1.46	8.50	352.50	0.18	1.64	250	2.70	97.73	1.99	
JEWEL HOUSE LANE →																	
	INSTITUTIONAL →	0.73 l/s/ha @ 3.81 ha															1.7%
ROYAL PARKSIDE DRIVE	SAH03005	SAH03006	0.73 l/s/ha @ 0.77 ha		-	-	-	2.78	10.00	10.00	0.00	2.78	150	1.00	15.23	0.86	18.3%
(PHASE 1)	COMMERCIAL →							0.56	100.00	100.00	0.05	3.40	250	1.00	59.48	1.21	5.7%
	SAH03006	SAH03007			-	-	-	3.40	91.50	191.50	0.10	[illegible]	250	2.60	95.91	1.95	3.6%
ROYAL PARKSIDE DRIVE	SAH03007	SAH03008	4	3.50	14.00	14.00	4.00	0.15	94.00	94.00	0.05	0.19	250	4.00	118.96	2.42	0.2%
(PHASE 2)																	
JEWEL HOUSE LANE	SAH03008	SAH03009	2	3.50	7.00	161.00	4.00	1.68	35.60	482.10	0.25	1.93	250	3.80	115.94	2.36	1.7%
(PHASE 2)																	
	SAH03009	SAH03010	10	3.50	35.00	196.00	4.00	2.04	74.60	556.70	0.29	2.33	250	3.50	111.27	2.27	2.1%
	SAH03010	SAH03011	10	3.50	35.00	231.00	4.00	2.41	78.00	634.70	0.33	2.74	250	3.50	111.27	2.27	2.5%
	SAH03011	SAH03012	3	3.50	10.50	241.50	4.00	2.52	15.60	650.30	0.34	2.85	250	3.50	111.27	2.27	2.6%
	SAH03012	SAH03016	5	3.50	17.50	259.00	4.00	2.70	73.60	723.90	0.38	3.07	250	3.70	114.41	2.33	2.7%
IMPERIAL CROWN LANE →																	
EXTERNAL #2 (OMD LANDS)	EXT #2	SAH03013	62	3.50	217.00	217.00	4.00	2.26	0.00	0.00	0.00	2.26	250	4.50	126.17	2.57	1.8%
IMPERIAL CROWN LANE			0.08 l/s/ha @ 1.82 ha=0.146 l/s (PARK)														
(PHASE 2)	SAH03013	SAH03014	5	3.50	17.50	234.50	4.00	2.69	97.20	97.20	0.05	2.64	250	4.00	118.96	2.42	2.2%
	SAH03014	SAH03015	13	3.50	45.50	280.00	4.00	3.06	110.00	207.20	0.11	3.17	250	2.00	84.12	1.71	3.8%
	SAH03015	SAH03016	1	3.50	3.50	283.50	4.00	3.10	29.90	237.10	0.12	3.22	250	1.50	72.85	1.48	4.4%

DATE: June 25/02

CALCULATED BY: KW

CHECKED BY: SL

n=0.013

M=1+(14/(4+(P/1000)^0.5)) (2<="M"<=4)

Qp=P*Q*M/86400 (Q=225 l/day/person)

Qi=L/1000*I*DIAMETER/86400 (I=180 l/day/mm(dia.)/km)

(includes peaking factor)

Qtot=Qp+Qi

CITY OF BARRIE

SANITARY SEWER DESIGN
LEVEL - 3

DESIGN SHEET NO. 2-4

FILE ROY-99151

CONTRACT/PROJECT SIMCOE SHORES PH2

STREETS	MANHOLE FROM	MANHOLE TO	DWELLING UNITS	DENSITY P.P.U	POP. (P)	POP. (ACC.)	M	Qp (l/s)	LENGTH (m)	LENGTH (ACC.) (m)	Qi (l/s)	TOTAL Q (l/s)	D (mm)	S (%)	Q FULL (l/s)	V FULL (m/s)	% UTILIZATION
JEWEL HOUSE LANE	SAH03016	SAH03017	3	3.50	10.50	553.00	4.00	5.91	25.60	988.80	0.51	6.42	250	1.50	72.85	1.48	8.8%
(PHASE 2)																	
	SAH03017	SAH03020	6	3.50	21.00	574.00	4.00	6.13	77.90	1064.50	0.55	6.68	250	1.20	65.16	1.33	10.3%
LOYALIST COURT	SAH03018	SAH03019	10	3.50	35.00	35.00	4.00	0.36	60.00	60.00	0.03	0.40	250	1.00	59.48	1.21	0.7%
(PHASE 1)																	
	SAH03019	SAH03020	5	3.50	17.50	52.50	4.00	0.55	60.20	120.20	0.06	0.61	250	0.60	46.07	0.94	1.3%
	SAH03020	SAH03028	10	3.50	35.00	661.50	4.00	7.04	88.70	1273.40	0.66	7.70	250	0.60	46.07	0.94	16.7%
PRINCE OF WALES DRIVE	SAH03021	SAH03022	9	3.50	31.50	31.50	4.00	0.42	87.40	238.90	0.13	7.75	250	4.60	127.57	2.60	5.8%
(PHASE 1)																	
	SAH03021	SAH03022	10	3.50	35.00	66.50	4.00	4.09	65.10	324.00	0.17	7.75	250	4.60	127.57	2.60	6.1%
	SAH03022	SAH03023	10	3.50	35.00	101.50	4.00	4.45	69.70	393.70	0.21	8.15	250	4.60	127.57	2.60	6.4%
	SAH03023	SAH03024	5	3.50	17.50	119.00	4.00	4.63	37.60	431.30	0.22	8.35	250	4.60	127.57	2.60	6.5%
	SAH03024	SAH03025	2	3.50	7.00	126.00	4.00	4.71	39.60	470.90	0.25	8.45	250	3.00	103.02	2.10	8.2%
PRINCE OF WALES DRIVE	SAH03025	SAH03026	8	3.50	28.00	28.00	4.00	0.29	69.10	69.10	0.04	0.33	250	2.30	90.20	1.84	0.4%
PHASE 2)																	
	SAH03026	SAH03027	9	3.50	31.50	59.50	4.00	0.62	59.70	128.80	0.07	0.69	250	1.50	72.85	1.48	0.9%
	SAH03027	SAH03028	6	3.50	21.00	80.50	4.00	0.84	80.60	209.40	0.11	0.95	250	1.30	67.82	1.38	1.4%
OYALIST COURT	SAH03028	SAH03029	8	3.50	28.00	770.00	4.00	8.17	68.00	1550.80	0.81	8.97	250	0.50	42.06	0.86	21.3%

DATE:_____

CALCULATED BY:_____

CHECKED BY:_____

n=0.013

M=1+(14/(4+(P/1000)^0.5)) (2<="M"<=4)

Qp=P*Q*M/86400 (Q=225 l/day/person)

Qi=L/1000*I*DIAMETER/86400 (I=180 l/day/mm(dia.)/km)

(includes peaking factor)

Qtot=Qp+Qi

CITY OF BARRIE

SANITARY SEWER DESIGN
LEVEL - 3

DESIGN SHEET NO. 3-4

FILE ROY-99151

CONTRACT/PROJECT SIMCOE SHORES PH2

STREETS	MANHOLE FROM	MANHOLE TO	DWELLING UNITS	DENSITY P.P.U	POP. (P)	POP. (ACC.)	M	Qp (l/s)	LENGTH (m)	LENGTH (ACC.) (m)	Qi (l/s)	TOTAL Q (l/s)	D (mm)	S (%)	Q FULL (l/s)	V FULL (m/s)	% UTILIZATION
(PHASE 1)																	
	SAH03029	SAH03035	4	3.50	14.00	784.00	4.00	8.31	43.50	1594.30	0.83	9.14	250	0.50	42.06	0.86	21.7%
PRINCESS MARGARET GATE	SAH03025	SAH03030	8	3.50	28.00	154.00	4.00	5.10	57.10	528.00	0.28	5.37	250	0.70	49.76	1.01	10.8%
(PHASE 1)																	
	SAH03030	SAH03031	4	3.50	14.00	168.00	4.00	5.24	33.90	561.90	0.29	5.54	250	0.70	49.76	1.01	11.1%
FUTURE WPCP ←	STUB	SAH03031	0.83 l/s/ha @ 5.54 ha+42 l/s			0.00	-	46.60	52.00	613.90	0.32	46.92	250	1.00	59.48	1.21	78.9%
(PHASE 1)																	
	SAH03031	SAH03032	2	3.50	7.00	175.00	4.00	51.92	17.40	631.30	0.33	52.25	250	1.00	59.48	1.21	87.8%
	SAH03032	SAH03033	9	3.50	31.50	206.50	4.00	52.25	92.50	723.80	0.38	52.62	250	1.00	59.48	1.21	88.5%
	SAH03033	SAH03034	7	3.50	24.50	231.00	4.00	52.50	65.70	789.50	0.41	52.91	250	1.20	65.16	1.33	81.2%
	SAH03034	SAH03035	4	3.50	14.00	245.00	4.00	52.65	60.00	849.50	0.44	53.09	250	2.00	84.12	1.71	63.1%
	SAH03035	SAH03036	4	3.50	14.00	1043.00	4.00	61.11	102.30	2546.10	1.33	62.43	250	4.80	130.31	2.65	47.9%
	SAH03036	SAH03037	0	3.50	0.00	1043.00	4.00	61.11	29.10	2575.20	1.34	62.45	250	4.30	123.34	2.51	50.6%
	SAH03037	SAH03038	0	3.50	0.00	1043.00	4.00	61.11	46.70	2621.90	1.37	62.47	250	3.20	106.40	2.17	58.7%
CAMELOT SQUARE (West Leg)	SAH03038	SAH03039	8	3.50	28.00	1071.00	4.00	61.40	84.10	2706.00	1.41	62.81	250	1.50	72.85	1.48	86.2%
(PHASE 1)																	
	SAH03039	SAH03049	1	3.50	3.50	1074.50	4.00	61.43	8.80	2714.80	1.41	62.85	250	1.50	72.85	1.48	86.3%
CAMELOT SQUARE (East Leg)	SAH03038	SAH03040	2	3.50	7.00	7.00	4.00	0.07	28.90	28.90	0.02	0.09	250	2.20	88.22	1.80	0.1%
(PHASE 1)																	

DATE:_____ CALCULATED BY:_____ CHECKED BY:_____

n=0.013

M=1+(14/(4+(P/1000)^0.5)) (2<="M"<=4)

Qp=P*Q*M/86400 (Q=225 l/day/person)

Ql=L/1000*I*DIAMETER/86400 (I=180 l/day/mm(dia.)/km)

(Includes peaking factor)

Qtot=Qp+Ql

CITY OF BARRIE

SANITARY SEWER DESIGN
LEVEL - 3

DESIGN SHEET NO. 2/-2/

FILE ROY-99151

CONTRACT/PROJECT SIMCOE SHORES PH2

STREETS	MANHOLE FROM	MANHOLE TO	DWELLING UNITS	DENSITY P.P.U	POP. (P)	POP. (ACC.)	M	Qp (l/s)	LENGTH (m)	LENGTH (ACC.) (m)	Ql (l/s)	TOTAL Q (l/s)	D (mm)	S (%)	Q FULL (l/s)	V FULL (m/s)	% UTILIZATION
	SAH03040	SAH03041	4	3.50	14.00	21.00	4.00	0.22	40.50	69.40	0.04	0.25	250	2.40	92.14	1.88	0.3%
	SAH03041	SAH03042	2	3.50	7.00	28.00	4.00	0.29	15.60	85.00	0.04	0.34	250	2.90	101.29	2.06	0.3%
	SAH03042	SAH03043	3	3.50	10.50	38.50	4.00	0.40	84.30	169.30	0.09	0.49	250	2.90	101.29	2.06	0.5%
(PHASE 3)																	
SHORELINE ROAD (EXTERNAL)			21 Units @ 3.5 ppu		Pump Discharge = 0.90 l/s (Qp + Ql)												
CAMELOT SQUARE (East Leg) (PHASE 1)	SAH03043	SAH03044	1	3.50	3.50	42.00	4.00	1.34	19.40	188.70	0.23	1.57	250	0.40	37.62	0.77	4.2%
	SAH03044	SAH03045	3	3.50	10.50	52.50	4.00	1.45	51.30	240.00	0.13	1.57	250	0.40	37.62	0.77	4.2%
	SAH03045	SAH03046	10	3.50	35.00	87.50	4.00	1.81	98.20	338.20	0.18	1.99	250	0.40	37.62	0.77	5.3%
	SAH03046	SAH03047	2	3.50	7.00	94.50	4.00	1.88	16.80	355.00	0.18	2.07	250	0.40	37.62	0.77	5.5%
	SAH03047	SAH03048	5	3.50	17.50	112.00	4.00	2.07	83.20	438.20	0.23	2.29	250	0.40	37.62	0.77	6.1%
	SAH03048	SAH03049	1	3.50	3.50	115.50	4.00	2.10	7.60	445.80	0.23	2.34	250	0.40	37.62	0.77	6.2%
OUTFALL TO HEWITT CREEK TRUNK SANITARY SEWER	SAH03049	SAH03050	0	3.50	0.00	1190.00	4.00	63.54	62.90	3223.50	2.52	66.06	375	0.40	110.91	1.00	59.6%
PHASE 1)	SAH03050	SAH01103	0	3.50	0.00	1190.00	4.00	63.54	48.40	3271.90	2.56	66.09	375	0.40	110.91	1.00	59.6%
	SAH01103	Ex. SAH01031	0	3.50	0.00	1190.00	4.00	63.54	47.40	3319.30	2.59	66.13	375	0.60	135.83	1.23	48.7%
			340		1190				2975.30								

DATE:_____

CALCULATED BY:_____

CHECKED BY:_____

Environment One Corporation

Pressure Sewer Preliminary Cost and Design Analysis For Pioneer Trail Ontario

Prepared For:
The Jones Consulting Group, Ltd.
229 Mapleview Drive East, Unit 1
Barrie ON L4N 0W5 Canada
Tel: 705-734-2538
Fax:
Prepared By: M. Crowley
April 12, 2021

Pioneer Trail
Ontario

Prepared by : M. Crowley **On:** April 12, 2021

Notes :
Analysis based upon drawings and data provided. Station recommendations are preliminary.

LPD values impact retention times only, not line sizing or hydraulics. GP laterals to be 1.25".

Analysis valid only with pipe type listed.

Data for existing system (zone 4) based upon information provided. Not all information able to be verified. Assume existing piping is 3" SDR11 HDPE.

General recommendations for valve placement are: clean out valves at intervals of approximately 305m and at branch ends and junctions; isolation valves at branch junctions; and air release valves at peaks of 8m or more and/or at intervals of 600 to 800 m. Lateral kits comprised of a ball and check valve are required to be installed between the pump discharge and street main on all installations. Laterals should be located as close to the public right of way as possible.

Quantities of grinder pumps, pipe, and valves are indicated on the cost page. The model of grinder pump(s) indicated is based upon the initial information provided to us but may not be the most appropriate for the specific location or requirements of the project. Costs of these items and their installation are best obtained from sources in your region. We recommend you contact your local distributor of Environment One products for additional recommendations.

<<<<< E N D O F N O T E S >>>>>

April 12, 2021

Budgetary Low Pressure Sewer System Costs

Pioneer Trail
Ontario

	Quantity	Description	Unit Cost	Installation	Sub Total
Valves	1	Air/Vacuum Release Valve	$0.00	0.00	$0.00
	2	Clean Out	$0.00	0.00	$0.00
					$0.00
Pumps	18	DH071-124	$0.00	0.00	$0.00
	18	Pump/Panel Installation	$0.00	0.00	$0.00
	18	Lateral (Boundary) Kit	$0.00	0.00	$0.00
	18	Lateral (Boundary) Installation	$0.00	0.00	$0.00
	275	LM of 1-1/4" Lateral Pipe	$0.00	0.00	$0.00
					$0.00
Piping	158	2.00" Pipe	$0.00	0.00	$0.00
	738	3.00" Pipe	$0.00	0.00	$0.00
					$0.00

Number of Connections	**29**		
Total Per Connection	**$0.00**	**Total (w/o other)** >>>>>>>>>>>>	**$0.00**
Grand Total Per Connection	**$0.00**	**Grand Total (including other)** >>>>>>>>>>>>	**$0.00**

Note: The System Costs above are based on piping sized for, and Grinder Pumps manufactured by Environment One Corporation.

PRELIMINARY PRESSURE SEWER - PIPE SIZING AND BRANCH ANALYSIS

Prepared By: Pioneer Trail

M. Crowley Ontario April 12, 2021

Zone Number	Connects to Zone	Number of Pumps in Zone	Accum Pumps in Zone	Liters/Day per Pump	Max Flow Per Pump (lps)	Max Sim Ops	Max Flow (LPS)	Pipe Size (inches)	Max Velocity (MPS)	Length of Main this Zone	Friction Loss Factor (m/100m)	Friction Loss This Zone	Accum Fric Loss (meters)	Max Main Elevation	Minimum Pump Elevation	Static Head (meters)	Total Dynamic Head (m)
This spreadsheet was calculated using pipe diameters for: SDR11HDPE											Friction loss calculations were based on a Constant for inside roughness "C" of: 150						
1.00	2.00	3	3	757	.69	2	1.39	2.00	0.73	52.00	1.19	0.62	9.83	232.00	227.00	5.00	14.83
2.00	3.00	6	9	757	.69	3	2.08	2.00	1.09	106.20	2.52	2.68	9.21	232.00	227.00	5.00	14.21
3.00	4.00	9	18	757	.69	4	2.78	3.00	0.67	214.50	0.65	1.39	6.53	232.00	227.00	5.00	11.53
4.00	4.00	11	29	757	.69	5	3.47	3.00	0.83	523.00	0.98	5.14	5.14	232.00	228.00	4.00	9.14

Note: This analysis is valid only with the use of progressive cavity type grinder pumps as manufactured by Environment One.

PRELIMINARY PRESSURE SEWER - ACCUMULATED RETENTION TIME(HR)

Prepared By:
M. Crowley

Pioneer Trail
Ontario

April 12, 2021

Zone Number	Connects to Zone	Accumulated Total of Pumps this Zone	Pipe Size (inches)	Liters per 100 lineal meters	Length of Zone	Capacity of Zone	Average Daily Flow	Average Fluid Changes per Day	Average Retention Time (Hr)	Accumulated Retention Time (Hr)
This spreadsheet was calculated using pipe diameters for: SDR11HDPE								Liters per Day per Dwelling		757
1.00	2.00	3	2.00	191.29	52.00	99.47	2,271	22.83	1.05	5.71
2.00	3.00	9	2.00	191.29	106.20	203.15	6,813	33.54	0.72	4.66
3.00	4.00	18	3.00	415.63	214.50	891.53	13,626	15.28	1.57	3.95
4.00	4.00	29	3.00	415.63	523.00	2,173.75	21,953	10.10	2.38	2.38

Note: This analysis is valid only with the use of progressive cavity type grinder pumps as manufactured by Environment One

PROPOSED LPS

(#) E/ONE ZONE NUMBER (TYP.)

E/ONE ZONE DIVIDER/FLOW DIRECTION (TYP.)

TO DISCH.

E-ONE SANITARY SYSTEM NOTES

1. E-ONE 2010-39 GRINDER PUMP STATION WITH ALARM PANEL SUPPLIED BY DEVELOPER, TO BE INSTALLED BY THE HOME OWNER (TYP. OF ALL LOTS ON PIONEER TRAIL)
2. ALL PRIVATE WORK RELATED WITH INSTALLATION OF E-ONE PUMP AND CONNECTION TO STREET SERVICE CONNECTION TO BE BY THE HOME OWNER (TYP. OF ALL LOTS ON PIONEER TRAIL) TO THE SATISFACTION OF THE CITY.
3. EXISTING SEPTIC FIELD SYSTEMS TO BE DECOMMISSIONED TO MOE STANDARDS AND SATISFACTION OF THE CITY BY HOME OWNER.

NOTES:
- EXISTING DRIVEWAYS TO BE REINSTATED WITH 150mm GRANULAR 'A'.
- EXISTING BELL SERVICE LINES TO BE TEMPORARILY RELOCATED TO EXISTING POLE LINE DURING CONSTRUCTION. BELL CANADA TO PROVIDE FINAL DESIGN.

ENVIRONMENTAL PROTECTION PREVIOUSLY DEDICATED TO CITY OF BARRIE (Block 116 on 51M986)

ENVIRONMENTAL PROTECTION PREVIOUSLY DEDICATED TO CITY OF BARRIE (Block 115 on 51M986)

COMMON ELEMENTS LANDSCAPE AREA (0.03 HA.)

Common Elements Landscape Area (0.09 ha.)

Common Elements Open Space 0.42 ha.

Common Elements Open Space 0.29 ha.

Common Elements Amenity Space / Stormwater Management 0.14 ha.

Common Elements Landscape Area (0.07 ha.)

Common Elements Road/Curb/Sidewalk (0.31 ha.)

Block 28 Landscape Area

Block 27 Landscape Area

PIONEER TRAIL

STREET 'A'

BLOCK 180

EXISTING RESIDENTIAL

HSE. #40

HSE. #46

HSE. #52

HSE. #56

HSE. #60

HSE. #64

LOT 2 710 – C

LOT 3 710 – D

LOT 4 710 – E

LOT 5 710 – F

LOT 6 710 – G

LOT 7 710 – H

LOT 8 710 – I

LOT 9 710

LOT 10

1

2

3

4

Michael Gallant

From: Patrick Kelly <pkelly@johnbrooks.ca>
Sent: February 3, 2022 3:11 PM
To: Michael Gallant
Cc: Jon Ingram; McTavish, Christine; Terry Alweyn
Subject: RE: Updated Hydraulic analysis - Pioneer Trail -City of Barrie
Attachments: Pioneer Trail, ON-EOne LPS-Model-24x36nts.pdf; Pioneer Trail, ON Analysis.pdf

Hi Michael,

Please find the LPSS for Pioneer Trail for your records. The design has stayed the same as the one submitted in April 2021.

The design analysis examines the use of a low pressure sewer system using the Environment One grinder Pump. The low pressure sewer approach provides not only a technical solution, but also an economic advantage to be realized with low up front and O & M costs.

SYSTEM ANALYSIS
Using the data you supplied, We ran the enclosed preliminary pressure sewer sizing and branch analysis. This was run through our computer design program that employs our latest Flow Velocity and Friction Head Loss vs. Pumps in Simultaneous Operation Spreadsheet.

The design criteria for the software calculation program based on the Hazen-Williams formulas for determining pipe sizes (calculations for Cross sectional Area, Velocity and Friction Loss) . We do exceed the Minimum Scouring Velocity of 1 mps, At this flow –we can guarantee scouring velocity. This analysis is based on a “C” factor of 150, SDR 11 Pipe and daily flow as indicated .

The highest TDH generated is approximately 14.83 meters. This is below our pump’s continuous-run rating of 55 meters. Scouring velocity is achieved throughout the system. We also see that the changeover time is very short and we will have no problems with odour control. This looks like an excellent project for the Environment one Grinder pump System.

I will give you a call early next week to discuss it further.

Patrick Kelly
National Municipal Market Manager

JOHN BROOKS COMPANY LIMITED ACQUIRES ASL ROTEQ – READ MORE

JOHN BROOKS COMPANY LIMITED

2625 Meadowpine Blvd
Mississauga, ON L5N 7K5
C : 416-885-6294 | T: 905-624-4204 | F: 905-624-6379

www.johnbrooks.ca

Email: pkelly@johnbrooks.ca

From: Michael Gallant <MGallant@jonesconsulting.com>
Sent: February 3, 2022 10:29 AM
To: Crowley, Michael <mcrowley@eone.com>; Patrick Kelly <pkelly@johnbrooks.ca>
Cc: Jon Ingram <JIngram@jonesconsulting.com>; McTavish, Christine <Christine.McTavish@eone.com>
Subject: RE: Updated Hydraulic analysis - Pioneer Trail -City of Barrie

((External Email) Please review carefully before you CLICK links or OPEN attachments.)

Hi Michael and Pat,

Please see the attached files.

Thanks,

Michael Gallant, EIT
Engineering Designer
The Jones Consulting Group Ltd.
229 Mapleview Drive East, Unit 1 Barrie, ON L4N 0W5
Phone (705) 734-2538 ext 245 Fax (705) 734-1056
Email mgallant@jonesconsulting.com

From: Crowley, Michael <mcrowley@eone.com>
Sent: February 3, 2022 7:20 AM
To: Patrick Kelly <pkelly@johnbrooks.ca>; Michael Gallant <MGallant@jonesconsulting.com>
Cc: Jon Ingram <JIngram@jonesconsulting.com>; McTavish, Christine <Christine.McTavish@eone.com>
Subject: RE: Updated Hydraulic analysis - Pioneer Trail -City of Barrie

Pat,

We are blocked and not able to access the file sharing link. Dropbox, Google Drive, MS Office 365, etc are no problem.

Thanks,

Michael Crowley | **Senior Application Engineer** | **Environment One Corporation - A PCC Company**
2773 Balltown Road | Niskayuna, NY 12309
O: +1 518 579 3249 | E: mcrowley@eone.com | www.eone.com

From: Patrick Kelly <pkelly@johnbrooks.ca>
Sent: Wednesday, February 2, 2022 4:48 PM
To: Michael Gallant <MGallant@jonesconsulting.com>; Crowley, Michael <mcrowley@eone.com>
Cc: Jon Ingram <JIngram@jonesconsulting.com>
Subject: [EXTERNAL] RE: Updated Hydraulic analysis - Pioneer Trail -City of Barrie

External Email

Thanks Michael… PK

From: Michael Gallant <MGallant@jonesconsulting.com>
Sent: February 2, 2022 4:46 PM
To: Crowley, Michael <mcrowley@eone.com>
Cc: Jon Ingram <JIngram@jonesconsulting.com>; Patrick Kelly <pkelly@johnbrooks.ca>
Subject: RE: Updated Hydraulic analysis - Pioneer Trail -City of Barrie

((External Email) Please review carefully before you CLICK links or OPEN attachments.)

Hi Michael and Patrick,

I can certainly do that. I've confirmed with our IT Coordinator that the link is still active. You should be able to download the materials using the following link:

https://private.filesanywhere.com/JONES/fs/v.aspx?v=8c6c628d8e9ab0b373a0 [private.filesanywhere.com]

Please let me know if you experience any troubles downloading the files. As previously mentioned, the link contains a zip file with Civil3D, AutoCAD and PDF versions of the General Servicing drawings and base, as well as the latest Plan of Condominium in PDF format.

Thanks in advance,

Michael Gallant, EIT
Engineering Designer
The Jones Consulting Group Ltd.
229 Mapleview Drive East, Unit 1 Barrie, ON L4N 0W5
Phone (705) 734-2538 ext 245 Fax (705) 734-1056
Email mgallant@jonesconsulting.com

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS

From: Patrick Kelly <pkelly@johnbrooks.ca>
Sent: February 2, 2022 1:05 PM
To: Michael Gallant <MGallant@jonesconsulting.com>

Cc: Jon Ingram <JIngram@jonesconsulting.com>; Crowley, Michael <mcrowley@eone.com>
Subject: RE: Updated Hydraulic analysis - Pioneer Trail -City of Barrie

Hi Michael,

Eone was unable to use your Weblink you provided me earlier – could you resend it directly to Eone .

Michael Crowley
Senior Application Engineer
Environment One Corporation - A PCC Company
2773 Balltown Road
Niskayuna, NY
12309
O: +1 518 579 3249
E: mcrowley@eone.com

Thanks,

Patrick Kelly
National Municipal Market Manager

JOHN BROOKS COMPANY LIMITED ACQUIRES ASL ROTEQ – READ MORE [johnbrooks.ca]

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www.johnbrooks.ca [johnbrooks.ca]

Email: pkelly@johnbrooks.ca

[linkedin.com]

From: Michael Gallant <MGallant@jonesconsulting.com>
Sent: January 28, 2022 1:38 PM
To: Patrick Kelly <pkelly@johnbrooks.ca>

Cc: Jon Ingram <JIngram@jonesconsulting.com>
Subject: RE: Updated Hydraulic analysis - Pioneer Trail -City of Barrie

((External Email) Please review carefully before you CLICK links or OPEN attachments.)

Hello Patrick,

We have had a recent revision to the draft plan/plan of condominium for 70 Pioneer Trail. Could you please update the Sanitary HGL analysis based on the current design? Please see the following file sharing link.

https://private.filesanywhere.com/JONES/fs/v.aspx?v=8c6c628d8e9ab0b373a0 [private.filesanywhere.com]

The link contains Civil3D, AutoCAD and PDF versions of the General Servicing drawings and base, as well as the latest Plan of Condominium in PDF format. Feel free to contact Jon or myself if there is any additional information you need.

Thanks in advance,

Michael Gallant, EIT
Engineering Designer
The Jones Consulting Group Ltd.
229 Mapleview Drive East, Unit 1 Barrie, ON L4N 0W5
Phone (705) 734-2538 ext 245 Fax (705) 734-1056
Email mgallant@jonesconsulting.com

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS

From: Jon Ingram <JIngram@jonesconsulting.com>
Sent: January 27, 2022 10:46 AM
To: Joe Hermann <JHermann@jonesconsulting.com>
Cc: Michael Gallant <MGallant@jonesconsulting.com>
Subject: FW: Updated Hydraulic analysis - Pioneer Trail -City of Barrie

Hi Joe

See details attached. The Model should be labelled as DH151-93.

Michael – Attached/Below is the last correspondence with Pat Kelly.

Thanks,

Jon W. Ingram, P. Eng.
Associate Partner
The Jones Consulting Group Ltd.
229 Mapleview Drive East, Unit 1 Barrie, ON L4N 0W5
Phone (705) 734-2538 ext 239 Fax (705) 734-1056
Cell (705) 817-5064 Email jingram@jonesconsulting.com
www.jonesconsulting.com [jonesconsulting.com]

From: Patrick Kelly <pkelly@johnbrooks.ca>
Sent: September 13, 2016 8:09 PM
To: Jon Ingram <JIngram@jonesconsulting.com>
Subject: RE: Updated Hydraulic analysis - Pioneer Trail -City of Barrie

Hi Jon,

The City of Barrie – requires our EOne model with the double sized 150 gallon tank for blackout storage – Model Dh151-93

Please find the DXF file and appropriate PDF files for your use,,

Patrick Kelly,
National Municipal Market Manager

John Brooks Company Limited
2625 Meadowpine Boulevard,
Mississauga , ON L5N 7K5

Email: pkelly@johnbrooks.ca
Fax: 905.624-6379
Cell: 416.885.6294

Please visit our new website at www.johnbrooks.ca** [johnbrooks.ca] **and let us know what you think!

[grcanada.com]

From: Jon Ingram [mailto:JIngram@jonesconsulting.com]
Sent: Tuesday, September 13, 2016 6:35 PM
To: Patrick Kelly
Subject: RE: Updated Hydraulic analysis - Pioneer Trail -City of Barrie

Thanks Pat,

Do you have AutoCAD or PDF details for the pump stations that I can include in my design set?

Cheers,

Please note that The Jones Consulting Group will be blocking all emails containing attachments with a .zip extension. When sending a .zip file please use an FTP site.

Jon W. Ingram, P. Eng.
Project Engineer
The Jones Consulting Group Ltd.
229 Mapleview Drive East, Unit 1 Barrie, ON L4N 0W5
Phone (705) 734-2538 ext 239 Fax (705) 734-1056
Cell (705) 817-5064 Email jingram@jonesconsulting.com
www.jonesconsulting.com [jonesconsulting.com]

From: Patrick Kelly [mailto:pkelly@johnbrooks.ca]
Sent: Monday, September 12, 2016 1:25 PM
To: Jon Ingram
Subject: Updated Hydraulic analysis - Pioneer Trail -City of Barrie

Hi Jon,

Sorry to take so long – Please find attached the Updated Detailed Hydraulic analysis - Pioneer Trail -City of Barrie.

Feel free to contact me if you have any questions.

Patrick Kelly,
National Municipal Market Manager

John Brooks Company Limited
2625 Meadowpine Boulevard,
Mississauga , ON L5N 7K5

Email: pkelly@johnbrooks.ca
Fax: 905.624-6379
Cell: 416.885.6294

Please visit our new website at www.johnbrooks.ca** [johnbrooks.ca] **and let us know what you think!

[grcanada.com]

Please note that The Jones Consulting Group will be blocking all emails containing compressed attachments with file extensions such as .zip or .rar. When sending a .zip file please rename the extension to .zi_ or use an FTP site.

RESTRICTED ACCESS BUSINESS OPERATIONS

As the health and safety of our clients, suppliers, staff and families is our top priority during this period of uncertainty, commencing April 5th 2020, and until further notice, the Jones Consulting Group Ltd. office will be closed.

We are closely monitoring the situation and are following the practices recommended by local and international authorities to minimize the risk of exposure to the novel coronavirus (COVID-19) while doing everything in our power to ensure that our services continue uninterrupted.

Therefore, please note, until further notice, the Jones Consulting Group staff will be working remotely and will respond by e-mail and/or phone only. The office access will be closed.

We remain committed to providing the service you have come to expect from us, however, during this time, the Jones Consulting Group Ltd. may be rescheduling non-essential or non-urgent services as deemed appropriate in order to reduce exposure to the virus and protect everyone's health.

This email and any attachments may contain confidential and proprietary information and must be treated as such. In addition, export or re-export of the information contained in or attached to this email may be prohibited under export control laws.
To review our Privacy Policy please visit: www.precast.com

Appendix F

Supporting Water Servicing Calculations

- Estimated Water Demands and Fire Underwriters Survey Calculations
- *Vipond Fire Flow Test Results*, Vipond Fire Protection and Local PUC, dated June 30th, 2022
- WaterCAD Summary Tables
    - MDD
    - PHD
    - MDD +FF @ HYD 1
    - MDD +FF @ HYD 2
    - MDD +FF @ HYD 3
- WaterCAD Schematic WAT-1

70 Pioneer Trail City of Barrie
Estimated Water Demands & Fire Flows
FER-15101

Revised 2022-08-15

Demand Nodes	Dwell Units	Density P.P.U.	Population	Average Demand		ADD (L/sec)	MDD Factor	MDD (L/s)	PHD Factor	PHD (L/sec)
Junction 6 ,Unit 1-4	4	3.25	13	225	L/cap/day	**0.034**	2.75	**0.093**	4.13	**0.140**
Junction 10, Unit 5-8	4	3.25	13	225	L/cap/day	**0.034**	2.75	**0.093**	4.13	**0.140**
Junction 12, Unit 9-12	4	3.25	13	225	L/cap/day	**0.034**	2.75	**0.093**	4.13	**0.140**
Junction 14, Unit 13-15	3	3.25	10	225	L/cap/day	**0.025**	2.75	**0.070**	4.13	**0.105**
Junction 16 ,Unit 16-18	3	3.25	10	225	L/cap/day	**0.025**	2.75	**0.070**	4.13	**0.105**
Total	**18**		**59**			**0.152**		**0.419**		**0.629**

Demand Nodes	Fire Flow Demand L/sec
HYD 1	150
HYD 2	150
HYD 3	150

Vipond Inc Hydrant Test Data Date: 06/30/2022
Hydrant Test No. 2 Loyalist Court

Flow (USGPM)	Flow (L/s)	Pressure (psi)	Head (m)
Hydrant Test			
0	**0.00**	88	**61.85**
924	**58.30**	80	**56.23**
1508	**95.14**	72	**50.60**

Project:	Pioneer Trail	Date:	Aug 2022	
File No.:	FER-15101 (50)	Designed:	CG	
Subject:	Fire Flow Calculations	Checked:	JI	
Revisions:				

Fire flow demands for the FUS method is based on information and guidance provided in Part 2 of the "Water Supply for Public Protection" (Fire Underwriters Survey, 1999)

An estimate of the fire flow required is given by the following formula:

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

where:

F = the required fire flow in litres per minute (Rounded to nearest 1000 L/min)

C = coefficient related to the type of construction

= 1.5 for wood frame construction (structure essentially all combustible).

= 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)

= 0.8 for non-combustible construction (unprotected metal structural components, masonry or metal walls)

= 0.6 for fire-resistive construction (fully protected frame, floors, roof)

Note: For types of construction that do not fall within the categories given, coefficients shall not be greater than 1.5 nor less than 0.6 and may be determined by interpolation between consecutive construction types as listed above

A = Total floor area in square meters (including all storeys, but excluding basements at least 50% below grade) in the building being considered.

Adjustments to the calculated fire flow can be made based on occupancy, sprinkler protection and exposure to other structures. The table below summarizes the adjustments made to the basic fire flow demand.

			(1)		(2)		(3)		(4)		**Final Adjustment**	
Building	GFA	C	Fire Flow "F"		Occupancy Contents		Sprinkler		Exposure		**Fire Flow**	
	(m^2)		(L/min)	(L/s)	(%)	Adjusted Fire Flow (L/min)	%	Adjustment (L/min)	%	Adjustment (L/min)	**(L/min)**	**(L/s)**
	418	1.5	7,000	117	-15	5,950	0	0	45.00	2,678	**9,000**	**150**

Note: Based on Hunt Design Associates Inc. Siteplan

(2) Occupancy Contents

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

(3) Sprinkler

30% credit for adequately designed system per NFPA 13. Additional 10% if water supply standard for both the system and fire department hose lines required. Additional credit of up to 10% given for a fully supervised system.

(4) Exposure

0 to 3m	25%	
3.1 to 10m	20%	Calculate for all sides.
10.1 to 20m	15%	Max charge shall not exceed
20.1 to 30m	10%	75%.
30.1 to 45m	5%	

Max charge percentage is outlined above. Max should only be used if exposed building meets all of the following conditions:

a) Same or poorer type of construction than fire building

b) Same or greater height than the fire building

c) Contains unprotected exposed openings

d) Unsprinklered

(each true condition accounts for 1/4 of the max charge percentage)

Calculations :

(1) Basic Required Fire Flow (F) = 117 L/s

(2) Building Occupancy Contents = -15 % Reduction

(3) Sprinkler System Credit = 0 % No Charge

(4) Exposure to building = 45.00 % Increase [See Calculation Below]

	Dist. (m)	Max Charge %	Adjusted Charge %	Notes:
North	>45	0	0.00	Greater than 45m no charge
South	25.00	10	10.00	Conditions a), b), c), d) are True; Assign 4/4 of Max Charge
East	1.20	25	10.00	Fire wall on paired side of garage; Assign 10% charge
West	2.40	25	25.00	Conditions a), b), c), d) are True; Assign 4/4 of Max Charge
		Total:	45.00	

Final Adjusted Fire Flow = Adjustment Flow from (2) + Sprinkler Adjustment (3) + Exposure Adjusment (4)

= **9000 L/min** or **150 L/s**

FLOW TEST RESULTS

FIRST FOR FIRE, LIFE SAFETY & SECURITY
VIPOND INC
est. 1945

DATE : JUNE 30, 2022

TIME VALVE OPENED : 9:15 AM

TIME LAST VALVE CLOSED : 9:30 AM

LOCATION : LOYALIST CRT

BARRIE

ONTARIO

TEST BY : LEN.K–ETHAN.B

NAME OF CITY OPERATOR : CAM NEWITT

STATIC PRESSURE : 88 PSI

SIZE OF UNDERGROUND MAIN :

TEST NO.	NO. OF NOZZLES	NOZZLE DIAMETER (INCHES)	DISCHARGE CO–EFFICIENT	RESIDUAL PRESSURE (PSI)	PITOT PRESSURE (PSI)	DISCHARGE (U.S.GPM)
1	1	1–3/4	0.995	84	60	690
2	1	2–1/2	0.90	80	30	924
3	2	2–1/2	0.90	72	20	1508

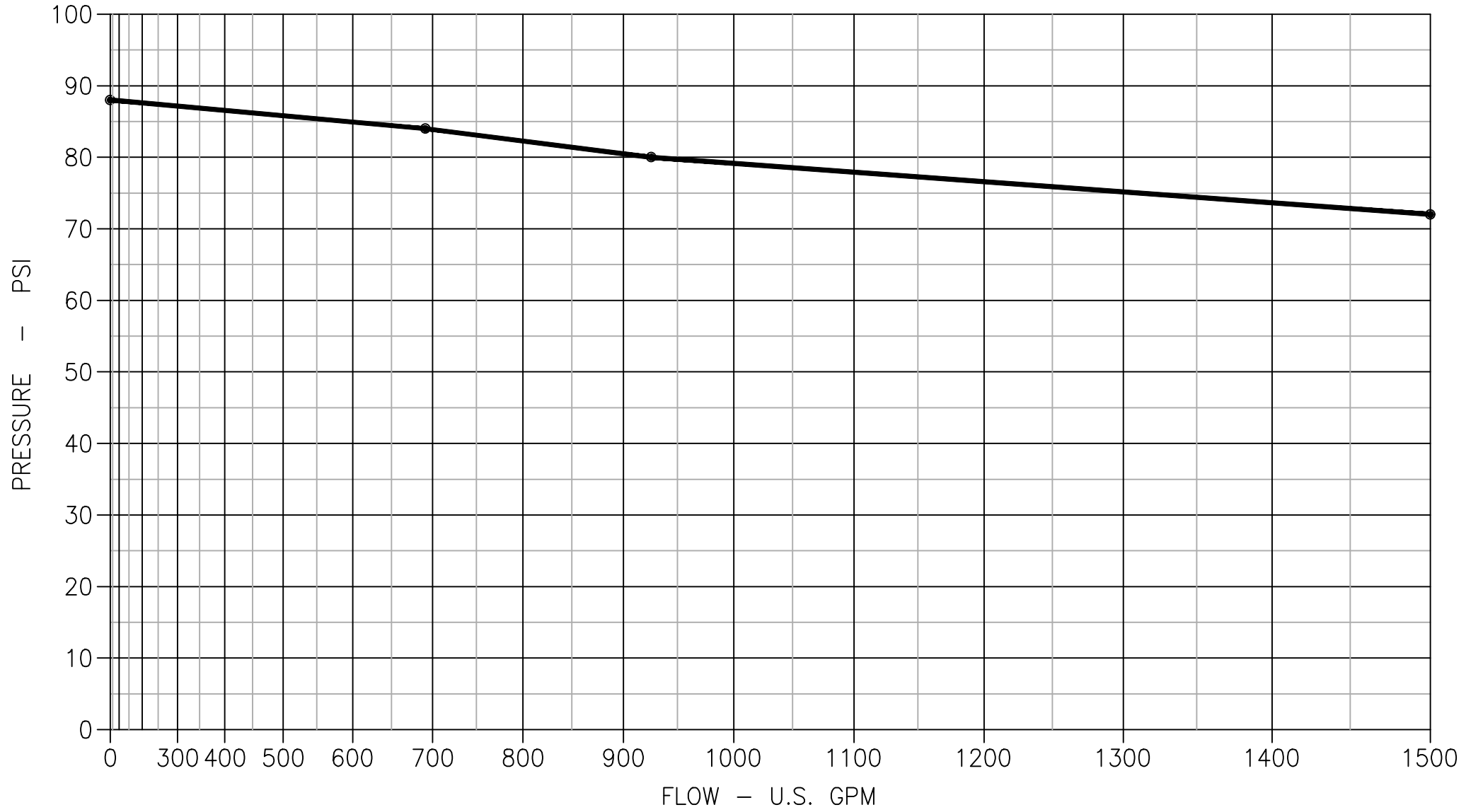
FIRST FOR FIRE, LIFE SAFETY & SECURITY

VIPOND INC

est. 1945

LOYALIST CRT	BY : LEN.K/ETHAN.B
BARRIE	OFFICE : BARRIE
ONTARIO	TEST BY : VIPOND & PUC
	DATE : JUNE 30, 2022

STATIC:		RESIDUAL:		FLOW:
88 PSI	TEST#1	84 PSI	@	690 GPM
	TEST#2	80 PSI	@	924 GPM
	TEST#3	72 PSI	@	1508 GPM



Scenario: MDD Loyalist Court
Current Time Step: 0.000 h
FlexTable: Junction Table

ID	Label	Elevation (m)	Zone	Demand Collection	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
104	J-22	246.68	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
78	J-17	254.68	<None>	<Collection: 0 items>	0.000	316.52	88
80	J-18	250.32	<None>	<Collection: 0 items>	0.000	316.52	94
39	HYD-2	229.75	<None>	<Collection: 0 items>	0.000	297.86	97
86	J-20	228.68	<None>	<Collection: 0 items>	0.000	297.86	98
33	HYD-1	228.46	<None>	<Collection: 0 items>	0.000	297.86	99
35	J-2	228.46	<None>	<Collection: 0 items>	0.000	297.86	99
66	J-16	228.34	<None>	<Collection: 1 item>	0.070	297.86	99
59	J-14	228.32	<None>	<Collection: 1 item>	0.070	297.84	99
37	J-3	227.97	<None>	<Collection: 0 items>	0.000	297.86	99
55	J-12	227.90	<None>	<Collection: 1 item>	0.093	297.83	99
43	J-6	227.83	<None>	<Collection: 1 item>	0.093	297.86	99
41	J-5	227.77	<None>	<Collection: 0 items>	0.000	297.86	99
63	J-15	227.67	<None>	<Collection: 0 items>	0.000	297.86	100
51	J-10	227.62	<None>	<Collection: 1 item>	0.093	297.84	100
57	J-13	227.60	<None>	<Collection: 0 items>	0.000	297.85	100
45	J-7	227.50	<None>	<Collection: 0 items>	0.000	297.86	100
53	J-11	227.37	<None>	<Collection: 0 items>	0.000	297.85	100
49	J-9	227.37	<None>	<Collection: 0 items>	0.000	297.85	100
107	J-23	246.00	<None>	<Collection: 0 items>	0.000	316.52	100
47	HYD-3	227.25	<None>	<Collection: 0 items>	0.000	297.86	100

G:\Eng_3D\FER-15101-01\Design Dwgs\WaterCAD Analysis\FER-15101-WaterCAD Analysis.wtg

Scenario: PHD
Current Time Step: 0.000 h
FlexTable: Junction Table

ID	Label	Elevation (m)	Zone	Demand Collection	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
104	J-22	246.68	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
78	J-17	254.68	<None>	<Collection: 0 items>	0.000	316.52	88
80	J-18	250.32	<None>	<Collection: 0 items>	0.000	316.52	94
39	HYD-2	229.75	<None>	<Collection: 0 items>	0.000	297.86	97
86	J-20	228.68	<None>	<Collection: 0 items>	0.000	297.86	98
33	HYD-1	228.46	<None>	<Collection: 0 items>	0.000	297.86	99
35	J-2	228.46	<None>	<Collection: 0 items>	0.000	297.86	99
59	J-14	228.32	<None>	<Collection: 1 item>	0.105	297.83	99
66	J-16	228.34	<None>	<Collection: 1 item>	0.105	297.85	99
37	J-3	227.97	<None>	<Collection: 0 items>	0.000	297.86	99
55	J-12	227.90	<None>	<Collection: 1 item>	0.140	297.80	99
43	J-6	227.83	<None>	<Collection: 1 item>	0.140	297.85	99
41	J-5	227.77	<None>	<Collection: 0 items>	0.000	297.85	99
63	J-15	227.67	<None>	<Collection: 0 items>	0.000	297.85	100
51	J-10	227.62	<None>	<Collection: 1 item>	0.140	297.82	100
57	J-13	227.60	<None>	<Collection: 0 items>	0.000	297.85	100
45	J-7	227.50	<None>	<Collection: 0 items>	0.000	297.85	100
53	J-11	227.37	<None>	<Collection: 0 items>	0.000	297.84	100
49	J-9	227.37	<None>	<Collection: 0 items>	0.000	297.84	100
107	J-23	246.00	<None>	<Collection: 0 items>	0.000	316.52	100
47	HYD-3	227.25	<None>	<Collection: 0 items>	0.000	297.85	100

G:\Eng_3D\FER-15101-01\Design Dwgs\WaterCAD Analysis\FER-15101-WaterCAD Analysis.wtg

Scenario: MDD+FF @ HYD 1
Current Time Step: 0.000 h
FlexTable: Junction Table

ID	Label	Elevation (m)	Zone	Demand Collection	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
104	J-22	246.68	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
107	J-23	246.00	<None>	<Collection: 0 items>	0.000	267.53	31
33	HYD-1	228.46	<None>	<Collection: 1 item>	150.000	254.59	37
80	J-18	250.32	<None>	<Collection: 0 items>	0.000	276.68	37
39	HYD-2	229.75	<None>	<Collection: 0 items>	0.000	256.59	38
35	J-2	228.46	<None>	<Collection: 0 items>	0.000	256.59	40
66	J-16	228.34	<None>	<Collection: 1 item>	0.070	256.59	40
59	J-14	228.32	<None>	<Collection: 1 item>	0.070	256.59	40
37	J-3	227.97	<None>	<Collection: 0 items>	0.000	256.59	41
55	J-12	227.90	<None>	<Collection: 1 item>	0.093	256.57	41
43	J-6	227.83	<None>	<Collection: 1 item>	0.093	256.59	41
41	J-5	227.77	<None>	<Collection: 0 items>	0.000	256.59	41
63	J-15	227.67	<None>	<Collection: 0 items>	0.000	256.59	41
51	J-10	227.62	<None>	<Collection: 1 item>	0.093	256.58	41
57	J-13	227.60	<None>	<Collection: 0 items>	0.000	256.59	41
45	J-7	227.50	<None>	<Collection: 0 items>	0.000	256.59	41
49	J-9	227.37	<None>	<Collection: 0 items>	0.000	256.59	41
53	J-11	227.37	<None>	<Collection: 0 items>	0.000	256.59	41
47	HYD-3	227.25	<None>	<Collection: 0 items>	0.000	256.59	42
86	J-20	228.68	<None>	<Collection: 0 items>	0.000	264.23	50
78	J-17	254.68	<None>	<Collection: 0 items>	0.000	295.00	57

G:\Eng_3D\FER-15101-01\Design Dwgs\WaterCAD Analysis\FER-15101-WaterCAD Analysis.wtg

Scenario: MDD+FF @ HYD 2
Current Time Step: 0.000 h
FlexTable: Junction Table

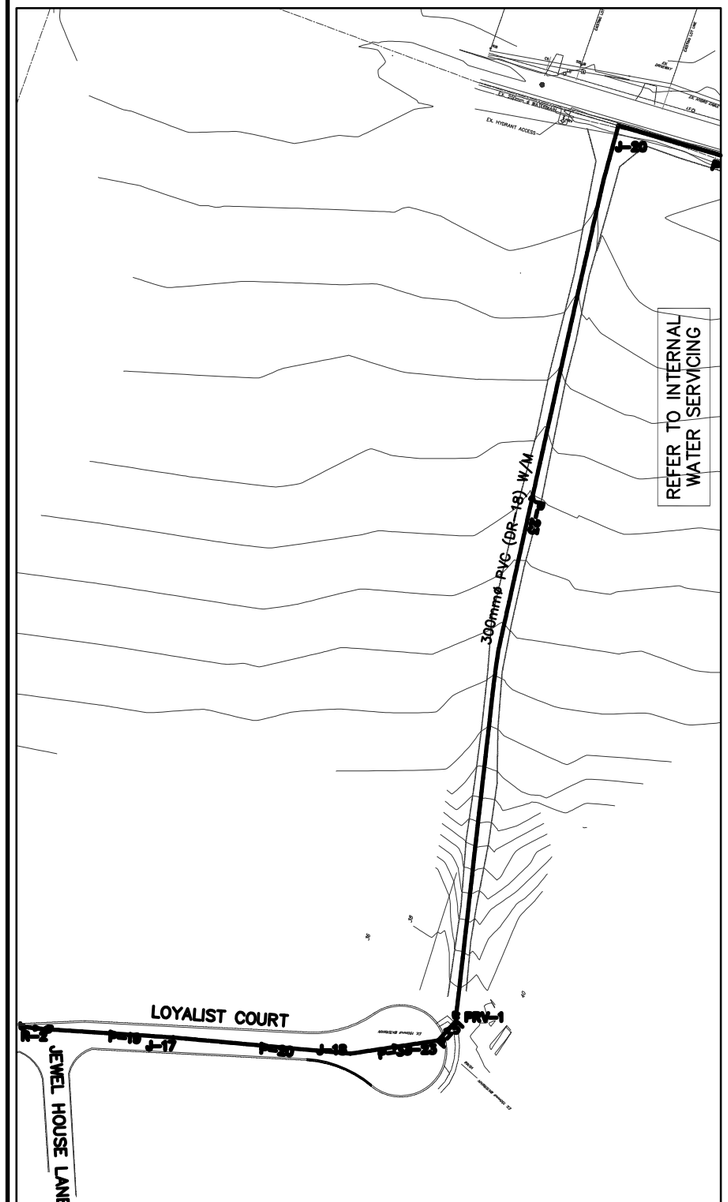
ID	Label	Elevation (m)	Zone	Demand Collection	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
104	J-22	246.68	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
39	HYD-2	229.75	<None>	<Collection: 1 item>	150.000	248.72	27
66	J-16	228.34	<None>	<Collection: 1 item>	0.070	249.85	31
59	J-14	228.32	<None>	<Collection: 1 item>	0.070	249.85	31
107	J-23	246.00	<None>	<Collection: 0 items>	0.000	267.53	31
37	J-3	227.97	<None>	<Collection: 0 items>	0.000	249.85	31
55	J-12	227.90	<None>	<Collection: 1 item>	0.093	249.83	31
43	J-6	227.83	<None>	<Collection: 1 item>	0.093	249.85	31
41	J-5	227.77	<None>	<Collection: 0 items>	0.000	249.85	31
63	J-15	227.67	<None>	<Collection: 0 items>	0.000	249.85	31
51	J-10	227.62	<None>	<Collection: 1 item>	0.093	249.84	32
57	J-13	227.60	<None>	<Collection: 0 items>	0.000	249.85	32
45	J-7	227.50	<None>	<Collection: 0 items>	0.000	249.85	32
49	J-9	227.37	<None>	<Collection: 0 items>	0.000	249.85	32
53	J-11	227.37	<None>	<Collection: 0 items>	0.000	249.85	32
47	HYD-3	227.25	<None>	<Collection: 0 items>	0.000	249.85	32
80	J-18	250.32	<None>	<Collection: 0 items>	0.000	276.68	37
33	HYD-1	228.46	<None>	<Collection: 0 items>	0.000	256.59	40
35	J-2	228.46	<None>	<Collection: 0 items>	0.000	256.59	40
86	J-20	228.68	<None>	<Collection: 0 items>	0.000	264.23	50
78	J-17	254.68	<None>	<Collection: 0 items>	0.000	295.00	57

G:\Eng_3D\FER-15101-01\Design Dwgs\WaterCAD Analysis\FER-15101-WaterCAD Analysis.wtg

Scenario: MDD+FF @ HYD 3
Current Time Step: 0.000 h
FlexTable: Junction Table

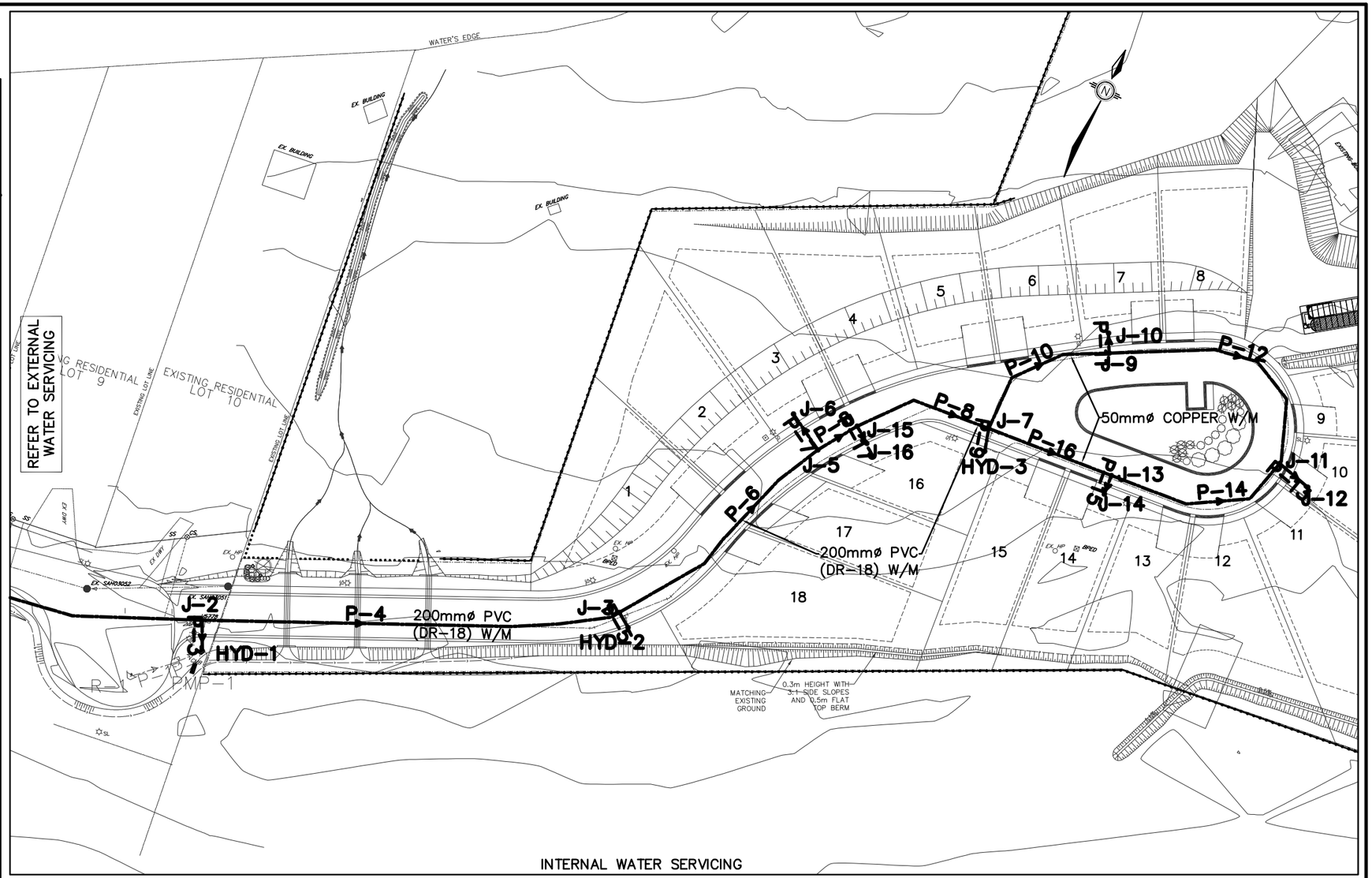
ID	Label	Elevation (m)	Zone	Demand Collection	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
104	J-22	246.68	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
47	HYD-3	227.25	<None>	<Collection: 1 item>	150.000	241.16	20
59	J-14	228.32	<None>	<Collection: 1 item>	0.070	242.65	20
55	J-12	227.90	<None>	<Collection: 1 item>	0.093	242.63	21
51	J-10	227.62	<None>	<Collection: 1 item>	0.093	242.64	21
57	J-13	227.60	<None>	<Collection: 0 items>	0.000	242.66	21
45	J-7	227.50	<None>	<Collection: 0 items>	0.000	242.66	22
49	J-9	227.37	<None>	<Collection: 0 items>	0.000	242.65	22
53	J-11	227.37	<None>	<Collection: 0 items>	0.000	242.65	22
66	J-16	228.34	<None>	<Collection: 1 item>	0.070	244.94	24
63	J-15	227.67	<None>	<Collection: 0 items>	0.000	244.94	25
43	J-6	227.83	<None>	<Collection: 1 item>	0.093	245.68	25
41	J-5	227.77	<None>	<Collection: 0 items>	0.000	245.68	25
39	HYD-2	229.75	<None>	<Collection: 0 items>	0.000	249.85	29
107	J-23	246.00	<None>	<Collection: 0 items>	0.000	267.53	31
37	J-3	227.97	<None>	<Collection: 0 items>	0.000	249.85	31
80	J-18	250.32	<None>	<Collection: 0 items>	0.000	276.68	37
33	HYD-1	228.46	<None>	<Collection: 0 items>	0.000	256.59	40
35	J-2	228.46	<None>	<Collection: 0 items>	0.000	256.59	40
86	J-20	228.68	<None>	<Collection: 0 items>	0.000	264.23	50
78	J-17	254.68	<None>	<Collection: 0 items>	0.000	295.00	57

G:\Eng_3D\FER-15101-01\Design Dwgs\WaterCAD Analysis\FER-15101-WaterCAD Analysis.wtg



EXTERNAL WATER SERVICING

1:2000



INTERNAL WATER SERVICING

1:1000

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FERNBROOK HOMES (PARKSIDE) LTD.
70 PIONEER TRAIL
WATERCAD SCHEMATIC

DRAWN BY: CG	CHECKED BY: JWI
SCALE: AS NOTED	DATE: APRIL 2021
PROJECT No. FER-15101	FIG No. WAT-1

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