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Tullamore Secondary Plan Area, Town of Caledon

Proposed Draft Plan

Preliminary Stormwater Management Report

February 2025

The Jones Consulting Group Ltd.
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Distribution List

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1		1	Client

Record of Revisions

Rev. No.	Date	Description
-	September 2016	FSR/SWMR Submission
1	March 2024	Draft Plan Approval
2	February 2025	Revised Draft Plan Approval

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Disclaimer

This Report was prepared by **The Jones Consulting Group Ltd.** for **Tullamore Secondary Plan Area Landowners** and the **Town of Caledon.** The material in the Report reflects **The Jones Consulting Group Ltd.'s** best judgment in light of the information available at the time of the Report preparation. Any use which a third party makes of this Report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. **The Jones Consulting Group Ltd**. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this Report.

Preliminary Stormwater Management Report
Tullamore Secondary Plan Area – Draft Plan of Subdivision
Town of Caledon, Regional Municipality of Peel

1. Introduction

1.1. Appointment

The Jones Consulting Group Ltd. (TJCG) has been retained by the Tullamore Secondary Plan Area landowners group to provide engineering services for a significant part of the Tullamore Secondary Plan Area located at the northeast corner of the intersection of Mayfield Road and Airport Road, in the Town of Caledon (Town).

This *Preliminary Stormwater Management Report* (PSWMR) has been prepared in support of the Draft Plan prepared by Riepma Consultants Inc. and demonstrates how the subject lands can be serviced appropriately while not adversely impacting the receiving water. This document summarizes the preliminary design of the proposed end-of-pipe stormwater management ponds, lot-level rooftop controls, stormwater conveyance of minor and major flow, and other potential stormwater management solutions to be implemented for the site.

A *Functional Servicing Report* (FSR) has been prepared in conjunction with this report and was submitted under separate cover in support of this application.

1.2. Property Description

The Tullamore Secondary Plan Area is rectangular in shape, with a total area of approximately 57 hectares including lands belonging to Salt Creek and Smartcentres. The project site is located at the northeast corner of the intersection of Mayfield Road and Airport Road, in the Town of Caledon, Region of Peel. The site is bounded to the northwest by an existing distribution warehouse development, to the north-east by Salt Creek, to the southwest by 600 m of municipal right-of-way frontage on Airport Road, and to the southeast by 1,200 m of frontage on Mayfield Road. The current *Draft Plan* prepared by Riepma Consultants Inc. highlights the participating landowners, future development phases and respective block land uses. Phase 1 includes Blocks 1 through 20 and is approximately 23.1 hectares. Block 1 will be developed as a commercial block whereas blocks 2 through 7 will be developed as industrial blocks. Blocks 8 through 12 will be developed into internal subdivision roadways. Lots 13 through 15 will be used to develop SWMF1. Blocks 16 through 20 will be dedicated to the future Mayfield Road widening. Once the subdivision is approved and constructed the subdivided lots will be subjected to their own future Site Plan applications and submissions.

Current Site Conditions

The Tullamore Secondary Plan Area is partly developed with six (6) residential dwellings fronting on Mayfield Road and gravel parking lots central to the development being utilized for school buses with access from Davis Lane. Current site conditions have changed due to non-permitted developments, these conditions are not the ultimate developed conditions of the Tullamore Secondary Plan Area and have no bearing on the future ultimate development of the subdivision. Lands not in compliance with the *Draft Plan of Subdivision* will be required to go through the formal site plan process once the final draft plan conditions are approved. Site conditions indicated that the majority of the Secondary Plan Area is undeveloped, having mixed land use coverage consisting of farm fields, grassed areas and trees. There were several smaller drainage courses collecting local stormwater runoff from the site, ultimately draining to a tributary of Salt Creek south of the site, adjacent to Maisonneuve Boulevard. As the tributary is known to contain habitat for Redside Dace, a portion of the existing watercourse on site will be preserved and enhanced to improve the quantity and quality of water flowing offsite.

A *Natural Heritage Existing Conditions Report,* and *Headwater Drainage Feature Assessment,* have been completed by Azimuth Environmental Consulting Inc. for the Tullamore Secondary Plan Area. The development setback limits have been established at the northeast side of the site adjacent to the creek based off TRCA Flood mapping information, provided in **Appendix C**.

Further description of the existing drainage conditions and soils information is described in subsequent sections of this report. The location of the site is shown in **Figure 1**.

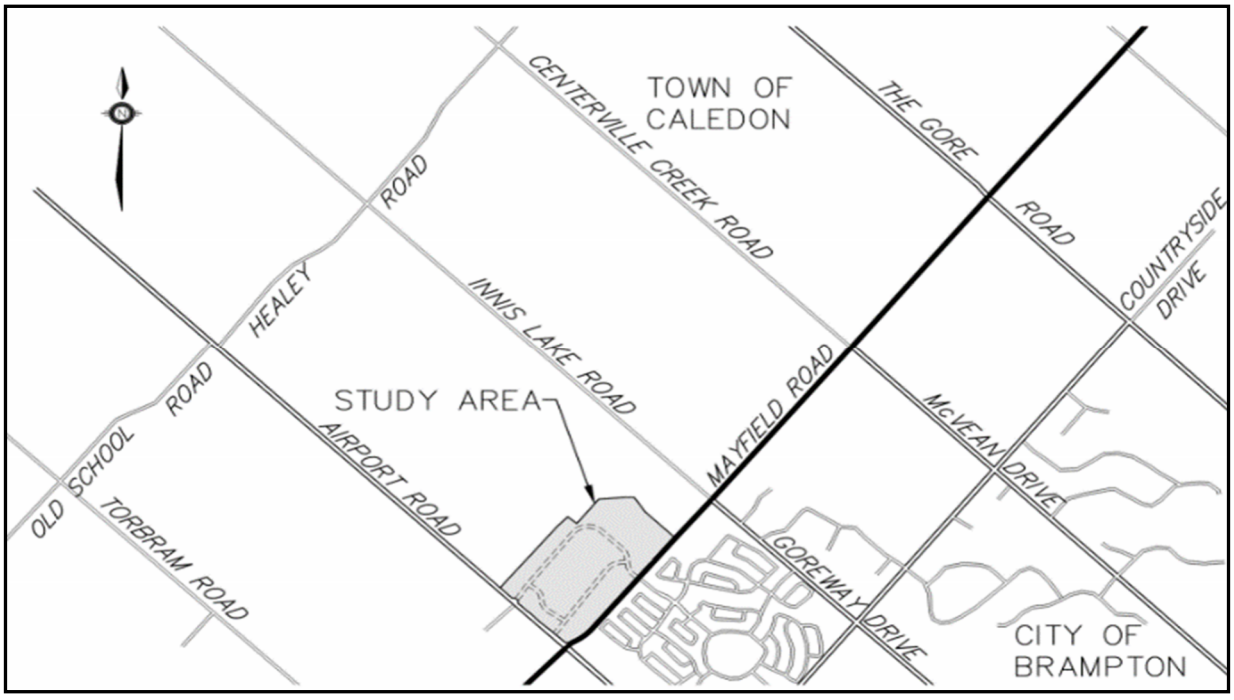


Figure 1 – Site Location Key Plan

1.3. Proposed Land Use

The latest *Draft Plan* for the site illustrates the proposed internal road layout providing access to several subdivided blocks, an environmentally protected channel, and two (2) stormwater management blocks. The plan does not currently show any individual lot site plans; however, the future development will consist of commercial or industrial lots, with each owner providing a development plan. Each lot will be serviced by gas, hydro, watermain, sanitary sewers, and storm sewers located within the proposed or adjacent road right-of-ways, with service connections provided to each lot. An overview of the site servicing is provided in the *Functional Servicing Report*, under separate cover.

Based on the site topography, the proposed end-of-pipe stormwater management ponds will be located at the southeast corner of the site. The site's stormwater management design also incorporates a "3rd pipe system" to collect rooftop drainage within the future phases of development and discharge this flow directly to the proposed EP channel. The roof drainage will be controlled, as established in the MESP, and would be considered "clean" storm runoff that could bypass the proposed SWM ponds. Options for implementing this type of system will be explored in the detailed design phase.

1.4. Summary of Background Information

1.4.1. Tullamore Secondary Plan Area Master Environmental Servicing Plan

The Town retained AGRA Earth & Environmental Ltd. and Giffels Associates Ltd. to complete a *Master Environmental Servicing Plan (MESP)*, dated June 2000, for the entire Tullamore Secondary Plan Area. The MESP provides an overview of natural environmental and stormwater management issues for the entire 115 ha Tullamore Secondary Plan Area. The document includes baseline information on the natural environment, including terrestrial, wildlife and aquatic resources, as well as surface water drainage and stormwater management options. Subsequent reports, including this *PSWMR*, make reference to this document to form the basis of design.

1.4.2. Tullamore Business Park Stormwater Management Plan

The Urbacon Buildings Group retained Counterpoint Engineering Inc. to complete a *Stormwater Management Plan*, dated August 2005 and updated in November 2005, to address the SWM design for part of the Tullamore Secondary Plan Area located immediately north of the subject development (12203 Airport Road). The industrial development, which has since been developed, consists of approximately 27.0 ha and includes rooftop storage and an extended detention wet pond for SWM quantity and quality control. The area represents part of the 58.6 ha drainage area defined in the MESP. The SWM plan outlines the design details for the wet pond, rooftop, and parking lot ponding.

1.4.3. Functional Servicing Report for Tullamore Business Park

The Tullamore South Landowners group retained IBI Group to complete a *Functional Servicing Report*, dated February 5, 2009, to address the preliminary design of municipal roads and services for the development of the subject lands referred to as Block 106 on the Concept Plan (Drawing No. CP-1 attached in **Appendix D**). The report outlines preliminary recommendations given that no specific draft plan of subdivision existed at the time. With regards to SWM, the report references the MESP for proposed SWM pond location, minor/major storm runoff, and controls for roof areas, site area, and allowable parking lot ponding.

1.4.4. Mayfield Road Improvements Class Environmental Assessment

The Region of Peel retained Stantec Consulting Ltd. to complete a *Municipal Class Environmental Assessment* (MECA) & *Environmental Study Report* (ESR) for Mayfield Road Improvements. The *Environmental Study Report (ESR)*, dated April 2013, provides the interim and ultimate framework for the Mayfield Road configuration. With regards to the subject site, the ESR provides recommendations for culvert replacements and stormwater management of runoff from the Mayfield Road surface. The ESR also recommends re-aligning the existing creek to better suit the culvert extension. The preliminary design of the stormwater management pond for the site accounts for an additional drainage area from Mayfield Road. Further details of this drainage area are provided in a subsequent section of this report. Mayfield Road utility relocations are scheduled for 2025 and construction is expected to commence in 2026.

1.4.5. Mayfield Road Widening Detailed Design

IBI Group was retained by the Region of Peel to complete detailed design for the Mayfield Road improvements project spanning Airport Road to East of Coleraine Drive. The *60% Design Completion Review* Drawing Set dated March 7th, 2016 has been obtained and illustrates the future layout of Mayfield Road and future servicing requirements. The design was completed in accordance with the Region's *Mayfield Road EA Study Report* recommendations with adjustments based on actual field measurements.

The Region reviewed various stormwater control options within the future right-of-way limits, including underground storage and infiltration, to eliminate the need for any external stormwater management facilities (ponds), as shown in the *Mayfield Road EA Study Report*.

The Region's March 2016 60% design drawings illustrate a storm sewer system that collects most of the roadways hard surface area runoff and outlets to an oil-grit-separator and a 385 cu.m bio-swale storage pond at the Study Area's proposed west pond location (SWMF1). The ROW's northern ditch and catchment area west of the road crossing culvert at 6186 Mayfield Road will by-pass the system, draining under the road to a sewer system that outlets to the Maisonneuve Boulevard EP channel. This catchment includes

the SmartCentres lands at 0 Airport Road and 6034 Mayfield Road. The current Study Area Concept Plan and stormwater management system has accounted for Mayfield Road construction.

The Region's website notes that the Mayfield Road works are planned to start in 2026 with utility relocation scheduled for 2025. A request was made to the Region for a copy of the latest submission drawings. The Region provided copies of the 60-90% plan and profile progress submission drawings. A review of the design confirmed that the sewers can convey the stormwater to the proposed Tullamore SWM facility with some adjustments to the proposed design. The Mayfield Road storm system outlet invert will need to be raised by either insulating the pipe, adjusting the pipe type to elliptical pipes, raising the future Mayfield Road crossing culvert inverts or adjusting the Mayfield Road culvert dimensions. Additional requirements will be confirmed during the detailed design. A copy of the progress drawings are attached in **Appendix C**. Copies of the plan and profiles for the roadways existing conditions have also been attached.

1.4.6. FSR & SWMR for Airport Rd Distribution Facility

Hopewell Development Corp. retained JSW+ Associates to complete a Functional Servicing Report and Stormwater Management Report (FSR & SWMR), dated August 2013, for the Airport Road Distribution Facility located north of the Urbacon development at 12333 Airport Road. The report references the MESP as well as the SWMR by Counterpoint Engineering, as the lands were included for the design of the existing SWM pond north of the subject site.

1.4.7. FSR & SWMR for Airfield Developments Inc.

Airfield Developments Inc. retained WSP Canada Inc., to complete a *Functional Servicing Report and Stormwater Management Report*, dated July 22nd, 2021, in support of their Official Plan and Zoning By-Law Amendment Application. The proposed development is alternatively known as Smartcentres (0 Airport Road and 6034 Mayfield Road) and proposes zoning amendments to permit employment/industrial uses. The proposed development consists of approximately 9.43 ha. Regarding stormwater management, the report proposes the use of rooftop and underground storage areas to contain and release runoff from the site below allowable flow rates calculated from the Humber River Watershed Unit flow Relationships.

1.4.8. 12117 Airport Road Site Plan

The 12117 Airport Road development currently has Site Plan Approval. The Site Servicing and Grading Plan prepared by EMC Group Ltd., dated February 2003, shows that the operations building is serviced with sanitary and water connections from Airport Road. There is also a stormwater management pond located at the properties south-east corner. The pond was designed only to be temporary as is to be removed once the stormwater management pond for the overall Secondary Plan Area is constructed.

1.4.9. OPA & ZBLA for SmartCentres (0 Airport Road & 6034 Mayfield Road)

Based on the Town's April 21, 2022, Notice of Public Meeting SmartCentres submitted Official Plan Amendment and Zoning By-law Amendment applications in support of a site plan development at 6034 Airport Road and 0 Airport Road. The *Site Plan* proposes two (2) industrial buildings, parking, and private entrances to Airport Road and Mayfield Road. A copy of the *Site Plan* (Drawing A1.0, prepared by Ware Malcomb, dated July 26, 2021), Notice, and Submission Cover Letter has been attached in **Appendix C**.

The development will be serviced internally by watermains and sanitary and storm sewers. The sanitary sewers will outlet to Airport Road. The on-site stormwater system (underground sewers and tanks, rooftop storage) will outlet at the existing Mayfield Road northern ditch. This ditch drains eastwards and crosses Mayfield Road at a road crossing culvert and eventually outlets at Salt Creek. The proposed servicing and grading information is illustrated on the *Preliminary Site Servicing Figure* and *Preliminary Grading Figure* (Sheet Number 4 and 5 respectively, prepared by WSP, dated July 22, 2021) attached in **Appendix C**. To ensure that the FSR and accompanying drawings are based on the latest information, SmartCentres was contacted to confirm if an updated development plan was available but no additional information was provided.

2. Approval Agencies & Design Criteria

The site is subject to the policies and requirements of the Town of Caledon (Town), Region of Peel (Region), the Toronto and Region Conservation Authority (TRCA), the Ministry of Natural Resources (MNR), and the Ministry of the Environment (MOE) with respect to drainage and stormwater management. The proposed stormwater management strategy shall adhere to:

- Town of Caledon, *Development Standards Manual (Version 5.0),* dated 2019,
- Town of Caledon, *Consolidated Linear Infrastructure Environmental Compliance Approval 324-S701,* dated August 29th, 2024,
- Region of Peel, *Public Works Stormwater Design Criteria and Procedural Manual (Version 2.1),* dated June 2019,
- Region of Peel, *Public Works Design, Specifications & Procedures Manual - Linear Infrastructure - Watermain Design Criteria* dated June 2010,
- Region of Peel, *Public Works Design, Specifications & Procedures Manual – Linear Infrastructure – Regional Roads and Traffic,* dated February 2010,
- Region of Peel, *Linear Wastewater Standards*, dated March 2023,
- Region of Peel, *Public Works Design, Specifications & Procedures Manual – Stormwater Management Report,* dated December 2022,
- Region of Peel, *Consolidated Linear Infrastructure Environmental Compliance Approval 009-S701,* dated September 30th, 2022,
- Toronto and Region Conservation Authority, *Stormwater Management Criteria*, dated August 2012,
- Ministry of Natural Resources and Forestry, *Guidance for Development Activities in Redside Dace Protected Habitat,* dated March 2016,
- MOECP, *Stormwater Management Planning and Design Manual,* dated March 2003,
- AGRA Earth & Environmental Limited, *Tullamore Secondary Plan Area Master Environmental Servicing Plan*, dated June 2000.

2.1. Town of Caledon

The stormwater drainage recommendations must conform to the *Town of Caledon's Development Standards Manual* (Version 5 - 2019). The Town's document is intended as a guideline for new land development, and provides technical requirements specific to storm sewers, site grading, erosion & sediment control, and stormwater quantity & quality control techniques, among other topics. In addition, the Town of Caledon has recently been granted a *Consolidated Linear Infrastructure Environmental Compliance Approval 324-S701* (CLI ECA) authorizing the Town to approve alterations to the municipal stormwater management system. The subject lands will be required to meet all the conditions of the Town's CLI ECA along with the associated Design Criteria.

2.2. Region of Peel

The stormwater management plan includes collecting drainage from the future widening works on Mayfield Road. Given that Mayfield Road is classified as a Regional Road, the Region will be involved in the design and review of the proposed stormwater management facilities or storm sewers conveying drainage from this road. As a general rule, the Region will require that "Post-Development flows must be equal to or less than Pre-Development levels" for all lands that drain to a Regional storm sewer. Where necessary, the design of the subject site with respect to stormwater drainage will conform to the *Region of Peel's Public Works Stormwater Design Criteria and Procedural Manual* (June 2019), *Consolidated Linear Infrastructure Environmental Compliance Approval (CLI ECA) Stormwater Management Criteria* (September 2022), and *Region of Peel Stormwater Management Report* (December 2022).

2.3. Toronto and Region Conservation Authority (TRCA)

The subject site is located within the Humber River Watershed within the TRCA's jurisdiction. It is expected that the TRCA will require the stormwater management plan to adhere to the *TRCA Stormwater Management Criteria* (August 2012 Version 1.0). The TRCA criteria provides guidance in the planning and design of stormwater management infrastructure to address flooding, water quality, erosion, water balance, and natural heritage.

2.4. Ministry of Natural Resources and Forestry (MNRF)

The subject site is located adjacent to Salt Creek, which has been identified as an ecologically important watercourse due to the presence of Redside Dace Habitat. The watercourse adjacent to Maisonneuve Boulevard, which will serve as the outlet for stormwater runoff from the site, drains into Salt Creek. Through initial consultation with the MNRF, the stormwater management pond design must incorporate thermal mitigation measures to reduce the threat to Redside Dace. Specifically, these measures include:

- Average permanent pool depth, of the open water component of the SWM facility, excluding the forebay area and other shallow water features, is to be minimum 3.0m;
- Bottom draw outlet is to be located a minimum of 2.5m below the permanent pool elevation;
- The perimeter of the pond at the permanent pool elevation is to include a minimum 3m wide flat shelf, 0.3m deep, as a wetland planting area. The shelf will include a 30cm layer of topsoil and planted with native emergent species (cattail and bulrushes) suited for fluctuating water levels;
- Side slopes below the normal water level of the permanent pool are 4:1;
- The volume of water in the permanent pool between 1.5m to 3.0m depth is at least equivalent to the volume of runoff generated by a 10mm storm event within the catchment of the pond. The

calculated volume below 1.5m depth is to be discharged over a minimum 24 hour period (apply Equation 4.10: Drawdown Time and Equation 4.11 found on page 4-58 of the Stormwater Management Planning and Design Manual (MOE, 2003)).

2.5. Ministry of the Environment, Conservation and Parks (MECP)

Future Site Plan Approval submissions shall obtain Environmental Compliance Approvals (ECA) for future proposed storm services located within private property. Stormwater drainage proposals are to be consistent with the *MECP Stormwater Management Planning and Design Manual* (March 2003).

2.6. Master Environmental Servicing Plan

Master Environmental Servicing Plans (MESP) are required by municipalities to support new developments and re-developments within a secondary plan area. The TRCA is responsible for the technical clearance of the MESP's as the governing conservation authority (CA). Under the Planning Act and Environmental Assessment Act the CA represents the Provincial interest for Natural Hazards of the Provincial Policy Statement.

The TRCA will review the technical aspects of water management, natural hazards and natural heritage that have been addressed through the MESP. Under Phase 1 of the Characterization of the Natural System the TRCA will require a review of 1) Existing studies and projects 2) Surface Water which would include Watershed Hydrology and Flood Plain Mapping/Hydraulics 3) Erosion including Fluvial Geomorphology and Geotechnical 3) Groundwater assessment 4) Natural Heritage 5) Water Balance. Phase 2 outlines the impact of the proposed development in regard to Stormwater Management and Low Impact Strategies, above and below ground servicing. Identify applicable Valley and Stream crossings and trails. Providing Preliminary grading plans identifying existing and proposed grades and demonstrating the proposed design will adhere to municipal and regional standards and respecting the limits of the Natural System.

3. Site Physiography

3.1.1. Existing Drainage Conditions

The subject site consists of approximately 57 ha of mixed land use which is mainly undeveloped. The site's topography contains average slopes ranging from 1-2%, generally draining in a southeast direction towards the tributary of Salt Creek adjacent to Maisonneuve Blvd. There are intermittent drainage courses which convey the local site drainage to two (2) existing culverts on Mayfield Road. One of these culverts, a 1200mm diameter CSP, drains an area of approximately 9.49 ha to the south side of Mayfield Road, which is conveyed via a roadside ditch to the tributary adjacent to Maisonneuve Blvd. The second culvert is an 1800x2500mm elliptical culvert, located immediately upstream of the tributary and drains most of the site (approximately 41.67 ha) directly to the tributary. There are also a few smaller pockets of land which drain directly to Airport Road or to Salt Creek. The culvert in the vicinity of Maisonneuve Blvd will serve as the main stormwater outlet for the site in the post-development condition.

There is an existing stormwater management pond servicing the 12117 Airport Road Site Plan central to the site. This pond was designed only to be temporary and is to be removed once the stormwater management pond for the overall Secondary Plan Area is constructed. The existing pond discharges to one of the intermittent drainage courses described above and eventually drains to the culvert in the vicinity of Maisonneuve Blvd.

There is an external drainage area approximately 1.30 ha in size to the north of the development that is captured by the property boundary drainage ditch. In the existing condition, flows generated in this area are conveyed in an eastwards direction along the property boundary to an existing intermittent drainage course located within phase 2 developments. The stormwater generated in this area is ultimately conveyed to the existing Maisonneuve Boulevard & Mayfield Road Intersection Culvert. The proposed condition will collect and convey stormwater from the northern boundary ditch directly to the Environmentally Protected Channel via underground culverts located within Phase 2 developments.

12101 Airport Road is developed and consists of a commercial plaza with a detached vehicle repair shop and parking lot. This commercial plaza is accessed exclusively from Airport Road.

12151 Airport Road is a non-permitted development that currently consists of gravel areas used to store vehicles. This property will be required to be reinstated to previous site conditions.

The pre-development storm drainage plan is provided as drawing STM-1. Please refer to **drawing STM-1** in **Appendix D** for additional information. It is worth noting that the development belonging to 6034 Mayfield Road and 0 Airport Road (future SmartCentres), will provide provides mitigation of their own stormwater in the post-development scenario.

3.1.2. Proposed Drainage Conditions

Development of the subject site will consist of commercial and industrial lots, an internal roadway to be built to Town standards, an environmentally protected drainage channel, and two (2) stormwater management facilities. Each individual lot will be developed with buildings, driveways, parking lots, and landscaped areas. The grading of the lots will direct stormwater runoff to the internal road network where possible, which will contain a proposed storm sewer system to convey minor flows (up to the 10-Year event) to the proposed end-of-pipe Stormwater Management Facilities (SWMFs). The roads will also convey the major overland flow (>10-Year Event) within the right-of-way to the proposed SWMFs.

The proposed end-of-pipe SWM facilities are extended detention wet ponds, providing stormwater quantity and quality control for the site. All proposed buildings will require rooftop controls, as per the recommendations of the MESP. The stormwater facilities have been conservatively sized excluding upstream storage benefits from individual lot rooftop storages or LIDs to account for the interim non-site plan approved scenario with the site's temporarily covered in gravel and used for trucking storage yards with no on-site stormwater management controls. Stormwater runoff from phase 1 building rooftops are proposed to connect to the proposed storm sewer network and discharge directly to SWMF1. Phase 2 development building rooftops will drain to a 3rd pipe system within Street 'B' and be conveyed and discharged directly to the EP channel bypassing the proposed SWMF2. The 3rd pipe system will be sized to convey the 100-year storm event peak flow controlled to a rate of 40 L/s/ha of building area. Further design details are provided in subsequent sections of this report.

The proposed site grading and drainage design will reduce peak flows draining to the culvert crossing Mayfield Road between Airport Road and Maisonneuve Boulevard. Refer to **Section 4.6** for Overall Allowable Development and Post-Development peak flows. Stormwater runoff from the proposed subdivision will be conveyed internally to SWMF1 & SWMF2 prior to discharging from the site by the Mayfield Road Culvert. Further design details are provided in the preliminary site grading and site servicing drawings provided in **Appendix D**.

The proposed works will require an Erosion and Sediment Control Plan in order to provide the appropriate protection of downstream receiving systems during construction. The proposed ESC works have been outlined in the *Erosion and Sediment Control Plan Report,* provided under separate cover.

4. Hydrology

4.1. OTTHYMO Model

The development was hydrologically modeled using the latest version of the Visual OTTHYMO (Version 6.2) computer program developed by Smart City Water. Visual OTTHYMO (Version 6.2) is the sixth version of the INTERHYMO-OTTHYMO hydraulic model simulation software package. Visual OTTHYMO is a GIS-based hydrologic model capable of performing both event-based and continuous rainfall simulations for drainage and conveyance infrastructure, SWM & LID design, water balance and erosion threshold calculations.

Given a rainfall event, OTTHYMO calculates peak runoff flows and rainwater volumes for a predefined catchment area. This OTTHYMO model makes use of the NASHYD (natural hydrographs) and STANDHYD (urban hydrographs) routines for calculating hydrographs for rural or undeveloped areas and urban developed areas, respectively.

4.2. Pre-Development Scenario

Pre-Development hydraulic modeling of the Humber River Watershed has been previously completed by Aquafor Beech Ltd, on behalf of the TRCA. Findings of the Humber River Watershed Hydrology Update report outline the pre-development unit flow relationships for multiple sections of the Humber River Watershed. The TRCA has provided these Unit-Flow relationships within **Table E.1** of their *Stormwater Management Criteria* dated August 2012. The pre-development target flow rates for the site are established using *Equation F (Sub Basin 36)* unit flow relationships outlined in the TRCA's *Stormwater Management Criteria*. An excerpt from the TRCA *Stormwater Management Criteria* has been provided in **Appendix C**. The following table highlights the Unit Flow Relationships and resulting Pre-Development Allowable Flows for the development.

Table 1 – Allowable-Development Overall Discharge Rate

Storm Distribution	Area (ha)	Return Period (years)					
Equation F General form, Q=B-C*ln(A)		2	5	10	25	50	100
'B' Factors		9.506	14.652	17.957	22.639	26.566	29.912
'C' Factors		0.719	1.136	1.373	1.741	2.082	2.316
Erosion Control Rate per MESP* (L/s/ha)		2.00					
Overall Development Unitary Discharge Rates (L/s/ha)							
Erosion Control Discharge Rate* (L/s/ha)	46.50	2.00					
Allowable Discharge Rate (L/s/ha)	46.50	6.75	10.29	12.69	15.95	18.57	21.02
Allowable Development - Overall Discharge Rates (m^3/s)							
Erosion Control Allowable Flow (m^3/s)	46.50	**0.093**					
Allowable-Development Flows (m^3/s)	46.50	**0.314**	**0.479**	**0.590**	**0.742**	**0.864**	**0.978**

*Erosion Control Rate (formerly known as Distributed Runoff Control) of 2 L/s/ha referenced from note 2 under MESP Table 4.2 Pond Operational Characteristics.

The proposed development will provide the required quantity controls to reduce post-development peak flows to the allowable development peak flows determined in the above table.

4.3. Design Storms

The rainfall events are based on the requirements of the TRCA's *Stormwater Management Criteria* and the Town of Caledon *Rainfall Intensity Curves* as set out in the Town Standard No. 103 (provided in **Appendix C**). The following events have been modeled:

- 6-hour AES (Atmospheric Environment Service) rainfall distributions for the 2, 5, 10, 25, 50, and 100-year storm events;
- 12-hour AES rainfall distributions for the 2, 5, 10, 25, 50, and 100-year storm events;
- 90th Percentile Storm Event - 27 mm 4-hour Chicago rainfall event; and
- Hazel Regional Storm Event.

4.4. Soil Type and Land Use

The Tullamore Secondary Plan Area consists mainly of Chinguacousy Clay Loam (SCS Group C) with a small pocket of Alluvial Bottom Land corresponding with low lying land along stream courses, as determined using Soil Survey of Peel County Soils maps. An excerpt from the soils maps is provided in **Appendix C**. An average Soil Group of C has been used for assigning Curve Number (CN) and Runoff Coefficient (RC) for the site. The SCS Groups for these soil types are determined using MTO Design Chart H2-6A, which can be found in **Appendix C**. The Curve Number (CN) and Runoff Coefficient (RC) relate soil and surface conditions to anticipated stormwater runoff. The CN's and RC's for the OTTHYMO catchment

areas have been determined from *MTO Design Charts 1.09: Soil/Land Use Curve Numbers* and *1.07: Runoff Coefficients*. The proposed land use is a mixture of commercial/industrial buildings, roadways and parking lots, grassed landscaped areas, and two (2) stormwater management pond blocks. Refer to **Appendix C** for the MTO design charts used to confirm the above.

4.5. Discretization

The internal storm areas have been divided into discrete storm catchment areas for the purpose of hydrologic modeling of the post-development conditions for the site. The pre- and post-development catchment areas are illustrated on **Drawings STM-1** and **STM-2**, respectively. A storm subcatchment plan, **Drawing STM-3**, was also prepared for the sizing of the proposed storm sewer system. The Drawings are provided in **Appendix D**. It is important to note that Drawing STM-1 includes areas not accounted for in drawing STM-2, these areas were removed because flows generated in the removed areas are either treated by external stormwater management plans or are conveyed to independent outlets.

Design of the stormwater management facilities has been completed excluding rooftop and site level controls recommended in the MESP. This was done to ensure the SWMFs will provide the required quantity controls if future lot level site plans are not able to effectively control peak flows (during the interim stage, prior to site plan approval). Rooftop and lot level controls of 40 and 180 L/s/ha respectively as well as an allowable 0.30m ponding within parking areas, are still recommended consistent with MESP recommendations. The plan is based on the recommendations of the MESP, MECP, and MNRF with regards to rooftop storage controls and design parameters for the end-of-pipe stormwater management pond. The catchment areas used for the various analyses are described below.

The imperviousness of the proposed development was determined based on Town of Caledon Zoning By-law requirements. The Town of Caledon Zoning By-law specifies a minimum 20% and 10% landscaped area for Highway Commercial and Prestige / General Industrial Zoned areas. At this preliminary stage, the exact imperviousness of the entire site can only be estimated based on maximum allowable zoning requirements. **Tables 2 & 3** below summarizes hydrologic parameters used in OTTHYMO modeling.

For the hydrologic modeling scenarios, catchment areas identified as 200's and 300's are captured by SWMF1 and SWMF2, respectively whereas all uncontrolled catchment areas are identified as 400's and are directed to the proposed Environmentally Protected Channel. The external drainage area for runoff from Mayfield Road is identified as catchment 203, as it is proposed to be captured by underground infrastructure and directed towards SWMF1.

The preliminary SWM modeling considers one (1) scenario for sizing of the proposed end-of-pipe stormwater management ponds. An additional OTTHYMO model has been developed to confirm the

minimum storage volume and depth needed to retain the governing 100-year event while releasing stormwater below the allowable 40L/s/ha rooftop control.

Scenario 1 – No Upstream Attenuation

In this scenario, all rooftop and lot level runoff are assumed to be directed to the proposed SWM ponds. Rooftop and lot level controls are not included and assumes that the entire peak flow runoff from the rooftops will be conveyed as overland flow. This scenario has been used to conservatively size the SWMFs if the Future Site Plans are unable to provide the recommended flow controls (during the interim stage).

Additional modeling will be completed during the detailed design stage to assess flow conditions with the MESP recommended rooftop and lot level controls. **Table 2** below summarizes land use breakdown statistics used in the Post-Development OTTHYMO modeling scenarios.

Table 2 – Catchment Area Land Use Breakdown – Post-Development

Catchment Area ID*	Total Area (ha)	Grass Area (ha)	Gravel Area (ha)	Paved Area (ha)	Rooftop Area (ha)	Pond Area (ha)	Weighted Parameters		
							RC	CN	IA (mm)
201	4.65	0.47	0.00	1.86	2.33	0.00	0.87	96	2.30
202	4.13	0.41	0.00	1.65	2.07	0.00	0.87	96	2.30
203**	2.02	0.45	0.00	1.57	0.00	0.00	0.78	93	2.67
204	1.78	0.18	0.00	0.71	0.89	0.00	0.87	96	2.30
205	1.36	0.27	0.00	0.68	0.41	0.00	0.79	93	2.60
206	1.40	0.28	0.00	0.70	0.42	0.00	0.79	93	2.60
207	4.45	0.48	0.00	1.81	2.16	0.00	0.87	95	2.32
208	2.05	0.20	0.00	0.82	1.02	0.00	0.87	96	2.30
209	4.42	0.45	0.00	1.77	2.20	0.00	0.87	96	2.30
210	0.31	0.06	0.00	0.16	0.09	0.00	0.79	93	2.60
211	2.65	0.62	0.00	2.03	0.00	0.00	0.77	92	2.70
212	2.13	0.96	0.00	0.24	0.00	0.93	0.29	66	9.45
Total SWMF1	**31.36**	**4.83**	**0.00**	**14.01**	**11.60**	**0.93**	**0.80**	**93**	**2.88**
301	6.90	0.69	0.00	2.76	3.45	0.00	0.87	96	2.30
302	3.20	0.51	0.00	1.47	1.22	0.00	0.83	94	2.48
303	0.77	0.08	0.00	0.31	0.39	0.00	0.88	96	2.30
304	0.52	0.17	0.00	0.34	0.00	0.00	0.69	90	3.01
305	1.13	0.50	0.00	0.17	0.00	0.46	0.32	68	8.99
Total SWMF2	**12.53**	**1.95**	**0.00**	**5.06**	**5.06**	**0.46**	**0.80**	**93**	**2.98**
401**	1.30	1.25	0.05	0.00	0.00	0.00	0.19	75	4.87
402	0.22	0.06	0.00	0.16	0.00	0.00	0.75	91	2.82
403**	0.21	0.06	0.00	0.15	0.00	0.00	0.76	92	2.79
404	0.89	0.89	0.00	0.00	0.00	0.00	0.17	74	5.00

* Catchment Areas for the Pre-Development condition are not presented, as they are not analyzed in the hydrologic model. All Catchment Areas represent post-development conditions.

** Catchment areas are from external drainage sources.

Table 3 summarizes the hydrologic parameters that were used for the OTTHYMO model post-development scenarios.

Table 3 – Summary of Hydrologic Model Input – Post-Development

NASHYD Catchments	Area (ha)	L (m)	S (%)	RC	CN	Ia (mm)	Tp (hr)	DT (min)
212	2.13	45	20.0	0.29	66	9.45	0.07	1
305	1.13	30	20.0	0.32	68	8.99	0.06	1
401	1.30	725	1.1	0.19	75	4.87	0.44	1
404	0.89	253	1.0	0.17	74	5.00	0.54	1
STANDHYD Catchments	**Area (ha)**	**XIMP (%)**	**TIMP (%)**	**SLPP (%)**	**LGP (m)**	**SLPI (%)**	**LGI (m)**	**DT (min)**
201	4.65	40.0	90.0	0.5	345	0.5	176.21	1
202	4.13	40.0	90.0	0.5	345	0.5	166.00	1
203	2.02	78.0	78.0	2.0	25	2.0	116.10	1
204	1.78	40.0	90.0	1.3	84	1.0	109.06	1
205	1.36	50.0	80.0	1.0	125	1.0	95.33	1
206	1.40	50.0	80.0	1.0	98	1.0	96.57	1
207	4.45	41.0	89.0	0.9	407	0.9	172.18	1
208	2.05	40.0	90.0	1.0	200	1.0	116.89	1
209	4.42	40.0	90.0	1.0	390	1.0	171.63	1
210	0.31	50.0	80.0	1.0	65	1.0	45.59	1
211	2.65	77.0	77.0	0.9	872	0.9	132.96	1
301	6.90	40.0	90.0	1.0	250	1.0	214.52	1
302	3.20	46.0	84.0	1.0	120	1.0	146.05	1
303	0.77	40.0	90.0	2.1	54	1.0	71.87	1
304	0.52	66.3	66.3	1.0	60	1.0	58.83	1
402	0.22	72.7	72.7	3.0	62	3.0	38.31	1
403	0.21	73.5	73.5	3.0	25	3.0	37.32	1

Scenario 2 – Rooftop Controls

In this scenario, rooftop areas going to both SWMF1 and SWMF2 are exclusively isolated and assessed to determine rooftop storage requirements under the 100-year 6- & 12-Hour AES storm events. Rooftop peak flows have been controlled per MESP recommendations to the 40L/s/ha targets.

The following **Table 4** summarizes the hydrologic parameters that were used in this OTTHYMO model post-development scenario. Refer to section 5.5.1 for the conceptual stage-storage-discharge tables used to represent the rooftop storage in this OTTHYMO model scenario.

Table 4 – Summary of Hydrologic Model Input – Post-Development

STANDHYD Catchments	Area (ha)	XIMP (%)	TIMP (%)	SLPP (%)	LGP (m)	SLPI (%)	LGI (m)	DT (min)
200	11.60	100	0	1.0	60	1.0	278.04	1
300	5.06	100	0	1.0	60	1.0	183.61	1

4.6. Model Results

The hydrologic modeling results are summarized herein. The pre-development condition was not modeled within OTTHYMO as the allowable peak flow rates are established using Unit Flow Relationships as provided within the TRCA's SWM Criteria. This site falls within Sub-Basin 36 of the Humber River watershed and uses 'Equation F' to calculate the allowable peak flow rate for the 2, 5, 10, 25, 50, and 100-year storm events based on the contributing drainage area. Refer to **Appendix C** for the relevant excerpt from the TRCA's *Stormwater Management Criteria*. The Unit Flow Relationships are summarized in **Table 5** below, and the resulting allowable peak flow release rates are summarized in **Table 6** along with the post-development peak flow rates computed by the OTTHYMO model. The OTTHYMO model schematics along with the summary and detailed output printouts are provided in **Appendix B**.

Table 5 – Summary of Unit Flow Relationships – Humber River Watershed

Storm Event Return Period	Equation F - Sub-Basin 36
100-year	Q = 29.912 – 2.316 * ln(A)
50-year	Q = 26.566 – 2.082 * ln(A)
25-year	Q = 22.639 – 1.741 * ln(A)
10-year	Q = 17.957 – 1.373 * ln(A)
5-year	Q = 14.652 – 1.136 * ln(A)
2-year	Q = 9.506 – 0.719 * ln(A)

Table 6 – Hydrologic Model Results

Storm Peak Event Flow (m^3/s) – Site Total							
	Area (ha)	Storm Distribution					
Return Period (years)		**2**	**5**	**10**	**25**	**50**	**100**
Allowable Overall Development Discharge Rates (m^3/s)							
Erosion Control Discharge Rate	46.50	0.093					
TRCA Target Flows	46.50	0.314	0.479	0.590	0.742	0.864	0.978
Post Development Condition – Scenario 1							
27mm 4 Hour Chicago WQE	46.50	0.085					
AES 6 hour	46.50	0.120	0.273	0.424	0.559	0.646	0.731
AES 12 hour	46.50	0.136	0.321	0.438	0.553	0.626	0.701
Hazel Storm	46.50	6.068					

The results demonstrate that, in general, the proposed stormwater management ponds will provide the required quantity control to reduce post-development peak flows to the allowable release rates. The proposed SWMF design is considered conservative in nature as it does not include the use of rooftop and lot level controls to size the SWMFs. An additional OTTHYMO model will be created during the detailed design stage to assess peak flow conditions with the recommended lot level and rooftop controls. The

functions of the proposed wet ponds and rooftop controls are discussed in further detail in subsequent sections of this report.

Further, stormwater conveyance calculations have also been discussed in detail. The minor flow will be conveyed via the proposed storm sewer system and is calculated with storm sewer design sheets. The major flow will be conveyed via overland flow through the proposed road right-of-way and is calculated by demonstrating that the depth of flow during major storm events can be accommodated within the right-of-way cross-section. Additional flow routes will be determined and appropriately sized during the individual properties future Site Plan Applications.

5. Stormwater Management Plan

5.1. Overview

This Preliminary Stormwater Management Report (PSWMR) outlines the proposed design for the Tullamore Secondary Plan Area stormwater management system to meet the post-development quality and quantity control requirements of the Town, Region, TRCA, MECP, and MNRF.

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

The Tullamore Secondary Plan Landowners are required to implement at-source LID's within their individual future Site Plans to provide best efforts in achieving the 5mm retention erosion control target and water balance requirements in accordance with the Town of Caledon Consolidated Linear Infrastructure Environmental Compliance Approval (CLI-ECA) and Appendix A Table A1 performance criteria. Implementation of LIDs will also assist in achieving established quality and quantity control targets and site-specific water balance. Conceptual LID sizing calculations have been provided for the Subdivisions right of way, additional calculations and supporting information will be provided in the detailed design stage. A summary of the general targets for the site is provided below in **Table 7**:

Table 7 – Stormwater Management Design Criteria

Tullamore Secondary Plan Area - Stormwater Management Design Criteria		
Category	**Sub-Category**	**Target**
Quantity Control	Peak Flow Control	Control post-development flows to appropriate Watershed Unitary Discharge rates limits for the 2 through 100-Year storm events *(ToC, TRCA, & MESP)* Reduce rooftop controls to 40L/s/ha and lot level controls to 180L/s/ha with a 0.30m maximum ponding within parking areas. (*MESP*)
	Minor-Major System Conveyance	Minor System to convey 10-Yr event, Major System to convey the larger of 100-Yr event or Regional Event *(ToC, TRCA)*
	Regulatory Storm Conveyance	Convey the greater of the uncontrolled 100-year or Regional Event to a *sufficient outlet (ToC, TRCA)*
Quality Control	Total Suspended Soils	Control the 90th percental storm event and provide Level 1 (Enhanced) Protection, 80% Long Term Removal per latest MOE SWMPD Manual *(ToC, MECP, TRCA)*
	Thermal Mitigation	Where applicable, mitigate potential thermal and bacteriological impacts. *(TRCA)*
Erosion Control	SWMF Drawdown Time	Detain and release the runoff produced from the 25mm storm over a minimum 24 hours, preferred 48 hours *(MECP, TRCA, ToC)*
	Erosion Discharge	Control post-development peak flows to the allowable Erosion Control Discharge rate per MESP requirements. *(MESP, ToC)*
	Runoff Volume Control Target	Best efforts in retaining 5mm of rainfall onsite using LID features. (*TRCA*)
Water Balance		Best efforts to maintain water recharge for Low Volume Groundwater Recharge Areas. For natural features (woodlands, wetlands, watercourses) maintain hydrologic regimes and hydroperiods. (*TRCA*) Control the runoff from the 90th percentile storm event on an annual average basis from all surfaces on the entire site. Control is in the following hierarchal order, retention, LID filtration, conventional stormwater management. (*ToC CLI ECA*) The development is required to retain at a minimum 5mm of runoff.

The proposed storm sewer system and stormwater management facilities will be designed and constructed in accordance with the latest standards prepared by the Town of Caledon (ToC), Toronto and Region Conservation Authority (TRCA), and Ministry of Environment and Conservation and Parks (MECP). In addition to traditional end-of-pipe SWM facilities, Low Impact Development (LID) controls will be utilized throughout the site as a means to meet Erosion Control Targets and provide additional quality control through infiltration and filtration of stormwater runoff.

Additionally, a suite of LID measures are proposed, including but not limited to: increased topsoil thickness, rooftop downspout disconnection and subsurface detention/infiltration systems. These LID facilities will assist in reducing peak runoff volumes and the corresponding volume to be treated by the SWMFs by promoting filtration, infiltration and groundwater recharge both at-source and during conveyance. While a reduction in total runoff volumes directed to the end-of-pipe SWMFs will be experienced through the implementation of LID measures, the SWMFs have been conservatively designed without considering the storage benefits of upstream LID's.

In general, a treatment train approach is proposed to meet the subject lands' quality control requirements. The system will utilize conveyance and end-of-pipe controls to meet the ToC, TRCA and MECP requirements. Treatment will be provided through a combination of Manufactured Treatment Devices (MTD's), infiltration & filtration-based LID practices and conventional end-of-pipe SWMFs. Manufactured treatment devices will be required within individual future site plans as part of the stormwater management strategy

5.2. Introduction

To provide the required stormwater quality and quantity control for the site, two (2) extended detention wet ponds are proposed. The wet ponds, referred herein as SWMF1 and SWMF2, are divided by a proposed EP channel extending north from the tributary of Salt Creek at Mayfield Road. The channel is the discharge location for the SWMF outlets and for all other stormwater runoff from the site. The proposed facilities are located adjacent to the Mayfield Road and Maisonneuve Boulevard Intersection.

To meet the site water balance requirements, LID features are required to be located in the future property lots (during their Site Plan Application stage) and the proposed roadways boulevards. The actual locations will depend on the existing soil parameters and groundwater conditions during the detailed design stage. This PSWMR evaluates options for the proposed municipal infrastructure (ROW, SWMF & EP Block) water balance requirements.

5.3. End-of-Pipe Wet Pond

The proposed end-of-pipe facilities have been sighted in the approximate location identified in the *MESP* but have been modified and reprogrammed as necessary to suit site constraints and the inclusion of the EP channel. Both SWMF1 and 2 are proposed to be Wet Ponds equipped with a wet forebay and thermal mitigation measures.

5.3.1. SWMF1

SWMF1 is located in the west quadrant of the Street 'A' and Mayfield Road intersection. The SWMF has been designed in accordance with MOE, MNRF TRCA and Town of Caledon guidelines as a wet pond with two traditional wet forebays.

The bottom elevation of SWMF1s main cell is 224.00m, the permanent pool elevation is 227.00m and the top of pond elevation is 229.30m at the outer limits of the maintenance access road. This provides a total depth of active storage of 2.30m in the main cell and forebays. Sideslopes of 4H:1V, 5H:1V and 10H:1V are proposed throughout the facility, meanwhile 3H:1V are proposed outside the facility. An allowance for a 5.0m wide maintenance access road is provided around the perimeter of the pond. A total of 29,027m^3

and 15,686m^3 have been provided for the active storage and permanent pool components of the facility. The SWMF will be designed with a low flow by-pass sewer to access the forebay for maintenance.

Minor events (<10 Year Storm) are collected through a system of conventional storm sewers and discharge to the north and south forebays which have been appropriately sized to handle the peak flows. Major overland flows are directed through an overland flow route directly into the forebays.

The primary control for SWMF1 is a reverse sloped 450mm diameter storm pipe directed to a control maintenance hole. The reverse sloped 450mm diameter storm pipe will discharge to the control maintenance hole via a bottom-draw pipe with its invert located 0.5m above the bottom of the facility. A secondary control will discharge to the control maintenance hole via a double ditch inlet catchbasin (DDICB) connected by a 525mm storm pipe. This control maintenance hole comes equipped with an 185mm diameter primary and 500mm diameter secondary orifice plates, with invert elevation of 227.00m and 227.60m respectively. Both orifice plates will be bolted to the upstream side of an internal concrete wall. The control maintenance hole will be discharged to the Environmentally Protected channel adjacent to Street 'A'.

A 12.0m wide emergency overflow trapezoidal weir is incorporated at a sill elevation of 228.70m. This Emergency overflow weir will ensure safe conveyance of the Regional Event (Hurricane Hazel) or in the event of a blockage to the Environmentally Protected Channel. The minimum freeboard of 0.30m is provided under the Regional Storm event.

Table 8 – SWMF1 Facility Design Summary

Key Elevations Table – SWMF1	
Location	**Elev. (m)**
Bottom of Main Cell	224.00
Bottom of Forebays	225.50
Primary Outlet & Permanent Pool - 185mm dia. Orifice	227.00
Secondary Outlet - 500mm dia. Orifice	227.60
Emergency Overflow Weir - 12.0m Wide	228.70
Top of Pond (Access Road - Exterior)	229.30

5.3.2. SWMF2

SWMF2 is located in the northern quadrant of the Street 'A' and Mayfield Road intersection adjacent to the Environmentally Protected Area. The SWMF has been designed in accordance with MOE, MNRF TRCA and Town of Caledon guidelines as a wet pond with a traditional wet forebay.

The bottom elevation of SWMF2s main cell is 224.00m, the permanent pool elevation is 227.00m and the top of pond elevation is 229.00m at the outer limits of the maintenance access road. This provides a total depth of active storage of 2.00m in the main cell and forebays. Sideslopes of 4H:1V, 5H:1V and 10H:1V are proposed throughout the facility, meanwhile 3H:1V are proposed outside the facility. An allowance for a 5.0m wide maintenance access road is provided around the perimeter of the pond. A total of 13,604m^3 and 5,485m^3 have been provided for the active storage and permanent pool components of the facility. The pond will be designed with a low flow by-pass sewer to access the forebay for maintenance.

Minor events (≤10 Year Storm) are collected through a system of conventional storm sewers and discharge to the forebay which has been appropriately sized to handle the peak flow. Major overland flow is directed through an overland flow route directly into the SWMF forebay.

The primary control for SWMF2 is a reverse sloped 450mm diameter storm pipe directed to a control maintenance hole. The reverse sloped 450mm diameter storm pipe will discharge to the control maintenance hole via a bottom-draw pipe with its invert located 0.5m above the bottom of the facility. A secondary control will discharge to the control maintenance hole via a double ditch inlet catchbasin (DDICB) connected by a 525mm storm pipe. This control maintenance hole comes equipped with a 120mm diameter primary and 275mm diameter secondary orifice plates, with invert elevation of 227.00m and 227.50m respectively. Both orifice plates will be bolted to the upstream side of an internal concrete wall. The control maintenance hole will discharge to the Environmentally Protected channel adjacent to Street 'A'.

A 6.0m wide emergency overflow trapezoidal weir is incorporated at a sill elevation of 228.40m. This Emergency overflow weir will ensure safe conveyance of the Regional Event (Hurricane Hazel) or in the event of a blockage to the Environmentally Protected Channel. The minimum freeboard of 0.30m is provided under the Regional Storm event.

Table 9 – SWMF2 Facility Design Summary

Key Elevations Table – SWMF2	
Location	**Elev. (m)**
Bottom of Main Cell	224.00
Bottom of Forebay	226.00
Primary Outlet & Permanent Pool - 120mm dia. Orifice	227.00
Secondary Outlet - 275mm dia. Orifice	227.50
Emergency Overflow Weir - 6.0m Wide	228.40
Top of Pond (Access Road - Exterior)	229.00

5.4. Stormwater Quality Control

As per the Town, TRCA and MOE requirements, *Enhanced* (Level 1) stormwater quality control is required for the site. An integrated treatment train approach is proposed, routing runoff from the Water Quality event to proposed LID measures where it will be either infiltrated or filtered. The two (2) proposed extended detention wet ponds will provide the required level of SWM quality control, as the calculations below will demonstrate. In addition to the typical quality control requirements, the design of the SWM ponds will incorporate thermal mitigation measures to mitigate impacts to the Redside Dace Habitat that exists within the receiving watercourse. The SWMFs include a 3 meter deep permanent pool within the main cell. The following calculations will affirm that the proposed SWMFs have been designed to achieve an Enhanced Level of Protection and provide sufficient drawdown Time during the Water Quality Event. Site measures to achieve Runoff Volume Control targets have been outlined in **Section 5.6**.

A summary of the SWMF Water Quality Control Targets is summarized below in **Table 10.**

Table 10 – Stormwater Management Quality Control Design Criteria

Tullamore Secondary Plan Area - Stormwater Management Design Criteria		
Category	**Sub-Category**	**Target**
Quality Control	Total Suspended Soils	Control the 90th percentile storm event and provide Level 1 (Enhanced) Protection, 80% Long Term Removal per latest MOE SWMPD Manual *(ToC, MECP, TRCA)*
	Thermal Mitigation	Where applicable, mitigate potential thermal and bacteriological impacts. *(TRCA)*
Erosion Control	SWMF Drawdown Time	Detain and release the runoff produced from the 25mm storm over a minimum 24 hours, preferred 48 hours *(MECP, TRCA)*
	Erosion Discharge	Control post-development peak flows to the allowable Erosion Control Discharge rate per MESP requirements.
	Runoff Volume Control Target	Best efforts in retaining 5mm of rainfall onsite using LID features. (TRCA)

5.4.1. SWMF1 Quality Control

Sizing of SWMF1 was completed assuming that proposed rooftop areas will not drain to a 3rd pipe system and is therefore included in the drainage area contributing to the pond. In this case, the total land draining to SWMF1 includes Catchments 201through 212 totaling an area of **31.36 ha**. The total imperviousness used to size the SWMF, in accordance with the *Town of Caledon Zoning By-law* requirements, is **81.6%**. Based on the MOE requirements (extrapolation of Table 3.2), 244.4 m^3/ha of storage is required for Enhanced quality control. This storage corresponds to both the extended detention volume (40 m^3/ha) and the permanent pool volume (204.4 m^3/ha).

The extended detention and permanent pool volumes, as per the MOE guidelines, are calculated as follows:

Enhanced (Level 1) Water Quality Protection

Total area draining to pond for quality control = 31.36 ha

(81.6% Net Impervious Area), (244.4 m^3/ha)

31.36 ha * 204.4 m^3/ha = **6,410 m^3** (permanent pool)

31.36 ha * 40 m^3/ha = **1,254 m^3** (extended detention)

However, the extended detention volume must be designed to attenuate the erosion volume from the 90th percentile storm event (27mm 4-Hour Chicago). Based on the watershed characteristics and the OTTHYMO model (output appended), the 27 mm storm event produces a total active storage volume of **5,285 m^3** at a ponding elevation of **227.50m.** The 90th Percentile Event exceeds the required MOE extended detention and will therefore govern volume requirements. Please refer to **Section 5.5.2, Table 14** for the resulting SWMF1 stage storage discharge table.

	Required:	**Provided:**
Permanent Pool	6,410 m^3	**15,686 m^3**
Extended Detention	5,285 m^3	**6,478 m^3**

The 24 hour extended detention release rate was increased to a minimum 48 hours to ensure that additional settling occurs in the main cell of the SWMF. The extended detention outlet is provided by a 185 mm diameter primary orifice, bolted to the inside of the outlet control maintenance hole.

Facility Drawdown

The drawdown equation has been used to verify the detention time for the extended detention volume. The equation is given as follows:

$$t = \frac{0.66C_2h\sqrt{h} + 2C_3\sqrt{h}}{2.75A_0}$$

Where:

t = drawdown time (seconds)

C_2 = slope coefficient from the area-depth linear regression (4,299.0)

C_3 = intercept from the area-depth linear regression (9,485.1)

A_0 = cross-sectional area of the extended detention orifice (0.0269 m^2)

h = maximum water elevation above the orifice, taken from the extended detention elevation to centroid of orifice (0.507 m)

Given the above information, the actual extended detention storage time was determined to be approximately **54.6 hours**, which **exceeds MOE criteria**. The area-depth curve can be found in **Appendix A** to illustrate how the above coefficients were determined.

Forebay Sizing

SWMF1 incorporates two (2) forebays to allow for two inlets; one for the main site flow (North forebay), and one to allow for drainage from Mayfield Road (South forebay).

The forebays have been sized to provide sufficient length and width from the inlet to the forebay weir. It is recommended that the forebay be sized according to the length required for settlement of larger suspended particles. The forebays for the pond were designed according to the following criteria (MOE, 2003):

Forebay Settling Length

$$Dist = \sqrt{{rQ_p}/{V_s}}$$

Where:

Dist = the minimum forebay length (m)

r = the length to width ratio based on the dimensions at the top of forebay berm elevation 227.00m (2.0:1 for North, 2.0:1 for South)

Q_p = the peak flow rate exiting the pond during the 90th Percentile storm event (0.0473 m^3/s)

V_s = the settling velocity. It is recommended that a value of 0.0003 m/s be used in most cases.

The required settling lengths of the North and South forebays are **17.8 meters.**

Forebay Dispersion Length

$$Dist = {8Q}/{dV_f}$$

Where:

Dist = the minimum forebay length (m)

Q = the 10-year peak inlet flow rate (1.945m^3/s for North, 1.076m^3/s for South)

d = the depth of the permanent pool in the forebay (1.5 m)

V_f = the desired velocity at forebay berm (0.5 m/s)

The required dispersion lengths of the North and South forebays are **20.8 meters** and **11.5 meters**, respectively. Both North and South forebays accommodate a **40.0 meter** flow length which exceeds the required dispersion and settling lengths.

Forebay Deep Zone Bottom Width

$$Width = {}^{Dist}/_{8}$$

Where:

Width = Minimum Forebay Deep Zone Bottom Width (m)

Dist = the larger of the forebay settling and dispersion lengths (m) (20.8m for North, 17.8m for South)

The required Deep Zone Bottom Width of the North and South forebays are **2.59 meters** and **2.22 meters,** respectively. Both North and south forebays have provided a **3.80 meter** Deep Zone Bottom Width which exceeds the required widths.

The above calculations confirm that the proposed SWMF achieved an Enhanced Level of Protection (80% TSS Removal Efficiency) for its respective catchment area and provides greater than 48 hours of drawdown time during the water quality event.

5.4.2. SWMF2 Quality Control

Sizing of SWMF2 was completed assuming that proposed rooftop areas will not drain to a 3rd pipe system and is therefore included in the drainage area contributing to the pond. In this case, the total land draining to SWMF2 includes Catchments 300 through 304 totaling an area of 12.53 ha. The total imperviousness used to size the SWMF, in accordance with the *Town of Caledon Zoning By-law* requirements, is **80.7%**. Based on the MOE requirements (extrapolation of Table 3.2), 242.9 m^3/ha of storage is required for Enhanced quality control. This storage corresponds to both the extended detention volume (40 m^3/ha) and the permanent pool volume (202.9 m^3/ha).

The extended detention and permanent pool volumes, as per the MOE guidelines, are calculated as follows:

Enhanced (Level 1) Water Quality Protection

Total area draining to pond for quality control = 12.53 ha

(80.7% Net Impervious Area), (242.9 m^3/ha)

12.53 ha * 202.9 m^3/ha = 2,542 m^3 (permanent pool)

12.53 ha * 40 m^3/ha = 501 m^3 (extended detention)

However, the extended detention volume must be designed to attenuate the erosion volume from the 90th percentile storm event (27mm 4-Hour Chicago). Based on the watershed characteristics and the

OTTHYMO model (output appended), the 27 mm storm event produces a total active storage volume of **2,369 m³** at a ponding elevation of **227.44m.** The 90th Percentile Event exceeds the required MOE extended detention and will therefore govern volume requirements. Please refer to **Section 5.5.2, Table 15** for the resulting SWMF2 stage storage discharge table.

	Required:	**Provided:**
Permanent Pool	2,565 m³	**5,485 m³**
Extended Detention	2,369 m³	**2,754 m³**

The 24 hour extended detention release rate was increased to a minimum 48 hours to ensure that settling occurs in the main cell of the SWMF. The extended detention outlet is provided by a 120 mm diameter primary orifice, bolted to the inside of the outlet control maintenance hole. The drawdown equation has been used to verify the detention time for the extended detention volume. The equation is given as follows:

$$t = \frac{0.66C_2h\sqrt{h} + 2C_3\sqrt{h}}{2.75A_0}$$

Where:

- t = drawdown time (seconds)
- C_2 = slope coefficient from the area-depth linear regression (3,306.8)
- C_3 = intercept from the area-depth linear regression (4,664.7)
- A_0 = cross-sectional area of the extended detention orifice (0.0113 m²)
- h = maximum water elevation above the orifice, taken from the extended detention elevation to centroid of orifice (0.440 m)

Given the above information, the actual extended detention storage time was determined to be approximately 61.0 hours, which **exceeds MOE criteria**. The area-depth curve can be found in **Appendix A** to illustrate how the above coefficients were determined.

Forebay Sizing

SWMF2 incorporates one forebay and inlet for its upstream catchment area. The forebay has been sized to provide sufficient length and width from the inlet to the forebay weir. It is recommended that the forebay be sized according to the length required for settlement of larger suspended particles. The forebay for the pond were designed according to the following criteria (MOE, 2003):

Forebay Settling Length

$$Dist = \sqrt{{rQ_p}/{V_s}}$$

Where:

Dist = the minimum forebay length (m)

r = the length to width ratio based on the dimensions at the top of forebay berm elevation 227.00m (2.0:1)

Q_p = the peak flow rate exiting the pond during the 25mm 4-hour Chicago quality storm event (0.020 m^3/s)

V_s = the settling velocity. It is recommended that a value of 0.0003 m/s be used in most cases.

The required settling length of the East Pond forebay is **11.4 meters**.

Forebay Dispersion Length

$$Dist = {8Q}/{dV_f}$$

Where:

Dist = the minimum forebay length (m)

Q = the 10-year peak inlet flow rate (1.387 m^3/s)

d = the depth of the permanent pool in the forebay (1.0 m)

V_f = the desired velocity at forebay berm (0.5 m/s)

The required dispersion length of the East Pond forebay is **22.2 meters.**

The proposed forebay accommodates a **40.0 meter** flow length which exceeds the required dispersion and settling lengths.

Forebay Deep Zone Bottom Width

$$Width = {Dist}/{8}$$

Where:

Width = Minimum Forebay Deep Zone Bottom Width (m)

Dist = the larger of the forebay settling and dispersion lengths (m) (22.2 m)

The required Deep Zone Bottom Width of the forebay is **2.77 meters**. The provided forebay has provided a **7.80 meter** Deep Zone Bottom Width which exceeds the required width.

The above calculations confirm that the proposed SWMF achieved an Enhanced Level of Protection (80% TSS Removal Efficiency) for its respective catchment area and provides greater than 48 hours of drawdown time during the water quality event.

5.5. Stormwater Quantity Control

To provide stormwater quantity control, the site will utilize rooftop controls, Low Impact Development (LID) measures and extended detention wet ponds. The combination of rooftop controls, LIDs and the ponds' active storage and outlet controls will attenuate post-development stormwater peak runoff to the allowable flow rates determined in the TRCAs *Stormwater Management Criteria* (August 2012) and outlined in **Section 4.6** above.

Two (2) wet ponds will be utilized as end-of-pipe stormwater management facilities, which have been sized to provide the required quantity control for the site for all design storms up to the 100-year 6 & 12 hour AES events. The SWMF outlet structures and overflow weirs have been sized to safely convey the Regional storm event, ensuring a 0.3m freeboard between the top of pond and the Hazel storm event's ponding elevation. The pond block sizing is conservative as reduction in runoff volume that may be realized through the implementations of upstream LIDs has not been considered when sizing the SWMF's. In addition, the SWMFs have been designed within OTTHYMO without considering upstream rooftop and lot level flow controls.

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

Table 11 – Stormwater Management Quantity Control Design Criteria

Tullamore Secondary Plan Area - Stormwater Management Design Criteria		
Category	**Sub-Category**	**Target**
Quantity Control	Peak Flow Control	Control post-development flows to appropriate Watershed Unitary Discharge rates limits for the 2 through 100-Year storm events *(ToC, TRCA & MESP)* Reduce rooftop controls to 40L/s/ha and lot level controls to 180L/s/ha with a 0.30m maximum ponding within parking areas. (*MESP*)
	Minor-Major System Conveyance	Minor System to convey 10-Yr event, Major System to convey the larger of 100-Yr event or Regional Event *(ToC, TRCA)*
	Regulatory Storm Conveyance	Convey the greater of the uncontrolled 100-year or Regional Event to a *sufficient outlet (ToC, TRCA)*
Erosion Control	Erosion Discharge	Control post-development peak flows to the allowable Erosion Control Discharge rate per MESP requirements.

The Minor - Major System Conveyance and Regulatory Storm Conveyance water quantity Targets will be discussed further in **Section 5.8**. The overall post-development peak flows have been controlled to allowable development scenario peak flow rate as described in **Section 4.6**. In addition, the following **Section 5.5.2** also confirms quantity control is provided for both SWMF overall catchments. The following

sections outlines target flow rates for each block under the governing 100 year event for both rooftop and lot level controls per MESP requirements.

5.5.1. Rooftop Controls

In accordance with the *MESP*, rooftop areas are to be controlled to a maximum release rate of 40 L/s/ha for the governing 100 year event. In addition, lot level controls will also be required to be controlled to 180 L/s/ha for the governing 100 year event. The rooftop area was estimated for the developable area based on the maximum allowable lot coverage per the Town of Caledon Zoning By-Law (relevant maps and excerpts can be found in **Appendix C**). According to the *Town of Caledon Zoning By-law* the maximum permitted building area and minimum landscaping area for General Industrial and Prestige Industrial are 50% & 10% lot coverage, respectively. The Town of Caledon Zoning Bylaw also stipulates the required minimum landscaping area for corner lots shall be 12.5%. Lands zoned with the Highway Commercial designation permit a maximum building area and minimum landscaping area of 30% and 20% lot coverage respectively. The following **Table 12** outlines the target rooftop and lot level controls for each block under the governing 100 year event per MESP requirements.

Table 12 – Target Rooftop and Lot Level Controls by Block Number converted to m^3/s

Block Number	Max. Rooftop Area (ha)	Rooftop Controls (40L/s/ha)	Max. Lot Level Area (ha)	Lot Level Control (180L/s/ha)
1	0.44	0.0176 m^3/s	1.03	0.1848 m^3/s
2	2.33	0.0932 m^3/s	2.47	0.4441 m^3/s
3	1.05	0.0421 m^3/s	1.05	0.1894 m^3/s
4	2.33	0.0930 m^3/s	2.33	0.4187 m^3/s
5&7	2.07	0.0826 m^3/s	2.07	0.3719 m^3/s
6	0.89	0.0356 m^3/s	0.89	0.1605 m^3/s
101	0.41	0.0163 m^3/s	0.95	0.1717 m^3/s
102	2.20	0.0881 m^3/s	2.22	0.3988 m^3/s
103	0.09	0.0037 m^3/s	0.22	0.0392 m^3/s
106	3.45	0.1380 m^3/s	3.45	0.6212 m^3/s
107	0.39	0.0154 m^3/s	0.39	0.0697 m^3/s
108 & 109	1.60	0.0639 m^3/s	1.60	0.2879 m^3/s
Total Private Lands	**17.25 ha**	**0.6901 m^3/s**	**18.66 ha**	**3.3585 m^3/s**

The maximum rooftop areas draining to SWMF1 & SWMF2 are approximately 11.60 ha and 5.06 ha, respectively. To achieve the required release rates, the rooftops will require approximately 10 cm of ponding depth to provide the required storage volume during the 100-year storm event. Any additional storage volume will discharge directly from the rooftops to paved or landscaped areas. The stage-storage-discharge tables utilized in the OTTHYMO model to represent the rooftop storage are presented in **Tables 13 and 14** below:

Table 13 – Rooftop Area Stage-Storage-Discharge Table – Directed to SWMF1

Depth (m)	Storage Volume (ha.m)	Discharge (m^3/s)
0.000	0.0000	0.0000
0.001	0.0116	0.0464
0.003	0.0348	0.0803
0.006	0.0696	0.1136
0.010	0.1160	0.1467
0.015	0.1739	0.1796
0.020	0.2319	0.2074
0.025	0.2899	0.2319
0.030	0.3479	0.2541
0.035	0.4059	0.2744
0.040	0.4638	0.2934
0.045	0.5218	0.3112
0.050	0.5798	0.3280
0.055	0.6378	0.3440
0.060	0.6958	0.3593
0.065	0.7538	0.3740
0.070	0.8117	0.3881
0.075	0.8697	0.4017
0.080	0.9277	0.4149
0.085	0.9857	0.4276
0.090	1.0437	0.4400
0.095	1.1016	0.4521
0.100	1.1596	0.4638

Table 14 – Rooftop Area Stage-Storage-Discharge Table – Directed to SWMF2

Depth (m)	Storage Volume (ha.m)	Discharge (m^3/s)
0.000	0.0000	0.0000
0.001	0.0051	0.0202
0.003	0.0152	0.0350
0.006	0.0303	0.0495
0.010	0.0506	0.0640
0.015	0.0759	0.0783
0.020	0.1011	0.0905
0.025	0.1264	0.1011
0.030	0.1517	0.1108
0.035	0.1770	0.1197
0.040	0.2023	0.1279
0.045	0.2276	0.1357
0.050	0.2528	0.1430
0.055	0.2781	0.1500
0.060	0.3034	0.1567
0.065	0.3287	0.1631
0.070	0.3540	0.1692
0.075	0.3793	0.1752
0.080	0.4045	0.1809
0.085	0.4298	0.1865
0.090	0.4551	0.1919
0.095	0.4804	0.1971
0.100	0.5057	0.2023

In the second OTTHYMO model scenario, the total rooftop areas for each SWMF are discretized into a single catchment area and routed to a route-reservoir (the above stage-storage-discharge tables). Rooftop controls that exceed the proposed storage volumes for SWMF1 & SWMF2 will overflow onto paved areas and be conveyed to the respective SWMF via overland flow. Rooftop areas within phase 2 developments are anticipated to be discharged directly to the EP channel via a 3rd pipe system. The disconnection from the main storm sewer system ensures that the "clean" runoff from the rooftops does not mix with the runoff from parking lot surfaces. Additional analysis will be conducted in the detailed design stage to assess stormwater management peak flow conditions inclusive of rooftop controls.

5.5.2. Extended Detention Wet Ponds

In accordance with the *MESP*, wet ponds will be utilized as end-of-pipe stormwater management facilities, which are sized to provide the required quantity control for all storms up to the 100-year event for the site. The SWMFs have been designed to accommodate all generated flows exclusive of upstream rooftop controls to account for the interim non-site plan approved scenario with the site's temporarily covered in

gravel and used for trucking storage yards. The pond's outlet structure and overflow weir has been sized to safely convey the Regional storm event, ensuring a 0.3 m freeboard between the top of pond and the Hazel storm event's ponding elevation.

The preliminary design of SWMF1 & SWMF2 are similar in geometry, having a bottom elevation of the main cell at 224.00 m and permanent pool elevation at 227.00 m. The bottom of SWMF1 forebays are 225.50 m whereas SWMF2s forebay is 226.00 m. This provides permanent pool depths of 3.0 m in the main cell for SWMF1 & SWMF2 whereas a 1.5m & 1.0m deep permanent pool for SWMF1 and SWMF2 forebays. The top of pond elevations for SWMF1 & SWMF2 are 229.30m and 229.00 m, respectively. A safety shelf using 10H:1V and 5H:1V sideslopes has been provided 0.3m and 0.6m above and below the permanent pool elevations, whereas 4H:1V sidesloping has been used everywhere else in the proposed SWMFs. An allowance for a 5 meter wide access road is provided around the entire perimeter of the ponds and is sloped at 2% slope.

SWMF1 will discharge through a reverse-sloped 450 mm diameter storm pipe to a control manhole complete with a 185 mm diameter orifice plate bolted to the upstream side of the internal weir wall with an invert elevation of 227.00 m. The primary outlet pipe will be secured to a Gabion basket at the bottom of the pond, ensuring that the water is drawn from the bottom 0.5 m of the pond. A secondary outlet pipe, 525 mm in diameter, will discharge to the control manhole at an invert of 227.60 m. This secondary outlet will also have a 500mm orifice plate bolted to the upstream side of the internal weir wall with an invert elevation of 227.60 m. The control manhole will discharge to the channel via a 700 mm diameter storm pipe at a slope of 0.5%. A 12.0 m wide emergency overflow spill weir is incorporated at an elevation of 228.70 m to ensure safe conveyance of peak flows during the Regional (Hazel) storm event.

An abbreviated version of the SWMF1 stage-storage-discharge table is presented in **Table 15** below. The full table is provided in **Appendix A**. The values for storage and pond outflow result from the proposed design height and dimensions for the orifices and overflow weir.

Table 15 – SWMF1 Stage-Storage-Discharge Table

Elevation (m)	Total Storage (m^3)	Active Storage (m^3)	Water Depth (m)	Discharge (m^3/s)	Comments
224.00	0	0	0.00	0.000	Bottom of Main Cell
225.50	5,911	0	1.50	0.000	Bottom of Forebay
227.00	15,686	0	3.00	0.000	Permanent Pool & Primary Orifice Inv. Elev.
227.50	20,971	5,285	3.50	0.047	90th Percentile - 27mm 4Hr CHI 227.50m
227.60	22,163	6,478	3.60	0.053	Secondary Orifice Inv. Elev.
227.75	23,892	8,206	3.75	0.090	2-Year 12Hr AES 227.75m
227.93	26,149	10,463	3.93	0.219	5-Year 12Hr AES 227.93m
228.04	27,490	11,804	4.04	0.308	10-Year 12Hr AES 228.04m
228.19	29,348	13,662	4.19	0.394	25-Year 12Hr AES 228.19m
228.30	30,836	15,150	4.30	0.446	50-Year 12Hr AES 228.30m
228.43	32,432	16,746	4.43	0.501	100-Year 6Hr AES 228.43m
228.70	36,119	20,434	4.70	0.615	Overflow Weir Sill Elev.
228.97	39,876	24,190	4.97	4.080	Regional (Hazel) 228.97m
229.30	44,712	29,027	5.30	13.637	Top of SWMF

The following Table summarizes SWMF1s quantity control targets and post development OTTHYMO modeling results and demonstrates that post development peak flows are controlled below allowable peak flow and erosion control conditions.

Table 16 – SWMF1 Storm Peak Event Flow

Storm Peak Event Flow (m^3/s) - SWMF1							
Storm Distribution	**Area (ha)**	**Return Period (years)**					
		2	**5**	**10**	**25**	**50**	**100**
Allowable Development Condition							
Erosion Control Target Flow Rate (m^3/s)	**31.36**	0.063					
Target Flow Rate (m^3/s)	**31.36**	0.212	0.323	0.398	0.500	0.582	0.659
Post Development Condition							
Erosion Control 25mm 4Hr CHI (m^3/s)	**31.36**	**0.0473**					
AES 6-Hr Storm Distribution	**31.36**	0.080	0.179	0.291	0.387	0.445	**0.501**
AES 12-Hr Storm Distribution	**31.36**	**0.090**	**0.219**	**0.308**	**0.394**	**0.446**	0.499
Hazel Storm	**31.36**	**4.080**					

SWMF2 will discharge through a reverse-sloped 450 mm diameter storm pipe to a control manhole complete with a 120 mm diameter orifice plate bolted to the upstream side of the internal weir wall with an invert elevation of 227.00 m. The primary outlet pipe will be secured to a Gabion basket at the bottom of the pond, ensuring that the water is drawn from the bottom 0.5m of the pond. A secondary outlet pipe, 525 mm in diameter, will discharge to the control manhole at an invert of 227.50 m. A secondary orifice

plate will be bolted to the upstream side of the internal weir wall with an invert elevation of 227.50 m. The control manhole will discharge to the environmentally protected channel via a 525 mm diameter storm pipe at a slope of 0.5%. A 6.0 m wide emergency overflow spill weir is incorporated at an elevation of 228.40 m to ensure safe conveyance of peak flows during the Regional (Hazel) storm event.

An abbreviated version of the SWMF2 stage-storage-discharge table is presented in **Table 17** below. The full table is provided in **Appendix A**. The values for storage and pond outflow result from the proposed design height and dimensions for the orifices and overflow weir.

Table 17 – SWMF2 Stage-Storage-Discharge Table

Elevation (m)	Total Storage (m^3)	Active Storage (m^3)	Water Depth (m)	Discharge (m^3/s)	Comments
224.00	0	0	0.00	0.000	Bottom of Main Cell
226.00	2,344	0	2.00	0.000	Bottom of Forebay
227.00	5,485	0	3.00	0.000	Permanent Pool
227.44	7,854	2,369	3.44	0.020	90th Percentile - 27mm 4Hr CHI 227.41m
227.50	8,239	2,754	3.50	0.021	Secondary Orifice
227.63	9,057	3,572	3.63	0.038	2-Year 12Hr AES 227.65m
227.77	9,944	4,459	3.77	0.086	5-Year 12Hr AES 227.80m
227.87	10,594	5,109	3.87	0.107	10-Year 12Hr AES 227.91m
228.00	11,466	5,981	4.00	0.129	25-Year 12Hr AES 228.06m
228.09	12,138	6,653	4.09	0.143	50-Year 12Hr AES 228.17m
228.19	12,826	7,341	4.19	0.157	100-Year 12Hr AES 228.28m
228.40	14,336	8,851	4.40	0.181	Overflow Weir
228.63	16,077	10,592	4.63	1.693	Regional (Hazel) 228.66m
229.00	19,089	13,604	5.00	8.338	Top of Pond

The following Table summarizes SWMF2s quantity control targets and post development OTTHYMO modeling results and demonstrates that post development peak flows are controlled below allowable development peak flow and erosion control conditions.

Table 18 – SWMF2 Storm Peak Event Flow

Storm Peak Event Flow (m^3/s) - SWMF2							
Storm Distribution	**Area (ha)**	**Return Period (years)**					
		2	**5**	**10**	**25**	**50**	**100**
Allowable Development Condition							
Erosion Control Target Flow Rate (m^3/s)	**12.53**	0.025					
Target Flow Rate (m^3/s)	**12.53**	0.083	0.126	0.156	0.196	0.228	0.258
Post Development Condition							
Erosion Control 25mm 4Hr CHI (m^3/s)	**12.53**	**0.020**					
AES 6-Hr Storm Distribution	**12.53**	0.029	0.077	0.102	0.126	0.141	0.156
AES 12-Hr Storm Distribution	**12.53**	**0.038**	**0.086**	**0.107**	**0.129**	**0.143**	**0.157**
Hazel Storm	**12.53**	**1.693**					

5.6. Low Impact Development

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 comprises a set of site design strategies that minimize runoff and distributed, small scale structural practices that mimic natural or predevelopment 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 they reduce the volume and intensity of stormwater flows.

LIDs are to be implemented within the road right-of-way (ROW) in an effort to meet infiltration targets and filtration targets. The most effective LID within the ROW may consist of a bioretention swale along one or both sides of the street with a subsurface infiltration/filtration trench complete with an overflow pipe connected to the storm sewer system. Given the poor infiltration characteristics of the native soils, a perforated pipe underdrain has been incorporated in the LID.

To determine the cross sectional area and filtration capacity for the site's ROW LID measures, the *Town of Caledon 26.0m Industrial Collector 14.5m Roadway (13.9m Pavement) Standard Drawing No. 211* was referenced in combination with the developments preliminary storm sewer design.

A total of 20 plausible locations were determined within the Right of Way for LIDs of which 8 have the potential to infiltrate the full runoff volume from the 90th Percentile water quality event (27mm 4-hour Chicago). Site Specific constraints such as poor soils, depth to the groundwater table, and site servicing requirements, have limited the availability of LIDs. A minimum 1.0m separation distance has been provided from the bottom of infiltration-based LIDs to the seasonal high groundwater table elevation. Soil Engineers Ltd has conducted a geotechnical investigation for the proposed subdivision. In Soil Engineer

Ltd.'s *Geotechnical Investigation*, site soils are described as being underlain by strata of silt, silty clay, silty clay till and sandy silt till and groundwater was recorded at depth ranging from 0.5m to 6.1m below the prevailing ground surface subject to seasonal fluctuations. According to the *Soil Survey of Peel County*, the existing site soil consists of Chinguacousy Clay Loam belonging to Hydraulic Soil Group C and Alluvial Bottom Land corresponding with low lying land along stream courses. In the absence of hydrogeological testing an assumed saturated native infiltration rate of 5mm/hour has been selected for Hydraulic Soil Group C soils. A 2.5 times factor of safety has been applied to determine the factored infiltration rate of 2mm/hour used in LID design. This assumed factored infiltration rate is consistent with Typical values within the *Design Chart 1.13: Infiltration Parameters, MTO Drainage Management Manual, 1997* for Soils belonging to SCS Hydraulic Soil Group C. Additional Guelph permeameter testing will be conducted prior to the detailed design stage.

LIDs will generally be 3.0m wide and range between 1.65m and 1.70m deep. The LIDs will consist of a trench comprised of Engineered Soil Blend 'A' (void ratio of 0.40) wrapped in filter cloth on all sides. The length of the LIDs vary from 8.5m to 41m.

It is required that individual future site plans will provide LID measures to achieve best-efforts in retention of 5mm of rainfall onsite, best efforts in maintain water recharge, and control the runoff from the 90th percentile storm event on an annual average basis from all surfaces. Control is in the following hierarchal order, retention, LID filtration, and conventional stormwater management.

The site's proposed LID cross-sectional details are summarized in the following **Table 19**.

Table 19 – LID Summary & Cross Section Details

LID Summary										
LID Name	Drainage Area ID	Catchment Area (ha)	Percent Impervious	Length (m)	Width (m)	Depth (m)	Filter Media Blend Type	Volume of LID (m^3)	% of MOE Required Volume Captured	% of 27mm Volume Captured
LID-1	101	0.06	69%	41.00	3.00	1.65	Blend A	92.25	3,903%	595%
LID-2	102	0.05	69%	35.00	3.00	1.65	Blend A	78.75	4,119%	628%
LID-3	103	0.08	71%	41.00	3.00	1.70	Blend A	94.71	3,309%	503%
LID-4	104	0.08	71%	41.00	3.00	1.70	Blend A	94.71	3,309%	503%
LID-5	105	0.05	72%	30.00	3.00	1.70	Blend A	69.30	3,617%	550%
LID-6	106	0.08	69%	41.00	3.00	1.70	Blend A	94.71	3,347%	510%
LID-7	107	0.08	71%	41.00	3.00	1.70	Blend A	94.71	3,309%	503%
LID-8	108	0.08	71%	41.00	3.00	1.70	Blend A	94.71	3,309%	503%
LID-9*	109	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-10*	110	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-11*	111	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-12*	112	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-13*	113	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-14*	114	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-15*	115	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-16*	116	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-17*	117	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-18*	118	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-19*	119	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-20*	120	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
	Total:	1.49	75%					949.47		

* Asterix denotes Filtration only LIDs. These LIDs could not be designed as infiltration based facilities due to local depth to seasonal high groundwater elevations, and proximity of supporting stormwater infrastructure.

Based on the proposed configuration of the LIDs it is anticipated that upstream ROW drainage will be conveyed to the LIDs. The corresponding total LID drainage area is 1.49 ha of which approximately 0.56 ha will receive full infiltration of the 90th percentile water quality event and 0.94 ha will receive filtration. The rainfall volume over these areas is approximately 362m^3 including volume reductions from both impervious and pervious initial abstraction. Approximately 135m^3 and 227 m^3 of stormwater, is directed towards infiltration-based and filtration-based facilities respectively.

As described above in **Table 19,** the proposed LID facilities provide sufficient storage to capture and treat the entirety of the 90th percentile event for their respective catchments. Refer to the supporting LID sizing calculations in **Appendix A**. On an average annual basis an estimated

LIDs have been proposed to achieve the minimum 5mm volume retention. Based on a total catchment area of 43.45 ha the target run-off volume control is determined to be 2,172 m^3 (43.45 ha x 5mm). The following **Table 20** outlines the target runoff volume controls for both private and public lands.

Table 20 – Target Runoff Volume Control by Block Number

Block Number	Area (ha)	Target Runoff Volume Control (m^3)
1	1.46	73
2	4.80	240
3	2.11	105
4	4.65	233
5&7	4.13	207
6	1.78	89
101	1.36	68
102	4.42	221
103	0.31	16
106	6.90	345
107	0.78	39
108 & 109	3.20	160
Sub- Total Private Lands	**35.91**	**1,796**
8, 9, 10, 11, 12, 111, 112 & 113	2.87	143.5
13, 14 & 15	2.13	106.4
110	0.89	44.3
114	0.52	26.0
115	1.13	56.6
Sub-Total Public lands	**7.54**	**377**
Total	**43.45**	**2,173**

It can be shown that the infiltration target is achieved by calculating the provided capture volume available in the proposed infiltration-based LID facilities. The storage volumes provided in the ROW Bioretention Swales total 713.85 m^3. The volume control provided by the respective LIDs are capped at 27mm over the contributing imperviousness area. Summing up the LID volume provided results in a total of **134.5 m^3**, translating to approximately **4.62 mm** over the total public areas total impervious area (7.54 ha @ 38.6%).

It is anticipated that individual site plans associated with the Tullamore Secondary Plan area will provide additional measures during the future Site Plan Application stage to achieve best-efforts in retention of 5mm rainfall onsite.

5.7. Water Balance

The primary objective of the TRCA'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, landscaping, rainwater reuse and/or other low impact development practices.

TRCA has completed modeling and mapping outlining the important groundwater recharge areas. According to TRCA mapping (provided in **Appendix C**), the subject site falls under a Low Volume Groundwater Recharge Area (LGRA) however it does discharge to a sensitive ecological feature. As such, a site-specific water balance is required, and best efforts will be made via the SWM plan to maintain the quantity of surface and groundwater contributions.

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.

Water Balance is an accounting of the available water resources in a given area and can be estimated by the following general equation:

$$\mathbf{P = S + ET + R + I}$$

Where: P = Precipitation (Annual)

S = Change in Groundwater Storage

ET = Evapotranspiration/evaporation

R = Surface Water Runoff

I = Infiltration

The precise measurement of water balance components is difficult to ascertain. Typically, approximations and simplifications are made after reviewing precipitation and climatic date for a given time series and the annual quantities are estimated using statistical methods. Precipitation and Climatic Data is available through the *TRSPA Water Balance Tool,* the water balance component values have been summarized below in **Table 21**.

Table 21 – Water Balance Components

Water Balance Component	Depth	Units
Precipitation (P)	871	mm/yr
Evapotranspiration (PET)	537	mm/yr
P-PET (Surplus)	334	mm/yr

To assess the impact development will have on the subject site's water budget, a pre to post development water balance has been completed. Water Balance Calculations have been provided in PSWMR **Appendix A** for reference. The preliminary Water Balance Assessment for the development has been broken up between public and private lands and is summarized in the following **Table 22**.

Table 22 – Preliminary Water Balance Assessment

Land Use	Approximate Land Area (m^2)	Estimated Impervious Area	Impervious Area Runoff (m^3/yr)	Pervious Area Runoff (m^3/yr)	Total Runoff Volume (m^3/a)	Total Infiltration Volume (m^3/yr)
Pre-Development Scenario						
Agricultural - Public	75,375	0.0%	0	15,105	15,105	10,070
Agricultural - Private	359,121	0.0%	0	71,968	71,968	47,979
Total Pre-Development	**434,496**	**0.0%**	**0**	**87,073**	**87,073**	**58,049**
Post-Development Scenario						
Roads	33,894	75.0%	22,141	1,981	24,122	849
SWM Facilities	32,618	11.2%	3,182	6,772	9,954	2,902
Open Space	8,863	0.0%	0	2,072	2,072	888
Sub-Total Public	**75,375**	**38.6%**	**25,323**	**10,825**	**36,148**	**4,639**
Block 1	14,670	80.0%	10,222	686	10,908	294
Block 2	48,004	89.3%	37,338	1,201	38,539	515
Block 3	21,053	90.0%	16,503	492	16,996	211
Block 4	46,527	90.0%	36,473	1,088	37,560	466
Block 5 & 7	41,331	90.0%	32,399	966	33,366	414
Block 6	17,834	90.0%	13,980	417	14,397	179
Block 101	13,633	80.0%	9,499	637	10,137	273
Block 102	44,191	90.0%	34,641	1,033	35,675	443
Block 103	3,112	80.0%	2,168	146	2,314	62
Block 106	69,023	90.0%	54,107	1,614	55,721	692
Block 107	7,751	90.0%	6,076	181	6,257	78
Block 108 & 109	31,992	84.0%	23,407	1,197	24,603	513
Sub-Total Private	**359,120**	**88.5%**	**276,814**	**9,658**	**286,472**	**4,139**
Total Post-Development	**434,496**	**79.8%**	**302,137**	**20,483**	**322,621**	**8,779**

The results summarized 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 LIDs in both the public and private areas. The SWM Plan provided herein is intended to mitigate or reduce the water balance deficit as outlined above. Runoff generated from upstream development is directed to the proposed Low Impact Development (LID) measures. The LIDs and their contributing drainage areas are shown on **Drawing STM-4** in **Appendix D**.

The proposed LID measures have been designed to capture and treat the full volume from the 90th Percentile Water quality event. As the naming suggests, the 90th percentile event corresponds to 90% of the total annual rainfall experienced. The theoretical total annual runoff capture for the LIDs equates to 90% of the Impervious and Pervious Area Average Annual Runoff resulting in an additional 783.9 mm/year and 210.4 mm/year retention for the LIDs upstream catchment areas respectively. The proposed LIDs are exclusively located within future public owned lands and as such will only be used to reduce the public lands water balance deficit. Without consideration for the proposed LIDs the public portion of the development has a water balance deficit of 5,431 m^3/year between pre and post development scenarios. The addition of infiltration-based LIDs has reduced this deficit to 1,999 m^3/year by capturing and infiltrating an additional 3,432 m^3/year. All available right-of-way infiltration-based LID locations have been exhausted.

Private lands are required to implement LIDs within their site plans to mitigate the pre to post-development private land water balance deficit. As a general requirement the future site plans will be required to mitigate a unit water balance deficit of 1,218 m^3/ha.yr. To mitigate the private land water balance deficit an additional 56m^3/ha.yr will be required increasing the Future Site Plan unit water balance target to **1,274m^3/ha.yr.** The following table outlines target water balance requirements per block.

Table 23 – Target Water Balance Requirement by Block Number

Block Number	Block Area (ha)	Target Water Balance Requirements (1,274 m^3/ha.yr)
1	1.47	1,869
2	4.80	6,218
3	2.11	2,682
4	4.65	5,928
5&7	4.13	5,266
6	1.78	2,272
101	1.36	1,737
102	4.42	5,630
103	0.31	396
106	6.90	8,794
107	0.78	987
108 & 109	3.20	4,076
Total Private Lands	**35.91 ha**	**45,855 m^3/yr**

The private lands unit water balance target will increase the total infiltration volume by an additional **45,855 m^3/year** resulting in a total private lands infiltration volume of **49,994 m^3/year.** This is larger than the pre-development total infiltration volume of **47,979 m^3/year** resulting in a surplus **of 2,015 m^3/year**. The private lands surplus water balance of **2,015 m^3/year** can be used to reduce the public lands water balance deficit of **1,999 m^3/year** resulting in a net surplus water balance of **16 m^3/year**.

In summary, the proposed stormwater management plan has undertaken a best-efforts approach to mitigate the established pre- to post-development water balance targets.

5.8. Stormwater Conveyance

This section summarizes the conveyance calculations for stormwater runoff from the minor and major storm events. The minor storm flow (≤10 Year event) will be conveyed via the proposed storm sewer system and the major storm flow (>10 Year event) will be conveyed via overland flow within the internal road right-of-way and surface conveyance measures.

5.8.1. Minor Storm System – Storm Sewers

Stormwater runoff from minor storm events (≤10-year events) will be conveyed via a proposed storm sewer system. The sewers are sized using the Town of Caledon Rainfall Intensity Curves per Standard No. 103 and the Storm Design Sheet per Standard No. 104. A 3rd pipe storm sewer system is also proposed to convey runoff from rooftops within phase 2 developments. Per the MESP, the rooftop flow is to be attenuated to 40 L/s/ha up to the 100-year storm event. For sizing the 3rd pipe storm sewer system, the peak flow is calculated based on this flow rate as opposed to using the Rational Method. The design sheets are provided in **Appendix A**.

The subcatchment areas are illustrated on Drawing STM-3. The runoff coefficients used for the Rational Method sizing of the main storm sewer system are calculated assuming the maximum permitted cover in accordance with the Town of Caledon Zoning Bylaw and have limited rooftop peak flows to the permitted maximum rate 40L/s/ha. Please refer to **Appendix A** for the supporting design sheets.

5.8.2. Major Storm System – Overland Flow

Stormwater runoff from the major storm events (>10-year event) will be conveyed via overland flow within the internal road right-of-way. A hydraulic worksheet was analyzed using the Hydraflow Express software extension of AutoCAD Civil 3D. The typical cross-section from Standard No. 211 was analyzed at a segment of road downstream near SWMF1 where the slope of the road is 0.85%. The peak flow anticipated during the 100 year 4-hour Chicago Event was calculated using the rational method. Please refer to the 100 Year Storm Design Sheet provided in **Appendix A**. A peak flow of 3.352 m^3/s was calculated for the storm sewer spanning STM10 to STM11. This peak flow includes rooftop and lot level controls of 40L/s/ha and 180L/s/ha for the upstream future site plans. Underground infrastructure within the ROW in this area has been designed to be able to convey 3.020 m^3/s, this reduces the required major overland flow capacity to 0.332 m^3/s. Per the standard cross-section, the maximum depth within the right-of-way between the gutter grade and ROW limits is 0.261m assuming a minimum 2% boulevard slope (maximum flow capacity of 1.112m^3/s). The Hydraflow Express results demonstrate that the maximum depth of water during the governing 100 year storm is 0.1615 m, and is contained within the right-of-way. The Hydraflow Express results are provided in **Appendix A**.

5.9. Hydraulic Analysis

This section summarizes the hydraulic analysis completed for the proposed EP channel and future Mayfield Road culvert. This exercise was completed to determine if the proposed pond outlet elevations are above the flood elevations computed for the channel, and to ensure that the Regional (Hazel) storm event peak flow can be conveyed to the existing Environmentally Protected Channel located southeast of the Mayfield Road – Maissoneuve Boulevard intersection without overtopping Mayfield Road or the proposed environmentally protected channel limits.

A basic hydraulic model was set up using HEC-RAS software. The model utilizes four (4) cross-sections and a culvert and road profile representing the creek crossing at Mayfield Road. The cross-sections were extracted from CAD, using the proposed finished grades of the internal road and EP channel. The 100-Year 6-hour AES and Hazel Regional events were modelled in the HEC-RAS simulation with flow rates of 0.729 m^3/s and 6.060 m^3/s. These flow rates were extracted from the Post-Dev-PF OTTHYMO model (Scenario 1) and represent overall development peak flows discharging to the Mayfield Road crossing culvert. The model was run as a steady-state model, and the resulting flood elevations were used for the design of the pond outlets. The results are summarized in **Table 24** below:

Table 24 – Hydraulic Model Results

Cross Section ID #	100Yr 6Hr AES Event Flood Elevation (m)	Hazel Flood Elevation (m)	Description
125	228.04	228.41	Further U/S
77	226.35	227.18	Immediately U/S of Mayfield Rd
47	225.84	226.30	Mayfield Rd
14	225.82	226.37	Immediately D/S of Mayfield Rd
0	225.70	226.15	Further D/S

The pond overflow weirs for SWMF1 & SWMF2 are proposed above the flood elevation of 227.18 m. The model results also demonstrate that the peak flow from the Hazel storm does not overtop Mayfield Road (road low point elevation = 229.18 m).

5.10. Erosion & Sediment Control

During construction, the majority of the site's natural features will be removed and the topsoil stripped within the proposed 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 established drainage areas 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;
- Temporary sediment fabric and stone filters should be installed on catchbasins 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 should be installed at the construction accesses to reduce the amount of materials that may be transported off site;
- Temporary ESC 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 the majority of 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; and,
- All disturbed areas not under immediate construction for 30 days or not intended for building activities within a 3-month time period, should be stabilized with seeding.

Refer to the Erosion and Sediment Plan Report submitted under separate cover for the location and details of the temporary devices. The design particulars will be provided within an updated Detailed Stormwater Management Report during the detailed design stage.

6. Conclusions

This Preliminary Stormwater Management Report identifies the recommended stormwater management design for the development of the Tullamore Secondary Plan Area. This report, in conjunction with the preliminary civil engineering drawings and Functional Servicing Report, outlines the proposed infrastructure required to service the site for stormwater management quality control, quantity control, water balance, and erosion & sediment control. The relevant conclusions and recommendations are as follows:

- Enhanced (Level 1) SWM Quality Control will be provided by the proposed extended detention wet ponds.
- SWM Quantity Control will be provided by both the active storage component of the proposed wet ponds as well as rooftop storage measures on all proposed buildings. The post-development peak flows will be controlled to the allowable flow rates as determined by the TRCA's Unit Flow Relationships for the Humber River Watershed.
- The design of the proposed wet ponds will incorporate thermal mitigation measures defined by the Ministry of Natural Resources in order to diminish the impacts of development on the habitat of Redside Dace found in the receiving watercourse.
- Water Balance for the site will be examined in further detail after additional geotechnical investigations have been completed to confirm soil types on site. A 3rd pipe system is proposed to collect stormwater runoff from rooftop areas and discharge directly to the tributary of Salt Creek. This system will assist with maintaining flow contributions to this watercourse, which has been identified as an ecologically important feature.
- The designs in this report are consistent with the Town of Caledon's Development Standards, Policies & Guidelines (January 2009), the MOE SWM Planning and Design Manual (March 2003), and the TRCA SWM Criteria (August 2012).
- It is recommended that this report be accepted as demonstrating an acceptable preliminary stormwater management approach for the subject property.

All of which is respectfully submitted,

THE JONES CONSULTING GROUP LTD.

Appendix A

Stormwater Management Calculations & Design Charts

- Post-Development OTTHYMO Catchment Inputs
- SWMF1 Quality Design Notes & Stage-Storage-Discharge Table
- SWMF2 Quality Design Notes & Stage-Storage-Discharge Table
- SWMF1 & 2 Rooftop Area Stage-Storage-Discharge Table
- SWMF1 & SWMF2 Post-Development Peak Flow Performance Summary
- Conceptual LID Characteristics, Sizing and Drawdown Calculations
- Preliminary Water Balance Calculations
- 5 Year Storm Design Sheet Including Allowable Release Rates
- Third Pipe Storm Drainage Design Sheet
- 2 Year Storm Design Sheet SWMF Bypass
- 100 Year Storm Design Sheet Including Allowable Release Rates
- Hydraflow Express Results for ROW Conveyance of 100 Year Overland Flow
- Hydraflow Express Results for ROW Maximum Conveyance Capacity

Appendix B

OTTHYMO & HEC-RAS Model Outputs

- OTTHYMO Scenario 1 – Post-Dev-PF, No Attenuation
    - Post-Dev-PF, No Attenuation OTTHYMO Schematic
    - 90th Percentile (27mm 4-hour Chicago) Storm Distribution Detailed Output
    - 100-year 6-hour AES Storm Distribution Detailed Output
    - 100 Year 12-hour AES Storm Distribution Detailed Output
    - Hurricane Hazel Detailed Output
    - SWMF1, SWMF2 & AddHyd 40 Detailed Outputs
- OTTHYMO Scenario 2 – Rooftop Controls Only
    - OTTHYMO Post-Development Schematic
    - 90th Percentile (27mm 4-hour Chicago) Storm Distribution Detailed Output
    - 100 Year 6-hour AES Storm Distribution Detailed Outputs
    - 100-year 12-hour AES Storm Distribution Detailed Output
    - Rooftop RouteReservoir 10 & 20 Detailed Outputs
- Electronic OTTHYMO modelling files
- HEC-RAS EP Channel Modelling
    - EP Channel Schematic
    - EP Channel Profile
    - EP Channel Cross Sections
    - EP Channel Culvert Outputs
    - EP Channel Culvert Only – Profile Output Table
    - EP Channel Four XS Culvert – Profile Output Table
- Electronic HEC-RAS modelling files

Appendix C

External Information

- Excerpt from MESP by AGRA – Table 4.2 Pond Operational Characteristics
- Excerpt from Soils Map of Peel County, Ontario, Soil Survey Report No. 18
- Excerpts from Toronto Region Conservation Authority (TRCA) SWM Criteria
    - Humber River SWM Quantity Control Release Rates – Equation F for Sub-Basin 36
    - Figure C 10: Recharge Area Classification
    - TRCA Regulation Limits Map 2023
    - TRCA Flood Plain Mapping for Salt Creek
- Excerpts from Town of Caledon Design Standards
    - Standard No. 103 – Rainfall Intensity Curves
    - Standard No. 104 – Storm Design Sheet
    - Standard No. 211 – 26.0m Industrial Collector – 14.5 Roadway (13.9m Pavement)
- Excerpts from Town of Caledon Zoning By-Law
    - Zone Map 4 Schedule "A"
    - Schedule N Tullamore Land Use Area
    - Section 7 Commercial Zones, Pages 7-1 and 7-4
    - Section 8 Industrial Zones, Pages 8-1 and 8-2
- Excerpt from Mayfield Road Widening Detailed Design
- *Preliminary Site Servicing Figure* and *Preliminary Grading Figure,* WSP, dated July 22, 2021
- MTO Design Charts H2-6A, 1.07, 1.08, 1.09

Appendix D

Reduced Engineering Drawings

- CP-1 Concept Plan
- LU-1 Existing Land Use Plan
- GEN-1 Existing Servicing Plan
- GEN-1-A Existing Servicing Plan
- GEN-2 General Servicing Plan
- STM-1 Pre-Development Storm Drainage Plan
- STM-2 Post-Development Storm Drainage Plan
- STM-3 Post-Development Storm Sub-Catchment Drainage Plan
- SAN-1 Sanitary Drainage Plan
- LG-1 Grading Plan
- ESC-1 Erosion and Sediment Control Plan
- SWM-1 Conceptual LID Plan
- PP-1 Street A (Davis Lane) Plan and Profile – STA. -0+018 to STA. 0+600
- PP-2 Street A (Davis Lane) Plan and Profile – STA. 0+600 to STA. 1+280
- PND-1 Storm Water Management Pond 1 & 2 Plan View
- PND-2 Storm Water Management Pond 1 (West)
- PND-3 Storm Water Management Pond 2 (East)

Weighted Curve Number Calculator

Input:

Catchment ID	101		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.00	N/A	N/A
Cultivated (ha)/CN	0.39	78.0	0.55
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.00	N/A	N/A

Calculated:

Area	0.39
Average CN	78
Average Pervious CN	78
Average Runoff 'C'	0.55

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	7.00	mm
Average Pervious IA	7.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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.	235.75	m
Catchment Min. El.	235.33	m
Catchment Flow Length	55	m

Calculated:

Catchment Ave. Slope	0.8	%
Imperviousness	0.0%	
Directly Connected Imperviousness	0.0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.55	

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.61	
50YR Rational 'C'	0.66	
100YR Rational 'C'	0.69	

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	14.53	min
Time of Concentration	0.24	hr
Time to Peak	0.16	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	3.64	min
Time of Concentration	0.06	hr
Time to Peak	0.04	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.06**	**hr**
Time to Peak	**0.04**	**hr**

Pre-Dev Catchment Area 101 - Part block 104

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	0		74	0	0.17	0
Cultivated "C"	3868		78	301704	0.55	2127.4
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	0		98	0	0.95	0
Impervious "C" (Dis-Connected)	0		98	0	0.95	0
Total Area "C"	**3868**					
Weighted coefficients "C"				**78**		**0.55**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**3868**	**Weighted CN**		**78**	**Weighted "C"**	**0.550**
				Average Pervious Mannings=		**0.55**

Weighted Curve Number Calculator

Input:

Catchment ID	102		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.00	N/A	N/A
Cultivated (ha)/CN	8.91	78.0	0.55
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.00	N/A	N/A

Calculated:

Area	8.91
Average CN	78
Average Pervious CN	78
Average Runoff 'C'	0.55

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	7.00	mm
Average Pervious IA	7.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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.	236.56	m
Catchment Min. El.	231.24	m
Catchment Flow Length	542	m

Calculated:

Catchment Ave. Slope	1.0	%
Imperviousness	0.0%	
Directly Connected Imperviousness	0.0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.55	

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.61	
50YR Rational 'C'	0.66	
100YR Rational 'C'	0.69	

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	42.00	min
Time of Concentration	0.70	hr
Time to Peak	0.47	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	24.92	min
Time of Concentration	0.42	hr
Time to Peak	0.28	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-Dev Catchment Area 102 - Part blocks 4, 5, 103, 104 & 10

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	0		74	0	0.17	0
Cultivated "C"	89146		78	6953388	0.55	49030.3
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	0		98	0	0.95	0
Impervious "C" (Dis-Connected)	0		98	0	0.95	0
Total Area "C"	**89146**					
Weighted coefficients "C"				**78**		**0.55**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**89146**	**Weighted CN**		**78**	**Weighted "C"**	**0.550**
				Average Pervious Mannings=		**0.55**

Weighted Curve Number Calculator

Input:

Catchment ID	103		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.00	N/A	N/A
Cultivated (ha)/CN	40.71	78.0	0.55
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.00	N/A	N/A

Calculated:

Area	40.71
Average CN	78
Average Pervious CN	78
Average Runoff 'C'	0.55

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	7.00	mm
Average Pervious IA	7.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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.	231.47	m
Catchment Min. El.	228.27	m
Catchment Flow Length	172	m

Calculated:

Catchment Ave. Slope	1.9	%
Imperviousness	0.0%	
Directly Connected Imperviousness	0.0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.55

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.61
50YR Rational 'C'	0.66
100YR Rational 'C'	0.69

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	19.16	min
Time of Concentration	0.32	hr
Time to Peak	0.21	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	5.98	min
Time of Concentration	0.10	hr
Time to Peak	0.07	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.10**	**hr**
Time to Peak	**0.07**	**hr**

Pre-Dev Catchment Area 103 - Part blocks 1 - 15, 101, 102, 104 - 11

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	0		74	0	0.17	0
Cultivated "C"	407075		78	31751850	0.55	223891.3
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	0		98	0	0.95	0
Impervious "C" (Dis-Connected)	0		98	0	0.95	0
Total Area "C"	**407075**					
Weighted coefficients "C"				**78**		**0.55**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**407075**	**Weighted CN**		**78**	**Weighted "C"**	**0.550**
				Average Pervious Mannings=		**0.55**

Weighted Curve Number Calculator

Input:

Catchment ID	104		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.00	N/A	N/A
Cultivated (ha)/CN	2.27	78.0	0.55
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.00	N/A	N/A

Calculated:

Area	2.27
Average CN	78
Average Pervious CN	78
Average Runoff 'C'	0.55

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	7.00	mm
Average Pervious IA	7.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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.	231.47	m
Catchment Min. El.	228.27	m
Catchment Flow Length	172	m

Calculated:

Catchment Ave. Slope	1.9	%
Imperviousness	0.0%	
Directly Connected Imperviousness	0.0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.55	

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.61	
50YR Rational 'C'	0.66	
100YR Rational 'C'	0.69	

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	19.16	min
Time of Concentration	0.32	hr
Time to Peak	0.21	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	7.98	min
Time of Concentration	0.13	hr
Time to Peak	0.09	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.13**	**hr**
Time to Peak	**0.09**	**hr**

Pre-Dev Catchment Area 104 - Part blocks 106, 108 & 109

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	0		74	0	0.17	0
Cultivated "C"	22687		78	1769586	0.55	12477.85
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	0		98	0	0.95	0
Impervious "C" (Dis-Connected)	0		98	0	0.95	0
Total Area "C"	**22687**					
Weighted coefficients "C"				**78**		**0.55**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**22687**	**Weighted CN**		**78**	**Weighted "C"**	**0.550**
				Average Pervious Mannings=		**0.55**

Weighted Curve Number Calculator

Input:

Catchment ID	105		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.77	74.0	0.17
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.05	89.0	0.60
Impervious Area(ha)/CN	0.00	N/A	N/A

Calculated:

Area	0.83
Average CN	75
Average Pervious CN	74
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	4.80	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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.	238.48	m
Catchment Min. El.	230.78	m
Catchment Flow Length	725	m

Calculated:

Catchment Ave. Slope	1.1	%
Imperviousness	0.0%	
Directly Connected Imperviousness	0.0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.20

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.22
50YR Rational 'C'	0.24
100YR Rational 'C'	0.25

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	77.60	min
Time of Concentration	1.29	hr
Time to Peak	0.86	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	41.61	min
Time of Concentration	0.69	hr
Time to Peak	0.46	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**1.29**	**hr**
Time to Peak	**0.86**	**hr**

Pre-Dev Catchment Area 105 - Part block from 12203 Airport Road

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	7732		74	572168	0.17	1314.44
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	542		89	48238	0.60	325.2
Impervious "C" (Connected)	0		98	0	0.95	0
Impervious "C" (Dis-Connected)	0		98	0	0.95	0
Total Area "C"	**8274**					
Weighted coefficients "C"				**74.9826**		**0.198168**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**8274**	**Weighted CN**		**74.9826**	**Weighted "C"**	**0.198**
				Average Pervious Mannings=		**0.17**

Weighted Curve Number Calculator

Input:

Catchment ID	200		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.00	N/A	N/A
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	11.60	98.0	0.95

Calculated:

Area	11.60
Average CN	98
Average Pervious CN	74
Average Runoff 'C'	0.95

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	2.00	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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	60	m

Calculated:

Catchment Ave. Slope	1.0	%
Imperviousness	100.0%	
Directly Connected Imperviousness	0.0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.95	

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	1.00	
50YR Rational 'C'	1.00	
100YR Rational 'C'	1.00	

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	3.79	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	2.68	min
Time of Concentration	0.04	hr
Time to Peak	0.03	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.04**	**hr**
Time to Peak	**0.03**	**hr**

Post-Development Catchment Area 200 - Rooftop Areas draining to SWMF1

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	0		74	0	0.17	0
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	0		98	0	0.95	0
Impervious "C" (Dis-Connected)	115961.1		98	11364188	0.95	110163
Total Area "C"	**115961.1**					
Weighted coefficients "C"				**98**		**0.95**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**115961**	**Weighted CN**		**98**	**Weighted "C"**	**0.950**

Average Pervious Mannings= #DIV/0!

Weighted Curve Number Calculator

Input:

Catchment ID	201		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.47	74.0	0.17
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	4.19	98.0	0.95

Calculated:

Area	4.65
Average CN	96
Average Pervious CN	74
Average Runoff 'C'	0.87

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	2.30	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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	345	m

Calculated:

Catchment Ave. Slope	0.5	%
Imperviousness	90.0%	
Directly Connected Imperviousness	40.0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.87	

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.96	
50YR Rational 'C'	1.00	
100YR Rational 'C'	1.00	

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	17.35	min
Time of Concentration	0.29	hr
Time to Peak	0.19	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	19.37	min
Time of Concentration	0.32	hr
Time to Peak	0.22	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.32**	**hr**
Time to Peak	**0.22**	**hr**

Post-Development Catchment Area 201 - Block 4

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	4652.7		74	344299.8	0.17	790.959
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	18610.8		98	1823858	0.95	17680.26
Impervious "C" (Dis-Connected)	23264		98	2279823	0.95	22100.33
Total Area "C"	**46527**					
Weighted coefficients "C"				**95.6**		**0.872**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**46527**	**Weighted CN**		**95.6**	**Weighted "C"**	**0.872**
				Average Pervious Mannings=		**0.17**

Weighted Curve Number Calculator

Input:

Catchment ID	202		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.41	74.0	0.17
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	3.72	98.0	0.95

Calculated:

Area	4.13
Average CN	96
Average Pervious CN	74
Average Runoff 'C'	0.87

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	2.30	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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	345	m

Calculated:

Catchment Ave. Slope	0.5	%
Imperviousness	90.0%	
Directly Connected Imperviousness	40.0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.87	

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.96	
50YR Rational 'C'	1.00	
100YR Rational 'C'	1.00	

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	17.35	min
Time of Concentration	0.29	hr
Time to Peak	0.19	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	19.60	min
Time of Concentration	0.33	hr
Time to Peak	0.22	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 202 - Block 5 & 7

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	4133.1		74	305849.4	0.17	702.627
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	16532.4		98	1620175	0.95	15705.78
Impervious "C" (Dis-Connected)	20665.5		98	2025219	0.95	19632.23
Total Area "C"	**41331**					
Weighted coefficients "C"				**95.6**		**0.872**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**41331**	**Weighted CN**		**95.6**	**Weighted "C"**	**0.872**
				Average Pervious Mannings=		**0.17**

Weighted Curve Number Calculator

Input:

Catchment ID	203		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.45	74.0	0.17
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	1.57	98.0	0.95

Calculated:

Area	2.02
Average CN	93
Average Pervious CN	74
Average Runoff 'C'	0.78

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	2.67	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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	25	m

Calculated:

Catchment Ave. Slope	2.0	%
Imperviousness	77.8%	
Directly Connected Imperviousness	77.8%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.78

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.85
50YR Rational 'C'	0.93
100YR Rational 'C'	0.97

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	4.19	min
Time of Concentration	0.07	hr
Time to Peak	0.05	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	1.16	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 203 - From Mayfield Road

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	4489		74	332186	0.17	763.13
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	15729		98	1541442	0.95	14942.55
Impervious "C" (Dis-Connected)	0		98	0	0.95	0
Total Area "C"	**20218**					
Weighted coefficients "C"				**92.67128**		**0.776817**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**20218**	**Weighted CN**		**92.67128**	**Weighted "C"**	**0.777**
				Average Pervious Mannings=		**0.17**

Weighted Curve Number Calculator

Input:

Catchment ID	204		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.18	74.0	0.17
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	1.61	98.0	0.95

Calculated:

Area	1.78
Average CN	96
Average Pervious CN	74
Average Runoff 'C'	0.87

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	2.30	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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	84	m

Calculated:

Catchment Ave. Slope	1.3	%
Imperviousness	90.0%	
Directly Connected Imperviousness	40.0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.87	

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.96	
50YR Rational 'C'	1.00	
100YR Rational 'C'	1.00	

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	6.25	min
Time of Concentration	0.10	hr
Time to Peak	0.07	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	4.29	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	**0.07**	**hr**
Time to Peak	**0.05**	**hr**

Post-Development Catchment Area 204 - Block 6

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	1783.4		74	131971.6	0.17	303.178
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	7133.6		98	699092.8	0.95	6776.92
Impervious "C" (Dis-Connected)	8917		98	873866	0.95	8471.15
Total Area "C"	**17834**					
Weighted coefficients "C"				**95.6**		**0.872**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**17834**	**Weighted CN**		**95.6**	**Weighted "C"**	**0.872**
				Average Pervious Mannings=		**0.17**

Weighted Curve Number Calculator

Input:

Catchment ID	205		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.27	74.0	0.17
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	1.09	98.0	0.95

Calculated:

Area	1.36
Average CN	93
Average Pervious CN	74
Average Runoff 'C'	0.79

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	2.60	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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	125	m

Calculated:

Catchment Ave. Slope	1.0	%
Imperviousness	80.0%	
Directly Connected Imperviousness	50.0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.79	

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.87	
50YR Rational 'C'	0.95	
100YR Rational 'C'	0.99	

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	11.15	min
Time of Concentration	0.19	hr
Time to Peak	0.12	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	6.91	min
Time of Concentration	0.12	hr
Time to Peak	0.08	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.12**	**hr**
Time to Peak	**0.08**	**hr**

Post-Development Catchment Area 205 -Block 101

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	2726.6		74	201768.4	0.17	463.522
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	6816.5		98	668017	0.95	6475.675
Impervious "C" (Dis-Connected)	4089.9		98	400810.2	0.95	3885.405
Total Area "C"	**13633**					
Weighted coefficients "C"				**93.2**		**0.794**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**13633**	**Weighted CN**		**93.2**	**Weighted "C"**	**0.794**
				Average Pervious Mannings=		**0.17**

Weighted Curve Number Calculator

Input:

Catchment ID	206		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.28	74.0	0.17
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	1.12	98.0	0.95

Calculated:

Area	1.40
Average CN	93
Average Pervious CN	74
Average Runoff 'C'	0.79

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	2.60	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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	98	m

Calculated:

Catchment Ave. Slope	1.0	%
Imperviousness	80.0%	
Directly Connected Imperviousness	50.0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.79	

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.87	
50YR Rational 'C'	0.95	
100YR Rational 'C'	0.99	

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	9.88	min
Time of Concentration	0.16	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	5.40	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	**0.09**	**hr**
Time to Peak	**0.06**	**hr**

Post-Development Catchment Area 206 - Block 1 Internal

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	2797.6		74	207022.4	0.17	475.592
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	6994		98	685412	0.95	6644.3
Impervious "C" (Dis-Connected)	4196.4		98	411247.2	0.95	3986.58
Total Area "C"	**13988**					
Weighted coefficients "C"				**93.2**		**0.794**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**13988**	**Weighted CN**		**93.2**	**Weighted "C"**	**0.794**
				Average Pervious Mannings=		**0.17**

Weighted Curve Number Calculator

Input:

Catchment ID	207		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.48	74.0	0.17
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	3.97	98.0	0.95

Calculated:

Area	4.45
Average CN	95
Average Pervious CN	74
Average Runoff 'C'	0.87

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	2.32	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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.	237.15	m
Catchment Min. El.	233.32	m
Catchment Flow Length	407	m

Calculated:

Catchment Ave. Slope	0.9%	%
Imperviousness	89.3%	
Directly Connected Imperviousness	40.7%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.87

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.95
50YR Rational 'C'	1.00
100YR Rational 'C'	1.00

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	71.58	min
Time of Concentration	1.19	hr
Time to Peak	0.80	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	50.81	min
Time of Concentration	0.85	hr
Time to Peak	0.56	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.85**	**hr**
Time to Peak	**0.56**	**hr**

Post-Development Catchment Area 207 - Block 2 Internal

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	4754.4		74	351825.6	0.17	808.248
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	18095.4		98	1773349	0.95	17190.63
Impervious "C" (Dis-Connected)	21620.2		98	2118780	0.95	20539.19
Total Area "C"	**44470**					
Weighted coefficients "C"				**95.4341**		**0.866608**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**44470**	**Weighted CN**		**95.4341**	**Weighted "C"**	**0.867**
				Average Pervious Mannings=		**0.17**

Weighted Curve Number Calculator

Input:

Catchment ID	208		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.20	74.0	0.17
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	1.84	98.0	0.95

Calculated:

Area	2.05
Average CN	96
Average Pervious CN	74
Average Runoff 'C'	0.87

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	2.30	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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	200	m

Calculated:

Catchment Ave. Slope	1.0	%
Imperviousness	90.0%	
Directly Connected Imperviousness	40.0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.87	

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.96	
50YR Rational 'C'	1.00	
100YR Rational 'C'	1.00	

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	10.51	min
Time of Concentration	0.18	hr
Time to Peak	0.12	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	10.61	min
Time of Concentration	0.18	hr
Time to Peak	0.12	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.18**	**hr**
Time to Peak	**0.12**	**hr**

Post-Development Catchment Area 208 - Block 3 Internal

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	2049.6		74	151670.4	0.17	348.432
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	8198.4		98	803443.2	0.95	7788.48
Impervious "C" (Dis-Connected)	10248		98	1004304	0.95	9735.6
Total Area "C"	**20496**					
Weighted coefficients "C"				**95.6**		**0.872**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**20496**	**Weighted CN**		**95.6**	**Weighted "C"**	**0.872**
				Average Pervious Mannings=		**0.17**

Weighted Curve Number Calculator

Input:

Catchment ID	209		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.45	74.0	0.17
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	3.97	98.0	0.95

Calculated:

Area	4.42
Average CN	96
Average Pervious CN	74
Average Runoff 'C'	0.87

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	2.30	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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	390	m

Calculated:

Catchment Ave. Slope	1.0	%
Imperviousness	89.9%	
Directly Connected Imperviousness	40.1%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.87	

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.96	
50YR Rational 'C'	1.00	
100YR Rational 'C'	1.00	

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	14.72	min
Time of Concentration	0.25	hr
Time to Peak	0.16	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	19.16	min
Time of Concentration	0.32	hr
Time to Peak	0.21	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.32**	**hr**
Time to Peak	**0.21**	**hr**

Post-Development Catchment Area 209 - Block 102

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	4452		74	329448	0.17	756.84
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	17707.5		98	1735335	0.95	16822.13
Impervious "C" (Dis-Connected)	22025.5		98	2158499	0.95	20924.23
Total Area "C"	**44185**					
Weighted coefficients "C"				**95.5818**		**0.871409**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**44185**	**Weighted CN**		**95.5818**	**Weighted "C"**	**0.871**
				Average Pervious Mannings=		**0.17**

Weighted Curve Number Calculator

Input:

Catchment ID	210		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.06	74.0	0.17
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.25	98.0	0.95

Calculated:

Area	0.31
Average CN	93
Average Pervious CN	74
Average Runoff 'C'	0.79

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	2.60	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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	65	m

Calculated:

Catchment Ave. Slope	1.0	%
Imperviousness	80.0%	
Directly Connected Imperviousness	50.0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.79	

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.87	
50YR Rational 'C'	0.95	
100YR Rational 'C'	0.99	

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	8.04	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	4.16	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	**0.07**	**hr**
Time to Peak	**0.05**	**hr**

Post-Development Catchment Area 210 - Block 103

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	623.4		74	46131.6	0.17	105.978
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	1558.5		98	152733	0.95	1480.575
Impervious "C" (Dis-Connected)	935.1		98	91639.8	0.95	888.345
Total Area "C"	**3117**					
Weighted coefficients "C"				**93.2**		**0.794**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**3117**	**Weighted CN**		**93.2**	**Weighted "C"**	**0.794**
				Average Pervious Mannings=		**0.17**

Weighted Curve Number Calculator

Input:

Catchment ID	211		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.62	74.0	0.17
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	2.03	98.0	0.95

Calculated:

Area	2.65
Average CN	92
Average Pervious CN	74
Average Runoff 'C'	0.77

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	2.70	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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.	237.02	m
Catchment Min. El.	229.26	m
Catchment Flow Length	872	m

Calculated:

Catchment Ave. Slope	0.9	%
Imperviousness	76.6%	
Directly Connected Imperviousness	76.6%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.77

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.84
50YR Rational 'C'	0.92
100YR Rational 'C'	0.96

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	33.25	min
Time of Concentration	0.55	hr
Time to Peak	0.37	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	46.15	min
Time of Concentration	0.77	hr
Time to Peak	0.51	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.77**	**hr**
Time to Peak	**0.51**	**hr**

Post-Development Catchment Area 211 - Blocks 8, 9, 10, 11, 12, 111, 112, 113
Street A (Davis Lane)

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	6198		74	458652	0.17	1053.66
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	20320		98	1991360	0.95	19304
Impervious "C" (Dis-Connected)	0		98	0	0.95	0
Total Area "C"	**26518**					
Weighted coefficients "C"				**92.39053**		**0.767692**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**26518**	**Weighted CN**		**92.39053**	**Weighted "C"**	**0.768**
				Average Pervious Mannings=		**0.17**

Weighted Curve Number Calculator

Input:

Catchment ID	212		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay Loam	Weighted Curve Number	Weighted Runoff 'C'
Wetland (ha)/CN	0.93	50.0	0.05
Woods (ha)/CN	0.00	N/A	N/A
Lawn (ha)/CN	0.96	74.0	0.35
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.24	98.0	0.95

Calculated:

Area	2.13
Average CN	66
Average Pervious CN	62
Average Runoff 'C'	0.29

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	9.45	mm
Average Pervious IA	10.39	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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	45	m

Calculated:

Catchment Ave. Slope	20.0	%
Imperviousness	11.2%	
Directly Connected Imperviousness	11.2%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.29	

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.32	
50YR Rational 'C'	0.34	
100YR Rational 'C'	0.36	

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	6.62	min
Time of Concentration	0.11	hr
Time to Peak	0.07	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	1.31	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	**0.11**	**hr**
Time to Peak	**0.07**	**hr**

Post-Development Catchment Area 212 - Block 13, 14 & 15 (SWM Pond 1)

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.18	0
Lawn "A"	0		39	0	0.15	0
Cultivated "A"	0		55	0	0.40	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.35	0
Lawn "B"	0		61	0	0.25	0
Cultivated "B"	0		69	0	0.65	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	0	0.95	0
Total Area "B"	**0**					
Weighted coefficients "B"				**0**		**0**
Wetlands "C"	9261		50	463050	0.05	463.05
Woods "C"	0		70	0	0.52	0
Lawn "C"	9639		74	713286	0.35	3373.65
Cultivated "C"	0		78	0	0.70	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	2388		98	234024	0.95	2268.6
Impervious "C" (Dis-Connected)	0		98	0	0.95	0
Total Area "C"	**21288**					
Weighted coefficients "C"				**66.25141**		**0.286795**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.52	0
Lawn "D"	0		80	0	0.35	0
Cultivated "D"	0		83	0	0.70	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**21288**	**Weighted CN**		**66.25141**	**Weighted "C"**	**0.287**
				Average Pervious Mannings=		**0.20**

Weighted Curve Number Calculator

Input:

Catchment ID	300		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.00	N/A	N/A
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	5.44	98.0	0.95

Calculated:

Area	5.44
Average CN	98
Average Pervious CN	74
Average Runoff 'C'	0.95

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	2.00	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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	60	m

Calculated:

Catchment Ave. Slope	1.0	%
Imperviousness	100.0%	
Directly Connected Imperviousness	0.0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.95	

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	1.00	
50YR Rational 'C'	1.00	
100YR Rational 'C'	1.00	

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	3.79	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	2.89	min
Time of Concentration	0.05	hr
Time to Peak	0.03	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.05**	**hr**
Time to Peak	**0.03**	**hr**

Post-Development Catchment Area 300 - Rooftop Areas draining to SWMF1

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	0		74	0	0.17	0
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	0		98	0	0.95	0
Impervious "C" (Dis-Connected)	54384		98	5329632	0.95	51664.8
Total Area "C"	**54384**					
Weighted coefficients "C"				**98**		**0.95**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**54384**	**Weighted CN**		**98**	**Weighted "C"**	**0.950**

Average Pervious Mannings= #DIV/0!

Weighted Curve Number Calculator

Input:

Catchment ID	301		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.69	74.0	0.17
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	6.21	98.0	0.95

Calculated:

Area	6.90
Average CN	96
Average Pervious CN	74
Average Runoff 'C'	0.87

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	2.30	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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	250	m

Calculated:

Catchment Ave. Slope	1.0	%
Imperviousness	90.0%	
Directly Connected Imperviousness	40.0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.87

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.96
50YR Rational 'C'	1.00
100YR Rational 'C'	1.00

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	11.75	min
Time of Concentration	0.20	hr
Time to Peak	0.13	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	11.75	min
Time of Concentration	0.20	hr
Time to Peak	0.13	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.20**	**hr**
Time to Peak	**0.13**	**hr**

Post-Dev Catchment Area 301- Block 106

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	6902.9		74	510814.6	0.17	1173.493
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	27611.6		98	2705937	0.95	26231.02
Impervious "C" (Dis-Connected)	34514.5		98	3382421	0.95	32788.78
Total Area "C"	**69029**					
Weighted coefficients "C"				**95.6**		**0.872**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**69029**	**Weighted CN**		**95.6**	**Weighted "C"**	**0.872**
				Average Pervious Mannings=		**0.17**

Weighted Curve Number Calculator

Input:

Catchment ID	302		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.32	74.0	0.17
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	2.88	98.0	0.95

Calculated:

Area	3.20
Average CN	96
Average Pervious CN	74
Average Runoff 'C'	0.87

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	2.30	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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	120	m

Calculated:

Catchment Ave. Slope	1.0	%
Imperviousness	90.0%	
Directly Connected Imperviousness	40.0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.87	

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.96	
50YR Rational 'C'	1.00	
100YR Rational 'C'	1.00	

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	8.14	min
Time of Concentration	0.14	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	6.09	min
Time of Concentration	0.10	hr
Time to Peak	0.07	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.10**	**hr**
Time to Peak	**0.07**	**hr**

Post-Dev Catchment Area 302 - Blocks 108 & 109

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	3199.2		74	236740.8	0.17	543.864
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	12796.8		98	1254086	0.95	12156.96
Impervious "C" (Dis-Connected)	15996		98	1567608	0.95	15196.2
Total Area "C"	**31992**					
Weighted coefficients "C"				**95.6**		**0.872**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**31992**	**Weighted CN**		**95.6**	**Weighted "C"**	**0.872**
				Average Pervious Mannings=		**0.17**

Weighted Curve Number Calculator

Input:

Catchment ID	303		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.08	74.0	0.22
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.70	98.0	0.95

Calculated:

Area	0.77
Average CN	96
Average Pervious CN	74
Average Runoff 'C'	0.88

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	2.30	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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.	229.00	m
Catchment Flow Length	54	m

Calculated:

Catchment Ave. Slope	2.1	%
Imperviousness	90.0%	
Directly Connected Imperviousness	40.0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.88

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.96
50YR Rational 'C'	1.00
100YR Rational 'C'	1.00

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	4.17	min
Time of Concentration	0.07	hr
Time to Peak	0.05	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	2.72	min
Time of Concentration	0.05	hr
Time to Peak	0.03	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.05**	**hr**
Time to Peak	**0.03**	**hr**

Post-Dev Catchment Area 303 - Block 107

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.10	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.16	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	774.7		74	57327.8	0.22	170.434
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	3098.8		98	303682.4	0.95	2943.86
Impervious "C" (Dis-Connected)	3873.5		98	379603	0.95	3679.825
Total Area "C"	**7747**					
Weighted coefficients "C"				**95.6**		**0.877**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.22	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**7747**	**Weighted CN**		**95.6**	**Weighted "C"**	**0.877**
				Average Pervious Mannings=		**0.22**

Weighted Curve Number Calculator

Input:

Catchment ID	304		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.17	74.0	0.17
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.34	98.0	0.95

Calculated:

Area	0.52
Average CN	90
Average Pervious CN	74
Average Runoff 'C'	0.69

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	3.01	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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	60	m

Calculated:

Catchment Ave. Slope	1.0	%
Imperviousness	66.3%	
Directly Connected Imperviousness	66.3%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.69	

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.76	
50YR Rational 'C'	0.82	
100YR Rational 'C'	0.86	

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	10.42	min
Time of Concentration	0.17	hr
Time to Peak	0.12	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	3.65	min
Time of Concentration	0.06	hr
Time to Peak	0.04	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-Dev Catchment Area 304 - Block 114

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	1747		74	129278	0.17	296.99
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	3444		98	337512	0.95	3271.8
Impervious "C" (Dis-Connected)	0		98	0	0.95	0
Total Area "C"	**5191**					
Weighted coefficients "C"				**89.92294**		**0.687496**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**5191**	**Weighted CN**		**89.92294**	**Weighted "C"**	**0.687**
				Average Pervious Mannings=		**0.17**

Weighted Curve Number Calculator

Input:

Catchment ID	305		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay Loam	Weighted Curve Number	Weighted Runoff 'C'
Wetland (ha)/CN	0.46	50.0	0.05
Woods (ha)/CN	0.00	N/A	N/A
Lawn (ha)/CN	0.50	74.0	0.35
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.17	98.0	0.95

Calculated:

Area	1.13
Average CN	68
Average Pervious CN	63
Average Runoff 'C'	0.32

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	8.99	mm
Average Pervious IA	10.26	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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	20.0	%
Imperviousness	15.4%	
Directly Connected Imperviousness	15.4%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.32	

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.35	
50YR Rational 'C'	0.39	
100YR Rational 'C'	0.40	

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	5.18	min
Time of Concentration	0.09	hr
Time to Peak	0.06	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	0.93	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	**0.09**	**hr**
Time to Peak	**0.06**	**hr**

Post-Dev Catchment Area 305 - Block 115

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.18	0
Lawn "A"	0		39	0	0.15	0
Cultivated "A"	0		55	0	0.40	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.35	0
Lawn "B"	0		61	0	0.25	0
Cultivated "B"	0		69	0	0.65	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	0	0.95	0
Total Area "B"	**0**					
Weighted coefficients "B"				**0**		**0**
Wetlands "C"	4581		50	229050	0.05	229.05
Woods "C"	0		70	0	0.52	0
Lawn "C"	5008		74	370592	0.35	1752.8
Cultivated "C"	0		78	0	0.70	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	1740		98	170520	0.95	1653
Impervious "C" (Dis-Connected)	0		98	0	0.95	0
Total Area "C"	**11329**					
Weighted coefficients "C"				**67.98146**		**0.320845**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.52	0
Lawn "D"	0		80	0	0.35	0
Cultivated "D"	0		83	0	0.70	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**11329**	**Weighted CN**		**67.98146**	**Weighted "C"**	**0.321**
				Average Pervious Mannings=		**0.21**

Weighted Curve Number Calculator

Input:

Catchment ID	400		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	1.25	74.0	0.17
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.05	89.0	0.60
Impervious Area(ha)/CN	0.00	N/A	N/A

Calculated:

Area	1.30
Average CN	75
Average Pervious CN	74
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	4.87	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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.	238.48	m
Catchment Min. El.	230.78	m
Catchment Flow Length	725	m

Calculated:

Catchment Ave. Slope	1.1	%
Imperviousness	0.0%	
Directly Connected Imperviousness	0.0%	

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'	0.23

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	78.48	min
Time of Concentration	1.31	hr
Time to Peak	0.87	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	39.77	min
Time of Concentration	0.66	hr
Time to Peak	0.44	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**1.31**	**hr**
Time to Peak	**0.87**	**hr**

Post-Dev Catchment Area 401 - Part Blocks 1, 2 & 3, Part block from 12203 Airport Roac

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	12455		74	921670	0.17	2117.35
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	542		89	48238	0.60	325.2
Impervious "C" (Connected)	0		98	0	0.95	0
Impervious "C" (Dis-Connected)	0		98	0	0.95	0
Total Area "C"	**12997**					
Weighted coefficients "C"				**74.62553**		**0.187932**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**12997**	**Weighted CN**		**74.62553**	**Weighted "C"**	**0.188**

Average Pervious Mannings= **0.17**

Weighted Curve Number Calculator

Input:

Catchment ID	401		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.06	74.0	0.22
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.16	98.0	0.95

Calculated:

Area	0.22
Average CN	91
Average Pervious CN	74
Average Runoff 'C'	0.75

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	2.82	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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	62	m

Calculated:

Catchment Ave. Slope	3.0	%
Imperviousness	72.7%	
Directly Connected Imperviousness	72.7%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.75	

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.83	
50YR Rational 'C'	0.90	
100YR Rational 'C'	0.94	

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	6.24	min
Time of Concentration	0.10	hr
Time to Peak	0.07	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	3.30	min
Time of Concentration	0.06	hr
Time to Peak	0.04	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-Dev Catchment Area 402 - Davis Lane uncontrolled

	Areas	CN	CN*A	Rational "C"	C*A
Wetlands "A"	0	50	0	0.05	0
Woods "A"	0	25	0	0.08	0
Lawn "A"	0	39	0	0.10	0
Cultivated "A"	0	55	0	0.22	0
Gravel "A"	0	76	0	0.40	0
Impervious "A" (Connected)	0	98	0	0.95	0
Impervious "A" (Dis-Connected)	0	98	0	0.95	0
Total Area "A"	**0**				
Weighted coefficients "A"			**0**		**0**
Wetlands "B"	0	50	0	0.05	0
Woods "B"	0	55	0	0.25	0
Lawn "B"	0	61	0	0.16	0
Cultivated "B"	0	69	0	0.35	0
Gravel "B"	0	85	0	0.50	0
Impervious "B" (Connected)	0	98	0	0.95	0
Impervious "B" (Dis-Connected)	0	98	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
Lawn "C"	601	74	44474	0.22	132.22
Cultivated "C"	0	78	0	0.55	0
Gravel "C"	0	89	0	0.60	0
Impervious "C" (Connected)	1600	98	156800	0.95	1520
Impervious "C" (Dis-Connected)	0	98	0	0.95	0
Total Area "C"	**2201**				
Weighted coefficients "C"			**91.44662**		**0.750668**
Wetlands "D"	0	50	0	0.05	0
Woods "D"	0	77	0	0.35	0
Lawn "D"	0	80	0	0.22	0
Cultivated "D"	0	83	0	0.55	0
Gravel "D"	0	91	0	0.60	0
Impervious "D" (Connected)	0	98	0	0.95	0
Impervious "D" (Dis-Connected)	0	98	0	0.95	0
Total Area "D"	**0**				
Weighted coefficients "D"			**0**		**0**
Totals:	**2201**	**Weighted CN**	**91.44662**	**Weighted "C"**	**0.751**
			Average Pervious Mannings=		**0.22**

Weighted Curve Number Calculator

Input:

Catchment ID	402		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.06	74.0	0.22
Cultivated (ha)/CN	0.00	N/A	N/A
Gravel (ha)/CN	0.00	N/A	N/A
Impervious Area(ha)/CN	0.15	98.0	0.95

Calculated:

Area	0.21
Average CN	92
Average Pervious CN	74
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	2.79	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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	25	m

Calculated:

Catchment Ave. Slope	3.0	%
Imperviousness	73.5%	
Directly Connected Imperviousness	73.5%	

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'	0.95

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	3.89	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	1.34	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-Dev Catchment Area 403 - Mayfield Rd Street A Intersection

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.10	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.16	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	553		74	40922	0.22	121.66
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	1536		98	150528	0.95	1459.2
Impervious "C" (Dis-Connected)	0		98	0	0.95	0
Total Area "C"	**2089**					
Weighted coefficients "C"				**91.64672**		**0.756754**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.22	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**2089**	**Weighted CN**		**91.64672**	**Weighted "C"**	**0.757**
				Average Pervious Mannings=		**0.22**

Weighted Curve Number Calculator

Input:

Catchment ID	403		
Hydrologic Soil Group	C		
Soil Texture	Chinguacousy Clay 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
Lawn (ha)/CN	0.89	74.0	0.17
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	0.89
Average CN	74
Average Pervious CN	74
Average Runoff 'C'	0.17

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	5.00	mm
Average Pervious IA	5.00	mm

*Curve Numbers, Runoff Coefficients and Initial Abstraction numbers were determined based on the MTO drainage management manual (1997). 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	253	m

Calculated:

Catchment Ave. Slope	1.0	%
Imperviousness	0.0%	
Directly Connected Imperviousness	0.0%	

Calculated: RATIONAL COEFFICIENT

5YR Rational 'C'	0.17	

Calculated: MTO DRAINAGE MANUAL

25YR Rational 'C'	0.19	
50YR Rational 'C'	0.20	
100YR Rational 'C'	0.21	

Calculated: AIRPORT METHOD (Runoff Coef <0.4)

Time of Concentration	48.22	min
Time of Concentration	0.80	hr
Time to Peak	0.54	hr

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

Calculated: BRANSBY-WILLIAMS METHOD (Runoff Coef >=0.4)

Time of Concentration	14.60	min
Time of Concentration	0.24	hr
Time to Peak	0.16	hr

$Tc=0.057*L*S^{-0.2}*A^{-0.1}$

Use:

Time of Concentration	**0.80**	**hr**
Time to Peak	**0.54**	**hr**

Post-Dev Catchment Area 404 - EP Channel

	Areas		CN	CN*A	Rational "C"	C*A
Wetlands "A"	0		50	0	0.05	0
Woods "A"	0		25	0	0.08	0
Lawn "A"	0		39	0	0.05	0
Cultivated "A"	0		55	0	0.22	0
Gravel "A"	0		76	0	0.40	0
Impervious "A" (Connected)	0		98	0	0.95	0
Impervious "A" (Dis-Connected)	0		98	0	0.95	0
Total Area "A"	**0**					
Weighted coefficients "A"				**0**		**0**
Wetlands "B"	0		50	0	0.05	0
Woods "B"	0		55	0	0.25	0
Lawn "B"	0		61	0	0.11	0
Cultivated "B"	0		69	0	0.35	0
Gravel "B"	0		85	0	0.50	0
Impervious "B" (Connected)	0		98	0	0.95	0
Impervious "B" (Dis-Connected)	0		98	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
Lawn "C"	8863		74	655862	0.17	1506.71
Cultivated "C"	0		78	0	0.55	0
Gravel "C"	0		89	0	0.60	0
Impervious "C" (Connected)	0		98	0	0.95	0
Impervious "C" (Dis-Connected)	0		98	0	0.95	0
Total Area "C"	**8863**					
Weighted coefficients "C"				**74**		**0.17**
Wetlands "D"	0		50	0	0.05	0
Woods "D"	0		77	0	0.35	0
Lawn "D"	0		80	0	0.17	0
Cultivated "D"	0		83	0	0.55	0
Gravel "D"	0		91	0	0.60	0
Impervious "D" (Connected)	0		98	0	0.95	0
Impervious "D" (Dis-Connected)	0		98	0	0.95	0
Total Area "D"	**0**					
Weighted coefficients "D"				**0**		**0**
Totals:	**8863**	**Weighted CN**		**74**	**Weighted "C"**	**0.170**
				Average Pervious Mannings=		**0.17**

Storm Water Management Facility 1
SWMF1 Quality Design Notes

CLIENT: Tullamore Land Owners

PROJECT: Tullamore Secondary Plan Area

FILE: CAL-13304 (50)

DATE: Dec. 2024

DESIGN: MG

CHECKED: JP

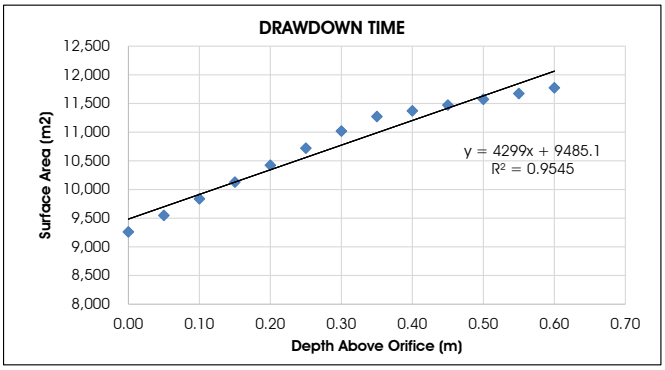
	Area (ha)	TIMP(%)
Total Catchment Area	31.36	81.6%
Post Development Drainage Area	31.36	81.6%

Permanent Pool and Extended Detention Volumes:

Drainage Area	31.36	ha
Imperviousness	81.6%	

	Wet Pond
Imperviousness	Storage Vol.
0%	m^3/ha
35%	140 m^3/ha
55%	190 m^3/ha
70%	225 m^3/ha
85%	250 m^3/ha
100%	m^3/ha

Excerpt - MOE Table 3.2, March 2003



Volumetric Criteria:

Total Water Quality Volumetric Criteria	244.4	m^3/ha
Extended Detention Volumetric Criteria	40.0	m^3/ha
Permanent Pool Volumetric Criteria	204.4	m^3/ha

Source & Notes:

Conducted linear interpolation from MOE Table 3.2 for Enhanced Protection level wet pond.

MOE Section 3.3.2

MOE Section 3.3.2

SWMF Volume Requirements:

Total Water Quality Volume (WQV) Required	7665	m^3
Extended Detention Storage Volume Required	1254	m^3/s
Permanent Pool Storage Volume Required	6410	m^3
Extended Detention Volume Provided	6478	m^3
Permanent Pool Storage Volume Provided	15686	m^3
Total Water Quality Volume Provided	22163	m^3
Modeled 90% - 27mm 4hr CHI Water Quality	5285	m^3

SWMF Drawdown Requirements:

Minimum Drawdown Time, MOE Table 4.6	24	Hours

SWMF Forebay Requirements:

North Forebay Width Provided	20	m
North Forebay Length Provided	40	m
North Forebay Depth Provided	1.50	m
North Forebay Length : Width Ratio Provided	2.00	:1
North Forebay Area Provided	787	m²
Minimum North Forebay Length, MOE Table 4.6	20.8	m
Provided North Forebay Deep Zone Bottom Width	3.8	m
North Forebay Inlet Pipe Size	1500	mm
North Forebay Inlet Pipe Slope	1.00	%
South Forebay Width Provided	20	m
South Forebay Length Provided	40	m
South Forebay Depth Provided	1.50	m
South Forebay Length : Width Ratio Provided	2.00	:1
South Forebay Area Provided	763	m²
Minimum South Forebay Length, MOE Table 4.6	17.8	m
Provided South Forebay Deep Zone Bottom Width	3.8	m
South Forebay Inlet Pipe Size	1200	mm
South Forebay Inlet Pipe Slope	1.00	%
Minimum Forebay Depth, MOE Table 4.6	1.00	m
Maximum Forebay Area, MOE Table 4.6	33	% of total
Minimum Forebay L : W, MOE Table 4.6	2.00	:1
Preferred Forebay L : W, MOE Table 4.6	3.00	:1

Based on Eqn. 4.11 MOE SWM Planning and Design Manual

Hydraulic Detention Time		
Intercept of Regression, C3	9485.1	
Slope of Regression, C2	4299.0	
Orifice Area	0.0269	m^2
Invert Secondary Orifice Elevation	227.60	m
Depth over Primary Orifice Centroid (WQV WL)	0.507	m
Drawdown Time - Ultimate Ponding Level	196,696	Sec
	54.6	Hours
27mm Event Elevation	227.50	m
Depth over Orifice (WQV WL)	0.405	m
Drawdown Time - 27mm Event Ponding Level	173,285	Sec
	48.1	Hours

Forebay Calculations:

Maximum Forebay Permanent Pool Area	3056	m²
Total Permanent Pool Area Provided	9261	m²
Max. Percentage of total Permanent Pool Area	33	%

MOE Equation 4.5 - Forebay Settling Length

Dist = SQRT((r*Q_p)/V_s)

North Forebay Length Required	Dist	17.8	m
North Length-to-width ratio of forebay	r	2.0	:1
Q_p from the pond during design quality storm	Q_p	0.047	m^3/s
Settling velocity	V_s	0.0003	m/s
South Forebay Length Required	Dist	17.8	m
South Length-to-width ratio of forebay	r	2.0	:1
Settling velocity	V_s	0.0003	m/s

MOE Equation 4.6 - Dispersion Length

Dist = (8*Q)/(d*Vf)

North Forebay Length of dispersion	Dist	20.8	m
North Forebay 10-year Inlet Flowrate	Q	1.945	m^3/s
Depth of the permanent pool in the forebay	d	1.50	m
Desired velocity in the forebay	Vf	0.50	m/s
South Forebay Length of dispersion	Dist	11.5	m
South Forebay 10-year Inlet flowrate	Q	1.076	m^3/s
Depth of the permanent pool in the forebay	d	1.50	m
Desired velocity in the forebay	Vf	0.50	m/s

Storm Water Management Facility 1
SWMF1 Quality Design Notes

CLIENT: Tullamore Land Owners

DATE: Dec. 2024

PROJECT: Tullamore Secondary Plan Area

DESIGN: MG

FILE: CAL-13304 (50)

CHECKED: JP

Design Criteria Check:

Is Max. Required WQV Met?	YES
Is Min. Required Drawdown Time Met?	YES
Is Required North Forebay Length Provided?	YES
Is Minimum North Forebay Depth Provided?	YES
Is Maximum North Forebay Area Provided?	YES
Is Minimum North Forebay L : W Ratio Provided?	YES
Is Preferred North Forebay L : W Ratio Provided?	NO
Is Minimum North Forebay Base Width Provided?	YES
Is Required South Forebay Length Provided?	YES
Is Minimum South Forebay Depth Provided?	YES
Is Maximum South Forebay Area Provided?	YES
Is Minimum South Forebay L : W Ratio Provided?	YES
Is Preferred South Forebay L : W Ratio Provided?	NO
Is Minimum South Forebay Base Width Provided?	YES

MOE Equation 4.7 - Minimum Forebay Deep Zone Bottom Width

Width = Dist/8

North Forebay Minimum Length	Dist	**20.8**	m
North Forebay Minimum Width	Width	**2.59**	m
South Forebay Minimum Length	Dist	**17.8**	m
South Forebay Minimum Width	Width	**2.22**	m

Additional Notes:

Modeled 27mm 4hr CHI Water Quality Event Volume calculated from SWMF1 OTTHYMO Detail Output. Area (ha) multiplied by inflow runoff volume (mm) and converted to m^3.

Storm Water Management Facility 1
Hydraulic Calculation Sheet: Stage-Storage-Discharge

CLIENT: Tullamore Land Owners

DATE: Dec. 2024

PROJECT: Tullamore Secondary Plan Area

DESIGN: MG

FILE: CAL-13304 (50)

CHECKED: JP

Extended Detention Orifice		
RADIUS	0.093	m
Outlet Diameter	185.0	mm
Invert Elevation	227.00	m
No. of Orifice	1	

Tertiary Orifice		
RADIUS	0.000	m
Outlet Dia		mm
Invert Elevation		m
No. of Orifice		

Weir 1 Details - Rectangular Section		
Invert Elevation	228.70	m
Length	12.00	m
Coefficient	1.705 (Broad-Crested)	

Secondary Outlet		
RADIUS	0.250	m
Outlet Diameter	500.0	mm
Invert Elevation	227.60	m
No. of Orifice	1	

SWMF General Details		
Bottom of Pond	224.00	m
Top of Pond	229.30	m

Weir 1 Details - Triangular Section		
Invert Elevation	228.70	m
Sideslope	10	H:1V
Coefficient	1.2 (MTO DC 2.46)	

	Minimum		Provided		Elevation	
Total Permanent Pool Volume:	6410	m^3	15686	m^3	227.00	m
Extended Detention Volume:	5285	m^3	6478	m^3	227.60	m

POND AREA	TOTAL STORAGE	ACTIVE DETENTION STORAGE	WATER DEPTH	EXT. DET. ORIFICE FLOW	SECONDARY ORIFICE FLOW	TERTIARY ORIFICE FLOW	TRAPEZOIDAL WEIR WITH 10H:1V SIDESLOPES			TOTAL OUTFLOW	ELEVATION	
							TRIANGULAR SECTION	RECTANGULAR SECTION	TOTAL WEIR FLOW			
m^2	m^3	m^3	m	m^3/s	m^3/s	m^3/s	m^3/s	m^3/s	m^3/s	m^3/s	m	
3122	0	0	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.00	Bottom of Wet Cell 224.00m
3174	157	0	0.05	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.05	
3226	317	0	0.10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.10	
3278	480	0	0.15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.15	
3330	645	0	0.20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.20	
3383	813	0	0.25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.25	
3436	984	0	0.30	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.30	
3490	1,157	0	0.35	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.35	
3544	1,333	0	0.40	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.40	
3598	1,511	0	0.45	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.45	
3652	1,692	0	0.50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.50	
3707	1,876	0	0.55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.55	
3762	2,063	0	0.60	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.60	
3817	2,252	0	0.65	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.65	
3873	2,445	0	0.70	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.70	
3929	2,640	0	0.75	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.75	
3985	2,838	0	0.80	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.80	
4042	3,038	0	0.85	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.85	
4099	3,242	0	0.90	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.90	
4156	3,448	0	0.95	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.95	
4213	3,657	0	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.00	
4271	3,870	0	1.05	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.05	
4330	4,085	0	1.10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.10	
4388	4,303	0	1.15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.15	
4447	4,523	0	1.20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.20	
4506	4,747	0	1.25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.25	
4566	4,974	0	1.30	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.30	
4625	5,204	0	1.35	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.35	
4685	5,437	0	1.40	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.40	
4746	5,672	0	1.45	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.45	
4989	5,911	0	1.50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.50	Bottom of Forebays 225.50m
5073	6,163	0	1.55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.55	
5156	6,418	0	1.60	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.60	
5242	6,678	0	1.65	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.65	
5328	6,943	0	1.70	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.70	
5414	7,211	0	1.75	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.75	
5503	7,484	0	1.80	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.80	
5591	7,761	0	1.85	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.85	
5681	8,043	0	1.90	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.90	
5772	8,330	0	1.95	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.95	
5863	8,620	0	2.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.00	
5956	8,916	0	2.05	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.05	
6048	9,216	0	2.10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.10	
6142	9,521	0	2.15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.15	
6238	9,830	0	2.20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.20	
6334	10,145	0	2.25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.25	
6431	10,464	0	2.30	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.30	
6529	10,788	0	2.35	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.35	
6627	11,117	0	2.40	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.40	
6752	11,451	0	2.45	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.45	
6878	11,792	0	2.50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.50	
7005	12,139	0	2.55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.55	
7133	12,492	0	2.60	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.60	
7263	12,852	0	2.65	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.65	
7396	13,219	0	2.70	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.70	
7663	13,595	0	2.75	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.75	
7935	13,985	0	2.80	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.80	
8214	14,389	0	2.85	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.85	
8498	14,807	0	2.90	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.90	
8787	15,239	0	2.95	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.95	**Permanent Pool Elev. 227.00m**
9261	15,686	0	3.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	227.00	Primary Orifice 227.00m
9548	16,156	470	3.05	0.002	0.000	0.000	0.000	0.000	0.000	0.002	227.05	
9837	16,640	955	3.10	0.006	0.000	0.000	0.000	0.000	0.000	0.006	227.10	
10129	17,140	1,454	3.15	0.018	0.000	0.000	0.000	0.000	0.000	0.018	227.15	
10423	17,653	1,968	3.20	0.025	0.000	0.000	0.000	0.000	0.000	0.025	227.20	
10720	18,182	2,496	3.25	0.030	0.000	0.000	0.000	0.000	0.000	0.030	227.25	
11019	18,725	3,040	3.30	0.034	0.000	0.000	0.000	0.000	0.000	0.034	227.30	
11272	19,283	3,597	3.35	0.038	0.000	0.000	0.000	0.000	0.000	0.038	227.35	
11372	19,849	4,163	3.40	0.042	0.000	0.000	0.000	0.000	0.000	0.042	227.40	
11472	20,420	4,734	3.45	0.045	0.000	0.000	0.000	0.000	0.000	0.045	227.45	

Storm Water Management Facility 1
Hydraulic Calculation Sheet: Stage-Storage-Discharge

CLIENT: Tullamore Land Owners
DATE: Dec. 2024
PROJECT: Tullamore Secondary Plan Area
DESIGN: MG
FILE: CAL-13304 (50)
CHECKED: JP

Extended Detention Orifice		
RADIUS	0.093	m
Outlet Diameter	185.0	mm
Invert Elevation	227.00	m
No. of Orifice	1	

Tertiary Orifice		
RADIUS	0.000	m
Outlet Dia		mm
Invert Elevation		m
No. of Orifice		

Weir 1 Details - Rectangular Section		
Invert Elevation	228.70	m
Length	12.00	m
Coefficient	1.705 (Broad-Crested)	

Secondary Outlet		
RADIUS	0.250	m
Outlet Diameter	500.0	mm
Invert Elevation	227.60	m
No. of Orifice	1	

SWMF General Details		
Bottom of Pond	224.00	m
Top of Pond	229.30	m

Weir 1 Details - Triangular Section		
Invert Elevation	228.70	m
Sideslope	10	H:1V
Coefficient	1.2 (MTO DC 2.46)	

	Minimum		Provided		Elevation	
Total Permanent Pool Volume:	6410	m^3	15686	m^3	227.00	m
Extended Detention Volume:	5285	m^3	6478	m^3	227.60	m

POND AREA	TOTAL STORAGE	ACTIVE DETENTION STORAGE	WATER DEPTH	EXT. DET. ORIFICE FLOW	SECONDARY ORIFICE FLOW	TERTIARY ORIFICE FLOW	TRAPEZOIDAL WEIR WITH 10H:1V SIDESLOPES			TOTAL OUTFLOW	ELEVATION	
							TRIANGULAR SECTION	RECTANGULAR SECTION	TOTAL WEIR FLOW			
m^2	m^3	m^3	m	m^3/s	m^3/s	m^3/s	m^3/s	m^3/s	m^3/s	m^3/s	m	
11572	20,996	5,310	3.50	0.048	0.000	0.000	0.000	0.000	0.000	0.048	227.50	**27mm 4Hr CHI 227.50m**
11673	21,577	5,892	3.55	0.051	0.000	0.000	0.000	0.000	0.000	0.051	227.55	
11774	22,163	6,478	3.60	0.053	0.000	0.000	0.000	0.000	0.000	0.053	227.60	Secondary Orifice 227.60m
11856	22,754	7,068	3.65	0.056	0.022	0.000	0.000	0.000	0.000	0.078	227.65	
11937	23,349	7,663	3.70	0.058	0.024	0.000	0.000	0.000	0.000	0.082	227.70	
12019	23,948	8,262	3.75	0.061	0.029	0.000	0.000	0.000	0.000	0.090	227.75	**2 Year 12Hr AES 227.75m**
12101	24,551	8,865	3.80	0.063	0.038	0.000	0.000	0.000	0.000	0.101	227.80	
12183	25,158	9,472	3.85	0.065	0.052	0.000	0.000	0.000	0.000	0.117	227.85	
12266	25,769	10,084	3.90	0.067	0.122	0.000	0.000	0.000	0.000	0.190	227.90	
12349	26,384	10,699	3.95	0.069	0.173	0.000	0.000	0.000	0.000	0.243	227.95	**5 Year 12Hr AES 227.93m**
12432	27,004	11,318	4.00	0.071	0.212	0.000	0.000	0.000	0.000	0.284	228.00	
12515	27,628	11,942	4.05	0.073	0.245	0.000	0.000	0.000	0.000	0.318	228.05	**10 Year 12Hr AES 228.04m**
12598	28,255	12,570	4.10	0.075	0.274	0.000	0.000	0.000	0.000	0.349	228.10	
12682	28,887	13,202	4.15	0.077	0.300	0.000	0.000	0.000	0.000	0.377	228.15	
12766	29,524	13,838	4.20	0.079	0.324	0.000	0.000	0.000	0.000	0.403	228.20	**25 Year 12Hr AES 228.19m**
12850	30,164	14,479	4.25	0.081	0.346	0.000	0.000	0.000	0.000	0.427	228.25	
12935	30,809	15,123	4.30	0.082	0.367	0.000	0.000	0.000	0.000	0.450	228.30	**50 Year 12Hr AES 228.30m**
13020	31,458	15,772	4.35	0.084	0.387	0.000	0.000	0.000	0.000	0.471	228.35	
13105	32,111	16,425	4.40	0.086	0.406	0.000	0.000	0.000	0.000	0.492	228.40	
13190	32,768	17,083	4.45	0.087	0.424	0.000	0.000	0.000	0.000	0.512	228.45	**100 Year 6Hr AES 228.43m**
13276	33,430	17,744	4.50	0.089	0.442	0.000	0.000	0.000	0.000	0.530	228.50	
13361	34,096	18,410	4.55	0.091	0.458	0.000	0.000	0.000	0.000	0.549	228.55	
13447	34,766	19,080	4.60	0.092	0.474	0.000	0.000	0.000	0.000	0.566	228.60	
13534	35,440	19,755	4.65	0.094	0.490	0.000	0.000	0.000	0.000	0.583	228.65	
13620	36,119	20,434	4.70	0.095	0.505	0.000	0.000	0.000	0.000	0.600	228.70	Emergency Overflow 228.70m
13707	36,802	21,117	4.75	0.097	0.520	0.000	0.007	0.229	0.235	0.852	228.75	
13794	37,490	21,804	4.80	0.098	0.534	0.000	0.038	0.647	0.685	1.317	228.80	
13881	38,182	22,496	4.85	0.099	0.548	0.000	0.105	1.189	1.293	1.940	228.85	
13969	38,878	23,192	4.90	0.101	0.561	0.000	0.215	1.830	2.045	2.707	228.90	
14057	39,579	23,893	4.95	0.102	0.574	0.000	0.375	2.558	2.933	3.609	228.95	**Hazel 228.97m**
14145	40,284	24,598	5.00	0.104	0.587	0.000	0.592	3.362	3.953	4.644	229.00	Freeboard 229.00m
14233	40,993	25,308	5.05	0.105	0.600	0.000	0.870	4.237	5.106	5.811	229.05	
14321	41,707	26,021	5.10	0.106	0.612	0.000	1.214	5.176	6.390	7.109	229.10	
14410	42,425	26,740	5.15	0.108	0.624	0.000	1.630	6.176	7.806	8.538	229.15	
14499	43,148	27,462	5.20	0.109	0.636	0.000	2.121	7.234	9.355	10.100	229.20	
15634	43,901	28,216	5.25	0.110	0.648	0.000	2.692	8.345	11.038	11.796	229.25	
16807	44,712	29,027	5.30	0.111	0.659	0.000	3.346	9.509	12.855	13.626	229.30	Top of SWMF 229.30m

Orifice Outflow equation is for orifice flow given by: $Q=0.63A(2gH)^{0.5}$ Where ponding elevation is above orifice centroid

$Q=1.65\{[(\pi D^2/4)([2\cos^{-1}\{[(D/2)-H]/[D/2]\}\{180/\pi\}/360)-([\{D/2\}-H][DH-H^2]\,\hat{}\,[1/2])/H]\}H\,\hat{}\,(1.5)$ Where ponding elevation is at or below orifice centroid

Flow over the top of the weir is given by weir flow $Q=1.705LH^{1.5}$ Where the weir is rectangular in shape

$Q=1.2*\tan(angle/2)*H^{2.5}$ Where the weir is triangular in shape

Where: Q=flow m^3/s
H=head m

Orifice head measured from water depth to orifice centroid (where ponding elevation is above orifice centroid).
Orifice head measured from water depth to orifice invert (where ponding elevation is at or below orifice centroid).

H = Weir head = depth from weir crest to water level
D=orifice diameter m
L=weir length m
g=9.81 m/s^2
A=Area of orifice opening m^2

Shaded rows were entered into PCSWMM pond rating curve.

Storm Water Management Facility 2
SWMF2 Quality Design Notes

CLIENT: Tullamore Land Owners
DATE: Dec. 2024
PROJECT: Tullamore Secondary Plan Area
DESIGN: MG
FILE: CAL-13304 (50)
CHECKED: JP

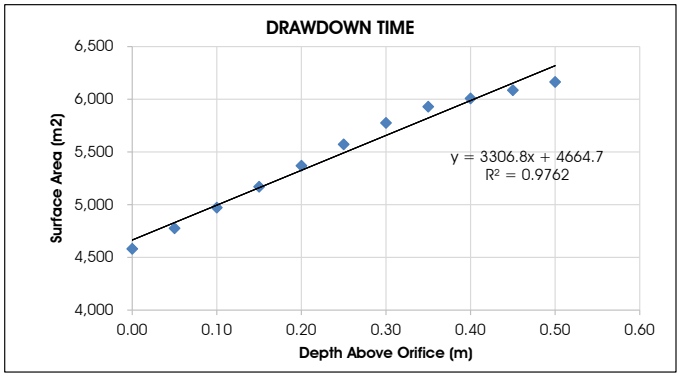
	Area (ha)	TIMP(%)
Total Catchment Area	12.53	82.3%
Post Development Drainage Area	12.53	82.3%

Permanent Pool and Extended Detention Volumes:

Drainage Area	12.53	ha
Imperviousness	82.3%	

Imperviousness	Wet Pond Storage Vol.
0%	m^3/ha
35%	140 m^3/ha
55%	190 m^3/ha
70%	225 m^3/ha
85%	250 m^3/ha
100%	m^3/ha

Excerpt - MOE Table 3.2, March 2003



Volumetric Criteria:

Total Water Quality Volumetric Criteria	245.5	m^3/ha
Extended Detention Volumetric Criteria	40.0	m^3/ha
Permanent Pool Volumetric Criteria	205.5	m^3/ha

Source & Notes:
Conducted linear interpolation from MOE Table 3.2 for Enhanced Protection level wet pond.
MOE Section 3.3.2
MOE Section 3.3.2

SWMF Volume Requirements:

Total Water Quality Volume (WQV) Required	3075	m^3
Extended Detention Storage Volume Required	501	m^3/s
Permanent Pool Storage Volume Required	2574	m^3
Extended Detention Volume Provided	2754	m^3
Permanent Pool Storage Volume Provided	5485	m^3
Total Water Quality Volume Provided	8239	m^3
Modeled 90% - 27mm 4hr CHI Water Quality	2424	m^3

SWMF Drawdown Requirements:

Minimum Drawdown Time, MOE Table 4.6	24	Hours

SWMF Forebay Requirements:

Forebay Width Provided	20	m
Forebay Length Provided	40	m
Forebay Depth Provided	1.00	m
Forebay Length : Width Ratio Provided	2.0	:1
Forebay Area Provided	764.1	m^2
Minimum Forebay Length, MOE Table 4.6	22.2	m
Provided Forebay Deep Zone Bottom Width	7.8	m
Forebay Inlet Pipe Size	750	mm
Forebay Inlet Pipe Slope	1.00	%
Minimum Forebay Depth, MOE Table 4.6	1.00	m
Maximum Forebay Area, MOE Table 4.6	33	% of total
Minimum Forebay L : W, MOE Table 4.6	2.00	:1
Preferred Forebay L : W, MOE Table 4.6	3.00	:1

SWMF Design Requirements:

Minimum Overall L:W, MOE Table 4.6	3.00	:1
Prefered Overall L:W, MOE Table 4.6	4.00	:1

Design Criteria Check:

Is Max. Required WQV Met?	YES
Is Min. Required Drawdown Time Met?	YES
Is Required Forebay Length Provided?	YES
Is Minimum Forebay Depth Provided?	YES
Is Maximum Forebay Area Provided?	YES
Is Minimum L : W Ratio Provided?	YES
Is Preferred L : W Ratio Provided?	NO
Is Minimum Forebay Base Width Provided?	YES

Based on Eqn. 4.11 MOE SWM Planning and Design Manual

Hydraulic Detention Time		
Intercept of Regression, C3	4664.7	
Slope of Regression, C2	3306.8	
Orifice Area	0.0113	m^2
Invert Secondary Orifice Elevation	227.50	m
Depth over Primary Orifice Centroid (WQV WL)	0.440	m
Drawdown Time - Ultimate Ponding Level	219,453	Sec
	61.0	Hours
27mm Event Elevation	227.45	m
Depth over Orifice (WQV WL)	0.386	m
Drawdown Time - 25mm Event Ponding Level	203,221	Sec
	56.5	Hours

Forebay Calculations:

Maximum Forebay Permanent Pool Area	916.3	m^2
Total Permanent Pool Area Provided	4581.3	m^2
Max. Percentage of total Permanent Pool Area	20	%

MOE Equation 4.5 - Forebay Settling Length
Dist = SQRT((r*Q_p)/V_s)

Forebay Length Required	Dist	11.5	m
Length-to-width ratio of forebay	r	2.0	:1
Q_p from the pond during design quality storm	Q_p	0.020	m^3/s
Settling velocity	V_s	0.0003	m/s

MOE Equation 4.6 - Dispersion Length
Dist = (8*Q)/(d*Vf)

Forebay Length of dispersion	Dist	22.2	m
Forebay 10-year Inlet Flowrate	Q	1.387	m^3/s
Depth of the permanent pool in the forebay	d	1.00	m
Desired velocity in the forebay	Vf	0.50	m/s

MOE Equation 4.7 - Minimum Forebay Deep Zone Bottom Width
Width = Dist/8

North Forebay Minimum Length	Dist	22.2	m
North Forebay Minimum Width	Width	2.77	m

Additional Notes:
Modeled 27mm 4hr CHI Water Quality Event Volume calculated from SWMF2 OTTHYMO Detail Output. Area (ha) multiplied by inflow runoff volume (mm) and converted to m^3.

Storm Water Management Facility 2
Hydraulic Calculation Sheet: Stage-Storage-Discharge

CLIENT: Tullamore Land Owners
DATE: Dec. 2024
PROJECT: Tullamore Secondary Plan Area
DESIGN: MG
FILE: CAL-13304 (50)
CHECKED: JP

Extended Detention Orifice		
RADIUS	0.060	m
Outlet Diameter	120.0	mm
Invert Elevation	227.00	m
No. of Orifice	1	

Tertiary Orifice		
RADIUS	0.000	m
Outlet Dia		mm
Invert Elevation		m
No. of Orifice		

Weir 1 Details - Rectangular Section		
Invert Elevation	228.40	m
Length	6.00	m
Coefficient	1.705 (Broad-Crested)	

Secondary Orifice		
RADIUS	0.138	m
Outlet Diameter	275.0	mm
Invert Elevation	227.50	m
No. of Orifice	1	

SWMF General Details		
Bottom of Pond	224.00	m
Top of Pond	229.00	m

Weir 1 Details - Triangular Section		
Invert Elevation	228.40	m
Sideslope	10	H:1V
Coefficient	1.2 (MTO DC 2.46)	

	Minimum		Provided		Elevation	
Total Permanent Pool Volume:	2574	m^3	5485	m^3	227.00	m
Extended Detention Volume:	2424	m^3	2754	m^3	227.50	m

POND AREA	TOTAL STORAGE	ACTIVE DETENTION STORAGE	WATER DEPTH	EXT. DET. ORIFICE FLOW	SECONDARY ORIFICE FLOW	TERTIARY ORIFICE FLOW	TRAPEZOIDAL WEIR WITH 10H:1V SIDESLOPES			TOTAL OUTFLOW	ELEVATION	
							TRIANGULAR SECTION	RECTANGULAR SECTION	TOTAL WEIR FLOW			
m^2	m^3	m^3	m	m^3/s	m^3/s	m^3/s	m^3/s	m^3/s	m^3/s	m^3/s	m	
677	0	0	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.00	Bottom of Wet Cell 224.00m
698	34	0	0.05	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.05	
719	70	0	0.10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.10	
741	106	0	0.15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.15	
763	144	0	0.20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.20	
785	183	0	0.25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.25	
808	222	0	0.30	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.30	
831	263	0	0.35	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.35	
854	306	0	0.40	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.40	
877	349	0	0.45	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.45	
901	393	0	0.50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.50	
925	439	0	0.55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.55	
949	486	0	0.60	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.60	
974	534	0	0.65	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.65	
998	583	0	0.70	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.70	
1024	634	0	0.75	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.75	
1049	685	0	0.80	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.80	
1075	739	0	0.85	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.85	
1101	793	0	0.90	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.90	
1127	849	0	0.95	0.000	0.000	0.000	0.000	0.000	0.000	0.000	224.95	
1153	906	0	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.00	
1180	964	0	1.05	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.05	
1207	1,024	0	1.10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.10	
1234	1,085	0	1.15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.15	
1262	1,147	0	1.20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.20	
1290	1,211	0	1.25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.25	
1318	1,276	0	1.30	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.30	
1347	1,343	0	1.35	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.35	
1375	1,411	0	1.40	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.40	
1405	1,480	0	1.45	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.45	
1434	1,551	0	1.50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.50	
1463	1,624	0	1.55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.55	
1493	1,698	0	1.60	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.60	
1524	1,773	0	1.65	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.65	
1554	1,850	0	1.70	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.70	
1585	1,928	0	1.75	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.75	
1616	2,008	0	1.80	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.80	
1647	2,090	0	1.85	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.85	
1679	2,173	0	1.90	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.90	
1711	2,258	0	1.95	0.000	0.000	0.000	0.000	0.000	0.000	0.000	225.95	
2328	2,344	0	2.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.00	Bottom of Forebay 226.00m
2391	2,462	0	2.05	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.05	
2454	2,583	0	2.10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.10	
2517	2,708	0	2.15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.15	
2582	2,835	0	2.20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.20	
2647	2,966	0	2.25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.25	
2712	3,100	0	2.30	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.30	
2778	3,237	0	2.35	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.35	
2845	3,378	0	2.40	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.40	
2928	3,522	0	2.45	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.45	
3014	3,671	0	2.50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.50	
3099	3,823	0	2.55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.55	
3185	3,980	0	2.60	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.60	
3273	4,142	0	2.65	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.65	
3362	4,308	0	2.70	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.70	
3541	4,480	0	2.75	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.75	
3724	4,662	0	2.80	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.80	
3911	4,853	0	2.85	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.85	
4101	5,053	0	2.90	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.90	
4295	5,263	0	2.95	0.000	0.000	0.000	0.000	0.000	0.000	0.000	226.95	**Permanent Pool Elev. 227.00m**
4581	5,485	0	3.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	227.00	Primary Orifice 227.00m
4776	5,721	236	3.05	0.001	0.000	0.000	0.000	0.000	0.000	0.001	227.05	
4972	5,965	480	3.10	0.006	0.000	0.000	0.000	0.000	0.000	0.006	227.10	
5170	6,218	733	3.15	0.009	0.000	0.000	0.000	0.000	0.000	0.009	227.15	
5370	6,482	997	3.20	0.012	0.000	0.000	0.000	0.000	0.000	0.012	227.20	
5572	6,755	1,270	3.25	0.014	0.000	0.000	0.000	0.000	0.000	0.014	227.25	
5776	7,039	1,554	3.30	0.015	0.000	0.000	0.000	0.000	0.000	0.015	227.30	
5930	7,332	1,847	3.35	0.017	0.000	0.000	0.000	0.000	0.000	0.017	227.35	
6008	7,630	2,145	3.40	0.018	0.000	0.000	0.000	0.000	0.000	0.018	227.40	**25mm 4Hr CHI 227.40m**

Storm Water Management Facility 2
Hydraulic Calculation Sheet: Stage-Storage-Discharge

CLIENT: Tullamore Land Owners
DATE: Dec. 2024
PROJECT: Tullamore Secondary Plan Area
DESIGN: MG
FILE: CAL-13304 (50)
CHECKED: JP

Extended Detention Orifice		
RADIUS	0.060	m
Outlet Diameter	120.0	mm
Invert Elevation	227.00	m
No. of Orifice	1	

Tertiary Orifice		
RADIUS	0.000	m
Outlet Dia		mm
Invert Elevation		m
No. of Orifice		

Weir 1 Details - Rectangular Section		
Invert Elevation	228.40	m
Length	6.00	m
Coefficient	1.705 (Broad-Crested)	

Secondary Orifice		
RADIUS	0.138	m
Outlet Diameter	275.0	mm
Invert Elevation	227.50	m
No. of Orifice	1	

SWMF General Details	
Bottom of Pond	224.00 m
Top of Pond	229.00 m

Weir 1 Details - Triangular Section		
Invert Elevation	228.40	m
Sideslope	10	H:1V
Coefficient	1.2 (MTO DC 2.46)	

	Minimum		Provided		Elevation	
Total Permanent Pool Volume:	2574	m^3	5485	m^3	227.00	m
Extended Detention Volume:	2424	m^3	2754	m^3	227.50	m

POND AREA	TOTAL STORAGE	ACTIVE DETENTION STORAGE	WATER DEPTH	EXT. DET. ORIFICE FLOW	SECONDARY ORIFICE FLOW	TERTIARY ORIFICE FLOW	TRAPEZOIDAL WEIR WITH 10H:1V SIDESLOPES			TOTAL OUTFLOW	ELEVATION	
							TRIANGULAR SECTION	RECTANGULAR SECTION	TOTAL WEIR FLOW			
m^2	m^3	m^3	m	m^3/s	m^3/s	m^3/s	m^3/s	m^3/s	m^3/s	m^3/s	m	
6086	7,933	2,448	3.45	0.020	0.000	0.000	0.000	0.000	0.000	0.020	227.45	**27mm 4Hr CHI 227.44m**
6164	8,239	2,754	3.50	0.021	0.000	0.000	0.000	0.000	0.000	0.021	227.50	Secondary Orifice 227.50m
6243	8,549	3,064	3.55	0.022	0.005	0.000	0.000	0.000	0.000	0.027	227.55	
6322	8,863	3,378	3.60	0.023	0.008	0.000	0.000	0.000	0.000	0.031	227.60	
6386	9,181	3,696	3.65	0.024	0.019	0.000	0.000	0.000	0.000	0.043	227.65	**2 Year 12Hr AES 227.63m**
6450	9,502	4,017	3.70	0.025	0.041	0.000	0.000	0.000	0.000	0.067	227.70	
6514	9,826	4,341	3.75	0.026	0.056	0.000	0.000	0.000	0.000	0.082	227.75	
6578	10,153	4,668	3.80	0.027	0.067	0.000	0.000	0.000	0.000	0.094	227.80	**5 Year 12Hr AES 227.77m**
6643	10,484	4,999	3.85	0.028	0.076	0.000	0.000	0.000	0.000	0.104	227.85	
6708	10,817	5,332	3.90	0.029	0.085	0.000	0.000	0.000	0.000	0.114	227.90	**10 Year 12Hr AES 227.87m**
6773	11,154	5,669	3.95	0.030	0.093	0.000	0.000	0.000	0.000	0.122	227.95	
6838	11,495	6,010	4.00	0.031	0.100	0.000	0.000	0.000	0.000	0.130	228.00	**25 Year 12Hr AES 228.00m**
6904	11,838	6,353	4.05	0.031	0.106	0.000	0.000	0.000	0.000	0.138	228.05	
6970	12,185	6,700	4.10	0.032	0.113	0.000	0.000	0.000	0.000	0.145	228.10	**50 Year 12Hr AES 228.09m**
7036	12,535	7,050	4.15	0.033	0.119	0.000	0.000	0.000	0.000	0.152	228.15	
7103	12,889	7,404	4.20	0.034	0.124	0.000	0.000	0.000	0.000	0.158	228.20	**100 Year 12Hr AES 228.19m**
7169	13,246	7,761	4.25	0.034	0.130	0.000	0.000	0.000	0.000	0.164	228.25	
7236	13,606	8,121	4.30	0.035	0.135	0.000	0.000	0.000	0.000	0.170	228.30	
7303	13,969	8,484	4.35	0.036	0.140	0.000	0.000	0.000	0.000	0.176	228.35	
7371	14,336	8,851	4.40	0.037	0.145	0.000	0.000	0.000	0.000	0.181	228.40	Emergency Overflow 228.40m
7438	14,706	9,221	4.45	0.037	0.149	0.000	0.007	0.114	0.121	0.308	228.45	
7506	15,080	9,595	4.50	0.038	0.154	0.000	0.038	0.324	0.361	0.553	228.50	
7574	15,457	9,972	4.55	0.039	0.158	0.000	0.105	0.594	0.699	0.896	228.55	
7643	15,837	10,352	4.60	0.039	0.163	0.000	0.215	0.915	1.130	1.331	228.60	
7711	16,221	10,736	4.65	0.040	0.167	0.000	0.375	1.279	1.654	1.860	228.65	**Hazel 228.63m**
7780	16,608	11,123	4.70	0.040	0.171	0.000	0.592	1.681	2.273	2.484	228.70	Freeboard 228.70m
7850	16,999	11,514	4.75	0.041	0.175	0.000	0.870	2.118	2.988	3.204	228.75	
7919	17,393	11,908	4.80	0.042	0.179	0.000	1.214	2.588	3.802	4.023	228.80	
7989	17,791	12,306	4.85	0.042	0.182	0.000	1.630	3.088	4.718	4.943	228.85	
8058	18,192	12,707	4.90	0.043	0.186	0.000	2.121	3.617	5.738	5.967	228.90	
8954	18,618	13,133	4.95	0.043	0.190	0.000	2.692	4.173	6.865	7.098	228.95	
9888	19,089	13,604	5.00	0.044	0.193	0.000	3.346	4.754	8.101	8.338	229.00	Top of SWMF 229.00m

Orifice Outflow equation is for orifice flow given by: $Q=0.63A(2gH)^{0.5}$ Where ponding elevation is above orifice centroid

$Q=1.65\{[(\pi D^2/4)([2\cos^{-1}\{[(D/2)-H]/[D/2]\}\{180/\pi\}/360)-([\{D/2\}-H][DH-H^2]\text{^}[1/2])/H]\}H\text{^}(1.5)$ Where ponding elevation is at or below orifice centroid

Flow over the top of the weir is given by weir flow $Q=1.705LH^{1.5}$ Where the weir is rectangular in shape

$Q=1.2*\tan(\text{angle}/2)*H^{2.5}$ Where the weir is triangular in shape

Where: Q=flow m^3/s
H=head m

Orifice head measured from water depth to orifice centroid (where ponding elevation is above orifice centroid).
Orifice head measured from water depth to orifice invert (where ponding elevation is at or below orifice centroid).

H = Weir head = depth from weir crest to water level
D=orifice diameter m
L=weir length m
g=9.81 m/s^2
A=Area of orifice opening m^2

Shaded rows were entered into PCSWMM pond rating curve.

Storm Water Management Facility 1 & 2
Hydraulic Calculation Sheet: Rooftop Stage-Storage-Discharge

CLIENT: Tullamore Land Owners **DATE:** Jan. 2025

PROJECT: Tullamore Secondary Plan Area **DESIGN:** MG

FILE: CAL-13304 (50) **CHECKED:** JP

Bottom Draw Orifice - SWMF1 Rooftop Areas		
RADIUS	0.403	m
Outlet Diameter	805	mm
Coefficient	0.65	
No. of Orifice	1	

POND AREA m²	TOTAL STORAGE m³	WATER DEPTH m	BOTTOM ORIFICE FLOW m³/s
115,962	0	0.000	0.0000
115,962	116	0.001	0.0464
115,962	348	0.003	0.0803
115,962	696	0.006	0.1136
115,962	1,160	0.010	0.1467
115,962	1,739	0.015	0.1796
115,962	2,319	0.020	0.2074
115,962	2,899	0.025	0.2319
115,962	3,479	0.030	0.2541
115,962	4,059	0.035	0.2744
115,962	4,638	0.040	0.2934
115,962	5,218	0.045	0.3112
115,962	5,798	0.050	0.3280
115,962	6,378	0.055	0.3440
115,962	6,958	0.060	0.3593
115,962	7,538	0.065	0.3740
115,962	8,117	0.070	0.3881
115,962	8,697	0.075	0.4017
115,962	9,277	0.080	0.4149
115,962	9,857	0.085	0.4276
115,962	10,437	0.090	0.4400
115,962	11,016	0.095	0.4521
115,962	11,596	0.100	0.4638

Bottom Draw Orifice - SWMF2 Rooftop Areas		
RADIUS	0.266	m
Outlet Diameter	532	mm
Coefficient	0.65	
No. of Orifice	1	

POND AREA m²	TOTAL STORAGE m³	WATER DEPTH m	BOTTOM ORIFICE FLOW m³/s
50,567	0	0.000	0.0000
50,567	51	0.001	0.0202
50,567	152	0.003	0.0350
50,567	303	0.006	0.0495
50,567	506	0.010	0.0640
50,567	759	0.015	0.0783
50,567	1,011	0.020	0.0905
50,567	1,264	0.025	0.1011
50,567	1,517	0.030	0.1108
50,567	1,770	0.035	0.1197
50,567	2,023	0.040	0.1279
50,567	2,276	0.045	0.1357
50,567	2,528	0.050	0.1430
50,567	2,781	0.055	0.1500
50,567	3,034	0.060	0.1567
50,567	3,287	0.065	0.1631
50,567	3,540	0.070	0.1692
50,567	3,793	0.075	0.1752
50,567	4,045	0.080	0.1809
50,567	4,298	0.085	0.1865
50,567	4,551	0.090	0.1919
50,567	4,804	0.095	0.1971
50,567	5,057	0.100	0.2023

Orifice Outflow equation is for orifice flow given by: $Q=CA(2gH)^{0.5}$ Where ponding elevation is above orifice centroid

Where:

Q=flow	m^3/s	
C=Orifice Coefficient		
A=Area of orifice opening	m^2	Orifice head measured from water depth to orifice centroid.
g=9.81	m/s^2	Acceleration due to gravity.
H=head	m	

Shaded rows were entered into OTTHYMO pond rating curve.

Storm Water Management Facilities 1 & 2
PF Model Performance Summary

CLIENT: Tullamore Land Owners **DATE:** Dec. 2024

PROJECT: Tullamore Secondary Plan Area **DESIGN:** MG

FILE: CAL-13304 (50) **CHECKED:** JP

Allowable flows are limited by Equation F from Table E.1 of TRCA Stormwater Management Criteria (2012)							
Storm Distribution	**Area (ha)**	**Return Period (years)**					
Equation F general form, Q=B-C*ln(A)		2	5	10	25	50	100
B Factors		9.506	14.652	17.957	22.639	26.566	29.912
C Factors		0.719	1.136	1.373	1.741	2.082	2.316
Erosion Control Rate per MESP		**2.00**					
Overall Development Unitary Discharge Rates (L/s/ha)							
Erosion Control Discharge Rate (L/s/ha)	**46.50**	**2.00**					
Allowable Discharge Rate (L/s/ha)	**46.50**	**6.75**	**10.29**	**12.69**	**15.95**	**18.57**	**21.02**
Allowable Overall Development Discharge Rates (m^3/s)							
Erosion Control Discharge Rate (m^3/s)	**46.50**	**0.093**					
Allowable Discharge Rate (m^3/s)	**46.50**	**0.314**	**0.479**	**0.590**	**0.742**	**0.864**	**0.978**
Overall Development Storm Peak Flow (No Site Plan Attenuation)							
Erosion Control 27mm 4Hr CHI (m^3/s)	**46.50**	**0.085**					
AES 6-Hr Storm Distribution	**46.50**	**0.120**	**0.273**	**0.424**	**0.559**	**0.646**	**0.731**
AES 12-Hr Storm Distribution	**46.50**	**0.136**	**0.321**	**0.438**	**0.553**	**0.626**	**0.701**
Hazel Storm	**46.50**	**6.068**					

Storm Peak Event Flow (m^3/s) - SWMF1							
Storm Distribution	**Area (ha)**	**Return Period (years)**					
		2	**5**	**10**	**25**	**50**	**100**
Allowable Development Condition							
Erosion Control Target Flow Rate (m^3/s)	**31.36**	0.063					
Target Flow Rate (m^3/s)	**31.36**	0.212	0.323	0.398	0.500	0.582	0.659
Post Development Condition (No Site Plan Attenuation)							
Erosion Control 27mm 4Hr CHI (m^3/s)	**31.36**	0.0473					
AES 6-Hr Storm Distribution	**31.36**	0.080	0.179	0.291	0.387	0.445	0.501
AES 12-Hr Storm Distribution	**31.36**	0.089	0.219	0.308	0.393	0.446	0.499
Hazel Storm	**31.36**	4.079					

Maximum Ponding Depth above Permanent Pool (m) - SWMF1 (No Site Plan Attenuation)						
Storm Distribution	**Return Period (years)**					
	2	**5**	**10**	**25**	**50**	**100**
Erosion Control 27mm 4-Hr CHI Distribution	0.498					
AES 6-Hr Storm Distribution	0.669	0.892	1.011	1.173	1.299	1.424
AES 12-Hr Storm Distribution	0.745	0.931	1.039	1.186	1.302	1.419
Hazel Storm	1.971					

Storm Peak Event Flow (m^3/s) - SWMF2							
Storm Distribution	**Area (ha)**	**Return Period (years)**					
		2	**5**	**10**	**25**	**50**	**100**
Allowable Development Condition							
Erosion Control Target Flow Rate (m^3/s)	**12.53**	0.025					
Target Flow Rate (m^3/s)	**12.53**	0.083	0.126	0.156	0.196	0.228	0.258
Post Development Condition (No Site Plan Attenuation)							
Erosion Control 27mm 4Hr CHI (m^3/s)	**12.53**	**0.020**					
AES 6-Hr Storm Distribution	**12.53**	0.030	0.081	0.105	0.128	0.143	0.158
AES 12-Hr Storm Distribution	**12.53**	**0.040**	**0.088**	**0.109**	**0.131**	**0.145**	**0.159**
Hazel Storm	**12.53**	**1.703**					

Maximum Ponding Depth above Permanent Pool (m) - SWMF2 (No Site Plan Attenuation)						
Storm Distribution	**Return Period (years)**					
	2	**5**	**10**	**25**	**50**	**100**
Erosion Control 27mm 4-Hr CHI Distribution	0.411					
AES 6-Hr Storm Distribution	0.584	0.747	0.853	0.991	1.096	1.198
AES 12-Hr Storm Distribution	0.640	0.778	0.878	1.008	1.106	1.204
Hazel Storm	1.632					

JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS	Project:	Tullamore Secondary Plan Area	Date:	January 2025
	File No.:	CAL-13304	Designed:	MG
	Subject:	LID Characteristics	Checked:	JP
	Revisions:			

LID Breakdown

											Upstream End				Downstream End				
Name	Street	Location	Location	Catchment ID	Area (ha)	Percent Impervious	Max Length (m)	Width (m)	Engineered Soil Media Type	Max Depth (m)	Ground Elevation	Water Table Elevation	Invert of LID	Distance from Bottom of Swale to Groundwater Table (m)	Ground Elevation	Water Table Elevation	Invert of LID	Distance from Bottom of Swale to Groundwater Table (m)	Check
LID-1	Street A	0+161.85 to 0+198.71	North Boulevard	101	0.0644	69%	41.00	3.0	Blend A	1.65	236.94	232.28	235.29	3.01	236.69	232.02	235.04	3.02	Infiltration Facility
LID-2	Street A	0+156.01 to 0+198.71	South Boulevard	102	0.0521	69%	35.00	3.0	Blend A	1.65	236.95	232.19	235.30	3.11	236.69	231.79	235.04	3.25	Infiltration Facility
LID-3	Street A	0+217.74 to 0+258.74	North Boulevard	103	0.0780	71%	41.00	3.0	Blend A	1.70	236.55	231.84	234.85	3.01	236.24	232.06	234.54	2.48	Infiltration Facility
LID-4	Street A	0+217.74 to 0+258.74	South Boulevard	104	0.0780	71%	41.00	3.0	Blend A	1.70	236.55	231.58	234.85	3.27	236.24	231.90	234.54	2.64	Infiltration Facility
LID-5	Street A	0+275.08 to 0+307.56	North Boulevard	105	0.0522	72%	30.00	3.0	Blend A	1.70	236.12	232.23	234.42	2.19	235.88	232.13	234.18	2.05	Infiltration Facility
LID-6	Street A	0+274.44 to 0+307.56	South Boulevard	106	0.0771	69%	41.00	3.0	Blend A	1.70	236.12	231.86	234.42	2.56	235.88	231.97	234.18	2.21	Infiltration Facility
LID-7	Street A	0+326.56 to 0+367.56	North Boulevard	107	0.0780	71%	41.00	3.0	Blend A	1.70	235.73	232.09	234.03	1.94	235.53	232.82	233.83	1.01	Infiltration Facility
LID-8	Street A	0+326.56 to 0+367.56	South Boulevard	108	0.0780	71%	41.00	3.0	Blend A	1.70	235.73	232.11	234.03	1.92	235.53	232.60	233.83	1.23	Infiltration Facility
LID-9*	Street A	0+379.56 to 0+386.56	North Boulevard	109	0.0780	75%	8.50	3.0	Blend A	1.70	235.03	233.47	233.33	-0.14	234.98	233.60	233.28	-0.32	Filtration only
LID-10*	Street A	0+379.56 to 0+386.56	South Boulevard	110	0.0780	75%	8.50	3.0	Blend A	1.70	235.03	233.15	233.33	0.18	234.98	233.10	233.28	0.18	Filtration only
LID-11*	Street A	0+439.56 to 0+446.56	North Boulevard	111	0.0780	75%	8.50	3.0	Blend A	1.70	234.22	233.54	232.52	-1.02	234.08	233.45	232.38	-1.07	Filtration only
LID-12*	Street A	0+439.56 to 0+446.56	South Boulevard	112	0.0780	75%	8.50	3.0	Blend A	1.70	234.22	233.12	232.52	-0.60	234.08	233.24	232.38	-0.86	Filtration only
LID-13*	Street A	0+499.56 to 0+506.56	North Boulevard	113	0.0780	75%	8.50	3.0	Blend A	1.70	233.25	232.19	231.55	-0.64	233.19	231.73	231.49	-0.24	Filtration only
LID-14*	Street A	0+499.56 to 0+506.56	South Boulevard	114	0.0780	75%	8.50	3.0	Blend A	1.70	233.25	234.23	231.55	-2.68	233.19	235.22	231.49	-3.73	Filtration only
LID-15*	Street A	0+559.56 to 0+566.56	North Boulevard	115	0.0780	75%	8.50	3.0	Blend A	1.70	232.74	230.77	231.04	0.27	232.68	230.43	230.98	0.55	Filtration only
LID-16*	Street A	0+559.56 to 0+566.56	South Boulevard	116	0.0780	75%	8.50	3.0	Blend A	1.70	232.74	231.42	231.04	-0.38	232.68	231.58	230.98	-0.60	Filtration only
LID-17*	Street A	0+619.56 to 0+626.56	North Boulevard	117	0.0780	75%	8.50	3.0	Blend A	1.70	232.23	230.54	230.53	-0.01	232.17	230.81	230.47	-0.34	Filtration only
LID-18*	Street A	0+619.56 to 0+626.56	South Boulevard	118	0.0780	75%	8.50	3.0	Blend A	1.70	232.23	229.86	230.53	0.67	232.17	230.88	230.47	-0.41	Filtration only
LID-19*	Street A	0+679.56 to 0+686.56	North Boulevard	119	0.0780	75%	8.50	3.0	Blend A	1.70	231.71	231.02	230.01	-1.01	231.65	231.18	229.95	-1.23	Filtration only
LID-20*	Street A	0+679.56 to 0+686.56	South Boulevard	120	0.0780	75%	8.50	3.0	Blend A	1.70	231.71	230.86	230.01	-0.85	231.65	231.00	229.95	-1.05	Filtration only

JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS	Project:	Tullamore Secondary Plan Area	Date:	January 2025
	File No.:	CAL-13304 (50)	Designed:	MG
	Subject:	LID Sizing	Checked:	JP
	Revisions:			

BMP Sizing Calculations

Constants			
Layer	Depth (mm)	Void Ratio	1D Storage (mm)
Freeboard	50	1.00	50
Ponding	150	1.00	150
Mulch / Stone	100	0.40	40
Filter Media Blend A	-	0.40	-
Filter Media Blend B	-	0.35	-
Choker	-	0.40	-
Underdrain Dia.	-	0.40	-
Storage Layer	-	0.40	-

LID Sizing												
LID Name	Drainage Area ID	Filter Media Blend Type	Filter Media	1D Storage (mm)	Choker	1D Storage (mm)	Underdrain Dia. (mm)	1D Storage (mm)	Storage Layer	1D Storage (mm)	Total Depth	1D Storage Total (mm)
LID-1	101	Blend A	750	**300**	100	**40**	200	**80**	350	**140**	1650	750
LID-2	102	Blend A	750	**300**	100	**40**	200	**80**	350	**140**	1650	750
LID-3	103	Blend A	750	**300**	100	**40**	200	**80**	400	**160**	1700	770
LID-4	104	Blend A	750	**300**	100	**40**	200	**80**	400	**160**	1700	770
LID-5	105	Blend A	750	**300**	100	**40**	200	**80**	400	**160**	1700	770
LID-6	106	Blend A	750	**300**	100	**40**	200	**80**	400	**160**	1700	770
LID-7	107	Blend A	750	**300**	100	**40**	200	**80**	400	**160**	1700	770
LID-8	108	Blend A	750	**300**	100	**40**	200	**80**	400	**160**	1700	770
LID-9*	109	Blend A	750	**300**	100	**40**	200	**80**	400	**160**	1700	770
LID-10*	110	Blend A	750	**300**	100	**40**	200	**80**	400	**160**	1700	770
LID-11*	111	Blend A	750	**300**	100	**40**	200	**80**	400	**160**	1700	770
LID-12*	112	Blend A	750	**300**	100	**40**	200	**80**	400	**160**	1700	770
LID-13*	113	Blend A	750	**300**	100	**40**	200	**80**	400	**160**	1700	770
LID-14*	114	Blend A	750	**300**	100	**40**	200	**80**	400	**160**	1700	770
LID-15*	115	Blend A	750	**300**	100	**40**	200	**80**	400	**160**	1700	770
LID-16*	116	Blend A	750	**300**	100	**40**	200	**80**	400	**160**	1700	770
LID-17*	117	Blend A	750	**300**	100	**40**	200	**80**	400	**160**	1700	770
LID-18*	118	Blend A	750	**300**	100	**40**	200	**80**	400	**160**	1700	770
LID-19*	119	Blend A	750	**300**	100	**40**	200	**80**	400	**160**	1700	770
LID-20*	120	Blend A	750	**300**	100	**40**	200	**80**	400	**160**	1700	770

* LIDs are used to provide filtration only.

LID Sizing												
LID Name	Drainage Area ID	Filter Media Blend Type	Catchment Area (ha)	Percent Impervious	[1,2&3] f' (mm/hr)	Length (m)	Width (m)	Depth (m)	[4] Perimeter (m)	[5] Void Ratio	Aspect Ratio :1	[6] MOE Required Volume (cu.m)
LID-1	101	Blend A	0.06	69%	2	41.00	3.00	1.65	88.0	0.45	13.67	2.36
LID-2	102	Blend A	0.05	69%	2	35.00	3.00	1.65	76.0	0.45	11.67	1.91
LID-3	103	Blend A	0.08	71%	2	41.00	3.00	1.70	88.0	0.45	13.67	2.86
LID-4	104	Blend A	0.08	71%	2	41.00	3.00	1.70	88.0	0.45	13.67	2.86
LID-5	105	Blend A	0.05	72%	2	30.00	3.00	1.70	66.0	0.45	10.00	1.92
LID-6	106	Blend A	0.08	69%	2	41.00	3.00	1.70	88.0	0.45	13.67	2.83
LID-7	107	Blend A	0.08	71%	2	41.00	3.00	1.70	88.0	0.45	13.67	2.86
LID-8	108	Blend A	0.08	71%	2	41.00	3.00	1.70	88.0	0.45	13.67	2.86
LID-9*	109	Blend A	0.08	75%	30	8.50	3.00	1.70	23.0	0.45	2.83	2.86
LID-10*	110	Blend A	0.08	75%	30	8.50	3.00	1.70	23.0	0.45	2.83	2.86
LID-11*	111	Blend A	0.08	75%	30	8.50	3.00	1.70	23.0	0.45	2.83	2.86
LID-12*	112	Blend A	0.08	75%	30	8.50	3.00	1.70	23.0	0.45	2.83	2.86
LID-13*	113	Blend A	0.08	75%	30	8.50	3.00	1.70	23.0	0.45	2.83	2.86
LID-14*	114	Blend A	0.08	75%	30	8.50	3.00	1.70	23.0	0.45	2.83	2.86
LID-15*	115	Blend A	0.08	75%	30	8.50	3.00	1.70	23.0	0.45	2.83	2.86
LID-16*	116	Blend A	0.08	75%	30	8.50	3.00	1.70	23.0	0.45	2.83	2.86
LID-17*	117	Blend A	0.08	75%	30	8.50	3.00	1.70	23.0	0.45	2.83	2.86
LID-18*	118	Blend A	0.08	75%	30	8.50	3.00	1.70	23.0	0.45	2.83	2.86
LID-19*	119	Blend A	0.08	75%	30	8.50	3.00	1.70	23.0	0.45	2.83	2.86
LID-20*	120	Blend A	0.08	75%	30	8.50	3.00	1.70	23.0	0.45	2.83	2.86

Notes:
1. Assumed native infiltration rate of 5mm/hr for Hydraulic Soil Group C type soils. To be confirmed following completion of Hydrogeological Assessment.
2. Assumed media infiltration rate of 75mm/h for Blend A Filter Media.
3. Applied a 2.5 times factor of safety when calculating factored infiltration rates for both native soils and Blend A Filter media.
4. Assumed rectangular shape.
5. Weighted average void ratio.
6. MOE Required Volume, 36.7 cu.m/ha, is based on the largest volume requirement for an infiltration SWMP Type with 75% imperviousness in MOE Table 3.2 Water Quality Storage Requirements based on Receiving Waters, Stormwater Management Planning and Design Manual, March 2003.

JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS	Project:	Tullamore Secondary Plan Area	Date:	January 2025
	File No.:	CAL-13304 (50)	Designed:	MG
	Subject:	LID Sizing	Checked:	JP
	Revisions:			

LID Sizing							
LID Name	Drainage Area ID	Runoff Volume (m^3)[1] (27mm Over Area)	Runoff Volume (m^3) (5mm Over Area)	Footprint Area Required (sq.m)	Footprint Area Provided (sq.m)	Volume of LID (cu.m)	Drawdown Time (t_D) (hr)
LID-1	101	15.50	3.22	4.56	123.00	92.25	63.00
LID-2	102	12.55	2.61	3.89	105.00	78.75	59.75
LID-3	103	18.83	3.90	4.56	123.00	94.71	76.55
LID-4	104	18.83	3.90	4.56	123.00	94.71	76.55
LID-5	105	12.61	2.61	3.33	90.00	69.30	70.03
LID-6	106	18.56	3.86	4.56	123.00	94.71	75.44
LID-7	107	18.83	3.90	4.56	123.00	94.71	76.55
LID-8	108	18.83	3.90	4.56	123.00	94.71	76.55
LID-9*	109	18.92	3.90	0.94	25.50	19.64	24.74
LID-10*	110	18.92	3.90	0.94	25.50	19.64	24.74
LID-11*	111	18.92	3.90	0.94	25.50	19.64	24.74
LID-12*	112	18.92	3.90	0.94	25.50	19.64	24.74
LID-13*	113	18.92	3.90	0.94	25.50	19.64	24.74
LID-14*	114	18.92	3.90	0.94	25.50	19.64	24.74
LID-15*	115	18.92	3.90	0.94	25.50	19.64	24.74
LID-16*	116	18.92	3.90	0.94	25.50	19.64	24.74
LID-17*	117	18.92	3.90	0.94	25.50	19.64	24.74
LID-18*	118	18.92	3.90	0.94	25.50	19.64	24.74
LID-19*	119	18.92	3.90	0.94	25.50	19.64	24.74
LID-20*	120	18.92	3.90	0.94	25.50	19.64	24.74

Notes:
1. Runoff Volume calculated including volume rerduction due to Impervious and Pervious Area Initial Abstraction (Pervious 5mm, Impervious 2 mm)

LID Summary										
LID Name	Drainage Area ID	Catchment Area (ha)	Percent Impervious	Length (m)	Width (m)	Depth (m)	Filter Media Blend Type	Volume of LID (cu.m)	% of MOE Required Volume Captured	% of 27mm Volume Captured
LID-1	101	0.06	69%	41.00	3.00	1.65	Blend A	92.25	3903%	595%
LID-2	102	0.05	69%	35.00	3.00	1.65	Blend A	78.75	4119%	628%
LID-3	103	0.08	71%	41.00	3.00	1.70	Blend A	94.71	3309%	503%
LID-4	104	0.08	71%	41.00	3.00	1.70	Blend A	94.71	3309%	503%
LID-5	105	0.05	72%	30.00	3.00	1.70	Blend A	69.30	3617%	550%
LID-6	106	0.08	69%	41.00	3.00	1.70	Blend A	94.71	3347%	510%
LID-7	107	0.08	71%	41.00	3.00	1.70	Blend A	94.71	3309%	503%
LID-8	108	0.08	71%	41.00	3.00	1.70	Blend A	94.71	3309%	503%
LID-9*	109	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-10*	110	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-11*	111	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-12*	112	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-13*	113	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-14*	114	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-15*	115	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-16*	116	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-17*	117	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-18*	118	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-19*	119	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
LID-20*	120	0.08	75%	8.50	3.00	1.70	Blend A	19.64	686%	104%
	Total:	1.49	74%					Average:	1823%	277%

Tullamore Secondary Plan Area
LID Facility Drawdown Time

CLIENT: Tullamore Secondary Plan Land Owners
DATE: January 2025

PROJECT: Tullamore Secondary Plan Area
DESIGN: MG

FILE: CAL-13304 (50)
CHECKED: JP

90th Percentile Event (27mm 4Hr CHI) Drawdown Time for LID-1 Infiltration

LID-1 Statistics	
Native soil infiltration rate:	2 mm/hr
Area of facility:	123.00 m²
90th Percentile (27mm) Event Runoff Volume	15.50 m³

Infiltration Flow Rate 6.83E-05 m³/s

Drawdown Time 63.00 hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(27mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
$V_{(27mm)}$ is the 90th percentile (27mm) event runoff volume (m³)
Q is infiltration flowrate (m³/s)

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)

90th Percentile Event (27mm 4Hr CHI) Drawdown Time for LID-2 Infiltration

LID-2 Statistics	
Native soil infiltration rate:	2 mm/hr
Area of facility:	105.00 m²
90th Percentile (27mm) Event Runoff Volume	12.55 m³

Infiltration Flow Rate 5.83E-05 m³/s

Drawdown Time 59.75 hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(27mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
$V_{(27mm)}$ is the 90th percentile (27mm) event runoff volume (m³)
Q is infiltration flowrate (m³/s)

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)

90th Percentile Event (27mm 4Hr CHI) Drawdown Time for LID-3 Infiltration

LID-3 Statistics	
Native soil infiltration rate:	2 mm/hr
Area of facility:	123.00 m²
90th Percentile (27mm) Event Runoff Volume	18.83 m³

Infiltration Flow Rate 6.83E-05 m³/s

Drawdown Time 76.55 hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(27mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
$V_{(27mm)}$ is the 90th percentile (27mm) event runoff volume (m³)
Q is infiltration flowrate (m³/s)

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)

90th Percentile Event (27mm 4Hr CHI) Drawdown Time for LID-4 Infiltration

LID-4 Statistics	
Native soil infiltration rate:	2 mm/hr
Area of facility:	123.00 m²
90th Percentile (27mm) Event Runoff Volume	18.83 m³

Infiltration Flow Rate 6.83E-05 m³/s

Drawdown Time 76.55 hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(27mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
$V_{(27mm)}$ is the 90th percentile (27mm) event runoff volume (m³)
Q is infiltration flowrate (m³/s)

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)

Tullamore Secondary Plan Area
LID Facility Drawdown Time

CLIENT: Tullamore Secondary Plan Land Owners
DATE: January 2025

PROJECT: Tullamore Secondary Plan Area
DESIGN: MG

FILE: CAL-13304 (50)
CHECKED: JP

90th Percentile Event (27mm 4Hr CHI) Time for LID-5 Infiltration

LID-5 Statistics	
Native soil infiltration rate:	2 mm/hr
Area of facility:	90.00 m²
90th Percentile (27mm) Event Runoff Volume	12.61 m³

Infiltration Flow Rate 5.00E-05 m³/s

Drawdown Time 70.03 hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(27mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
$V_{(27mm)}$ is the 90th percentile (27mm) event runoff volume (m³)
Q is infiltration flowrate (m³/s)

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)

90th Percentile Event (27mm 4Hr CHI) Drawdown Time for LID-6 Infiltration

LID-6 Statistics	
Native soil infiltration rate:	2 mm/hr
Area of facility:	123.00 m²
90th Percentile (27mm) Event Runoff Volume	18.56 m³

Infiltration Flow Rate 6.83E-05 m³/s

Drawdown Time 75.44 hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(27mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
$V_{(27mm)}$ is the 90th percentile (27mm) event runoff volume (m³)
Q is infiltration flowrate (m³/s)

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)

90th Percentile Event (27mm 4Hr CHI) Drawdown Time for LID-7 Infiltration

LID-7 Statistics	
Native soil infiltration rate:	2 mm/hr
Area of facility:	123.00 m²
90th Percentile (27mm) Event Runoff Volume	18.83 m³

Infiltration Flow Rate 6.83E-05 m³/s

Drawdown Time 76.55 hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(27mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
$V_{(27mm)}$ is the 90th percentile (27mm) event runoff volume (m³)
Q is infiltration flowrate (m³/s)

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)

90th Percentile Event (27mm 4Hr CHI) Drawdown Time for LID-8 Infiltration

LID-8 Statistics	
Native soil infiltration rate:	2 mm/hr
Area of facility:	123.00 m²
90th Percentile (27mm) Event Runoff Volume	18.83 m³

Infiltration Flow Rate 6.83E-05 m³/s

Drawdown Time 76.55 hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(27mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
$V_{(27mm)}$ is the 90th percentile (27mm) event runoff volume (m³)
Q is infiltration flowrate (m³/s)

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)

Tullamore Secondary Plan Area
LID Facility Drawdown Time

CLIENT: Tullamore Secondary Plan Land Owners

PROJECT: Tullamore Secondary Plan Area

FILE: CAL-13304 (50)

DATE: January 2025

DESIGN: MG

CHECKED: JP

90th Percentile Event (27mm 4Hr CHI) Drawdown Time for LID-9 Filtration Only

LID-9 Statistics	
Native soil infiltration rate:	30 mm/hr
Area of facility:	25.50 m²
90th Percentile (27mm) Event Runoff Volume	18.92 m³

Filtration Flow Rate 2.13E-04 m³/s

Drawdown Time 24.74 hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(27mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
$V_{(27mm)}$ is the 90th percentile (27mm) event runoff volume (m³)
Q is filtration flowrate (m³/s)

Infiltration Flow Rate: $Q = (P \times A_{LID})/3600000$

where ; P is the Filter layer saturated hydraulic conductivity (mm/hr)
A_{LID} is area of the LID facility (m²)

90th Percentile Event (27mm 4Hr CHI) Drawdown Time for LID-10 Filtration Only

LID-10 Statistics	
Native soil infiltration rate:	30 mm/hr
Area of facility:	25.50 m²
90th Percentile (27mm) Event Runoff Volume	18.92 m³

Filtration Flow Rate 2.13E-04 m³/s

Drawdown Time 24.74 hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(27mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
$V_{(27mm)}$ is the 90th percentile (27mm) event runoff volume (m³)
Q is filtration flowrate (m³/s)

Infiltration Flow Rate: $Q = (P \times A_{LID})/3600000$

where ; P is the Filter layer saturated hydraulic conductivity (mm/hr)
A_{LID} is area of the LID facility (m²)

90th Percentile Event (27mm 4Hr CHI) Drawdown Time for LID-11 Filtration Only

LID-11 Statistics - Filtration Only	
Native soil infiltration rate:	30 mm/hr
Area of facility:	25.50 m²
90th Percentile (27mm) Event Runoff Volume	18.92 m³

Filtration Flow Rate 2.13E-04 m³/s

Drawdown Time 24.74 hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(27mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
$V_{(27mm)}$ is the 90th percentile (27mm) event runoff volume (m³)
Q is filtration flowrate (m³/s)

Infiltration Flow Rate: $Q = (P \times A_{LID})/3600000$

where ; P is the Filter layer saturated hydraulic conductivity (mm/hr)
A_{LID} is area of the LID facility (m²)

90th Percentile Event (27mm 4Hr CHI) Drawdown Time for LID-12 Filtration Only

LID-12 Statistics - Filtration Only	
Native soil infiltration rate:	30 mm/hr
Area of facility:	25.50 m²
90th Percentile (27mm) Event Runoff Volume	18.92 m³

Filtration Flow Rate 2.13E-04 m³/s

Drawdown Time 24.74 hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(27mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
$V_{(27mm)}$ is the 90th percentile (27mm) event runoff volume (m³)
Q is filtration flowrate (m³/s)

Infiltration Flow Rate: $Q = (P \times A_{LID})/3600000$

where ; P is the Filter layer saturated hydraulic conductivity (mm/hr)
A_{LID} is area of the LID facility (m²)

Tullamore Secondary Plan Area
LID Facility Drawdown Time

CLIENT: Tullamore Secondary Plan Land Owners

PROJECT: Tullamore Secondary Plan Area

FILE: CAL-13304 (50)

DATE: January 2025

DESIGN: MG

CHECKED: JP

90th Percentile Event (27mm 4Hr CHI) Drawdown Time for LID-13 Filtration Only

LID-13 Statistics - Filtration Only	
Native soil infiltration rate:	30 mm/hr
Area of facility:	25.50 m²
90th Percentile (27mm) Event Runoff Volume	18.92 m³

Filtration Flow Rate 2.13E-04 m³/s

Drawdown Time 24.74 hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(27mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
$V_{(27mm)}$ is the 90th percentile (27mm) event runoff volume (m³)
Q is filtration flowrate (m³/s)

Infiltration Flow Rate: $Q = (P \times A_{LID})/3600000$

where ; P is the Filter layer saturated hydraulic conductivity (mm/hr)
A_{LID} is area of the LID facility (m²)

90th Percentile Event (27mm 4Hr CHI) Drawdown Time for LID-14 Filtration Only

LID-14 Statistics - Filtration Only	
Native soil infiltration rate:	30 mm/hr
Area of facility:	25.50 m²
90th Percentile (27mm) Event Runoff Volume	18.92 m³

Filtration Flow Rate 2.13E-04 m³/s

Drawdown Time 24.74 hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(27mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
$V_{(27mm)}$ is the 90th percentile (27mm) event runoff volume (m³)
Q is filtration flowrate (m³/s)

Infiltration Flow Rate: $Q = (P \times A_{LID})/3600000$

where ; P is the Filter layer saturated hydraulic conductivity (mm/hr)
A_{LID} is area of the LID facility (m²)

90th Percentile Event (27mm 4Hr CHI) Drawdown Time for LID-15 Filtration Only

LID-15 Statistics - Filtration Only	
Native soil infiltration rate:	30 mm/hr
Area of facility:	25.50 m²
90th Percentile (27mm) Event Runoff Volume	18.92 m³

Filtration Flow Rate 2.13E-04 m³/s

Drawdown Time 24.74 hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(27mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
$V_{(27mm)}$ is the 90th percentile (27mm) event runoff volume (m³)
Q is filtration flowrate (m³/s)

Infiltration Flow Rate: $Q = (P \times A_{LID})/3600000$

where ; P is the Filter layer saturated hydraulic conductivity (mm/hr)
A_{LID} is area of the LID facility (m²)

90th Percentile Event (27mm 4Hr CHI) Drawdown Time for LID-16 Filtration Only

LID-16 Statistics - Filtration Only	
Native soil infiltration rate:	30 mm/hr
Area of facility:	25.50 m²
90th Percentile (27mm) Event Runoff Volume	18.92 m³

Filtration Flow Rate 2.13E-04 m³/s

Drawdown Time 24.74 hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(27mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
$V_{(27mm)}$ is the 90th percentile (27mm) event runoff volume (m³)
Q is filtration flowrate (m³/s)

Infiltration Flow Rate: $Q = (P \times A_{LID})/3600000$

where ; P is the Filter layer saturated hydraulic conductivity (mm/hr)
A_{LID} is area of the LID facility (m²)

Tullamore Secondary Plan Area
LID Facility Drawdown Time

CLIENT: Tullamore Secondary Plan Land Owners
DATE: January 2025

PROJECT: Tullamore Secondary Plan Area
DESIGN: MG

FILE: CAL-13304 (50)
CHECKED: JP

90th Percentile Event (27mm 4Hr CHI) Drawdown Time for LID-17 Filtration Only

LID-17 Statistics - Filtration Only	
Native soil infiltration rate:	30 mm/hr
Area of facility:	25.50 m²
90th Percentile (27mm) Event Runoff Volume	18.92 m³

Filtration Flow Rate 2.13E-04 m³/s

Drawdown Time 24.74 hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(27mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
$V_{(27mm)}$ is the 90th percentile (27mm) event runoff volume (m³)
Q is filtration flowrate (m³/s)

Infiltration Flow Rate: $Q = (P \times A_{LID})/3600000$

where ; P is the Filter layer saturated hydraulic conductivity (mm/hr)
A_{LID} is area of the LID facility (m²)

90th Percentile Event (27mm 4Hr CHI) Drawdown Time for LID-18 Filtration Only

LID-18 Statistics - Filtration Only	
Native soil infiltration rate:	30 mm/hr
Area of facility:	25.50 m²
90th Percentile (27mm) Event Runoff Volume	18.92 m³

Filtration Flow Rate 2.13E-04 m³/s

Drawdown Time 24.74 hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(27mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
$V_{(27mm)}$ is the 90th percentile (27mm) event runoff volume (m³)
Q is filtration flowrate (m³/s)

Infiltration Flow Rate: $Q = (P \times A_{LID})/3600000$

where ; P is the Filter layer saturated hydraulic conductivity (mm/hr)
A_{LID} is area of the LID facility (m²)

90th Percentile Event (27mm 4Hr CHI) Drawdown Time for LID-19 Filtration Only

LID-19 Statistics - Filtration Only	
Native soil infiltration rate:	30 mm/hr
Area of facility:	25.50 m²
90th Percentile (27mm) Event Runoff Volume	18.92 m³

Filtration Flow Rate 2.13E-04 m³/s

Drawdown Time 24.74 hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(27mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
$V_{(27mm)}$ is the 90th percentile (27mm) event runoff volume (m³)
Q is filtration flowrate (m³/s)

Infiltration Flow Rate: $Q = (P \times A_{LID})/3600000$

where ; P is the Filter layer saturated hydraulic conductivity (mm/hr)
A_{LID} is area of the LID facility (m²)

90th Percentile Event (27mm 4Hr CHI) Drawdown Time for LID-20 Filtration Only

LID-20 Statistics - Filtration Only	
Native soil infiltration rate:	30 mm/hr
Area of facility:	25.50 m²
90th Percentile (27mm) Event Runoff Volume	18.92 m³

Filtration Flow Rate 2.13E-04 m³/s

Drawdown Time 24.74 hr

Infiltration Flow rate is an addaption of Equation 4.20 from MOE SWM Planning & Design Manual dated March 2003.

Drawdown Time Equation: $T_D = V_{(27mm)}/(Q \times 3600)$

where ; Td is detention time (hours)
$V_{(27mm)}$ is the 90th percentile (27mm) event runoff volume (m³)
Q is filtration flowrate (m³/s)

Infiltration Flow Rate: $Q = (P \times A_{LID})/3600000$

where ; P is the Filter layer saturated hydraulic conductivity (mm/hr)
A_{LID} is area of the LID facility (m²)

Tullamore Secondary Plan Area
Preliminary Annual Water Balance Calculations - Thornwaite & Mather Approach

CLIENT: Tullamore Secondary Plan Land Owners **DATE:** January 2025

PROJECT: Tullamore Secondary Plan **DESIGN:** MG

FILE: CAL-13304 (50) **CHECKED:** JP

Pre-Development:

	Precipitation*	Evapo-Transpiration*	Surplus	Infiltration Factor	Infiltration	Run-off
	(mm/yr)	(mm/yr)	(mm/yr)	(unitless)	(mm/yr)	(mm/yr)
Annual Depth (mm)	871	537	334	0.40	134	200
Pervious Area Coefficients	871	537	334	0.40	134	200
Impervious Area Coefficients	871	0	871	0.00	0	871

Land Use	Area	Percent Impervious	Impervious Runoff Volume	Pervious Runoff Volume	Total Runoff Volume	Total Infiltration Volume
	(m^2)	(%)	(m^3/yr)	(m^3/yr)	(m^3/yr)	(m^3/yr)
Agricultural - Future Public Lands	75,375	0.0%	0	15,105	15,105	10,070
Agricultural - Future Private Lands	359,121	0.0%	0	71,968	71,968	47,979
Total Pre Development	**434,496**	**0.0%**	**0**	**87,073**	**87,073**	**58,049**

*Precipitation and Evapotranspiration annual depths were referenced from TRSPA Water Balance Tool.

Post-Development:

	Precipitation*	Evapo-Transpiration*	Surplus	Infiltration Factor	Infiltration	Run-off
	(mm/yr)	(mm/yr)	(mm/yr)	(unitless)	(mm/yr)	(mm/yr)
Annual Depth (mm)	871	537	334	0.30	100	234
Pervious Area Coefficients	871	537	334	0.30	100	234
Impervious Area Coefficients	871	0	871	0.00	0	871

Land Use	Area	Percent Impervious	Impervious Runoff Volume	Pervious Runoff Volume	Total Runoff Volume	Total Infiltration Volume
	(m^2)	(%)	(m^3/yr)	(m^3/yr)	(m^3/yr)	(m^3/yr)
Roads	33,894	75.0%	22,141	1,981	24,122	849
SWM Facilities	32,618	11.2%	3,182	6,772	9,954	2,902
Open Space	8,863	0.0%	-	2,072	2,072	888
Sub-Total Public Lands	**75,375**	**38.6%**	**25,323**	**10,825**	**36,148**	**4,639**
Block 1	14,670	80.0%	10,222	686	10,908	294
Block 2	48,004	89.3%	37,338	1,201	38,539	515
Block 3	21,053	90.0%	16,503	492	16,996	211
Block 4	46,527	90.0%	36,473	1,088	37,560	466
Block 5 & 7	41,331	90.0%	32,399	966	33,366	414
Block 6	17,834	90.0%	13,980	417	14,397	179
Block 101	13,633	80.0%	9,499	637	10,137	273
Block 102	44,191	90.0%	34,641	1,033	35,675	443
Block 103	3,112	80.0%	2,168	146	2,314	62
Block 106	69,023	90.0%	54,107	1,614	55,721	692
Block 107	7,751	90.0%	6,076	181	6,257	78
Block 108 & 109	31,992	84.0%	23,407	1,197	24,603	513
Sub-Total Private Lands	359,121	88.5%	276,814	9,658	286,472	4,139
Total Post Development	**434,496**	**79.8%**	**302,137**	**20,483**	**322,621**	**8,779**

*Precipitation and Evapotranspiration annual depths were referenced from TRSPA Water Balance Tool.

Total Post-Pre Development Deficit (m^3): -49270 (Surplus if Positive)

Proposed LIDs have been designed to capture impervious runoff from the 90th percentile event. The theoretical total annual runoff capture for the LIDs equates to 90% of the Impervious and Pervious Area Average Annual Runoff resulting in an additional 783.9 mm/year and 210.4 mm/year retention for the upstream catchment area respectively.

Total Private Lands Pre-Post Development Deficit excluding LIDs: -5431 m^3/yr

Annual Pervious Area Post-Development Runoff Infiltrated/Filtered by LIDs: 210.4 mm/yr
Annual Impervious Area Post-Development Runoff Infiltrated/Filtrated by LIDs: 783.9 mm/yr

		Percent Impervious
Total Catchment Area of Infiltration-Based LIDs:	0.5578 ha	71%
Total Catchment Area of Filtration-Based LIDs:	0.9360 ha	75%

Weighted Average Additional Infiltration through LIDs: 3432 m^3/yr
Weighted Average Additional Filtration through LIDs: 6017 m^3/yr

Total Private Lands Pre-Post Development Deficit including Infiltration LIDs: -1999 m^3/yr

Implementing the proposed Infiltration-based LIDs will reduce the public lands Water Balance deficit from 5431 to 1999 m^3/yr. All available right-of-way infiltration based LID locations within the public lands has been exhausted.

Pre-Development Infiltration Factor:
- Topography is classified as Hilly land, factor of 0.10
- Soils are classified as clay Loam, factor of 0.20
- Cover is predominately cultivated land, factor of 0.10
- Total Factor is 0.40

Post-Development Infiltration Factor:
- Topography is classified as Hilly land, factor of 0.10
- Soils are classified as clay loam, factor of 0.20
- Cover corresponds does not correspond to cultivated or woodlands, no factor applied.
- Total Factor is 0.30

Individual Site Plans will provide additional LID measures to reduce the Post development water balance deficit.

Infiltration Factors		
Sub Factors	Description	Factor
Topography	Flat Land (<0.6m/km)	0.30
	Rolling Land (2.8m to 3.8m/km)	0.20
	Hilly Land (28m to 47m/km)	0.10
Soils	Tight Impervious Clay	0.10
	Medium Combinations of	0.20
	Open Sandy Loam	0.40
Cover	Cultivated Land	0.10
	Woodland	0.20

TOWN OF CALEDON

DEVELOPMENT Tullamore Secondary Plan Area

CONSULTANT The Jones Consulting Group Ltd.

MAJOR DRAINAGE AREA Western Portion of Site

ENGINEERING SERVICES - STORM DRAINAGE DESIGN SHEET
FOR CIRCULAR DRAINS FLOWING FULL
5-YEAR DESIGN STORM INCLUDING ALLOWABLE RELEASE RATE

SHEET No. ____ OF ____ DATE Jan. 2025

DESIGNED BY M.G.

CHECKED BY J.P.

LOCATION					DRAINAGE AREA					RUNOFF				PIPE SELECTION							Minor	PROFILE							NOTES / DESCRIPTIONS
STREET	FROM		TO		AREA ID #	A	C	A*C	Cumul. A*C	Tc External	Cumul. Tc	i	Q	Pipe L	Pipe So	Pipe Dia.	Actual Capacity (full)	V (Average)	Δ V (Max 0.6)	Time of Flow	Losses	Fall in Sewer	UPSTREAM			DOWNSTREAM			
	MH No.	Sta.	MH No.	Sta.																			Surface Elev.	Inv. Elev.	Cover	Surface Elev.	Inv. Elev.	Cover	
						Ha				min.	min.	mm/h	m3/s	m	m/m	mm	m3/s	m/s	m/s	min.	m	m	m	m	m	m	m	m	
Davis Lane (lot level control)					1	0.98							0.176																
Davis Lane (rooftop control)					1	0.42							0.017																
Davis Lane	STM1		STM2		2	0.31	0.76	0.24	0.24	10.00	10.00	110	0.266	88.3	0.005	525	0.304	1.40		1.05			236.51	234.87	1.11	236.99	234.43	2.04	87.5%
Street 'A' (lot level control)					3	0.95							0.172																
Street 'A' (rooftop control)					3	0.41							0.016																
Street 'A' (lot level control)					4	0.22							0.039																
Street 'A' (rooftop control)					4	0.09							0.004																
Street 'A'	STM2		STM3		5	0.27	0.72	0.20	0.44		11.05	105	0.551	116.5	0.007	675	0.703	1.97	0.561	0.99		0.08	236.99	234.28	2.04	236.20	233.46	2.06	78.4%
Street 'A'	STM3		STM4						0.44		12.04	101	0.547	20.0	0.006	675	0.651	1.82	-0.146	0.18		0.05	236.20	233.41	2.11	236.06	233.29	2.10	83.9%
Street 'A'	STM4		STM5		6	0.29	0.72	0.21	0.64		12.22	100	0.603	120.0	0.008	675	0.752	2.10	0.281	0.95		0.08	236.06	233.21	2.17	235.17	232.25	2.24	80.2%
Street 'A'	STM5		STM6		7	0.31	0.76	0.24	0.88		13.17	96.9	0.661	120.0	0.010	675	0.841	2.35	0.248	0.85		0.02	235.17	232.23	2.26	233.39	231.03	1.68	78.6%
Street 'A'	STM6		STM7		8	0.31	0.76	0.24	1.12		14.02	94	0.715	120.0	0.010	675	0.841	2.35	0.000	0.85		0.02	233.39	231.01	1.70	232.38	229.81	1.89	85.1%
Street 'A' (lot level control)					9	2.65							0.477																
Street 'A' (rooftop control)					9	1.77							0.071																
Street 'A' (lot level control)					10	2.29							0.411																
Street 'A' (rooftop control)					10	2.16							0.086																
Street 'A'*	STM7		STM8		11	0.31	0.76	0.24	1.35		14.87	91.3	1.812	109.9	0.005	1200	2.757	2.44	0.09	0.75		0.02	232.38	229.52	1.90	231.47	228.97	1.54	65.7%
Street 'A'*	STM8		STM9		12	2.05	0.87	1.79	3.14		15.62	89	2.246	12.3	0.005	1200	2.757	2.44	0.00	0.08		0.08	231.47	228.89	1.61	231.34	228.83	1.54	81.5%
Street 'A'*	STM9		STM10		13	0.35	0.77	0.27	3.41		15.71	88.8	2.309	101.6	0.005	1200	2.757	2.44	0.00	0.69		0.05	231.34	228.78	1.60	230.47	228.27	1.23	83.8%
Street 'A' (lot level control)					14	0.89							0.161																
Street 'A' (rooftop control)					14	0.89							0.036																
Street 'A'*	STM10		STM11		15	0.50	0.78	0.39	3.79		16.40	86.8	2.580	150.0	0.006	1200	3.020	2.67	0.23	0.94		0.02	230.47	228.25	1.26	229.23	227.35	0.91	85.4%
Street 'A'*	STM11		STM12						3.79		17.34	84.3	2.553	18.6	0.008	1200	3.487	3.08	0.41	0.10		0.08	229.23	227.27	1.00	229.25	227.12	1.16	73.2%
Street 'A'* (SWMF1 N Inlet)	STM12		HW1						3.79		17.44	84	2.550	10.0	0.010	1200	3.899	3.45	0.36	0.05		0.02	229.25	227.10	1.19	228.39	227.00	0.42	65.4%
Mayfield Road (lot level control)					16	2.33							0.419																
Mayfield Road (rooftop control)					16	2.33							0.093																
Mayfield Road	STM13		STM14		16	4.65				10.00	10.00		0.512	110.6	0.008	675	0.752	2.10		0.88			230.86	229.09	1.09	231.01	228.21	2.13	68.1%
Mayfield Road (lot level control)					17	2.07							0.372																
Mayfield Road (rooftop control)					17	2.07							0.083																
Mayfield Road	STM14		STM15		17	4.13					10.88		0.966	64.9	0.009	825	1.362	2.55	0.45	0.42		0.02	231.01	228.06	2.13	229.96	227.47	1.66	71.0%
Mayfield Road*	STM15		STM16								11.30		0.966	14.2	0.010	825	1.435	2.69	0.14	0.09		0.05	229.96	227.42	1.71	229.82	227.28	1.72	67.3%
Mayfield Road* (SWMF1 S Inlet)	STM16		HW2		18	2.02	0.78	1.57	1.57		11.39	104	1.419	20.0	0.010	900	1.810	2.85	0.16	0.12		0.08	229.82	227.20	1.72	228.04	227.00	0.13	78.4%
Street 'B' (lot level control)					22	3.45							0.621																
Street 'B' (lot level control)					23	1.60							0.288																

TOWN OF CALEDON

DEVELOPMENT Tullamore Secondary Plan Area

SHEET No. ____ OF ____ DATE Jan. 2025

CONSULTANT The Jones Consulting Group Ltd.

ENGINEERING SERVICES - STORM DRAINAGE DESIGN SHEET
FOR CIRCULAR DRAINS FLOWING FULL

DESIGNED BY M.G.

MAJOR DRAINAGE AREA Western Portion of Site

5-YEAR DESIGN STORM INCLUDING ALLOWABLE RELEASE RATE

CHECKED BY J.P.

LOCATION					DRAINAGE AREA					RUNOFF				PIPE SELECTION							Minor	PROFILE							NOTES / DESCRIPTIONS
STREET	FROM		TO		AREA ID #	A	C	A*C	Cumul. A*C	Tc External	Cumul. Tc	i	Q	Pipe L	Pipe So	Pipe Dia.	Actual Capacity (full)	V (Average)	Δ V (Max 0.6)	Time of Flow	Losses	Fall in Sewer	UPSTREAM			DOWNSTREAM			
	MH No.	Sta.	MH No.	Sta.																			Surface Elev.	Inv. Elev.	Cover	Surface Elev.	Inv. Elev.	Cover	
						Ha				min.	min.	mm/h	m3/s	m	m/m	mm	m3/s	m/s	m/s	min.	m	m	m	m	m	m	m	m	
Street 'B' (lot level control)					24	0.39							0.070																
Street 'B'	STM17		STM18		25	0.52	0.64	0.33	0.33	10.00	10.00	110	1.080	125.8	0.005	900	1.280	2.01		1.04			231.44	228.87	1.67	230.17	228.24	1.03	84.4%
SWMF2 Easement	STM18		STM19						0.33		11.04	105	1.076	121.6	0.005	900	1.280	2.01	0.00	1.01		0.08	230.17	228.16	1.11	229.00	227.55	0.55	84.0%
SWMF2 Easement	STM19		STM20						0.33		12.05	101	1.072	42.8	0.007	900	1.515	2.38	0.37	0.30		0.08	229.00	227.47	0.63	228.95	227.17	0.88	70.8%
SWMF2 Easement (SWMF2 N Inlet)	STM20		HW3						0.33		12.35	99.9	1.071	8.8	0.01	900	1.810	2.85	0.46	0.05		0.08	228.95	227.09	0.96	228.04	227.00	0.13	59.2%

* Asteric indicates that the provided run is using an equivalently sized elliptical pipe.
Areas with lot level controls are assumed to be releasing at the 180L/s/ha targeted release rate.
Areas with rooftop controls are assumed to be releasing at the 40L/s/ha targeted release rate.
To Be Submitted on 11x17 Paper

TOWN STANDARD No. 104

DEVELOPMENT Tullamore Secondary Plan Area

CONSULTANT The Jones Consulting Group Ltd.

MAJOR DRAINAGE AREA Western Portion of Site

TOWN OF CALEDON

PUBLIC WORKS AND ENGINEERING DEPARTMENT
THIRD PIPE STORM DRAINAGE DESIGN SHEET
FOR CIRCULAR DRAINS FLOWING FULL
ROOFTOPS CONTROLLED TO 40 L/S/HA

SHEET No. ____ OF ____ DATE Jan. 2025

DESIGNED BY M.G.

CHECKED BY J.P.

LOCATION						DRAINAGE AREA				RUNOFF		PIPE SELECTION							Minor Losses	PROFILE							NOTES / DESCRIPTIONS
STREET	FROM		TO		AREA ID #	A	C	A*C	Cumul. A*C	Q	Cumul. Q	Pipe L	Pipe So	Pipe Dia.	Actual Capacity (full)	V (Average)	Δ V (Max 0.6)	Time of Flow		Fall in Sewer	UPSTREAM			DOWNSTREAM			
	MH No.	Sta.	MH No.	Sta.																	Surface Elev.	Inv. Elev.	Cover	Surface Elev.	Inv. Elev.	Cover	
						Ha				m^3/s	m^3/s	m	m/m	mm	m^3/s	m/s	m/s	m/s	m	m	m	m	m	m	m	m	
Street B (Rooftop Control)					22	3.45				0.138	0.138																
Street B (Rooftop Control)					23	1.6				0.064	0.202																
Street B (Rooftop Control)					24	0.39				0.015	0.218																
Street B	8		9								0.218	149.2	0.005	525	0.304	1.40		1.77			231.44	228.39	2.53	230.30	227.644	2.13	71.5%
Street B	9		HW6								0.218	6.75	0.005	525	0.304	1.40	0.00	0.08		0.08	230.45	227.56	2.36	228.15	227.53	0.10	71.5%

To Be Submitted on 11x17 Paper

TOWN STANDARD No. 105

TOWN OF CALEDON

DEVELOPMENT Tullamore Secondary Plan Area

CONSULTANT The Jones Consulting Group Ltd.

MAJOR DRAINAGE AREA Western Portion of Site

ENGINEERING SERVICES - STORM DRAINAGE DESIGN SHEET
FOR CIRCULAR DRAINS FLOWING FULL
SWMF OUTLETS - 2-YEAR DESIGN STORM

SHEET No. ____ OF ____ DATE Jan. 2025

DESIGNED BY M.G.

CHECKED BY J.P.

LOCATION					DRAINAGE AREA					RUNOFF				PIPE SELECTION							Minor Losses	PROFILE							NOTES / DESCRIPTIONS
STREET	FROM		TO		AREA ID #	A	C	A*C	Cumul. A*C	Tc External	Cumul. Tc	i	Q	Pipe L	Pipe So	Pipe Dia.	Actual Capacity (full)	V (Average)	Δ V (Max 0.6)	Time of Flow		Fall in Sewer	UPSTREAM			DOWNSTREAM			
	MH No.	Sta.	MH No.	Sta.																			Surface Elev.	Inv. Elev.	Cover	Surface Elev.	Inv. Elev.	Cover	
						Ha				min.	min.	mm/h	m3/s	m	m/m	mm	m3/s	m/s	m/s	min.	m	m	m	m	m	m	m	m	
SWMF1 Bypass ***	STM12		CONTROL MH1						3.79		17.49	83.9	0.883	71.2	0.005	1200	2.757	2.44		0.49			229.25	227.12	0.93	229.25	226.76	1.29	32.0%
SWMF1 Bypass ***	CONTROL MH1		STM21		19	2.13	0.21	0.44	4.23		17.98	82.6	0.971	37.3	0.005	1200	2.757	2.44		0.26		0.05	229.25	226.71	1.34	228.95	226.53	1.22	35.2%
SWMF1 Bypass ***	STM21		HW4						4.23		18.23	82	0.963	29.3	0.005	1200	2.757	2.44		0.20		0.08	228.95	226.45	1.30	228.95	226.30	1.45	34.9%
SWMF1 Outlet*	CONTROL MH1		HW5								17.49		0.683	30.5	0.005	750	0.787	1.78		0.29			229.25	227.00	1.50	227.72	226.85	0.12	86.8%
SWMF2 Outlet**	CONTROL MH2		HW6								12.40		0.205	19.1	0.005	525	0.304	1.40		0.23			228.95	227.00	1.42	227.53	226.9	0.10	67.4%
SWMF2 Bypass	STM19		STM22						0.33		12.05	101	1.072	107.9	0.005	900	1.280	2.01		0.89			229.00	227.47	0.63	228.95	226.93	1.12	83.7%
SWMF2 Bypass	STM22		HW7						0.33		12.94	97.7	1.072	14.6	0.005	900	1.280	2.01		0.12		0.08	228.95	226.85	1.20	227.81	226.78	0.13	83.7%

* A flow rate of 0.683 m^3/s has been used in sizing SWMF1 outlet pipe. This flowrate represents the controlled flowrate from both primary and secondary controls experienced during the Hazel Regional Event.
** A flow rate of 0.205 m^3/s has been used in sizing SWMF2 outlet pipe. This flowrate represents the controlled flowrate from both primary and secondary controls experienced during the Hazel Regional Event.
*** Asteric indicates that the provided run is using an equivalently sized elliptical pipe.
To Be Submitted on 11x17 Paper

TOWN STANDARD No. 104

TOWN OF CALEDON

DEVELOPMENT Tullamore Secondary Plan Area

CONSULTANT The Jones Consulting Group Ltd.

MAJOR DRAINAGE AREA Western Portion of Site

ENGINEERING SERVICES - STORM DRAINAGE DESIGN CHART
FOR CIRCULAR DRAINS FLOWING FULL
100-YEAR DESIGN STORM INCLUDING ALLOWABLE RELEASE RATE

SHEET No. ____ OF ____ DATE Jan. 2025

DESIGNED BY M.G.

CHECKED BY J.P.

LOCATION					DRAINAGE AREA					RUNOFF				PIPE SELECTION							Minor	PROFILE							NOTES / DESCRIPTIONS
STREET	FROM		TO		AREA ID #	A	C	A*C	Cumul. A*C	Tc External	Cumul. Tc	i	Q	Pipe L	Pipe So	Pipe Dia.	Actual Capacity (full)	V (Average)	Δ V (Max 0.6)	Time of Flow	Losses	Fall in Sewer	UPSTREAM			DOWNSTREAM			
	MH No.	Sta.	MH No.	Sta.																			Surface Elev.	Inv. Elev.	Cover	Surface Elev.	Inv. Elev.	Cover	
						Ha				min.	min.	mm/h	m3/s	m	m/m	mm	m3/s	m/s	m/s	min.	m	m	m	m	m	m	m	m	
Davis Lane (lot level control)					1	0.98							0.176																
Davis Lane (rooftop control)					1	0.42							0.017																
Davis Lane	STM1		STM2		2	0.31	0.76	0.24	0.24	10.00	10.00	197	0.324	88.3	0.005	525	0.304	1.40		1.05			236.51	234.87	1.11	236.99	234.43	2.04	106.5%
Street 'A' (lot level control)					3	0.95							0.172																
Street 'A' (rooftop control)					3	0.41							0.016																
Street 'A' (lot level control)					4	0.22							0.039																
Street 'A' (rooftop control)					4	0.09							0.004																
Street 'A'	STM2		STM3		5	0.27	0.72	0.20	0.44		11.05	189	0.654	116.5	0.007	675	0.703	1.97	0.561	0.99		0.08	236.99	234.28	2.04	236.20	233.46	2.06	92.9%
Street 'A'	STM3		STM4						0.44		12.04	183	0.646	20.0	0.006	675	0.651	1.82	-0.146	0.18		0.05	236.20	233.41	2.11	236.06	233.29	2.10	99.2%
Street 'A'	STM4		STM5		6	0.29	0.72	0.21	0.64		12.22	182	0.749	120.0	0.008	675	0.752	2.10	0.281	0.95		0.08	236.06	233.21	2.17	235.17	232.25	2.24	99.6%
Street 'A'	STM5		STM6		7	0.31	0.76	0.24	0.88		13.17	177	0.855	120.0	0.010	675	0.841	2.35	0.248	0.85		0.02	235.17	232.23	2.26	233.39	231.03	1.68	101.7%
Street 'A'	STM6		STM7		8	0.31	0.76	0.24	1.12		14.02	172	0.957	120.0	0.010	675	0.841	2.35	0.000	0.85		0.02	233.39	231.01	1.70	232.38	229.81	1.89	113.8%
Street 'A' (lot level control)					9	2.65							0.477																
Street 'A' (rooftop control)					9	1.77							0.071																
Street 'A' (lot level control)					10	2.29							0.411																
Street 'A' (rooftop control)					10	2.16							0.086																
Street 'A'*	STM7		STM8		11	0.31	0.76	0.24	1.35		14.87	168	2.098	109.9	0.005	1200	2.757	2.44	0.09	0.75		0.02	232.38	229.52	1.90	231.47	228.97	1.54	76.1%
Street 'A'*	STM8		STM9		12	2.05	0.87	1.79	3.14		15.62	164	2.898	12.3	0.005	1200	2.757	2.44	0.00	0.08		0.08	231.47	228.89	1.61	231.34	228.83	1.54	105.1%
Street 'A'*	STM9		STM10		13	0.35	0.77	0.27	3.41		15.71	163	3.015	101.6	0.005	1200	2.757	2.44	0.00	0.69		0.05	231.34	228.78	1.60	230.47	228.27	1.23	109.4%
Street 'A' (lot level control)					14	0.89							0.161																
Street 'A' (rooftop control)					14	0.89							0.036																
Street 'A'*	STM10		STM11		15	0.50	0.78	0.39	3.79		16.40	160	3.352	150.0	0.006	1200	3.020	2.67	0.23	0.94		0.02	230.47	228.25	1.26	229.23	227.35	0.91	111.0%
Street 'A'*	STM11		STM12						3.79		17.34	156	3.308	18.6	0.008	1200	3.487	3.08	0.41	0.10		0.08	229.23	227.27	1.00	229.25	227.12	1.16	94.9%
Street 'A'* (SWMF1 N Inlet)	STM12		HW1						3.79		17.44	155	3.303	10.0	0.010	1200	3.899	3.45	0.36	0.05		0.02	229.25	227.10	1.19	228.39	227.00	0.42	84.7%
Mayfield Road (lot level control)					16	2.33							0.419																
Mayfield Road (rooftop control)					16	2.33							0.093																
Mayfield Road	STM13		STM14		16	4.65				10.00	10.00		0.512	110.6	0.008	675	0.752	2.10		0.88			230.86	229.09	1.09	231.01	228.21	2.13	68.1%
Mayfield Road (lot level control)					17	2.07							0.372																
Mayfield Road (rooftop control)					17	2.07							0.083																
Mayfield Road	STM14		STM15		17	4.13					10.88		0.966	64.9	0.009	825	1.362	2.55	0.45	0.42		0.02	231.01	228.06	2.13	229.96	227.47	1.66	71.0%
Mayfield Road*	STM15		STM16								11.30		0.966	14.2	0.010	825	1.435	2.69	0.14	0.09		0.05	229.96	227.42	1.71	229.82	227.28	1.72	67.3%
Mayfield Road* (SWMF1 S Inlet)	STM16		HW2		18	2.02	0.78	1.57	1.57		11.39	187	1.783	20.0	0.010	900	1.810	2.85	0.16	0.12		0.08	229.82	227.20	1.72	228.04	227.00	0.13	98.5%
Street 'B' (lot level control)					22	3.45							0.621																
Street 'B' (lot level control)					23	1.60							0.288																

TOWN OF CALEDON

DEVELOPMENT Tullamore Secondary Plan Area

SHEET No. ____ OF ____ DATE Jan. 2025

CONSULTANT The Jones Consulting Group Ltd.

ENGINEERING SERVICES - STORM DRAINAGE DESIGN CHART
FOR CIRCULAR DRAINS FLOWING FULL
100-YEAR DESIGN STORM INCLUDING ALLOWABLE RELEASE RATE

DESIGNED BY M.G.

MAJOR DRAINAGE AREA Western Portion of Site

CHECKED BY J.P.

LOCATION					DRAINAGE AREA					RUNOFF				PIPE SELECTION							Minor	PROFILE							NOTES / DESCRIPTIONS
STREET	FROM		TO		AREA ID #	A	C	A*C	Cumul. A*C	Tc External	Cumul. Tc	i	Q	Pipe L	Pipe So	Pipe Dia.	Actual Capacity (full)	V (Average)	Δ V (Max 0.6)	Time of Flow	Losses	Fall in Sewer	UPSTREAM			DOWNSTREAM			
	MH No.	Sta.	MH No.	Sta.																			Surface Elev.	Inv. Elev.	Cover	Surface Elev.	Inv. Elev.	Cover	
						Ha				min.	min.	mm/h	m3/s	m	m/m	mm	m3/s	m/s	m/s	min.	m	m	m	m	m	m	m	m	m	
Street 'B' (lot level control)					24	0.39							0.070																
Street 'B'	STM17		STM18		25	0.52	0.64	0.33	0.33	10.00	10.00	197	1.160	125.8	0.005	900	1.280	2.01		1.04			231.44	228.87	1.67	230.17	228.24	1.03	90.6%
SWMF2 Easement	STM18		STM19						0.33		11.04	190	1.153	121.6	0.005	900	1.280	2.01	0.00	1.01		0.08	230.17	228.16	1.11	229.00	227.55	0.55	90.1%
SWMF2 Easement	STM19		STM20						0.33		12.05	183	1.148	42.8	0.007	900	1.515	2.38	0.37	0.30		0.08	229.00	227.47	0.63	228.95	227.17	0.88	75.8%
SWMF2 Easement (SWMF2 N Inlet)	STM20		HW3						0.33		12.35	181	1.146	8.8	0.01	900	1.810	2.85	0.46	0.05		0.08	228.95	227.09	0.96	228.04	227.00	0.13	63.3%

* Asteric indicates that the provided run is using an equivalently sized elliptical pipe.
Areas with lot level controls are assumed to be releasing at the 180L/s/ha targeted release rate.
Areas with rooftop controls are assumed to be releasing at the 40L/s/ha targeted release rate.
To Be Submitted on 11x17 Paper

TOWN STANDARD No. 104

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Feb 3 2025

CAL-13304 - 26m ROW Conveyance Capacity 100Yr 4Hr CHI

User-defined

Invert Elev (m)	= 229.1610
Slope (%)	= 0.0850
N-Value	= 0.013

Calculations

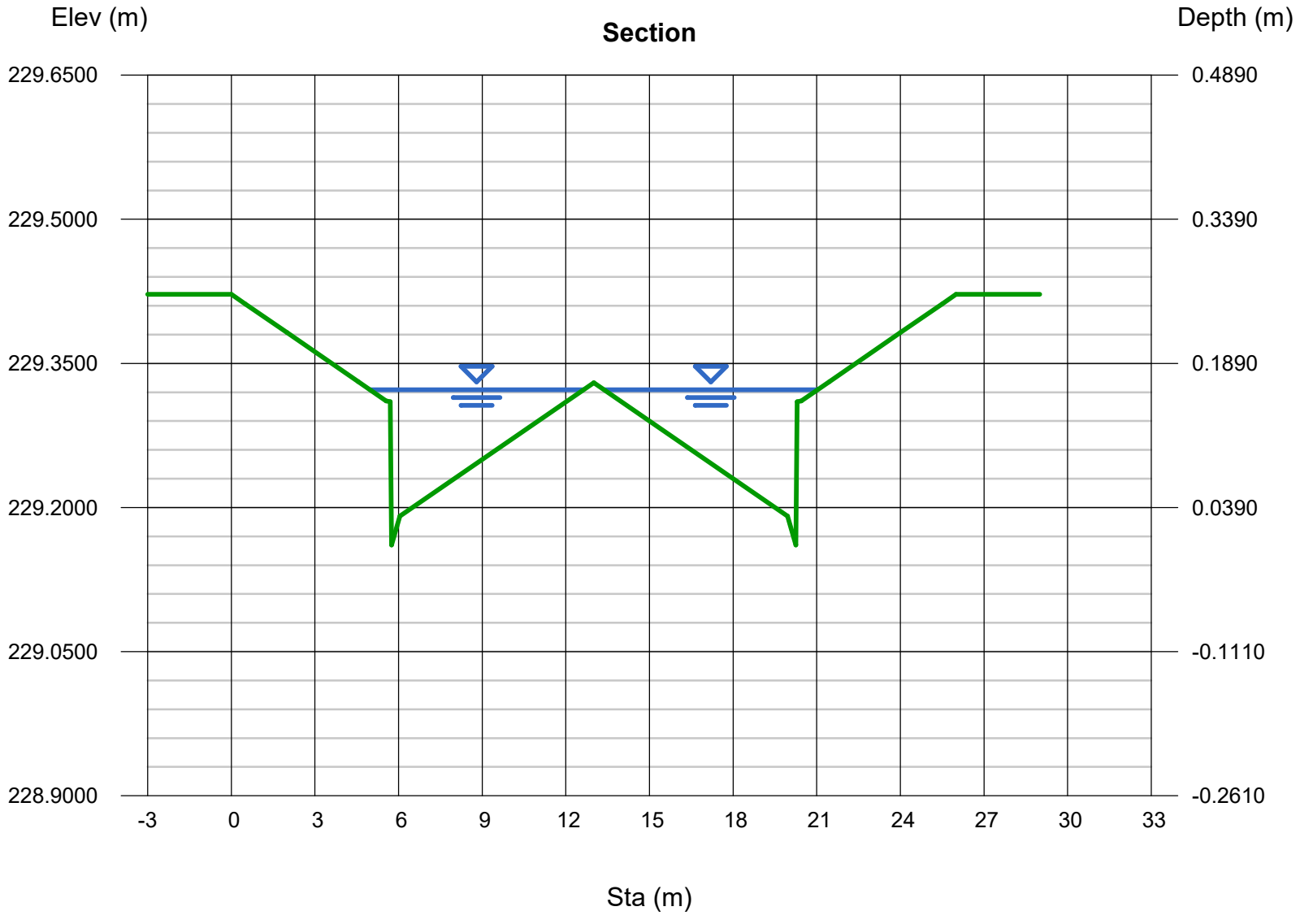
Compute by:	Known Q
Known Q (cms)	= 0.3320

Highlighted

Depth (m)	= 0.1615
Q (cms)	= 0.3320
Area (sqm)	= 0.9721
Velocity (m/s)	= 0.3415
Wetted Perim (m)	= 15.5288
Crit Depth, Yc (m)	= 0.1219
Top Width (m)	= 15.3086
EGL (m)	= 0.1675

(Sta, El, n)-(Sta, El, n)...

(0.0000, 229.4220)-(0.5000, 229.4120, 0.035)-(2.0000, 229.3820, 0.013)-(4.5500, 229.3310, 0.035)-(5.5500, 229.3110, 0.013)-(5.7000, 229.3100, 0.013)-(5.7500, 2
-(6.0500, 229.1910, 0.013)-(13.0000, 229.3300, 0.013)-(19.9500, 229.1910, 0.013)-(20.2500, 229.1610, 0.013)-(20.3000, 229.3100, 0.013)-(20.4500, 229.3110, 0.01
-(24.0000, 229.3820, 0.035)-(25.5000, 229.4120, 0.013)-(26.0000, 229.4220, 0.035)



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Feb 4 2025

CAL-13304 - 26m ROW Maximum Conveyance Capacity

User-defined

Invert Elev (m)	= 229.1610
Slope (%)	= 0.0850
N-Value	= 0.019

Calculations

Compute by:	Known Depth
Known Depth (m)	= 0.2610

Highlighted

Depth (m)	= 0.2610
Q (cms)	= 1.1117
Area (sqm)	= 3.0605
Velocity (m/s)	= 0.3632
Wetted Perim (m)	= 26.2224
Crit Depth, Yc (m)	= 0.1829
Top Width (m)	= 26.0000
EGL (m)	= 0.2677

(Sta, El, n)-(Sta, El, n)...

(0.0000, 229.4220)-(0.5000, 229.4120, 0.035)-(2.0000, 229.3820, 0.013)-(4.5500, 229.3310, 0.035)-(5.5500, 229.3110, 0.013)-(5.7000, 229.3100, 0.013)-(5.7500, 2
-(6.0500, 229.1910, 0.013)-(13.0000, 229.3300, 0.013)-(19.9500, 229.1910, 0.013)-(20.2500, 229.1610, 0.013)-(20.3000, 229.3100, 0.013)-(20.4500, 229.3110, 0.01
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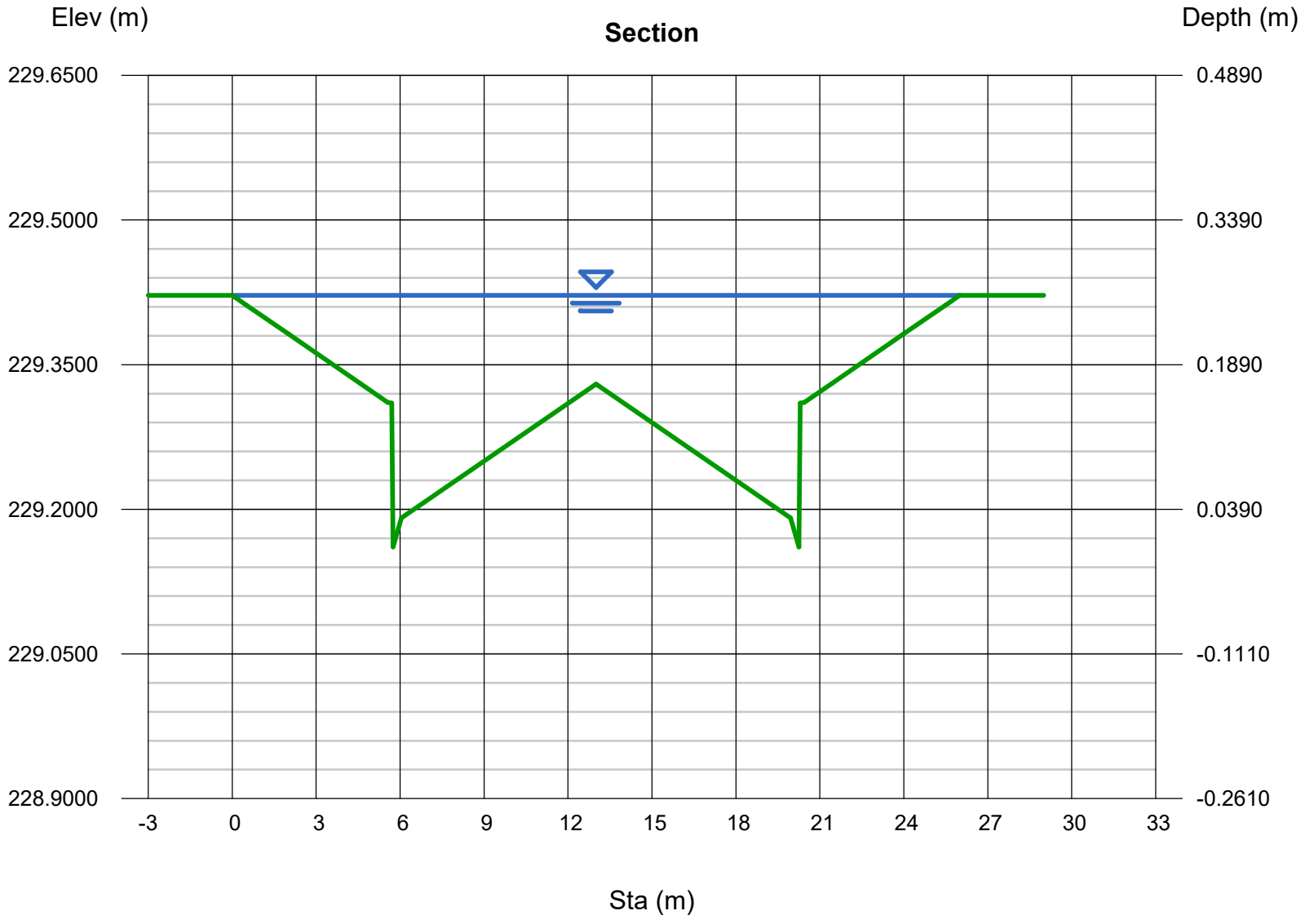
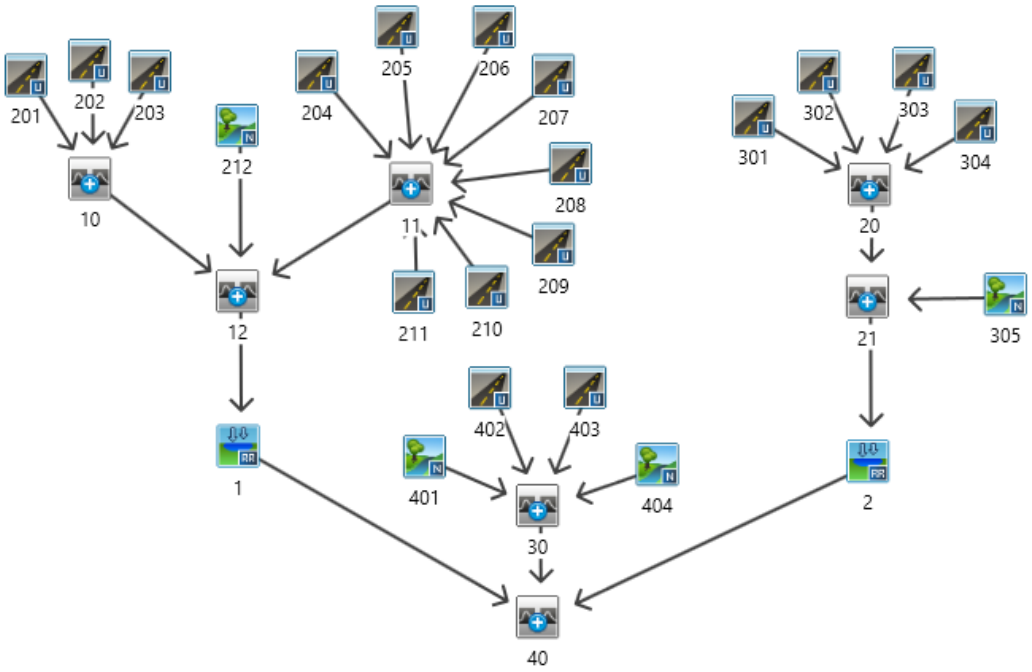


CAL-13304 Post-Dev-PF, No Attenuation OTTHYMO Schematic



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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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                  *****  D E T A I L E D   O U T P U T *****


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DATE: 02-05-2025                          TIME: 10:56:50

USER:



COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------
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  ***********************************************
  ** SIMULATION : 27mm 4Hr CHI                 **
  ***********************************************


--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 844.120
| Ptotal= 27.00 mm |                          B=   7.850
--------------------                          C=   0.876
                       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    1.11 |  1.00    7.20 |  2.00    4.05 |  3.00    1.58
                0.08    1.19 |  1.08   12.19 |  2.08    3.59 |  3.08    1.51
                0.17    1.29 |  1.17   30.99 |  2.17    3.22 |  3.17    1.44
                0.25    1.40 |  1.25   90.18 |  2.25    2.92 |  3.25    1.37
                0.33    1.54 |  1.33   40.37 |  2.33    2.67 |  3.33    1.32
                0.42    1.71 |  1.42   21.67 |  2.42    2.46 |  3.42    1.26
                0.50    1.92 |  1.50   14.15 |  2.50    2.28 |  3.50    1.21
                0.58    2.20 |  1.58   10.27 |  2.58    2.12 |  3.58    1.17
                0.67    2.56 |  1.67    7.96 |  2.67    1.99 |  3.67    1.13
                0.75    3.06 |  1.75    6.45 |  2.75    1.87 |  3.75    1.09
                0.83    3.81 |  1.83    5.40 |  2.83    1.76 |  3.83    1.05
                0.92    5.01 |  1.92    4.63 |  2.92    1.67 |  3.92    1.02


--------------------------------------------------------------------------------
--------------------
| CALIB              |
| NASHYD   (  0212)|   Area     (ha)=   2.13   Curve Number   (CN)= 66.0
|ID= 1 DT= 1.0 min |   Ia       (mm)=   9.45   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.07

        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    1.11 | 1.017    7.20 | 2.017    4.05 |  3.02    1.58
               0.033    1.11 | 1.033    7.20 | 2.033    4.05 |  3.03    1.58
               0.050    1.11 | 1.050    7.20 | 2.050    4.05 |  3.05    1.58
               0.067    1.11 | 1.067    7.20 | 2.067    4.05 |  3.07    1.58
               0.083    1.11 | 1.083    7.20 | 2.083    4.05 |  3.08    1.58
               0.100    1.19 | 1.100   12.19 | 2.100    3.59 |  3.10    1.51
               0.117    1.19 | 1.117   12.19 | 2.117    3.59 |  3.12    1.51
               0.133    1.19 | 1.133   12.19 | 2.133    3.59 |  3.13    1.51
               0.150    1.19 | 1.150   12.19 | 2.150    3.59 |  3.15    1.51
               0.167    1.19 | 1.167   12.19 | 2.167    3.59 |  3.17    1.51
               0.183    1.29 | 1.183   30.99 | 2.183    3.22 |  3.18    1.44
               0.200    1.29 | 1.200   30.99 | 2.200    3.22 |  3.20    1.44
               0.217    1.29 | 1.217   30.99 | 2.217    3.22 |  3.22    1.44
               0.233    1.29 | 1.233   30.99 | 2.233    3.22 |  3.23    1.44
               0.250    1.29 | 1.250   30.99 | 2.250    3.22 |  3.25    1.44
               0.267    1.40 | 1.267   90.18 | 2.267    2.92 |  3.27    1.37
               0.283    1.40 | 1.283   90.18 | 2.283    2.92 |  3.28    1.37
               0.300    1.40 | 1.300   90.18 | 2.300    2.92 |  3.30    1.37
               0.317    1.40 | 1.317   90.18 | 2.317    2.92 |  3.32    1.37
               0.333    1.40 | 1.333   90.18 | 2.333    2.92 |  3.33    1.37
               0.350    1.54 | 1.350   40.37 | 2.350    2.67 |  3.35    1.32
               0.367    1.54 | 1.367   40.37 | 2.367    2.67 |  3.37    1.32
               0.383    1.54 | 1.383   40.37 | 2.383    2.67 |  3.38    1.32
               0.400    1.54 | 1.400   40.37 | 2.400    2.67 |  3.40    1.32
               0.417    1.54 | 1.417   40.37 | 2.417    2.67 |  3.42    1.32
               0.433    1.71 | 1.433   21.67 | 2.433    2.46 |  3.43    1.26
               0.450    1.71 | 1.450   21.67 | 2.450    2.46 |  3.45    1.26
               0.467    1.71 | 1.467   21.67 | 2.467    2.46 |  3.47    1.26
               0.483    1.71 | 1.483   21.67 | 2.483    2.46 |  3.48    1.26
               0.500    1.71 | 1.500   21.67 | 2.500    2.46 |  3.50    1.26
               0.517    1.92 | 1.517   14.15 | 2.517    2.28 |  3.52    1.21
               0.533    1.92 | 1.533   14.15 | 2.533    2.28 |  3.53    1.21
               0.550    1.92 | 1.550   14.15 | 2.550    2.28 |  3.55    1.21
               0.567    1.92 | 1.567   14.15 | 2.567    2.28 |  3.57    1.21
               0.583    1.92 | 1.583   14.15 | 2.583    2.28 |  3.58    1.21
               0.600    2.20 | 1.600   10.27 | 2.600    2.12 |  3.60    1.17
               0.617    2.20 | 1.617   10.27 | 2.617    2.12 |  3.62    1.17
               0.633    2.20 | 1.633   10.27 | 2.633    2.12 |  3.63    1.17
               0.650    2.20 | 1.650   10.27 | 2.650    2.12 |  3.65    1.17
               0.667    2.20 | 1.667   10.27 | 2.667    2.12 |  3.67    1.17
               0.683    2.56 | 1.683    7.96 | 2.683    1.99 |  3.68    1.13
               0.700    2.56 | 1.700    7.96 | 2.700    1.99 |  3.70    1.13
               0.717    2.56 | 1.717    7.96 | 2.717    1.99 |  3.72    1.13
               0.733    2.56 | 1.733    7.96 | 2.733    1.99 |  3.73    1.13
               0.750    2.56 | 1.750    7.96 | 2.750    1.99 |  3.75    1.13
               0.767    3.06 | 1.767    6.45 | 2.767    1.87 |  3.77    1.09
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0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09
0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05
0.933	5.01	1.933	4.63	2.933	1.67	3.93	1.02
0.950	5.01	1.950	4.63	2.950	1.67	3.95	1.02
0.967	5.01	1.967	4.63	2.967	1.67	3.97	1.02
0.983	5.01	1.983	4.63	2.983	1.67	3.98	1.02
1.000	5.01	2.000	4.63	3.000	1.67	4.00	1.02

Unit Hyd Qpeak (cms)= 1.162

PEAK FLOW (cms)= 0.018 (i)
TIME TO PEAK (hrs)= 1.467
RUNOFF VOLUME (mm)= 2.075
TOTAL RAINFALL (mm)= 27.000
RUNOFF COEFFICIENT = 0.077

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0201)	Area (ha)= 4.65
ID= 1 DT= 1.0 min	Total Imp(%)= 90.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	4.19	0.47
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	0.50	0.50
Length	(m)=	176.12	345.00
Mannings n	=	0.013	0.170

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	1.11	1.017	7.20	2.017	4.05	3.02	1.58
0.033	1.11	1.033	7.20	2.033	4.05	3.03	1.58
0.050	1.11	1.050	7.20	2.050	4.05	3.05	1.58
0.067	1.11	1.067	7.20	2.067	4.05	3.07	1.58
0.083	1.11	1.083	7.20	2.083	4.05	3.08	1.58
0.100	1.19	1.100	12.19	2.100	3.59	3.10	1.51
0.117	1.19	1.117	12.19	2.117	3.59	3.12	1.51
0.133	1.19	1.133	12.19	2.133	3.59	3.13	1.51
0.150	1.19	1.150	12.19	2.150	3.59	3.15	1.51
0.167	1.19	1.167	12.19	2.167	3.59	3.17	1.51
0.183	1.29	1.183	30.99	2.183	3.22	3.18	1.44
0.200	1.29	1.200	30.99	2.200	3.22	3.20	1.44
0.217	1.29	1.217	30.99	2.217	3.22	3.22	1.44
0.233	1.29	1.233	30.99	2.233	3.22	3.23	1.44
0.250	1.29	1.250	30.99	2.250	3.22	3.25	1.44
0.267	1.40	1.267	90.18	2.267	2.92	3.27	1.37
0.283	1.40	1.283	90.18	2.283	2.92	3.28	1.37
0.300	1.40	1.300	90.18	2.300	2.92	3.30	1.37
0.317	1.40	1.317	90.18	2.317	2.92	3.32	1.37
0.333	1.40	1.333	90.18	2.333	2.92	3.33	1.37
0.350	1.54	1.350	40.37	2.350	2.67	3.35	1.32
0.367	1.54	1.367	40.37	2.367	2.67	3.37	1.32
0.383	1.54	1.383	40.37	2.383	2.67	3.38	1.32
0.400	1.54	1.400	40.37	2.400	2.67	3.40	1.32
0.417	1.54	1.417	40.37	2.417	2.67	3.42	1.32
0.433	1.71	1.433	21.67	2.433	2.46	3.43	1.26
0.450	1.71	1.450	21.67	2.450	2.46	3.45	1.26
0.467	1.71	1.467	21.67	2.467	2.46	3.47	1.26
0.483	1.71	1.483	21.67	2.483	2.46	3.48	1.26
0.500	1.71	1.500	21.67	2.500	2.46	3.50	1.26
0.517	1.92	1.517	14.15	2.517	2.28	3.52	1.21
0.533	1.92	1.533	14.15	2.533	2.28	3.53	1.21
0.550	1.92	1.550	14.15	2.550	2.28	3.55	1.21
0.567	1.92	1.567	14.15	2.567	2.28	3.57	1.21
0.583	1.92	1.583	14.15	2.583	2.28	3.58	1.21
0.600	2.20	1.600	10.27	2.600	2.12	3.60	1.17
0.617	2.20	1.617	10.27	2.617	2.12	3.62	1.17
0.633	2.20	1.633	10.27	2.633	2.12	3.63	1.17
0.650	2.20	1.650	10.27	2.650	2.12	3.65	1.17
0.667	2.20	1.667	10.27	2.667	2.12	3.67	1.17
0.683	2.56	1.683	7.96	2.683	1.99	3.68	1.13
0.700	2.56	1.700	7.96	2.700	1.99	3.70	1.13
0.717	2.56	1.717	7.96	2.717	1.99	3.72	1.13
0.733	2.56	1.733	7.96	2.733	1.99	3.73	1.13
0.750	2.56	1.750	7.96	2.750	1.99	3.75	1.13
0.767	3.06	1.767	6.45	2.767	1.87	3.77	1.09
0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09
0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05
0.933	5.01	1.933	4.63	2.933	1.67	3.93	1.02
0.950	5.01	1.950	4.63	2.950	1.67	3.95	1.02
0.967	5.01	1.967	4.63	2.967	1.67	3.97	1.02
0.983	5.01	1.983	4.63	2.983	1.67	3.98	1.02
1.000	5.01	2.000	4.63	3.000	1.67	4.00	1.02

				TOTALS
Max.Eff.Inten.(mm/hr)=		90.18	144.03	
over (min)		5.00	32.00	
Storage Coeff. (min)=		4.60 (ii)	31.33 (ii)	
Unit Hyd. Tpeak (min)=		5.00	32.00	
Unit Hyd. peak (cms)=		0.24	0.04	
PEAK FLOW	(cms)=	0.32	0.10	0.335 (iii)
TIME TO PEAK	(hrs)=	1.38	1.88	1.38
RUNOFF VOLUME	(mm)=	25.00	16.68	20.01
TOTAL RAINFALL	(mm)=	27.00	27.00	27.00
RUNOFF COEFFICIENT	=	0.93	0.62	0.74

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0203)	Area (ha)= 2.02

|ID= 1 DT= 1.0 min | Total Imp(%)= 77.80 Dir. Conn.(%)= 77.80

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.57	0.45
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	116.10	25.00
Mannings n	=	0.013	0.170

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	1.11	1.017	7.20	2.017	4.05	3.02	1.58
0.033	1.11	1.033	7.20	2.033	4.05	3.03	1.58
0.050	1.11	1.050	7.20	2.050	4.05	3.05	1.58
0.067	1.11	1.067	7.20	2.067	4.05	3.07	1.58
0.083	1.11	1.083	7.20	2.083	4.05	3.08	1.58
0.100	1.19	1.100	12.19	2.100	3.59	3.10	1.51
0.117	1.19	1.117	12.19	2.117	3.59	3.12	1.51
0.133	1.19	1.133	12.19	2.133	3.59	3.13	1.51
0.150	1.19	1.150	12.19	2.150	3.59	3.15	1.51
0.167	1.19	1.167	12.19	2.167	3.59	3.17	1.51
0.183	1.29	1.183	30.99	2.183	3.22	3.18	1.44
0.200	1.29	1.200	30.99	2.200	3.22	3.20	1.44
0.217	1.29	1.217	30.99	2.217	3.22	3.22	1.44
0.233	1.29	1.233	30.99	2.233	3.22	3.23	1.44
0.250	1.29	1.250	30.99	2.250	3.22	3.25	1.44
0.267	1.40	1.267	90.18	2.267	2.92	3.27	1.37
0.283	1.40	1.283	90.18	2.283	2.92	3.28	1.37
0.300	1.40	1.300	90.18	2.300	2.92	3.30	1.37
0.317	1.40	1.317	90.18	2.317	2.92	3.32	1.37
0.333	1.40	1.333	90.18	2.333	2.92	3.33	1.37
0.350	1.54	1.350	40.37	2.350	2.67	3.35	1.32
0.367	1.54	1.367	40.37	2.367	2.67	3.37	1.32
0.383	1.54	1.383	40.37	2.383	2.67	3.38	1.32
0.400	1.54	1.400	40.37	2.400	2.67	3.40	1.32
0.417	1.54	1.417	40.37	2.417	2.67	3.42	1.32
0.433	1.71	1.433	21.67	2.433	2.46	3.43	1.26
0.450	1.71	1.450	21.67	2.450	2.46	3.45	1.26
0.467	1.71	1.467	21.67	2.467	2.46	3.47	1.26
0.483	1.71	1.483	21.67	2.483	2.46	3.48	1.26
0.500	1.71	1.500	21.67	2.500	2.46	3.50	1.26
0.517	1.92	1.517	14.15	2.517	2.28	3.52	1.21
0.533	1.92	1.533	14.15	2.533	2.28	3.53	1.21
0.550	1.92	1.550	14.15	2.550	2.28	3.55	1.21
0.567	1.92	1.567	14.15	2.567	2.28	3.57	1.21
0.583	1.92	1.583	14.15	2.583	2.28	3.58	1.21
0.600	2.20	1.600	10.27	2.600	2.12	3.60	1.17
0.617	2.20	1.617	10.27	2.617	2.12	3.62	1.17
0.633	2.20	1.633	10.27	2.633	2.12	3.63	1.17
0.650	2.20	1.650	10.27	2.650	2.12	3.65	1.17
0.667	2.20	1.667	10.27	2.667	2.12	3.67	1.17
0.683	2.56	1.683	7.96	2.683	1.99	3.68	1.13
0.700	2.56	1.700	7.96	2.700	1.99	3.70	1.13
0.717	2.56	1.717	7.96	2.717	1.99	3.72	1.13
0.733	2.56	1.733	7.96	2.733	1.99	3.73	1.13
0.750	2.56	1.750	7.96	2.750	1.99	3.75	1.13
0.767	3.06	1.767	6.45	2.767	1.87	3.77	1.09
0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09
0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05
0.933	5.01	1.933	4.63	2.933	1.67	3.93	1.02
0.950	5.01	1.950	4.63	2.950	1.67	3.95	1.02
0.967	5.01	1.967	4.63	2.967	1.67	3.97	1.02
0.983	5.01	1.983	4.63	2.983	1.67	3.98	1.02
1.000	5.01	2.000	4.63	3.000	1.67	4.00	1.02

				TOTALS
Max.Eff.Inten.(mm/hr)=		90.18	8.89	
over (min)		5.00	6.00	
Storage Coeff. (min)=		2.37 (ii)	5.03 (ii)	
Unit Hyd. Tpeak (min)=		5.00	6.00	
Unit Hyd. peak (cms)=		0.35	0.21	
PEAK FLOW	(cms)=	0.32	0.01	0.329 (iii)
TIME TO PEAK	(hrs)=	1.37	1.45	1.37
RUNOFF VOLUME	(mm)=	25.00	4.35	20.41
TOTAL RAINFALL	(mm)=	27.00	27.00	27.00
RUNOFF COEFFICIENT	=	0.93	0.16	0.76

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0202)	Area (ha)= 4.13
ID= 1 DT= 1.0 min	Total Imp(%)= 90.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	3.72	0.41
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	0.50	0.50
Length	(m)=	165.99	345.00
Mannings n	=	0.013	0.170

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	1.11	1.017	7.20	2.017	4.05	3.02	1.58
0.033	1.11	1.033	7.20	2.033	4.05	3.03	1.58
0.050	1.11	1.050	7.20	2.050	4.05	3.05	1.58
0.067	1.11	1.067	7.20	2.067	4.05	3.07	1.58
0.083	1.11	1.083	7.20	2.083	4.05	3.08	1.58
0.100	1.19	1.100	12.19	2.100	3.59	3.10	1.51
0.117	1.19	1.117	12.19	2.117	3.59	3.12	1.51
0.133	1.19	1.133	12.19	2.133	3.59	3.13	1.51
0.150	1.19	1.150	12.19	2.150	3.59	3.15	1.51
0.167	1.19	1.167	12.19	2.167	3.59	3.17	1.51
0.183	1.29	1.183	30.99	2.183	3.22	3.18	1.44
0.200	1.29	1.200	30.99	2.200	3.22	3.20	1.44
0.217	1.29	1.217	30.99	2.217	3.22	3.22	1.44
0.233	1.29	1.233	30.99	2.233	3.22	3.23	1.44

0.250	1.29	1.250	30.99	2.250	3.22	3.25	1.44
0.267	1.40	1.267	90.18	2.267	2.92	3.27	1.37
0.283	1.40	1.283	90.18	2.283	2.92	3.28	1.37
0.300	1.40	1.300	90.18	2.300	2.92	3.30	1.37
0.317	1.40	1.317	90.18	2.317	2.92	3.32	1.37
0.333	1.40	1.333	90.18	2.333	2.92	3.33	1.37
0.350	1.54	1.350	40.37	2.350	2.67	3.35	1.32
0.367	1.54	1.367	40.37	2.367	2.67	3.37	1.32
0.383	1.54	1.383	40.37	2.383	2.67	3.38	1.32
0.400	1.54	1.400	40.37	2.400	2.67	3.40	1.32
0.417	1.54	1.417	40.37	2.417	2.67	3.42	1.32
0.433	1.71	1.433	21.67	2.433	2.46	3.43	1.26
0.450	1.71	1.450	21.67	2.450	2.46	3.45	1.26
0.467	1.71	1.467	21.67	2.467	2.46	3.47	1.26
0.483	1.71	1.483	21.67	2.483	2.46	3.48	1.26
0.500	1.71	1.500	21.67	2.500	2.46	3.50	1.26
0.517	1.92	1.517	14.15	2.517	2.28	3.52	1.21
0.533	1.92	1.533	14.15	2.533	2.28	3.53	1.21
0.550	1.92	1.550	14.15	2.550	2.28	3.55	1.21
0.567	1.92	1.567	14.15	2.567	2.28	3.57	1.21
0.583	1.92	1.583	14.15	2.583	2.28	3.58	1.21
0.600	2.20	1.600	10.27	2.600	2.12	3.60	1.17
0.617	2.20	1.617	10.27	2.617	2.12	3.62	1.17
0.633	2.20	1.633	10.27	2.633	2.12	3.63	1.17
0.650	2.20	1.650	10.27	2.650	2.12	3.65	1.17
0.667	2.20	1.667	10.27	2.667	2.12	3.67	1.17
0.683	2.56	1.683	7.96	2.683	1.99	3.68	1.13
0.700	2.56	1.700	7.96	2.700	1.99	3.70	1.13
0.717	2.56	1.717	7.96	2.717	1.99	3.72	1.13
0.733	2.56	1.733	7.96	2.733	1.99	3.73	1.13
0.750	2.56	1.750	7.96	2.750	1.99	3.75	1.13
0.767	3.06	1.767	6.45	2.767	1.87	3.77	1.09
0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09
0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05
0.933	5.01	1.933	4.63	2.933	1.67	3.93	1.02
0.950	5.01	1.950	4.63	2.950	1.67	3.95	1.02
0.967	5.01	1.967	4.63	2.967	1.67	3.97	1.02
0.983	5.01	1.983	4.63	2.983	1.67	3.98	1.02
1.000	5.01	2.000	4.63	3.000	1.67	4.00	1.02

Max.Eff.Inten.(mm/hr)=	90.18	144.03	
over (min)	5.00	32.00	
Storage Coeff. (min)=	4.44 (ii)	31.16 (ii)	
Unit Hyd. Tpeak (min)=	5.00	32.00	
Unit Hyd. peak (cms)=	0.24	0.04	
			TOTALS
PEAK FLOW (cms)=	0.29	0.09	0.301 (iii)
TIME TO PEAK (hrs)=	1.38	1.88	1.38
RUNOFF VOLUME (mm)=	25.00	16.68	20.01
TOTAL RAINFALL (mm)=	27.00	27.00	27.00
RUNOFF COEFFICIENT =	0.93	0.62	0.74

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0010)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0201):	4.65	0.335	1.38	20.01
	+ ID2= 2 (0202):	4.13	0.301	1.38	20.01
	ID = 3 (0010):	8.79	0.636	1.38	20.01

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0010)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0010):	8.79	0.636	1.38	20.01
	+ ID2= 2 (0203):	2.02	0.329	1.37	20.41
	ID = 1 (0010):	10.81	0.955	1.38	20.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0204) | Area (ha)= 1.78
ID= 1 DT= 1.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.61	0.18
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.30
Length	(m)=	109.04	84.00
Mannings n	=	0.013	0.170

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	1.11	1.017	7.20	2.017	4.05	3.02	1.58
0.033	1.11	1.033	7.20	2.033	4.05	3.03	1.58
0.050	1.11	1.050	7.20	2.050	4.05	3.05	1.58
0.067	1.11	1.067	7.20	2.067	4.05	3.07	1.58
0.083	1.11	1.083	7.20	2.083	4.05	3.08	1.58
0.100	1.19	1.100	12.19	2.100	3.59	3.10	1.51
0.117	1.19	1.117	12.19	2.117	3.59	3.12	1.51
0.133	1.19	1.133	12.19	2.133	3.59	3.13	1.51
0.150	1.19	1.150	12.19	2.150	3.59	3.15	1.51
0.167	1.19	1.167	12.19	2.167	3.59	3.17	1.51
0.183	1.29	1.183	30.99	2.183	3.22	3.18	1.44
0.200	1.29	1.200	30.99	2.200	3.22	3.20	1.44
0.217	1.29	1.217	30.99	2.217	3.22	3.22	1.44
0.233	1.29	1.233	30.99	2.233	3.22	3.23	1.44
0.250	1.29	1.250	30.99	2.250	3.22	3.25	1.44
0.267	1.40	1.267	90.18	2.267	2.92	3.27	1.37
0.283	1.40	1.283	90.18	2.283	2.92	3.28	1.37
0.300	1.40	1.300	90.18	2.300	2.92	3.30	1.37
0.317	1.40	1.317	90.18	2.317	2.92	3.32	1.37

0.333	1.40	1.333	90.18	2.333	2.92	3.33	1.37
0.350	1.54	1.350	40.37	2.350	2.67	3.35	1.32
0.367	1.54	1.367	40.37	2.367	2.67	3.37	1.32
0.383	1.54	1.383	40.37	2.383	2.67	3.38	1.32
0.400	1.54	1.400	40.37	2.400	2.67	3.40	1.32
0.417	1.54	1.417	40.37	2.417	2.67	3.42	1.32
0.433	1.71	1.433	21.67	2.433	2.46	3.43	1.26
0.450	1.71	1.450	21.67	2.450	2.46	3.45	1.26
0.467	1.71	1.467	21.67	2.467	2.46	3.47	1.26
0.483	1.71	1.483	21.67	2.483	2.46	3.48	1.26
0.500	1.71	1.500	21.67	2.500	2.46	3.50	1.26
0.517	1.92	1.517	14.15	2.517	2.28	3.52	1.21
0.533	1.92	1.533	14.15	2.533	2.28	3.53	1.21
0.550	1.92	1.550	14.15	2.550	2.28	3.55	1.21
0.567	1.92	1.567	14.15	2.567	2.28	3.57	1.21
0.583	1.92	1.583	14.15	2.583	2.28	3.58	1.21
0.600	2.20	1.600	10.27	2.600	2.12	3.60	1.17
0.617	2.20	1.617	10.27	2.617	2.12	3.62	1.17
0.633	2.20	1.633	10.27	2.633	2.12	3.63	1.17
0.650	2.20	1.650	10.27	2.650	2.12	3.65	1.17
0.667	2.20	1.667	10.27	2.667	2.12	3.67	1.17
0.683	2.56	1.683	7.96	2.683	1.99	3.68	1.13
0.700	2.56	1.700	7.96	2.700	1.99	3.70	1.13
0.717	2.56	1.717	7.96	2.717	1.99	3.72	1.13
0.733	2.56	1.733	7.96	2.733	1.99	3.73	1.13
0.750	2.56	1.750	7.96	2.750	1.99	3.75	1.13
0.767	3.06	1.767	6.45	2.767	1.87	3.77	1.09
0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09
0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05
0.933	5.01	1.933	4.63	2.933	1.67	3.93	1.02
0.950	5.01	1.950	4.63	2.950	1.67	3.95	1.02
0.967	5.01	1.967	4.63	2.967	1.67	3.97	1.02
0.983	5.01	1.983	4.63	2.983	1.67	3.98	1.02
1.000	5.01	2.000	4.63	3.000	1.67	4.00	1.02

			TOTALS
Max.Eff.Inten.(mm/hr)=	90.18	256.65	
over (min)	5.00	9.00	
Storage Coeff. (min)=	2.80 (ii)	8.76 (ii)	
Unit Hyd. Tpeak (min)=	5.00	9.00	
Unit Hyd. peak (cms)=	0.32	0.13	
PEAK FLOW (cms)=	0.14	0.08	0.196 (iii)
TIME TO PEAK (hrs)=	1.37	1.47	1.38
RUNOFF VOLUME (mm)=	25.00	16.68	20.01
TOTAL RAINFALL (mm)=	27.00	27.00	27.00
RUNOFF COEFFICIENT =	0.93	0.62	0.74

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0209)	Area (ha)= 4.42
ID= 1 DT= 1.0 min	Total Imp(%)= 89.90 Dir. Conn.(%)= 40.10

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	3.97	0.45
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	171.63	390.00
Mannings n	=	0.013	0.170

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	1.11	1.017	7.20	2.017	4.05	3.02	1.58
0.033	1.11	1.033	7.20	2.033	4.05	3.03	1.58
0.050	1.11	1.050	7.20	2.050	4.05	3.05	1.58
0.067	1.11	1.067	7.20	2.067	4.05	3.07	1.58
0.083	1.11	1.083	7.20	2.083	4.05	3.08	1.58
0.100	1.19	1.100	12.19	2.100	3.59	3.10	1.51
0.117	1.19	1.117	12.19	2.117	3.59	3.12	1.51
0.133	1.19	1.133	12.19	2.133	3.59	3.13	1.51
0.150	1.19	1.150	12.19	2.150	3.59	3.15	1.51
0.167	1.19	1.167	12.19	2.167	3.59	3.17	1.51
0.183	1.29	1.183	30.99	2.183	3.22	3.18	1.44
0.200	1.29	1.200	30.99	2.200	3.22	3.20	1.44
0.217	1.29	1.217	30.99	2.217	3.22	3.22	1.44
0.233	1.29	1.233	30.99	2.233	3.22	3.23	1.44
0.250	1.29	1.250	30.99	2.250	3.22	3.25	1.44
0.267	1.40	1.267	90.18	2.267	2.92	3.27	1.37
0.283	1.40	1.283	90.18	2.283	2.92	3.28	1.37
0.300	1.40	1.300	90.18	2.300	2.92	3.30	1.37
0.317	1.40	1.317	90.18	2.317	2.92	3.32	1.37
0.333	1.40	1.333	90.18	2.333	2.92	3.33	1.37
0.350	1.54	1.350	40.37	2.350	2.67	3.35	1.32
0.367	1.54	1.367	40.37	2.367	2.67	3.37	1.32
0.383	1.54	1.383	40.37	2.383	2.67	3.38	1.32
0.400	1.54	1.400	40.37	2.400	2.67	3.40	1.32
0.417	1.54	1.417	40.37	2.417	2.67	3.42	1.32
0.433	1.71	1.433	21.67	2.433	2.46	3.43	1.26
0.450	1.71	1.450	21.67	2.450	2.46	3.45	1.26
0.467	1.71	1.467	21.67	2.467	2.46	3.47	1.26
0.483	1.71	1.483	21.67	2.483	2.46	3.48	1.26
0.500	1.71	1.500	21.67	2.500	2.46	3.50	1.26
0.517	1.92	1.517	14.15	2.517	2.28	3.52	1.21
0.533	1.92	1.533	14.15	2.533	2.28	3.53	1.21
0.550	1.92	1.550	14.15	2.550	2.28	3.55	1.21
0.567	1.92	1.567	14.15	2.567	2.28	3.57	1.21
0.583	1.92	1.583	14.15	2.583	2.28	3.58	1.21
0.600	2.20	1.600	10.27	2.600	2.12	3.60	1.17
0.617	2.20	1.617	10.27	2.617	2.12	3.62	1.17
0.633	2.20	1.633	10.27	2.633	2.12	3.63	1.17
0.650	2.20	1.650	10.27	2.650	2.12	3.65	1.17
0.667	2.20	1.667	10.27	2.667	2.12	3.67	1.17
0.683	2.56	1.683	7.96	2.683	1.99	3.68	1.13
0.700	2.56	1.700	7.96	2.700	1.99	3.70	1.13
0.717	2.56	1.717	7.96	2.717	1.99	3.72	1.13
0.733	2.56	1.733	7.96	2.733	1.99	3.73	1.13
0.750	2.56	1.750	7.96	2.750	1.99	3.75	1.13
0.767	3.06	1.767	6.45	2.767	1.87	3.77	1.09
0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09

0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05
0.933	5.01	1.933	4.63	2.933	1.67	3.93	1.02
0.950	5.01	1.950	4.63	2.950	1.67	3.95	1.02
0.967	5.01	1.967	4.63	2.967	1.67	3.97	1.02
0.983	5.01	1.983	4.63	2.983	1.67	3.98	1.02
1.000	5.01	2.000	4.63	3.000	1.67	4.00	1.02

			TOTALS
Max.Eff.Inten.(mm/hr)=	90.18	156.47	
over (min)	5.00	27.00	
Storage Coeff. (min)=	3.68 (ii)	26.28 (ii)	
Unit Hyd. Tpeak (min)=	5.00	27.00	
Unit Hyd. peak (cms)=	0.27	0.04	
PEAK FLOW (cms)=	0.33	0.10	0.344 (iii)
TIME TO PEAK (hrs)=	1.37	1.80	1.38
RUNOFF VOLUME (mm)=	25.00	16.60	19.97
TOTAL RAINFALL (mm)=	27.00	27.00	27.00
RUNOFF COEFFICIENT =	0.93	0.61	0.74

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0205)| Area (ha)= 1.36
ID= 1 DT= 1.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.09	0.27
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	95.33	125.00
Mannings n	=	0.013	0.170

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	1.11	1.017	7.20	2.017	4.05	3.02	1.58
0.033	1.11	1.033	7.20	2.033	4.05	3.03	1.58
0.050	1.11	1.050	7.20	2.050	4.05	3.05	1.58
0.067	1.11	1.067	7.20	2.067	4.05	3.07	1.58
0.083	1.11	1.083	7.20	2.083	4.05	3.08	1.58
0.100	1.19	1.100	12.19	2.100	3.59	3.10	1.51
0.117	1.19	1.117	12.19	2.117	3.59	3.12	1.51
0.133	1.19	1.133	12.19	2.133	3.59	3.13	1.51
0.150	1.19	1.150	12.19	2.150	3.59	3.15	1.51
0.167	1.19	1.167	12.19	2.167	3.59	3.17	1.51
0.183	1.29	1.183	30.99	2.183	3.22	3.18	1.44
0.200	1.29	1.200	30.99	2.200	3.22	3.20	1.44
0.217	1.29	1.217	30.99	2.217	3.22	3.22	1.44
0.233	1.29	1.233	30.99	2.233	3.22	3.23	1.44
0.250	1.29	1.250	30.99	2.250	3.22	3.25	1.44
0.267	1.40	1.267	90.18	2.267	2.92	3.27	1.37
0.283	1.40	1.283	90.18	2.283	2.92	3.28	1.37
0.300	1.40	1.300	90.18	2.300	2.92	3.30	1.37
0.317	1.40	1.317	90.18	2.317	2.92	3.32	1.37
0.333	1.40	1.333	90.18	2.333	2.92	3.33	1.37
0.350	1.54	1.350	40.37	2.350	2.67	3.35	1.32
0.367	1.54	1.367	40.37	2.367	2.67	3.37	1.32
0.383	1.54	1.383	40.37	2.383	2.67	3.38	1.32
0.400	1.54	1.400	40.37	2.400	2.67	3.40	1.32
0.417	1.54	1.417	40.37	2.417	2.67	3.42	1.32
0.433	1.71	1.433	21.67	2.433	2.46	3.43	1.26
0.450	1.71	1.450	21.67	2.450	2.46	3.45	1.26
0.467	1.71	1.467	21.67	2.467	2.46	3.47	1.26
0.483	1.71	1.483	21.67	2.483	2.46	3.48	1.26
0.500	1.71	1.500	21.67	2.500	2.46	3.50	1.26
0.517	1.92	1.517	14.15	2.517	2.28	3.52	1.21
0.533	1.92	1.533	14.15	2.533	2.28	3.53	1.21
0.550	1.92	1.550	14.15	2.550	2.28	3.55	1.21
0.567	1.92	1.567	14.15	2.567	2.28	3.57	1.21
0.583	1.92	1.583	14.15	2.583	2.28	3.58	1.21
0.600	2.20	1.600	10.27	2.600	2.12	3.60	1.17
0.617	2.20	1.617	10.27	2.617	2.12	3.62	1.17
0.633	2.20	1.633	10.27	2.633	2.12	3.63	1.17
0.650	2.20	1.650	10.27	2.650	2.12	3.65	1.17
0.667	2.20	1.667	10.27	2.667	2.12	3.67	1.17
0.683	2.56	1.683	7.96	2.683	1.99	3.68	1.13
0.700	2.56	1.700	7.96	2.700	1.99	3.70	1.13
0.717	2.56	1.717	7.96	2.717	1.99	3.72	1.13
0.733	2.56	1.733	7.96	2.733	1.99	3.73	1.13
0.750	2.56	1.750	7.96	2.750	1.99	3.75	1.13
0.767	3.06	1.767	6.45	2.767	1.87	3.77	1.09
0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09
0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05
0.933	5.01	1.933	4.63	2.933	1.67	3.93	1.02
0.950	5.01	1.950	4.63	2.950	1.67	3.95	1.02
0.967	5.01	1.967	4.63	2.967	1.67	3.97	1.02
0.983	5.01	1.983	4.63	2.983	1.67	3.98	1.02
1.000	5.01	2.000	4.63	3.000	1.67	4.00	1.02

			TOTALS
Max.Eff.Inten.(mm/hr)=	90.18	44.04	
over (min)	5.00	22.00	
Storage Coeff. (min)=	2.59 (ii)	21.55 (ii)	
Unit Hyd. Tpeak (min)=	5.00	22.00	
Unit Hyd. peak (cms)=	0.33	0.05	
PEAK FLOW (cms)=	0.14	0.02	0.140 (iii)
TIME TO PEAK (hrs)=	1.37	1.73	1.37
RUNOFF VOLUME (mm)=	25.00	10.30	17.64
TOTAL RAINFALL (mm)=	27.00	27.00	27.00
RUNOFF COEFFICIENT =	0.93	0.38	0.65

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

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        THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   1.40
|ID= 1 DT= 1.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  50.00
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                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.12         0.28
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      96.57        98.00
     Mannings n           =      0.013        0.170

         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    1.11 | 1.017    7.20 | 2.017    4.05 |  3.02    1.58
     0.033    1.11 | 1.033    7.20 | 2.033    4.05 |  3.03    1.58
     0.050    1.11 | 1.050    7.20 | 2.050    4.05 |  3.05    1.58
     0.067    1.11 | 1.067    7.20 | 2.067    4.05 |  3.07    1.58
     0.083    1.11 | 1.083    7.20 | 2.083    4.05 |  3.08    1.58
     0.100    1.19 | 1.100   12.19 | 2.100    3.59 |  3.10    1.51
     0.117    1.19 | 1.117   12.19 | 2.117    3.59 |  3.12    1.51
     0.133    1.19 | 1.133   12.19 | 2.133    3.59 |  3.13    1.51
     0.150    1.19 | 1.150   12.19 | 2.150    3.59 |  3.15    1.51
     0.167    1.19 | 1.167   12.19 | 2.167    3.59 |  3.17    1.51
     0.183    1.29 | 1.183   30.99 | 2.183    3.22 |  3.18    1.44
     0.200    1.29 | 1.200   30.99 | 2.200    3.22 |  3.20    1.44
     0.217    1.29 | 1.217   30.99 | 2.217    3.22 |  3.22    1.44
     0.233    1.29 | 1.233   30.99 | 2.233    3.22 |  3.23    1.44
     0.250    1.29 | 1.250   30.99 | 2.250    3.22 |  3.25    1.44
     0.267    1.40 | 1.267   90.18 | 2.267    2.92 |  3.27    1.37
     0.283    1.40 | 1.283   90.18 | 2.283    2.92 |  3.28    1.37
     0.300    1.40 | 1.300   90.18 | 2.300    2.92 |  3.30    1.37
     0.317    1.40 | 1.317   90.18 | 2.317    2.92 |  3.32    1.37
     0.333    1.40 | 1.333   90.18 | 2.333    2.92 |  3.33    1.37
     0.350    1.54 | 1.350   40.37 | 2.350    2.67 |  3.35    1.32
     0.367    1.54 | 1.367   40.37 | 2.367    2.67 |  3.37    1.32
     0.383    1.54 | 1.383   40.37 | 2.383    2.67 |  3.38    1.32
     0.400    1.54 | 1.400   40.37 | 2.400    2.67 |  3.40    1.32
     0.417    1.54 | 1.417   40.37 | 2.417    2.67 |  3.42    1.32
     0.433    1.71 | 1.433   21.67 | 2.433    2.46 |  3.43    1.26
     0.450    1.71 | 1.450   21.67 | 2.450    2.46 |  3.45    1.26
     0.467    1.71 | 1.467   21.67 | 2.467    2.46 |  3.47    1.26
     0.483    1.71 | 1.483   21.67 | 2.483    2.46 |  3.48    1.26
     0.500    1.71 | 1.500   21.67 | 2.500    2.46 |  3.50    1.26
     0.517    1.92 | 1.517   14.15 | 2.517    2.28 |  3.52    1.21
     0.533    1.92 | 1.533   14.15 | 2.533    2.28 |  3.53    1.21
     0.550    1.92 | 1.550   14.15 | 2.550    2.28 |  3.55    1.21
     0.567    1.92 | 1.567   14.15 | 2.567    2.28 |  3.57    1.21
     0.583    1.92 | 1.583   14.15 | 2.583    2.28 |  3.58    1.21
     0.600    2.20 | 1.600   10.27 | 2.600    2.12 |  3.60    1.17
     0.617    2.20 | 1.617   10.27 | 2.617    2.12 |  3.62    1.17
     0.633    2.20 | 1.633   10.27 | 2.633    2.12 |  3.63    1.17
     0.650    2.20 | 1.650   10.27 | 2.650    2.12 |  3.65    1.17
     0.667    2.20 | 1.667   10.27 | 2.667    2.12 |  3.67    1.17
     0.683    2.56 | 1.683    7.96 | 2.683    1.99 |  3.68    1.13
     0.700    2.56 | 1.700    7.96 | 2.700    1.99 |  3.70    1.13
     0.717    2.56 | 1.717    7.96 | 2.717    1.99 |  3.72    1.13
     0.733    2.56 | 1.733    7.96 | 2.733    1.99 |  3.73    1.13
     0.750    2.56 | 1.750    7.96 | 2.750    1.99 |  3.75    1.13
     0.767    3.06 | 1.767    6.45 | 2.767    1.87 |  3.77    1.09
     0.783    3.06 | 1.783    6.45 | 2.783    1.87 |  3.78    1.09
     0.800    3.06 | 1.800    6.45 | 2.800    1.87 |  3.80    1.09
     0.817    3.06 | 1.817    6.45 | 2.817    1.87 |  3.82    1.09
     0.833    3.06 | 1.833    6.45 | 2.833    1.87 |  3.83    1.09
     0.850    3.81 | 1.850    5.40 | 2.850    1.76 |  3.85    1.05
     0.867    3.81 | 1.867    5.40 | 2.867    1.76 |  3.87    1.05
     0.883    3.81 | 1.883    5.40 | 2.883    1.76 |  3.88    1.05
     0.900    3.81 | 1.900    5.40 | 2.900    1.76 |  3.90    1.05
     0.917    3.81 | 1.917    5.40 | 2.917    1.76 |  3.92    1.05
     0.933    5.01 | 1.933    4.63 | 2.933    1.67 |  3.93    1.02
     0.950    5.01 | 1.950    4.63 | 2.950    1.67 |  3.95    1.02
     0.967    5.01 | 1.967    4.63 | 2.967    1.67 |  3.97    1.02
     0.983    5.01 | 1.983    4.63 | 2.983    1.67 |  3.98    1.02
     1.000    5.01 | 2.000    4.63 | 3.000    1.67 |  4.00    1.02

     Max.Eff.Inten.(mm/hr)=      90.18        61.60
               over (min)        5.00        12.00
     Storage Coeff.  (min)=      2.61 (ii)   11.13 (ii)
     Unit Hyd. Tpeak (min)=      5.00        12.00
     Unit Hyd. peak  (cms)=      0.33         0.10
                                                      *TOTALS*
     PEAK FLOW       (cms)=      0.14         0.03       0.150 (iii)
     TIME TO PEAK    (hrs)=      1.37         1.55        1.37
     RUNOFF VOLUME    (mm)=     25.00        10.30       17.64
     TOTAL RAINFALL   (mm)=     27.00        27.00       27.00
     RUNOFF COEFFICIENT   =      0.93         0.38        0.65

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  74.0    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.

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| CALIB            |
| STANDHYD (  0207)|   Area    (ha)=   4.45
|ID= 1 DT= 1.0 min |   Total Imp(%)=  89.30   Dir. Conn.(%)=  40.70
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                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.97         0.48
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       0.90         0.90
     Length            (m)=     172.18       407.00
     Mannings n           =      0.013        0.170

         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    1.11 | 1.017    7.20 | 2.017    4.05 |  3.02    1.58
     0.033    1.11 | 1.033    7.20 | 2.033    4.05 |  3.03    1.58
     0.050    1.11 | 1.050    7.20 | 2.050    4.05 |  3.05    1.58
     0.067    1.11 | 1.067    7.20 | 2.067    4.05 |  3.07    1.58
     0.083    1.11 | 1.083    7.20 | 2.083    4.05 |  3.08    1.58
     0.100    1.19 | 1.100   12.19 | 2.100    3.59 |  3.10    1.51
     0.117    1.19 | 1.117   12.19 | 2.117    3.59 |  3.12    1.51
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0.133	1.19	1.133	12.19	2.133	3.59	3.13	1.51
0.150	1.19	1.150	12.19	2.150	3.59	3.15	1.51
0.167	1.19	1.167	12.19	2.167	3.59	3.17	1.51
0.183	1.29	1.183	30.99	2.183	3.22	3.18	1.44
0.200	1.29	1.200	30.99	2.200	3.22	3.20	1.44
0.217	1.29	1.217	30.99	2.217	3.22	3.22	1.44
0.233	1.29	1.233	30.99	2.233	3.22	3.23	1.44
0.250	1.29	1.250	30.99	2.250	3.22	3.25	1.44
0.267	1.40	1.267	90.18	2.267	2.92	3.27	1.37
0.283	1.40	1.283	90.18	2.283	2.92	3.28	1.37
0.300	1.40	1.300	90.18	2.300	2.92	3.30	1.37
0.317	1.40	1.317	90.18	2.317	2.92	3.32	1.37
0.333	1.40	1.333	90.18	2.333	2.92	3.33	1.37
0.350	1.54	1.350	40.37	2.350	2.67	3.35	1.32
0.367	1.54	1.367	40.37	2.367	2.67	3.37	1.32
0.383	1.54	1.383	40.37	2.383	2.67	3.38	1.32
0.400	1.54	1.400	40.37	2.400	2.67	3.40	1.32
0.417	1.54	1.417	40.37	2.417	2.67	3.42	1.32
0.433	1.71	1.433	21.67	2.433	2.46	3.43	1.26
0.450	1.71	1.450	21.67	2.450	2.46	3.45	1.26
0.467	1.71	1.467	21.67	2.467	2.46	3.47	1.26
0.483	1.71	1.483	21.67	2.483	2.46	3.48	1.26
0.500	1.71	1.500	21.67	2.500	2.46	3.50	1.26
0.517	1.92	1.517	14.15	2.517	2.28	3.52	1.21
0.533	1.92	1.533	14.15	2.533	2.28	3.53	1.21
0.550	1.92	1.550	14.15	2.550	2.28	3.55	1.21
0.567	1.92	1.567	14.15	2.567	2.28	3.57	1.21
0.583	1.92	1.583	14.15	2.583	2.28	3.58	1.21
0.600	2.20	1.600	10.27	2.600	2.12	3.60	1.17
0.617	2.20	1.617	10.27	2.617	2.12	3.62	1.17
0.633	2.20	1.633	10.27	2.633	2.12	3.63	1.17
0.650	2.20	1.650	10.27	2.650	2.12	3.65	1.17
0.667	2.20	1.667	10.27	2.667	2.12	3.67	1.17
0.683	2.56	1.683	7.96	2.683	1.99	3.68	1.13
0.700	2.56	1.700	7.96	2.700	1.99	3.70	1.13
0.717	2.56	1.717	7.96	2.717	1.99	3.72	1.13
0.733	2.56	1.733	7.96	2.733	1.99	3.73	1.13
0.750	2.56	1.750	7.96	2.750	1.99	3.75	1.13
0.767	3.06	1.767	6.45	2.767	1.87	3.77	1.09
0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09
0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05
0.933	5.01	1.933	4.63	2.933	1.67	3.93	1.02
0.950	5.01	1.950	4.63	2.950	1.67	3.95	1.02
0.967	5.01	1.967	4.63	2.967	1.67	3.97	1.02
0.983	5.01	1.983	4.63	2.983	1.67	3.98	1.02
1.000	5.01	2.000	4.63	3.000	1.67	4.00	1.02

Max.Eff.Inten.(mm/hr)=	90.18	131.42		
over (min)	5.00	30.00		
Storage Coeff. (min)=	3.81 (ii)	29.47 (ii)		
Unit Hyd. Tpeak (min)=	5.00	30.00		
Unit Hyd. peak (cms)=	0.27	0.04		
			TOTALS	
PEAK FLOW (cms)=	0.33	0.09	0.344 (iii)	
TIME TO PEAK (hrs)=	1.37	1.85	1.38	
RUNOFF VOLUME (mm)=	25.00	16.14	19.74	
TOTAL RAINFALL (mm)=	27.00	27.00	27.00	

RUNOFF COEFFICIENT = 0.93 0.60 0.73

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0208)	Area (ha)= 2.05
ID= 1 DT= 1.0 min	Total Imp(%)= 90.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.84	0.20
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	116.89	200.00
Mannings n	=	0.013	0.170

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	1.11	1.017	7.20	2.017	4.05	3.02	1.58
0.033	1.11	1.033	7.20	2.033	4.05	3.03	1.58
0.050	1.11	1.050	7.20	2.050	4.05	3.05	1.58
0.067	1.11	1.067	7.20	2.067	4.05	3.07	1.58
0.083	1.11	1.083	7.20	2.083	4.05	3.08	1.58
0.100	1.19	1.100	12.19	2.100	3.59	3.10	1.51
0.117	1.19	1.117	12.19	2.117	3.59	3.12	1.51
0.133	1.19	1.133	12.19	2.133	3.59	3.13	1.51
0.150	1.19	1.150	12.19	2.150	3.59	3.15	1.51
0.167	1.19	1.167	12.19	2.167	3.59	3.17	1.51
0.183	1.29	1.183	30.99	2.183	3.22	3.18	1.44
0.200	1.29	1.200	30.99	2.200	3.22	3.20	1.44
0.217	1.29	1.217	30.99	2.217	3.22	3.22	1.44
0.233	1.29	1.233	30.99	2.233	3.22	3.23	1.44
0.250	1.29	1.250	30.99	2.250	3.22	3.25	1.44
0.267	1.40	1.267	90.18	2.267	2.92	3.27	1.37
0.283	1.40	1.283	90.18	2.283	2.92	3.28	1.37
0.300	1.40	1.300	90.18	2.300	2.92	3.30	1.37
0.317	1.40	1.317	90.18	2.317	2.92	3.32	1.37
0.333	1.40	1.333	90.18	2.333	2.92	3.33	1.37
0.350	1.54	1.350	40.37	2.350	2.67	3.35	1.32
0.367	1.54	1.367	40.37	2.367	2.67	3.37	1.32
0.383	1.54	1.383	40.37	2.383	2.67	3.38	1.32
0.400	1.54	1.400	40.37	2.400	2.67	3.40	1.32
0.417	1.54	1.417	40.37	2.417	2.67	3.42	1.32
0.433	1.71	1.433	21.67	2.433	2.46	3.43	1.26
0.450	1.71	1.450	21.67	2.450	2.46	3.45	1.26
0.467	1.71	1.467	21.67	2.467	2.46	3.47	1.26
0.483	1.71	1.483	21.67	2.483	2.46	3.48	1.26
0.500	1.71	1.500	21.67	2.500	2.46	3.50	1.26
0.517	1.92	1.517	14.15	2.517	2.28	3.52	1.21
0.533	1.92	1.533	14.15	2.533	2.28	3.53	1.21
0.550	1.92	1.550	14.15	2.550	2.28	3.55	1.21
0.567	1.92	1.567	14.15	2.567	2.28	3.57	1.21
0.583	1.92	1.583	14.15	2.583	2.28	3.58	1.21
0.600	2.20	1.600	10.27	2.600	2.12	3.60	1.17

0.617	2.20	1.617	10.27	2.617	2.12	3.62	1.17
0.633	2.20	1.633	10.27	2.633	2.12	3.63	1.17
0.650	2.20	1.650	10.27	2.650	2.12	3.65	1.17
0.667	2.20	1.667	10.27	2.667	2.12	3.67	1.17
0.683	2.56	1.683	7.96	2.683	1.99	3.68	1.13
0.700	2.56	1.700	7.96	2.700	1.99	3.70	1.13
0.717	2.56	1.717	7.96	2.717	1.99	3.72	1.13
0.733	2.56	1.733	7.96	2.733	1.99	3.73	1.13
0.750	2.56	1.750	7.96	2.750	1.99	3.75	1.13
0.767	3.06	1.767	6.45	2.767	1.87	3.77	1.09
0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09
0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05
0.933	5.01	1.933	4.63	2.933	1.67	3.93	1.02
0.950	5.01	1.950	4.63	2.950	1.67	3.95	1.02
0.967	5.01	1.967	4.63	2.967	1.67	3.97	1.02
0.983	5.01	1.983	4.63	2.983	1.67	3.98	1.02
1.000	5.01	2.000	4.63	3.000	1.67	4.00	1.02

			TOTALS
Max.Eff.Inten.(mm/hr)=	90.18	212.47	
over (min)	5.00	17.00	
Storage Coeff. (min)=	2.92 (ii)	16.32 (ii)	
Unit Hyd. Tpeak (min)=	5.00	17.00	
Unit Hyd. peak (cms)=	0.31	0.07	
PEAK FLOW (cms)=	0.16	0.07	0.181 (iii)
TIME TO PEAK (hrs)=	1.37	1.62	1.38
RUNOFF VOLUME (mm)=	25.00	16.68	20.01
TOTAL RAINFALL (mm)=	27.00	27.00	27.00
RUNOFF COEFFICIENT =	0.93	0.62	0.74

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0210)	Area (ha)= 0.31			
ID= 1 DT= 1.0 min	Total Imp(%)= 80.00	Dir. Conn.(%)= 50.00		

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.25	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	45.59	65.00
Mannings n	=	0.013	0.170

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	1.11	1.017	7.20	2.017	4.05	3.02	1.58
0.033	1.11	1.033	7.20	2.033	4.05	3.03	1.58
0.050	1.11	1.050	7.20	2.050	4.05	3.05	1.58
0.067	1.11	1.067	7.20	2.067	4.05	3.07	1.58
0.083	1.11	1.083	7.20	2.083	4.05	3.08	1.58
0.100	1.19	1.100	12.19	2.100	3.59	3.10	1.51
0.117	1.19	1.117	12.19	2.117	3.59	3.12	1.51
0.133	1.19	1.133	12.19	2.133	3.59	3.13	1.51
0.150	1.19	1.150	12.19	2.150	3.59	3.15	1.51
0.167	1.19	1.167	12.19	2.167	3.59	3.17	1.51
0.183	1.29	1.183	30.99	2.183	3.22	3.18	1.44
0.200	1.29	1.200	30.99	2.200	3.22	3.20	1.44
0.217	1.29	1.217	30.99	2.217	3.22	3.22	1.44
0.233	1.29	1.233	30.99	2.233	3.22	3.23	1.44
0.250	1.29	1.250	30.99	2.250	3.22	3.25	1.44
0.267	1.40	1.267	90.18	2.267	2.92	3.27	1.37
0.283	1.40	1.283	90.18	2.283	2.92	3.28	1.37
0.300	1.40	1.300	90.18	2.300	2.92	3.30	1.37
0.317	1.40	1.317	90.18	2.317	2.92	3.32	1.37
0.333	1.40	1.333	90.18	2.333	2.92	3.33	1.37
0.350	1.54	1.350	40.37	2.350	2.67	3.35	1.32
0.367	1.54	1.367	40.37	2.367	2.67	3.37	1.32
0.383	1.54	1.383	40.37	2.383	2.67	3.38	1.32
0.400	1.54	1.400	40.37	2.400	2.67	3.40	1.32
0.417	1.54	1.417	40.37	2.417	2.67	3.42	1.32
0.433	1.71	1.433	21.67	2.433	2.46	3.43	1.26
0.450	1.71	1.450	21.67	2.450	2.46	3.45	1.26
0.467	1.71	1.467	21.67	2.467	2.46	3.47	1.26
0.483	1.71	1.483	21.67	2.483	2.46	3.48	1.26
0.500	1.71	1.500	21.67	2.500	2.46	3.50	1.26
0.517	1.92	1.517	14.15	2.517	2.28	3.52	1.21
0.533	1.92	1.533	14.15	2.533	2.28	3.53	1.21
0.550	1.92	1.550	14.15	2.550	2.28	3.55	1.21
0.567	1.92	1.567	14.15	2.567	2.28	3.57	1.21
0.583	1.92	1.583	14.15	2.583	2.28	3.58	1.21
0.600	2.20	1.600	10.27	2.600	2.12	3.60	1.17
0.617	2.20	1.617	10.27	2.617	2.12	3.62	1.17
0.633	2.20	1.633	10.27	2.633	2.12	3.63	1.17
0.650	2.20	1.650	10.27	2.650	2.12	3.65	1.17
0.667	2.20	1.667	10.27	2.667	2.12	3.67	1.17
0.683	2.56	1.683	7.96	2.683	1.99	3.68	1.13
0.700	2.56	1.700	7.96	2.700	1.99	3.70	1.13
0.717	2.56	1.717	7.96	2.717	1.99	3.72	1.13
0.733	2.56	1.733	7.96	2.733	1.99	3.73	1.13
0.750	2.56	1.750	7.96	2.750	1.99	3.75	1.13
0.767	3.06	1.767	6.45	2.767	1.87	3.77	1.09
0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09
0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05
0.933	5.01	1.933	4.63	2.933	1.67	3.93	1.02
0.950	5.01	1.950	4.63	2.950	1.67	3.95	1.02
0.967	5.01	1.967	4.63	2.967	1.67	3.97	1.02
0.983	5.01	1.983	4.63	2.983	1.67	3.98	1.02
1.000	5.01	2.000	4.63	3.000	1.67	4.00	1.02

Max.Eff.Inten.(mm/hr)=	90.18	61.60
over (min)	5.00	9.00
Storage Coeff. (min)=	1.66 (ii)	8.33 (ii)
Unit Hyd. Tpeak (min)=	5.00	9.00

			TOTALS
Unit Hyd. peak (cms)=	0.40	0.13	
PEAK FLOW (cms)=	0.03	0.01	0.037 (iii)
TIME TO PEAK (hrs)=	1.35	1.48	1.37
RUNOFF VOLUME (mm)=	25.00	10.30	17.63
TOTAL RAINFALL (mm)=	27.00	27.00	27.00
RUNOFF COEFFICIENT =	0.93	0.38	0.65

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0211)	Area (ha)= 2.65
ID= 1 DT= 1.0 min	Total Imp(%)= 76.60 Dir. Conn.(%)= 76.60

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.03	0.62
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	0.90	0.90
Length	(m)=	132.96	872.00
Mannings n	=	0.013	0.170

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	1.11	1.017	7.20	2.017	4.05	3.02	1.58
0.033	1.11	1.033	7.20	2.033	4.05	3.03	1.58
0.050	1.11	1.050	7.20	2.050	4.05	3.05	1.58
0.067	1.11	1.067	7.20	2.067	4.05	3.07	1.58
0.083	1.11	1.083	7.20	2.083	4.05	3.08	1.58
0.100	1.19	1.100	12.19	2.100	3.59	3.10	1.51
0.117	1.19	1.117	12.19	2.117	3.59	3.12	1.51
0.133	1.19	1.133	12.19	2.133	3.59	3.13	1.51
0.150	1.19	1.150	12.19	2.150	3.59	3.15	1.51
0.167	1.19	1.167	12.19	2.167	3.59	3.17	1.51
0.183	1.29	1.183	30.99	2.183	3.22	3.18	1.44
0.200	1.29	1.200	30.99	2.200	3.22	3.20	1.44
0.217	1.29	1.217	30.99	2.217	3.22	3.22	1.44
0.233	1.29	1.233	30.99	2.233	3.22	3.23	1.44
0.250	1.29	1.250	30.99	2.250	3.22	3.25	1.44
0.267	1.40	1.267	90.18	2.267	2.92	3.27	1.37
0.283	1.40	1.283	90.18	2.283	2.92	3.28	1.37
0.300	1.40	1.300	90.18	2.300	2.92	3.30	1.37
0.317	1.40	1.317	90.18	2.317	2.92	3.32	1.37
0.333	1.40	1.333	90.18	2.333	2.92	3.33	1.37
0.350	1.54	1.350	40.37	2.350	2.67	3.35	1.32
0.367	1.54	1.367	40.37	2.367	2.67	3.37	1.32
0.383	1.54	1.383	40.37	2.383	2.67	3.38	1.32
0.400	1.54	1.400	40.37	2.400	2.67	3.40	1.32
0.417	1.54	1.417	40.37	2.417	2.67	3.42	1.32
0.433	1.71	1.433	21.67	2.433	2.46	3.43	1.26
0.450	1.71	1.450	21.67	2.450	2.46	3.45	1.26
0.467	1.71	1.467	21.67	2.467	2.46	3.47	1.26
0.483	1.71	1.483	21.67	2.483	2.46	3.48	1.26
0.500	1.71	1.500	21.67	2.500	2.46	3.50	1.26
0.517	1.92	1.517	14.15	2.517	2.28	3.52	1.21
0.533	1.92	1.533	14.15	2.533	2.28	3.53	1.21
0.550	1.92	1.550	14.15	2.550	2.28	3.55	1.21
0.567	1.92	1.567	14.15	2.567	2.28	3.57	1.21
0.583	1.92	1.583	14.15	2.583	2.28	3.58	1.21
0.600	2.20	1.600	10.27	2.600	2.12	3.60	1.17
0.617	2.20	1.617	10.27	2.617	2.12	3.62	1.17
0.633	2.20	1.633	10.27	2.633	2.12	3.63	1.17
0.650	2.20	1.650	10.27	2.650	2.12	3.65	1.17
0.667	2.20	1.667	10.27	2.667	2.12	3.67	1.17
0.683	2.56	1.683	7.96	2.683	1.99	3.68	1.13
0.700	2.56	1.700	7.96	2.700	1.99	3.70	1.13
0.717	2.56	1.717	7.96	2.717	1.99	3.72	1.13
0.733	2.56	1.733	7.96	2.733	1.99	3.73	1.13
0.750	2.56	1.750	7.96	2.750	1.99	3.75	1.13
0.767	3.06	1.767	6.45	2.767	1.87	3.77	1.09
0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09
0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05
0.933	5.01	1.933	4.63	2.933	1.67	3.93	1.02
0.950	5.01	1.950	4.63	2.950	1.67	3.95	1.02
0.967	5.01	1.967	4.63	2.967	1.67	3.97	1.02
0.983	5.01	1.983	4.63	2.983	1.67	3.98	1.02
1.000	5.01	2.000	4.63	3.000	1.67	4.00	1.02

			TOTALS
Max.Eff.Inten.(mm/hr)=	90.18	3.34	
over (min)	5.00	180.00	
Storage Coeff. (min)=	3.26 (ii)	179.32 (ii)	
Unit Hyd. Tpeak (min)=	5.00	180.00	
Unit Hyd. peak (cms)=	0.29	0.01	
PEAK FLOW (cms)=	0.39	0.00	0.386 (iii)
TIME TO PEAK (hrs)=	1.37	4.58	1.37
RUNOFF VOLUME (mm)=	25.00	4.35	20.13
TOTAL RAINFALL (mm)=	27.00	27.00	27.00
RUNOFF COEFFICIENT =	0.93	0.16	0.75

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0011)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0204):		1.78	0.196	1.38	20.01
+ ID2= 2 (0205):		1.36	0.140	1.37	17.64
ID = 3 (0011):		3.15	0.333	1.38	18.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0011)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0011):     3.15   0.333     1.38    18.98
     + ID2= 2 (  0206):     1.40   0.150     1.37    17.64
       ================================================
       ID = 1 (  0011):     4.55   0.482     1.38    18.57

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0011)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0011):     4.55   0.482     1.38    18.57
     + ID2= 2 (  0207):     4.45   0.344     1.38    19.74
       ================================================
       ID = 3 (  0011):     8.99   0.826     1.38    19.15

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0011)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0011):     8.99   0.826     1.38    19.15
     + ID2= 2 (  0208):     2.05   0.181     1.38    20.01
       ================================================
       ID = 1 (  0011):    11.04   1.006     1.38    19.31

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0011)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0011):    11.04   1.006     1.38    19.31
     + ID2= 2 (  0209):     4.42   0.344     1.38    19.97
       ================================================
       ID = 3 (  0011):    15.46   1.351     1.38    19.50

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0011)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0011):    15.46   1.351     1.38    19.50
     + ID2= 2 (  0210):     0.31   0.037     1.37    17.63
       ================================================
       ID = 1 (  0011):    15.77   1.387     1.38    19.46

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0011)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0011):    15.77   1.387     1.38    19.46
     + ID2= 2 (  0211):     2.65   0.386     1.37    20.13
       ================================================
       ID = 3 (  0011):    18.42   1.770     1.37    19.56

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0012)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0010):    10.81   0.955     1.38    20.08
     + ID2= 2 (  0011):    18.42   1.770     1.37    19.56
       ================================================
       ID = 3 (  0012):    29.23   2.724     1.37    19.75

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0012)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0012):    29.23   2.724     1.37    19.75
     + ID2= 2 (  0212):     2.13   0.018     1.47     2.08
       ================================================
       ID = 1 (  0012):    31.36   2.734     1.38    18.55

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000    |   0.2840      1.1320
                         0.0060     0.0950    |   0.3770      1.3200
                         0.0180     0.1450    |   0.4920      1.6430
                         0.0300     0.2500    |   0.6000      2.0430
                         0.0420     0.4160    |   0.8520      2.1120
                         0.0530     0.6480    |   1.3170      2.1800
                         0.0780     0.7070    |   1.9400      2.2500
                         0.0900     0.8260    |   2.7070      2.3190
                         0.1170     0.9470    |   4.6440      2.4600
                         0.1900     1.0080    |  13.6260      2.9030

                                  AREA      QPEAK      TPEAK       R.V.
                                  (ha)      (cms)      (hrs)       (mm)
   INFLOW : ID= 2 (  0012)      31.360      2.734      1.38       18.55
   OUTFLOW: ID= 1 (  0001)      31.360      0.047      4.20       13.07

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  1.73
                  TIME SHIFT OF PEAK FLOW         (min)=169.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5285

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0305)|   Area    (ha)=   1.13   Curve Number   (CN)= 68.0
|ID= 1 DT= 1.0 min |   Ia      (mm)=   8.99   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.06

        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	1.11	1.017	7.20	2.017	4.05	3.02	1.58
0.033	1.11	1.033	7.20	2.033	4.05	3.03	1.58
0.050	1.11	1.050	7.20	2.050	4.05	3.05	1.58
0.067	1.11	1.067	7.20	2.067	4.05	3.07	1.58
0.083	1.11	1.083	7.20	2.083	4.05	3.08	1.58
0.100	1.19	1.100	12.19	2.100	3.59	3.10	1.51
0.117	1.19	1.117	12.19	2.117	3.59	3.12	1.51
0.133	1.19	1.133	12.19	2.133	3.59	3.13	1.51
0.150	1.19	1.150	12.19	2.150	3.59	3.15	1.51
0.167	1.19	1.167	12.19	2.167	3.59	3.17	1.51
0.183	1.29	1.183	30.99	2.183	3.22	3.18	1.44
0.200	1.29	1.200	30.99	2.200	3.22	3.20	1.44
0.217	1.29	1.217	30.99	2.217	3.22	3.22	1.44
0.233	1.29	1.233	30.99	2.233	3.22	3.23	1.44
0.250	1.29	1.250	30.99	2.250	3.22	3.25	1.44
0.267	1.40	1.267	90.18	2.267	2.92	3.27	1.37
0.283	1.40	1.283	90.18	2.283	2.92	3.28	1.37
0.300	1.40	1.300	90.18	2.300	2.92	3.30	1.37
0.317	1.40	1.317	90.18	2.317	2.92	3.32	1.37
0.333	1.40	1.333	90.18	2.333	2.92	3.33	1.37
0.350	1.54	1.350	40.37	2.350	2.67	3.35	1.32
0.367	1.54	1.367	40.37	2.367	2.67	3.37	1.32
0.383	1.54	1.383	40.37	2.383	2.67	3.38	1.32
0.400	1.54	1.400	40.37	2.400	2.67	3.40	1.32
0.417	1.54	1.417	40.37	2.417	2.67	3.42	1.32
0.433	1.71	1.433	21.67	2.433	2.46	3.43	1.26
0.450	1.71	1.450	21.67	2.450	2.46	3.45	1.26
0.467	1.71	1.467	21.67	2.467	2.46	3.47	1.26
0.483	1.71	1.483	21.67	2.483	2.46	3.48	1.26
0.500	1.71	1.500	21.67	2.500	2.46	3.50	1.26
0.517	1.92	1.517	14.15	2.517	2.28	3.52	1.21
0.533	1.92	1.533	14.15	2.533	2.28	3.53	1.21
0.550	1.92	1.550	14.15	2.550	2.28	3.55	1.21
0.567	1.92	1.567	14.15	2.567	2.28	3.57	1.21
0.583	1.92	1.583	14.15	2.583	2.28	3.58	1.21
0.600	2.20	1.600	10.27	2.600	2.12	3.60	1.17
0.617	2.20	1.617	10.27	2.617	2.12	3.62	1.17
0.633	2.20	1.633	10.27	2.633	2.12	3.63	1.17
0.650	2.20	1.650	10.27	2.650	2.12	3.65	1.17
0.667	2.20	1.667	10.27	2.667	2.12	3.67	1.17
0.683	2.56	1.683	7.96	2.683	1.99	3.68	1.13
0.700	2.56	1.700	7.96	2.700	1.99	3.70	1.13
0.717	2.56	1.717	7.96	2.717	1.99	3.72	1.13
0.733	2.56	1.733	7.96	2.733	1.99	3.73	1.13
0.750	2.56	1.750	7.96	2.750	1.99	3.75	1.13
0.767	3.06	1.767	6.45	2.767	1.87	3.77	1.09
0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09
0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05
0.933	5.01	1.933	4.63	2.933	1.67	3.93	1.02
0.950	5.01	1.950	4.63	2.950	1.67	3.95	1.02
0.967	5.01	1.967	4.63	2.967	1.67	3.97	1.02
0.983	5.01	1.983	4.63	2.983	1.67	3.98	1.02
1.000	5.01	2.000	4.63	3.000	1.67	4.00	1.02

Unit Hyd Qpeak (cms)= 0.721

PEAK FLOW (cms)= 0.012 (i)
TIME TO PEAK (hrs)= 1.450
RUNOFF VOLUME (mm)= 2.357
TOTAL RAINFALL (mm)= 27.000
RUNOFF COEFFICIENT = 0.087

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| STANDHYD (0301) |
| ID= 1 DT= 1.0 min |

Area (ha)= 6.90
Total Imp(%)= 90.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	6.21	0.69
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	214.52	250.00
Mannings n	=	0.013	0.170

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	1.11	1.017	7.20	2.017	4.05	3.02	1.58
0.033	1.11	1.033	7.20	2.033	4.05	3.03	1.58
0.050	1.11	1.050	7.20	2.050	4.05	3.05	1.58
0.067	1.11	1.067	7.20	2.067	4.05	3.07	1.58
0.083	1.11	1.083	7.20	2.083	4.05	3.08	1.58
0.100	1.19	1.100	12.19	2.100	3.59	3.10	1.51
0.117	1.19	1.117	12.19	2.117	3.59	3.12	1.51
0.133	1.19	1.133	12.19	2.133	3.59	3.13	1.51
0.150	1.19	1.150	12.19	2.150	3.59	3.15	1.51
0.167	1.19	1.167	12.19	2.167	3.59	3.17	1.51
0.183	1.29	1.183	30.99	2.183	3.22	3.18	1.44
0.200	1.29	1.200	30.99	2.200	3.22	3.20	1.44
0.217	1.29	1.217	30.99	2.217	3.22	3.22	1.44
0.233	1.29	1.233	30.99	2.233	3.22	3.23	1.44
0.250	1.29	1.250	30.99	2.250	3.22	3.25	1.44
0.267	1.40	1.267	90.18	2.267	2.92	3.27	1.37
0.283	1.40	1.283	90.18	2.283	2.92	3.28	1.37
0.300	1.40	1.300	90.18	2.300	2.92	3.30	1.37
0.317	1.40	1.317	90.18	2.317	2.92	3.32	1.37
0.333	1.40	1.333	90.18	2.333	2.92	3.33	1.37
0.350	1.54	1.350	40.37	2.350	2.67	3.35	1.32
0.367	1.54	1.367	40.37	2.367	2.67	3.37	1.32
0.383	1.54	1.383	40.37	2.383	2.67	3.38	1.32
0.400	1.54	1.400	40.37	2.400	2.67	3.40	1.32
0.417	1.54	1.417	40.37	2.417	2.67	3.42	1.32
0.433	1.71	1.433	21.67	2.433	2.46	3.43	1.26
0.450	1.71	1.450	21.67	2.450	2.46	3.45	1.26
0.467	1.71	1.467	21.67	2.467	2.46	3.47	1.26
0.483	1.71	1.483	21.67	2.483	2.46	3.48	1.26
0.500	1.71	1.500	21.67	2.500	2.46	3.50	1.26
0.517	1.92	1.517	14.15	2.517	2.28	3.52	1.21
0.533	1.92	1.533	14.15	2.533	2.28	3.53	1.21
0.550	1.92	1.550	14.15	2.550	2.28	3.55	1.21

0.567	1.92	1.567	14.15	2.567	2.28	3.57	1.21
0.583	1.92	1.583	14.15	2.583	2.28	3.58	1.21
0.600	2.20	1.600	10.27	2.600	2.12	3.60	1.17
0.617	2.20	1.617	10.27	2.617	2.12	3.62	1.17
0.633	2.20	1.633	10.27	2.633	2.12	3.63	1.17
0.650	2.20	1.650	10.27	2.650	2.12	3.65	1.17
0.667	2.20	1.667	10.27	2.667	2.12	3.67	1.17
0.683	2.56	1.683	7.96	2.683	1.99	3.68	1.13
0.700	2.56	1.700	7.96	2.700	1.99	3.70	1.13
0.717	2.56	1.717	7.96	2.717	1.99	3.72	1.13
0.733	2.56	1.733	7.96	2.733	1.99	3.73	1.13
0.750	2.56	1.750	7.96	2.750	1.99	3.75	1.13
0.767	3.06	1.767	6.45	2.767	1.87	3.77	1.09
0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09
0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05
0.933	5.01	1.933	4.63	2.933	1.67	3.93	1.02
0.950	5.01	1.950	4.63	2.950	1.67	3.95	1.02
0.967	5.01	1.967	4.63	2.967	1.67	3.97	1.02
0.983	5.01	1.983	4.63	2.983	1.67	3.98	1.02
1.000	5.01	2.000	4.63	3.000	1.67	4.00	1.02

Max.Eff.Inten.(mm/hr)=	90.18	334.08	
over (min)	5.00	17.00	
Storage Coeff. (min)=	4.21 (ii)	16.99 (ii)	
Unit Hyd. Tpeak (min)=	5.00	17.00	
Unit Hyd. peak (cms)=	0.25	0.07	
			TOTALS
PEAK FLOW (cms)=	0.49	0.35	0.645 (iii)
TIME TO PEAK (hrs)=	1.38	1.60	1.40
RUNOFF VOLUME (mm)=	25.00	24.51	24.71
TOTAL RAINFALL (mm)=	27.00	27.00	27.00
RUNOFF COEFFICIENT =	0.93	0.91	0.92

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 96.0 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 (0302)	Area (ha)=	3.20	
ID= 1 DT= 1.0 min	Total Imp(%)=	90.00	Dir. Conn.(%)= 40.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	2.88	0.32
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	1.00
Length (m)=	146.04	120.00
Mannings n =	0.013	0.170

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	1.11	1.017	7.20	2.017	4.05	3.02	1.58
0.033	1.11	1.033	7.20	2.033	4.05	3.03	1.58
0.050	1.11	1.050	7.20	2.050	4.05	3.05	1.58
0.067	1.11	1.067	7.20	2.067	4.05	3.07	1.58
0.083	1.11	1.083	7.20	2.083	4.05	3.08	1.58
0.100	1.19	1.100	12.19	2.100	3.59	3.10	1.51
0.117	1.19	1.117	12.19	2.117	3.59	3.12	1.51
0.133	1.19	1.133	12.19	2.133	3.59	3.13	1.51
0.150	1.19	1.150	12.19	2.150	3.59	3.15	1.51
0.167	1.19	1.167	12.19	2.167	3.59	3.17	1.51
0.183	1.29	1.183	30.99	2.183	3.22	3.18	1.44
0.200	1.29	1.200	30.99	2.200	3.22	3.20	1.44
0.217	1.29	1.217	30.99	2.217	3.22	3.22	1.44
0.233	1.29	1.233	30.99	2.233	3.22	3.23	1.44
0.250	1.29	1.250	30.99	2.250	3.22	3.25	1.44
0.267	1.40	1.267	90.18	2.267	2.92	3.27	1.37
0.283	1.40	1.283	90.18	2.283	2.92	3.28	1.37
0.300	1.40	1.300	90.18	2.300	2.92	3.30	1.37
0.317	1.40	1.317	90.18	2.317	2.92	3.32	1.37
0.333	1.40	1.333	90.18	2.333	2.92	3.33	1.37
0.350	1.54	1.350	40.37	2.350	2.67	3.35	1.32
0.367	1.54	1.367	40.37	2.367	2.67	3.37	1.32
0.383	1.54	1.383	40.37	2.383	2.67	3.38	1.32
0.400	1.54	1.400	40.37	2.400	2.67	3.40	1.32
0.417	1.54	1.417	40.37	2.417	2.67	3.42	1.32
0.433	1.71	1.433	21.67	2.433	2.46	3.43	1.26
0.450	1.71	1.450	21.67	2.450	2.46	3.45	1.26
0.467	1.71	1.467	21.67	2.467	2.46	3.47	1.26
0.483	1.71	1.483	21.67	2.483	2.46	3.48	1.26
0.500	1.71	1.500	21.67	2.500	2.46	3.50	1.26
0.517	1.92	1.517	14.15	2.517	2.28	3.52	1.21
0.533	1.92	1.533	14.15	2.533	2.28	3.53	1.21
0.550	1.92	1.550	14.15	2.550	2.28	3.55	1.21
0.567	1.92	1.567	14.15	2.567	2.28	3.57	1.21
0.583	1.92	1.583	14.15	2.583	2.28	3.58	1.21
0.600	2.20	1.600	10.27	2.600	2.12	3.60	1.17
0.617	2.20	1.617	10.27	2.617	2.12	3.62	1.17
0.633	2.20	1.633	10.27	2.633	2.12	3.63	1.17
0.650	2.20	1.650	10.27	2.650	2.12	3.65	1.17
0.667	2.20	1.667	10.27	2.667	2.12	3.67	1.17
0.683	2.56	1.683	7.96	2.683	1.99	3.68	1.13
0.700	2.56	1.700	7.96	2.700	1.99	3.70	1.13
0.717	2.56	1.717	7.96	2.717	1.99	3.72	1.13
0.733	2.56	1.733	7.96	2.733	1.99	3.73	1.13
0.750	2.56	1.750	7.96	2.750	1.99	3.75	1.13
0.767	3.06	1.767	6.45	2.767	1.87	3.77	1.09
0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09
0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05
0.933	5.01	1.933	4.63	2.933	1.67	3.93	1.02
0.950	5.01	1.950	4.63	2.950	1.67	3.95	1.02
0.967	5.01	1.967	4.63	2.967	1.67	3.97	1.02
0.983	5.01	1.983	4.63	2.983	1.67	3.98	1.02
1.000	5.01	2.000	4.63	3.000	1.67	4.00	1.02

Max.Eff.Inten.(mm/hr)=	90.18	256.65

over (min)		5.00	12.00	
Storage Coeff. (min)=		3.34 (ii)	11.32 (ii)	
Unit Hyd. Tpeak (min)=		5.00	12.00	
Unit Hyd. peak (cms)=		0.29	0.10	
				TOTALS
PEAK FLOW	(cms)=	0.24	0.13	0.307 (iii)
TIME TO PEAK	(hrs)=	1.37	1.52	1.38
RUNOFF VOLUME	(mm)=	25.00	16.68	20.01
TOTAL RAINFALL	(mm)=	27.00	27.00	27.00
RUNOFF COEFFICIENT	=	0.93	0.62	0.74

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0303)
ID= 1 DT= 1.0 min

Area (ha)= 0.77
Total Imp(%)= 90.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.70	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.10
Length	(m)=	71.87	54.00
Mannings n	=	0.013	0.220

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	1.11	1.017	7.20	2.017	4.05	3.02	1.58
0.033	1.11	1.033	7.20	2.033	4.05	3.03	1.58
0.050	1.11	1.050	7.20	2.050	4.05	3.05	1.58
0.067	1.11	1.067	7.20	2.067	4.05	3.07	1.58
0.083	1.11	1.083	7.20	2.083	4.05	3.08	1.58
0.100	1.19	1.100	12.19	2.100	3.59	3.10	1.51
0.117	1.19	1.117	12.19	2.117	3.59	3.12	1.51
0.133	1.19	1.133	12.19	2.133	3.59	3.13	1.51
0.150	1.19	1.150	12.19	2.150	3.59	3.15	1.51
0.167	1.19	1.167	12.19	2.167	3.59	3.17	1.51
0.183	1.29	1.183	30.99	2.183	3.22	3.18	1.44
0.200	1.29	1.200	30.99	2.200	3.22	3.20	1.44
0.217	1.29	1.217	30.99	2.217	3.22	3.22	1.44
0.233	1.29	1.233	30.99	2.233	3.22	3.23	1.44
0.250	1.29	1.250	30.99	2.250	3.22	3.25	1.44
0.267	1.40	1.267	90.18	2.267	2.92	3.27	1.37
0.283	1.40	1.283	90.18	2.283	2.92	3.28	1.37
0.300	1.40	1.300	90.18	2.300	2.92	3.30	1.37
0.317	1.40	1.317	90.18	2.317	2.92	3.32	1.37
0.333	1.40	1.333	90.18	2.333	2.92	3.33	1.37
0.350	1.54	1.350	40.37	2.350	2.67	3.35	1.32
0.367	1.54	1.367	40.37	2.367	2.67	3.37	1.32
0.383	1.54	1.383	40.37	2.383	2.67	3.38	1.32
0.400	1.54	1.400	40.37	2.400	2.67	3.40	1.32
0.417	1.54	1.417	40.37	2.417	2.67	3.42	1.32
0.433	1.71	1.433	21.67	2.433	2.46	3.43	1.26
0.450	1.71	1.450	21.67	2.450	2.46	3.45	1.26
0.467	1.71	1.467	21.67	2.467	2.46	3.47	1.26
0.483	1.71	1.483	21.67	2.483	2.46	3.48	1.26
0.500	1.71	1.500	21.67	2.500	2.46	3.50	1.26
0.517	1.92	1.517	14.15	2.517	2.28	3.52	1.21
0.533	1.92	1.533	14.15	2.533	2.28	3.53	1.21
0.550	1.92	1.550	14.15	2.550	2.28	3.55	1.21
0.567	1.92	1.567	14.15	2.567	2.28	3.57	1.21
0.583	1.92	1.583	14.15	2.583	2.28	3.58	1.21
0.600	2.20	1.600	10.27	2.600	2.12	3.60	1.17
0.617	2.20	1.617	10.27	2.617	2.12	3.62	1.17
0.633	2.20	1.633	10.27	2.633	2.12	3.63	1.17
0.650	2.20	1.650	10.27	2.650	2.12	3.65	1.17
0.667	2.20	1.667	10.27	2.667	2.12	3.67	1.17
0.683	2.56	1.683	7.96	2.683	1.99	3.68	1.13
0.700	2.56	1.700	7.96	2.700	1.99	3.70	1.13
0.717	2.56	1.717	7.96	2.717	1.99	3.72	1.13
0.733	2.56	1.733	7.96	2.733	1.99	3.73	1.13
0.750	2.56	1.750	7.96	2.750	1.99	3.75	1.13
0.767	3.06	1.767	6.45	2.767	1.87	3.77	1.09
0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09
0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05
0.933	5.01	1.933	4.63	2.933	1.67	3.93	1.02
0.950	5.01	1.950	4.63	2.950	1.67	3.95	1.02
0.967	5.01	1.967	4.63	2.967	1.67	3.97	1.02
0.983	5.01	1.983	4.63	2.983	1.67	3.98	1.02
1.000	5.01	2.000	4.63	3.000	1.67	4.00	1.02

Max.Eff.Inten.(mm/hr)=		90.18	256.65	
over (min)		5.00	7.00	
Storage Coeff. (min)=		2.18 (ii)	6.80 (ii)	
Unit Hyd. Tpeak (min)=		5.00	7.00	
Unit Hyd. peak (cms)=		0.36	0.16	
				TOTALS
PEAK FLOW	(cms)=	0.06	0.04	0.098 (iii)
TIME TO PEAK	(hrs)=	1.37	1.43	1.38
RUNOFF VOLUME	(mm)=	25.00	16.68	20.01
TOTAL RAINFALL	(mm)=	27.00	27.00	27.00
RUNOFF COEFFICIENT	=	0.93	0.62	0.74

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0304)
ID= 1 DT= 1.0 min

Area (ha)= 0.52
Total Imp(%)= 66.30 Dir. Conn.(%)= 66.30

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.34	0.17
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	58.83	60.00

Mannings n = 0.013 0.220

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	1.11	1.017	7.20	2.017	4.05	3.02	1.58
0.033	1.11	1.033	7.20	2.033	4.05	3.03	1.58
0.050	1.11	1.050	7.20	2.050	4.05	3.05	1.58
0.067	1.11	1.067	7.20	2.067	4.05	3.07	1.58
0.083	1.11	1.083	7.20	2.083	4.05	3.08	1.58
0.100	1.19	1.100	12.19	2.100	3.59	3.10	1.51
0.117	1.19	1.117	12.19	2.117	3.59	3.12	1.51
0.133	1.19	1.133	12.19	2.133	3.59	3.13	1.51
0.150	1.19	1.150	12.19	2.150	3.59	3.15	1.51
0.167	1.19	1.167	12.19	2.167	3.59	3.17	1.51
0.183	1.29	1.183	30.99	2.183	3.22	3.18	1.44
0.200	1.29	1.200	30.99	2.200	3.22	3.20	1.44
0.217	1.29	1.217	30.99	2.217	3.22	3.22	1.44
0.233	1.29	1.233	30.99	2.233	3.22	3.23	1.44
0.250	1.29	1.250	30.99	2.250	3.22	3.25	1.44
0.267	1.40	1.267	90.18	2.267	2.92	3.27	1.37
0.283	1.40	1.283	90.18	2.283	2.92	3.28	1.37
0.300	1.40	1.300	90.18	2.300	2.92	3.30	1.37
0.317	1.40	1.317	90.18	2.317	2.92	3.32	1.37
0.333	1.40	1.333	90.18	2.333	2.92	3.33	1.37
0.350	1.54	1.350	40.37	2.350	2.67	3.35	1.32
0.367	1.54	1.367	40.37	2.367	2.67	3.37	1.32
0.383	1.54	1.383	40.37	2.383	2.67	3.38	1.32
0.400	1.54	1.400	40.37	2.400	2.67	3.40	1.32
0.417	1.54	1.417	40.37	2.417	2.67	3.42	1.32
0.433	1.71	1.433	21.67	2.433	2.46	3.43	1.26
0.450	1.71	1.450	21.67	2.450	2.46	3.45	1.26
0.467	1.71	1.467	21.67	2.467	2.46	3.47	1.26
0.483	1.71	1.483	21.67	2.483	2.46	3.48	1.26
0.500	1.71	1.500	21.67	2.500	2.46	3.50	1.26
0.517	1.92	1.517	14.15	2.517	2.28	3.52	1.21
0.533	1.92	1.533	14.15	2.533	2.28	3.53	1.21
0.550	1.92	1.550	14.15	2.550	2.28	3.55	1.21
0.567	1.92	1.567	14.15	2.567	2.28	3.57	1.21
0.583	1.92	1.583	14.15	2.583	2.28	3.58	1.21
0.600	2.20	1.600	10.27	2.600	2.12	3.60	1.17
0.617	2.20	1.617	10.27	2.617	2.12	3.62	1.17
0.633	2.20	1.633	10.27	2.633	2.12	3.63	1.17
0.650	2.20	1.650	10.27	2.650	2.12	3.65	1.17
0.667	2.20	1.667	10.27	2.667	2.12	3.67	1.17
0.683	2.56	1.683	7.96	2.683	1.99	3.68	1.13
0.700	2.56	1.700	7.96	2.700	1.99	3.70	1.13
0.717	2.56	1.717	7.96	2.717	1.99	3.72	1.13
0.733	2.56	1.733	7.96	2.733	1.99	3.73	1.13
0.750	2.56	1.750	7.96	2.750	1.99	3.75	1.13
0.767	3.06	1.767	6.45	2.767	1.87	3.77	1.09
0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09
0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05
0.933	5.01	1.933	4.63	2.933	1.67	3.93	1.02
0.950	5.01	1.950	4.63	2.950	1.67	3.95	1.02
0.967	5.01	1.967	4.63	2.967	1.67	3.97	1.02
0.983	5.01	1.983	4.63	2.983	1.67	3.98	1.02
1.000	5.01	2.000	4.63	3.000	1.67	4.00	1.02

			TOTALS
Max.Eff.Inten.(mm/hr)=	90.18	8.89	
over (min)	5.00	11.00	
Storage Coeff. (min)=	1.94 (ii)	10.10 (ii)	
Unit Hyd. Tpeak (min)=	5.00	11.00	
Unit Hyd. peak (cms)=	0.38	0.11	
PEAK FLOW (cms)=	0.07	0.00	0.074 (iii)
TIME TO PEAK (hrs)=	1.37	1.57	1.37
RUNOFF VOLUME (mm)=	25.00	4.35	18.03
TOTAL RAINFALL (mm)=	27.00	27.00	27.00
RUNOFF COEFFICIENT =	0.93	0.16	0.67

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0020) | 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0301):	6.90	0.645	1.40	24.71
+ ID2= 2 (0302):	3.20	0.307	1.38	20.01
ID = 3 (0020):	10.10	0.949	1.40	23.22

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020) | 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0020):	10.10	0.949	1.40	23.22
+ ID2= 2 (0303):	0.77	0.098	1.38	20.01
ID = 1 (0020):	10.88	1.047	1.38	22.99

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020) | 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0020):	10.88	1.047	1.38	22.99
+ ID2= 2 (0304):	0.52	0.074	1.37	18.03
ID = 3 (0020):	11.40	1.117	1.38	22.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)

```
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 1 (  0020):      11.40    1.117      1.38     22.76
     + ID2= 2 (  0305):       1.13    0.012      1.45      2.36
       ================================================
       ID = 3 (  0021):      12.53    1.126      1.38     20.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                         0.0000     0.0000     |   0.0820      0.4340
                         0.0010     0.0240     |   0.1040      0.5000
                         0.0060     0.0480     |   0.1300      0.6010
                         0.0120     0.1000     |   0.1580      0.7400
                         0.0170     0.1850     |   0.1810      0.8850
                         0.0200     0.2450     |   0.3080      0.9220
                         0.0210     0.2750     |   0.5530      0.9590
                         0.0270     0.3060     |   1.3310      1.0350
                         0.0310     0.3380     |   2.4840      1.1120
                         0.0430     0.3700     |   8.3380      1.3600

                              AREA      QPEAK      TPEAK       R.V.
                              (ha)      (cms)      (hrs)       (mm)
   INFLOW : ID= 2 (  0021)   12.529      1.126       1.38      20.92
   OUTFLOW: ID= 1 (  0002)   12.529      0.020       4.13      14.16

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  1.77
                  TIME SHIFT OF PEAK FLOW          (min)=165.00
                  MAXIMUM  STORAGE   USED        (ha.m.)=  0.2424

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| CALIB            |
| NASHYD   (  0404)|   Area    (ha)=   0.89   Curve Number   (CN)= 74.0
|ID= 1 DT= 1.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.54

         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    1.11 | 1.017    7.20 | 2.017    4.05 |  3.02    1.58
 0.033    1.11 | 1.033    7.20 | 2.033    4.05 |  3.03    1.58
 0.050    1.11 | 1.050    7.20 | 2.050    4.05 |  3.05    1.58
 0.067    1.11 | 1.067    7.20 | 2.067    4.05 |  3.07    1.58
 0.083    1.11 | 1.083    7.20 | 2.083    4.05 |  3.08    1.58
 0.100    1.19 | 1.100   12.19 | 2.100    3.59 |  3.10    1.51
 0.117    1.19 | 1.117   12.19 | 2.117    3.59 |  3.12    1.51
 0.133    1.19 | 1.133   12.19 | 2.133    3.59 |  3.13    1.51
 0.150    1.19 | 1.150   12.19 | 2.150    3.59 |  3.15    1.51
 0.167    1.19 | 1.167   12.19 | 2.167    3.59 |  3.17    1.51
 0.183    1.29 | 1.183   30.99 | 2.183    3.22 |  3.18    1.44
 0.200    1.29 | 1.200   30.99 | 2.200    3.22 |  3.20    1.44
 0.217    1.29 | 1.217   30.99 | 2.217    3.22 |  3.22    1.44
 0.233    1.29 | 1.233   30.99 | 2.233    3.22 |  3.23    1.44
 0.250    1.29 | 1.250   30.99 | 2.250    3.22 |  3.25    1.44
 0.267    1.40 | 1.267   90.18 | 2.267    2.92 |  3.27    1.37
 0.283    1.40 | 1.283   90.18 | 2.283    2.92 |  3.28    1.37
 0.300    1.40 | 1.300   90.18 | 2.300    2.92 |  3.30    1.37
 0.317    1.40 | 1.317   90.18 | 2.317    2.92 |  3.32    1.37
 0.333    1.40 | 1.333   90.18 | 2.333    2.92 |  3.33    1.37
 0.350    1.54 | 1.350   40.37 | 2.350    2.67 |  3.35    1.32
 0.367    1.54 | 1.367   40.37 | 2.367    2.67 |  3.37    1.32
 0.383    1.54 | 1.383   40.37 | 2.383    2.67 |  3.38    1.32
 0.400    1.54 | 1.400   40.37 | 2.400    2.67 |  3.40    1.32
 0.417    1.54 | 1.417   40.37 | 2.417    2.67 |  3.42    1.32
 0.433    1.71 | 1.433   21.67 | 2.433    2.46 |  3.43    1.26
 0.450    1.71 | 1.450   21.67 | 2.450    2.46 |  3.45    1.26
 0.467    1.71 | 1.467   21.67 | 2.467    2.46 |  3.47    1.26
 0.483    1.71 | 1.483   21.67 | 2.483    2.46 |  3.48    1.26
 0.500    1.71 | 1.500   21.67 | 2.500    2.46 |  3.50    1.26
 0.517    1.92 | 1.517   14.15 | 2.517    2.28 |  3.52    1.21
 0.533    1.92 | 1.533   14.15 | 2.533    2.28 |  3.53    1.21
 0.550    1.92 | 1.550   14.15 | 2.550    2.28 |  3.55    1.21
 0.567    1.92 | 1.567   14.15 | 2.567    2.28 |  3.57    1.21
 0.583    1.92 | 1.583   14.15 | 2.583    2.28 |  3.58    1.21
 0.600    2.20 | 1.600   10.27 | 2.600    2.12 |  3.60    1.17
 0.617    2.20 | 1.617   10.27 | 2.617    2.12 |  3.62    1.17
 0.633    2.20 | 1.633   10.27 | 2.633    2.12 |  3.63    1.17
 0.650    2.20 | 1.650   10.27 | 2.650    2.12 |  3.65    1.17
 0.667    2.20 | 1.667   10.27 | 2.667    2.12 |  3.67    1.17
 0.683    2.56 | 1.683    7.96 | 2.683    1.99 |  3.68    1.13
 0.700    2.56 | 1.700    7.96 | 2.700    1.99 |  3.70    1.13
 0.717    2.56 | 1.717    7.96 | 2.717    1.99 |  3.72    1.13
 0.733    2.56 | 1.733    7.96 | 2.733    1.99 |  3.73    1.13
 0.750    2.56 | 1.750    7.96 | 2.750    1.99 |  3.75    1.13
 0.767    3.06 | 1.767    6.45 | 2.767    1.87 |  3.77    1.09
 0.783    3.06 | 1.783    6.45 | 2.783    1.87 |  3.78    1.09
 0.800    3.06 | 1.800    6.45 | 2.800    1.87 |  3.80    1.09
 0.817    3.06 | 1.817    6.45 | 2.817    1.87 |  3.82    1.09
 0.833    3.06 | 1.833    6.45 | 2.833    1.87 |  3.83    1.09
 0.850    3.81 | 1.850    5.40 | 2.850    1.76 |  3.85    1.05
 0.867    3.81 | 1.867    5.40 | 2.867    1.76 |  3.87    1.05
 0.883    3.81 | 1.883    5.40 | 2.883    1.76 |  3.88    1.05
 0.900    3.81 | 1.900    5.40 | 2.900    1.76 |  3.90    1.05
 0.917    3.81 | 1.917    5.40 | 2.917    1.76 |  3.92    1.05
 0.933    5.01 | 1.933    4.63 | 2.933    1.67 |  3.93    1.02
 0.950    5.01 | 1.950    4.63 | 2.950    1.67 |  3.95    1.02
 0.967    5.01 | 1.967    4.63 | 2.967    1.67 |  3.97    1.02
 0.983    5.01 | 1.983    4.63 | 2.983    1.67 |  3.98    1.02
 1.000    5.01 | 2.000    4.63 | 3.000    1.67 |  4.00    1.02

     Unit Hyd Qpeak  (cms)=   0.063

     PEAK FLOW       (cms)=   0.007 (i)
     TIME TO PEAK    (hrs)=   2.100
     RUNOFF VOLUME    (mm)=   4.350
     TOTAL RAINFALL   (mm)=  27.000
     RUNOFF COEFFICIENT   =   0.161

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD (  0402)|   Area    (ha)=   0.22
|ID= 1 DT= 1.0 min |   Total Imp(%)=  72.70   Dir. Conn.(%)=  72.70
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.16          0.06
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       3.00          3.00
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Length	(m)=	38.31	62.00
Mannings n	=	0.013	0.220

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	1.11	1.017	7.20	2.017	4.05	3.02	1.58
0.033	1.11	1.033	7.20	2.033	4.05	3.03	1.58
0.050	1.11	1.050	7.20	2.050	4.05	3.05	1.58
0.067	1.11	1.067	7.20	2.067	4.05	3.07	1.58
0.083	1.11	1.083	7.20	2.083	4.05	3.08	1.58
0.100	1.19	1.100	12.19	2.100	3.59	3.10	1.51
0.117	1.19	1.117	12.19	2.117	3.59	3.12	1.51
0.133	1.19	1.133	12.19	2.133	3.59	3.13	1.51
0.150	1.19	1.150	12.19	2.150	3.59	3.15	1.51
0.167	1.19	1.167	12.19	2.167	3.59	3.17	1.51
0.183	1.29	1.183	30.99	2.183	3.22	3.18	1.44
0.200	1.29	1.200	30.99	2.200	3.22	3.20	1.44
0.217	1.29	1.217	30.99	2.217	3.22	3.22	1.44
0.233	1.29	1.233	30.99	2.233	3.22	3.23	1.44
0.250	1.29	1.250	30.99	2.250	3.22	3.25	1.44
0.267	1.40	1.267	90.18	2.267	2.92	3.27	1.37
0.283	1.40	1.283	90.18	2.283	2.92	3.28	1.37
0.300	1.40	1.300	90.18	2.300	2.92	3.30	1.37
0.317	1.40	1.317	90.18	2.317	2.92	3.32	1.37
0.333	1.40	1.333	90.18	2.333	2.92	3.33	1.37
0.350	1.54	1.350	40.37	2.350	2.67	3.35	1.32
0.367	1.54	1.367	40.37	2.367	2.67	3.37	1.32
0.383	1.54	1.383	40.37	2.383	2.67	3.38	1.32
0.400	1.54	1.400	40.37	2.400	2.67	3.40	1.32
0.417	1.54	1.417	40.37	2.417	2.67	3.42	1.32
0.433	1.71	1.433	21.67	2.433	2.46	3.43	1.26
0.450	1.71	1.450	21.67	2.450	2.46	3.45	1.26
0.467	1.71	1.467	21.67	2.467	2.46	3.47	1.26
0.483	1.71	1.483	21.67	2.483	2.46	3.48	1.26
0.500	1.71	1.500	21.67	2.500	2.46	3.50	1.26
0.517	1.92	1.517	14.15	2.517	2.28	3.52	1.21
0.533	1.92	1.533	14.15	2.533	2.28	3.53	1.21
0.550	1.92	1.550	14.15	2.550	2.28	3.55	1.21
0.567	1.92	1.567	14.15	2.567	2.28	3.57	1.21
0.583	1.92	1.583	14.15	2.583	2.28	3.58	1.21
0.600	2.20	1.600	10.27	2.600	2.12	3.60	1.17
0.617	2.20	1.617	10.27	2.617	2.12	3.62	1.17
0.633	2.20	1.633	10.27	2.633	2.12	3.63	1.17
0.650	2.20	1.650	10.27	2.650	2.12	3.65	1.17
0.667	2.20	1.667	10.27	2.667	2.12	3.67	1.17
0.683	2.56	1.683	7.96	2.683	1.99	3.68	1.13
0.700	2.56	1.700	7.96	2.700	1.99	3.70	1.13
0.717	2.56	1.717	7.96	2.717	1.99	3.72	1.13
0.733	2.56	1.733	7.96	2.733	1.99	3.73	1.13
0.750	2.56	1.750	7.96	2.750	1.99	3.75	1.13
0.767	3.06	1.767	6.45	2.767	1.87	3.77	1.09
0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09
0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05
0.933	5.01	1.933	4.63	2.933	1.67	3.93	1.02
0.950	5.01	1.950	4.63	2.950	1.67	3.95	1.02
0.967	5.01	1.967	4.63	2.967	1.67	3.97	1.02
0.983	5.01	1.983	4.63	2.983	1.67	3.98	1.02
1.000	5.01	2.000	4.63	3.000	1.67	4.00	1.02

Max.Eff.Inten.(mm/hr)=	90.18	8.89		
over (min)	5.00	7.00		
Storage Coeff. (min)=	1.08 (ii)	6.38 (ii)		
Unit Hyd. Tpeak (min)=	5.00	7.00		
Unit Hyd. peak (cms)=	0.47	0.17		
			TOTALS	
PEAK FLOW (cms)=	0.04	0.00	0.037 (iii)	
TIME TO PEAK (hrs)=	1.35	1.48	1.35	
RUNOFF VOLUME (mm)=	25.00	4.35	19.35	
TOTAL RAINFALL (mm)=	27.00	27.00	27.00	
RUNOFF COEFFICIENT =	0.93	0.16	0.72	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0403)	Area (ha)=	0.21	
ID= 1 DT= 1.0 min	Total Imp(%)=	73.50	Dir. Conn.(%)= 73.50

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	3.00	3.00
Length	(m)=	37.32	25.00
Mannings n	=	0.013	0.220

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	1.11	1.017	7.20	2.017	4.05	3.02	1.58
0.033	1.11	1.033	7.20	2.033	4.05	3.03	1.58
0.050	1.11	1.050	7.20	2.050	4.05	3.05	1.58
0.067	1.11	1.067	7.20	2.067	4.05	3.07	1.58
0.083	1.11	1.083	7.20	2.083	4.05	3.08	1.58
0.100	1.19	1.100	12.19	2.100	3.59	3.10	1.51
0.117	1.19	1.117	12.19	2.117	3.59	3.12	1.51
0.133	1.19	1.133	12.19	2.133	3.59	3.13	1.51
0.150	1.19	1.150	12.19	2.150	3.59	3.15	1.51
0.167	1.19	1.167	12.19	2.167	3.59	3.17	1.51
0.183	1.29	1.183	30.99	2.183	3.22	3.18	1.44
0.200	1.29	1.200	30.99	2.200	3.22	3.20	1.44
0.217	1.29	1.217	30.99	2.217	3.22	3.22	1.44
0.233	1.29	1.233	30.99	2.233	3.22	3.23	1.44
0.250	1.29	1.250	30.99	2.250	3.22	3.25	1.44
0.267	1.40	1.267	90.18	2.267	2.92	3.27	1.37
0.283	1.40	1.283	90.18	2.283	2.92	3.28	1.37
0.300	1.40	1.300	90.18	2.300	2.92	3.30	1.37
0.317	1.40	1.317	90.18	2.317	2.92	3.32	1.37
0.333	1.40	1.333	90.18	2.333	2.92	3.33	1.37

0.350	1.54	1.350	40.37	2.350	2.67	3.35	1.32
0.367	1.54	1.367	40.37	2.367	2.67	3.37	1.32
0.383	1.54	1.383	40.37	2.383	2.67	3.38	1.32
0.400	1.54	1.400	40.37	2.400	2.67	3.40	1.32
0.417	1.54	1.417	40.37	2.417	2.67	3.42	1.32
0.433	1.71	1.433	21.67	2.433	2.46	3.43	1.26
0.450	1.71	1.450	21.67	2.450	2.46	3.45	1.26
0.467	1.71	1.467	21.67	2.467	2.46	3.47	1.26
0.483	1.71	1.483	21.67	2.483	2.46	3.48	1.26
0.500	1.71	1.500	21.67	2.500	2.46	3.50	1.26
0.517	1.92	1.517	14.15	2.517	2.28	3.52	1.21
0.533	1.92	1.533	14.15	2.533	2.28	3.53	1.21
0.550	1.92	1.550	14.15	2.550	2.28	3.55	1.21
0.567	1.92	1.567	14.15	2.567	2.28	3.57	1.21
0.583	1.92	1.583	14.15	2.583	2.28	3.58	1.21
0.600	2.20	1.600	10.27	2.600	2.12	3.60	1.17
0.617	2.20	1.617	10.27	2.617	2.12	3.62	1.17
0.633	2.20	1.633	10.27	2.633	2.12	3.63	1.17
0.650	2.20	1.650	10.27	2.650	2.12	3.65	1.17
0.667	2.20	1.667	10.27	2.667	2.12	3.67	1.17
0.683	2.56	1.683	7.96	2.683	1.99	3.68	1.13
0.700	2.56	1.700	7.96	2.700	1.99	3.70	1.13
0.717	2.56	1.717	7.96	2.717	1.99	3.72	1.13
0.733	2.56	1.733	7.96	2.733	1.99	3.73	1.13
0.750	2.56	1.750	7.96	2.750	1.99	3.75	1.13
0.767	3.06	1.767	6.45	2.767	1.87	3.77	1.09
0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09
0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05
0.933	5.01	1.933	4.63	2.933	1.67	3.93	1.02
0.950	5.01	1.950	4.63	2.950	1.67	3.95	1.02
0.967	5.01	1.967	4.63	2.967	1.67	3.97	1.02
0.983	5.01	1.983	4.63	2.983	1.67	3.98	1.02
1.000	5.01	2.000	4.63	3.000	1.67	4.00	1.02

Max.Eff.Inten.(mm/hr)=	90.18	8.89	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.06 (ii)	4.09 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.47	0.26	
			TOTALS
PEAK FLOW (cms)=	0.04	0.00	0.036 (iii)
TIME TO PEAK (hrs)=	1.35	1.43	1.35
RUNOFF VOLUME (mm)=	25.00	4.35	19.52
TOTAL RAINFALL (mm)=	27.00	27.00	27.00
RUNOFF COEFFICIENT =	0.93	0.16	0.72

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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					
NASHYD (0401)	Area (ha)=	1.30	Curve Number (CN)=	75.0	
ID= 1 DT= 1.0 min	Ia (mm)=	4.87	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.44			

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	1.11	1.017	7.20	2.017	4.05	3.02	1.58
0.033	1.11	1.033	7.20	2.033	4.05	3.03	1.58
0.050	1.11	1.050	7.20	2.050	4.05	3.05	1.58
0.067	1.11	1.067	7.20	2.067	4.05	3.07	1.58
0.083	1.11	1.083	7.20	2.083	4.05	3.08	1.58
0.100	1.19	1.100	12.19	2.100	3.59	3.10	1.51
0.117	1.19	1.117	12.19	2.117	3.59	3.12	1.51
0.133	1.19	1.133	12.19	2.133	3.59	3.13	1.51
0.150	1.19	1.150	12.19	2.150	3.59	3.15	1.51
0.167	1.19	1.167	12.19	2.167	3.59	3.17	1.51
0.183	1.29	1.183	30.99	2.183	3.22	3.18	1.44
0.200	1.29	1.200	30.99	2.200	3.22	3.20	1.44
0.217	1.29	1.217	30.99	2.217	3.22	3.22	1.44
0.233	1.29	1.233	30.99	2.233	3.22	3.23	1.44
0.250	1.29	1.250	30.99	2.250	3.22	3.25	1.44
0.267	1.40	1.267	90.18	2.267	2.92	3.27	1.37
0.283	1.40	1.283	90.18	2.283	2.92	3.28	1.37
0.300	1.40	1.300	90.18	2.300	2.92	3.30	1.37
0.317	1.40	1.317	90.18	2.317	2.92	3.32	1.37
0.333	1.40	1.333	90.18	2.333	2.92	3.33	1.37
0.350	1.54	1.350	40.37	2.350	2.67	3.35	1.32
0.367	1.54	1.367	40.37	2.367	2.67	3.37	1.32
0.383	1.54	1.383	40.37	2.383	2.67	3.38	1.32
0.400	1.54	1.400	40.37	2.400	2.67	3.40	1.32
0.417	1.54	1.417	40.37	2.417	2.67	3.42	1.32
0.433	1.71	1.433	21.67	2.433	2.46	3.43	1.26
0.450	1.71	1.450	21.67	2.450	2.46	3.45	1.26
0.467	1.71	1.467	21.67	2.467	2.46	3.47	1.26
0.483	1.71	1.483	21.67	2.483	2.46	3.48	1.26
0.500	1.71	1.500	21.67	2.500	2.46	3.50	1.26
0.517	1.92	1.517	14.15	2.517	2.28	3.52	1.21
0.533	1.92	1.533	14.15	2.533	2.28	3.53	1.21
0.550	1.92	1.550	14.15	2.550	2.28	3.55	1.21
0.567	1.92	1.567	14.15	2.567	2.28	3.57	1.21
0.583	1.92	1.583	14.15	2.583	2.28	3.58	1.21
0.600	2.20	1.600	10.27	2.600	2.12	3.60	1.17
0.617	2.20	1.617	10.27	2.617	2.12	3.62	1.17
0.633	2.20	1.633	10.27	2.633	2.12	3.63	1.17
0.650	2.20	1.650	10.27	2.650	2.12	3.65	1.17
0.667	2.20	1.667	10.27	2.667	2.12	3.67	1.17
0.683	2.56	1.683	7.96	2.683	1.99	3.68	1.13
0.700	2.56	1.700	7.96	2.700	1.99	3.70	1.13
0.717	2.56	1.717	7.96	2.717	1.99	3.72	1.13
0.733	2.56	1.733	7.96	2.733	1.99	3.73	1.13
0.750	2.56	1.750	7.96	2.750	1.99	3.75	1.13
0.767	3.06	1.767	6.45	2.767	1.87	3.77	1.09
0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09
0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05

```
              0.933    5.01 | 1.933    4.63 | 2.933    1.67 |  3.93    1.02
              0.950    5.01 | 1.950    4.63 | 2.950    1.67 |  3.95    1.02
              0.967    5.01 | 1.967    4.63 | 2.967    1.67 |  3.97    1.02
              0.983    5.01 | 1.983    4.63 | 2.983    1.67 |  3.98    1.02
              1.000    5.01 | 2.000    4.63 | 3.000    1.67 |  4.00    1.02

     Unit Hyd Qpeak  (cms)=   0.113

     PEAK FLOW       (cms)=   0.012 (i)
     TIME TO PEAK    (hrs)=   1.950
     RUNOFF VOLUME    (mm)=   4.585
     TOTAL RAINFALL   (mm)=  27.000
     RUNOFF COEFFICIENT   =   0.170

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0401):     1.30   0.012     1.95     4.58
      + ID2= 2 (  0402):     0.22   0.037     1.35    19.35
        ================================================
        ID = 3 (  0030):     1.52   0.038     1.35     6.72

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0030):     1.52   0.038     1.35     6.72
      + ID2= 2 (  0403):     0.21   0.036     1.35    19.52
        ================================================
        ID = 1 (  0030):     1.73   0.074     1.35     8.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0030):     1.73   0.074     1.35     8.27
      + ID2= 2 (  0404):     0.89   0.007     2.10     4.35
        ================================================
        ID = 3 (  0030):     2.62   0.074     1.35     6.94

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0040)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):    31.36   0.047     4.20    13.07
      + ID2= 2 (  0002):    12.53   0.020     4.13    14.16
        ================================================
        ID = 3 (  0040):    43.89   0.067     4.18    13.38

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0040)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0040):    43.89   0.067     4.18    13.38
      + ID2= 2 (  0030):     2.62   0.074     1.35     6.94
        ================================================
        ID = 1 (  0040):    46.50   0.085     1.37    13.02

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

 FINISH
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================================================================================
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       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: 02-05-2025                              TIME: 10:56:45

USER:



COMMENTS: _____________________________________________________________


-------------------------------------------------------------------------------
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  ***********************************************
  ** SIMULATION : 100Yr 6Hr AES                 **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\mgallant\AppD
|                  |              ata\Local\Temp\
|                  |              a592ddd9-ec8f-4fe5-8ccc-f2a12e1a192f\d473e31d
| Ptotal= 80.31 mm |    Comments: 100Yr 6Hr AES
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  1.75   27.30 |  3.50   11.24 |  5.25    1.61
                0.25    1.61 |  2.00   27.30 |  3.75    6.42 |  5.50    1.61
                0.50    1.61 |  2.25   73.88 |  4.00    6.42 |  5.75    1.61
                0.75    1.61 |  2.50   73.88 |  4.25    3.21 |  6.00    1.61
                1.00    1.61 |  2.75   20.88 |  4.50    3.21 |
                1.25    9.64 |  3.00   20.88 |  4.75    1.61 |
                1.50    9.64 |  3.25   11.24 |  5.00    1.61 |

-------------------------------------------------------------------------------

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| CALIB            |
| NASHYD   (  0212)|   Area    (ha)=   2.13   Curve Number   (CN)= 66.0
|ID= 1 DT= 1.0 min |   Ia      (mm)=   9.45   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.07

        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 | 1.583    9.64 | 3.150   20.88 |  4.72    3.21
               0.033    0.00 | 1.600    9.64 | 3.167   20.88 |  4.73    3.21
               0.050    0.00 | 1.617    9.64 | 3.183   20.88 |  4.75    3.21
               0.067    0.00 | 1.633    9.64 | 3.200   20.88 |  4.77    1.61
               0.083    0.00 | 1.650    9.64 | 3.217   20.88 |  4.78    1.61
               0.100    0.00 | 1.667    9.64 | 3.233   20.88 |  4.80    1.61
               0.117    0.00 | 1.683    9.64 | 3.250   20.88 |  4.82    1.61
               0.133    0.00 | 1.700    9.64 | 3.267   11.24 |  4.83    1.61
               0.150    0.00 | 1.717    9.64 | 3.283   11.24 |  4.85    1.61
               0.167    0.00 | 1.733    9.64 | 3.300   11.24 |  4.87    1.61
               0.183    0.00 | 1.750    9.64 | 3.317   11.24 |  4.88    1.61
               0.200    0.00 | 1.767   27.30 | 3.333   11.24 |  4.90    1.61
               0.217    0.00 | 1.783   27.30 | 3.350   11.24 |  4.92    1.61
               0.233    0.00 | 1.800   27.30 | 3.367   11.24 |  4.93    1.61
               0.250    0.00 | 1.817   27.30 | 3.383   11.24 |  4.95    1.61
               0.267    1.61 | 1.833   27.30 | 3.400   11.24 |  4.97    1.61
               0.283    1.61 | 1.850   27.30 | 3.417   11.24 |  4.98    1.61
               0.300    1.61 | 1.867   27.30 | 3.433   11.24 |  5.00    1.61
               0.317    1.61 | 1.883   27.30 | 3.450   11.24 |  5.02    1.61
               0.333    1.61 | 1.900   27.30 | 3.467   11.24 |  5.03    1.61
               0.350    1.61 | 1.917   27.30 | 3.483   11.24 |  5.05    1.61
               0.367    1.61 | 1.933   27.30 | 3.500   11.24 |  5.07    1.61
               0.383    1.61 | 1.950   27.30 | 3.517   11.24 |  5.08    1.61
               0.400    1.61 | 1.967   27.30 | 3.533   11.24 |  5.10    1.61
               0.417    1.61 | 1.983   27.30 | 3.550   11.24 |  5.12    1.61
               0.433    1.61 | 2.000   27.30 | 3.567   11.24 |  5.13    1.61
               0.450    1.61 | 2.017   27.30 | 3.583   11.24 |  5.15    1.61
               0.467    1.61 | 2.033   27.30 | 3.600   11.24 |  5.17    1.61
               0.483    1.61 | 2.050   27.30 | 3.617   11.24 |  5.18    1.61
               0.500    1.61 | 2.067   27.30 | 3.633   11.24 |  5.20    1.61
               0.517    1.61 | 2.083   27.30 | 3.650   11.24 |  5.22    1.61
               0.533    1.61 | 2.100   27.30 | 3.667   11.24 |  5.23    1.61
               0.550    1.61 | 2.117   27.30 | 3.683   11.24 |  5.25    1.61
               0.567    1.61 | 2.133   27.30 | 3.700   11.24 |  5.27    1.61
               0.583    1.61 | 2.150   27.30 | 3.717   11.24 |  5.28    1.61
               0.600    1.61 | 2.167   27.30 | 3.733   11.24 |  5.30    1.61
               0.617    1.61 | 2.183   27.30 | 3.750   11.24 |  5.32    1.61
               0.633    1.61 | 2.200   27.30 | 3.767    6.42 |  5.33    1.61
               0.650    1.61 | 2.217   27.30 | 3.783    6.42 |  5.35    1.61
               0.667    1.61 | 2.233   27.30 | 3.800    6.42 |  5.37    1.61
               0.683    1.61 | 2.250   27.30 | 3.817    6.42 |  5.38    1.61
               0.700    1.61 | 2.267   73.88 | 3.833    6.42 |  5.40    1.61
               0.717    1.61 | 2.283   73.88 | 3.850    6.42 |  5.42    1.61
               0.733    1.61 | 2.300   73.88 | 3.867    6.42 |  5.43    1.61
               0.750    1.61 | 2.317   73.88 | 3.883    6.42 |  5.45    1.61
               0.767    1.61 | 2.333   73.88 | 3.900    6.42 |  5.47    1.61
               0.783    1.61 | 2.350   73.88 | 3.917    6.42 |  5.48    1.61
               0.800    1.61 | 2.367   73.88 | 3.933    6.42 |  5.50    1.61
               0.817    1.61 | 2.383   73.88 | 3.950    6.42 |  5.52    1.61
               0.833    1.61 | 2.400   73.88 | 3.967    6.42 |  5.53    1.61
               0.850    1.61 | 2.417   73.88 | 3.983    6.42 |  5.55    1.61
               0.867    1.61 | 2.433   73.88 | 4.000    6.42 |  5.57    1.61
               0.883    1.61 | 2.450   73.88 | 4.017    6.42 |  5.58    1.61
               0.900    1.61 | 2.467   73.88 | 4.033    6.42 |  5.60    1.61
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0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

Unit Hyd Qpeak (cms)= 1.162

PEAK FLOW (cms)= 0.181 (i)
TIME TO PEAK (hrs)= 2.750
RUNOFF VOLUME (mm)= 24.888
TOTAL RAINFALL (mm)= 80.310
RUNOFF COEFFICIENT = 0.310

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB STANDHYD (0201) ID= 1 DT= 1.0 min	Area (ha)= 4.65		
	Total Imp(%)= 90.00	Dir. Conn.(%)= 40.00	
	IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	4.19	0.47
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	0.50	0.50
Length	(m)=	176.12	345.00
Mannings n	=	0.013	0.170

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	1.583	9.64	3.150	20.88	4.72	3.21
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.050	0.00	1.617	9.64	3.183	20.88	4.75	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	1.61
0.083	0.00	1.650	9.64	3.217	20.88	4.78	1.61
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.117	0.00	1.683	9.64	3.250	20.88	4.82	1.61
0.133	0.00	1.700	9.64	3.267	11.24	4.83	1.61
0.150	0.00	1.717	9.64	3.283	11.24	4.85	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.183	0.00	1.750	9.64	3.317	11.24	4.88	1.61
0.200	0.00	1.767	27.30	3.333	11.24	4.90	1.61
0.217	0.00	1.783	27.30	3.350	11.24	4.92	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.250	0.00	1.817	27.30	3.383	11.24	4.95	1.61
0.267	1.61	1.833	27.30	3.400	11.24	4.97	1.61
0.283	1.61	1.850	27.30	3.417	11.24	4.98	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.317	1.61	1.883	27.30	3.450	11.24	5.02	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.350	1.61	1.917	27.30	3.483	11.24	5.05	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.383	1.61	1.950	27.30	3.517	11.24	5.08	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61

0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

Max.Eff.Inten.(mm/hr)=	73.88	415.06		
over (min)	5.00	23.00		
Storage Coeff. (min)=	4.99 (ii)	22.48 (ii)		
Unit Hyd. Tpeak (min)=	5.00	23.00		
Unit Hyd. peak (cms)=	0.23	0.05		
			TOTALS	
PEAK FLOW (cms)=	0.38	0.37	0.707 (iii)	
TIME TO PEAK (hrs)=	2.75	2.93	2.77	
RUNOFF VOLUME (mm)=	78.31	66.94	71.49	
TOTAL RAINFALL (mm)=	80.31	80.31	80.31	
RUNOFF COEFFICIENT =	0.98	0.83	0.89	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0203)	Area (ha)=	2.02
ID= 1 DT= 1.0 min	Total Imp(%)=	77.80 Dir. Conn.(%)= 77.80

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.57	0.45
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	2.00	2.00
Length (m)=	116.10	25.00
Mannings n =	0.013	0.170

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	1.583	9.64	3.150	20.88	4.72	3.21
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.050	0.00	1.617	9.64	3.183	20.88	4.75	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	1.61
0.083	0.00	1.650	9.64	3.217	20.88	4.78	1.61
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.117	0.00	1.683	9.64	3.250	20.88	4.82	1.61
0.133	0.00	1.700	9.64	3.267	11.24	4.83	1.61
0.150	0.00	1.717	9.64	3.283	11.24	4.85	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.183	0.00	1.750	9.64	3.317	11.24	4.88	1.61
0.200	0.00	1.767	27.30	3.333	11.24	4.90	1.61
0.217	0.00	1.783	27.30	3.350	11.24	4.92	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.250	0.00	1.817	27.30	3.383	11.24	4.95	1.61
0.267	1.61	1.833	27.30	3.400	11.24	4.97	1.61
0.283	1.61	1.850	27.30	3.417	11.24	4.98	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.317	1.61	1.883	27.30	3.450	11.24	5.02	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.350	1.61	1.917	27.30	3.483	11.24	5.05	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.383	1.61	1.950	27.30	3.517	11.24	5.08	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61

0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

Max.Eff.Inten.(mm/hr)=	73.88	41.58	
over (min)	5.00	6.00	
Storage Coeff. (min)=	2.56 (ii)	5.45 (ii)	
Unit Hyd. Tpeak (min)=	5.00	6.00	
Unit Hyd. peak (cms)=	0.33	0.20	
			TOTALS
PEAK FLOW (cms)=	0.32	0.05	0.372 (iii)
TIME TO PEAK (hrs)=	2.75	2.77	2.75
RUNOFF VOLUME (mm)=	78.31	34.47	68.58
TOTAL RAINFALL (mm)=	80.31	80.31	80.31
RUNOFF COEFFICIENT =	0.98	0.43	0.85

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0202)	Area (ha)= 4.13
ID= 1 DT= 1.0 min	Total Imp(%)= 90.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	3.72	0.41
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	0.50	0.50
Length	(m)=	165.99	345.00
Mannings n	=	0.013	0.170

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	1.583	9.64	3.150	20.88	4.72	3.21
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.050	0.00	1.617	9.64	3.183	20.88	4.75	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	1.61
0.083	0.00	1.650	9.64	3.217	20.88	4.78	1.61
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.117	0.00	1.683	9.64	3.250	20.88	4.82	1.61
0.133	0.00	1.700	9.64	3.267	11.24	4.83	1.61
0.150	0.00	1.717	9.64	3.283	11.24	4.85	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.183	0.00	1.750	9.64	3.317	11.24	4.88	1.61
0.200	0.00	1.767	27.30	3.333	11.24	4.90	1.61
0.217	0.00	1.783	27.30	3.350	11.24	4.92	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.250	0.00	1.817	27.30	3.383	11.24	4.95	1.61
0.267	1.61	1.833	27.30	3.400	11.24	4.97	1.61
0.283	1.61	1.850	27.30	3.417	11.24	4.98	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.317	1.61	1.883	27.30	3.450	11.24	5.02	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.350	1.61	1.917	27.30	3.483	11.24	5.05	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.383	1.61	1.950	27.30	3.517	11.24	5.08	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61

0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

Max.Eff.Inten.(mm/hr)=	73.88	415.06	
over (min)	5.00	23.00	
Storage Coeff. (min)=	4.81 (ii)	22.31 (ii)	
Unit Hyd. Tpeak (min)=	5.00	23.00	
Unit Hyd. peak (cms)=	0.23	0.05	
			TOTALS
PEAK FLOW (cms)=	0.34	0.33	0.629 (iii)
TIME TO PEAK (hrs)=	2.75	2.93	2.77
RUNOFF VOLUME (mm)=	78.31	66.94	71.49
TOTAL RAINFALL (mm)=	80.31	80.31	80.31
RUNOFF COEFFICIENT =	0.98	0.83	0.89

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0010)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0201):	4.65	0.707	2.77	71.49
	+ ID2= 2 (0202):	4.13	0.629	2.77	71.49
	ID = 3 (0010):	8.79	1.336	2.77	71.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0010)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0010):	8.79	1.336	2.77	71.49
	+ ID2= 2 (0203):	2.02	0.372	2.75	68.58
	ID = 1 (0010):	10.81	1.706	2.75	70.94

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0204) | Area (ha)= 1.78
ID= 1 DT= 1.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.61	0.18
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.30
Length	(m)=	109.04	84.00
Mannings n	=	0.013	0.170

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	1.583	9.64	3.150	20.88	4.72	3.21
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.050	0.00	1.617	9.64	3.183	20.88	4.75	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	1.61
0.083	0.00	1.650	9.64	3.217	20.88	4.78	1.61
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.117	0.00	1.683	9.64	3.250	20.88	4.82	1.61
0.133	0.00	1.700	9.64	3.267	11.24	4.83	1.61
0.150	0.00	1.717	9.64	3.283	11.24	4.85	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.183	0.00	1.750	9.64	3.317	11.24	4.88	1.61
0.200	0.00	1.767	27.30	3.333	11.24	4.90	1.61
0.217	0.00	1.783	27.30	3.350	11.24	4.92	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.250	0.00	1.817	27.30	3.383	11.24	4.95	1.61
0.267	1.61	1.833	27.30	3.400	11.24	4.97	1.61
0.283	1.61	1.850	27.30	3.417	11.24	4.98	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.317	1.61	1.883	27.30	3.450	11.24	5.02	1.61

0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.350	1.61	1.917	27.30	3.483	11.24	5.05	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.383	1.61	1.950	27.30	3.517	11.24	5.08	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

Max.Eff.Inten.(mm/hr)=	73.88	419.79	
over (min)	5.00	10.00	
Storage Coeff. (min)=	3.04 (ii)	9.48 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.31	0.12	
			TOTALS
PEAK FLOW (cms)=	0.15	0.19	0.338 (iii)
TIME TO PEAK (hrs)=	2.75	2.77	2.75
RUNOFF VOLUME (mm)=	78.31	66.95	71.49
TOTAL RAINFALL (mm)=	80.31	80.31	80.31
RUNOFF COEFFICIENT =	0.98	0.83	0.89

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0209) | Area (ha)= 4.42
ID= 1 DT= 1.0 min | Total Imp(%)= 89.90 Dir. Conn.(%)= 40.10

		IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=		3.97	0.45
Dep. Storage (mm)=		2.00	5.00
Average Slope (%)=		1.00	1.00
Length (m)=		171.63	390.00
Mannings n =		0.013	0.170

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	1.583	9.64	3.150	20.88	4.72	3.21
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.050	0.00	1.617	9.64	3.183	20.88	4.75	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	1.61
0.083	0.00	1.650	9.64	3.217	20.88	4.78	1.61
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.117	0.00	1.683	9.64	3.250	20.88	4.82	1.61
0.133	0.00	1.700	9.64	3.267	11.24	4.83	1.61
0.150	0.00	1.717	9.64	3.283	11.24	4.85	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.183	0.00	1.750	9.64	3.317	11.24	4.88	1.61
0.200	0.00	1.767	27.30	3.333	11.24	4.90	1.61
0.217	0.00	1.783	27.30	3.350	11.24	4.92	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61

0.250	0.00	1.817	27.30	3.383	11.24	4.95	1.61
0.267	1.61	1.833	27.30	3.400	11.24	4.97	1.61
0.283	1.61	1.850	27.30	3.417	11.24	4.98	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.317	1.61	1.883	27.30	3.450	11.24	5.02	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.350	1.61	1.917	27.30	3.483	11.24	5.05	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.383	1.61	1.950	27.30	3.517	11.24	5.08	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

Max.Eff.Inten.(mm/hr)=	73.88	411.12	
over (min)	5.00	20.00	
Storage Coeff. (min)=	3.99 (ii)	19.34 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.26	0.06	
			TOTALS
PEAK FLOW (cms)=	0.36	0.38	0.709 (iii)
TIME TO PEAK (hrs)=	2.75	2.90	2.75
RUNOFF VOLUME (mm)=	78.31	66.81	71.42
TOTAL RAINFALL (mm)=	80.31	80.31	80.31
RUNOFF COEFFICIENT =	0.98	0.83	0.89

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0205) | Area (ha)= 1.36
ID= 1 DT= 1.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.09	0.27
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	95.33	125.00
Mannings n	=	0.013	0.170

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	1.583	9.64	3.150	20.88	4.72	3.21
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.050	0.00	1.617	9.64	3.183	20.88	4.75	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	1.61
0.083	0.00	1.650	9.64	3.217	20.88	4.78	1.61
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.117	0.00	1.683	9.64	3.250	20.88	4.82	1.61
0.133	0.00	1.700	9.64	3.267	11.24	4.83	1.61
0.150	0.00	1.717	9.64	3.283	11.24	4.85	1.61

0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.183	0.00	1.750	9.64	3.317	11.24	4.88	1.61
0.200	0.00	1.767	27.30	3.333	11.24	4.90	1.61
0.217	0.00	1.783	27.30	3.350	11.24	4.92	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.250	0.00	1.817	27.30	3.383	11.24	4.95	1.61
0.267	1.61	1.833	27.30	3.400	11.24	4.97	1.61
0.283	1.61	1.850	27.30	3.417	11.24	4.98	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.317	1.61	1.883	27.30	3.450	11.24	5.02	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.350	1.61	1.917	27.30	3.483	11.24	5.05	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.383	1.61	1.950	27.30	3.517	11.24	5.08	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

Max.Eff.Inten.(mm/hr)=	73.88	150.54	
over (min)	5.00	15.00	
Storage Coeff. (min)=	2.80 (ii)	14.40 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.32	0.08	
			TOTALS
PEAK FLOW (cms)=	0.14	0.09	0.225 (iii)
TIME TO PEAK (hrs)=	2.75	2.83	2.75
RUNOFF VOLUME (mm)=	78.31	53.79	66.04
TOTAL RAINFALL (mm)=	80.31	80.31	80.31
RUNOFF COEFFICIENT =	0.98	0.67	0.82

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0206) ID= 1 DT= 1.0 min	Area (ha)= 1.40 Total Imp(%)= 80.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.12	0.28
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	96.57	98.00
Mannings n	=	0.013	0.170

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	1.583	9.64	3.150	20.88	4.72	3.21
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.050	0.00	1.617	9.64	3.183	20.88	4.75	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	1.61

0.083	0.00	1.650	9.64	3.217	20.88	4.78	1.61
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.117	0.00	1.683	9.64	3.250	20.88	4.82	1.61
0.133	0.00	1.700	9.64	3.267	11.24	4.83	1.61
0.150	0.00	1.717	9.64	3.283	11.24	4.85	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.183	0.00	1.750	9.64	3.317	11.24	4.88	1.61
0.200	0.00	1.767	27.30	3.333	11.24	4.90	1.61
0.217	0.00	1.783	27.30	3.350	11.24	4.92	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.250	0.00	1.817	27.30	3.383	11.24	4.95	1.61
0.267	1.61	1.833	27.30	3.400	11.24	4.97	1.61
0.283	1.61	1.850	27.30	3.417	11.24	4.98	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.317	1.61	1.883	27.30	3.450	11.24	5.02	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.350	1.61	1.917	27.30	3.483	11.24	5.05	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.383	1.61	1.950	27.30	3.517	11.24	5.08	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

Max.Eff.Inten.(mm/hr)=	73.88	151.61	
over (min)	5.00	13.00	
Storage Coeff. (min)=	2.82 (ii)	12.82 (ii)	
Unit Hyd. Tpeak (min)=	5.00	13.00	
Unit Hyd. peak (cms)=	0.32	0.09	
			TOTALS
PEAK FLOW (cms)=	0.14	0.10	0.236 (iii)
TIME TO PEAK (hrs)=	2.75	2.82	2.75
RUNOFF VOLUME (mm)=	78.31	53.79	66.04
TOTAL RAINFALL (mm)=	80.31	80.31	80.31
RUNOFF COEFFICIENT =	0.98	0.67	0.82

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0207)	Area (ha)= 4.45
ID= 1 DT= 1.0 min	Total Imp(%)= 89.30 Dir. Conn.(%)= 40.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	3.97	0.48
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	0.90	0.90
Length	(m)=	172.18	407.00
Mannings n	=	0.013	0.170

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	1.583	9.64	3.150	20.88	4.72	3.21
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.050	0.00	1.617	9.64	3.183	20.88	4.75	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	1.61
0.083	0.00	1.650	9.64	3.217	20.88	4.78	1.61
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.117	0.00	1.683	9.64	3.250	20.88	4.82	1.61
0.133	0.00	1.700	9.64	3.267	11.24	4.83	1.61
0.150	0.00	1.717	9.64	3.283	11.24	4.85	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.183	0.00	1.750	9.64	3.317	11.24	4.88	1.61
0.200	0.00	1.767	27.30	3.333	11.24	4.90	1.61
0.217	0.00	1.783	27.30	3.350	11.24	4.92	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.250	0.00	1.817	27.30	3.383	11.24	4.95	1.61
0.267	1.61	1.833	27.30	3.400	11.24	4.97	1.61
0.283	1.61	1.850	27.30	3.417	11.24	4.98	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.317	1.61	1.883	27.30	3.450	11.24	5.02	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.350	1.61	1.917	27.30	3.483	11.24	5.05	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.383	1.61	1.950	27.30	3.517	11.24	5.08	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

Max.Eff.Inten.(mm/hr)=		73.88	380.78	
over (min)		5.00	21.00	
Storage Coeff. (min)=		4.12 (ii)	20.89 (ii)	
Unit Hyd. Tpeak (min)=		5.00	21.00	
Unit Hyd. peak (cms)=		0.26	0.05	
				TOTALS
PEAK FLOW	(cms)=	0.37	0.36	0.695 (iii)
TIME TO PEAK	(hrs)=	2.75	2.92	2.75
RUNOFF VOLUME	(mm)=	78.31	66.01	71.02
TOTAL RAINFALL	(mm)=	80.31	80.31	80.31
RUNOFF COEFFICIENT	=	0.98	0.82	0.88

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0208)	Area (ha)= 2.05
ID= 1 DT= 1.0 min	Total Imp(%)= 90.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.84	0.20
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	116.89	200.00
Mannings n	=	0.013	0.170

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	1.583	9.64	3.150	20.88	4.72	3.21
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.050	0.00	1.617	9.64	3.183	20.88	4.75	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	1.61
0.083	0.00	1.650	9.64	3.217	20.88	4.78	1.61
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.117	0.00	1.683	9.64	3.250	20.88	4.82	1.61
0.133	0.00	1.700	9.64	3.267	11.24	4.83	1.61
0.150	0.00	1.717	9.64	3.283	11.24	4.85	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.183	0.00	1.750	9.64	3.317	11.24	4.88	1.61
0.200	0.00	1.767	27.30	3.333	11.24	4.90	1.61
0.217	0.00	1.783	27.30	3.350	11.24	4.92	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.250	0.00	1.817	27.30	3.383	11.24	4.95	1.61
0.267	1.61	1.833	27.30	3.400	11.24	4.97	1.61
0.283	1.61	1.850	27.30	3.417	11.24	4.98	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.317	1.61	1.883	27.30	3.450	11.24	5.02	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.350	1.61	1.917	27.30	3.483	11.24	5.05	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.383	1.61	1.950	27.30	3.517	11.24	5.08	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

				TOTALS
Max.Eff.Inten.(mm/hr)=	73.88	419.29		
over (min)	5.00	14.00		
Storage Coeff. (min)=	3.17 (ii)	13.37 (ii)		
Unit Hyd. Tpeak (min)=	5.00	14.00		
Unit Hyd. peak (cms)=	0.30	0.08		
PEAK FLOW (cms)=	0.17	0.20		0.366 (iii)
TIME TO PEAK (hrs)=	2.75	2.80		2.75
RUNOFF VOLUME (mm)=	78.31	66.94		71.49
TOTAL RAINFALL (mm)=	80.31	80.31		80.31
RUNOFF COEFFICIENT =	0.98	0.83		0.89

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0210)	Area (ha)=	0.31	
ID= 1 DT= 1.0 min	Total Imp(%)=	80.00	Dir. Conn.(%)= 50.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.25	0.06

Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	45.59	65.00
Mannings n	=	0.013	0.170

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	1.583	9.64	3.150	20.88	4.72	3.21
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.050	0.00	1.617	9.64	3.183	20.88	4.75	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	1.61
0.083	0.00	1.650	9.64	3.217	20.88	4.78	1.61
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.117	0.00	1.683	9.64	3.250	20.88	4.82	1.61
0.133	0.00	1.700	9.64	3.267	11.24	4.83	1.61
0.150	0.00	1.717	9.64	3.283	11.24	4.85	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.183	0.00	1.750	9.64	3.317	11.24	4.88	1.61
0.200	0.00	1.767	27.30	3.333	11.24	4.90	1.61
0.217	0.00	1.783	27.30	3.350	11.24	4.92	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.250	0.00	1.817	27.30	3.383	11.24	4.95	1.61
0.267	1.61	1.833	27.30	3.400	11.24	4.97	1.61
0.283	1.61	1.850	27.30	3.417	11.24	4.98	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.317	1.61	1.883	27.30	3.450	11.24	5.02	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.350	1.61	1.917	27.30	3.483	11.24	5.05	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.383	1.61	1.950	27.30	3.517	11.24	5.08	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

Max.Eff.Inten.(mm/hr)=		73.88	151.61	
over (min)		5.00	10.00	
Storage Coeff. (min)=		1.80 (ii)	9.02 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.39	0.12	
				TOTALS
PEAK FLOW	(cms)=	0.03	0.02	0.055 (iii)
TIME TO PEAK	(hrs)=	2.67	2.78	2.75
RUNOFF VOLUME	(mm)=	78.31	53.79	66.03
TOTAL RAINFALL	(mm)=	80.31	80.31	80.31
RUNOFF COEFFICIENT	=	0.98	0.67	0.82

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0211)| Area (ha)= 2.65
|ID= 1 DT= 1.0 min | Total Imp(%)= 76.60 Dir. Conn.(%)= 76.60

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.03	0.62
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	0.90	0.90
Length	(m)=	132.96	872.00
Mannings n	=	0.013	0.170

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	1.583	9.64	3.150	20.88	4.72	3.21
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.050	0.00	1.617	9.64	3.183	20.88	4.75	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	1.61
0.083	0.00	1.650	9.64	3.217	20.88	4.78	1.61
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.117	0.00	1.683	9.64	3.250	20.88	4.82	1.61
0.133	0.00	1.700	9.64	3.267	11.24	4.83	1.61
0.150	0.00	1.717	9.64	3.283	11.24	4.85	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.183	0.00	1.750	9.64	3.317	11.24	4.88	1.61
0.200	0.00	1.767	27.30	3.333	11.24	4.90	1.61
0.217	0.00	1.783	27.30	3.350	11.24	4.92	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.250	0.00	1.817	27.30	3.383	11.24	4.95	1.61
0.267	1.61	1.833	27.30	3.400	11.24	4.97	1.61
0.283	1.61	1.850	27.30	3.417	11.24	4.98	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.317	1.61	1.883	27.30	3.450	11.24	5.02	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.350	1.61	1.917	27.30	3.483	11.24	5.05	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.383	1.61	1.950	27.30	3.517	11.24	5.08	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

				TOTALS
Max.Eff.Inten.(mm/hr)=		73.88	23.54	
over (min)		5.00	85.00	
Storage Coeff. (min)=		3.53 (ii)	84.18 (ii)	
Unit Hyd. Tpeak (min)=		5.00	85.00	
Unit Hyd. peak (cms)=		0.28	0.01	
PEAK FLOW	(cms)=	0.42	0.02	0.420 (iii)
TIME TO PEAK	(hrs)=	2.75	4.10	2.75
RUNOFF VOLUME	(mm)=	78.31	34.46	68.03
TOTAL RAINFALL	(mm)=	80.31	80.31	80.31
RUNOFF COEFFICIENT	=	0.98	0.43	0.85

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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  (  0011)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0204):     1.78   0.338     2.75    71.49
      + ID2= 2 (  0205):     1.36   0.225     2.75    66.04
        ================================================
        ID = 3 (  0011):     3.15   0.563     2.75    69.13

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0011)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0011):     3.15   0.563     2.75    69.13
      + ID2= 2 (  0206):     1.40   0.236     2.75    66.04
        ================================================
        ID = 1 (  0011):     4.55   0.799     2.75    68.18

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0011)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0011):     4.55   0.799     2.75    68.18
      + ID2= 2 (  0207):     4.45   0.695     2.75    71.02
        ================================================
        ID = 3 (  0011):     8.99   1.494     2.75    69.58

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0011)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0011):     8.99   1.494     2.75    69.58
      + ID2= 2 (  0208):     2.05   0.366     2.75    71.49
        ================================================
        ID = 1 (  0011):    11.04   1.860     2.75    69.94

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0011)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0011):    11.04   1.860     2.75    69.94
      + ID2= 2 (  0209):     4.42   0.709     2.75    71.42
        ================================================
        ID = 3 (  0011):    15.46   2.569     2.75    70.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0011)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0011):    15.46   2.569     2.75    70.36
      + ID2= 2 (  0210):     0.31   0.055     2.75    66.03
        ================================================
        ID = 1 (  0011):    15.77   2.625     2.75    70.28

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0011)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0011):    15.77   2.625     2.75    70.28
      + ID2= 2 (  0211):     2.65   0.420     2.75    68.03
        ================================================
        ID = 3 (  0011):    18.42   3.044     2.75    69.95

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0012)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0010):    10.81   1.706     2.75    70.94
      + ID2= 2 (  0011):    18.42   3.044     2.75    69.95
        ================================================
        ID = 3 (  0012):    29.23   4.750     2.75    70.32

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0012)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0012):    29.23   4.750     2.75    70.32
      + ID2= 2 (  0212):     2.13   0.181     2.75    24.89
        ================================================
        ID = 1 (  0012):    31.36   4.932     2.75    67.24

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.2840      1.1320
                          0.0060     0.0950    |   0.3770      1.3200
                          0.0180     0.1450    |   0.4920      1.6430
                          0.0300     0.2500    |   0.6000      2.0430
                          0.0420     0.4160    |   0.8520      2.1120
                          0.0530     0.6480    |   1.3170      2.1800
                          0.0780     0.7070    |   1.9400      2.2500
                          0.0900     0.8260    |   2.7070      2.3190
                          0.1170     0.9470    |   4.6440      2.4600
                          0.1900     1.0080    |  13.6260      2.9030

                                AREA      QPEAK      TPEAK       R.V.
```

	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0012)	31.360	4.932	2.75	67.24
OUTFLOW: ID= 1 (0001)	31.360	0.500	4.40	53.05

PEAK FLOW REDUCTION [Qout/Qin](%)= 10.15
TIME SHIFT OF PEAK FLOW (min)= 99.00
MAXIMUM STORAGE USED (ha.m.)= 1.6745

CALIB			
NASHYD (0305)	Area (ha)= 1.13	Curve Number (CN)= 68.0	
ID= 1 DT= 1.0 min	Ia (mm)= 8.99	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.06		

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	1.583	9.64	3.150	20.88	4.72	3.21
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.050	0.00	1.617	9.64	3.183	20.88	4.75	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	1.61
0.083	0.00	1.650	9.64	3.217	20.88	4.78	1.61
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.117	0.00	1.683	9.64	3.250	20.88	4.82	1.61
0.133	0.00	1.700	9.64	3.267	11.24	4.83	1.61
0.150	0.00	1.717	9.64	3.283	11.24	4.85	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.183	0.00	1.750	9.64	3.317	11.24	4.88	1.61
0.200	0.00	1.767	27.30	3.333	11.24	4.90	1.61
0.217	0.00	1.783	27.30	3.350	11.24	4.92	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.250	0.00	1.817	27.30	3.383	11.24	4.95	1.61
0.267	1.61	1.833	27.30	3.400	11.24	4.97	1.61
0.283	1.61	1.850	27.30	3.417	11.24	4.98	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.317	1.61	1.883	27.30	3.450	11.24	5.02	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.350	1.61	1.917	27.30	3.483	11.24	5.05	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.383	1.61	1.950	27.30	3.517	11.24	5.08	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

Unit Hyd Qpeak (cms)= 0.721

PEAK FLOW (cms)= 0.105 (i)
TIME TO PEAK (hrs)= 2.750
RUNOFF VOLUME (mm)= 26.642
TOTAL RAINFALL (mm)= 80.310
RUNOFF COEFFICIENT = 0.332

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB                |
| STANDHYD (  0301)|   Area    (ha)=   6.90
|ID= 1 DT= 1.0 min |   Total Imp(%)=  90.00   Dir. Conn.(%)=  40.00
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                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.21          0.69
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     214.52        250.00
     Mannings n             =     0.013         0.170

         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	1.583	9.64	3.150	20.88	4.72	3.21
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.050	0.00	1.617	9.64	3.183	20.88	4.75	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	1.61
0.083	0.00	1.650	9.64	3.217	20.88	4.78	1.61
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.117	0.00	1.683	9.64	3.250	20.88	4.82	1.61
0.133	0.00	1.700	9.64	3.267	11.24	4.83	1.61
0.150	0.00	1.717	9.64	3.283	11.24	4.85	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.183	0.00	1.750	9.64	3.317	11.24	4.88	1.61
0.200	0.00	1.767	27.30	3.333	11.24	4.90	1.61
0.217	0.00	1.783	27.30	3.350	11.24	4.92	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.250	0.00	1.817	27.30	3.383	11.24	4.95	1.61
0.267	1.61	1.833	27.30	3.400	11.24	4.97	1.61
0.283	1.61	1.850	27.30	3.417	11.24	4.98	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.317	1.61	1.883	27.30	3.450	11.24	5.02	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.350	1.61	1.917	27.30	3.483	11.24	5.05	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.383	1.61	1.950	27.30	3.517	11.24	5.08	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

Max.Eff.Inten.(mm/hr)=	73.88	442.73		
over (min)	5.00	16.00		
Storage Coeff. (min)=	4.56 (ii)	15.98 (ii)		
Unit Hyd. Tpeak (min)=	5.00	16.00		
Unit Hyd. peak (cms)=	0.24	0.07		
			TOTALS	
PEAK FLOW (cms)=	0.57	0.71	1.260 (iii)	
TIME TO PEAK (hrs)=	2.75	2.82	2.75	
RUNOFF VOLUME (mm)=	78.31	77.74	77.97	
TOTAL RAINFALL (mm)=	80.31	80.31	80.31	
RUNOFF COEFFICIENT =	0.98	0.97	0.97	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 96.0 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 (0302)	Area (ha)= 3.20
ID= 1 DT= 1.0 min	Total Imp(%)= 90.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.88	0.32
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	146.04	120.00
Mannings n	=	0.013	0.170

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	1.583	9.64	3.150	20.88	4.72	3.21
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.050	0.00	1.617	9.64	3.183	20.88	4.75	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	1.61
0.083	0.00	1.650	9.64	3.217	20.88	4.78	1.61
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.117	0.00	1.683	9.64	3.250	20.88	4.82	1.61
0.133	0.00	1.700	9.64	3.267	11.24	4.83	1.61
0.150	0.00	1.717	9.64	3.283	11.24	4.85	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.183	0.00	1.750	9.64	3.317	11.24	4.88	1.61
0.200	0.00	1.767	27.30	3.333	11.24	4.90	1.61
0.217	0.00	1.783	27.30	3.350	11.24	4.92	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.250	0.00	1.817	27.30	3.383	11.24	4.95	1.61
0.267	1.61	1.833	27.30	3.400	11.24	4.97	1.61
0.283	1.61	1.850	27.30	3.417	11.24	4.98	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.317	1.61	1.883	27.30	3.450	11.24	5.02	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.350	1.61	1.917	27.30	3.483	11.24	5.05	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.383	1.61	1.950	27.30	3.517	11.24	5.08	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

				TOTALS
Max.Eff.Inten.	(mm/hr)=	73.88	419.79	
over	(min)	5.00	13.00	
Storage Coeff.	(min)=	3.62 (ii)	12.26 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	13.00	
Unit Hyd. peak	(cms)=	0.28	0.09	
PEAK FLOW	(cms)=	0.26	0.32	0.582 (iii)
TIME TO PEAK	(hrs)=	2.75	2.80	2.75
RUNOFF VOLUME	(mm)=	78.31	66.94	71.49
TOTAL RAINFALL	(mm)=	80.31	80.31	80.31
RUNOFF COEFFICIENT	=	0.98	0.83	0.89

```
      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  74.0    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 (  0303)|   Area    (ha)=   0.77
|ID= 1 DT= 1.0 min |   Total Imp(%)=  90.00   Dir. Conn.(%)=  40.00
--------------------

                          IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       0.70          0.08
    Dep. Storage     (mm)=       2.00          5.00
    Average Slope     (%)=       1.00          2.10
    Length            (m)=      71.87         54.00
    Mannings n           =      0.013         0.220

       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	1.583	9.64	3.150	20.88	4.72	3.21
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.050	0.00	1.617	9.64	3.183	20.88	4.75	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	1.61
0.083	0.00	1.650	9.64	3.217	20.88	4.78	1.61
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.117	0.00	1.683	9.64	3.250	20.88	4.82	1.61
0.133	0.00	1.700	9.64	3.267	11.24	4.83	1.61
0.150	0.00	1.717	9.64	3.283	11.24	4.85	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.183	0.00	1.750	9.64	3.317	11.24	4.88	1.61
0.200	0.00	1.767	27.30	3.333	11.24	4.90	1.61
0.217	0.00	1.783	27.30	3.350	11.24	4.92	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.250	0.00	1.817	27.30	3.383	11.24	4.95	1.61
0.267	1.61	1.833	27.30	3.400	11.24	4.97	1.61
0.283	1.61	1.850	27.30	3.417	11.24	4.98	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.317	1.61	1.883	27.30	3.450	11.24	5.02	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.350	1.61	1.917	27.30	3.483	11.24	5.05	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.383	1.61	1.950	27.30	3.517	11.24	5.08	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

Max.Eff.Inten.(mm/hr)=	73.88	419.79	
over (min)	5.00	8.00	
Storage Coeff. (min)=	2.37 (ii)	7.37 (ii)	
Unit Hyd. Tpeak (min)=	5.00	8.00	
Unit Hyd. peak (cms)=	0.35	0.15	
			TOTALS

PEAK FLOW	(cms)=	0.06	0.09	0.150 (iii)
TIME TO PEAK	(hrs)=	2.75	2.75	2.75
RUNOFF VOLUME	(mm)=	78.31	66.95	71.49
TOTAL RAINFALL	(mm)=	80.31	80.31	80.31
RUNOFF COEFFICIENT	=	0.98	0.83	0.89

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0304)
ID= 1 DT= 1.0 min

Area (ha)= 0.52
Total Imp(%)= 66.30 Dir. Conn.(%)= 66.30

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.34	0.17
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	58.83	60.00
Mannings n	=	0.013	0.220

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	1.583	9.64	3.150	20.88	4.72	3.21
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.050	0.00	1.617	9.64	3.183	20.88	4.75	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	1.61
0.083	0.00	1.650	9.64	3.217	20.88	4.78	1.61
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.117	0.00	1.683	9.64	3.250	20.88	4.82	1.61
0.133	0.00	1.700	9.64	3.267	11.24	4.83	1.61
0.150	0.00	1.717	9.64	3.283	11.24	4.85	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.183	0.00	1.750	9.64	3.317	11.24	4.88	1.61
0.200	0.00	1.767	27.30	3.333	11.24	4.90	1.61
0.217	0.00	1.783	27.30	3.350	11.24	4.92	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.250	0.00	1.817	27.30	3.383	11.24	4.95	1.61
0.267	1.61	1.833	27.30	3.400	11.24	4.97	1.61
0.283	1.61	1.850	27.30	3.417	11.24	4.98	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.317	1.61	1.883	27.30	3.450	11.24	5.02	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.350	1.61	1.917	27.30	3.483	11.24	5.05	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.383	1.61	1.950	27.30	3.517	11.24	5.08	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

Max.Eff.Inten.(mm/hr)= 73.88 41.58

```
                over (min)        5.00          11.00
     Storage Coeff.  (min)=       2.10 (ii)     10.94 (ii)
     Unit Hyd. Tpeak (min)=       5.00          11.00
     Unit Hyd. peak  (cms)=       0.37           0.10
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.07           0.02          0.086 (iii)
     TIME TO PEAK    (hrs)=       2.73           2.82           2.75
     RUNOFF VOLUME    (mm)=      78.31          34.47          63.52
     TOTAL RAINFALL   (mm)=      80.31          80.31          80.31
     RUNOFF COEFFICIENT   =       0.98           0.43           0.79


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  74.0    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.

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--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0301):     6.90   1.260     2.75    77.97
     + ID2= 2 (  0302):     3.20   0.582     2.75    71.49
       ================================================
       ID = 3 (  0020):    10.10   1.842     2.75    75.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0020)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0020):    10.10   1.842     2.75    75.92
     + ID2= 2 (  0303):     0.77   0.150     2.75    71.49
       ================================================
       ID = 1 (  0020):    10.88   1.992     2.75    75.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0020):    10.88   1.992     2.75    75.60
     + ID2= 2 (  0304):     0.52   0.086     2.75    63.52
       ================================================
       ID = 3 (  0020):    11.40   2.078     2.75    75.05

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ADD HYD  (  0021)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0020):    11.40   2.078     2.75    75.05
     + ID2= 2 (  0305):     1.13   0.105     2.75    26.64
       ================================================
       ID = 3 (  0021):    12.53   2.183     2.75    70.68
```

```
     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |  0.0820      0.4340
                          0.0010     0.0240    |  0.1040      0.5000
                          0.0060     0.0480    |  0.1300      0.6010
                          0.0120     0.1000    |  0.1580      0.7400
                          0.0170     0.1850    |  0.1810      0.8850
                          0.0200     0.2450    |  0.3080      0.9220
                          0.0210     0.2750    |  0.5530      0.9590
                          0.0270     0.3060    |  1.3310      1.0350
                          0.0310     0.3380    |  2.4840      1.1120
                          0.0430     0.3700    |  8.3380      1.3600

                                    AREA     QPEAK     TPEAK      R.V.
                                    (ha)     (cms)     (hrs)      (mm)
   INFLOW : ID= 2 (  0021)     12.529      2.183      2.75      70.68
   OUTFLOW: ID= 1 (  0002)     12.529      0.158      4.48      53.72

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.23
                  TIME SHIFT OF PEAK FLOW         (min)=104.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.7393

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0404)|   Area    (ha)=   0.89   Curve Number   (CN)= 74.0
|ID= 1 DT= 1.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.54

        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 | 1.583     9.64 | 3.150    20.88 |  4.72     3.21
 0.033     0.00 | 1.600     9.64 | 3.167    20.88 |  4.73     3.21
 0.050     0.00 | 1.617     9.64 | 3.183    20.88 |  4.75     3.21
 0.067     0.00 | 1.633     9.64 | 3.200    20.88 |  4.77     1.61
 0.083     0.00 | 1.650     9.64 | 3.217    20.88 |  4.78     1.61
 0.100     0.00 | 1.667     9.64 | 3.233    20.88 |  4.80     1.61
 0.117     0.00 | 1.683     9.64 | 3.250    20.88 |  4.82     1.61
 0.133     0.00 | 1.700     9.64 | 3.267    11.24 |  4.83     1.61
 0.150     0.00 | 1.717     9.64 | 3.283    11.24 |  4.85     1.61
 0.167     0.00 | 1.733     9.64 | 3.300    11.24 |  4.87     1.61
 0.183     0.00 | 1.750     9.64 | 3.317    11.24 |  4.88     1.61
 0.200     0.00 | 1.767    27.30 | 3.333    11.24 |  4.90     1.61
 0.217     0.00 | 1.783    27.30 | 3.350    11.24 |  4.92     1.61
 0.233     0.00 | 1.800    27.30 | 3.367    11.24 |  4.93     1.61
 0.250     0.00 | 1.817    27.30 | 3.383    11.24 |  4.95     1.61
 0.267     1.61 | 1.833    27.30 | 3.400    11.24 |  4.97     1.61
 0.283     1.61 | 1.850    27.30 | 3.417    11.24 |  4.98     1.61
 0.300     1.61 | 1.867    27.30 | 3.433    11.24 |  5.00     1.61
 0.317     1.61 | 1.883    27.30 | 3.450    11.24 |  5.02     1.61
 0.333     1.61 | 1.900    27.30 | 3.467    11.24 |  5.03     1.61
 0.350     1.61 | 1.917    27.30 | 3.483    11.24 |  5.05     1.61
 0.367     1.61 | 1.933    27.30 | 3.500    11.24 |  5.07     1.61
 0.383     1.61 | 1.950    27.30 | 3.517    11.24 |  5.08     1.61
```

0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

Unit Hyd Qpeak (cms)= 0.063

PEAK FLOW (cms)= 0.049 (i)
TIME TO PEAK (hrs)= 3.233
RUNOFF VOLUME (mm)= 34.465
TOTAL RAINFALL (mm)= 80.310
RUNOFF COEFFICIENT = 0.429

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0402)
ID= 1 DT= 1.0 min

Area (ha)= 0.22
Total Imp(%)= 72.70 Dir. Conn.(%)= 72.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	3.00	3.00
Length	(m)=	38.31	62.00
Mannings n	=	0.013	0.220

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	1.583	9.64	3.150	20.88	4.72	3.21
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.050	0.00	1.617	9.64	3.183	20.88	4.75	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	1.61
0.083	0.00	1.650	9.64	3.217	20.88	4.78	1.61
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.117	0.00	1.683	9.64	3.250	20.88	4.82	1.61
0.133	0.00	1.700	9.64	3.267	11.24	4.83	1.61
0.150	0.00	1.717	9.64	3.283	11.24	4.85	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.183	0.00	1.750	9.64	3.317	11.24	4.88	1.61
0.200	0.00	1.767	27.30	3.333	11.24	4.90	1.61
0.217	0.00	1.783	27.30	3.350	11.24	4.92	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.250	0.00	1.817	27.30	3.383	11.24	4.95	1.61
0.267	1.61	1.833	27.30	3.400	11.24	4.97	1.61
0.283	1.61	1.850	27.30	3.417	11.24	4.98	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.317	1.61	1.883	27.30	3.450	11.24	5.02	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.350	1.61	1.917	27.30	3.483	11.24	5.05	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.383	1.61	1.950	27.30	3.517	11.24	5.08	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61

0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

Max.Eff.Inten.(mm/hr)=	73.88	41.58	
over (min)	5.00	7.00	
Storage Coeff. (min)=	1.17 (ii)	6.91 (ii)	
Unit Hyd. Tpeak (min)=	5.00	7.00	
Unit Hyd. peak (cms)=	0.45	0.16	
			TOTALS
PEAK FLOW (cms)=	0.03	0.01	0.039 (iii)
TIME TO PEAK (hrs)=	2.62	2.77	2.75
RUNOFF VOLUME (mm)=	78.31	34.47	66.32
TOTAL RAINFALL (mm)=	80.31	80.31	80.31
RUNOFF COEFFICIENT =	0.98	0.43	0.83

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0403)	Area (ha)=	0.21	
ID= 1 DT= 1.0 min	Total Imp(%)=	73.50	Dir. Conn.(%)= 73.50

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	3.00	3.00
Length	(m)=	37.32	25.00
Mannings n	=	0.013	0.220

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	1.583	9.64	3.150	20.88	4.72	3.21
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.050	0.00	1.617	9.64	3.183	20.88	4.75	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	1.61
0.083	0.00	1.650	9.64	3.217	20.88	4.78	1.61
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.117	0.00	1.683	9.64	3.250	20.88	4.82	1.61
0.133	0.00	1.700	9.64	3.267	11.24	4.83	1.61
0.150	0.00	1.717	9.64	3.283	11.24	4.85	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.183	0.00	1.750	9.64	3.317	11.24	4.88	1.61
0.200	0.00	1.767	27.30	3.333	11.24	4.90	1.61
0.217	0.00	1.783	27.30	3.350	11.24	4.92	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.250	0.00	1.817	27.30	3.383	11.24	4.95	1.61
0.267	1.61	1.833	27.30	3.400	11.24	4.97	1.61
0.283	1.61	1.850	27.30	3.417	11.24	4.98	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.317	1.61	1.883	27.30	3.450	11.24	5.02	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.350	1.61	1.917	27.30	3.483	11.24	5.05	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61

0.383	1.61	1.950	27.30	3.517	11.24	5.08	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

Max.Eff.Inten.(mm/hr)=	73.88	41.58	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.15 (ii)	4.42 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.46	0.24	
			TOTALS
PEAK FLOW (cms)=	0.03	0.01	0.038 (iii)
TIME TO PEAK (hrs)=	2.62	2.75	2.75
RUNOFF VOLUME (mm)=	78.31	34.47	66.68
TOTAL RAINFALL (mm)=	80.31	80.31	80.31
RUNOFF COEFFICIENT =	0.98	0.43	0.83

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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			
NASHYD (0401)	Area (ha)=	1.30	Curve Number (CN)= 75.0
ID= 1 DT= 1.0 min	Ia (mm)=	4.87	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.44	

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	1.583	9.64	3.150	20.88	4.72	3.21
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.050	0.00	1.617	9.64	3.183	20.88	4.75	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	1.61
0.083	0.00	1.650	9.64	3.217	20.88	4.78	1.61
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.117	0.00	1.683	9.64	3.250	20.88	4.82	1.61
0.133	0.00	1.700	9.64	3.267	11.24	4.83	1.61
0.150	0.00	1.717	9.64	3.283	11.24	4.85	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.183	0.00	1.750	9.64	3.317	11.24	4.88	1.61
0.200	0.00	1.767	27.30	3.333	11.24	4.90	1.61
0.217	0.00	1.783	27.30	3.350	11.24	4.92	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.250	0.00	1.817	27.30	3.383	11.24	4.95	1.61
0.267	1.61	1.833	27.30	3.400	11.24	4.97	1.61
0.283	1.61	1.850	27.30	3.417	11.24	4.98	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.317	1.61	1.883	27.30	3.450	11.24	5.02	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.350	1.61	1.917	27.30	3.483	11.24	5.05	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.383	1.61	1.950	27.30	3.517	11.24	5.08	1.61

0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

Unit Hyd Qpeak (cms)= 0.113

PEAK FLOW (cms)= 0.083 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 35.545
TOTAL RAINFALL (mm)= 80.310
RUNOFF COEFFICIENT = 0.443

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0030)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0401):		1.30	0.083	3.08	35.55
+ ID2= 2 (0402):		0.22	0.039	2.75	66.32
ID = 3 (0030):		1.52	0.095	2.78	40.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0030):		1.52	0.095	2.78	40.00
+ ID2= 2 (0403):		0.21	0.038	2.75	66.68
ID = 1 (0030):		1.73	0.132	2.77	43.23

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0030):		1.73	0.132	2.77	43.23
+ ID2= 2 (0404):		0.89	0.049	3.23	34.47
ID = 3 (0030):		2.62	0.160	2.77	40.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0040)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0001):		31.36	0.500	4.40	53.05
+ ID2= 2 (0002):		12.53	0.158	4.48	53.72
ID = 3 (0040):		43.89	0.658	4.42	53.24

```
     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0040)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0040):    43.89   0.658     4.42    53.24
      + ID2= 2 (  0030):     2.62   0.160     2.77    40.26
        ================================================
        ID = 1 (  0040):    46.50   0.731     3.77    52.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       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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  Summary     filename:     C:\Users\mgallant\AppData\Local\Civica\VH5\6ad26195-
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DATE: 02-05-2025                          TIME: 10:56:47

USER:



COMMENTS: _____________________________________________________________


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  ***********************************************
  ** SIMULATION : 100Yr 12hr AES                **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\mgallant\AppD
|                  |              ata\Local\Temp\
|                  |              a592ddd9-ec8f-4fe5-8ccc-f2a12e1a192f\83eb47e5
| Ptotal= 88.54 mm |    Comments: 100Yr 12hr AES
--------------------
                TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
                 hrs   mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
               0.00     0.00 |  3.25    15.05 |   6.50     6.20 |  9.75     0.89
               0.25     0.89 |  3.50    15.05 |   6.75     6.20 | 10.00     0.89
               0.50     0.89 |  3.75    15.05 |   7.00     6.20 | 10.25     0.89
               0.75     0.89 |  4.00    15.05 |   7.25     3.54 | 10.50     0.89
               1.00     0.89 |  4.25    40.71 |   7.50     3.54 | 10.75     0.89
               1.25     0.89 |  4.50    40.71 |   7.75     3.54 | 11.00     0.89
               1.50     0.89 |  4.75    40.71 |   8.00     3.54 | 11.25     0.89
               1.75     0.89 |  5.00    40.71 |   8.25     1.77 | 11.50     0.89
               2.00     0.89 |  5.25    11.51 |   8.50     1.77 | 11.75     0.89
               2.25     5.31 |  5.50    11.51 |   8.75     1.77 | 12.00     0.89
               2.50     5.31 |  5.75    11.51 |   9.00     1.77 |
               2.75     5.31 |  6.00    11.51 |   9.25     0.89 |
               3.00     5.31 |  6.25     6.20 |   9.50     0.89 |

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| CALIB            |
| NASHYD   (  0212)|   Area     (ha)=   2.13   Curve Number   (CN)= 66.0
|ID= 1 DT= 1.0 min |   Ia       (mm)=   9.45   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.07

        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 | 3.083     5.31 | 6.150    11.51 |  9.22     1.77
               0.033     0.00 | 3.100     5.31 | 6.167    11.51 |  9.23     1.77
               0.050     0.00 | 3.117     5.31 | 6.183    11.51 |  9.25     1.77
               0.067     0.00 | 3.133     5.31 | 6.200    11.51 |  9.27     0.89
               0.083     0.00 | 3.150     5.31 | 6.217    11.51 |  9.28     0.89
               0.100     0.00 | 3.167     5.31 | 6.233    11.51 |  9.30     0.89
               0.117     0.00 | 3.183     5.31 | 6.250    11.50 |  9.32     0.89
               0.133     0.00 | 3.200     5.31 | 6.267     6.20 |  9.33     0.89
               0.150     0.00 | 3.217     5.31 | 6.283     6.20 |  9.35     0.89
               0.167     0.00 | 3.233     5.31 | 6.300     6.20 |  9.37     0.89
               0.183     0.00 | 3.250     5.31 | 6.317     6.20 |  9.38     0.89
               0.200     0.00 | 3.267    15.05 | 6.333     6.20 |  9.40     0.89
               0.217     0.00 | 3.283    15.05 | 6.350     6.20 |  9.42     0.89
               0.233     0.00 | 3.300    15.05 | 6.367     6.20 |  9.43     0.89
               0.250     0.00 | 3.317    15.05 | 6.383     6.20 |  9.45     0.89
               0.267     0.89 | 3.333    15.05 | 6.400     6.20 |  9.47     0.89
               0.283     0.89 | 3.350    15.05 | 6.417     6.20 |  9.48     0.89
               0.300     0.89 | 3.367    15.05 | 6.433     6.20 |  9.50     0.89
               0.317     0.89 | 3.383    15.05 | 6.450     6.20 |  9.52     0.89
               0.333     0.89 | 3.400    15.05 | 6.467     6.20 |  9.53     0.89
               0.350     0.89 | 3.417    15.05 | 6.483     6.20 |  9.55     0.89
               0.367     0.89 | 3.433    15.05 | 6.500     6.20 |  9.57     0.89
               0.383     0.89 | 3.450    15.05 | 6.517     6.20 |  9.58     0.89
               0.400     0.89 | 3.467    15.05 | 6.533     6.20 |  9.60     0.89
               0.417     0.89 | 3.483    15.05 | 6.550     6.20 |  9.62     0.89
               0.433     0.89 | 3.500    15.05 | 6.567     6.20 |  9.63     0.89
               0.450     0.89 | 3.517    15.05 | 6.583     6.20 |  9.65     0.89
               0.467     0.89 | 3.533    15.05 | 6.600     6.20 |  9.67     0.89
               0.483     0.89 | 3.550    15.05 | 6.617     6.20 |  9.68     0.89
               0.500     0.89 | 3.567    15.05 | 6.633     6.20 |  9.70     0.89
               0.517     0.89 | 3.583    15.05 | 6.650     6.20 |  9.72     0.89
               0.533     0.89 | 3.600    15.05 | 6.667     6.20 |  9.73     0.89
               0.550     0.89 | 3.617    15.05 | 6.683     6.20 |  9.75     0.89
               0.567     0.89 | 3.633    15.05 | 6.700     6.20 |  9.77     0.89
               0.583     0.89 | 3.650    15.05 | 6.717     6.20 |  9.78     0.89
               0.600     0.89 | 3.667    15.05 | 6.733     6.20 |  9.80     0.89
               0.617     0.89 | 3.683    15.05 | 6.750     6.20 |  9.82     0.89
               0.633     0.89 | 3.700    15.05 | 6.767     6.20 |  9.83     0.89
               0.650     0.89 | 3.717    15.05 | 6.783     6.20 |  9.85     0.89
               0.667     0.89 | 3.733    15.05 | 6.800     6.20 |  9.87     0.89
               0.683     0.89 | 3.750    15.05 | 6.817     6.20 |  9.88     0.89
               0.700     0.89 | 3.767    15.05 | 6.833     6.20 |  9.90     0.89
               0.717     0.89 | 3.783    15.05 | 6.850     6.20 |  9.92     0.89
               0.733     0.89 | 3.800    15.05 | 6.867     6.20 |  9.93     0.89
               0.750     0.89 | 3.817    15.05 | 6.883     6.20 |  9.95     0.89
               0.767     0.89 | 3.833    15.05 | 6.900     6.20 |  9.97     0.89
               0.783     0.89 | 3.850    15.05 | 6.917     6.20 |  9.98     0.89
               0.800     0.89 | 3.867    15.05 | 6.933     6.20 | 10.00     0.89
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0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89

2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

Unit Hyd Qpeak (cms)= 1.162

PEAK FLOW (cms)= 0.114 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 29.788
TOTAL RAINFALL (mm)= 88.539
RUNOFF COEFFICIENT = 0.336

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB STANDHYD (0201) ID= 1 DT= 1.0 min	Area (ha)= 4.65 Total Imp(%)= 90.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	4.19	0.47
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	0.50	0.50
Length	(m)=	176.12	345.00
Mannings n	=	0.013	0.170

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	3.083	5.31	6.150	11.51	9.22	1.77
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.050	0.00	3.117	5.31	6.183	11.51	9.25	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	0.89
0.083	0.00	3.150	5.31	6.217	11.51	9.28	0.89
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.117	0.00	3.183	5.31	6.250	11.50	9.32	0.89
0.133	0.00	3.200	5.31	6.267	6.20	9.33	0.89
0.150	0.00	3.217	5.31	6.283	6.20	9.35	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.183	0.00	3.250	5.31	6.317	6.20	9.38	0.89
0.200	0.00	3.267	15.05	6.333	6.20	9.40	0.89
0.217	0.00	3.283	15.05	6.350	6.20	9.42	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.250	0.00	3.317	15.05	6.383	6.20	9.45	0.89
0.267	0.89	3.333	15.05	6.400	6.20	9.47	0.89
0.283	0.89	3.350	15.05	6.417	6.20	9.48	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.317	0.89	3.383	15.05	6.450	6.20	9.52	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.350	0.89	3.417	15.05	6.483	6.20	9.55	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.383	0.89	3.450	15.05	6.517	6.20	9.58	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89

1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

Max.Eff.Inten.(mm/hr)=	40.71	232.79		
over (min)	6.00	29.00		
Storage Coeff. (min)=	6.33 (ii)	28.38 (ii)		
Unit Hyd. Tpeak (min)=	6.00	29.00		
Unit Hyd. peak (cms)=	0.18	0.04		
			TOTALS	
PEAK FLOW (cms)=	0.21	0.25	0.455 (iii)	
TIME TO PEAK (hrs)=	5.25	5.38	5.25	
RUNOFF VOLUME (mm)=	86.53	74.96	79.61	
TOTAL RAINFALL (mm)=	88.54	88.54	88.54	
RUNOFF COEFFICIENT =	0.98	0.85	0.90	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0203)	Area (ha)=	2.02
ID= 1 DT= 1.0 min	Total Imp(%)=	77.80 Dir. Conn.(%)= 77.80

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.57	0.45
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	116.10	25.00
Mannings n	=	0.013	0.170

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	3.083	5.31	6.150	11.51	9.22	1.77
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.050	0.00	3.117	5.31	6.183	11.51	9.25	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	0.89
0.083	0.00	3.150	5.31	6.217	11.51	9.28	0.89
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.117	0.00	3.183	5.31	6.250	11.50	9.32	0.89
0.133	0.00	3.200	5.31	6.267	6.20	9.33	0.89
0.150	0.00	3.217	5.31	6.283	6.20	9.35	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.183	0.00	3.250	5.31	6.317	6.20	9.38	0.89
0.200	0.00	3.267	15.05	6.333	6.20	9.40	0.89
0.217	0.00	3.283	15.05	6.350	6.20	9.42	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.250	0.00	3.317	15.05	6.383	6.20	9.45	0.89
0.267	0.89	3.333	15.05	6.400	6.20	9.47	0.89
0.283	0.89	3.350	15.05	6.417	6.20	9.48	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.317	0.89	3.383	15.05	6.450	6.20	9.52	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.350	0.89	3.417	15.05	6.483	6.20	9.55	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.383	0.89	3.450	15.05	6.517	6.20	9.58	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89

2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

Max.Eff.Inten.(mm/hr)=	40.71	25.00
over (min)	5.00	7.00

Storage Coeff. (min)=	3.25 (ii)	6.92 (ii)		
Unit Hyd. Tpeak (min)=	5.00	7.00		
Unit Hyd. peak (cms)=	0.29	0.16		
			TOTALS	
PEAK FLOW (cms)=	0.18	0.03	0.208 (iii)	
TIME TO PEAK (hrs)=	5.07	5.25	5.25	
RUNOFF VOLUME (mm)=	86.54	40.39	76.29	
TOTAL RAINFALL (mm)=	88.54	88.54	88.54	
RUNOFF COEFFICIENT =	0.98	0.46	0.86	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0202)	Area (ha)=	4.13	
ID= 1 DT= 1.0 min	Total Imp(%)=	90.00	Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	3.72	0.41
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	0.50	0.50
Length	(m)=	165.99	345.00
Mannings n	=	0.013	0.170

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	3.083	5.31	6.150	11.51	9.22	1.77
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.050	0.00	3.117	5.31	6.183	11.51	9.25	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	0.89
0.083	0.00	3.150	5.31	6.217	11.51	9.28	0.89
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.117	0.00	3.183	5.31	6.250	11.50	9.32	0.89
0.133	0.00	3.200	5.31	6.267	6.20	9.33	0.89
0.150	0.00	3.217	5.31	6.283	6.20	9.35	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.183	0.00	3.250	5.31	6.317	6.20	9.38	0.89
0.200	0.00	3.267	15.05	6.333	6.20	9.40	0.89
0.217	0.00	3.283	15.05	6.350	6.20	9.42	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.250	0.00	3.317	15.05	6.383	6.20	9.45	0.89
0.267	0.89	3.333	15.05	6.400	6.20	9.47	0.89
0.283	0.89	3.350	15.05	6.417	6.20	9.48	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.317	0.89	3.383	15.05	6.450	6.20	9.52	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.350	0.89	3.417	15.05	6.483	6.20	9.55	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.383	0.89	3.450	15.05	6.517	6.20	9.58	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89

0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89

2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

Max.Eff.Inten.(mm/hr)=	40.71	232.79		
over (min)	6.00	29.00		
Storage Coeff. (min)=	6.11 (ii)	28.16 (ii)		
Unit Hyd. Tpeak (min)=	6.00	29.00		
Unit Hyd. peak (cms)=	0.19	0.04		
				TOTALS
PEAK FLOW (cms)=	0.19	0.22		0.405 (iii)
TIME TO PEAK (hrs)=	5.23	5.38		5.25
RUNOFF VOLUME (mm)=	86.53	74.97		79.61
TOTAL RAINFALL (mm)=	88.54	88.54		88.54
RUNOFF COEFFICIENT =	0.98	0.85		0.90

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0010)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0201):	4.65	0.455	5.25	79.61
+ ID2= 2 (0202):	4.13	0.405	5.25	79.61
ID = 3 (0010):	8.79	0.860	5.25	79.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0010)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0010):	8.79	0.860	5.25	79.61
+ ID2= 2 (0203):	2.02	0.208	5.25	76.29
ID = 1 (0010):	10.81	1.068	5.25	78.99

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0204)
ID= 1 DT= 1.0 min

Area (ha)= 1.78
Total Imp(%)= 90.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.61	0.18
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.30
Length	(m)=	109.04	84.00
Mannings n	=	0.013	0.170

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	3.083	5.31	6.150	11.51	9.22	1.77
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.050	0.00	3.117	5.31	6.183	11.51	9.25	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	0.89
0.083	0.00	3.150	5.31	6.217	11.51	9.28	0.89
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.117	0.00	3.183	5.31	6.250	11.50	9.32	0.89
0.133	0.00	3.200	5.31	6.267	6.20	9.33	0.89
0.150	0.00	3.217	5.31	6.283	6.20	9.35	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.183	0.00	3.250	5.31	6.317	6.20	9.38	0.89
0.200	0.00	3.267	15.05	6.333	6.20	9.40	0.89
0.217	0.00	3.283	15.05	6.350	6.20	9.42	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.250	0.00	3.317	15.05	6.383	6.20	9.45	0.89
0.267	0.89	3.333	15.05	6.400	6.20	9.47	0.89
0.283	0.89	3.350	15.05	6.417	6.20	9.48	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.317	0.89	3.383	15.05	6.450	6.20	9.52	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.350	0.89	3.417	15.05	6.483	6.20	9.55	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.383	0.89	3.450	15.05	6.517	6.20	9.58	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89

0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89

2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

Max.Eff.Inten.(mm/hr)=	40.71	234.22	
over (min)	5.00	13.00	
Storage Coeff. (min)=	3.85 (ii)	12.04 (ii)	
Unit Hyd. Tpeak (min)=	5.00	13.00	
Unit Hyd. peak (cms)=	0.27	0.09	
			TOTALS
PEAK FLOW (cms)=	0.08	0.11	0.194 (iii)
TIME TO PEAK (hrs)=	5.12	5.25	5.25
RUNOFF VOLUME (mm)=	86.53	74.98	79.61
TOTAL RAINFALL (mm)=	88.54	88.54	88.54
RUNOFF COEFFICIENT =	0.98	0.85	0.90

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0209)	Area (ha)=	4.42	
ID= 1 DT= 1.0 min	Total Imp(%)=	89.90	Dir. Conn.(%)= 40.10

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	3.97	0.45
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	171.63	390.00
Mannings n	=	0.013	0.170

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	3.083	5.31	6.150	11.51	9.22	1.77
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.050	0.00	3.117	5.31	6.183	11.51	9.25	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	0.89
0.083	0.00	3.150	5.31	6.217	11.51	9.28	0.89
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.117	0.00	3.183	5.31	6.250	11.50	9.32	0.89
0.133	0.00	3.200	5.31	6.267	6.20	9.33	0.89
0.150	0.00	3.217	5.31	6.283	6.20	9.35	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.183	0.00	3.250	5.31	6.317	6.20	9.38	0.89
0.200	0.00	3.267	15.05	6.333	6.20	9.40	0.89
0.217	0.00	3.283	15.05	6.350	6.20	9.42	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.250	0.00	3.317	15.05	6.383	6.20	9.45	0.89
0.267	0.89	3.333	15.05	6.400	6.20	9.47	0.89
0.283	0.89	3.350	15.05	6.417	6.20	9.48	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.317	0.89	3.383	15.05	6.450	6.20	9.52	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.350	0.89	3.417	15.05	6.483	6.20	9.55	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.383	0.89	3.450	15.05	6.517	6.20	9.58	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89

1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

Max.Eff.Inten.(mm/hr)=	40.71	230.26		
over (min)	5.00	25.00		
Storage Coeff. (min)=	5.06 (ii)	24.42 (ii)		
Unit Hyd. Tpeak (min)=	5.00	25.00		
Unit Hyd. peak (cms)=	0.22	0.05		
			TOTALS	
PEAK FLOW (cms)=	0.20	0.25	0.446 (iii)	
TIME TO PEAK (hrs)=	5.23	5.33	5.25	
RUNOFF VOLUME (mm)=	86.53	74.83	79.54	
TOTAL RAINFALL (mm)=	88.54	88.54	88.54	
RUNOFF COEFFICIENT =	0.98	0.85	0.90	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0205)	Area (ha)= 1.36
ID= 1 DT= 1.0 min	Total Imp(%)= 80.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.09	0.27
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	95.33	125.00
Mannings n	=	0.013	0.170

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	3.083	5.31	6.150	11.51	9.22	1.77
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.050	0.00	3.117	5.31	6.183	11.51	9.25	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	0.89
0.083	0.00	3.150	5.31	6.217	11.51	9.28	0.89
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.117	0.00	3.183	5.31	6.250	11.50	9.32	0.89
0.133	0.00	3.200	5.31	6.267	6.20	9.33	0.89
0.150	0.00	3.217	5.31	6.283	6.20	9.35	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.183	0.00	3.250	5.31	6.317	6.20	9.38	0.89
0.200	0.00	3.267	15.05	6.333	6.20	9.40	0.89
0.217	0.00	3.283	15.05	6.350	6.20	9.42	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.250	0.00	3.317	15.05	6.383	6.20	9.45	0.89
0.267	0.89	3.333	15.05	6.400	6.20	9.47	0.89
0.283	0.89	3.350	15.05	6.417	6.20	9.48	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.317	0.89	3.383	15.05	6.450	6.20	9.52	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.350	0.89	3.417	15.05	6.483	6.20	9.55	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.383	0.89	3.450	15.05	6.517	6.20	9.58	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89

1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

Max.Eff.Inten.(mm/hr)=	40.71	86.22		
over (min)	5.00	19.00		
Storage Coeff. (min)=	3.56 (ii)	18.05 (ii)		
Unit Hyd. Tpeak (min)=	5.00	19.00		
Unit Hyd. peak (cms)=	0.28	0.06		
			TOTALS	
PEAK FLOW (cms)=	0.08	0.06	0.135 (iii)	
TIME TO PEAK (hrs)=	5.07	5.30	5.25	
RUNOFF VOLUME (mm)=	86.54	61.26	73.90	
TOTAL RAINFALL (mm)=	88.54	88.54	88.54	
RUNOFF COEFFICIENT =	0.98	0.69	0.83	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0206)	Area (ha)=	1.40	
ID= 1 DT= 1.0 min	Total Imp(%)=	80.00	Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.12	0.28
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	96.57	98.00
Mannings n	=	0.013	0.170

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	3.083	5.31	6.150	11.51	9.22	1.77
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.050	0.00	3.117	5.31	6.183	11.51	9.25	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	0.89
0.083	0.00	3.150	5.31	6.217	11.51	9.28	0.89
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.117	0.00	3.183	5.31	6.250	11.50	9.32	0.89
0.133	0.00	3.200	5.31	6.267	6.20	9.33	0.89

0.150	0.00	3.217	5.31	6.283	6.20	9.35	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.183	0.00	3.250	5.31	6.317	6.20	9.38	0.89
0.200	0.00	3.267	15.05	6.333	6.20	9.40	0.89
0.217	0.00	3.283	15.05	6.350	6.20	9.42	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.250	0.00	3.317	15.05	6.383	6.20	9.45	0.89
0.267	0.89	3.333	15.05	6.400	6.20	9.47	0.89
0.283	0.89	3.350	15.05	6.417	6.20	9.48	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.317	0.89	3.383	15.05	6.450	6.20	9.52	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.350	0.89	3.417	15.05	6.483	6.20	9.55	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.383	0.89	3.450	15.05	6.517	6.20	9.58	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89

2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

			TOTALS
Max.Eff.Inten.(mm/hr)=	40.71	86.46	
over (min)	5.00	17.00	
Storage Coeff. (min)=	3.58 (ii)	16.09 (ii)	
Unit Hyd. Tpeak (min)=	5.00	17.00	
Unit Hyd. peak (cms)=	0.28	0.07	
PEAK FLOW (cms)=	0.08	0.06	0.140 (iii)
TIME TO PEAK (hrs)=	5.07	5.28	5.25
RUNOFF VOLUME (mm)=	86.54	61.26	73.90
TOTAL RAINFALL (mm)=	88.54	88.54	88.54
RUNOFF COEFFICIENT =	0.98	0.69	0.83

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0207)	Area (ha)=	4.45	
ID= 1 DT= 1.0 min	Total Imp(%)=	89.30	Dir. Conn.(%)= 40.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	3.97	0.48
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	0.90	0.90
Length	(m)=	172.18	407.00
Mannings n	=	0.013	0.170

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	3.083	5.31	6.150	11.51	9.22	1.77
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.050	0.00	3.117	5.31	6.183	11.51	9.25	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	0.89
0.083	0.00	3.150	5.31	6.217	11.51	9.28	0.89
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.117	0.00	3.183	5.31	6.250	11.50	9.32	0.89
0.133	0.00	3.200	5.31	6.267	6.20	9.33	0.89
0.150	0.00	3.217	5.31	6.283	6.20	9.35	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.183	0.00	3.250	5.31	6.317	6.20	9.38	0.89
0.200	0.00	3.267	15.05	6.333	6.20	9.40	0.89
0.217	0.00	3.283	15.05	6.350	6.20	9.42	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.250	0.00	3.317	15.05	6.383	6.20	9.45	0.89
0.267	0.89	3.333	15.05	6.400	6.20	9.47	0.89
0.283	0.89	3.350	15.05	6.417	6.20	9.48	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.317	0.89	3.383	15.05	6.450	6.20	9.52	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.350	0.89	3.417	15.05	6.483	6.20	9.55	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.383	0.89	3.450	15.05	6.517	6.20	9.58	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89

0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89

2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

Max.Eff.Inten.(mm/hr)=	40.71	213.74	
over (min)	5.00	27.00	
Storage Coeff. (min)=	5.23 (ii)	26.36 (ii)	
Unit Hyd. Tpeak (min)=	5.00	27.00	
Unit Hyd. peak (cms)=	0.22	0.04	
			TOTALS
PEAK FLOW (cms)=	0.20	0.24	0.441 (iii)
TIME TO PEAK (hrs)=	5.23	5.37	5.25
RUNOFF VOLUME (mm)=	86.54	74.01	79.12
TOTAL RAINFALL (mm)=	88.54	88.54	88.54
RUNOFF COEFFICIENT =	0.98	0.84	0.89

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0208)	Area (ha)=	2.05
ID= 1 DT= 1.0 min	Total Imp(%)=	90.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.84	0.20
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	116.89	200.00
Mannings n	=	0.013	0.170

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	3.083	5.31	6.150	11.51	9.22	1.77
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.050	0.00	3.117	5.31	6.183	11.51	9.25	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	0.89
0.083	0.00	3.150	5.31	6.217	11.51	9.28	0.89
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.117	0.00	3.183	5.31	6.250	11.50	9.32	0.89
0.133	0.00	3.200	5.31	6.267	6.20	9.33	0.89
0.150	0.00	3.217	5.31	6.283	6.20	9.35	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.183	0.00	3.250	5.31	6.317	6.20	9.38	0.89
0.200	0.00	3.267	15.05	6.333	6.20	9.40	0.89
0.217	0.00	3.283	15.05	6.350	6.20	9.42	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.250	0.00	3.317	15.05	6.383	6.20	9.45	0.89
0.267	0.89	3.333	15.05	6.400	6.20	9.47	0.89
0.283	0.89	3.350	15.05	6.417	6.20	9.48	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.317	0.89	3.383	15.05	6.450	6.20	9.52	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.350	0.89	3.417	15.05	6.483	6.20	9.55	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.383	0.89	3.450	15.05	6.517	6.20	9.58	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89

1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

Max.Eff.Inten.(mm/hr)=		40.71	233.93	
over (min)		5.00	17.00	
Storage Coeff. (min)=		4.02 (ii)	16.91 (ii)	
Unit Hyd. Tpeak (min)=		5.00	17.00	
Unit Hyd. peak (cms)=		0.26	0.07	
				TOTALS
PEAK FLOW	(cms)=	0.09	0.13	0.218 (iii)
TIME TO PEAK	(hrs)=	5.15	5.27	5.25
RUNOFF VOLUME	(mm)=	86.53	74.98	79.60
TOTAL RAINFALL	(mm)=	88.54	88.54	88.54
RUNOFF COEFFICIENT	=	0.98	0.85	0.90

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0210) ID= 1 DT= 1.0 min	Area (ha)= 0.31 Total Imp(%)= 80.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.25	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	45.59	65.00
Mannings n	=	0.013	0.170

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	3.083	5.31	6.150	11.51	9.22	1.77
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.050	0.00	3.117	5.31	6.183	11.51	9.25	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	0.89
0.083	0.00	3.150	5.31	6.217	11.51	9.28	0.89
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.117	0.00	3.183	5.31	6.250	11.50	9.32	0.89
0.133	0.00	3.200	5.31	6.267	6.20	9.33	0.89
0.150	0.00	3.217	5.31	6.283	6.20	9.35	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.183	0.00	3.250	5.31	6.317	6.20	9.38	0.89
0.200	0.00	3.267	15.05	6.333	6.20	9.40	0.89
0.217	0.00	3.283	15.05	6.350	6.20	9.42	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.250	0.00	3.317	15.05	6.383	6.20	9.45	0.89
0.267	0.89	3.333	15.05	6.400	6.20	9.47	0.89
0.283	0.89	3.350	15.05	6.417	6.20	9.48	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.317	0.89	3.383	15.05	6.450	6.20	9.52	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.350	0.89	3.417	15.05	6.483	6.20	9.55	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.383	0.89	3.450	15.05	6.517	6.20	9.58	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89

1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

Max.Eff.Inten.(mm/hr)=	40.71	86.81	
over (min)	5.00	13.00	
Storage Coeff. (min)=	2.28 (ii)	12.05 (ii)	
Unit Hyd. Tpeak (min)=	5.00	13.00	
Unit Hyd. peak (cms)=	0.35	0.09	
			TOTALS
PEAK FLOW (cms)=	0.02	0.01	0.032 (iii)
TIME TO PEAK (hrs)=	4.82	5.27	5.25
RUNOFF VOLUME (mm)=	86.53	61.26	73.88
TOTAL RAINFALL (mm)=	88.54	88.54	88.54
RUNOFF COEFFICIENT =	0.98	0.69	0.83

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0211)	Area (ha)=	2.65	
ID= 1 DT= 1.0 min	Total Imp(%)=	76.60	Dir. Conn.(%)= 76.60

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.03	0.62
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	0.90	0.90
Length	(m)=	132.96	872.00
Mannings n	=	0.013	0.170

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	3.083	5.31	6.150	11.51	9.22	1.77
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.050	0.00	3.117	5.31	6.183	11.51	9.25	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	0.89
0.083	0.00	3.150	5.31	6.217	11.51	9.28	0.89
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.117	0.00	3.183	5.31	6.250	11.50	9.32	0.89
0.133	0.00	3.200	5.31	6.267	6.20	9.33	0.89
0.150	0.00	3.217	5.31	6.283	6.20	9.35	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.183	0.00	3.250	5.31	6.317	6.20	9.38	0.89
0.200	0.00	3.267	15.05	6.333	6.20	9.40	0.89

0.217	0.00	3.283	15.05	6.350	6.20	9.42	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.250	0.00	3.317	15.05	6.383	6.20	9.45	0.89
0.267	0.89	3.333	15.05	6.400	6.20	9.47	0.89
0.283	0.89	3.350	15.05	6.417	6.20	9.48	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.317	0.89	3.383	15.05	6.450	6.20	9.52	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.350	0.89	3.417	15.05	6.483	6.20	9.55	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.383	0.89	3.450	15.05	6.517	6.20	9.58	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89

2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

Max.Eff.Inten.(mm/hr)=	40.71	19.99	
over (min)	5.00	91.00	
Storage Coeff. (min)=	4.48 (ii)	90.57 (ii)	
Unit Hyd. Tpeak (min)=	5.00	91.00	
Unit Hyd. peak (cms)=	0.24	0.01	
			TOTALS
PEAK FLOW (cms)=	0.23	0.02	0.236 (iii)
TIME TO PEAK (hrs)=	5.23	6.58	5.25
RUNOFF VOLUME (mm)=	86.54	40.35	75.72
TOTAL RAINFALL (mm)=	88.54	88.54	88.54
RUNOFF COEFFICIENT =	0.98	0.46	0.86

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0011)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0204):	1.78	0.194	5.25	79.61
	+ ID2= 2 (0205):	1.36	0.135	5.25	73.90
	ID = 3 (0011):	3.15	0.329	5.25	77.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0011)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0011):	3.15	0.329	5.25	77.13
	+ ID2= 2 (0206):	1.40	0.140	5.25	73.90
	ID = 1 (0011):	4.55	0.469	5.25	76.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0011)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0011):	4.55	0.469	5.25	76.14
	+ ID2= 2 (0207):	4.45	0.441	5.25	79.12
	ID = 3 (0011):	8.99	0.910	5.25	77.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0011)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0011):	8.99	0.910	5.25	77.61
	+ ID2= 2 (0208):	2.05	0.218	5.25	79.60
	ID = 1 (0011):	11.04	1.128	5.25	77.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0011)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0011):	11.04	1.128	5.25	77.98
	+ ID2= 2 (0209):	4.42	0.446	5.25	79.54
	ID = 3 (0011):	15.46	1.574	5.25	78.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0011)

```
|   3 +  2 =  1    |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 3 (  0011):     15.46    1.574      5.25     78.43
     + ID2= 2 (  0210):      0.31    0.032      5.25     73.88
       ================================================
       ID = 1 (  0011):     15.77    1.606      5.25     78.34

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0011)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 1 (  0011):     15.77    1.606      5.25     78.34
     + ID2= 2 (  0211):      2.65    0.236      5.25     75.72
       ================================================
       ID = 3 (  0011):     18.42    1.842      5.25     77.96

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0012)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 1 (  0010):     10.81    1.068      5.25     78.99
     + ID2= 2 (  0011):     18.42    1.842      5.25     77.96
       ================================================
       ID = 3 (  0012):     29.23    2.910      5.25     78.34

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0012)|
|   3 +  2 =  1    |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 3 (  0012):     29.23    2.910      5.25     78.34
     + ID2= 2 (  0212):      2.13    0.114      5.25     29.79
       ================================================
       ID = 1 (  0012):     31.36    3.024      5.25     75.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                         0.0000     0.0000    |   0.2840      1.1320
                         0.0060     0.0950    |   0.3770      1.3200
                         0.0180     0.1450    |   0.4920      1.6430
                         0.0300     0.2500    |   0.6000      2.0430
                         0.0420     0.4160    |   0.8520      2.1120
                         0.0530     0.6480    |   1.3170      2.1800
                         0.0780     0.7070    |   1.9400      2.2500
                         0.0900     0.8260    |   2.7070      2.3190
                         0.1170     0.9470    |   4.6440      2.4600
                         0.1900     1.0080    |  13.6260      2.9030

                               AREA      QPEAK      TPEAK       R.V.
                               (ha)      (cms)      (hrs)       (mm)
   INFLOW : ID= 2 (  0012)    31.360      3.024       5.25      75.04

   OUTFLOW: ID= 1 (  0001)    31.360      0.499       7.35      58.90

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 16.49
                  TIME SHIFT OF PEAK FLOW         (min)=126.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.6677

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0305)|   Area     (ha)=   1.13   Curve Number   (CN)= 68.0
|ID= 1 DT= 1.0 min |   Ia       (mm)=   8.99   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.06

        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 | 3.083    5.31 | 6.150   11.51 |  9.22    1.77
     0.033    0.00 | 3.100    5.31 | 6.167   11.51 |  9.23    1.77
     0.050    0.00 | 3.117    5.31 | 6.183   11.51 |  9.25    1.77
     0.067    0.00 | 3.133    5.31 | 6.200   11.51 |  9.27    0.89
     0.083    0.00 | 3.150    5.31 | 6.217   11.51 |  9.28    0.89
     0.100    0.00 | 3.167    5.31 | 6.233   11.51 |  9.30    0.89
     0.117    0.00 | 3.183    5.31 | 6.250   11.50 |  9.32    0.89
     0.133    0.00 | 3.200    5.31 | 6.267    6.20 |  9.33    0.89
     0.150    0.00 | 3.217    5.31 | 6.283    6.20 |  9.35    0.89
     0.167    0.00 | 3.233    5.31 | 6.300    6.20 |  9.37    0.89
     0.183    0.00 | 3.250    5.31 | 6.317    6.20 |  9.38    0.89
     0.200    0.00 | 3.267   15.05 | 6.333    6.20 |  9.40    0.89
     0.217    0.00 | 3.283   15.05 | 6.350    6.20 |  9.42    0.89
     0.233    0.00 | 3.300   15.05 | 6.367    6.20 |  9.43    0.89
     0.250    0.00 | 3.317   15.05 | 6.383    6.20 |  9.45    0.89
     0.267    0.89 | 3.333   15.05 | 6.400    6.20 |  9.47    0.89
     0.283    0.89 | 3.350   15.05 | 6.417    6.20 |  9.48    0.89
     0.300    0.89 | 3.367   15.05 | 6.433    6.20 |  9.50    0.89
     0.317    0.89 | 3.383   15.05 | 6.450    6.20 |  9.52    0.89
     0.333    0.89 | 3.400   15.05 | 6.467    6.20 |  9.53    0.89
     0.350    0.89 | 3.417   15.05 | 6.483    6.20 |  9.55    0.89
     0.367    0.89 | 3.433   15.05 | 6.500    6.20 |  9.57    0.89
     0.383    0.89 | 3.450   15.05 | 6.517    6.20 |  9.58    0.89
     0.400    0.89 | 3.467   15.05 | 6.533    6.20 |  9.60    0.89
     0.417    0.89 | 3.483   15.05 | 6.550    6.20 |  9.62    0.89
     0.433    0.89 | 3.500   15.05 | 6.567    6.20 |  9.63    0.89
     0.450    0.89 | 3.517   15.05 | 6.583    6.20 |  9.65    0.89
     0.467    0.89 | 3.533   15.05 | 6.600    6.20 |  9.67    0.89
     0.483    0.89 | 3.550   15.05 | 6.617    6.20 |  9.68    0.89
     0.500    0.89 | 3.567   15.05 | 6.633    6.20 |  9.70    0.89
     0.517    0.89 | 3.583   15.05 | 6.650    6.20 |  9.72    0.89
     0.533    0.89 | 3.600   15.05 | 6.667    6.20 |  9.73    0.89
     0.550    0.89 | 3.617   15.05 | 6.683    6.20 |  9.75    0.89
     0.567    0.89 | 3.633   15.05 | 6.700    6.20 |  9.77    0.89
     0.583    0.89 | 3.650   15.05 | 6.717    6.20 |  9.78    0.89
     0.600    0.89 | 3.667   15.05 | 6.733    6.20 |  9.80    0.89
     0.617    0.89 | 3.683   15.05 | 6.750    6.20 |  9.82    0.89
     0.633    0.89 | 3.700   15.05 | 6.767    6.20 |  9.83    0.89
     0.650    0.89 | 3.717   15.05 | 6.783    6.20 |  9.85    0.89
     0.667    0.89 | 3.733   15.05 | 6.800    6.20 |  9.87    0.89
     0.683    0.89 | 3.750   15.05 | 6.817    6.20 |  9.88    0.89
     0.700    0.89 | 3.767   15.05 | 6.833    6.20 |  9.90    0.89
     0.717    0.89 | 3.783   15.05 | 6.850    6.20 |  9.92    0.89
     0.733    0.89 | 3.800   15.05 | 6.867    6.20 |  9.93    0.89
     0.750    0.89 | 3.817   15.05 | 6.883    6.20 |  9.95    0.89
```

0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89

2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

Unit Hyd Qpeak (cms)= 0.721

PEAK FLOW (cms)= 0.065 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 31.774
TOTAL RAINFALL (mm)= 88.539
RUNOFF COEFFICIENT = 0.359

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0301)	Area (ha)= 6.90
ID= 1 DT= 1.0 min	Total Imp(%)= 90.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	6.21	0.69
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	214.52	250.00
Mannings n	=	0.013	0.170

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	3.083	5.31	6.150	11.51	9.22	1.77
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.050	0.00	3.117	5.31	6.183	11.51	9.25	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	0.89
0.083	0.00	3.150	5.31	6.217	11.51	9.28	0.89
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.117	0.00	3.183	5.31	6.250	11.50	9.32	0.89
0.133	0.00	3.200	5.31	6.267	6.20	9.33	0.89
0.150	0.00	3.217	5.31	6.283	6.20	9.35	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.183	0.00	3.250	5.31	6.317	6.20	9.38	0.89
0.200	0.00	3.267	15.05	6.333	6.20	9.40	0.89
0.217	0.00	3.283	15.05	6.350	6.20	9.42	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.250	0.00	3.317	15.05	6.383	6.20	9.45	0.89
0.267	0.89	3.333	15.05	6.400	6.20	9.47	0.89
0.283	0.89	3.350	15.05	6.417	6.20	9.48	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.317	0.89	3.383	15.05	6.450	6.20	9.52	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.350	0.89	3.417	15.05	6.483	6.20	9.55	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.383	0.89	3.450	15.05	6.517	6.20	9.58	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89

1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

Max.Eff.Inten.(mm/hr)=		40.71	244.03	
over (min)		6.00	21.00	
Storage Coeff. (min)=		5.79 (ii)	20.27 (ii)	
Unit Hyd. Tpeak (min)=		6.00	21.00	
Unit Hyd. peak (cms)=		0.19	0.06	
				TOTALS
PEAK FLOW	(cms)=	0.31	0.44	0.751 (iii)
TIME TO PEAK	(hrs)=	5.23	5.28	5.25
RUNOFF VOLUME	(mm)=	86.53	85.96	86.20
TOTAL RAINFALL	(mm)=	88.54	88.54	88.54
RUNOFF COEFFICIENT	=	0.98	0.97	0.97

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 96.0 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 (0302)	Area (ha)=	3.20	
ID= 1 DT= 1.0 min	Total Imp(%)=	90.00	Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.88	0.32
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	146.04	120.00

Mannings n = 0.013 0.170

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	3.083	5.31	6.150	11.51	9.22	1.77
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.050	0.00	3.117	5.31	6.183	11.51	9.25	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	0.89
0.083	0.00	3.150	5.31	6.217	11.51	9.28	0.89
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.117	0.00	3.183	5.31	6.250	11.50	9.32	0.89
0.133	0.00	3.200	5.31	6.267	6.20	9.33	0.89
0.150	0.00	3.217	5.31	6.283	6.20	9.35	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.183	0.00	3.250	5.31	6.317	6.20	9.38	0.89
0.200	0.00	3.267	15.05	6.333	6.20	9.40	0.89
0.217	0.00	3.283	15.05	6.350	6.20	9.42	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.250	0.00	3.317	15.05	6.383	6.20	9.45	0.89
0.267	0.89	3.333	15.05	6.400	6.20	9.47	0.89
0.283	0.89	3.350	15.05	6.417	6.20	9.48	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.317	0.89	3.383	15.05	6.450	6.20	9.52	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.350	0.89	3.417	15.05	6.483	6.20	9.55	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.383	0.89	3.450	15.05	6.517	6.20	9.58	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89

2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

Max.Eff.Inten.(mm/hr)=	40.71	234.22		
over (min)	5.00	15.00		
Storage Coeff. (min)=	4.59 (ii)	14.08 (ii)		
Unit Hyd. Tpeak (min)=	5.00	15.00		
Unit Hyd. peak (cms)=	0.24	0.08		
			TOTALS	
PEAK FLOW (cms)=	0.14	0.20	0.345 (iii)	
TIME TO PEAK (hrs)=	5.23	5.27	5.25	
RUNOFF VOLUME (mm)=	86.53	74.98	79.61	
TOTAL RAINFALL (mm)=	88.54	88.54	88.54	
RUNOFF COEFFICIENT =	0.98	0.85	0.90	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0303) | Area (ha)= 0.77
ID= 1 DT= 1.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.70	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.10
Length	(m)=	71.87	54.00
Mannings n	=	0.013	0.220

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	3.083	5.31	6.150	11.51	9.22	1.77
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.050	0.00	3.117	5.31	6.183	11.51	9.25	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	0.89
0.083	0.00	3.150	5.31	6.217	11.51	9.28	0.89
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.117	0.00	3.183	5.31	6.250	11.50	9.32	0.89
0.133	0.00	3.200	5.31	6.267	6.20	9.33	0.89
0.150	0.00	3.217	5.31	6.283	6.20	9.35	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.183	0.00	3.250	5.31	6.317	6.20	9.38	0.89
0.200	0.00	3.267	15.05	6.333	6.20	9.40	0.89
0.217	0.00	3.283	15.05	6.350	6.20	9.42	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.250	0.00	3.317	15.05	6.383	6.20	9.45	0.89
0.267	0.89	3.333	15.05	6.400	6.20	9.47	0.89
0.283	0.89	3.350	15.05	6.417	6.20	9.48	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.317	0.89	3.383	15.05	6.450	6.20	9.52	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.350	0.89	3.417	15.05	6.483	6.20	9.55	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.383	0.89	3.450	15.05	6.517	6.20	9.58	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89

0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89

2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

Max.Eff.Inten.(mm/hr)=	40.71	234.22		
over (min)	5.00	10.00		
Storage Coeff. (min)=	3.00 (ii)	9.35 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.31	0.12		
			TOTALS	
PEAK FLOW (cms)=	0.04	0.05	0.085 (iii)	
TIME TO PEAK (hrs)=	5.07	5.25	5.25	
RUNOFF VOLUME (mm)=	86.54	74.98	79.60	
TOTAL RAINFALL (mm)=	88.54	88.54	88.54	
RUNOFF COEFFICIENT =	0.98	0.85	0.90	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0304)	Area (ha)=	0.52		
ID= 1 DT= 1.0 min	Total Imp(%)=	66.30	Dir. Conn.(%)=	66.30

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.34	0.17
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	58.83	60.00
Mannings n	=	0.013	0.220

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	3.083	5.31	6.150	11.51	9.22	1.77
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.050	0.00	3.117	5.31	6.183	11.51	9.25	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	0.89
0.083	0.00	3.150	5.31	6.217	11.51	9.28	0.89
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.117	0.00	3.183	5.31	6.250	11.50	9.32	0.89
0.133	0.00	3.200	5.31	6.267	6.20	9.33	0.89
0.150	0.00	3.217	5.31	6.283	6.20	9.35	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.183	0.00	3.250	5.31	6.317	6.20	9.38	0.89
0.200	0.00	3.267	15.05	6.333	6.20	9.40	0.89
0.217	0.00	3.283	15.05	6.350	6.20	9.42	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.250	0.00	3.317	15.05	6.383	6.20	9.45	0.89
0.267	0.89	3.333	15.05	6.400	6.20	9.47	0.89
0.283	0.89	3.350	15.05	6.417	6.20	9.48	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.317	0.89	3.383	15.05	6.450	6.20	9.52	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.350	0.89	3.417	15.05	6.483	6.20	9.55	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.383	0.89	3.450	15.05	6.517	6.20	9.58	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89

0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

Max.Eff.Inten.(mm/hr)= 40.71 24.28

```
              over (min)        5.00         21.00
     Storage Coeff.  (min)=     2.66 (ii)    20.74 (ii)
     Unit Hyd. Tpeak (min)=     5.00         21.00
     Unit Hyd. peak  (cms)=     0.33          0.05
                                                      *TOTALS*
     PEAK FLOW       (cms)=     0.04          0.01      0.048 (iii)
     TIME TO PEAK    (hrs)=     5.07          5.37       5.25
     RUNOFF VOLUME    (mm)=    86.54         40.38      70.96
     TOTAL RAINFALL   (mm)=    88.54         88.54      88.54
     RUNOFF COEFFICIENT   =     0.98          0.46       0.80

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  74.0    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  (  0020)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0301):      6.90   0.751     5.25    86.20
     + ID2= 2 (  0302):      3.20   0.345     5.25    79.61
       ================================================
       ID = 3 (  0020):     10.10   1.097     5.25    84.11

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0020)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0020):     10.10   1.097     5.25    84.11
     + ID2= 2 (  0303):      0.77   0.085     5.25    79.60
       ================================================
       ID = 1 (  0020):     10.88   1.181     5.25    83.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0020):     10.88   1.181     5.25    83.79
     + ID2= 2 (  0304):      0.52   0.048     5.25    70.96
       ================================================
       ID = 3 (  0020):     11.40   1.230     5.25    83.21

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0021)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0020):     11.40   1.230     5.25    83.21
     + ID2= 2 (  0305):      1.13   0.065     5.25    31.77
       ================================================
       ID = 3 (  0021):     12.53   1.295     5.25    78.56
```

```
     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |  0.0820      0.4340
                          0.0010     0.0240    |  0.1040      0.5000
                          0.0060     0.0480    |  0.1300      0.6010
                          0.0120     0.1000    |  0.1580      0.7400
                          0.0170     0.1850    |  0.1810      0.8850
                          0.0200     0.2450    |  0.3080      0.9220
                          0.0210     0.2750    |  0.5530      0.9590
                          0.0270     0.3060    |  1.3310      1.0350
                          0.0310     0.3380    |  2.4840      1.1120
                          0.0430     0.3700    |  8.3380      1.3600

                                    AREA     QPEAK     TPEAK       R.V.
                                    (ha)     (cms)     (hrs)       (mm)
     INFLOW : ID= 2 (  0021)     12.529      1.295      5.25      78.56
     OUTFLOW: ID= 1 (  0002)     12.529      0.159      7.52      59.38

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 12.25
                    TIME SHIFT OF PEAK FLOW         (min)=136.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.7435

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0404)|   Area     (ha)=   0.89   Curve Number   (CN)= 74.0
|ID= 1 DT= 1.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.54

        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 | 3.083    5.31 | 6.150   11.51 |  9.22    1.77
     0.033    0.00 | 3.100    5.31 | 6.167   11.51 |  9.23    1.77
     0.050    0.00 | 3.117    5.31 | 6.183   11.51 |  9.25    1.77
     0.067    0.00 | 3.133    5.31 | 6.200   11.51 |  9.27    0.89
     0.083    0.00 | 3.150    5.31 | 6.217   11.51 |  9.28    0.89
     0.100    0.00 | 3.167    5.31 | 6.233   11.51 |  9.30    0.89
     0.117    0.00 | 3.183    5.31 | 6.250   11.50 |  9.32    0.89
     0.133    0.00 | 3.200    5.31 | 6.267    6.20 |  9.33    0.89
     0.150    0.00 | 3.217    5.31 | 6.283    6.20 |  9.35    0.89
     0.167    0.00 | 3.233    5.31 | 6.300    6.20 |  9.37    0.89
     0.183    0.00 | 3.250    5.31 | 6.317    6.20 |  9.38    0.89
     0.200    0.00 | 3.267   15.05 | 6.333    6.20 |  9.40    0.89
     0.217    0.00 | 3.283   15.05 | 6.350    6.20 |  9.42    0.89
     0.233    0.00 | 3.300   15.05 | 6.367    6.20 |  9.43    0.89
     0.250    0.00 | 3.317   15.05 | 6.383    6.20 |  9.45    0.89
     0.267    0.89 | 3.333   15.05 | 6.400    6.20 |  9.47    0.89
     0.283    0.89 | 3.350   15.05 | 6.417    6.20 |  9.48    0.89
     0.300    0.89 | 3.367   15.05 | 6.433    6.20 |  9.50    0.89
     0.317    0.89 | 3.383   15.05 | 6.450    6.20 |  9.52    0.89
     0.333    0.89 | 3.400   15.05 | 6.467    6.20 |  9.53    0.89
     0.350    0.89 | 3.417   15.05 | 6.483    6.20 |  9.55    0.89
     0.367    0.89 | 3.433   15.05 | 6.500    6.20 |  9.57    0.89
     0.383    0.89 | 3.450   15.05 | 6.517    6.20 |  9.58    0.89
```

0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89

2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

Unit Hyd Qpeak (cms)= 0.063

PEAK FLOW (cms)= 0.042 (i)
TIME TO PEAK (hrs)= 5.517
RUNOFF VOLUME (mm)= 40.390
TOTAL RAINFALL (mm)= 88.539
RUNOFF COEFFICIENT = 0.456

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB		
STANDHYD (0402)	Area (ha)=	0.22
ID= 1 DT= 1.0 min	Total Imp(%)=	72.70 Dir. Conn.(%)= 72.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	3.00	3.00
Length	(m)=	38.31	62.00
Mannings n	=	0.013	0.220

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	3.083	5.31	6.150	11.51	9.22	1.77
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.050	0.00	3.117	5.31	6.183	11.51	9.25	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	0.89
0.083	0.00	3.150	5.31	6.217	11.51	9.28	0.89
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.117	0.00	3.183	5.31	6.250	11.50	9.32	0.89
0.133	0.00	3.200	5.31	6.267	6.20	9.33	0.89
0.150	0.00	3.217	5.31	6.283	6.20	9.35	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.183	0.00	3.250	5.31	6.317	6.20	9.38	0.89
0.200	0.00	3.267	15.05	6.333	6.20	9.40	0.89
0.217	0.00	3.283	15.05	6.350	6.20	9.42	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.250	0.00	3.317	15.05	6.383	6.20	9.45	0.89
0.267	0.89	3.333	15.05	6.400	6.20	9.47	0.89
0.283	0.89	3.350	15.05	6.417	6.20	9.48	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.317	0.89	3.383	15.05	6.450	6.20	9.52	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.350	0.89	3.417	15.05	6.483	6.20	9.55	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.383	0.89	3.450	15.05	6.517	6.20	9.58	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89

1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

Max.Eff.Inten.(mm/hr)=		40.71	25.00	
over (min)		5.00	9.00	
Storage Coeff.	(min)=	1.48 (ii)	8.77 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	9.00	
Unit Hyd. peak	(cms)=	0.42	0.13	
				TOTALS
PEAK FLOW	(cms)=	0.02	0.00	0.022 (iii)
TIME TO PEAK	(hrs)=	4.82	5.27	5.25

RUNOFF VOLUME (mm)=	86.54	40.39	73.92
TOTAL RAINFALL (mm)=	88.54	88.54	88.54
RUNOFF COEFFICIENT =	0.98	0.46	0.83

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0403)	Area (ha)= 0.21
ID= 1 DT= 1.0 min	Total Imp(%)= 73.50 Dir. Conn.(%)= 73.50

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	3.00	3.00
Length	(m)=	37.32	25.00
Mannings n	=	0.013	0.220

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	3.083	5.31	6.150	11.51	9.22	1.77
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.050	0.00	3.117	5.31	6.183	11.51	9.25	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	0.89
0.083	0.00	3.150	5.31	6.217	11.51	9.28	0.89
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.117	0.00	3.183	5.31	6.250	11.50	9.32	0.89
0.133	0.00	3.200	5.31	6.267	6.20	9.33	0.89
0.150	0.00	3.217	5.31	6.283	6.20	9.35	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.183	0.00	3.250	5.31	6.317	6.20	9.38	0.89
0.200	0.00	3.267	15.05	6.333	6.20	9.40	0.89
0.217	0.00	3.283	15.05	6.350	6.20	9.42	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.250	0.00	3.317	15.05	6.383	6.20	9.45	0.89
0.267	0.89	3.333	15.05	6.400	6.20	9.47	0.89
0.283	0.89	3.350	15.05	6.417	6.20	9.48	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.317	0.89	3.383	15.05	6.450	6.20	9.52	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.350	0.89	3.417	15.05	6.483	6.20	9.55	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.383	0.89	3.450	15.05	6.517	6.20	9.58	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89

1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

			TOTALS
Max.Eff.Inten.(mm/hr)=	40.71	25.00	
over (min)	5.00	6.00	
Storage Coeff. (min)=	1.46 (ii)	5.62 (ii)	
Unit Hyd. Tpeak (min)=	5.00	6.00	
Unit Hyd. peak (cms)=	0.42	0.20	
PEAK FLOW (cms)=	0.02	0.00	0.021 (iii)
TIME TO PEAK (hrs)=	4.82	5.25	5.25
RUNOFF VOLUME (mm)=	86.54	40.39	74.30
TOTAL RAINFALL (mm)=	88.54	88.54	88.54
RUNOFF COEFFICIENT =	0.98	0.46	0.84

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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					
NASHYD (0401)	Area (ha)=	1.30	Curve Number (CN)=	75.0	
ID= 1 DT= 1.0 min	Ia (mm)=	4.87	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.44			

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	3.083	5.31	6.150	11.51	9.22	1.77
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.050	0.00	3.117	5.31	6.183	11.51	9.25	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	0.89
0.083	0.00	3.150	5.31	6.217	11.51	9.28	0.89
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.117	0.00	3.183	5.31	6.250	11.50	9.32	0.89
0.133	0.00	3.200	5.31	6.267	6.20	9.33	0.89
0.150	0.00	3.217	5.31	6.283	6.20	9.35	0.89

0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.183	0.00	3.250	5.31	6.317	6.20	9.38	0.89
0.200	0.00	3.267	15.05	6.333	6.20	9.40	0.89
0.217	0.00	3.283	15.05	6.350	6.20	9.42	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.250	0.00	3.317	15.05	6.383	6.20	9.45	0.89
0.267	0.89	3.333	15.05	6.400	6.20	9.47	0.89
0.283	0.89	3.350	15.05	6.417	6.20	9.48	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.317	0.89	3.383	15.05	6.450	6.20	9.52	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.350	0.89	3.417	15.05	6.483	6.20	9.55	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.383	0.89	3.450	15.05	6.517	6.20	9.58	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89

2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

Unit Hyd Qpeak (cms)= 0.113

PEAK FLOW (cms)= 0.070 (i)
TIME TO PEAK (hrs)= 5.433
RUNOFF VOLUME (mm)= 41.586
TOTAL RAINFALL (mm)= 88.539
RUNOFF COEFFICIENT = 0.470

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0401):	1.30	0.070	5.43	41.59
+ ID2= 2 (0402):	0.22	0.022	5.25	73.92
ID = 3 (0030):	1.52	0.086	5.27	46.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1.52	0.086	5.27	46.27
+ ID2= 2 (0403):	0.21	0.021	5.25	74.30
ID = 1 (0030):	1.73	0.107	5.25	49.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	1.73	0.107	5.25	49.66
+ ID2= 2 (0404):	0.89	0.042	5.52	40.39
ID = 3 (0030):	2.62	0.144	5.27	46.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0040)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	31.36	0.499	7.35	58.90
+ ID2= 2 (0002):	12.53	0.159	7.52	59.38
ID = 3 (0040):	43.89	0.657	7.37	59.04

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0040)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0040):	43.89	0.657	7.37	59.04
+ ID2= 2 (0030):	2.62	0.144	5.27	46.52
ID = 1 (0040):	46.50	0.701	6.57	58.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       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\6ad26195-
fb7c-4fc1-9d0d-3b447f4166c6\327267a0-2c61-4682-8661-f8a30ffc6bc1\sce
  Summary     filename:     C:\Users\mgallant\AppData\Local\Civica\VH5\6ad26195-
fb7c-4fc1-9d0d-3b447f4166c6\327267a0-2c61-4682-8661-f8a30ffc6bc1\sce


DATE: 02-05-2025                          TIME: 10:56:46

USER:



COMMENTS: _____________________________________________________________


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  ***********************************************
  ** SIMULATION : Hazel                        **
  ***********************************************


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|    READ STORM    |    Filename: C:\Users\mgallant\AppD
|                  |              ata\Local\Temp\
|                  |              a592ddd9-ec8f-4fe5-8ccc-f2a12e1a192f\e58f1b81
| 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    6.00 |  3.00   13.00 |  6.00   23.00 |  9.00   53.00
                1.00    4.00 |  4.00   17.00 |  7.00   13.00 | 10.00   38.00
                2.00    6.00 |  5.00   13.00 |  8.00   13.00 | 11.00   13.00

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| CALIB            |
| NASHYD   (  0212)|   Area    (ha)=   2.13   Curve Number   (CN)= 66.0
|ID= 1 DT= 1.0 min |   Ia      (mm)=   9.45   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.07


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    6.00 | 3.017   13.00 | 6.017   23.00 |  9.02   53.00
0.033    6.00 | 3.033   13.00 | 6.033   23.00 |  9.03   53.00
0.050    6.00 | 3.050   13.00 | 6.050   23.00 |  9.05   53.00
0.067    6.00 | 3.067   13.00 | 6.067   23.00 |  9.07   53.00
0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
0.100    6.00 | 3.100   13.00 | 6.100   23.00 |  9.10   53.00
0.117    6.00 | 3.117   13.00 | 6.117   23.00 |  9.12   53.00
0.133    6.00 | 3.133   13.00 | 6.133   23.00 |  9.13   53.00
0.150    6.00 | 3.150   13.00 | 6.150   23.00 |  9.15   53.00
0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
0.183    6.00 | 3.183   13.00 | 6.183   23.00 |  9.18   53.00
0.200    6.00 | 3.200   13.00 | 6.200   23.00 |  9.20   53.00
0.217    6.00 | 3.217   13.00 | 6.217   23.00 |  9.22   53.00
0.233    6.00 | 3.233   13.00 | 6.233   23.00 |  9.23   53.00
0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
0.267    6.00 | 3.267   13.00 | 6.267   23.00 |  9.27   53.00
0.283    6.00 | 3.283   13.00 | 6.283   23.00 |  9.28   53.00
0.300    6.00 | 3.300   13.00 | 6.300   23.00 |  9.30   53.00
0.317    6.00 | 3.317   13.00 | 6.317   23.00 |  9.32   53.00
0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
0.350    6.00 | 3.350   13.00 | 6.350   23.00 |  9.35   53.00
0.367    6.00 | 3.367   13.00 | 6.367   23.00 |  9.37   53.00
0.383    6.00 | 3.383   13.00 | 6.383   23.00 |  9.38   53.00
0.400    6.00 | 3.400   13.00 | 6.400   23.00 |  9.40   53.00
0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
0.433    6.00 | 3.433   13.00 | 6.433   23.00 |  9.43   53.00
0.450    6.00 | 3.450   13.00 | 6.450   23.00 |  9.45   53.00
0.467    6.00 | 3.467   13.00 | 6.467   23.00 |  9.47   53.00
0.483    6.00 | 3.483   13.00 | 6.483   23.00 |  9.48   53.00
0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
0.517    6.00 | 3.517   13.00 | 6.517   23.00 |  9.52   53.00
0.533    6.00 | 3.533   13.00 | 6.533   23.00 |  9.53   53.00
0.550    6.00 | 3.550   13.00 | 6.550   23.00 |  9.55   53.00
0.567    6.00 | 3.567   13.00 | 6.567   23.00 |  9.57   53.00
0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
0.600    6.00 | 3.600   13.00 | 6.600   23.00 |  9.60   53.00
0.617    6.00 | 3.617   13.00 | 6.617   23.00 |  9.62   53.00
0.633    6.00 | 3.633   13.00 | 6.633   23.00 |  9.63   53.00
0.650    6.00 | 3.650   13.00 | 6.650   23.00 |  9.65   53.00
0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
0.683    6.00 | 3.683   13.00 | 6.683   23.00 |  9.68   53.00
0.700    6.00 | 3.700   13.00 | 6.700   23.00 |  9.70   53.00
0.717    6.00 | 3.717   13.00 | 6.717   23.00 |  9.72   53.00
0.733    6.00 | 3.733   13.00 | 6.733   23.00 |  9.73   53.00
0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
0.767    6.00 | 3.767   13.00 | 6.767   23.00 |  9.77   53.00
0.783    6.00 | 3.783   13.00 | 6.783   23.00 |  9.78   53.00
0.800    6.00 | 3.800   13.00 | 6.800   23.00 |  9.80   53.00
0.817    6.00 | 3.817   13.00 | 6.817   23.00 |  9.82   53.00
0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
0.850    6.00 | 3.850   13.00 | 6.850   23.00 |  9.85   53.00
0.867    6.00 | 3.867   13.00 | 6.867   23.00 |  9.87   53.00
0.883    6.00 | 3.883   13.00 | 6.883   23.00 |  9.88   53.00
0.900    6.00 | 3.900   13.00 | 6.900   23.00 |  9.90   53.00
0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
0.933    6.00 | 3.933   13.00 | 6.933   23.00 |  9.93   53.00
0.950    6.00 | 3.950   13.00 | 6.950   23.00 |  9.95   53.00
0.967    6.00 | 3.967   13.00 | 6.967   23.00 |  9.97   53.00
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0.983	6.00	3.983	13.00	6.983	23.00	9.98	53.00
1.000	6.00	4.000	13.00	7.000	22.98	10.00	52.98
1.017	4.00	4.017	17.00	7.017	13.00	10.02	38.00
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.050	4.00	4.050	17.00	7.050	13.00	10.05	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.117	4.00	4.117	17.00	7.117	13.00	10.12	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.150	4.00	4.150	17.00	7.150	13.00	10.15	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.183	4.00	4.183	17.00	7.183	13.00	10.18	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.217	4.00	4.217	17.00	7.217	13.00	10.22	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.283	4.00	4.283	17.00	7.283	13.00	10.28	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.317	4.00	4.317	17.00	7.317	13.00	10.32	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.350	4.00	4.350	17.00	7.350	13.00	10.35	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.383	4.00	4.383	17.00	7.383	13.00	10.38	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.450	4.00	4.450	17.00	7.450	13.00	10.45	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.483	4.00	4.483	17.00	7.483	13.00	10.48	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.517	4.00	4.517	17.00	7.517	13.00	10.52	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.550	4.00	4.550	17.00	7.550	13.00	10.55	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.617	4.00	4.617	17.00	7.617	13.00	10.62	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.650	4.00	4.650	17.00	7.650	13.00	10.65	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99
2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
2.983	6.00	5.983	13.00	8.983	13.00	11.98	13.00
3.000	6.00	6.000	13.01	9.000	13.08	12.00	13.00

Unit Hyd Qpeak (cms)= 1.162

PEAK FLOW (cms)= 0.244 (i)
TIME TO PEAK (hrs)= 10.000
RUNOFF VOLUME (mm)= 123.030

TOTAL RAINFALL (mm)= 212.001
RUNOFF COEFFICIENT = 0.580

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB STANDHYD (0201) ID= 1 DT= 1.0 min	Area (ha)= 4.65 Total Imp(%)= 90.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	4.19	0.47
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	0.50	0.50
Length	(m)=	176.12	345.00
Mannings n	=	0.013	0.170

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	6.00	3.017	13.00	6.017	23.00	9.02	53.00
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.050	6.00	3.050	13.00	6.050	23.00	9.05	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.117	6.00	3.117	13.00	6.117	23.00	9.12	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.150	6.00	3.150	13.00	6.150	23.00	9.15	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.183	6.00	3.183	13.00	6.183	23.00	9.18	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.217	6.00	3.217	13.00	6.217	23.00	9.22	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.283	6.00	3.283	13.00	6.283	23.00	9.28	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.317	6.00	3.317	13.00	6.317	23.00	9.32	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.350	6.00	3.350	13.00	6.350	23.00	9.35	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.383	6.00	3.383	13.00	6.383	23.00	9.38	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.450	6.00	3.450	13.00	6.450	23.00	9.45	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.483	6.00	3.483	13.00	6.483	23.00	9.48	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.517	6.00	3.517	13.00	6.517	23.00	9.52	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.550	6.00	3.550	13.00	6.550	23.00	9.55	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.617	6.00	3.617	13.00	6.617	23.00	9.62	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.650	6.00	3.650	13.00	6.650	23.00	9.65	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.683	6.00	3.683	13.00	6.683	23.00	9.68	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.717	6.00	3.717	13.00	6.717	23.00	9.72	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.783	6.00	3.783	13.00	6.783	23.00	9.78	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.817	6.00	3.817	13.00	6.817	23.00	9.82	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.850	6.00	3.850	13.00	6.850	23.00	9.85	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.883	6.00	3.883	13.00	6.883	23.00	9.88	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.950	6.00	3.950	13.00	6.950	23.00	9.95	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
0.983	6.00	3.983	13.00	6.983	23.00	9.98	53.00
1.000	6.00	4.000	13.00	7.000	22.98	10.00	52.98
1.017	4.00	4.017	17.00	7.017	13.00	10.02	38.00
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.050	4.00	4.050	17.00	7.050	13.00	10.05	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.117	4.00	4.117	17.00	7.117	13.00	10.12	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.150	4.00	4.150	17.00	7.150	13.00	10.15	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.183	4.00	4.183	17.00	7.183	13.00	10.18	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.217	4.00	4.217	17.00	7.217	13.00	10.22	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.283	4.00	4.283	17.00	7.283	13.00	10.28	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.317	4.00	4.317	17.00	7.317	13.00	10.32	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.350	4.00	4.350	17.00	7.350	13.00	10.35	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.383	4.00	4.383	17.00	7.383	13.00	10.38	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.450	4.00	4.450	17.00	7.450	13.00	10.45	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.483	4.00	4.483	17.00	7.483	13.00	10.48	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.517	4.00	4.517	17.00	7.517	13.00	10.52	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.550	4.00	4.550	17.00	7.550	13.00	10.55	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.617	4.00	4.617	17.00	7.617	13.00	10.62	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.650	4.00	4.650	17.00	7.650	13.00	10.65	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00

1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99
2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
2.983	6.00	5.983	13.00	8.983	13.00	11.98	13.00
3.000	6.00	6.000	13.01	9.000	13.08	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	315.44		
over (min)	6.00	26.00		
Storage Coeff. (min)=	5.69 (ii)	25.22 (ii)		
Unit Hyd. Tpeak (min)=	6.00	26.00		
Unit Hyd. peak (cms)=	0.20	0.04		
			TOTALS	
PEAK FLOW (cms)=	0.27	0.37	0.630 (iii)	
TIME TO PEAK (hrs)=	10.00	10.18	10.02	
RUNOFF VOLUME (mm)=	209.99	197.25	202.36	
TOTAL RAINFALL (mm)=	212.00	212.00	212.00	
RUNOFF COEFFICIENT =	0.99	0.93	0.95	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0203)	Area (ha)=	2.02	
ID= 1 DT= 1.0 min	Total Imp(%)=	77.80	Dir. Conn.(%)= 77.80

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.57	0.45
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	116.10	25.00
Mannings n	=	0.013	0.170

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	6.00	3.017	13.00	6.017	23.00	9.02	53.00
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.050	6.00	3.050	13.00	6.050	23.00	9.05	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.117	6.00	3.117	13.00	6.117	23.00	9.12	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.150	6.00	3.150	13.00	6.150	23.00	9.15	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.183	6.00	3.183	13.00	6.183	23.00	9.18	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.217	6.00	3.217	13.00	6.217	23.00	9.22	53.00

0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.283	6.00	3.283	13.00	6.283	23.00	9.28	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.317	6.00	3.317	13.00	6.317	23.00	9.32	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.350	6.00	3.350	13.00	6.350	23.00	9.35	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.383	6.00	3.383	13.00	6.383	23.00	9.38	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.450	6.00	3.450	13.00	6.450	23.00	9.45	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.483	6.00	3.483	13.00	6.483	23.00	9.48	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.517	6.00	3.517	13.00	6.517	23.00	9.52	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.550	6.00	3.550	13.00	6.550	23.00	9.55	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.617	6.00	3.617	13.00	6.617	23.00	9.62	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.650	6.00	3.650	13.00	6.650	23.00	9.65	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.683	6.00	3.683	13.00	6.683	23.00	9.68	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.717	6.00	3.717	13.00	6.717	23.00	9.72	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.783	6.00	3.783	13.00	6.783	23.00	9.78	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.817	6.00	3.817	13.00	6.817	23.00	9.82	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.850	6.00	3.850	13.00	6.850	23.00	9.85	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.883	6.00	3.883	13.00	6.883	23.00	9.88	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.950	6.00	3.950	13.00	6.950	23.00	9.95	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
0.983	6.00	3.983	13.00	6.983	23.00	9.98	53.00
1.000	6.00	4.000	13.00	7.000	22.98	10.00	52.98
1.017	4.00	4.017	17.00	7.017	13.00	10.02	38.00
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.050	4.00	4.050	17.00	7.050	13.00	10.05	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.117	4.00	4.117	17.00	7.117	13.00	10.12	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.150	4.00	4.150	17.00	7.150	13.00	10.15	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.183	4.00	4.183	17.00	7.183	13.00	10.18	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.217	4.00	4.217	17.00	7.217	13.00	10.22	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.283	4.00	4.283	17.00	7.283	13.00	10.28	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.317	4.00	4.317	17.00	7.317	13.00	10.32	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.350	4.00	4.350	17.00	7.350	13.00	10.35	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.383	4.00	4.383	17.00	7.383	13.00	10.38	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.450	4.00	4.450	17.00	7.450	13.00	10.45	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.483	4.00	4.483	17.00	7.483	13.00	10.48	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.517	4.00	4.517	17.00	7.517	13.00	10.52	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.550	4.00	4.550	17.00	7.550	13.00	10.55	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.617	4.00	4.617	17.00	7.617	13.00	10.62	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.650	4.00	4.650	17.00	7.650	13.00	10.65	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99
2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00

2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
2.983	6.00	5.983	13.00	8.983	13.00	11.98	13.00
3.000	6.00	6.000	13.01	9.000	13.08	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	45.72	
over (min)	5.00	7.00	
Storage Coeff. (min)=	2.93 (ii)	6.22 (ii)	
Unit Hyd. Tpeak (min)=	5.00	7.00	
Unit Hyd. peak (cms)=	0.31	0.17	
			TOTALS
PEAK FLOW (cms)=	0.23	0.06	0.288 (iii)
TIME TO PEAK (hrs)=	9.77	10.00	10.00
RUNOFF VOLUME (mm)=	210.00	144.64	195.49
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	0.99	0.68	0.92

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0202)	Area (ha)=	4.13	
ID= 1 DT= 1.0 min	Total Imp(%)=	90.00	Dir. Conn.(%)= 40.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	3.72	0.41
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	0.50	0.50
Length (m)=	165.99	345.00
Mannings n =	0.013	0.170

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	6.00	3.017	13.00	6.017	23.00	9.02	53.00
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.050	6.00	3.050	13.00	6.050	23.00	9.05	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.117	6.00	3.117	13.00	6.117	23.00	9.12	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.150	6.00	3.150	13.00	6.150	23.00	9.15	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.183	6.00	3.183	13.00	6.183	23.00	9.18	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.217	6.00	3.217	13.00	6.217	23.00	9.22	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.283	6.00	3.283	13.00	6.283	23.00	9.28	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.317	6.00	3.317	13.00	6.317	23.00	9.32	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.350	6.00	3.350	13.00	6.350	23.00	9.35	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.383	6.00	3.383	13.00	6.383	23.00	9.38	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.450	6.00	3.450	13.00	6.450	23.00	9.45	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.483	6.00	3.483	13.00	6.483	23.00	9.48	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.517	6.00	3.517	13.00	6.517	23.00	9.52	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.550	6.00	3.550	13.00	6.550	23.00	9.55	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.617	6.00	3.617	13.00	6.617	23.00	9.62	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.650	6.00	3.650	13.00	6.650	23.00	9.65	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.683	6.00	3.683	13.00	6.683	23.00	9.68	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.717	6.00	3.717	13.00	6.717	23.00	9.72	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.783	6.00	3.783	13.00	6.783	23.00	9.78	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.817	6.00	3.817	13.00	6.817	23.00	9.82	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00

0.850	6.00	3.850	13.00	6.850	23.00	9.85	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.883	6.00	3.883	13.00	6.883	23.00	9.88	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.950	6.00	3.950	13.00	6.950	23.00	9.95	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
0.983	6.00	3.983	13.00	6.983	23.00	9.98	53.00
1.000	6.00	4.000	13.00	7.000	22.98	10.00	52.98
1.017	4.00	4.017	17.00	7.017	13.00	10.02	38.00
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.050	4.00	4.050	17.00	7.050	13.00	10.05	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.117	4.00	4.117	17.00	7.117	13.00	10.12	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.150	4.00	4.150	17.00	7.150	13.00	10.15	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.183	4.00	4.183	17.00	7.183	13.00	10.18	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.217	4.00	4.217	17.00	7.217	13.00	10.22	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.283	4.00	4.283	17.00	7.283	13.00	10.28	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.317	4.00	4.317	17.00	7.317	13.00	10.32	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.350	4.00	4.350	17.00	7.350	13.00	10.35	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.383	4.00	4.383	17.00	7.383	13.00	10.38	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.450	4.00	4.450	17.00	7.450	13.00	10.45	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.483	4.00	4.483	17.00	7.483	13.00	10.48	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.517	4.00	4.517	17.00	7.517	13.00	10.52	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.550	4.00	4.550	17.00	7.550	13.00	10.55	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.617	4.00	4.617	17.00	7.617	13.00	10.62	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.650	4.00	4.650	17.00	7.650	13.00	10.65	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99
2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00

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             2.983    6.00 | 5.983   13.00 | 8.983   13.00 | 11.98   13.00
             3.000    6.00 | 6.000   13.01 | 9.000   13.08 | 12.00   13.00

     Max.Eff.Inten.(mm/hr)=      53.00       315.44
               over (min)         5.00        26.00
     Storage Coeff.  (min)=       5.50 (ii)   25.02 (ii)
     Unit Hyd. Tpeak (min)=       5.00        26.00
     Unit Hyd. peak  (cms)=       0.21         0.04
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.24         0.33        0.560 (iii)
     TIME TO PEAK    (hrs)=       9.98        10.18         10.00
     RUNOFF VOLUME    (mm)=     209.99       197.23        202.36
     TOTAL RAINFALL   (mm)=     212.00       212.00        212.00
     RUNOFF COEFFICIENT   =       0.99         0.93          0.95


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  74.0    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.

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--------------------
| ADD HYD  (  0010)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0201):     4.65   0.630    10.02   202.36
      + ID2= 2 (  0202):     4.13   0.560    10.00   202.36
        ================================================
        ID = 3 (  0010):     8.79   1.189    10.02   202.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ADD HYD  (  0010)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0010):     8.79   1.189    10.02   202.36
      + ID2= 2 (  0203):     2.02   0.288    10.00   195.49
        ================================================
        ID = 1 (  0010):    10.81   1.477    10.00   201.08

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| CALIB            |
| STANDHYD (  0204)|   Area    (ha)=   1.78
|ID= 1 DT= 1.0 min |   Total Imp(%)=  90.00   Dir. Conn.(%)=  40.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.61         0.18
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         1.30
     Length            (m)=     109.04        84.00
     Mannings n           =      0.013        0.170

         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	6.00	3.017	13.00	6.017	23.00	9.02	53.00
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.050	6.00	3.050	13.00	6.050	23.00	9.05	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.117	6.00	3.117	13.00	6.117	23.00	9.12	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.150	6.00	3.150	13.00	6.150	23.00	9.15	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.183	6.00	3.183	13.00	6.183	23.00	9.18	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.217	6.00	3.217	13.00	6.217	23.00	9.22	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.283	6.00	3.283	13.00	6.283	23.00	9.28	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.317	6.00	3.317	13.00	6.317	23.00	9.32	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.350	6.00	3.350	13.00	6.350	23.00	9.35	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.383	6.00	3.383	13.00	6.383	23.00	9.38	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.450	6.00	3.450	13.00	6.450	23.00	9.45	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.483	6.00	3.483	13.00	6.483	23.00	9.48	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.517	6.00	3.517	13.00	6.517	23.00	9.52	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.550	6.00	3.550	13.00	6.550	23.00	9.55	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.617	6.00	3.617	13.00	6.617	23.00	9.62	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.650	6.00	3.650	13.00	6.650	23.00	9.65	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.683	6.00	3.683	13.00	6.683	23.00	9.68	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.717	6.00	3.717	13.00	6.717	23.00	9.72	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.783	6.00	3.783	13.00	6.783	23.00	9.78	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.817	6.00	3.817	13.00	6.817	23.00	9.82	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.850	6.00	3.850	13.00	6.850	23.00	9.85	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.883	6.00	3.883	13.00	6.883	23.00	9.88	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.950	6.00	3.950	13.00	6.950	23.00	9.95	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
0.983	6.00	3.983	13.00	6.983	23.00	9.98	53.00
1.000	6.00	4.000	13.00	7.000	22.98	10.00	52.98
1.017	4.00	4.017	17.00	7.017	13.00	10.02	38.00
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.050	4.00	4.050	17.00	7.050	13.00	10.05	38.00

1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.117	4.00	4.117	17.00	7.117	13.00	10.12	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.150	4.00	4.150	17.00	7.150	13.00	10.15	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.183	4.00	4.183	17.00	7.183	13.00	10.18	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.217	4.00	4.217	17.00	7.217	13.00	10.22	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.283	4.00	4.283	17.00	7.283	13.00	10.28	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.317	4.00	4.317	17.00	7.317	13.00	10.32	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.350	4.00	4.350	17.00	7.350	13.00	10.35	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.383	4.00	4.383	17.00	7.383	13.00	10.38	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.450	4.00	4.450	17.00	7.450	13.00	10.45	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.483	4.00	4.483	17.00	7.483	13.00	10.48	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.517	4.00	4.517	17.00	7.517	13.00	10.52	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.550	4.00	4.550	17.00	7.550	13.00	10.55	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.617	4.00	4.617	17.00	7.617	13.00	10.62	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.650	4.00	4.650	17.00	7.650	13.00	10.65	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99
2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
2.983	6.00	5.983	13.00	8.983	13.00	11.98	13.00
3.000	6.00	6.000	13.01	9.000	13.08	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	315.57		
over (min)	5.00	11.00		
Storage Coeff. (min)=	3.47 (ii)	10.83 (ii)		
Unit Hyd. Tpeak (min)=	5.00	11.00		
Unit Hyd. peak (cms)=	0.28	0.10		
			TOTALS	
PEAK FLOW (cms)=	0.11	0.16	0.260 (iii)	
TIME TO PEAK (hrs)=	9.83	10.00	10.00	
RUNOFF VOLUME (mm)=	210.00	197.26	202.36	
TOTAL RAINFALL (mm)=	212.00	212.00	212.00	

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     RUNOFF COEFFICIENT   =       0.99         0.93           0.95


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  74.0    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.

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| CALIB            |
| STANDHYD (  0209)|   Area    (ha)=   4.42
|ID= 1 DT= 1.0 min |   Total Imp(%)=  89.90   Dir. Conn.(%)=  40.10
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      3.97          0.45
     Dep. Storage     (mm)=      2.00          5.00
     Average Slope     (%)=      1.00          1.00
     Length            (m)=    171.63        390.00
     Mannings n             =    0.013         0.170

         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    6.00 | 3.017   13.00 | 6.017   23.00 |  9.02   53.00
0.033    6.00 | 3.033   13.00 | 6.033   23.00 |  9.03   53.00
0.050    6.00 | 3.050   13.00 | 6.050   23.00 |  9.05   53.00
0.067    6.00 | 3.067   13.00 | 6.067   23.00 |  9.07   53.00
0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
0.100    6.00 | 3.100   13.00 | 6.100   23.00 |  9.10   53.00
0.117    6.00 | 3.117   13.00 | 6.117   23.00 |  9.12   53.00
0.133    6.00 | 3.133   13.00 | 6.133   23.00 |  9.13   53.00
0.150    6.00 | 3.150   13.00 | 6.150   23.00 |  9.15   53.00
0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
0.183    6.00 | 3.183   13.00 | 6.183   23.00 |  9.18   53.00
0.200    6.00 | 3.200   13.00 | 6.200   23.00 |  9.20   53.00
0.217    6.00 | 3.217   13.00 | 6.217   23.00 |  9.22   53.00
0.233    6.00 | 3.233   13.00 | 6.233   23.00 |  9.23   53.00
0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
0.267    6.00 | 3.267   13.00 | 6.267   23.00 |  9.27   53.00
0.283    6.00 | 3.283   13.00 | 6.283   23.00 |  9.28   53.00
0.300    6.00 | 3.300   13.00 | 6.300   23.00 |  9.30   53.00
0.317    6.00 | 3.317   13.00 | 6.317   23.00 |  9.32   53.00
0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
0.350    6.00 | 3.350   13.00 | 6.350   23.00 |  9.35   53.00
0.367    6.00 | 3.367   13.00 | 6.367   23.00 |  9.37   53.00
0.383    6.00 | 3.383   13.00 | 6.383   23.00 |  9.38   53.00
0.400    6.00 | 3.400   13.00 | 6.400   23.00 |  9.40   53.00
0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
0.433    6.00 | 3.433   13.00 | 6.433   23.00 |  9.43   53.00
0.450    6.00 | 3.450   13.00 | 6.450   23.00 |  9.45   53.00
0.467    6.00 | 3.467   13.00 | 6.467   23.00 |  9.47   53.00
0.483    6.00 | 3.483   13.00 | 6.483   23.00 |  9.48   53.00
0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
0.517    6.00 | 3.517   13.00 | 6.517   23.00 |  9.52   53.00
0.533    6.00 | 3.533   13.00 | 6.533   23.00 |  9.53   53.00
0.550    6.00 | 3.550   13.00 | 6.550   23.00 |  9.55   53.00
0.567    6.00 | 3.567   13.00 | 6.567   23.00 |  9.57   53.00
0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
0.600    6.00 | 3.600   13.00 | 6.600   23.00 |  9.60   53.00
0.617    6.00 | 3.617   13.00 | 6.617   23.00 |  9.62   53.00
0.633    6.00 | 3.633   13.00 | 6.633   23.00 |  9.63   53.00
0.650    6.00 | 3.650   13.00 | 6.650   23.00 |  9.65   53.00
0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
0.683    6.00 | 3.683   13.00 | 6.683   23.00 |  9.68   53.00
0.700    6.00 | 3.700   13.00 | 6.700   23.00 |  9.70   53.00
0.717    6.00 | 3.717   13.00 | 6.717   23.00 |  9.72   53.00
0.733    6.00 | 3.733   13.00 | 6.733   23.00 |  9.73   53.00
0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
0.767    6.00 | 3.767   13.00 | 6.767   23.00 |  9.77   53.00
0.783    6.00 | 3.783   13.00 | 6.783   23.00 |  9.78   53.00
0.800    6.00 | 3.800   13.00 | 6.800   23.00 |  9.80   53.00
0.817    6.00 | 3.817   13.00 | 6.817   23.00 |  9.82   53.00
0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
0.850    6.00 | 3.850   13.00 | 6.850   23.00 |  9.85   53.00
0.867    6.00 | 3.867   13.00 | 6.867   23.00 |  9.87   53.00
0.883    6.00 | 3.883   13.00 | 6.883   23.00 |  9.88   53.00
0.900    6.00 | 3.900   13.00 | 6.900   23.00 |  9.90   53.00
0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
0.933    6.00 | 3.933   13.00 | 6.933   23.00 |  9.93   53.00
0.950    6.00 | 3.950   13.00 | 6.950   23.00 |  9.95   53.00
0.967    6.00 | 3.967   13.00 | 6.967   23.00 |  9.97   53.00
0.983    6.00 | 3.983   13.00 | 6.983   23.00 |  9.98   53.00
1.000    6.00 | 4.000   13.00 | 7.000   22.98 | 10.00   52.98
1.017    4.00 | 4.017   17.00 | 7.017   13.00 | 10.02   38.00
1.033    4.00 | 4.033   17.00 | 7.033   13.00 | 10.03   38.00
1.050    4.00 | 4.050   17.00 | 7.050   13.00 | 10.05   38.00
1.067    4.00 | 4.067   17.00 | 7.067   13.00 | 10.07   38.00
1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
1.100    4.00 | 4.100   17.00 | 7.100   13.00 | 10.10   38.00
1.117    4.00 | 4.117   17.00 | 7.117   13.00 | 10.12   38.00
1.133    4.00 | 4.133   17.00 | 7.133   13.00 | 10.13   38.00
1.150    4.00 | 4.150   17.00 | 7.150   13.00 | 10.15   38.00
1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
1.183    4.00 | 4.183   17.00 | 7.183   13.00 | 10.18   38.00
1.200    4.00 | 4.200   17.00 | 7.200   13.00 | 10.20   38.00
1.217    4.00 | 4.217   17.00 | 7.217   13.00 | 10.22   38.00
1.233    4.00 | 4.233   17.00 | 7.233   13.00 | 10.23   38.00
1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
1.267    4.00 | 4.267   17.00 | 7.267   13.00 | 10.27   38.00
1.283    4.00 | 4.283   17.00 | 7.283   13.00 | 10.28   38.00
1.300    4.00 | 4.300   17.00 | 7.300   13.00 | 10.30   38.00
1.317    4.00 | 4.317   17.00 | 7.317   13.00 | 10.32   38.00
1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
1.350    4.00 | 4.350   17.00 | 7.350   13.00 | 10.35   38.00
1.367    4.00 | 4.367   17.00 | 7.367   13.00 | 10.37   38.00
1.383    4.00 | 4.383   17.00 | 7.383   13.00 | 10.38   38.00
1.400    4.00 | 4.400   17.00 | 7.400   13.00 | 10.40   38.00
1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
1.433    4.00 | 4.433   17.00 | 7.433   13.00 | 10.43   38.00
1.450    4.00 | 4.450   17.00 | 7.450   13.00 | 10.45   38.00
1.467    4.00 | 4.467   17.00 | 7.467   13.00 | 10.47   38.00
1.483    4.00 | 4.483   17.00 | 7.483   13.00 | 10.48   38.00
1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
1.517    4.00 | 4.517   17.00 | 7.517   13.00 | 10.52   38.00
1.533    4.00 | 4.533   17.00 | 7.533   13.00 | 10.53   38.00
1.550    4.00 | 4.550   17.00 | 7.550   13.00 | 10.55   38.00
1.567    4.00 | 4.567   17.00 | 7.567   13.00 | 10.57   38.00
1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
1.600    4.00 | 4.600   17.00 | 7.600   13.00 | 10.60   38.00
1.617    4.00 | 4.617   17.00 | 7.617   13.00 | 10.62   38.00
1.633    4.00 | 4.633   17.00 | 7.633   13.00 | 10.63   38.00
1.650    4.00 | 4.650   17.00 | 7.650   13.00 | 10.65   38.00
1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
```

1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99
2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
2.983	6.00	5.983	13.00	8.983	13.00	11.98	13.00
3.000	6.00	6.000	13.01	9.000	13.08	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	311.77	
over (min)	5.00	22.00	
Storage Coeff. (min)=	4.55 (ii)	21.71 (ii)	
Unit Hyd. Tpeak (min)=	5.00	22.00	
Unit Hyd. peak (cms)=	0.24	0.05	
			TOTALS
PEAK FLOW (cms)=	0.26	0.36	0.614 (iii)
TIME TO PEAK (hrs)=	9.98	10.12	10.00
RUNOFF VOLUME (mm)=	209.99	197.09	202.28
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	0.99	0.93	0.95

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0205)| Area (ha)= 1.36
ID= 1 DT= 1.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.09	0.27
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	95.33	125.00
Mannings n	=	0.013	0.170

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	6.00	3.017	13.00	6.017	23.00	9.02	53.00
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.050	6.00	3.050	13.00	6.050	23.00	9.05	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.117	6.00	3.117	13.00	6.117	23.00	9.12	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.150	6.00	3.150	13.00	6.150	23.00	9.15	53.00

0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.183	6.00	3.183	13.00	6.183	23.00	9.18	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.217	6.00	3.217	13.00	6.217	23.00	9.22	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.283	6.00	3.283	13.00	6.283	23.00	9.28	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.317	6.00	3.317	13.00	6.317	23.00	9.32	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.350	6.00	3.350	13.00	6.350	23.00	9.35	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.383	6.00	3.383	13.00	6.383	23.00	9.38	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.450	6.00	3.450	13.00	6.450	23.00	9.45	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.483	6.00	3.483	13.00	6.483	23.00	9.48	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.517	6.00	3.517	13.00	6.517	23.00	9.52	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.550	6.00	3.550	13.00	6.550	23.00	9.55	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.617	6.00	3.617	13.00	6.617	23.00	9.62	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.650	6.00	3.650	13.00	6.650	23.00	9.65	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.683	6.00	3.683	13.00	6.683	23.00	9.68	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.717	6.00	3.717	13.00	6.717	23.00	9.72	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.783	6.00	3.783	13.00	6.783	23.00	9.78	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.817	6.00	3.817	13.00	6.817	23.00	9.82	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.850	6.00	3.850	13.00	6.850	23.00	9.85	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.883	6.00	3.883	13.00	6.883	23.00	9.88	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.950	6.00	3.950	13.00	6.950	23.00	9.95	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
0.983	6.00	3.983	13.00	6.983	23.00	9.98	53.00
1.000	6.00	4.000	13.00	7.000	22.98	10.00	52.98
1.017	4.00	4.017	17.00	7.017	13.00	10.02	38.00
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.050	4.00	4.050	17.00	7.050	13.00	10.05	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.117	4.00	4.117	17.00	7.117	13.00	10.12	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.150	4.00	4.150	17.00	7.150	13.00	10.15	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.183	4.00	4.183	17.00	7.183	13.00	10.18	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.217	4.00	4.217	17.00	7.217	13.00	10.22	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.283	4.00	4.283	17.00	7.283	13.00	10.28	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.317	4.00	4.317	17.00	7.317	13.00	10.32	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.350	4.00	4.350	17.00	7.350	13.00	10.35	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.383	4.00	4.383	17.00	7.383	13.00	10.38	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.450	4.00	4.450	17.00	7.450	13.00	10.45	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.483	4.00	4.483	17.00	7.483	13.00	10.48	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.517	4.00	4.517	17.00	7.517	13.00	10.52	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.550	4.00	4.550	17.00	7.550	13.00	10.55	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.617	4.00	4.617	17.00	7.617	13.00	10.62	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.650	4.00	4.650	17.00	7.650	13.00	10.65	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99
2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00

2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
2.983	6.00	5.983	13.00	8.983	13.00	11.98	13.00
3.000	6.00	6.000	13.01	9.000	13.08	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	127.76	
over (min)	5.00	16.00	
Storage Coeff. (min)=	3.20 (ii)	15.58 (ii)	
Unit Hyd. Tpeak (min)=	5.00	16.00	
Unit Hyd. peak (cms)=	0.30	0.07	
			TOTALS
PEAK FLOW (cms)=	0.10	0.09	0.194 (iii)
TIME TO PEAK (hrs)=	9.78	10.03	10.00
RUNOFF VOLUME (mm)=	210.00	179.47	194.74
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	0.99	0.85	0.92

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0206)	Area (ha)=	1.40	
ID= 1 DT= 1.0 min	Total Imp(%)=	80.00	Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.12	0.28
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	96.57	98.00
Mannings n	=	0.013	0.170

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	6.00	3.017	13.00	6.017	23.00	9.02	53.00
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.050	6.00	3.050	13.00	6.050	23.00	9.05	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.117	6.00	3.117	13.00	6.117	23.00	9.12	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.150	6.00	3.150	13.00	6.150	23.00	9.15	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.183	6.00	3.183	13.00	6.183	23.00	9.18	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.217	6.00	3.217	13.00	6.217	23.00	9.22	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.283	6.00	3.283	13.00	6.283	23.00	9.28	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.317	6.00	3.317	13.00	6.317	23.00	9.32	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.350	6.00	3.350	13.00	6.350	23.00	9.35	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.383	6.00	3.383	13.00	6.383	23.00	9.38	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.450	6.00	3.450	13.00	6.450	23.00	9.45	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.483	6.00	3.483	13.00	6.483	23.00	9.48	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.517	6.00	3.517	13.00	6.517	23.00	9.52	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.550	6.00	3.550	13.00	6.550	23.00	9.55	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.617	6.00	3.617	13.00	6.617	23.00	9.62	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.650	6.00	3.650	13.00	6.650	23.00	9.65	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.683	6.00	3.683	13.00	6.683	23.00	9.68	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.717	6.00	3.717	13.00	6.717	23.00	9.72	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00

0.783	6.00	3.783	13.00	6.783	23.00	9.78	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.817	6.00	3.817	13.00	6.817	23.00	9.82	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.850	6.00	3.850	13.00	6.850	23.00	9.85	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.883	6.00	3.883	13.00	6.883	23.00	9.88	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.950	6.00	3.950	13.00	6.950	23.00	9.95	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
0.983	6.00	3.983	13.00	6.983	23.00	9.98	53.00
1.000	6.00	4.000	13.00	7.000	22.98	10.00	52.98
1.017	4.00	4.017	17.00	7.017	13.00	10.02	38.00
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.050	4.00	4.050	17.00	7.050	13.00	10.05	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.117	4.00	4.117	17.00	7.117	13.00	10.12	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.150	4.00	4.150	17.00	7.150	13.00	10.15	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.183	4.00	4.183	17.00	7.183	13.00	10.18	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.217	4.00	4.217	17.00	7.217	13.00	10.22	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.283	4.00	4.283	17.00	7.283	13.00	10.28	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.317	4.00	4.317	17.00	7.317	13.00	10.32	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.350	4.00	4.350	17.00	7.350	13.00	10.35	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.383	4.00	4.383	17.00	7.383	13.00	10.38	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.450	4.00	4.450	17.00	7.450	13.00	10.45	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.483	4.00	4.483	17.00	7.483	13.00	10.48	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.517	4.00	4.517	17.00	7.517	13.00	10.52	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.550	4.00	4.550	17.00	7.550	13.00	10.55	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.617	4.00	4.617	17.00	7.617	13.00	10.62	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.650	4.00	4.650	17.00	7.650	13.00	10.65	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99
2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00

2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
2.983	6.00	5.983	13.00	8.983	13.00	11.98	13.00
3.000	6.00	6.000	13.01	9.000	13.08	12.00	13.00

			TOTALS
Max.Eff.Inten.(mm/hr)=	53.00	127.81	
over (min)	5.00	14.00	
Storage Coeff. (min)=	3.23 (ii)	13.92 (ii)	
Unit Hyd. Tpeak (min)=	5.00	14.00	
Unit Hyd. peak (cms)=	0.30	0.08	
PEAK FLOW (cms)=	0.10	0.10	0.200 (iii)
TIME TO PEAK (hrs)=	9.78	10.02	10.00
RUNOFF VOLUME (mm)=	210.00	179.47	194.74
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	0.99	0.85	0.92

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0207)	Area (ha)=	4.45	
ID= 1 DT= 1.0 min	Total Imp(%)=	89.30	Dir. Conn.(%)= 40.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	3.97	0.48
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	0.90	0.90
Length	(m)=	172.18	407.00
Mannings n	=	0.013	0.170

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	6.00	3.017	13.00	6.017	23.00	9.02	53.00
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.050	6.00	3.050	13.00	6.050	23.00	9.05	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.117	6.00	3.117	13.00	6.117	23.00	9.12	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.150	6.00	3.150	13.00	6.150	23.00	9.15	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.183	6.00	3.183	13.00	6.183	23.00	9.18	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.217	6.00	3.217	13.00	6.217	23.00	9.22	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.283	6.00	3.283	13.00	6.283	23.00	9.28	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.317	6.00	3.317	13.00	6.317	23.00	9.32	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.350	6.00	3.350	13.00	6.350	23.00	9.35	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.383	6.00	3.383	13.00	6.383	23.00	9.38	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.450	6.00	3.450	13.00	6.450	23.00	9.45	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.483	6.00	3.483	13.00	6.483	23.00	9.48	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.517	6.00	3.517	13.00	6.517	23.00	9.52	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.550	6.00	3.550	13.00	6.550	23.00	9.55	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.617	6.00	3.617	13.00	6.617	23.00	9.62	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.650	6.00	3.650	13.00	6.650	23.00	9.65	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.683	6.00	3.683	13.00	6.683	23.00	9.68	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.717	6.00	3.717	13.00	6.717	23.00	9.72	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.783	6.00	3.783	13.00	6.783	23.00	9.78	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.817	6.00	3.817	13.00	6.817	23.00	9.82	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.850	6.00	3.850	13.00	6.850	23.00	9.85	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.883	6.00	3.883	13.00	6.883	23.00	9.88	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.950	6.00	3.950	13.00	6.950	23.00	9.95	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
0.983	6.00	3.983	13.00	6.983	23.00	9.98	53.00
1.000	6.00	4.000	13.00	7.000	22.98	10.00	52.98
1.017	4.00	4.017	17.00	7.017	13.00	10.02	38.00
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.050	4.00	4.050	17.00	7.050	13.00	10.05	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.117	4.00	4.117	17.00	7.117	13.00	10.12	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.150	4.00	4.150	17.00	7.150	13.00	10.15	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.183	4.00	4.183	17.00	7.183	13.00	10.18	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.217	4.00	4.217	17.00	7.217	13.00	10.22	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.283	4.00	4.283	17.00	7.283	13.00	10.28	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.317	4.00	4.317	17.00	7.317	13.00	10.32	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.350	4.00	4.350	17.00	7.350	13.00	10.35	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.383	4.00	4.383	17.00	7.383	13.00	10.38	38.00

1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.450	4.00	4.450	17.00	7.450	13.00	10.45	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.483	4.00	4.483	17.00	7.483	13.00	10.48	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.517	4.00	4.517	17.00	7.517	13.00	10.52	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.550	4.00	4.550	17.00	7.550	13.00	10.55	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.617	4.00	4.617	17.00	7.617	13.00	10.62	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.650	4.00	4.650	17.00	7.650	13.00	10.65	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99
2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
2.983	6.00	5.983	13.00	8.983	13.00	11.98	13.00
3.000	6.00	6.000	13.01	9.000	13.08	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	291.01	
over (min)	5.00	24.00	
Storage Coeff. (min)=	4.71 (ii)	23.38 (ii)	
Unit Hyd. Tpeak (min)=	5.00	24.00	
Unit Hyd. peak (cms)=	0.24	0.05	
			TOTALS
PEAK FLOW (cms)=	0.27	0.35	0.610 (iii)
TIME TO PEAK (hrs)=	9.98	10.15	10.00
RUNOFF VOLUME (mm)=	209.99	196.11	201.78
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	0.99	0.93	0.95

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0208)	Area (ha)=	2.05
ID= 1 DT= 1.0 min	Total Imp(%)=	90.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.84	0.20
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	116.89	200.00

Mannings n = 0.013 0.170

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	6.00	3.017	13.00	6.017	23.00	9.02	53.00
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.050	6.00	3.050	13.00	6.050	23.00	9.05	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.117	6.00	3.117	13.00	6.117	23.00	9.12	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.150	6.00	3.150	13.00	6.150	23.00	9.15	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.183	6.00	3.183	13.00	6.183	23.00	9.18	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.217	6.00	3.217	13.00	6.217	23.00	9.22	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.283	6.00	3.283	13.00	6.283	23.00	9.28	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.317	6.00	3.317	13.00	6.317	23.00	9.32	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.350	6.00	3.350	13.00	6.350	23.00	9.35	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.383	6.00	3.383	13.00	6.383	23.00	9.38	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.450	6.00	3.450	13.00	6.450	23.00	9.45	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.483	6.00	3.483	13.00	6.483	23.00	9.48	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.517	6.00	3.517	13.00	6.517	23.00	9.52	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.550	6.00	3.550	13.00	6.550	23.00	9.55	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.617	6.00	3.617	13.00	6.617	23.00	9.62	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.650	6.00	3.650	13.00	6.650	23.00	9.65	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.683	6.00	3.683	13.00	6.683	23.00	9.68	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.717	6.00	3.717	13.00	6.717	23.00	9.72	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.783	6.00	3.783	13.00	6.783	23.00	9.78	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.817	6.00	3.817	13.00	6.817	23.00	9.82	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.850	6.00	3.850	13.00	6.850	23.00	9.85	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.883	6.00	3.883	13.00	6.883	23.00	9.88	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.950	6.00	3.950	13.00	6.950	23.00	9.95	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
0.983	6.00	3.983	13.00	6.983	23.00	9.98	53.00
1.000	6.00	4.000	13.00	7.000	22.98	10.00	52.98
1.017	4.00	4.017	17.00	7.017	13.00	10.02	38.00
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.050	4.00	4.050	17.00	7.050	13.00	10.05	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.117	4.00	4.117	17.00	7.117	13.00	10.12	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.150	4.00	4.150	17.00	7.150	13.00	10.15	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.183	4.00	4.183	17.00	7.183	13.00	10.18	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.217	4.00	4.217	17.00	7.217	13.00	10.22	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.283	4.00	4.283	17.00	7.283	13.00	10.28	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.317	4.00	4.317	17.00	7.317	13.00	10.32	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.350	4.00	4.350	17.00	7.350	13.00	10.35	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.383	4.00	4.383	17.00	7.383	13.00	10.38	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.450	4.00	4.450	17.00	7.450	13.00	10.45	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.483	4.00	4.483	17.00	7.483	13.00	10.48	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.517	4.00	4.517	17.00	7.517	13.00	10.52	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.550	4.00	4.550	17.00	7.550	13.00	10.55	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.617	4.00	4.617	17.00	7.617	13.00	10.62	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.650	4.00	4.650	17.00	7.650	13.00	10.65	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99

2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
2.983	6.00	5.983	13.00	8.983	13.00	11.98	13.00
3.000	6.00	6.000	13.01	9.000	13.08	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	315.55	
over (min)	5.00	16.00	
Storage Coeff. (min)=	3.62 (ii)	15.05 (ii)	

Unit Hyd. Tpeak (min)=	5.00	16.00		
Unit Hyd. peak (cms)=	0.28	0.07		
				TOTALS
PEAK FLOW (cms)=	0.12	0.17		0.295 (iii)
TIME TO PEAK (hrs)=	9.87	10.03		10.00
RUNOFF VOLUME (mm)=	209.99	197.25		202.36
TOTAL RAINFALL (mm)=	212.00	212.00		212.00
RUNOFF COEFFICIENT =	0.99	0.93		0.95

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0210) | Area (ha)= 0.31
ID= 1 DT= 1.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.25	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	45.59	65.00
Mannings n	=	0.013	0.170

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	6.00	3.017	13.00	6.017	23.00	9.02	53.00
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.050	6.00	3.050	13.00	6.050	23.00	9.05	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.117	6.00	3.117	13.00	6.117	23.00	9.12	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.150	6.00	3.150	13.00	6.150	23.00	9.15	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.183	6.00	3.183	13.00	6.183	23.00	9.18	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.217	6.00	3.217	13.00	6.217	23.00	9.22	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.283	6.00	3.283	13.00	6.283	23.00	9.28	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.317	6.00	3.317	13.00	6.317	23.00	9.32	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.350	6.00	3.350	13.00	6.350	23.00	9.35	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.383	6.00	3.383	13.00	6.383	23.00	9.38	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.450	6.00	3.450	13.00	6.450	23.00	9.45	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.483	6.00	3.483	13.00	6.483	23.00	9.48	53.00

0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.517	6.00	3.517	13.00	6.517	23.00	9.52	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.550	6.00	3.550	13.00	6.550	23.00	9.55	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.617	6.00	3.617	13.00	6.617	23.00	9.62	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.650	6.00	3.650	13.00	6.650	23.00	9.65	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.683	6.00	3.683	13.00	6.683	23.00	9.68	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.717	6.00	3.717	13.00	6.717	23.00	9.72	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.783	6.00	3.783	13.00	6.783	23.00	9.78	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.817	6.00	3.817	13.00	6.817	23.00	9.82	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.850	6.00	3.850	13.00	6.850	23.00	9.85	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.883	6.00	3.883	13.00	6.883	23.00	9.88	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.950	6.00	3.950	13.00	6.950	23.00	9.95	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
0.983	6.00	3.983	13.00	6.983	23.00	9.98	53.00
1.000	6.00	4.000	13.00	7.000	22.98	10.00	52.98
1.017	4.00	4.017	17.00	7.017	13.00	10.02	38.00
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.050	4.00	4.050	17.00	7.050	13.00	10.05	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.117	4.00	4.117	17.00	7.117	13.00	10.12	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.150	4.00	4.150	17.00	7.150	13.00	10.15	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.183	4.00	4.183	17.00	7.183	13.00	10.18	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.217	4.00	4.217	17.00	7.217	13.00	10.22	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.283	4.00	4.283	17.00	7.283	13.00	10.28	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.317	4.00	4.317	17.00	7.317	13.00	10.32	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.350	4.00	4.350	17.00	7.350	13.00	10.35	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.383	4.00	4.383	17.00	7.383	13.00	10.38	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.450	4.00	4.450	17.00	7.450	13.00	10.45	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.483	4.00	4.483	17.00	7.483	13.00	10.48	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.517	4.00	4.517	17.00	7.517	13.00	10.52	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.550	4.00	4.550	17.00	7.550	13.00	10.55	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.617	4.00	4.617	17.00	7.617	13.00	10.62	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.650	4.00	4.650	17.00	7.650	13.00	10.65	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99
2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00

2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
2.983	6.00	5.983	13.00	8.983	13.00	11.98	13.00
3.000	6.00	6.000	13.01	9.000	13.08	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	127.83	
over (min)	5.00	11.00	
Storage Coeff. (min)=	2.06 (ii)	10.30 (ii)	
Unit Hyd. Tpeak (min)=	5.00	11.00	
Unit Hyd. peak (cms)=	0.37	0.11	
			TOTALS
PEAK FLOW (cms)=	0.02	0.02	0.045 (iii)
TIME TO PEAK (hrs)=	9.48	10.00	10.00
RUNOFF VOLUME (mm)=	210.00	179.49	194.73
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	0.99	0.85	0.92

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0211)	Area (ha)= 2.65
ID= 1 DT= 1.0 min	Total Imp(%)= 76.60 Dir. Conn.(%)= 76.60

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.03	0.62
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	0.90	0.90
Length	(m)=	132.96	872.00
Mannings n	=	0.013	0.170

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	6.00	3.017	13.00	6.017	23.00	9.02	53.00
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.050	6.00	3.050	13.00	6.050	23.00	9.05	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.117	6.00	3.117	13.00	6.117	23.00	9.12	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.150	6.00	3.150	13.00	6.150	23.00	9.15	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.183	6.00	3.183	13.00	6.183	23.00	9.18	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.217	6.00	3.217	13.00	6.217	23.00	9.22	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.283	6.00	3.283	13.00	6.283	23.00	9.28	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.317	6.00	3.317	13.00	6.317	23.00	9.32	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.350	6.00	3.350	13.00	6.350	23.00	9.35	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.383	6.00	3.383	13.00	6.383	23.00	9.38	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.450	6.00	3.450	13.00	6.450	23.00	9.45	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.483	6.00	3.483	13.00	6.483	23.00	9.48	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.517	6.00	3.517	13.00	6.517	23.00	9.52	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.550	6.00	3.550	13.00	6.550	23.00	9.55	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.617	6.00	3.617	13.00	6.617	23.00	9.62	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.650	6.00	3.650	13.00	6.650	23.00	9.65	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.683	6.00	3.683	13.00	6.683	23.00	9.68	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.717	6.00	3.717	13.00	6.717	23.00	9.72	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.783	6.00	3.783	13.00	6.783	23.00	9.78	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.817	6.00	3.817	13.00	6.817	23.00	9.82	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.850	6.00	3.850	13.00	6.850	23.00	9.85	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.883	6.00	3.883	13.00	6.883	23.00	9.88	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.950	6.00	3.950	13.00	6.950	23.00	9.95	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
0.983	6.00	3.983	13.00	6.983	23.00	9.98	53.00
1.000	6.00	4.000	13.00	7.000	22.98	10.00	52.98
1.017	4.00	4.017	17.00	7.017	13.00	10.02	38.00
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.050	4.00	4.050	17.00	7.050	13.00	10.05	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00

1.117	4.00	4.117	17.00	7.117	13.00	10.12	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.150	4.00	4.150	17.00	7.150	13.00	10.15	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.183	4.00	4.183	17.00	7.183	13.00	10.18	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.217	4.00	4.217	17.00	7.217	13.00	10.22	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.283	4.00	4.283	17.00	7.283	13.00	10.28	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.317	4.00	4.317	17.00	7.317	13.00	10.32	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.350	4.00	4.350	17.00	7.350	13.00	10.35	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.383	4.00	4.383	17.00	7.383	13.00	10.38	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.450	4.00	4.450	17.00	7.450	13.00	10.45	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.483	4.00	4.483	17.00	7.483	13.00	10.48	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.517	4.00	4.517	17.00	7.517	13.00	10.52	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.550	4.00	4.550	17.00	7.550	13.00	10.55	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.617	4.00	4.617	17.00	7.617	13.00	10.62	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.650	4.00	4.650	17.00	7.650	13.00	10.65	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99
2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
2.983	6.00	5.983	13.00	8.983	13.00	11.98	13.00
3.000	6.00	6.000	13.01	9.000	13.08	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	44.05		
over (min)	5.00	67.00		
Storage Coeff. (min)=	4.03 (ii)	66.80 (ii)		
Unit Hyd. Tpeak (min)=	5.00	67.00		
Unit Hyd. peak (cms)=	0.26	0.02		
			TOTALS	
PEAK FLOW (cms)=	0.30	0.05	0.332 (iii)	
TIME TO PEAK (hrs)=	9.98	11.15	10.00	
RUNOFF VOLUME (mm)=	210.00	144.59	194.69	
TOTAL RAINFALL (mm)=	212.00	212.00	212.00	
RUNOFF COEFFICIENT =	0.99	0.68	0.92	

```
       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  74.0    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  (  0011)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0204):     1.78   0.260    10.00   202.36
     + ID2= 2 (  0205):     1.36   0.194    10.00   194.74
       ================================================
       ID = 3 (  0011):     3.15   0.454    10.00   199.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0011)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0011):     3.15   0.454    10.00   199.06
     + ID2= 2 (  0206):     1.40   0.200    10.00   194.74
       ================================================
       ID = 1 (  0011):     4.55   0.654    10.00   197.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0011)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0011):     4.55   0.654    10.00   197.73
     + ID2= 2 (  0207):     4.45   0.610    10.00   201.78
       ================================================
       ID = 3 (  0011):     8.99   1.264    10.00   199.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0011)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0011):     8.99   1.264    10.00   199.73
     + ID2= 2 (  0208):     2.05   0.295    10.00   202.36
       ================================================
       ID = 1 (  0011):    11.04   1.560    10.00   200.22

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0011)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0011):    11.04   1.560    10.00   200.22
     + ID2= 2 (  0209):     4.42   0.614    10.00   202.28
       ================================================
       ID = 3 (  0011):    15.46   2.173    10.00   200.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0011)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0011):    15.46   2.173    10.00   200.81
     + ID2= 2 (  0210):     0.31   0.045    10.00   194.73
       ================================================
       ID = 1 (  0011):    15.77   2.218    10.00   200.69

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0011)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0011):    15.77   2.218    10.00   200.69
     + ID2= 2 (  0211):     2.65   0.332    10.00   194.69
       ================================================
       ID = 3 (  0011):    18.42   2.550    10.00   199.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0012)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0010):    10.81   1.477    10.00   201.08
     + ID2= 2 (  0011):    18.42   2.550    10.00   199.82
       ================================================
       ID = 3 (  0012):    29.23   4.027    10.00   200.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0012)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0012):    29.23   4.027    10.00   200.29
     + ID2= 2 (  0212):     2.13   0.244    10.00   123.03
       ================================================
       ID = 1 (  0012):    31.36   4.271    10.00   195.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000    |   0.2840      1.1320
                         0.0060     0.0950    |   0.3770      1.3200
                         0.0180     0.1450    |   0.4920      1.6430
                         0.0300     0.2500    |   0.6000      2.0430
                         0.0420     0.4160    |   0.8520      2.1120
                         0.0530     0.6480    |   1.3170      2.1800
                         0.0780     0.7070    |   1.9400      2.2500
                         0.0900     0.8260    |   2.7070      2.3190
```

0.1170	0.9470	4.6440	2.4600
0.1900	1.0080	13.6260	2.9030

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0012)	31.360	4.271	10.00	195.04
OUTFLOW: ID= 1 (0001)	31.360	4.079	10.07	175.76

PEAK FLOW REDUCTION [Qout/Qin](%)= 95.51
TIME SHIFT OF PEAK FLOW (min)= 4.00
MAXIMUM STORAGE USED (ha.m.)= 2.4190

CALIB NASHYD (0305) ID= 1 DT= 1.0 min					
	Area	(ha)=	1.13	Curve Number (CN)=	68.0
	Ia	(mm)=	8.99	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.06		

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	6.00	3.017	13.00	6.017	23.00	9.02	53.00
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.050	6.00	3.050	13.00	6.050	23.00	9.05	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.117	6.00	3.117	13.00	6.117	23.00	9.12	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.150	6.00	3.150	13.00	6.150	23.00	9.15	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.183	6.00	3.183	13.00	6.183	23.00	9.18	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.217	6.00	3.217	13.00	6.217	23.00	9.22	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.283	6.00	3.283	13.00	6.283	23.00	9.28	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.317	6.00	3.317	13.00	6.317	23.00	9.32	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.350	6.00	3.350	13.00	6.350	23.00	9.35	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.383	6.00	3.383	13.00	6.383	23.00	9.38	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.450	6.00	3.450	13.00	6.450	23.00	9.45	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.483	6.00	3.483	13.00	6.483	23.00	9.48	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.517	6.00	3.517	13.00	6.517	23.00	9.52	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.550	6.00	3.550	13.00	6.550	23.00	9.55	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.617	6.00	3.617	13.00	6.617	23.00	9.62	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.650	6.00	3.650	13.00	6.650	23.00	9.65	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.683	6.00	3.683	13.00	6.683	23.00	9.68	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.717	6.00	3.717	13.00	6.717	23.00	9.72	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.783	6.00	3.783	13.00	6.783	23.00	9.78	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.817	6.00	3.817	13.00	6.817	23.00	9.82	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.850	6.00	3.850	13.00	6.850	23.00	9.85	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.883	6.00	3.883	13.00	6.883	23.00	9.88	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.950	6.00	3.950	13.00	6.950	23.00	9.95	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
0.983	6.00	3.983	13.00	6.983	23.00	9.98	53.00
1.000	6.00	4.000	13.00	7.000	22.98	10.00	52.98
1.017	4.00	4.017	17.00	7.017	13.00	10.02	38.00
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.050	4.00	4.050	17.00	7.050	13.00	10.05	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.117	4.00	4.117	17.00	7.117	13.00	10.12	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.150	4.00	4.150	17.00	7.150	13.00	10.15	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.183	4.00	4.183	17.00	7.183	13.00	10.18	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.217	4.00	4.217	17.00	7.217	13.00	10.22	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.283	4.00	4.283	17.00	7.283	13.00	10.28	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.317	4.00	4.317	17.00	7.317	13.00	10.32	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.350	4.00	4.350	17.00	7.350	13.00	10.35	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.383	4.00	4.383	17.00	7.383	13.00	10.38	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.450	4.00	4.450	17.00	7.450	13.00	10.45	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.483	4.00	4.483	17.00	7.483	13.00	10.48	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.517	4.00	4.517	17.00	7.517	13.00	10.52	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.550	4.00	4.550	17.00	7.550	13.00	10.55	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.617	4.00	4.617	17.00	7.617	13.00	10.62	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.650	4.00	4.650	17.00	7.650	13.00	10.65	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00

1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99
2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
2.983	6.00	5.983	13.00	8.983	13.00	11.98	13.00
3.000	6.00	6.000	13.01	9.000	13.08	12.00	13.00

Unit Hyd Qpeak (cms)= 0.721

PEAK FLOW (cms)= 0.133 (i)
TIME TO PEAK (hrs)= 10.000
RUNOFF VOLUME (mm)= 127.728
TOTAL RAINFALL (mm)= 212.001
RUNOFF COEFFICIENT = 0.602

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0301)	Area (ha)= 6.90
ID= 1 DT= 1.0 min	Total Imp(%)= 90.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	6.21	0.69
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	214.52	250.00
Mannings n	=	0.013	0.170

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	6.00	3.017	13.00	6.017	23.00	9.02	53.00
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.050	6.00	3.050	13.00	6.050	23.00	9.05	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.117	6.00	3.117	13.00	6.117	23.00	9.12	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.150	6.00	3.150	13.00	6.150	23.00	9.15	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.183	6.00	3.183	13.00	6.183	23.00	9.18	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.217	6.00	3.217	13.00	6.217	23.00	9.22	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.283	6.00	3.283	13.00	6.283	23.00	9.28	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.317	6.00	3.317	13.00	6.317	23.00	9.32	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.350	6.00	3.350	13.00	6.350	23.00	9.35	53.00

0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.383	6.00	3.383	13.00	6.383	23.00	9.38	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.450	6.00	3.450	13.00	6.450	23.00	9.45	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.483	6.00	3.483	13.00	6.483	23.00	9.48	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.517	6.00	3.517	13.00	6.517	23.00	9.52	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.550	6.00	3.550	13.00	6.550	23.00	9.55	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.617	6.00	3.617	13.00	6.617	23.00	9.62	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.650	6.00	3.650	13.00	6.650	23.00	9.65	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.683	6.00	3.683	13.00	6.683	23.00	9.68	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.717	6.00	3.717	13.00	6.717	23.00	9.72	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.783	6.00	3.783	13.00	6.783	23.00	9.78	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.817	6.00	3.817	13.00	6.817	23.00	9.82	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.850	6.00	3.850	13.00	6.850	23.00	9.85	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.883	6.00	3.883	13.00	6.883	23.00	9.88	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.950	6.00	3.950	13.00	6.950	23.00	9.95	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
0.983	6.00	3.983	13.00	6.983	23.00	9.98	53.00
1.000	6.00	4.000	13.00	7.000	22.98	10.00	52.98
1.017	4.00	4.017	17.00	7.017	13.00	10.02	38.00
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.050	4.00	4.050	17.00	7.050	13.00	10.05	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.117	4.00	4.117	17.00	7.117	13.00	10.12	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.150	4.00	4.150	17.00	7.150	13.00	10.15	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.183	4.00	4.183	17.00	7.183	13.00	10.18	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.217	4.00	4.217	17.00	7.217	13.00	10.22	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.283	4.00	4.283	17.00	7.283	13.00	10.28	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.317	4.00	4.317	17.00	7.317	13.00	10.32	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.350	4.00	4.350	17.00	7.350	13.00	10.35	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.383	4.00	4.383	17.00	7.383	13.00	10.38	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.450	4.00	4.450	17.00	7.450	13.00	10.45	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.483	4.00	4.483	17.00	7.483	13.00	10.48	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.517	4.00	4.517	17.00	7.517	13.00	10.52	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.550	4.00	4.550	17.00	7.550	13.00	10.55	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.617	4.00	4.617	17.00	7.617	13.00	10.62	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.650	4.00	4.650	17.00	7.650	13.00	10.65	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99
2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00

2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
2.983	6.00	5.983	13.00	8.983	13.00	11.98	13.00
3.000	6.00	6.000	13.01	9.000	13.08	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	317.96	
over (min)	5.00	19.00	
Storage Coeff. (min)=	5.21 (ii)	18.24 (ii)	
Unit Hyd. Tpeak (min)=	5.00	19.00	
Unit Hyd. peak (cms)=	0.22	0.06	
			TOTALS
PEAK FLOW (cms)=	0.41	0.58	0.985 (iii)
TIME TO PEAK (hrs)=	9.98	10.07	10.00
RUNOFF VOLUME (mm)=	210.00	209.39	209.65
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	0.99	0.99	0.99

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 96.0 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 (0302)	Area (ha)=	3.20
ID= 1 DT= 1.0 min	Total Imp(%)=	90.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.88	0.32
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	146.04	120.00
Mannings n	=	0.013	0.170

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	6.00	3.017	13.00	6.017	23.00	9.02	53.00
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.050	6.00	3.050	13.00	6.050	23.00	9.05	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.117	6.00	3.117	13.00	6.117	23.00	9.12	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.150	6.00	3.150	13.00	6.150	23.00	9.15	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.183	6.00	3.183	13.00	6.183	23.00	9.18	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.217	6.00	3.217	13.00	6.217	23.00	9.22	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.283	6.00	3.283	13.00	6.283	23.00	9.28	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.317	6.00	3.317	13.00	6.317	23.00	9.32	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.350	6.00	3.350	13.00	6.350	23.00	9.35	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.383	6.00	3.383	13.00	6.383	23.00	9.38	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.450	6.00	3.450	13.00	6.450	23.00	9.45	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.483	6.00	3.483	13.00	6.483	23.00	9.48	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.517	6.00	3.517	13.00	6.517	23.00	9.52	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.550	6.00	3.550	13.00	6.550	23.00	9.55	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.617	6.00	3.617	13.00	6.617	23.00	9.62	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.650	6.00	3.650	13.00	6.650	23.00	9.65	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.683	6.00	3.683	13.00	6.683	23.00	9.68	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.717	6.00	3.717	13.00	6.717	23.00	9.72	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.783	6.00	3.783	13.00	6.783	23.00	9.78	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.817	6.00	3.817	13.00	6.817	23.00	9.82	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.850	6.00	3.850	13.00	6.850	23.00	9.85	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.883	6.00	3.883	13.00	6.883	23.00	9.88	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.950	6.00	3.950	13.00	6.950	23.00	9.95	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00

0.983	6.00	3.983	13.00	6.983	23.00	9.98	53.00
1.000	6.00	4.000	13.00	7.000	22.98	10.00	52.98
1.017	4.00	4.017	17.00	7.017	13.00	10.02	38.00
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.050	4.00	4.050	17.00	7.050	13.00	10.05	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.117	4.00	4.117	17.00	7.117	13.00	10.12	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.150	4.00	4.150	17.00	7.150	13.00	10.15	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.183	4.00	4.183	17.00	7.183	13.00	10.18	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.217	4.00	4.217	17.00	7.217	13.00	10.22	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.283	4.00	4.283	17.00	7.283	13.00	10.28	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.317	4.00	4.317	17.00	7.317	13.00	10.32	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.350	4.00	4.350	17.00	7.350	13.00	10.35	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.383	4.00	4.383	17.00	7.383	13.00	10.38	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.450	4.00	4.450	17.00	7.450	13.00	10.45	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.483	4.00	4.483	17.00	7.483	13.00	10.48	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.517	4.00	4.517	17.00	7.517	13.00	10.52	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.550	4.00	4.550	17.00	7.550	13.00	10.55	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.617	4.00	4.617	17.00	7.617	13.00	10.62	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.650	4.00	4.650	17.00	7.650	13.00	10.65	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99
2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
2.983	6.00	5.983	13.00	8.983	13.00	11.98	13.00
3.000	6.00	6.000	13.01	9.000	13.08	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	315.57
over (min)	5.00	13.00
Storage Coeff. (min)=	4.13 (ii)	12.55 (ii)
Unit Hyd. Tpeak (min)=	5.00	13.00
Unit Hyd. peak (cms)=	0.26	0.09

				TOTALS
PEAK FLOW	(cms)=	0.19	0.28	0.465 (iii)
TIME TO PEAK	(hrs)=	9.98	10.00	10.00
RUNOFF VOLUME	(mm)=	210.00	197.26	202.36
TOTAL RAINFALL	(mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT	=	0.99	0.93	0.95

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0303)	Area (ha)= 0.77
ID= 1 DT= 1.0 min	Total Imp(%)= 90.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.70	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.10
Length	(m)=	71.87	54.00
Mannings n	=	0.013	0.220

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	6.00	3.017	13.00	6.017	23.00	9.02	53.00
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.050	6.00	3.050	13.00	6.050	23.00	9.05	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.117	6.00	3.117	13.00	6.117	23.00	9.12	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.150	6.00	3.150	13.00	6.150	23.00	9.15	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.183	6.00	3.183	13.00	6.183	23.00	9.18	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.217	6.00	3.217	13.00	6.217	23.00	9.22	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.283	6.00	3.283	13.00	6.283	23.00	9.28	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.317	6.00	3.317	13.00	6.317	23.00	9.32	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.350	6.00	3.350	13.00	6.350	23.00	9.35	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.383	6.00	3.383	13.00	6.383	23.00	9.38	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.450	6.00	3.450	13.00	6.450	23.00	9.45	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.483	6.00	3.483	13.00	6.483	23.00	9.48	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.517	6.00	3.517	13.00	6.517	23.00	9.52	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.550	6.00	3.550	13.00	6.550	23.00	9.55	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.617	6.00	3.617	13.00	6.617	23.00	9.62	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.650	6.00	3.650	13.00	6.650	23.00	9.65	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.683	6.00	3.683	13.00	6.683	23.00	9.68	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.717	6.00	3.717	13.00	6.717	23.00	9.72	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.783	6.00	3.783	13.00	6.783	23.00	9.78	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.817	6.00	3.817	13.00	6.817	23.00	9.82	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.850	6.00	3.850	13.00	6.850	23.00	9.85	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.883	6.00	3.883	13.00	6.883	23.00	9.88	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.950	6.00	3.950	13.00	6.950	23.00	9.95	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
0.983	6.00	3.983	13.00	6.983	23.00	9.98	53.00
1.000	6.00	4.000	13.00	7.000	22.98	10.00	52.98
1.017	4.00	4.017	17.00	7.017	13.00	10.02	38.00
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.050	4.00	4.050	17.00	7.050	13.00	10.05	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.117	4.00	4.117	17.00	7.117	13.00	10.12	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.150	4.00	4.150	17.00	7.150	13.00	10.15	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.183	4.00	4.183	17.00	7.183	13.00	10.18	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.217	4.00	4.217	17.00	7.217	13.00	10.22	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.283	4.00	4.283	17.00	7.283	13.00	10.28	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.317	4.00	4.317	17.00	7.317	13.00	10.32	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.350	4.00	4.350	17.00	7.350	13.00	10.35	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.383	4.00	4.383	17.00	7.383	13.00	10.38	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.450	4.00	4.450	17.00	7.450	13.00	10.45	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.483	4.00	4.483	17.00	7.483	13.00	10.48	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.517	4.00	4.517	17.00	7.517	13.00	10.52	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.550	4.00	4.550	17.00	7.550	13.00	10.55	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00

1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.617	4.00	4.617	17.00	7.617	13.00	10.62	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.650	4.00	4.650	17.00	7.650	13.00	10.65	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99
2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
2.983	6.00	5.983	13.00	8.983	13.00	11.98	13.00
3.000	6.00	6.000	13.01	9.000	13.08	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	315.57	
over (min)	5.00	9.00	
Storage Coeff. (min)=	2.70 (ii)	8.41 (ii)	
Unit Hyd. Tpeak (min)=	5.00	9.00	
Unit Hyd. peak (cms)=	0.32	0.13	
			TOTALS
PEAK FLOW (cms)=	0.05	0.07	0.113 (iii)
TIME TO PEAK (hrs)=	9.63	10.00	10.00
RUNOFF VOLUME (mm)=	209.99	197.27	202.36
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	0.99	0.93	0.95

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0304) | Area (ha)= 0.52
ID= 1 DT= 1.0 min | Total Imp(%)= 66.30 Dir. Conn.(%)= 66.30

		IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=		0.34	0.17
Dep. Storage (mm)=		2.00	5.00
Average Slope (%)=		1.00	1.00
Length (m)=		58.83	60.00
Mannings n =		0.013	0.220

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	6.00	3.017	13.00	6.017	23.00	9.02	53.00
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.050	6.00	3.050	13.00	6.050	23.00	9.05	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00

0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.117	6.00	3.117	13.00	6.117	23.00	9.12	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.150	6.00	3.150	13.00	6.150	23.00	9.15	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.183	6.00	3.183	13.00	6.183	23.00	9.18	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.217	6.00	3.217	13.00	6.217	23.00	9.22	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.283	6.00	3.283	13.00	6.283	23.00	9.28	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.317	6.00	3.317	13.00	6.317	23.00	9.32	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.350	6.00	3.350	13.00	6.350	23.00	9.35	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.383	6.00	3.383	13.00	6.383	23.00	9.38	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.450	6.00	3.450	13.00	6.450	23.00	9.45	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.483	6.00	3.483	13.00	6.483	23.00	9.48	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.517	6.00	3.517	13.00	6.517	23.00	9.52	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.550	6.00	3.550	13.00	6.550	23.00	9.55	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.617	6.00	3.617	13.00	6.617	23.00	9.62	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.650	6.00	3.650	13.00	6.650	23.00	9.65	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.683	6.00	3.683	13.00	6.683	23.00	9.68	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.717	6.00	3.717	13.00	6.717	23.00	9.72	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.783	6.00	3.783	13.00	6.783	23.00	9.78	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.817	6.00	3.817	13.00	6.817	23.00	9.82	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.850	6.00	3.850	13.00	6.850	23.00	9.85	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.883	6.00	3.883	13.00	6.883	23.00	9.88	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.950	6.00	3.950	13.00	6.950	23.00	9.95	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
0.983	6.00	3.983	13.00	6.983	23.00	9.98	53.00
1.000	6.00	4.000	13.00	7.000	22.98	10.00	52.98
1.017	4.00	4.017	17.00	7.017	13.00	10.02	38.00
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.050	4.00	4.050	17.00	7.050	13.00	10.05	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.117	4.00	4.117	17.00	7.117	13.00	10.12	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.150	4.00	4.150	17.00	7.150	13.00	10.15	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.183	4.00	4.183	17.00	7.183	13.00	10.18	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.217	4.00	4.217	17.00	7.217	13.00	10.22	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.283	4.00	4.283	17.00	7.283	13.00	10.28	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.317	4.00	4.317	17.00	7.317	13.00	10.32	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.350	4.00	4.350	17.00	7.350	13.00	10.35	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.383	4.00	4.383	17.00	7.383	13.00	10.38	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.450	4.00	4.450	17.00	7.450	13.00	10.45	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.483	4.00	4.483	17.00	7.483	13.00	10.48	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.517	4.00	4.517	17.00	7.517	13.00	10.52	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.550	4.00	4.550	17.00	7.550	13.00	10.55	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.617	4.00	4.617	17.00	7.617	13.00	10.62	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.650	4.00	4.650	17.00	7.650	13.00	10.65	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99
2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00

2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
2.983	6.00	5.983	13.00	8.983	13.00	11.98	13.00
3.000	6.00	6.000	13.01	9.000	13.08	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	45.58	
over (min)	5.00	17.00	
Storage Coeff. (min)=	2.40 (ii)	16.45 (ii)	
Unit Hyd. Tpeak (min)=	5.00	17.00	
Unit Hyd. peak (cms)=	0.34	0.07	
			TOTALS
PEAK FLOW (cms)=	0.05	0.02	0.072 (iii)
TIME TO PEAK (hrs)=	9.58	10.07	10.00
RUNOFF VOLUME (mm)=	210.00	144.63	187.96
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	0.99	0.68	0.89

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0020)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0301):		6.90	0.985	10.00	209.65
+ ID2= 2 (0302):		3.20	0.465	10.00	202.36
ID = 3 (0020):		10.10	1.450	10.00	207.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0020):		10.10	1.450	10.00	207.34
+ ID2= 2 (0303):		0.77	0.113	10.00	202.36
ID = 1 (0020):		10.88	1.564	10.00	206.99

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0020):		10.88	1.564	10.00	206.99
+ ID2= 2 (0304):		0.52	0.072	10.00	187.96
ID = 3 (0020):		11.40	1.635	10.00	206.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0020):		11.40	1.635	10.00	206.12
+ ID2= 2 (0305):		1.13	0.133	10.00	127.73
ID = 3 (0021):		12.53	1.769	10.00	199.03

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0002)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 1.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0820	0.4340
	0.0010	0.0240	0.1040	0.5000
	0.0060	0.0480	0.1300	0.6010
	0.0120	0.1000	0.1580	0.7400
	0.0170	0.1850	0.1810	0.8850
	0.0200	0.2450	0.3080	0.9220

0.0210	0.2750	0.5530	0.9590
0.0270	0.3060	1.3310	1.0350
0.0310	0.3380	2.4840	1.1120
0.0430	0.3700	8.3380	1.3600

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0021)	12.529	1.769	10.00	199.03
OUTFLOW: ID= 1 (0002)	12.529	1.703	10.07	176.35

PEAK FLOW REDUCTION [Qout/Qin](%)= 96.26
TIME SHIFT OF PEAK FLOW (min)= 4.00
MAXIMUM STORAGE USED (ha.m.)= 1.0598

CALIB NASHYD (0404) ID= 1 DT= 1.0 min	Area (ha)= 0.89	Curve Number (CN)= 74.0	
	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.54		

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	6.00	3.017	13.00	6.017	23.00	9.02	53.00
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.050	6.00	3.050	13.00	6.050	23.00	9.05	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.117	6.00	3.117	13.00	6.117	23.00	9.12	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.150	6.00	3.150	13.00	6.150	23.00	9.15	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.183	6.00	3.183	13.00	6.183	23.00	9.18	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.217	6.00	3.217	13.00	6.217	23.00	9.22	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.283	6.00	3.283	13.00	6.283	23.00	9.28	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.317	6.00	3.317	13.00	6.317	23.00	9.32	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.350	6.00	3.350	13.00	6.350	23.00	9.35	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.383	6.00	3.383	13.00	6.383	23.00	9.38	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.450	6.00	3.450	13.00	6.450	23.00	9.45	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.483	6.00	3.483	13.00	6.483	23.00	9.48	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.517	6.00	3.517	13.00	6.517	23.00	9.52	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.550	6.00	3.550	13.00	6.550	23.00	9.55	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.617	6.00	3.617	13.00	6.617	23.00	9.62	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.650	6.00	3.650	13.00	6.650	23.00	9.65	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.683	6.00	3.683	13.00	6.683	23.00	9.68	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.717	6.00	3.717	13.00	6.717	23.00	9.72	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.783	6.00	3.783	13.00	6.783	23.00	9.78	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.817	6.00	3.817	13.00	6.817	23.00	9.82	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.850	6.00	3.850	13.00	6.850	23.00	9.85	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.883	6.00	3.883	13.00	6.883	23.00	9.88	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.950	6.00	3.950	13.00	6.950	23.00	9.95	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
0.983	6.00	3.983	13.00	6.983	23.00	9.98	53.00
1.000	6.00	4.000	13.00	7.000	22.98	10.00	52.98
1.017	4.00	4.017	17.00	7.017	13.00	10.02	38.00
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.050	4.00	4.050	17.00	7.050	13.00	10.05	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.117	4.00	4.117	17.00	7.117	13.00	10.12	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.150	4.00	4.150	17.00	7.150	13.00	10.15	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.183	4.00	4.183	17.00	7.183	13.00	10.18	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.217	4.00	4.217	17.00	7.217	13.00	10.22	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.283	4.00	4.283	17.00	7.283	13.00	10.28	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.317	4.00	4.317	17.00	7.317	13.00	10.32	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.350	4.00	4.350	17.00	7.350	13.00	10.35	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.383	4.00	4.383	17.00	7.383	13.00	10.38	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.450	4.00	4.450	17.00	7.450	13.00	10.45	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.483	4.00	4.483	17.00	7.483	13.00	10.48	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.517	4.00	4.517	17.00	7.517	13.00	10.52	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.550	4.00	4.550	17.00	7.550	13.00	10.55	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.617	4.00	4.617	17.00	7.617	13.00	10.62	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.650	4.00	4.650	17.00	7.650	13.00	10.65	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00

1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99
2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
2.983	6.00	5.983	13.00	8.983	13.00	11.98	13.00
3.000	6.00	6.000	13.01	9.000	13.08	12.00	13.00

Unit Hyd Qpeak (cms)= 0.063

PEAK FLOW (cms)= 0.095 (i)
TIME TO PEAK (hrs)= 10.383
RUNOFF VOLUME (mm)= 144.642
TOTAL RAINFALL (mm)= 212.001
RUNOFF COEFFICIENT = 0.682

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0402) | Area (ha)= 0.22
ID= 1 DT= 1.0 min | Total Imp(%)= 72.70 Dir. Conn.(%)= 72.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	3.00	3.00
Length	(m)=	38.31	62.00
Mannings n	=	0.013	0.220

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	6.00	3.017	13.00	6.017	23.00	9.02	53.00
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.050	6.00	3.050	13.00	6.050	23.00	9.05	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.117	6.00	3.117	13.00	6.117	23.00	9.12	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.150	6.00	3.150	13.00	6.150	23.00	9.15	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.183	6.00	3.183	13.00	6.183	23.00	9.18	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.217	6.00	3.217	13.00	6.217	23.00	9.22	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.283	6.00	3.283	13.00	6.283	23.00	9.28	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.317	6.00	3.317	13.00	6.317	23.00	9.32	53.00

0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.350	6.00	3.350	13.00	6.350	23.00	9.35	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.383	6.00	3.383	13.00	6.383	23.00	9.38	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.450	6.00	3.450	13.00	6.450	23.00	9.45	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.483	6.00	3.483	13.00	6.483	23.00	9.48	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.517	6.00	3.517	13.00	6.517	23.00	9.52	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.550	6.00	3.550	13.00	6.550	23.00	9.55	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.617	6.00	3.617	13.00	6.617	23.00	9.62	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.650	6.00	3.650	13.00	6.650	23.00	9.65	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.683	6.00	3.683	13.00	6.683	23.00	9.68	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.717	6.00	3.717	13.00	6.717	23.00	9.72	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.783	6.00	3.783	13.00	6.783	23.00	9.78	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.817	6.00	3.817	13.00	6.817	23.00	9.82	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.850	6.00	3.850	13.00	6.850	23.00	9.85	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.883	6.00	3.883	13.00	6.883	23.00	9.88	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.950	6.00	3.950	13.00	6.950	23.00	9.95	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
0.983	6.00	3.983	13.00	6.983	23.00	9.98	53.00
1.000	6.00	4.000	13.00	7.000	22.98	10.00	52.98
1.017	4.00	4.017	17.00	7.017	13.00	10.02	38.00
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.050	4.00	4.050	17.00	7.050	13.00	10.05	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.117	4.00	4.117	17.00	7.117	13.00	10.12	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.150	4.00	4.150	17.00	7.150	13.00	10.15	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.183	4.00	4.183	17.00	7.183	13.00	10.18	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.217	4.00	4.217	17.00	7.217	13.00	10.22	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.283	4.00	4.283	17.00	7.283	13.00	10.28	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.317	4.00	4.317	17.00	7.317	13.00	10.32	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.350	4.00	4.350	17.00	7.350	13.00	10.35	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.383	4.00	4.383	17.00	7.383	13.00	10.38	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.450	4.00	4.450	17.00	7.450	13.00	10.45	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.483	4.00	4.483	17.00	7.483	13.00	10.48	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.517	4.00	4.517	17.00	7.517	13.00	10.52	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.550	4.00	4.550	17.00	7.550	13.00	10.55	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.617	4.00	4.617	17.00	7.617	13.00	10.62	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.650	4.00	4.650	17.00	7.650	13.00	10.65	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99
2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00

2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
2.983	6.00	5.983	13.00	8.983	13.00	11.98	13.00
3.000	6.00	6.000	13.01	9.000	13.08	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	45.72	
over (min)	5.00	8.00	
Storage Coeff. (min)=	1.33 (ii)	7.89 (ii)	
Unit Hyd. Tpeak (min)=	5.00	8.00	
Unit Hyd. peak (cms)=	0.44	0.14	
			TOTALS
PEAK FLOW (cms)=	0.02	0.01	0.031 (iii)
TIME TO PEAK (hrs)=	9.35	10.00	10.00
RUNOFF VOLUME (mm)=	210.00	144.64	192.14
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	0.99	0.68	0.91

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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 (0403)	Area (ha)=	0.21
ID= 1 DT= 1.0 min	Total Imp(%)=	73.50 Dir. Conn.(%)= 73.50

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	3.00	3.00
Length	(m)=	37.32	25.00

Mannings n = 0.013 0.220

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	6.00	3.017	13.00	6.017	23.00	9.02	53.00
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.050	6.00	3.050	13.00	6.050	23.00	9.05	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.117	6.00	3.117	13.00	6.117	23.00	9.12	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.150	6.00	3.150	13.00	6.150	23.00	9.15	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.183	6.00	3.183	13.00	6.183	23.00	9.18	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.217	6.00	3.217	13.00	6.217	23.00	9.22	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.283	6.00	3.283	13.00	6.283	23.00	9.28	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.317	6.00	3.317	13.00	6.317	23.00	9.32	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.350	6.00	3.350	13.00	6.350	23.00	9.35	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.383	6.00	3.383	13.00	6.383	23.00	9.38	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.450	6.00	3.450	13.00	6.450	23.00	9.45	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.483	6.00	3.483	13.00	6.483	23.00	9.48	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.517	6.00	3.517	13.00	6.517	23.00	9.52	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.550	6.00	3.550	13.00	6.550	23.00	9.55	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.617	6.00	3.617	13.00	6.617	23.00	9.62	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.650	6.00	3.650	13.00	6.650	23.00	9.65	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.683	6.00	3.683	13.00	6.683	23.00	9.68	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.717	6.00	3.717	13.00	6.717	23.00	9.72	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.783	6.00	3.783	13.00	6.783	23.00	9.78	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.817	6.00	3.817	13.00	6.817	23.00	9.82	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.850	6.00	3.850	13.00	6.850	23.00	9.85	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.883	6.00	3.883	13.00	6.883	23.00	9.88	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00

0.950	6.00	3.950	13.00	6.950	23.00	9.95	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
0.983	6.00	3.983	13.00	6.983	23.00	9.98	53.00
1.000	6.00	4.000	13.00	7.000	22.98	10.00	52.98
1.017	4.00	4.017	17.00	7.017	13.00	10.02	38.00
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.050	4.00	4.050	17.00	7.050	13.00	10.05	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.117	4.00	4.117	17.00	7.117	13.00	10.12	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.150	4.00	4.150	17.00	7.150	13.00	10.15	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.183	4.00	4.183	17.00	7.183	13.00	10.18	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.217	4.00	4.217	17.00	7.217	13.00	10.22	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.283	4.00	4.283	17.00	7.283	13.00	10.28	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.317	4.00	4.317	17.00	7.317	13.00	10.32	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.350	4.00	4.350	17.00	7.350	13.00	10.35	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.383	4.00	4.383	17.00	7.383	13.00	10.38	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.450	4.00	4.450	17.00	7.450	13.00	10.45	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.483	4.00	4.483	17.00	7.483	13.00	10.48	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.517	4.00	4.517	17.00	7.517	13.00	10.52	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.550	4.00	4.550	17.00	7.550	13.00	10.55	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.617	4.00	4.617	17.00	7.617	13.00	10.62	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.650	4.00	4.650	17.00	7.650	13.00	10.65	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99
2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
2.983	6.00	5.983	13.00	8.983	13.00	11.98	13.00
3.000	6.00	6.000	13.01	9.000	13.08	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	45.72
over (min)	5.00	6.00
Storage Coeff. (min)=	1.31 (ii)	5.05 (ii)

Unit Hyd. Tpeak (min)=	5.00	6.00	
Unit Hyd. peak (cms)=	0.44	0.21	
			TOTALS
PEAK FLOW (cms)=	0.02	0.01	0.030 (iii)
TIME TO PEAK (hrs)=	9.35	10.00	10.00
RUNOFF VOLUME (mm)=	210.00	144.64	192.67
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	0.99	0.68	0.91

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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			
NASHYD (0401)	Area (ha)=	1.30	Curve Number (CN)= 75.0
ID= 1 DT= 1.0 min	Ia (mm)=	4.87	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.44	

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	6.00	3.017	13.00	6.017	23.00	9.02	53.00
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.050	6.00	3.050	13.00	6.050	23.00	9.05	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.117	6.00	3.117	13.00	6.117	23.00	9.12	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.150	6.00	3.150	13.00	6.150	23.00	9.15	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.183	6.00	3.183	13.00	6.183	23.00	9.18	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.217	6.00	3.217	13.00	6.217	23.00	9.22	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.283	6.00	3.283	13.00	6.283	23.00	9.28	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.317	6.00	3.317	13.00	6.317	23.00	9.32	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.350	6.00	3.350	13.00	6.350	23.00	9.35	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.383	6.00	3.383	13.00	6.383	23.00	9.38	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.450	6.00	3.450	13.00	6.450	23.00	9.45	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.483	6.00	3.483	13.00	6.483	23.00	9.48	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.517	6.00	3.517	13.00	6.517	23.00	9.52	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.550	6.00	3.550	13.00	6.550	23.00	9.55	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.617	6.00	3.617	13.00	6.617	23.00	9.62	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.650	6.00	3.650	13.00	6.650	23.00	9.65	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.683	6.00	3.683	13.00	6.683	23.00	9.68	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.717	6.00	3.717	13.00	6.717	23.00	9.72	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.783	6.00	3.783	13.00	6.783	23.00	9.78	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.817	6.00	3.817	13.00	6.817	23.00	9.82	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.850	6.00	3.850	13.00	6.850	23.00	9.85	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.883	6.00	3.883	13.00	6.883	23.00	9.88	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.950	6.00	3.950	13.00	6.950	23.00	9.95	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
0.983	6.00	3.983	13.00	6.983	23.00	9.98	53.00
1.000	6.00	4.000	13.00	7.000	22.98	10.00	52.98
1.017	4.00	4.017	17.00	7.017	13.00	10.02	38.00
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.050	4.00	4.050	17.00	7.050	13.00	10.05	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.117	4.00	4.117	17.00	7.117	13.00	10.12	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.150	4.00	4.150	17.00	7.150	13.00	10.15	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.183	4.00	4.183	17.00	7.183	13.00	10.18	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.217	4.00	4.217	17.00	7.217	13.00	10.22	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.283	4.00	4.283	17.00	7.283	13.00	10.28	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.317	4.00	4.317	17.00	7.317	13.00	10.32	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.350	4.00	4.350	17.00	7.350	13.00	10.35	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.383	4.00	4.383	17.00	7.383	13.00	10.38	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.450	4.00	4.450	17.00	7.450	13.00	10.45	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.483	4.00	4.483	17.00	7.483	13.00	10.48	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.517	4.00	4.517	17.00	7.517	13.00	10.52	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.550	4.00	4.550	17.00	7.550	13.00	10.55	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.617	4.00	4.617	17.00	7.617	13.00	10.62	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.650	4.00	4.650	17.00	7.650	13.00	10.65	38.00

1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.683	4.00	4.683	17.00	7.683	13.00	10.68	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.717	4.00	4.717	17.00	7.717	13.00	10.72	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.783	4.00	4.783	17.00	7.783	13.00	10.78	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.817	4.00	4.817	17.00	7.817	13.00	10.82	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.850	4.00	4.850	17.00	7.850	13.00	10.85	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.883	4.00	4.883	17.00	7.883	13.00	10.88	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.950	4.00	4.950	17.00	7.950	13.00	10.95	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
1.983	4.00	4.983	17.00	7.983	13.00	10.98	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.99
2.017	6.00	5.017	13.00	8.017	13.00	11.02	13.00
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.050	6.00	5.050	13.00	8.050	13.00	11.05	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.117	6.00	5.117	13.00	8.117	13.00	11.12	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.150	6.00	5.150	13.00	8.150	13.00	11.15	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.183	6.00	5.183	13.00	8.183	13.00	11.18	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.217	6.00	5.217	13.00	8.217	13.00	11.22	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.283	6.00	5.283	13.00	8.283	13.00	11.28	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.317	6.00	5.317	13.00	8.317	13.00	11.32	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.350	6.00	5.350	13.00	8.350	13.00	11.35	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.383	6.00	5.383	13.00	8.383	13.00	11.38	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.450	6.00	5.450	13.00	8.450	13.00	11.45	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.483	6.00	5.483	13.00	8.483	13.00	11.48	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.517	6.00	5.517	13.00	8.517	13.00	11.52	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.550	6.00	5.550	13.00	8.550	13.00	11.55	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.617	6.00	5.617	13.00	8.617	13.00	11.62	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.650	6.00	5.650	13.00	8.650	13.00	11.65	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.683	6.00	5.683	13.00	8.683	13.00	11.68	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.717	6.00	5.717	13.00	8.717	13.00	11.72	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.783	6.00	5.783	13.00	8.783	13.00	11.78	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.817	6.00	5.817	13.00	8.817	13.00	11.82	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.850	6.00	5.850	13.00	8.850	13.00	11.85	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.883	6.00	5.883	13.00	8.883	13.00	11.88	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.950	6.00	5.950	13.00	8.950	13.00	11.95	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
2.983	6.00	5.983	13.00	8.983	13.00	11.98	13.00
3.000	6.00	6.000	13.01	9.000	13.08	12.00	13.00

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     Unit Hyd Qpeak  (cms)=   0.113

     PEAK FLOW       (cms)=   0.148 (i)
     TIME TO PEAK    (hrs)=  10.233
     RUNOFF VOLUME    (mm)= 147.030
     TOTAL RAINFALL   (mm)= 212.001
     RUNOFF COEFFICIENT   =   0.694

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
        ID1= 1 (  0401):     1.30   0.148    10.23   147.03
      + ID2= 2 (  0402):     0.22   0.031    10.00   192.14
        ================================================
        ID = 3 (  0030):     1.52   0.173    10.03   153.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK      R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
        ID1= 3 (  0030):     1.52   0.173    10.03   153.56
      + ID2= 2 (  0403):     0.21   0.030    10.00   192.67
        ================================================
        ID = 1 (  0030):     1.73   0.202    10.02   158.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
        ID1= 1 (  0030):     1.73   0.202    10.02   158.29
      + ID2= 2 (  0404):     0.89   0.095    10.38   144.64
        ================================================
        ID = 3 (  0030):     2.62   0.288    10.03   153.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0040)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    31.36   4.079    10.07   175.76
     + ID2= 2 (  0002):    12.53   1.703    10.07   176.35
       ====================================================
       ID = 3 (  0040):    43.89   5.782    10.07   175.93

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0040)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0040):    43.89   5.782    10.07   175.93
     + ID2= 2 (  0030):     2.62   0.288    10.03   153.66
       ====================================================
       ID = 1 (  0040):    46.50   6.068    10.07   174.67

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
```

```
*********************************
** SIMULATION:100Yr 12hr AES   **
*********************************
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                         0.0000     0.0000    |   0.2840      1.1320
                         0.0060     0.0950    |   0.3770      1.3200
                         0.0180     0.1450    |   0.4920      1.6430
                         0.0300     0.2500    |   0.6000      2.0430
                         0.0420     0.4160    |   0.8520      2.1120
                         0.0530     0.6480    |   1.3170      2.1800
                         0.0780     0.7070    |   1.9400      2.2500
                         0.0900     0.8260    |   2.7070      2.3190
                         0.1170     0.9470    |   4.6440      2.4600
                         0.1900     1.0080    |  13.6260      2.9030

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0012)     31.360      3.024      5.25       75.04
   OUTFLOW: ID= 1 (  0001)     31.360      0.499      7.35       58.90

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 16.49
                  TIME SHIFT OF PEAK FLOW         (min)=126.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.6677

--------------------------------------------------------------------------------
*********************************
** SIMULATION:100Yr 6Hr AES    **
*********************************
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                         0.0000     0.0000    |   0.2840      1.1320
                         0.0060     0.0950    |   0.3770      1.3200
                         0.0180     0.1450    |   0.4920      1.6430
                         0.0300     0.2500    |   0.6000      2.0430
                         0.0420     0.4160    |   0.8520      2.1120
                         0.0530     0.6480    |   1.3170      2.1800
                         0.0780     0.7070    |   1.9400      2.2500
                         0.0900     0.8260    |   2.7070      2.3190
                         0.1170     0.9470    |   4.6440      2.4600
                         0.1900     1.0080    |  13.6260      2.9030

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0012)     31.360      4.932      2.75       67.24
   OUTFLOW: ID= 1 (  0001)     31.360      0.500      4.40       53.05

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 10.15
                  TIME SHIFT OF PEAK FLOW         (min)= 99.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.6745

--------------------------------------------------------------------------------
*********************************
** SIMULATION:10Yr 12hr AES    **
*********************************
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                         0.0000     0.0000    |   0.2840      1.1320
                         0.0060     0.0950    |   0.3770      1.3200
                         0.0180     0.1450    |   0.4920      1.6430
                         0.0300     0.2500    |   0.6000      2.0430
                         0.0420     0.4160    |   0.8520      2.1120
                         0.0530     0.6480    |   1.3170      2.1800
                         0.0780     0.7070    |   1.9400      2.2500
                         0.0900     0.8260    |   2.7070      2.3190
                         0.1170     0.9470    |   4.6440      2.4600
                         0.1900     1.0080    |  13.6260      2.9030

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0012)     31.360      2.009      5.25       50.71
   OUTFLOW: ID= 1 (  0001)     31.360      0.308      7.48       36.03

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 15.33
                  TIME SHIFT OF PEAK FLOW         (min)=134.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.1803

--------------------------------------------------------------------------------
*********************************
** SIMULATION:10Yr 6Hr AES     **
*********************************
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                         0.0000     0.0000    |   0.2840      1.1320
                         0.0060     0.0950    |   0.3770      1.3200
                         0.0180     0.1450    |   0.4920      1.6430
                         0.0300     0.2500    |   0.6000      2.0430
                         0.0420     0.4160    |   0.8520      2.1120
                         0.0530     0.6480    |   1.3170      2.1800
                         0.0780     0.7070    |   1.9400      2.2500
                         0.0900     0.8260    |   2.7070      2.3190
                         0.1170     0.9470    |   4.6440      2.4600
                         0.1900     1.0080    |  13.6260      2.9030

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0012)     31.360      3.114      2.75       44.21
   OUTFLOW: ID= 1 (  0001)     31.360      0.291      4.60       31.67

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  9.34
                  TIME SHIFT OF PEAK FLOW         (min)=111.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.1455

--------------------------------------------------------------------------------
*********************************
** SIMULATION:25mm 4Hr CHI     **
*********************************
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                         0.0000     0.0000    |   0.2840      1.1320
                         0.0060     0.0950    |   0.3770      1.3200
                         0.0180     0.1450    |   0.4920      1.6430
                         0.0300     0.2500    |   0.6000      2.0430
```

0.0420	0.4160	0.8520	2.1120
0.0530	0.6480	1.3170	2.1800
0.0780	0.7070	1.9400	2.2500
0.0900	0.8260	2.7070	2.3190
0.1170	0.9470	4.6440	2.4600
0.1900	1.0080	13.6260	2.9030

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0012)	31.360	2.488	1.38	16.85
OUTFLOW: ID= 1 (0001)	31.360	0.045	4.20	12.06

PEAK FLOW REDUCTION [Qout/Qin](%)= 1.81
TIME SHIFT OF PEAK FLOW (min)=169.00
MAXIMUM STORAGE USED (ha.m.)= 0.4779

****
** SIMULATION:25Yr 12hr AES **
****

RESERVOIR(0001) | IN= 2---> OUT= 1 | DT= 1.0 min	OVERFLOW IS OFF			
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2840	1.1320
	0.0060	0.0950	0.3770	1.3200
	0.0180	0.1450	0.4920	1.6430
	0.0300	0.2500	0.6000	2.0430
	0.0420	0.4160	0.8520	2.1120
	0.0530	0.6480	1.3170	2.1800
	0.0780	0.7070	1.9400	2.2500
	0.0900	0.8260	2.7070	2.3190
	0.1170	0.9470	4.6440	2.4600
	0.1900	1.0080	13.6260	2.9030

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0012)	31.360	2.416	5.25	60.43
OUTFLOW: ID= 1 (0001)	31.360	0.393	7.38	45.17

PEAK FLOW REDUCTION [Qout/Qin](%)= 16.29
TIME SHIFT OF PEAK FLOW (min)=128.00
MAXIMUM STORAGE USED (ha.m.)= 1.3661

****
** SIMULATION:25Yr 6Hr AES **
****

RESERVOIR(0001) | IN= 2---> OUT= 1 | DT= 1.0 min	OVERFLOW IS OFF			
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2840	1.1320
	0.0060	0.0950	0.3770	1.3200
	0.0180	0.1450	0.4920	1.6430
	0.0300	0.2500	0.6000	2.0430
	0.0420	0.4160	0.8520	2.1120
	0.0530	0.6480	1.3170	2.1800
	0.0780	0.7070	1.9400	2.2500
	0.0900	0.8260	2.7070	2.3190
	0.1170	0.9470	4.6440	2.4600
	0.1900	1.0080	13.6260	2.9030

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0012)	31.360	3.833	2.75	53.40
OUTFLOW: ID= 1 (0001)	31.360	0.387	4.45	40.16

PEAK FLOW REDUCTION [Qout/Qin](%)= 10.10
TIME SHIFT OF PEAK FLOW (min)=102.00
MAXIMUM STORAGE USED (ha.m.)= 1.3486

****
** SIMULATION:27mm 4Hr CHI **
****

RESERVOIR(0001) | IN= 2---> OUT= 1 | DT= 1.0 min	OVERFLOW IS OFF			
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2840	1.1320
	0.0060	0.0950	0.3770	1.3200
	0.0180	0.1450	0.4920	1.6430
	0.0300	0.2500	0.6000	2.0430
	0.0420	0.4160	0.8520	2.1120
	0.0530	0.6480	1.3170	2.1800
	0.0780	0.7070	1.9400	2.2500
	0.0900	0.8260	2.7070	2.3190
	0.1170	0.9470	4.6440	2.4600
	0.1900	1.0080	13.6260	2.9030

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0012)	31.360	2.734	1.38	18.55
OUTFLOW: ID= 1 (0001)	31.360	0.047	4.20	13.07

PEAK FLOW REDUCTION [Qout/Qin](%)= 1.73
TIME SHIFT OF PEAK FLOW (min)=169.00
MAXIMUM STORAGE USED (ha.m.)= 0.5285

****
** SIMULATION:2Yr 12hr AES **
****

RESERVOIR(0001) | IN= 2---> OUT= 1 | DT= 1.0 min	OVERFLOW IS OFF			
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2840	1.1320
	0.0060	0.0950	0.3770	1.3200
	0.0180	0.1450	0.4920	1.6430
	0.0300	0.2500	0.6000	2.0430
	0.0420	0.4160	0.8520	2.1120
	0.0530	0.6480	1.3170	2.1800
	0.0780	0.7070	1.9400	2.2500
	0.0900	0.8260	2.7070	2.3190
	0.1170	0.9470	4.6440	2.4600
	0.1900	1.0080	13.6260	2.9030

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0012)	31.360	1.218	5.25	31.73
OUTFLOW: ID= 1 (0001)	31.360	0.089	8.97	19.62

```
                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.34
                  TIME SHIFT OF PEAK FLOW          (min)=223.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.8205

--------------------------------------------------------------------------------
*********************************
** SIMULATION:2Yr 6Hr AES     **
*********************************
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.2840      1.1320
                         0.0060     0.0950   |   0.3770      1.3200
                         0.0180     0.1450   |   0.4920      1.6430
                         0.0300     0.2500   |   0.6000      2.0430
                         0.0420     0.4160   |   0.8520      2.1120
                         0.0530     0.6480   |   1.3170      2.1800
                         0.0780     0.7070   |   1.9400      2.2500
                         0.0900     0.8260   |   2.7070      2.3190
                         0.1170     0.9470   |   4.6440      2.4600
                         0.1900     1.0080   |  13.6260      2.9030

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0012)     31.360     1.758      2.75      26.38
   OUTFLOW: ID= 1 (  0001)     31.360     0.080      5.53      17.28

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.57
                  TIME SHIFT OF PEAK FLOW          (min)=167.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.7300

--------------------------------------------------------------------------------
*********************************
** SIMULATION:50Yr 12hr AES   **
*********************************
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.2840      1.1320
                         0.0060     0.0950   |   0.3770      1.3200
                         0.0180     0.1450   |   0.4920      1.6430
                         0.0300     0.2500   |   0.6000      2.0430
                         0.0420     0.4160   |   0.8520      2.1120
                         0.0530     0.6480   |   1.3170      2.1800
                         0.0780     0.7070   |   1.9400      2.2500
                         0.0900     0.8260   |   2.7070      2.3190
                         0.1170     0.9470   |   4.6440      2.4600
                         0.1900     1.0080   |  13.6260      2.9030

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0012)     31.360     2.719      5.25      67.72
   OUTFLOW: ID= 1 (  0001)     31.360     0.446      7.37      52.00

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 16.42
                  TIME SHIFT OF PEAK FLOW          (min)=127.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.5148

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** SIMULATION:50Yr 6Hr AES    **
*********************************
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.2840      1.1320
                         0.0060     0.0950   |   0.3770      1.3200
                         0.0180     0.1450   |   0.4920      1.6430
                         0.0300     0.2500   |   0.6000      2.0430
                         0.0420     0.4160   |   0.8520      2.1120
                         0.0530     0.6480   |   1.3170      2.1800
                         0.0780     0.7070   |   1.9400      2.2500
                         0.0900     0.8260   |   2.7070      2.3190
                         0.1170     0.9470   |   4.6440      2.4600
                         0.1900     1.0080   |  13.6260      2.9030

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0012)     31.360     4.381      2.75      60.34
   OUTFLOW: ID= 1 (  0001)     31.360     0.445      4.42      46.61

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 10.15
                  TIME SHIFT OF PEAK FLOW          (min)=100.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.5105

--------------------------------------------------------------------------------
*********************************
** SIMULATION:5Yr 12hr AES    **
*********************************
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.2840      1.1320
                         0.0060     0.0950   |   0.3770      1.3200
                         0.0180     0.1450   |   0.4920      1.6430
                         0.0300     0.2500   |   0.6000      2.0430
                         0.0420     0.4160   |   0.8520      2.1120
                         0.0530     0.6480   |   1.3170      2.1800
                         0.0780     0.7070   |   1.9400      2.2500
                         0.0900     0.8260   |   2.7070      2.3190
                         0.1170     0.9470   |   4.6440      2.4600
                         0.1900     1.0080   |  13.6260      2.9030

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0012)     31.360     1.686      5.25      43.00
   OUTFLOW: ID= 1 (  0001)     31.360     0.219      7.92      28.80

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 12.99
                  TIME SHIFT OF PEAK FLOW          (min)=160.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.0463

--------------------------------------------------------------------------------
*********************************
** SIMULATION:5Yr 6Hr AES     **
*********************************
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
```

(cms)	(ha.m.)	(cms)	(ha.m.)
0.0000	0.0000	0.2840	1.1320
0.0060	0.0950	0.3770	1.3200
0.0180	0.1450	0.4920	1.6430
0.0300	0.2500	0.6000	2.0430
0.0420	0.4160	0.8520	2.1120
0.0530	0.6480	1.3170	2.1800
0.0780	0.7070	1.9400	2.2500
0.0900	0.8260	2.7070	2.3190
0.1170	0.9470	4.6440	2.4600
0.1900	1.0080	13.6260	2.9030

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0012)	31.360	2.555	2.75	36.99
OUTFLOW: ID= 1 (0001)	31.360	0.179	4.88	25.07

PEAK FLOW REDUCTION [Qout/Qin](%)= 6.99
TIME SHIFT OF PEAK FLOW (min)=128.00
MAXIMUM STORAGE USED (ha.m.)= 0.9986

****
** SIMULATION:Hazel **
****

RESERVOIR(0001)	OVERFLOW IS OFF
IN= 2---> OUT= 1	
DT= 1.0 min	

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.2840	1.1320
0.0060	0.0950	0.3770	1.3200
0.0180	0.1450	0.4920	1.6430
0.0300	0.2500	0.6000	2.0430
0.0420	0.4160	0.8520	2.1120
0.0530	0.6480	1.3170	2.1800
0.0780	0.7070	1.9400	2.2500
0.0900	0.8260	2.7070	2.3190
0.1170	0.9470	4.6440	2.4600
0.1900	1.0080	13.6260	2.9030

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0012)	31.360	4.271	10.00	195.04
OUTFLOW: ID= 1 (0001)	31.360	4.079	10.07	175.76

PEAK FLOW REDUCTION [Qout/Qin](%)= 95.51
TIME SHIFT OF PEAK FLOW (min)= 4.00
MAXIMUM STORAGE USED (ha.m.)= 2.4190

```
*********************************
** SIMULATION:100Yr 12hr AES  **
*********************************
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.0820      0.4340
                          0.0010     0.0240    |   0.1040      0.5000
                          0.0060     0.0480    |   0.1300      0.6010
                          0.0120     0.1000    |   0.1580      0.7400
                          0.0170     0.1850    |   0.1810      0.8850
                          0.0200     0.2450    |   0.3080      0.9220
                          0.0210     0.2750    |   0.5530      0.9590
                          0.0270     0.3060    |   1.3310      1.0350
                          0.0310     0.3380    |   2.4840      1.1120
                          0.0430     0.3700    |   8.3380      1.3600

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0021)     12.529      1.295      5.25      78.56
   OUTFLOW: ID= 1 (  0002)     12.529      0.159      7.52      59.38

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 12.25
                  TIME SHIFT OF PEAK FLOW         (min)=136.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.7435

--------------------------------------------------------------------------------
*********************************
** SIMULATION:100Yr 6Hr AES   **
*********************************
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.0820      0.4340
                          0.0010     0.0240    |   0.1040      0.5000
                          0.0060     0.0480    |   0.1300      0.6010
                          0.0120     0.1000    |   0.1580      0.7400
                          0.0170     0.1850    |   0.1810      0.8850
                          0.0200     0.2450    |   0.3080      0.9220
                          0.0210     0.2750    |   0.5530      0.9590
                          0.0270     0.3060    |   1.3310      1.0350
                          0.0310     0.3380    |   2.4840      1.1120
                          0.0430     0.3700    |   8.3380      1.3600

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0021)     12.529      2.183      2.75      70.68
   OUTFLOW: ID= 1 (  0002)     12.529      0.158      4.48      53.72

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.23
                  TIME SHIFT OF PEAK FLOW         (min)=104.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.7393

--------------------------------------------------------------------------------
*********************************
** SIMULATION:10Yr 12hr AES   **
*********************************
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.0820      0.4340
                          0.0010     0.0240    |   0.1040      0.5000
                          0.0060     0.0480    |   0.1300      0.6010
                          0.0120     0.1000    |   0.1580      0.7400
                          0.0170     0.1850    |   0.1810      0.8850
                          0.0200     0.2450    |   0.3080      0.9220
                          0.0210     0.2750    |   0.5530      0.9590
                          0.0270     0.3060    |   1.3310      1.0350
                          0.0310     0.3380    |   2.4840      1.1120
                          0.0430     0.3700    |   8.3380      1.3600

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0021)     12.529      0.884      5.25      53.95
   OUTFLOW: ID= 1 (  0002)     12.529      0.109      7.60      37.24

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 12.30
                  TIME SHIFT OF PEAK FLOW         (min)=141.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5183

--------------------------------------------------------------------------------
*********************************
** SIMULATION:10Yr 6Hr AES    **
*********************************
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.0820      0.4340
                          0.0010     0.0240    |   0.1040      0.5000
                          0.0060     0.0480    |   0.1300      0.6010
                          0.0120     0.1000    |   0.1580      0.7400
                          0.0170     0.1850    |   0.1810      0.8850
                          0.0200     0.2450    |   0.3080      0.9220
                          0.0210     0.2750    |   0.5530      0.9590
                          0.0270     0.3060    |   1.3310      1.0350
                          0.0310     0.3380    |   2.4840      1.1120
                          0.0430     0.3700    |   8.3380      1.3600

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0021)     12.529      1.423      2.75      47.34
   OUTFLOW: ID= 1 (  0002)     12.529      0.104      4.58      32.87

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.34
                  TIME SHIFT OF PEAK FLOW         (min)=110.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5019

--------------------------------------------------------------------------------
*********************************
** SIMULATION:25mm 4Hr CHI    **
*********************************
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.0820      0.4340
                          0.0010     0.0240    |   0.1040      0.5000
                          0.0060     0.0480    |   0.1300      0.6010
                          0.0120     0.1000    |   0.1580      0.7400
```

0.0170	0.1850	0.1810	0.8850
0.0200	0.2450	0.3080	0.9220
0.0210	0.2750	0.5530	0.9590
0.0270	0.3060	1.3310	1.0350
0.0310	0.3380	2.4840	1.1120
0.0430	0.3700	8.3380	1.3600

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0021)	12.529	1.011	1.38	19.13
OUTFLOW: ID= 1 (0002)	12.529	0.019	4.13	13.21

PEAK FLOW REDUCTION [Qout/Qin](%)= 1.86
TIME SHIFT OF PEAK FLOW (min)=165.00
MAXIMUM STORAGE USED (ha.m.)= 0.2210

****
** SIMULATION:25Yr 12hr AES **
****

RESERVOIR(0002)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 1.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0820	0.4340
	0.0010	0.0240	0.1040	0.5000
	0.0060	0.0480	0.1300	0.6010
	0.0120	0.1000	0.1580	0.7400
	0.0170	0.1850	0.1810	0.8850
	0.0200	0.2450	0.3080	0.9220
	0.0210	0.2750	0.5530	0.9590
	0.0270	0.3060	1.3310	1.0350
	0.0310	0.3380	2.4840	1.1120
	0.0430	0.3700	8.3380	1.3600

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0021)	12.529	1.049	5.25	63.80
OUTFLOW: ID= 1 (0002)	12.529	0.131	7.53	46.07

PEAK FLOW REDUCTION [Qout/Qin](%)= 12.49
TIME SHIFT OF PEAK FLOW (min)=137.00
MAXIMUM STORAGE USED (ha.m.)= 0.6065

****
** SIMULATION:25Yr 6Hr AES **
****

RESERVOIR(0002)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 1.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0820	0.4340
	0.0010	0.0240	0.1040	0.5000
	0.0060	0.0480	0.1300	0.6010
	0.0120	0.1000	0.1580	0.7400
	0.0170	0.1850	0.1810	0.8850
	0.0200	0.2450	0.3080	0.9220
	0.0210	0.2750	0.5530	0.9590
	0.0270	0.3060	1.3310	1.0350
	0.0310	0.3380	2.4840	1.1120
	0.0430	0.3700	8.3380	1.3600

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0021)	12.529	1.727	2.75	56.67
OUTFLOW: ID= 1 (0002)	12.529	0.128	4.52	41.14

PEAK FLOW REDUCTION [Qout/Qin](%)= 7.44
TIME SHIFT OF PEAK FLOW (min)=106.00
MAXIMUM STORAGE USED (ha.m.)= 0.5949

****
** SIMULATION:27mm 4Hr CHI **
****

RESERVOIR(0002)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 1.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0820	0.4340
	0.0010	0.0240	0.1040	0.5000
	0.0060	0.0480	0.1300	0.6010
	0.0120	0.1000	0.1580	0.7400
	0.0170	0.1850	0.1810	0.8850
	0.0200	0.2450	0.3080	0.9220
	0.0210	0.2750	0.5530	0.9590
	0.0270	0.3060	1.3310	1.0350
	0.0310	0.3380	2.4840	1.1120
	0.0430	0.3700	8.3380	1.3600

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0021)	12.529	1.126	1.38	20.92
OUTFLOW: ID= 1 (0002)	12.529	0.020	4.13	14.16

PEAK FLOW REDUCTION [Qout/Qin](%)= 1.77
TIME SHIFT OF PEAK FLOW (min)=165.00
MAXIMUM STORAGE USED (ha.m.)= 0.2424

****
** SIMULATION:2Yr 12hr AES **
****

RESERVOIR(0002)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 1.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0820	0.4340
	0.0010	0.0240	0.1040	0.5000
	0.0060	0.0480	0.1300	0.6010
	0.0120	0.1000	0.1580	0.7400
	0.0170	0.1850	0.1810	0.8850
	0.0200	0.2450	0.3080	0.9220
	0.0210	0.2750	0.5530	0.9590
	0.0270	0.3060	1.3310	1.0350
	0.0310	0.3380	2.4840	1.1120
	0.0430	0.3700	8.3380	1.3600

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0021)	12.529	0.559	5.25	34.59
OUTFLOW: ID= 1 (0002)	12.529	0.040	8.60	20.28

```
                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.23
                  TIME SHIFT OF PEAK FLOW          (min)=201.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.3631

--------------------------------------------------------------------------------
*********************************
** SIMULATION:2Yr 6Hr AES     **
*********************************
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.0820      0.4340
                         0.0010     0.0240   |   0.1040      0.5000
                         0.0060     0.0480   |   0.1300      0.6010
                         0.0120     0.1000   |   0.1580      0.7400
                         0.0170     0.1850   |   0.1810      0.8850
                         0.0200     0.2450   |   0.3080      0.9220
                         0.0210     0.2750   |   0.5530      0.9590
                         0.0270     0.3060   |   1.3310      1.0350
                         0.0310     0.3380   |   2.4840      1.1120
                         0.0430     0.3700   |   8.3380      1.3600

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0021)    12.529     0.836      2.77      29.07
   OUTFLOW: ID= 1 (  0002)    12.529     0.030      5.35      17.94

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.56
                  TIME SHIFT OF PEAK FLOW          (min)=155.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.3280

--------------------------------------------------------------------------------
*********************************
** SIMULATION:50Yr 12hr AES   **
*********************************
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.0820      0.4340
                         0.0010     0.0240   |   0.1040      0.5000
                         0.0060     0.0480   |   0.1300      0.6010
                         0.0120     0.1000   |   0.1580      0.7400
                         0.0170     0.1850   |   0.1810      0.8850
                         0.0200     0.2450   |   0.3080      0.9220
                         0.0210     0.2750   |   0.5530      0.9590
                         0.0270     0.3060   |   1.3310      1.0350
                         0.0310     0.3380   |   2.4840      1.1120
                         0.0430     0.3700   |   8.3380      1.3600

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0021)    12.529     1.171      5.25      71.16
   OUTFLOW: ID= 1 (  0002)    12.529     0.145      7.52      52.69

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 12.36
                  TIME SHIFT OF PEAK FLOW          (min)=136.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.6744

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*********************************
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```
** SIMULATION:50Yr 6Hr AES    **
*********************************
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.0820      0.4340
                         0.0010     0.0240   |   0.1040      0.5000
                         0.0060     0.0480   |   0.1300      0.6010
                         0.0120     0.1000   |   0.1580      0.7400
                         0.0170     0.1850   |   0.1810      0.8850
                         0.0200     0.2450   |   0.3080      0.9220
                         0.0210     0.2750   |   0.5530      0.9590
                         0.0270     0.3060   |   1.3310      1.0350
                         0.0310     0.3380   |   2.4840      1.1120
                         0.0430     0.3700   |   8.3380      1.3600

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0021)    12.529     1.950      2.75      63.71
   OUTFLOW: ID= 1 (  0002)    12.529     0.143      4.50      47.44

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.35
                  TIME SHIFT OF PEAK FLOW          (min)=105.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.6669

--------------------------------------------------------------------------------
*********************************
** SIMULATION:5Yr 12hr AES    **
*********************************
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.0820      0.4340
                         0.0010     0.0240   |   0.1040      0.5000
                         0.0060     0.0480   |   0.1300      0.6010
                         0.0120     0.1000   |   0.1580      0.7400
                         0.0170     0.1850   |   0.1810      0.8850
                         0.0200     0.2450   |   0.3080      0.9220
                         0.0210     0.2750   |   0.5530      0.9590
                         0.0270     0.3060   |   1.3310      1.0350
                         0.0310     0.3380   |   2.4840      1.1120
                         0.0430     0.3700   |   8.3380      1.3600

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0021)    12.529     0.753      5.25      46.11
   OUTFLOW: ID= 1 (  0002)    12.529     0.088      7.73      30.24

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 11.70
                  TIME SHIFT OF PEAK FLOW          (min)=149.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.4522

--------------------------------------------------------------------------------
*********************************
** SIMULATION:5Yr 6Hr AES     **
*********************************
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
```

```
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.0820      0.4340
                         0.0010     0.0240   |   0.1040      0.5000
                         0.0060     0.0480   |   0.1300      0.6010
                         0.0120     0.1000   |   0.1580      0.7400
                         0.0170     0.1850   |   0.1810      0.8850
                         0.0200     0.2450   |   0.3080      0.9220
                         0.0210     0.2750   |   0.5530      0.9590
                         0.0270     0.3060   |   1.3310      1.0350
                         0.0310     0.3380   |   2.4840      1.1120
                         0.0430     0.3700   |   8.3380      1.3600

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0021)     12.529      1.187      2.75      39.97
   OUTFLOW: ID= 1 (  0002)     12.529      0.081      4.72      26.43

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.81
                  TIME SHIFT OF PEAK FLOW         (min)=118.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.4320

--------------------------------------------------------------------------------
*******************************
** SIMULATION:Hazel           **
*******************************
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.0820      0.4340
                         0.0010     0.0240   |   0.1040      0.5000
                         0.0060     0.0480   |   0.1300      0.6010
                         0.0120     0.1000   |   0.1580      0.7400
                         0.0170     0.1850   |   0.1810      0.8850
                         0.0200     0.2450   |   0.3080      0.9220
                         0.0210     0.2750   |   0.5530      0.9590
                         0.0270     0.3060   |   1.3310      1.0350
                         0.0310     0.3380   |   2.4840      1.1120
                         0.0430     0.3700   |   8.3380      1.3600

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0021)     12.529      1.769     10.00     199.03
   OUTFLOW: ID= 1 (  0002)     12.529      1.703     10.07     176.35

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 96.26
                  TIME SHIFT OF PEAK FLOW         (min)=  4.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.0598

--------------------------------------------------------------------------------
```

```
*********************************
** SIMULATION:100Yr 12hr AES  **
*********************************

--------------------
| ADD HYD  (  0040)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    31.36   0.499     7.35    58.90
     + ID2= 2 (  0002):    12.53   0.159     7.52    59.38
       ================================================
       ID = 3 (  0040):    43.89   0.657     7.37    59.04

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0040)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0040):    43.89   0.657     7.37    59.04
     + ID2= 2 (  0030):     2.62   0.144     5.27    46.52
       ================================================
       ID = 1 (  0040):    46.50   0.701     6.57    58.33

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
*********************************
** SIMULATION:100Yr 6Hr AES   **
*********************************

--------------------
| ADD HYD  (  0040)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    31.36   0.500     4.40    53.05
     + ID2= 2 (  0002):    12.53   0.158     4.48    53.72
       ================================================
       ID = 3 (  0040):    43.89   0.658     4.42    53.24

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0040)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0040):    43.89   0.658     4.42    53.24
     + ID2= 2 (  0030):     2.62   0.160     2.77    40.26
       ================================================
       ID = 1 (  0040):    46.50   0.731     3.77    52.51

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
*********************************
** SIMULATION:10Yr 12hr AES   **
*********************************

--------------------
| ADD HYD  (  0040)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    31.36   0.308     7.48    36.03
     + ID2= 2 (  0002):    12.53   0.109     7.60    37.24
       ================================================
       ID = 3 (  0040):    43.89   0.417     7.50    36.37

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0040)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0040):    43.89   0.417     7.50    36.37
     + ID2= 2 (  0030):     2.62   0.084     5.27    27.63
       ================================================
       ID = 1 (  0040):    46.50   0.438     7.28    35.88

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
*********************************
** SIMULATION:10Yr 6Hr AES    **
*********************************

--------------------
| ADD HYD  (  0040)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    31.36   0.291     4.60    31.67
     + ID2= 2 (  0002):    12.53   0.104     4.58    32.87
       ================================================
       ID = 3 (  0040):    43.89   0.395     4.60    32.01

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0040)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0040):    43.89   0.395     4.60    32.01
     + ID2= 2 (  0030):     2.62   0.091     2.77    22.94
       ================================================
       ID = 1 (  0040):    46.50   0.424     4.27    31.50

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
*********************************
** SIMULATION:25mm 4Hr CHI    **
*********************************

--------------------
| ADD HYD  (  0040)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    31.36   0.045     4.20    12.06
     + ID2= 2 (  0002):    12.53   0.019     4.13    13.21
       ================================================
       ID = 3 (  0040):    43.89   0.064     4.18    12.39

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0040)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
```

```
        ID1= 3 (  0040):    43.89   0.064     4.18    12.39
      + ID2= 2 (  0030):     2.62   0.068     1.35     6.08
        ============================================================
        ID = 1 (  0040):    46.50   0.076     1.37    12.03

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
*********************************
** SIMULATION:25Yr 12hr AES    **
*********************************

--------------------
| ADD HYD  (  0040)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
        ID1= 1 (  0001):    31.36   0.393     7.38    45.17
      + ID2= 2 (  0002):    12.53   0.131     7.53    46.07
        ============================================================
        ID = 3 (  0040):    43.89   0.524     7.40    45.43

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0040)|
|   3 +  2 =  1    |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
        ID1= 3 (  0040):    43.89   0.524     7.40    45.43
      + ID2= 2 (  0030):     2.62   0.107     5.27    34.95
        ============================================================
        ID = 1 (  0040):    46.50   0.553     7.25    44.84

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
*********************************
** SIMULATION:25Yr 6Hr AES     **
*********************************

--------------------
| ADD HYD  (  0040)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
        ID1= 1 (  0001):    31.36   0.387     4.45    40.16
      + ID2= 2 (  0002):    12.53   0.128     4.52    41.14
        ============================================================
        ID = 3 (  0040):    43.89   0.516     4.47    40.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0040)|
|   3 +  2 =  1    |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
        ID1= 3 (  0040):    43.89   0.516     4.47    40.44
      + ID2= 2 (  0030):     2.62   0.117     2.77    29.61
        ============================================================
        ID = 1 (  0040):    46.50   0.559     3.98    39.83

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
*********************************
** SIMULATION:27mm 4Hr CHI     **
*********************************

--------------------
| ADD HYD  (  0040)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
        ID1= 1 (  0001):    31.36   0.047     4.20    13.07
      + ID2= 2 (  0002):    12.53   0.020     4.13    14.16
        ============================================================
        ID = 3 (  0040):    43.89   0.067     4.18    13.38

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0040)|
|   3 +  2 =  1    |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
        ID1= 3 (  0040):    43.89   0.067     4.18    13.38
      + ID2= 2 (  0030):     2.62   0.074     1.35     6.94
        ============================================================
        ID = 1 (  0040):    46.50   0.085     1.37    13.02

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
*********************************
** SIMULATION:2Yr 12hr AES     **
*********************************

--------------------
| ADD HYD  (  0040)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
        ID1= 1 (  0001):    31.36   0.089     8.97    19.62
      + ID2= 2 (  0002):    12.53   0.040     8.60    20.28
        ============================================================
        ID = 3 (  0040):    43.89   0.130     8.72    19.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0040)|
|   3 +  2 =  1    |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
        ID1= 3 (  0040):    43.89   0.130     8.72    19.81
      + ID2= 2 (  0030):     2.62   0.044     5.27    14.57
        ============================================================
        ID = 1 (  0040):    46.50   0.136     8.27    19.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
*********************************
** SIMULATION:2Yr 6Hr AES      **
*********************************

--------------------
| ADD HYD  (  0040)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
        ID1= 1 (  0001):    31.36   0.080     5.53    17.28
      + ID2= 2 (  0002):    12.53   0.030     5.35    17.94
        ============================================================
        ID = 3 (  0040):    43.89   0.110     5.48    17.47
```

```
     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0040)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0040):    43.89   0.110     5.48    17.47
      + ID2= 2 (  0030):     2.62   0.047     2.77    11.29
        ================================================
        ID = 1 (  0040):    46.50   0.120     4.45    17.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
*********************************
** SIMULATION:50Yr 12hr AES    **
*********************************

--------------------
| ADD HYD  (  0040)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):    31.36   0.446     7.37    52.00
      + ID2= 2 (  0002):    12.53   0.145     7.52    52.69
        ================================================
        ID = 3 (  0040):    43.89   0.591     7.38    52.20

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0040)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0040):    43.89   0.591     7.38    52.20
      + ID2= 2 (  0030):     2.62   0.125     5.27    40.64
        ================================================
        ID = 1 (  0040):    46.50   0.626     6.65    51.55

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
*********************************
** SIMULATION:50Yr 6Hr AES     **
*********************************

--------------------
| ADD HYD  (  0040)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):    31.36   0.445     4.42    46.61
      + ID2= 2 (  0002):    12.53   0.143     4.50    47.44
        ================================================
        ID = 3 (  0040):    43.89   0.588     4.43    46.85

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0040)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0040):    43.89   0.588     4.43    46.85
      + ID2= 2 (  0030):     2.62   0.138     2.77    34.87
        ================================================
        ID = 1 (  0040):    46.50   0.646     3.78    46.17

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
*********************************
** SIMULATION:5Yr 12hr AES     **
*********************************

--------------------
| ADD HYD  (  0040)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):    31.36   0.219     7.92    28.80
      + ID2= 2 (  0002):    12.53   0.088     7.73    30.24
        ================================================
        ID = 3 (  0040):    43.89   0.307     7.88    29.21

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0040)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0040):    43.89   0.307     7.88    29.21
      + ID2= 2 (  0030):     2.62   0.067     5.27    22.10
        ================================================
        ID = 1 (  0040):    46.50   0.321     7.65    28.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
*********************************
** SIMULATION:5Yr 6Hr AES      **
*********************************

--------------------
| ADD HYD  (  0040)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):    31.36   0.179     4.88    25.07
      + ID2= 2 (  0002):    12.53   0.081     4.72    26.43
        ================================================
        ID = 3 (  0040):    43.89   0.259     4.87    25.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0040)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0040):    43.89   0.259     4.87    25.45
      + ID2= 2 (  0030):     2.62   0.072     2.77    17.99
        ================================================
        ID = 1 (  0040):    46.50   0.273     4.77    25.03

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
*********************************
** SIMULATION:Hazel            **
*********************************

--------------------
| ADD HYD  (  0040)|
```

```
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    31.36   4.079    10.07   175.76
     + ID2= 2 (  0002):    12.53   1.703    10.07   176.35
       ================================================
       ID = 3 (  0040):    43.89   5.782    10.07   175.93

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0040)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0040):    43.89   5.782    10.07   175.93
     + ID2= 2 (  0030):     2.62   0.288    10.03   153.66
       ================================================
       ID = 1 (  0040):    46.50   6.068    10.07   174.67

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
```

CAL-13304 Post-Dev-PF, Rooftop Only OTTHYMO Schematic



```
================================================================================
==========================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       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 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\6ad26195-
fb7c-4fc1-9d0d-3b447f4166c6\06980080-20e0-45cd-90c0-92180d87df74\sce
  Summary     filename:     C:\Users\mgallant\AppData\Local\Civica\VH5\6ad26195-
fb7c-4fc1-9d0d-3b447f4166c6\06980080-20e0-45cd-90c0-92180d87df74\sce


DATE: 02-05-2025                          TIME: 08:56:31

USER:



COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------
--------------------------
  ***********************************************
  ** SIMULATION : 27mm 4Hr CHI                 **
  ***********************************************


--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 844.120
| Ptotal= 27.00 mm |                          B=   7.850
--------------------                          C=   0.876
                       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    1.11 |  1.00    7.20 |  2.00    4.05 |  3.00    1.58
                0.08    1.19 |  1.08   12.19 |  2.08    3.59 |  3.08    1.51
                0.17    1.29 |  1.17   30.99 |  2.17    3.22 |  3.17    1.44
                0.25    1.40 |  1.25   90.18 |  2.25    2.92 |  3.25    1.37
                0.33    1.54 |  1.33   40.37 |  2.33    2.67 |  3.33    1.32
                0.42    1.71 |  1.42   21.67 |  2.42    2.46 |  3.42    1.26
                0.50    1.92 |  1.50   14.15 |  2.50    2.28 |  3.50    1.21
                0.58    2.20 |  1.58   10.27 |  2.58    2.12 |  3.58    1.17
                0.67    2.56 |  1.67    7.96 |  2.67    1.99 |  3.67    1.13
                0.75    3.06 |  1.75    6.45 |  2.75    1.87 |  3.75    1.09
                0.83    3.81 |  1.83    5.40 |  2.83    1.76 |  3.83    1.05
                0.92    5.01 |  1.92    4.63 |  2.92    1.67 |  3.92    1.02


--------------------------------------------------------------------------------
--------------------
| CALIB              |
| STANDHYD (  0200)|   Area     (ha)=  11.60
|ID= 1 DT= 1.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=   0.01
--------------------

                                  IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=         11.60          0.00
     Dep. Storage      (mm)=          2.00          5.00
     Average Slope      (%)=          1.00          1.00
     Length             (m)=        278.04         60.00
     Mannings n              =         0.013         0.170

         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    1.11 | 1.017    7.20 | 2.017    4.05 |  3.02    1.58
               0.033    1.11 | 1.033    7.20 | 2.033    4.05 |  3.03    1.58
               0.050    1.11 | 1.050    7.20 | 2.050    4.05 |  3.05    1.58
               0.067    1.11 | 1.067    7.20 | 2.067    4.05 |  3.07    1.58
               0.083    1.11 | 1.083    7.20 | 2.083    4.05 |  3.08    1.58
               0.100    1.19 | 1.100   12.19 | 2.100    3.59 |  3.10    1.51
               0.117    1.19 | 1.117   12.19 | 2.117    3.59 |  3.12    1.51
               0.133    1.19 | 1.133   12.19 | 2.133    3.59 |  3.13    1.51
               0.150    1.19 | 1.150   12.19 | 2.150    3.59 |  3.15    1.51
               0.167    1.19 | 1.167   12.19 | 2.167    3.59 |  3.17    1.51
               0.183    1.29 | 1.183   30.99 | 2.183    3.22 |  3.18    1.44
               0.200    1.29 | 1.200   30.99 | 2.200    3.22 |  3.20    1.44
               0.217    1.29 | 1.217   30.99 | 2.217    3.22 |  3.22    1.44
               0.233    1.29 | 1.233   30.99 | 2.233    3.22 |  3.23    1.44
               0.250    1.29 | 1.250   30.99 | 2.250    3.22 |  3.25    1.44
               0.267    1.40 | 1.267   90.18 | 2.267    2.92 |  3.27    1.37
               0.283    1.40 | 1.283   90.18 | 2.283    2.92 |  3.28    1.37
               0.300    1.40 | 1.300   90.18 | 2.300    2.92 |  3.30    1.37
               0.317    1.40 | 1.317   90.18 | 2.317    2.92 |  3.32    1.37
               0.333    1.40 | 1.333   90.18 | 2.333    2.92 |  3.33    1.37
               0.350    1.54 | 1.350   40.37 | 2.350    2.67 |  3.35    1.32
               0.367    1.54 | 1.367   40.37 | 2.367    2.67 |  3.37    1.32
               0.383    1.54 | 1.383   40.37 | 2.383    2.67 |  3.38    1.32
               0.400    1.54 | 1.400   40.37 | 2.400    2.67 |  3.40    1.32
               0.417    1.54 | 1.417   40.37 | 2.417    2.67 |  3.42    1.32
               0.433    1.71 | 1.433   21.67 | 2.433    2.46 |  3.43    1.26
               0.450    1.71 | 1.450   21.67 | 2.450    2.46 |  3.45    1.26
               0.467    1.71 | 1.467   21.67 | 2.467    2.46 |  3.47    1.26
               0.483    1.71 | 1.483   21.67 | 2.483    2.46 |  3.48    1.26
               0.500    1.71 | 1.500   21.67 | 2.500    2.46 |  3.50    1.26
               0.517    1.92 | 1.517   14.15 | 2.517    2.28 |  3.52    1.21
               0.533    1.92 | 1.533   14.15 | 2.533    2.28 |  3.53    1.21
               0.550    1.92 | 1.550   14.15 | 2.550    2.28 |  3.55    1.21
               0.567    1.92 | 1.567   14.15 | 2.567    2.28 |  3.57    1.21
               0.583    1.92 | 1.583   14.15 | 2.583    2.28 |  3.58    1.21
               0.600    2.20 | 1.600   10.27 | 2.600    2.12 |  3.60    1.17
               0.617    2.20 | 1.617   10.27 | 2.617    2.12 |  3.62    1.17
               0.633    2.20 | 1.633   10.27 | 2.633    2.12 |  3.63    1.17
               0.650    2.20 | 1.650   10.27 | 2.650    2.12 |  3.65    1.17
               0.667    2.20 | 1.667   10.27 | 2.667    2.12 |  3.67    1.17
```

0.683	2.56	1.683	7.96	2.683	1.99	3.68	1.13
0.700	2.56	1.700	7.96	2.700	1.99	3.70	1.13
0.717	2.56	1.717	7.96	2.717	1.99	3.72	1.13
0.733	2.56	1.733	7.96	2.733	1.99	3.73	1.13
0.750	2.56	1.750	7.96	2.750	1.99	3.75	1.13
0.767	3.06	1.767	6.45	2.767	1.87	3.77	1.09
0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09
0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05
0.933	5.01	1.933	4.63	2.933	1.67	3.93	1.02
0.950	5.01	1.950	4.63	2.950	1.67	3.95	1.02
0.967	5.01	1.967	4.63	2.967	1.67	3.97	1.02
0.983	5.01	1.983	4.63	2.983	1.67	3.98	1.02
1.000	5.01	2.000	4.63	3.000	1.67	4.00	1.02

Max.Eff.Inten.(mm/hr)=		90.18	********	
over (min)		5.00	6.00	
Storage Coeff. (min)=		4.92 (ii)	5.18 (ii)	
Unit Hyd. Tpeak (min)=		5.00	6.00	
Unit Hyd. peak (cms)=		0.23	0.21	
				TOTALS
PEAK FLOW	(cms)=	0.00	1.90	1.898 (iii)
TIME TO PEAK	(hrs)=	1.38	1.40	1.40
RUNOFF VOLUME	(mm)=	25.00	26.99	26.99
TOTAL RAINFALL	(mm)=	27.00	27.00	27.00
RUNOFF COEFFICIENT	=	0.93	1.00	1.00

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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.

RESERVOIR(0010)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 1.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2934	0.4638
	0.0464	0.0116	0.3112	0.5218
	0.0803	0.0348	0.3280	0.5798
	0.1136	0.0696	0.3440	0.6378
	0.1467	0.1160	0.3593	0.6958
	0.1796	0.1739	0.3740	0.7538
	0.2074	0.2319	0.3881	0.8117
	0.2319	0.2899	0.4149	0.9277
	0.2541	0.3479	0.4400	1.0437
	0.2744	0.4059	0.4638	1.1596

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0200)	11.596	1.898	1.40	26.99
OUTFLOW: ID= 1 (0010)	11.596	0.194	1.97	26.99

PEAK FLOW REDUCTION [Qout/Qin](%)= 10.24
TIME SHIFT OF PEAK FLOW (min)= 34.00
MAXIMUM STORAGE USED (ha.m.)= 0.2046

CALIB			
STANDHYD (0300)	Area (ha)=	5.06	
ID= 1 DT= 1.0 min	Total Imp(%)=	99.99	Dir. Conn.(%)= 0.01

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.06	0.00
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	183.61	60.00
Mannings n	=	0.013	0.170

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	1.11	1.017	7.20	2.017	4.05	3.02	1.58
0.033	1.11	1.033	7.20	2.033	4.05	3.03	1.58
0.050	1.11	1.050	7.20	2.050	4.05	3.05	1.58
0.067	1.11	1.067	7.20	2.067	4.05	3.07	1.58
0.083	1.11	1.083	7.20	2.083	4.05	3.08	1.58
0.100	1.19	1.100	12.19	2.100	3.59	3.10	1.51
0.117	1.19	1.117	12.19	2.117	3.59	3.12	1.51
0.133	1.19	1.133	12.19	2.133	3.59	3.13	1.51
0.150	1.19	1.150	12.19	2.150	3.59	3.15	1.51
0.167	1.19	1.167	12.19	2.167	3.59	3.17	1.51
0.183	1.29	1.183	30.99	2.183	3.22	3.18	1.44
0.200	1.29	1.200	30.99	2.200	3.22	3.20	1.44
0.217	1.29	1.217	30.99	2.217	3.22	3.22	1.44
0.233	1.29	1.233	30.99	2.233	3.22	3.23	1.44
0.250	1.29	1.250	30.99	2.250	3.22	3.25	1.44
0.267	1.40	1.267	90.18	2.267	2.92	3.27	1.37
0.283	1.40	1.283	90.18	2.283	2.92	3.28	1.37
0.300	1.40	1.300	90.18	2.300	2.92	3.30	1.37
0.317	1.40	1.317	90.18	2.317	2.92	3.32	1.37
0.333	1.40	1.333	90.18	2.333	2.92	3.33	1.37
0.350	1.54	1.350	40.37	2.350	2.67	3.35	1.32
0.367	1.54	1.367	40.37	2.367	2.67	3.37	1.32
0.383	1.54	1.383	40.37	2.383	2.67	3.38	1.32
0.400	1.54	1.400	40.37	2.400	2.67	3.40	1.32
0.417	1.54	1.417	40.37	2.417	2.67	3.42	1.32
0.433	1.71	1.433	21.67	2.433	2.46	3.43	1.26
0.450	1.71	1.450	21.67	2.450	2.46	3.45	1.26
0.467	1.71	1.467	21.67	2.467	2.46	3.47	1.26
0.483	1.71	1.483	21.67	2.483	2.46	3.48	1.26
0.500	1.71	1.500	21.67	2.500	2.46	3.50	1.26
0.517	1.92	1.517	14.15	2.517	2.28	3.52	1.21
0.533	1.92	1.533	14.15	2.533	2.28	3.53	1.21
0.550	1.92	1.550	14.15	2.550	2.28	3.55	1.21
0.567	1.92	1.567	14.15	2.567	2.28	3.57	1.21
0.583	1.92	1.583	14.15	2.583	2.28	3.58	1.21
0.600	2.20	1.600	10.27	2.600	2.12	3.60	1.17
0.617	2.20	1.617	10.27	2.617	2.12	3.62	1.17
0.633	2.20	1.633	10.27	2.633	2.12	3.63	1.17
0.650	2.20	1.650	10.27	2.650	2.12	3.65	1.17
0.667	2.20	1.667	10.27	2.667	2.12	3.67	1.17
0.683	2.56	1.683	7.96	2.683	1.99	3.68	1.13

0.700	2.56	1.700	7.96	2.700	1.99	3.70	1.13
0.717	2.56	1.717	7.96	2.717	1.99	3.72	1.13
0.733	2.56	1.733	7.96	2.733	1.99	3.73	1.13
0.750	2.56	1.750	7.96	2.750	1.99	3.75	1.13
0.767	3.06	1.767	6.45	2.767	1.87	3.77	1.09
0.783	3.06	1.783	6.45	2.783	1.87	3.78	1.09
0.800	3.06	1.800	6.45	2.800	1.87	3.80	1.09
0.817	3.06	1.817	6.45	2.817	1.87	3.82	1.09
0.833	3.06	1.833	6.45	2.833	1.87	3.83	1.09
0.850	3.81	1.850	5.40	2.850	1.76	3.85	1.05
0.867	3.81	1.867	5.40	2.867	1.76	3.87	1.05
0.883	3.81	1.883	5.40	2.883	1.76	3.88	1.05
0.900	3.81	1.900	5.40	2.900	1.76	3.90	1.05
0.917	3.81	1.917	5.40	2.917	1.76	3.92	1.05
0.933	5.01	1.933	4.63	2.933	1.67	3.93	1.02
0.950	5.01	1.950	4.63	2.950	1.67	3.95	1.02
0.967	5.01	1.967	4.63	2.967	1.67	3.97	1.02
0.983	5.01	1.983	4.63	2.983	1.67	3.98	1.02
1.000	5.01	2.000	4.63	3.000	1.67	4.00	1.02

			TOTALS
Max.Eff.Inten.(mm/hr)=	90.18	********	
over (min)	5.00	5.00	
Storage Coeff. (min)=	3.83 (ii)	4.10 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.27	0.26	
PEAK FLOW (cms)=	0.00	0.91	0.911 (iii)
TIME TO PEAK (hrs)=	1.37	1.38	1.38
RUNOFF VOLUME (mm)=	25.00	26.99	26.99
TOTAL RAINFALL (mm)=	27.00	27.00	27.00
RUNOFF COEFFICIENT =	0.93	1.00	1.00

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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.

RESERVOIR(0020)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 1.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1279	0.2023
	0.0202	0.0051	0.1357	0.2276
	0.0350	0.0152	0.1430	0.2528
	0.0495	0.0303	0.1500	0.2781
	0.0640	0.0506	0.1567	0.3034
	0.0783	0.0759	0.1631	0.3287
	0.0905	0.1011	0.1692	0.3540
	0.1011	0.1264	0.1809	0.4045
	0.1108	0.1517	0.1919	0.4551
	0.1197	0.1770	0.2023	0.5057

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0300)	5.057	0.911	1.38	26.99
OUTFLOW: ID= 1 (0020)	5.057	0.085	1.93	26.98

PEAK FLOW REDUCTION [Qout/Qin](%)= 9.32

TIME SHIFT OF PEAK FLOW (min)= 33.00
MAXIMUM STORAGE USED (ha.m.)= 0.0894

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================================================================================
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       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\6ad26195-
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  Summary     filename:     C:\Users\mgallant\AppData\Local\Civica\VH5\6ad26195-
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DATE: 02-05-2025                              TIME: 08:56:30

USER:



COMMENTS: _____________________________________________________________


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  ***********************************************
  ** SIMULATION : 100Yr 6Hr AES                **
  ***********************************************


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|    READ STORM    |    Filename: C:\Users\mgallant\AppD
|                  |              ata\Local\Temp\
|                  |              13b61ee8-e2ad-464b-96ca-a0d658f829c3\d473e31d
| Ptotal= 80.31 mm |    Comments: 100Yr 6Hr AES
--------------------
                TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
                 hrs   mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
                0.00    0.00 |  1.75    27.30 |  3.50    11.24 |  5.25    1.61
                0.25    1.61 |  2.00    27.30 |  3.75     6.42 |  5.50    1.61
                0.50    1.61 |  2.25    73.88 |  4.00     6.42 |  5.75    1.61
                0.75    1.61 |  2.50    73.88 |  4.25     3.21 |  6.00    1.61
                1.00    1.61 |  2.75    20.88 |  4.50     3.21 |
                1.25    9.64 |  3.00    20.88 |  4.75     1.61 |
                1.50    9.64 |  3.25    11.24 |  5.00     1.61 |

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| CALIB            |
| STANDHYD (  0200)|   Area     (ha)=  11.60
|ID= 1 DT= 1.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=   0.01
--------------------

                                 IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        11.60          0.00
     Dep. Storage     (mm)=         2.00          5.00
     Average Slope     (%)=         1.00          1.00
     Length            (m)=       278.04         60.00
     Mannings n             =       0.013         0.170

         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 | 1.583    9.64 | 3.150   20.88 | 4.72    3.21
             0.033    0.00 | 1.600    9.64 | 3.167   20.88 | 4.73    3.21
             0.050    0.00 | 1.617    9.64 | 3.183   20.88 | 4.75    3.21
             0.067    0.00 | 1.633    9.64 | 3.200   20.88 | 4.77    1.61
             0.083    0.00 | 1.650    9.64 | 3.217   20.88 | 4.78    1.61
             0.100    0.00 | 1.667    9.64 | 3.233   20.88 | 4.80    1.61
             0.117    0.00 | 1.683    9.64 | 3.250   20.88 | 4.82    1.61
             0.133    0.00 | 1.700    9.64 | 3.267   11.24 | 4.83    1.61
             0.150    0.00 | 1.717    9.64 | 3.283   11.24 | 4.85    1.61
             0.167    0.00 | 1.733    9.64 | 3.300   11.24 | 4.87    1.61
             0.183    0.00 | 1.750    9.64 | 3.317   11.24 | 4.88    1.61
             0.200    0.00 | 1.767   27.30 | 3.333   11.24 | 4.90    1.61
             0.217    0.00 | 1.783   27.30 | 3.350   11.24 | 4.92    1.61
             0.233    0.00 | 1.800   27.30 | 3.367   11.24 | 4.93    1.61
             0.250    0.00 | 1.817   27.30 | 3.383   11.24 | 4.95    1.61
             0.267    1.61 | 1.833   27.30 | 3.400   11.24 | 4.97    1.61
             0.283    1.61 | 1.850   27.30 | 3.417   11.24 | 4.98    1.61
             0.300    1.61 | 1.867   27.30 | 3.433   11.24 | 5.00    1.61
             0.317    1.61 | 1.883   27.30 | 3.450   11.24 | 5.02    1.61
             0.333    1.61 | 1.900   27.30 | 3.467   11.24 | 5.03    1.61
             0.350    1.61 | 1.917   27.30 | 3.483   11.24 | 5.05    1.61
             0.367    1.61 | 1.933   27.30 | 3.500   11.24 | 5.07    1.61
             0.383    1.61 | 1.950   27.30 | 3.517   11.24 | 5.08    1.61
             0.400    1.61 | 1.967   27.30 | 3.533   11.24 | 5.10    1.61
             0.417    1.61 | 1.983   27.30 | 3.550   11.24 | 5.12    1.61
             0.433    1.61 | 2.000   27.30 | 3.567   11.24 | 5.13    1.61
             0.450    1.61 | 2.017   27.30 | 3.583   11.24 | 5.15    1.61
             0.467    1.61 | 2.033   27.30 | 3.600   11.24 | 5.17    1.61
             0.483    1.61 | 2.050   27.30 | 3.617   11.24 | 5.18    1.61
             0.500    1.61 | 2.067   27.30 | 3.633   11.24 | 5.20    1.61
             0.517    1.61 | 2.083   27.30 | 3.650   11.24 | 5.22    1.61
             0.533    1.61 | 2.100   27.30 | 3.667   11.24 | 5.23    1.61
             0.550    1.61 | 2.117   27.30 | 3.683   11.24 | 5.25    1.61
             0.567    1.61 | 2.133   27.30 | 3.700   11.24 | 5.27    1.61
             0.583    1.61 | 2.150   27.30 | 3.717   11.24 | 5.28    1.61
             0.600    1.61 | 2.167   27.30 | 3.733   11.24 | 5.30    1.61
             0.617    1.61 | 2.183   27.30 | 3.750   11.24 | 5.32    1.61
             0.633    1.61 | 2.200   27.30 | 3.767    6.42 | 5.33    1.61
             0.650    1.61 | 2.217   27.30 | 3.783    6.42 | 5.35    1.61
             0.667    1.61 | 2.233   27.30 | 3.800    6.42 | 5.37    1.61
             0.683    1.61 | 2.250   27.30 | 3.817    6.42 | 5.38    1.61
             0.700    1.61 | 2.267   73.88 | 3.833    6.42 | 5.40    1.61
             0.717    1.61 | 2.283   73.88 | 3.850    6.42 | 5.42    1.61
             0.733    1.61 | 2.300   73.88 | 3.867    6.42 | 5.43    1.61
             0.750    1.61 | 2.317   73.88 | 3.883    6.42 | 5.45    1.61
             0.767    1.61 | 2.333   73.88 | 3.900    6.42 | 5.47    1.61
             0.783    1.61 | 2.350   73.88 | 3.917    6.42 | 5.48    1.61
             0.800    1.61 | 2.367   73.88 | 3.933    6.42 | 5.50    1.61
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0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

Max.Eff.Inten.(mm/hr)=	73.88	********		
over (min)	5.00	6.00		
Storage Coeff. (min)=	5.33 (ii)	5.58 (ii)		
Unit Hyd. Tpeak (min)=	5.00	6.00		
Unit Hyd. peak (cms)=	0.22	0.20		
			TOTALS	
PEAK FLOW (cms)=	0.00	2.37	2.373 (iii)	
TIME TO PEAK (hrs)=	2.75	2.75	2.75	
RUNOFF VOLUME (mm)=	78.31	80.30	80.30	
TOTAL RAINFALL (mm)=	80.31	80.31	80.31	
RUNOFF COEFFICIENT =	0.98	1.00	1.00	

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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.

| RESERVOIR(0010)| OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT= 1.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.2934	0.4638
0.0464	0.0116	0.3112	0.5218
0.0803	0.0348	0.3280	0.5798
0.1136	0.0696	0.3440	0.6378
0.1467	0.1160	0.3593	0.6958
0.1796	0.1739	0.3740	0.7538
0.2074	0.2319	0.3881	0.8117
0.2319	0.2899	0.4149	0.9277
0.2541	0.3479	0.4400	1.0437
0.2744	0.4059	0.4638	1.1596

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0200)	11.596	2.373	2.75	80.30
OUTFLOW: ID= 1 (0010)	11.596	0.342	3.80	80.29

PEAK FLOW REDUCTION [Qout/Qin](%)= 14.40
TIME SHIFT OF PEAK FLOW (min)= 63.00
MAXIMUM STORAGE USED (ha.m.)= 0.6294

CALIB
STANDHYD (0300)| Area (ha)= 5.06
ID= 1 DT= 1.0 min	Total Imp(%)= 99.99 Dir. Conn.(%)= 0.01

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.06	0.00
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	183.61	60.00
Mannings n	=	0.013	0.170

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	1.583	9.64	3.150	20.88	4.72	3.21
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.050	0.00	1.617	9.64	3.183	20.88	4.75	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	1.61
0.083	0.00	1.650	9.64	3.217	20.88	4.78	1.61
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.117	0.00	1.683	9.64	3.250	20.88	4.82	1.61
0.133	0.00	1.700	9.64	3.267	11.24	4.83	1.61
0.150	0.00	1.717	9.64	3.283	11.24	4.85	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.183	0.00	1.750	9.64	3.317	11.24	4.88	1.61
0.200	0.00	1.767	27.30	3.333	11.24	4.90	1.61
0.217	0.00	1.783	27.30	3.350	11.24	4.92	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.250	0.00	1.817	27.30	3.383	11.24	4.95	1.61

0.267	1.61	1.833	27.30	3.400	11.24	4.97	1.61
0.283	1.61	1.850	27.30	3.417	11.24	4.98	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.317	1.61	1.883	27.30	3.450	11.24	5.02	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.350	1.61	1.917	27.30	3.483	11.24	5.05	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.383	1.61	1.950	27.30	3.517	11.24	5.08	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.417	1.61	1.983	27.30	3.550	11.24	5.12	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.450	1.61	2.017	27.30	3.583	11.24	5.15	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.483	1.61	2.050	27.30	3.617	11.24	5.18	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.517	1.61	2.083	27.30	3.650	11.24	5.22	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.550	1.61	2.117	27.30	3.683	11.24	5.25	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.583	1.61	2.150	27.30	3.717	11.24	5.28	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.617	1.61	2.183	27.30	3.750	11.24	5.32	1.61
0.633	1.61	2.200	27.30	3.767	6.42	5.33	1.61
0.650	1.61	2.217	27.30	3.783	6.42	5.35	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.683	1.61	2.250	27.30	3.817	6.42	5.38	1.61
0.700	1.61	2.267	73.88	3.833	6.42	5.40	1.61
0.717	1.61	2.283	73.88	3.850	6.42	5.42	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.750	1.61	2.317	73.88	3.883	6.42	5.45	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.783	1.61	2.350	73.88	3.917	6.42	5.48	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.817	1.61	2.383	73.88	3.950	6.42	5.52	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.850	1.61	2.417	73.88	3.983	6.42	5.55	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.883	1.61	2.450	73.88	4.017	6.42	5.58	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.917	1.61	2.483	73.88	4.050	6.42	5.62	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.950	1.61	2.517	73.88	4.083	6.42	5.65	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
0.983	1.61	2.550	73.88	4.117	6.42	5.68	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.017	1.61	2.583	73.88	4.150	6.42	5.72	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.050	1.61	2.617	73.88	4.183	6.42	5.75	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.083	1.61	2.650	73.88	4.217	6.42	5.78	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.117	1.61	2.683	73.88	4.250	6.42	5.82	1.61
1.133	1.61	2.700	73.88	4.267	3.21	5.83	1.61
1.150	1.61	2.717	73.88	4.283	3.21	5.85	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.183	1.61	2.750	73.88	4.317	3.21	5.88	1.61
1.200	1.61	2.767	20.89	4.333	3.21	5.90	1.61
1.217	1.61	2.783	20.88	4.350	3.21	5.92	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.250	1.61	2.817	20.88	4.383	3.21	5.95	1.61
1.267	9.64	2.833	20.88	4.400	3.21	5.97	1.61
1.283	9.64	2.850	20.88	4.417	3.21	5.98	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.317	9.64	2.883	20.88	4.450	3.21	6.02	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.350	9.64	2.917	20.88	4.483	3.21	6.05	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.383	9.64	2.950	20.88	4.517	3.21	6.08	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.417	9.64	2.983	20.88	4.550	3.21	6.12	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.450	9.64	3.017	20.88	4.583	3.21	6.15	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.483	9.64	3.050	20.88	4.617	3.21	6.18	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.517	9.64	3.083	20.88	4.650	3.21	6.22	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.550	9.64	3.117	20.88	4.683	3.21	6.25	1.61
1.567	9.64	3.133	20.88	4.700	3.21		

Max.Eff.Inten.(mm/hr)=	73.88	********	
over (min)	5.00	5.00	
Storage Coeff. (min)=	4.15 (ii)	4.40 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.26	0.25	
			TOTALS
PEAK FLOW (cms)=	0.00	1.04	1.038 (iii)
TIME TO PEAK (hrs)=	2.67	2.70	2.75
RUNOFF VOLUME (mm)=	78.31	80.30	80.30
TOTAL RAINFALL (mm)=	80.31	80.31	80.31
RUNOFF COEFFICIENT =	0.98	1.00	1.00

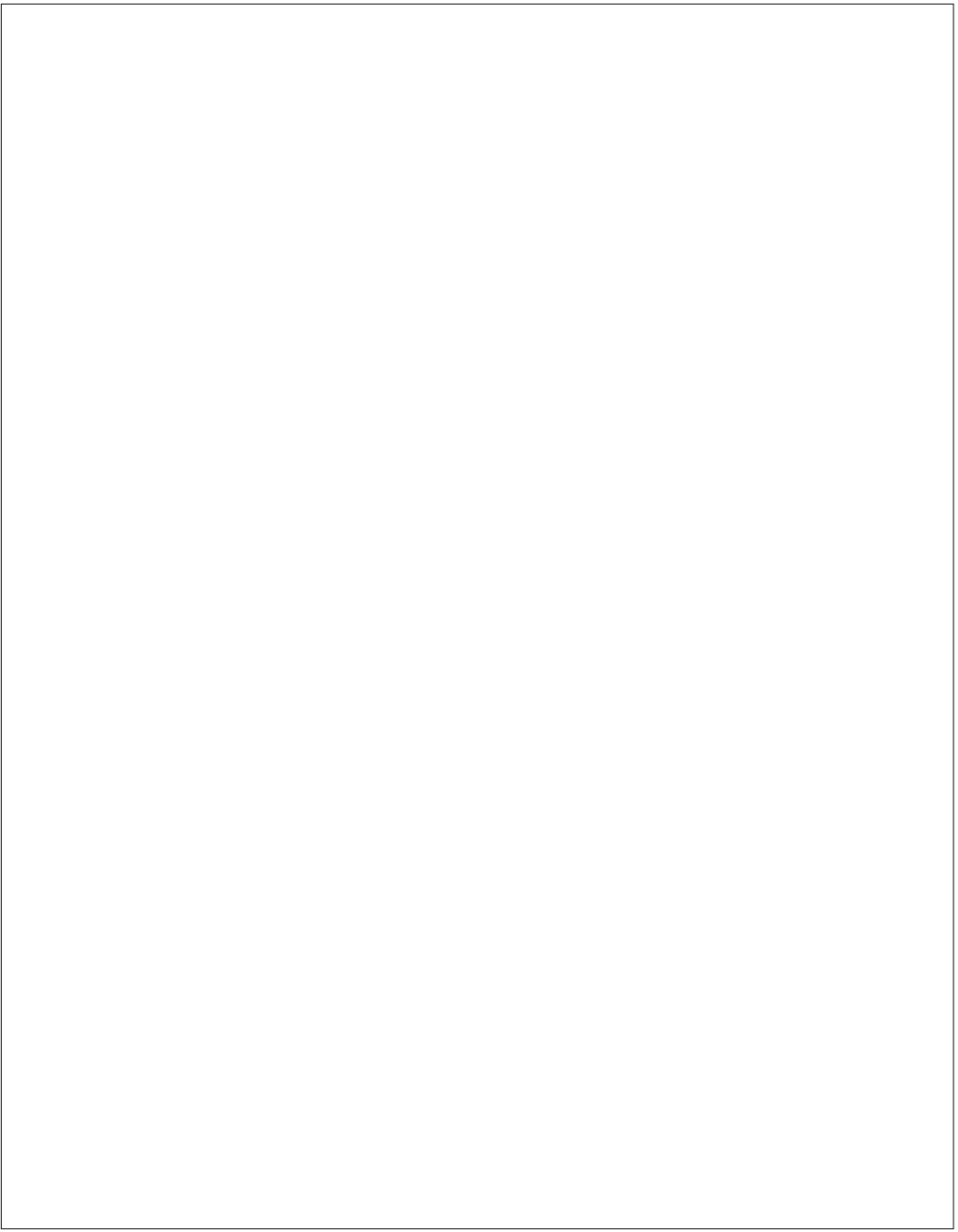
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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.

RESERVOIR(0020)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 1.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1279	0.2023
	0.0202	0.0051	0.1357	0.2276
	0.0350	0.0152	0.1430	0.2528
	0.0495	0.0303	0.1500	0.2781
	0.0640	0.0506	0.1567	0.3034
	0.0783	0.0759	0.1631	0.3287
	0.0905	0.1011	0.1692	0.3540
	0.1011	0.1264	0.1809	0.4045
	0.1108	0.1517	0.1919	0.4551
	0.1197	0.1770	0.2023	0.5057

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0300)	5.057	1.038	2.75	80.30
OUTFLOW: ID= 1 (0020)	5.057	0.149	3.80	80.29

PEAK FLOW REDUCTION [Qout/Qin](%)= 14.36
TIME SHIFT OF PEAK FLOW (min)= 63.00
MAXIMUM STORAGE USED (ha.m.)= 0.2746



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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       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: 02-05-2025                          TIME: 08:56:30

USER:



COMMENTS: _____________________________________________________


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  ***********************************************
  ** SIMULATION : 100Yr 12hr AES                **
  ***********************************************


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| Ptotal= 88.54 mm |    Comments: 100Yr 12hr AES
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TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	3.25	15.05	6.50	6.20	9.75	0.89
0.25	0.89	3.50	15.05	6.75	6.20	10.00	0.89
0.50	0.89	3.75	15.05	7.00	6.20	10.25	0.89
0.75	0.89	4.00	15.05	7.25	3.54	10.50	0.89
1.00	0.89	4.25	40.71	7.50	3.54	10.75	0.89
1.25	0.89	4.50	40.71	7.75	3.54	11.00	0.89
1.50	0.89	4.75	40.71	8.00	3.54	11.25	0.89
1.75	0.89	5.00	40.71	8.25	1.77	11.50	0.89
2.00	0.89	5.25	11.51	8.50	1.77	11.75	0.89
2.25	5.31	5.50	11.51	8.75	1.77	12.00	0.89
2.50	5.31	5.75	11.51	9.00	1.77		
2.75	5.31	6.00	11.51	9.25	0.89		
3.00	5.31	6.25	6.20	9.50	0.89		

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| CALIB            |
| STANDHYD (  0200)|   Area    (ha)=  11.60
|ID= 1 DT= 1.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=   0.01
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.60          0.00
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     278.04         60.00
     Mannings n             =     0.013         0.170

         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	3.083	5.31	6.150	11.51	9.22	1.77
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.050	0.00	3.117	5.31	6.183	11.51	9.25	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	0.89
0.083	0.00	3.150	5.31	6.217	11.51	9.28	0.89
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.117	0.00	3.183	5.31	6.250	11.50	9.32	0.89
0.133	0.00	3.200	5.31	6.267	6.20	9.33	0.89
0.150	0.00	3.217	5.31	6.283	6.20	9.35	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.183	0.00	3.250	5.31	6.317	6.20	9.38	0.89
0.200	0.00	3.267	15.05	6.333	6.20	9.40	0.89
0.217	0.00	3.283	15.05	6.350	6.20	9.42	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.250	0.00	3.317	15.05	6.383	6.20	9.45	0.89
0.267	0.89	3.333	15.05	6.400	6.20	9.47	0.89
0.283	0.89	3.350	15.05	6.417	6.20	9.48	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.317	0.89	3.383	15.05	6.450	6.20	9.52	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.350	0.89	3.417	15.05	6.483	6.20	9.55	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.383	0.89	3.450	15.05	6.517	6.20	9.58	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89

0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89

2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.950	5.31	6.017	11.51	9.083	1.77	12.15	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
2.983	5.31	6.050	11.51	9.117	1.77	12.18	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.017	5.31	6.083	11.51	9.150	1.77	12.22	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.050	5.31	6.117	11.51	9.183	1.77	12.25	0.89
3.067	5.31	6.133	11.51	9.200	1.77		

Max.Eff.Inten.(mm/hr)=	40.71	********		
over (min)	7.00	8.00		
Storage Coeff. (min)=	6.76 (ii)	7.08 (ii)		
Unit Hyd. Tpeak (min)=	7.00	8.00		
Unit Hyd. peak (cms)=	0.17	0.15		
				TOTALS
PEAK FLOW (cms)=	0.00	1.31		1.311 (iii)
TIME TO PEAK (hrs)=	5.10	5.12		5.12
RUNOFF VOLUME (mm)=	86.54	88.53		88.53
TOTAL RAINFALL (mm)=	88.54	88.54		88.54
RUNOFF COEFFICIENT =	0.98	1.00		1.00

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 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.

RESERVOIR(0010)|	OVERFLOW IS OFF			
IN= 2---> OUT= 1 |				
DT= 1.0 min |	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2934	0.4638
	0.0464	0.0116	0.3112	0.5218
	0.0803	0.0348	0.3280	0.5798
	0.1136	0.0696	0.3440	0.6378
	0.1467	0.1160	0.3593	0.6958
	0.1796	0.1739	0.3740	0.7538
	0.2074	0.2319	0.3881	0.8117
	0.2319	0.2899	0.4149	0.9277
	0.2541	0.3479	0.4400	1.0437
	0.2744	0.4059	0.4638	1.1596

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0200)	11.596	1.311	5.12	88.53
OUTFLOW: ID= 1 (0010)	11.596	0.323	6.35	88.52

PEAK FLOW REDUCTION [Qout/Qin](%)= 24.66
TIME SHIFT OF PEAK FLOW (min)= 74.00
MAXIMUM STORAGE USED (ha.m.)= 0.5638

CALIB |		
STANDHYD (0300)|	Area (ha)= 5.06	
ID= 1 DT= 1.0 min |	Total Imp(%)= 99.99	Dir. Conn.(%)= 0.01

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.06	0.00
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	183.61	60.00
Mannings n	=	0.013	0.170

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	3.083	5.31	6.150	11.51	9.22	1.77
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.050	0.00	3.117	5.31	6.183	11.51	9.25	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	0.89
0.083	0.00	3.150	5.31	6.217	11.51	9.28	0.89
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.117	0.00	3.183	5.31	6.250	11.50	9.32	0.89
0.133	0.00	3.200	5.31	6.267	6.20	9.33	0.89
0.150	0.00	3.217	5.31	6.283	6.20	9.35	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.183	0.00	3.250	5.31	6.317	6.20	9.38	0.89
0.200	0.00	3.267	15.05	6.333	6.20	9.40	0.89
0.217	0.00	3.283	15.05	6.350	6.20	9.42	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.250	0.00	3.317	15.05	6.383	6.20	9.45	0.89
0.267	0.89	3.333	15.05	6.400	6.20	9.47	0.89
0.283	0.89	3.350	15.05	6.417	6.20	9.48	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.317	0.89	3.383	15.05	6.450	6.20	9.52	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.350	0.89	3.417	15.05	6.483	6.20	9.55	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.383	0.89	3.450	15.05	6.517	6.20	9.58	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.417	0.89	3.483	15.05	6.550	6.20	9.62	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.450	0.89	3.517	15.05	6.583	6.20	9.65	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.483	0.89	3.550	15.05	6.617	6.20	9.68	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.517	0.89	3.583	15.05	6.650	6.20	9.72	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.550	0.89	3.617	15.05	6.683	6.20	9.75	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.583	0.89	3.650	15.05	6.717	6.20	9.78	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.617	0.89	3.683	15.05	6.750	6.20	9.82	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.650	0.89	3.717	15.05	6.783	6.20	9.85	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.683	0.89	3.750	15.05	6.817	6.20	9.88	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.717	0.89	3.783	15.05	6.850	6.20	9.92	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.750	0.89	3.817	15.05	6.883	6.20	9.95	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.783	0.89	3.850	15.05	6.917	6.20	9.98	0.89

0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.817	0.89	3.883	15.05	6.950	6.20	10.02	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.850	0.89	3.917	15.05	6.983	6.20	10.05	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.883	0.89	3.950	15.05	7.017	6.20	10.08	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.917	0.89	3.983	15.05	7.050	6.20	10.12	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.950	0.89	4.017	15.05	7.083	6.20	10.15	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
0.983	0.89	4.050	15.05	7.117	6.20	10.18	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.017	0.89	4.083	15.05	7.150	6.20	10.22	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.050	0.89	4.117	15.05	7.183	6.20	10.25	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.083	0.89	4.150	15.05	7.217	6.20	10.28	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.117	0.89	4.183	15.05	7.250	6.19	10.32	0.89
1.133	0.89	4.200	15.05	7.267	3.54	10.33	0.89
1.150	0.89	4.217	15.05	7.283	3.54	10.35	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.183	0.89	4.250	15.05	7.317	3.54	10.38	0.89
1.200	0.89	4.267	40.71	7.333	3.54	10.40	0.89
1.217	0.89	4.283	40.71	7.350	3.54	10.42	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.250	0.89	4.317	40.71	7.383	3.54	10.45	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.283	0.89	4.350	40.71	7.417	3.54	10.48	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.317	0.89	4.383	40.71	7.450	3.54	10.52	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.350	0.89	4.417	40.71	7.483	3.54	10.55	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.383	0.89	4.450	40.71	7.517	3.54	10.58	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.417	0.89	4.483	40.71	7.550	3.54	10.62	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.450	0.89	4.517	40.71	7.583	3.54	10.65	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.483	0.89	4.550	40.71	7.617	3.54	10.68	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.517	0.89	4.583	40.71	7.650	3.54	10.72	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.550	0.89	4.617	40.71	7.683	3.54	10.75	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.583	0.89	4.650	40.71	7.717	3.54	10.78	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.617	0.89	4.683	40.71	7.750	3.54	10.82	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.650	0.89	4.717	40.71	7.783	3.54	10.85	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.683	0.89	4.750	40.71	7.817	3.54	10.88	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.717	0.89	4.783	40.71	7.850	3.54	10.92	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.750	0.89	4.817	40.71	7.883	3.54	10.95	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.783	0.89	4.850	40.71	7.917	3.54	10.98	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.817	0.89	4.883	40.71	7.950	3.54	11.02	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.850	0.89	4.917	40.71	7.983	3.54	11.05	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.883	0.89	4.950	40.71	8.017	3.54	11.08	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.917	0.89	4.983	40.71	8.050	3.54	11.12	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.950	0.89	5.017	40.71	8.083	3.54	11.15	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
1.983	0.89	5.050	40.71	8.117	3.54	11.18	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.017	0.89	5.083	40.71	8.150	3.54	11.22	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.050	0.89	5.117	40.71	8.183	3.54	11.25	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.083	0.89	5.150	40.71	8.217	3.54	11.28	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.117	0.89	5.183	40.71	8.250	3.54	11.32	0.89
2.133	0.89	5.200	40.71	8.267	1.77	11.33	0.89
2.150	0.89	5.217	40.71	8.283	1.77	11.35	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.183	0.89	5.250	40.69	8.317	1.77	11.38	0.89
2.200	0.89	5.267	11.51	8.333	1.77	11.40	0.89
2.217	0.89	5.283	11.51	8.350	1.77	11.42	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.250	0.89	5.317	11.51	8.383	1.77	11.45	0.89
2.267	5.31	5.333	11.51	8.400	1.77	11.47	0.89
2.283	5.31	5.350	11.51	8.417	1.77	11.48	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.317	5.31	5.383	11.51	8.450	1.77	11.52	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.350	5.31	5.417	11.51	8.483	1.77	11.55	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.383	5.31	5.450	11.51	8.517	1.77	11.58	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.417	5.31	5.483	11.51	8.550	1.77	11.62	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.450	5.31	5.517	11.51	8.583	1.77	11.65	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.483	5.31	5.550	11.51	8.617	1.77	11.68	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.517	5.31	5.583	11.51	8.650	1.77	11.72	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.550	5.31	5.617	11.51	8.683	1.77	11.75	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.583	5.31	5.650	11.51	8.717	1.77	11.78	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.617	5.31	5.683	11.51	8.750	1.77	11.82	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.650	5.31	5.717	11.51	8.783	1.77	11.85	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.683	5.31	5.750	11.51	8.817	1.77	11.88	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.717	5.31	5.783	11.51	8.850	1.77	11.92	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.750	5.31	5.817	11.51	8.883	1.77	11.95	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.783	5.31	5.850	11.51	8.917	1.77	11.98	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.817	5.31	5.883	11.51	8.950	1.77	12.02	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.850	5.31	5.917	11.51	8.983	1.77	12.05	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.883	5.31	5.950	11.51	9.017	1.77	12.08	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.917	5.31	5.983	11.51	9.050	1.77	12.12	0.89

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               2.933    5.31 | 6.000   11.51 | 9.067    1.77 | 12.13    0.89
               2.950    5.31 | 6.017   11.51 | 9.083    1.77 | 12.15    0.89
               2.967    5.31 | 6.033   11.51 | 9.100    1.77 | 12.17    0.89
               2.983    5.31 | 6.050   11.51 | 9.117    1.77 | 12.18    0.89
               3.000    5.31 | 6.067   11.51 | 9.133    1.77 | 12.20    0.89
               3.017    5.31 | 6.083   11.51 | 9.150    1.77 | 12.22    0.89
               3.033    5.31 | 6.100   11.51 | 9.167    1.77 | 12.23    0.89
               3.050    5.31 | 6.117   11.51 | 9.183    1.77 | 12.25    0.89
               3.067    5.31 | 6.133   11.51 | 9.200    1.77 |

     Max.Eff.Inten.(mm/hr)=      40.71     ********
               over (min)         5.00         6.00
     Storage Coeff.  (min)=       5.27 (ii)    5.59 (ii)
     Unit Hyd. Tpeak (min)=       5.00         6.00
     Unit Hyd. peak  (cms)=       0.22         0.20
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.57          0.572 (iii)
     TIME TO PEAK    (hrs)=       4.82         4.83           4.83
     RUNOFF VOLUME    (mm)=      86.54        88.53          88.53
     TOTAL RAINFALL   (mm)=      88.54        88.54          88.54
     RUNOFF COEFFICIENT   =       0.98         1.00           1.00

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  74.0    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.

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--------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.1279      0.2023
                         0.0202     0.0051   |   0.1357      0.2276
                         0.0350     0.0152   |   0.1430      0.2528
                         0.0495     0.0303   |   0.1500      0.2781
                         0.0640     0.0506   |   0.1567      0.3034
                         0.0783     0.0759   |   0.1631      0.3287
                         0.0905     0.1011   |   0.1692      0.3540
                         0.1011     0.1264   |   0.1809      0.4045
                         0.1108     0.1517   |   0.1919      0.4551
                         0.1197     0.1770   |   0.2023      0.5057

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0300)       5.057      0.572      4.83       88.53
   OUTFLOW: ID= 1 (  0020)       5.057      0.141      6.33       88.52

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 24.67
                  TIME SHIFT OF PEAK FLOW          (min)= 90.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.2461

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*********************************
** SIMULATION:100Yr 12hr AES   **
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--------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.2934      0.4638
                          0.0464     0.0116    |   0.3112      0.5218
                          0.0803     0.0348    |   0.3280      0.5798
                          0.1136     0.0696    |   0.3440      0.6378
                          0.1467     0.1160    |   0.3593      0.6958
                          0.1796     0.1739    |   0.3740      0.7538
                          0.2074     0.2319    |   0.3881      0.8117
                          0.2319     0.2899    |   0.4149      0.9277
                          0.2541     0.3479    |   0.4400      1.0437
                          0.2744     0.4059    |   0.4638      1.1596

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0200)     11.596      1.311      5.12      88.53
   OUTFLOW: ID= 1 (  0010)     11.596      0.323      6.35      88.52

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 24.66
                  TIME SHIFT OF PEAK FLOW         (min)= 74.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5638

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*********************************
** SIMULATION:100Yr 6Hr AES    **
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--------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.2934      0.4638
                          0.0464     0.0116    |   0.3112      0.5218
                          0.0803     0.0348    |   0.3280      0.5798
                          0.1136     0.0696    |   0.3440      0.6378
                          0.1467     0.1160    |   0.3593      0.6958
                          0.1796     0.1739    |   0.3740      0.7538
                          0.2074     0.2319    |   0.3881      0.8117
                          0.2319     0.2899    |   0.4149      0.9277
                          0.2541     0.3479    |   0.4400      1.0437
                          0.2744     0.4059    |   0.4638      1.1596

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0200)     11.596      2.373      2.75      80.30
   OUTFLOW: ID= 1 (  0010)     11.596      0.342      3.80      80.29

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 14.40
                  TIME SHIFT OF PEAK FLOW         (min)= 63.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.6294

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*********************************
** SIMULATION:25Yr 12hr AES    **
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--------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.2934      0.4638
                          0.0464     0.0116    |   0.3112      0.5218
                          0.0803     0.0348    |   0.3280      0.5798
                          0.1136     0.0696    |   0.3440      0.6378
                          0.1467     0.1160    |   0.3593      0.6958
                          0.1796     0.1739    |   0.3740      0.7538
                          0.2074     0.2319    |   0.3881      0.8117
                          0.2319     0.2899    |   0.4149      0.9277
                          0.2541     0.3479    |   0.4400      1.0437
                          0.2744     0.4059    |   0.4638      1.1596

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0200)     11.596      1.083      5.23      73.09
   OUTFLOW: ID= 1 (  0010)     11.596      0.288      6.32      73.08

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 26.58
                  TIME SHIFT OF PEAK FLOW         (min)= 65.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.4471

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*********************************
** SIMULATION:25Yr 6Hr AES     **
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--------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.2934      0.4638
                          0.0464     0.0116    |   0.3112      0.5218
                          0.0803     0.0348    |   0.3280      0.5798
                          0.1136     0.0696    |   0.3440      0.6378
                          0.1467     0.1160    |   0.3593      0.6958
                          0.1796     0.1739    |   0.3740      0.7538
                          0.2074     0.2319    |   0.3881      0.8117
                          0.2319     0.2899    |   0.4149      0.9277
                          0.2541     0.3479    |   0.4400      1.0437
                          0.2744     0.4059    |   0.4638      1.1596

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0200)     11.596      1.933      2.75      65.58
   OUTFLOW: ID= 1 (  0010)     11.596      0.304      3.65      65.58

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 15.74
                  TIME SHIFT OF PEAK FLOW         (min)= 54.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.4991

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*********************************
** SIMULATION:27mm 4Hr CHI     **
*********************************
--------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.2934      0.4638
                          0.0464     0.0116    |   0.3112      0.5218
                          0.0803     0.0348    |   0.3280      0.5798
                          0.1136     0.0696    |   0.3440      0.6378
```

	0.1467	0.1160	0.3593	0.6958
	0.1796	0.1739	0.3740	0.7538
	0.2074	0.2319	0.3881	0.8117
	0.2319	0.2899	0.4149	0.9277
	0.2541	0.3479	0.4400	1.0437
	0.2744	0.4059	0.4638	1.1596

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0200)	11.596	1.898	1.40	26.99
OUTFLOW: ID= 1 (0010)	11.596	0.194	1.97	26.99

PEAK FLOW REDUCTION [Qout/Qin](%)= 10.24
TIME SHIFT OF PEAK FLOW (min)= 34.00
MAXIMUM STORAGE USED (ha.m.)= 0.2046

****
** SIMULATION:2Yr 12hr AES **
****

RESERVOIR(0010)| IN= 2---> OUT= 1 | DT= 1.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
OVERFLOW IS OFF	0.0000	0.0000	0.2934	0.4638
	0.0464	0.0116	0.3112	0.5218
	0.0803	0.0348	0.3280	0.5798
	0.1136	0.0696	0.3440	0.6378
	0.1467	0.1160	0.3593	0.6958
	0.1796	0.1739	0.3740	0.7538
	0.2074	0.2319	0.3881	0.8117
	0.2319	0.2899	0.4149	0.9277
	0.2541	0.3479	0.4400	1.0437
	0.2744	0.4059	0.4638	1.1596

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0200)	11.596	0.622	5.23	41.99
OUTFLOW: ID= 1 (0010)	11.596	0.206	5.75	41.98

PEAK FLOW REDUCTION [Qout/Qin](%)= 33.05
TIME SHIFT OF PEAK FLOW (min)= 31.00
MAXIMUM STORAGE USED (ha.m.)= 0.2283

****
** SIMULATION:2Yr 6Hr AES **
****

RESERVOIR(0010)| IN= 2---> OUT= 1 | DT= 1.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
OVERFLOW IS OFF	0.0000	0.0000	0.2934	0.4638
	0.0464	0.0116	0.3112	0.5218
	0.0803	0.0348	0.3280	0.5798
	0.1136	0.0696	0.3440	0.6378
	0.1467	0.1160	0.3593	0.6958
	0.1796	0.1739	0.3740	0.7538
	0.2074	0.2319	0.3881	0.8117
	0.2319	0.2899	0.4149	0.9277
	0.2541	0.3479	0.4400	1.0437
	0.2744	0.4059	0.4638	1.1596

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0200)	11.596	1.050	2.75	35.99
OUTFLOW: ID= 1 (0010)	11.596	0.215	3.45	35.99

PEAK FLOW REDUCTION [Qout/Qin](%)= 20.48
TIME SHIFT OF PEAK FLOW (min)= 42.00
MAXIMUM STORAGE USED (ha.m.)= 0.2503

****
** SIMULATION:50Yr 12hr AES **
****

RESERVOIR(0010)| IN= 2---> OUT= 1 | DT= 1.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
OVERFLOW IS OFF	0.0000	0.0000	0.2934	0.4638
	0.0464	0.0116	0.3112	0.5218
	0.0803	0.0348	0.3280	0.5798
	0.1136	0.0696	0.3440	0.6378
	0.1467	0.1160	0.3593	0.6958
	0.1796	0.1739	0.3740	0.7538
	0.2074	0.2319	0.3881	0.8117
	0.2319	0.2899	0.4149	0.9277
	0.2541	0.3479	0.4400	1.0437
	0.2744	0.4059	0.4638	1.1596

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0200)	11.596	1.197	5.00	80.81
OUTFLOW: ID= 1 (0010)	11.596	0.306	6.35	80.80

PEAK FLOW REDUCTION [Qout/Qin](%)= 25.56
TIME SHIFT OF PEAK FLOW (min)= 81.00
MAXIMUM STORAGE USED (ha.m.)= 0.5050

****
** SIMULATION:50Yr 6Hr AES **
****

RESERVOIR(0010)| IN= 2---> OUT= 1 | DT= 1.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
OVERFLOW IS OFF	0.0000	0.0000	0.2934	0.4638
	0.0464	0.0116	0.3112	0.5218
	0.0803	0.0348	0.3280	0.5798
	0.1136	0.0696	0.3440	0.6378
	0.1467	0.1160	0.3593	0.6958
	0.1796	0.1739	0.3740	0.7538
	0.2074	0.2319	0.3881	0.8117
	0.2319	0.2899	0.4149	0.9277
	0.2541	0.3479	0.4400	1.0437
	0.2744	0.4059	0.4638	1.1596

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0200)	11.596	2.155	2.75	72.99
OUTFLOW: ID= 1 (0010)	11.596	0.323	3.78	72.99

```
                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 15.01
                  TIME SHIFT OF PEAK FLOW         (min)= 62.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5642

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*******************************
** SIMULATION:5Yr 12hr AES    **
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--------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.2934      0.4638
                         0.0464     0.0116   |   0.3112      0.5218
                         0.0803     0.0348   |   0.3280      0.5798
                         0.1136     0.0696   |   0.3440      0.6378
                         0.1467     0.1160   |   0.3593      0.6958
                         0.1796     0.1739   |   0.3740      0.7538
                         0.2074     0.2319   |   0.3881      0.8117
                         0.2319     0.2899   |   0.4149      0.9277
                         0.2541     0.3479   |   0.4400      1.0437
                         0.2744     0.4059   |   0.4638      1.1596

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0200)    11.596     0.806      5.13      54.37
   OUTFLOW: ID= 1 (  0010)    11.596     0.240      5.83      54.36

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 29.83
                  TIME SHIFT OF PEAK FLOW         (min)= 42.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.3120

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*******************************
** SIMULATION:5Yr 6Hr AES     **
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--------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.2934      0.4638
                         0.0464     0.0116   |   0.3112      0.5218
                         0.0803     0.0348   |   0.3280      0.5798
                         0.1136     0.0696   |   0.3440      0.6378
                         0.1467     0.1160   |   0.3593      0.6958
                         0.1796     0.1739   |   0.3740      0.7538
                         0.2074     0.2319   |   0.3881      0.8117
                         0.2319     0.2899   |   0.4149      0.9277
                         0.2541     0.3479   |   0.4400      1.0437
                         0.2744     0.4059   |   0.4638      1.1596

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0200)    11.596     1.403      2.75      47.80
   OUTFLOW: ID= 1 (  0010)    11.596     0.254      3.48      47.79

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 18.10
                  TIME SHIFT OF PEAK FLOW         (min)= 44.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.3475

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** SIMULATION:Hazel           **
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--------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.2934      0.4638
                         0.0464     0.0116   |   0.3112      0.5218
                         0.0803     0.0348   |   0.3280      0.5798
                         0.1136     0.0696   |   0.3440      0.6378
                         0.1467     0.1160   |   0.3593      0.6958
                         0.1796     0.1739   |   0.3740      0.7538
                         0.2074     0.2319   |   0.3881      0.8117
                         0.2319     0.2899   |   0.4149      0.9277
                         0.2541     0.3479   |   0.4400      1.0437
                         0.2744     0.4059   |   0.4638      1.1596

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0200)    11.596     1.707      9.93     211.99
   OUTFLOW: ID= 1 (  0010)    11.596     0.499     11.30     211.99

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 29.24
                  TIME SHIFT OF PEAK FLOW         (min)= 82.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.3317

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*********************************
** SIMULATION:100Yr 12hr AES   **
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--------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.1279      0.2023
                          0.0202     0.0051    |   0.1357      0.2276
                          0.0350     0.0152    |   0.1430      0.2528
                          0.0495     0.0303    |   0.1500      0.2781
                          0.0640     0.0506    |   0.1567      0.3034
                          0.0783     0.0759    |   0.1631      0.3287
                          0.0905     0.1011    |   0.1692      0.3540
                          0.1011     0.1264    |   0.1809      0.4045
                          0.1108     0.1517    |   0.1919      0.4551
                          0.1197     0.1770    |   0.2023      0.5057

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0300)      5.057      0.572      4.83      88.53
   OUTFLOW: ID= 1 (  0020)      5.057      0.141      6.33      88.52

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 24.67
                  TIME SHIFT OF PEAK FLOW         (min)= 90.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.2461

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*********************************
** SIMULATION:100Yr 6Hr AES    **
*********************************
--------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.1279      0.2023
                          0.0202     0.0051    |   0.1357      0.2276
                          0.0350     0.0152    |   0.1430      0.2528
                          0.0495     0.0303    |   0.1500      0.2781
                          0.0640     0.0506    |   0.1567      0.3034
                          0.0783     0.0759    |   0.1631      0.3287
                          0.0905     0.1011    |   0.1692      0.3540
                          0.1011     0.1264    |   0.1809      0.4045
                          0.1108     0.1517    |   0.1919      0.4551
                          0.1197     0.1770    |   0.2023      0.5057

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0300)      5.057      1.038      2.75      80.30
   OUTFLOW: ID= 1 (  0020)      5.057      0.149      3.80      80.29

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 14.36
                  TIME SHIFT OF PEAK FLOW         (min)= 63.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.2746

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*********************************
** SIMULATION:25Yr 12hr AES    **
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--------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
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| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.1279      0.2023
                          0.0202     0.0051    |   0.1357      0.2276
                          0.0350     0.0152    |   0.1430      0.2528
                          0.0495     0.0303    |   0.1500      0.2781
                          0.0640     0.0506    |   0.1567      0.3034
                          0.0783     0.0759    |   0.1631      0.3287
                          0.0905     0.1011    |   0.1692      0.3540
                          0.1011     0.1264    |   0.1809      0.4045
                          0.1108     0.1517    |   0.1919      0.4551
                          0.1197     0.1770    |   0.2023      0.5057

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0300)      5.057      0.472      5.22      73.09
   OUTFLOW: ID= 1 (  0020)      5.057      0.126      6.32      73.08

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 26.58
                  TIME SHIFT OF PEAK FLOW         (min)= 66.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.1951

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*********************************
** SIMULATION:25Yr 6Hr AES     **
*********************************
--------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.1279      0.2023
                          0.0202     0.0051    |   0.1357      0.2276
                          0.0350     0.0152    |   0.1430      0.2528
                          0.0495     0.0303    |   0.1500      0.2781
                          0.0640     0.0506    |   0.1567      0.3034
                          0.0783     0.0759    |   0.1631      0.3287
                          0.0905     0.1011    |   0.1692      0.3540
                          0.1011     0.1264    |   0.1809      0.4045
                          0.1108     0.1517    |   0.1919      0.4551
                          0.1197     0.1770    |   0.2023      0.5057

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0300)      5.057      0.848      2.73      65.58
   OUTFLOW: ID= 1 (  0020)      5.057      0.133      3.55      65.57

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 15.65
                  TIME SHIFT OF PEAK FLOW         (min)= 49.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.2179

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*********************************
** SIMULATION:27mm 4Hr CHI     **
*********************************
--------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.1279      0.2023
                          0.0202     0.0051    |   0.1357      0.2276
                          0.0350     0.0152    |   0.1430      0.2528
                          0.0495     0.0303    |   0.1500      0.2781
```

0.0640	0.0506	0.1567	0.3034
0.0783	0.0759	0.1631	0.3287
0.0905	0.1011	0.1692	0.3540
0.1011	0.1264	0.1809	0.4045
0.1108	0.1517	0.1919	0.4551
0.1197	0.1770	0.2023	0.5057

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0300)	5.057	0.911	1.38	26.99
OUTFLOW: ID= 1 (0020)	5.057	0.085	1.93	26.98

PEAK FLOW REDUCTION [Qout/Qin](%)= 9.32
TIME SHIFT OF PEAK FLOW (min)= 33.00
MAXIMUM STORAGE USED (ha.m.)= 0.0894

****
** SIMULATION:2Yr 12hr AES **
****

RESERVOIR(0020) | IN= 2---> OUT= 1 | DT= 1.0 min	OVERFLOW IS OFF			
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1279	0.2023
	0.0202	0.0051	0.1357	0.2276
	0.0350	0.0152	0.1430	0.2528
	0.0495	0.0303	0.1500	0.2781
	0.0640	0.0506	0.1567	0.3034
	0.0783	0.0759	0.1631	0.3287
	0.0905	0.1011	0.1692	0.3540
	0.1011	0.1264	0.1809	0.4045
	0.1108	0.1517	0.1919	0.4551
	0.1197	0.1770	0.2023	0.5057

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0300)	5.057	0.271	5.12	41.99
OUTFLOW: ID= 1 (0020)	5.057	0.090	5.63	41.98

PEAK FLOW REDUCTION [Qout/Qin](%)= 33.16
TIME SHIFT OF PEAK FLOW (min)= 31.00
MAXIMUM STORAGE USED (ha.m.)= 0.1001

****
** SIMULATION:2Yr 6Hr AES **
****

RESERVOIR(0020) | IN= 2---> OUT= 1 | DT= 1.0 min	OVERFLOW IS OFF			
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1279	0.2023
	0.0202	0.0051	0.1357	0.2276
	0.0350	0.0152	0.1430	0.2528
	0.0495	0.0303	0.1500	0.2781
	0.0640	0.0506	0.1567	0.3034
	0.0783	0.0759	0.1631	0.3287
	0.0905	0.1011	0.1692	0.3540
	0.1011	0.1264	0.1809	0.4045
	0.1108	0.1517	0.1919	0.4551
	0.1197	0.1770	0.2023	0.5057

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0300)	5.057	0.465	2.73	35.99
OUTFLOW: ID= 1 (0020)	5.057	0.094	3.40	35.98

PEAK FLOW REDUCTION [Qout/Qin](%)= 20.20
TIME SHIFT OF PEAK FLOW (min)= 40.00
MAXIMUM STORAGE USED (ha.m.)= 0.1095

****
** SIMULATION:50Yr 12hr AES **
****

RESERVOIR(0020) | IN= 2---> OUT= 1 | DT= 1.0 min	OVERFLOW IS OFF			
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1279	0.2023
	0.0202	0.0051	0.1357	0.2276
	0.0350	0.0152	0.1430	0.2528
	0.0495	0.0303	0.1500	0.2781
	0.0640	0.0506	0.1567	0.3034
	0.0783	0.0759	0.1631	0.3287
	0.0905	0.1011	0.1692	0.3540
	0.1011	0.1264	0.1809	0.4045
	0.1108	0.1517	0.1919	0.4551
	0.1197	0.1770	0.2023	0.5057

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0300)	5.057	0.522	4.83	80.81
OUTFLOW: ID= 1 (0020)	5.057	0.134	6.32	80.80

PEAK FLOW REDUCTION [Qout/Qin](%)= 25.57
TIME SHIFT OF PEAK FLOW (min)= 89.00
MAXIMUM STORAGE USED (ha.m.)= 0.2204

****
** SIMULATION:50Yr 6Hr AES **
****

RESERVOIR(0020) | IN= 2---> OUT= 1 | DT= 1.0 min	OVERFLOW IS OFF			
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1279	0.2023
	0.0202	0.0051	0.1357	0.2276
	0.0350	0.0152	0.1430	0.2528
	0.0495	0.0303	0.1500	0.2781
	0.0640	0.0506	0.1567	0.3034
	0.0783	0.0759	0.1631	0.3287
	0.0905	0.1011	0.1692	0.3540
	0.1011	0.1264	0.1809	0.4045
	0.1108	0.1517	0.1919	0.4551
	0.1197	0.1770	0.2023	0.5057

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0300)	5.057	0.943	2.70	72.99
OUTFLOW: ID= 1 (0020)	5.057	0.141	3.77	72.98

```
                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 14.95
                  TIME SHIFT OF PEAK FLOW         (min)= 64.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.2462

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*******************************
** SIMULATION:5Yr 12hr AES    **
*******************************
--------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.1279      0.2023
                         0.0202     0.0051   |   0.1357      0.2276
                         0.0350     0.0152   |   0.1430      0.2528
                         0.0495     0.0303   |   0.1500      0.2781
                         0.0640     0.0506   |   0.1567      0.3034
                         0.0783     0.0759   |   0.1631      0.3287
                         0.0905     0.1011   |   0.1692      0.3540
                         0.1011     0.1264   |   0.1809      0.4045
                         0.1108     0.1517   |   0.1919      0.4551
                         0.1197     0.1770   |   0.2023      0.5057

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0300)      5.057     0.351      5.10      54.37
   OUTFLOW: ID= 1 (  0020)      5.057     0.105      5.68      54.36

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 29.86
                  TIME SHIFT OF PEAK FLOW         (min)= 35.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.1364

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*******************************
** SIMULATION:5Yr 6Hr AES     **
*******************************
--------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.1279      0.2023
                         0.0202     0.0051   |   0.1357      0.2276
                         0.0350     0.0152   |   0.1430      0.2528
                         0.0495     0.0303   |   0.1500      0.2781
                         0.0640     0.0506   |   0.1567      0.3034
                         0.0783     0.0759   |   0.1631      0.3287
                         0.0905     0.1011   |   0.1692      0.3540
                         0.1011     0.1264   |   0.1809      0.4045
                         0.1108     0.1517   |   0.1919      0.4551
                         0.1197     0.1770   |   0.2023      0.5057

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0300)      5.057     0.618      2.75      47.80
   OUTFLOW: ID= 1 (  0020)      5.057     0.111      3.43      47.79

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 17.95
                  TIME SHIFT OF PEAK FLOW         (min)= 41.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.1519

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** SIMULATION:Hazel           **
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--------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.1279      0.2023
                         0.0202     0.0051   |   0.1357      0.2276
                         0.0350     0.0152   |   0.1430      0.2528
                         0.0495     0.0303   |   0.1500      0.2781
                         0.0640     0.0506   |   0.1567      0.3034
                         0.0783     0.0759   |   0.1631      0.3287
                         0.0905     0.1011   |   0.1692      0.3540
                         0.1011     0.1264   |   0.1809      0.4045
                         0.1108     0.1517   |   0.1919      0.4551
                         0.1197     0.1770   |   0.2023      0.5057

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0300)      5.057     0.744      9.60     211.99
   OUTFLOW: ID= 1 (  0020)      5.057     0.218     11.25     211.98

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 29.27
                  TIME SHIFT OF PEAK FLOW         (min)= 99.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5814

--------------------------------------------------------------------------------
```
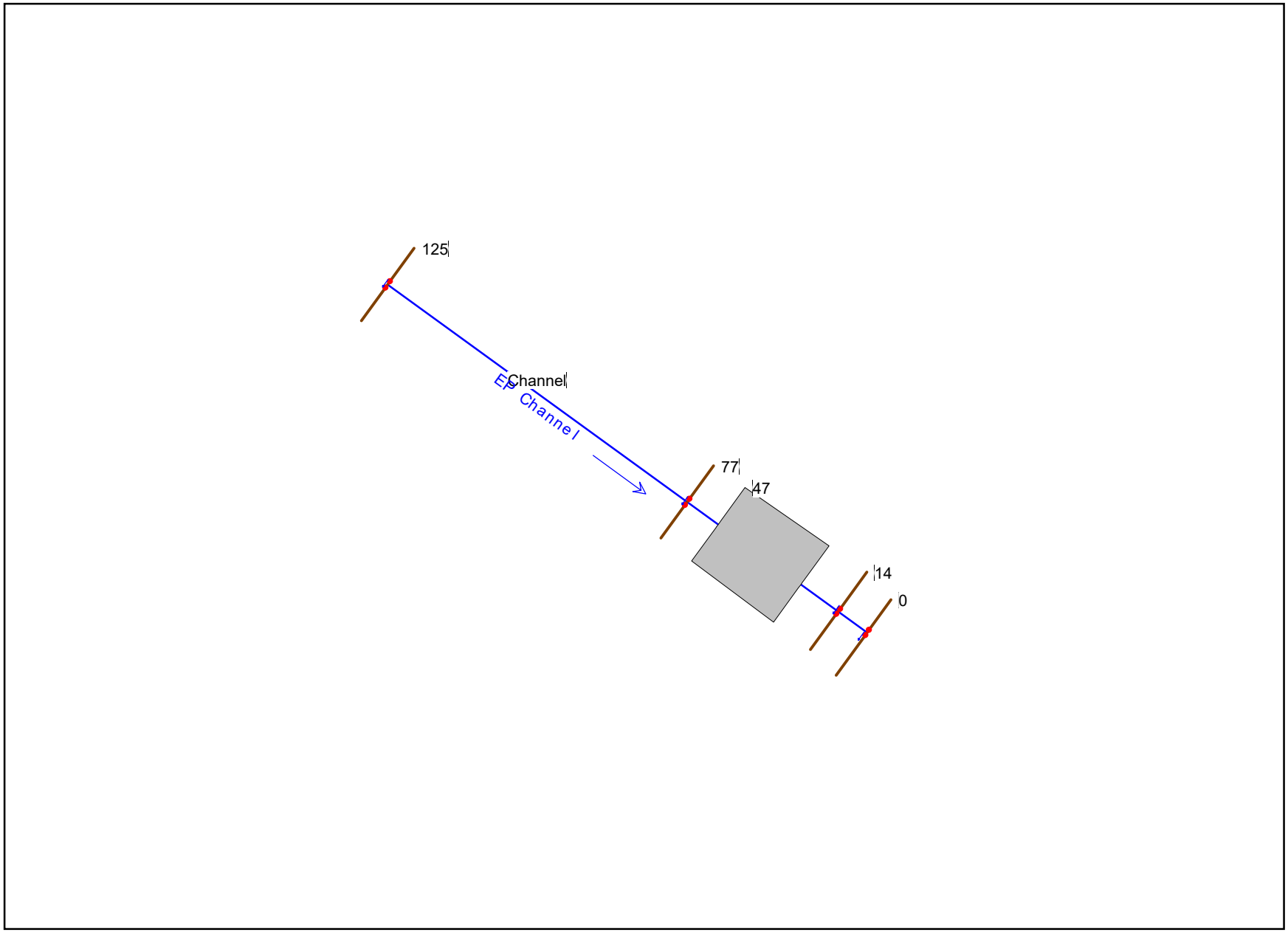
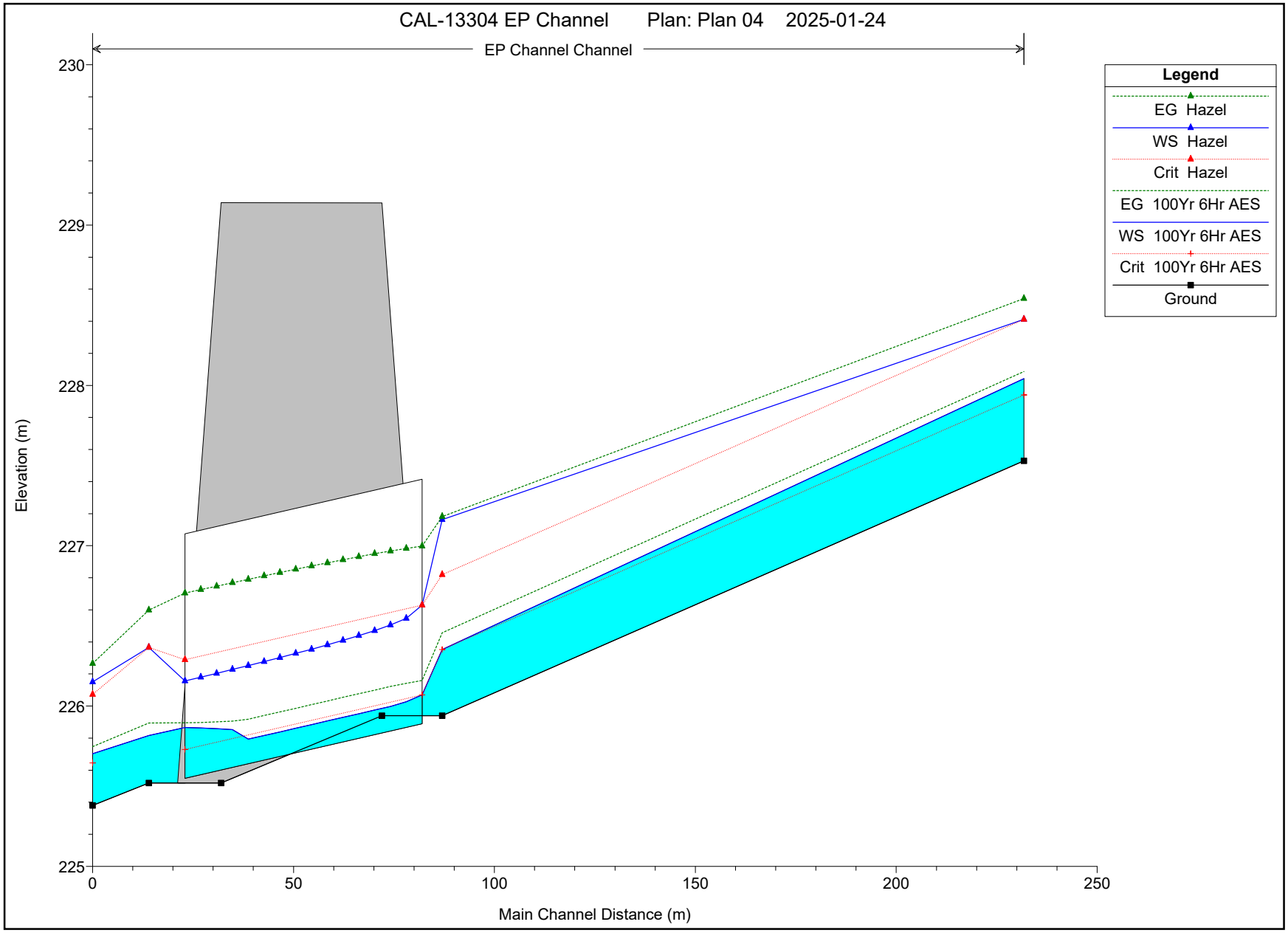
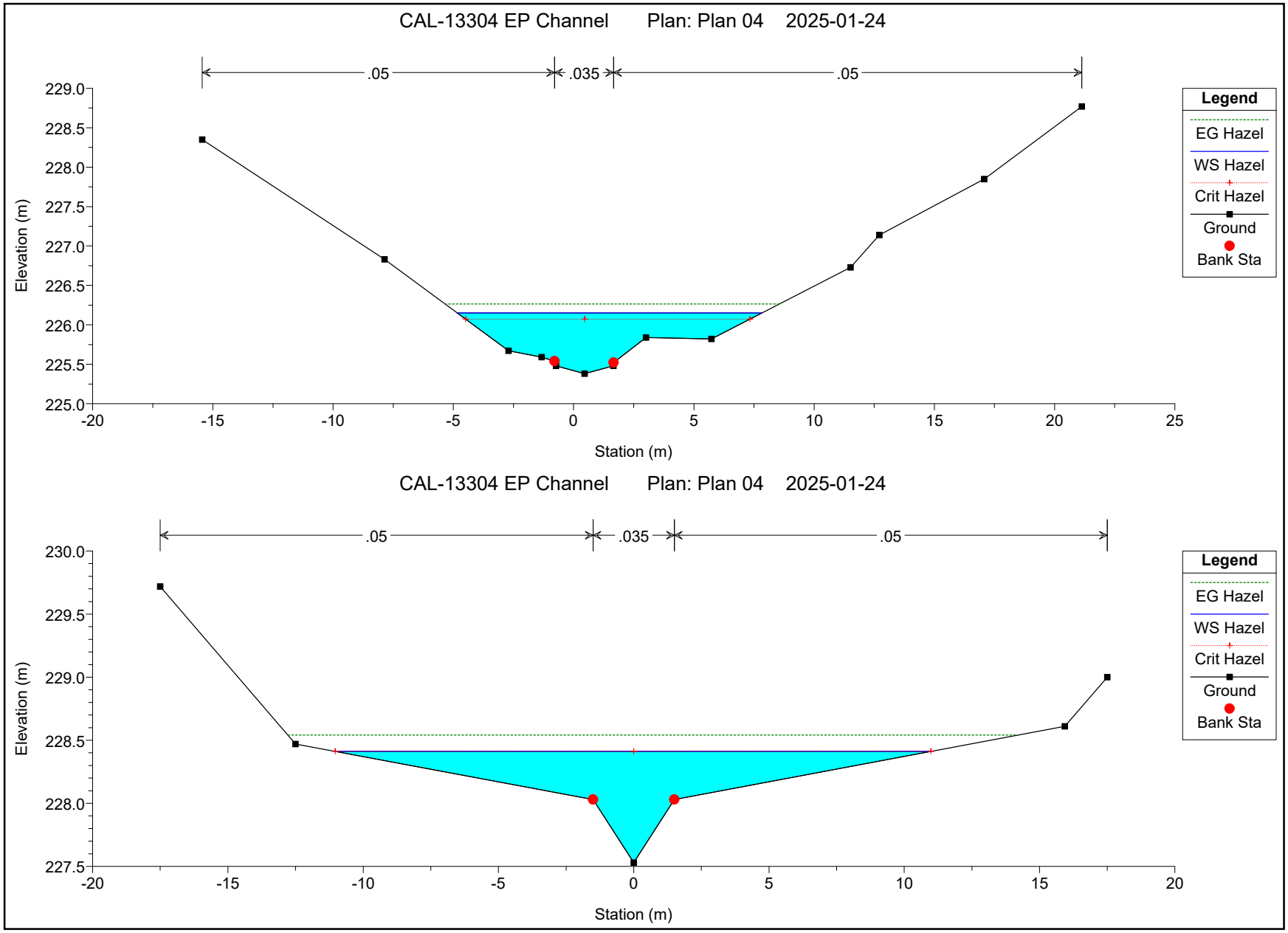
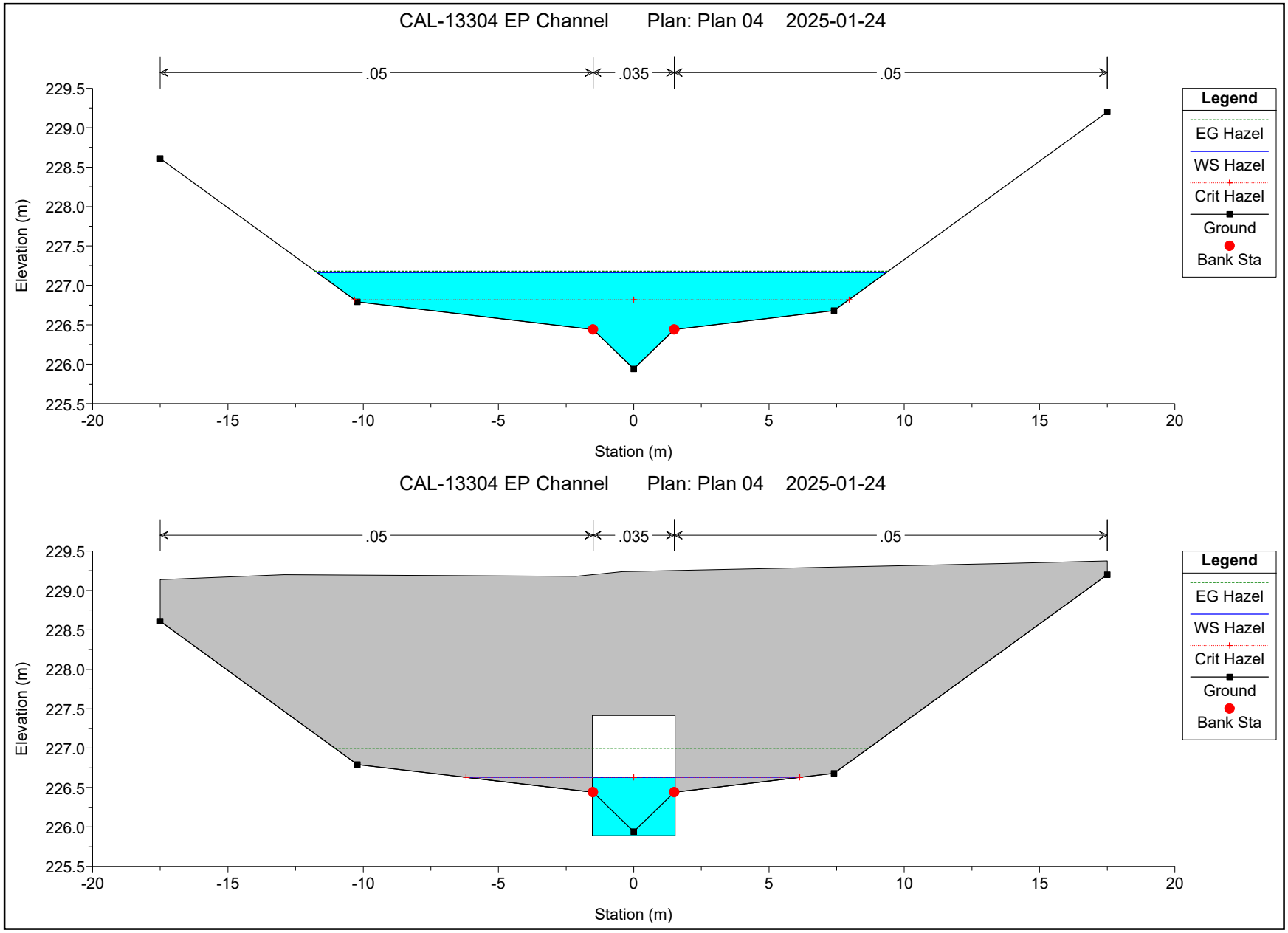
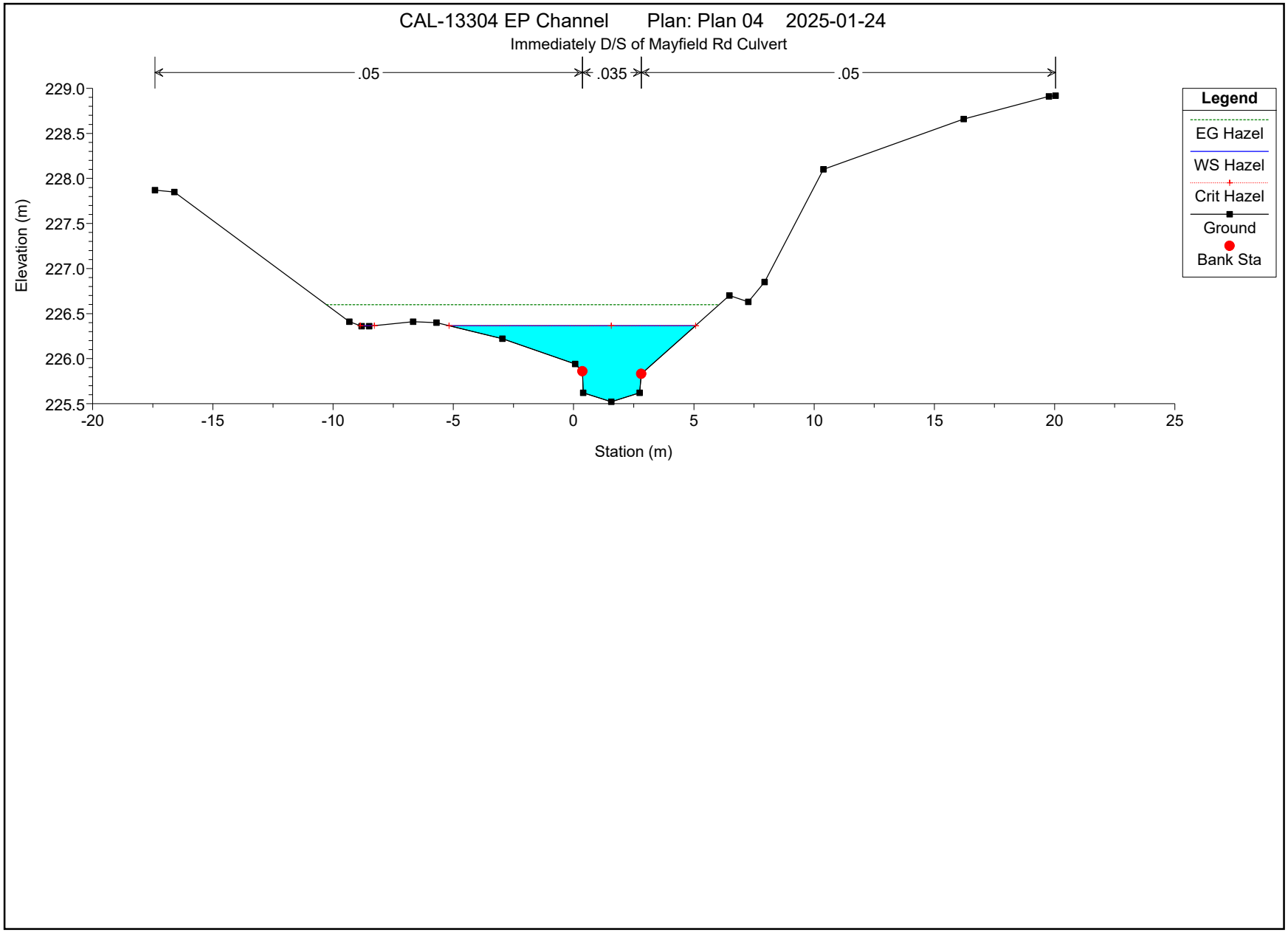

CAL-13304 - HEC-RAS EP Channel Schematic




CAL-13304 EP Channel Plan: Plan 04 2025-01-24
EP Channel Channel
Legend
EG Hazel
WS Hazel
Crit Hazel
EG 100Yr 6Hr AES
WS 100Yr 6Hr AES
Crit 100Yr 6Hr AES
Ground
Elevation (m)
230
229
228
227
226
225
0
50
100
150
200
250
Main Channel Distance (m)


CAL-13304 EP Channel Plan: Plan 04 2025-01-24
.05
.035
.05
Elevation (m)
Station (m)
Legend
EG Hazel
WS Hazel
Crit Hazel
Ground
Bank Sta
CAL-13304 EP Channel Plan: Plan 04 2025-01-24
.05
.035
.05
Elevation (m)
Station (m)
Legend
EG Hazel
WS Hazel
Crit Hazel
Ground
Bank Sta


CAL-13304 EP Channel Plan: Plan 04 2025-01-24
.05
.035
.05
Elevation (m)
Station (m)
Legend
EG Hazel
WS Hazel
Crit Hazel
Ground
Bank Sta
CAL-13304 EP Channel Plan: Plan 04 2025-01-24
.05
.035
.05
Elevation (m)
Station (m)
Legend
EG Hazel
WS Hazel
Crit Hazel
Ground
Bank Sta


CAL-13304 EP Channel Plan: Plan 04 2025-01-24
Immediately D/S of Mayfield Rd Culvert
.05
.035
.05
Elevation (m)
229.0
228.5
228.0
227.5
227.0
226.5
226.0
225.5
-20
-15
-10
-5
0
5
10
15
20
25
Station (m)
Legend
EG Hazel
WS Hazel
Crit Hazel
Ground
Bank Sta

CAL-13304 - HEC-RAS EP Channel Culvert Outputs

Plan: Plan 04 EP Channel Channel RS: 47 Culv Group: Culvert #1 Profile: 100Yr 6Hr AES

Q Culv Group (m3/s)	0.73	Culv Full Len (m)	
# Barrels	1	Culv Vel US (m/s)	1.33
Q Barrel (m3/s)	0.73	Culv Vel DS (m/s)	0.76
E.G. US. (m)	226.16	Culv Inv El Up (m)	225.89
W.S. US. (m)	226.35	Culv Inv El Dn (m)	225.55
E.G. DS (m)	225.89	Culv Frctn Ls (m)	0.26
W.S. DS (m)	225.82	Culv Exit Loss (m)	0.00
Delta EG (m)	0.27	Culv Entr Loss (m)	0.00
Delta WS (m)	0.54	Q Weir (m3/s)	
E.G. IC (m)	226.16	Weir Sta Lft (m)	
E.G. OC (m)	226.21	Weir Sta Rgt (m)	
Culvert Control	Inlet	Weir Submerg	
Culv WS Inlet (m)	226.07	Weir Max Depth (m)	
Culv WS Outlet (m)	225.87	Weir Avg Depth (m)	
Culv Nml Depth (m)	0.15	Weir Flow Area (m2)	
Culv Crt Depth (m)	0.18	Min El Weir Flow (m)	229.14

Plan: Plan 04 EP Channel Channel RS: 47 Culv Group: Culvert #1 Profile: Hazel

Q Culv Group (m3/s)	6.06	Culv Full Len (m)	
# Barrels	1	Culv Vel US (m/s)	2.69
Q Barrel (m3/s)	6.06	Culv Vel DS (m/s)	3.28
E.G. US. (m)	227.18	Culv Inv El Up (m)	225.89
W.S. US. (m)	227.16	Culv Inv El Dn (m)	225.55
E.G. DS (m)	226.60	Culv Frctn Ls (m)	0.29
W.S. DS (m)	226.37	Culv Exit Loss (m)	0.11
Delta EG (m)	0.58	Culv Entr Loss (m)	0.18
Delta WS (m)	0.80	Q Weir (m3/s)	
E.G. IC (m)	227.07	Weir Sta Lft (m)	
E.G. OC (m)	227.18	Weir Sta Rgt (m)	
Culvert Control	Outlet	Weir Submerg	
Culv WS Inlet (m)	226.63	Weir Max Depth (m)	
Culv WS Outlet (m)	226.16	Weir Avg Depth (m)	
Culv Nml Depth (m)	0.60	Weir Flow Area (m2)	
Culv Crt Depth (m)	0.74	Min El Weir Flow (m)	229.14

CAL-13304 - HEC-RAS EP Channel Culvert Only - Profile Output Table

HEC-RAS Plan: Plan 04 River: EP Channel Reach: Channel

Reach	River Sta		Profile	E.G. US.	W.S. US.	E.G. IC	E.G. OC	Min El Weir Flow	Q Culv Group	Q Weir	Delta WS	Culv Vel US	Culv Vel DS
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m)	(m/s)	(m/s)
Channel	47	Culvert #1	100Yr 6Hr AES	226.16	226.35	226.16	226.21	229.14	0.73		0.54	1.33	0.76
Channel	47	Culvert #1	Hazel	227.18	227.16	227.07	227.18	229.14	6.06		0.80	2.69	3.28

CAL-13304 - HEC-RAS EP Channel Four XS Culvert- Profile Output Table

HEC-RAS Plan: Plan 04 River: EP Channel Reach: Channel

Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Channel	125	100Yr 6Hr AES	228.09	228.04	0.04	1.63	0.01	0.00	0.73	0.00	3.59
Channel	125	Hazel	228.54	228.41	0.13	0.33	0.03	1.17	3.73	1.16	22.02
Channel	77	100Yr 6Hr AES	226.46	226.35	0.10				0.73		2.47
Channel	77	Hazel	227.18	227.16	0.02			1.97	2.48	1.61	21.04
Channel	47		Culvert								
Channel	14	100Yr 6Hr AES	225.89	225.82	0.08	0.14	0.01		0.73		2.43
Channel	14	Hazel	226.60	226.37	0.23	0.12	0.04	0.89	4.63	0.54	10.84
Channel	0	100Yr 6Hr AES	225.75	225.70	0.04			0.06	0.65	0.02	5.29
Channel	0	Hazel	226.27	226.15	0.11			1.35	3.32	1.38	12.68

Table 4.2
Pond Operational Characteristics

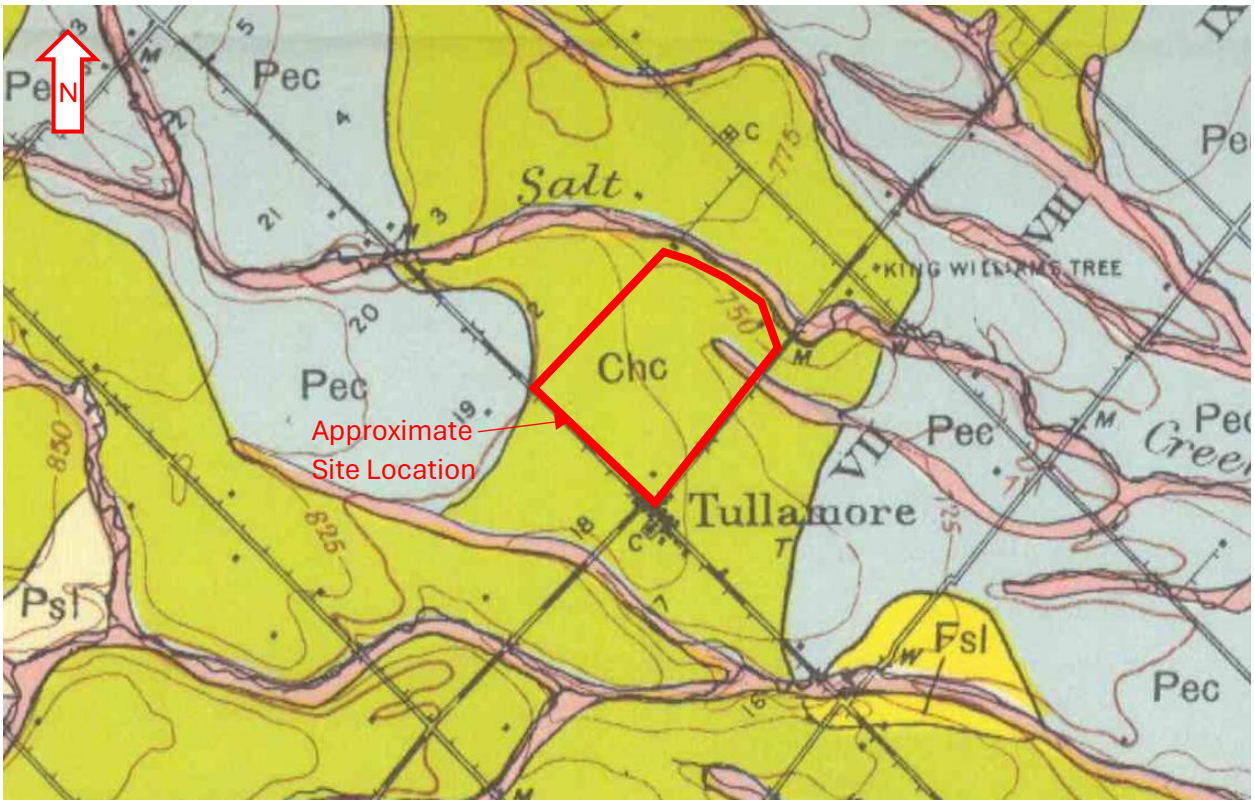
Parameter			Units	POND No.		
				1	2	3
Drainage Area			ha	67.8	30.7	51.0
Average Imperviousness			%	55	63	87
Required Storage Volume	Permanent Pool		m^3	10,170	5,190	10,860
	Extended Detention	at DRC Rel. Rate	m^3	7,050	3,360	6,630
		at 2 Yr. Rel. Rate	m^3	10,580	5,040	9,950
	5 Year Storm		m^3	13,600	6,290	11,890
	10 Year Storm		m^3	15,750	7,190	13,370
	25 Year Storm		m^3	18,840	8,570	15,430
	50 Year Storm		m^3	21,280	9,550	16,980
	100 Year Storm		m^3	23,780	10,620	18,590
Release Rate	DRC		cms	0.14	0.06	0.10
	2 Year Storm		cms	0.39	0.19	0.37
	5 Year Storm		cms	0.59	0.29	0.56
	10 Year Storm		cms	0.73	0.36	0.69
	25 Year Storm		cms	0.91	0.45	0.87
	50 Year Storm		cms	1.06	0.53	1.01
	100 Year Storm		cms	1.20	0.60	1.14

Notes:

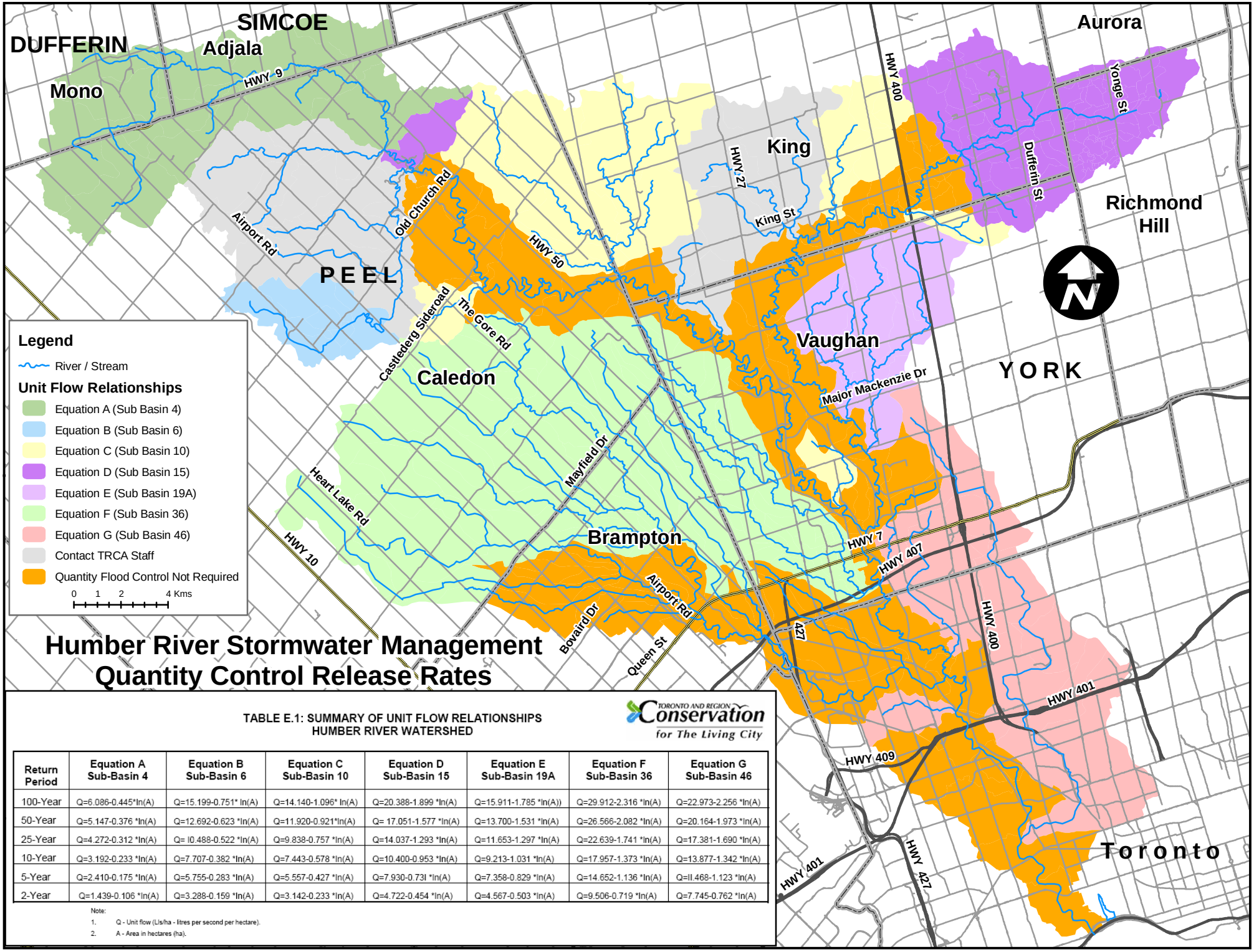
1. Ponds 1 and 2 include external drainage area contributions in the calculation of storage volumes.
2. DRC release rate (2 L/s/ha) based on recommendations of West Humber River Subwatershed Study.
3. DRC volume calculated as 2/3 of 2 year storage volume as per recommendations of the West Humber River Subwatershed Study.

C:\WINDOWS\TEMP\[Table_4.2_Rev_June2000.xls]Sheet1

Excerpt from Soil Map of Peel Region



SOIL MATERIALS	HEAVY TEXTURED TILL			ALLUVIAL
	b) Shale and Limestone			
NATURAL DRAINAGE	Good	Imperfect	Poor	Variable
SERIES	Oneida	Chinguacousy	Jeddo	Bottom Land
TYPE, SYMBOL, ACREAGE	clay loam Oc – 20,500	clay loam Chc – 68,500	clay loam Jc – 5,600	Variable B.L. – 25,80
COLOUR				
TOPOGRAPHY	Smooth moderately sloping.	Smooth gently sloping.	Smooth very gently sloping.	Variable.
SURFACE STONINESS	Few stones.	Few stones.	Few stones.	Variable.
SURFACE REACTION	Slightly acid to neutral.	Slightly acid to neutral.	Neutral.	Variable.
GREAT SOIL GROUP	Grey-Brown Podzolic.	Grey-Brown Podzolic	Dark Grey Gleisolic.	Alluvial.
PROFILE DESCRIPTION OF CULTIVATED SOIL	6" dark greyish brown clay loam surface soil over well developed horizons. Dark yellowish brown, cacalreous parent material, few stones.	7" dark greyish brown clay loam over mottled less well defined A2 and B horizons; clay parent material dark yellowish brown in colour.	8" very dark grey to black clay loam over very mottled, poorly defined lower horizons. Dark yellowish brown clay parent material, few stones.	Low lying land along strean courses; subject to flood ing, profile immature an horizons poorly defined.
MAIN FERTILITY NEEDS	ORGANIC MATTER Phosphate	ORGANIC MATTER Phosphate	Phosphate	Variable.



Humber River Stormwater Management Quantity Control Release Rates

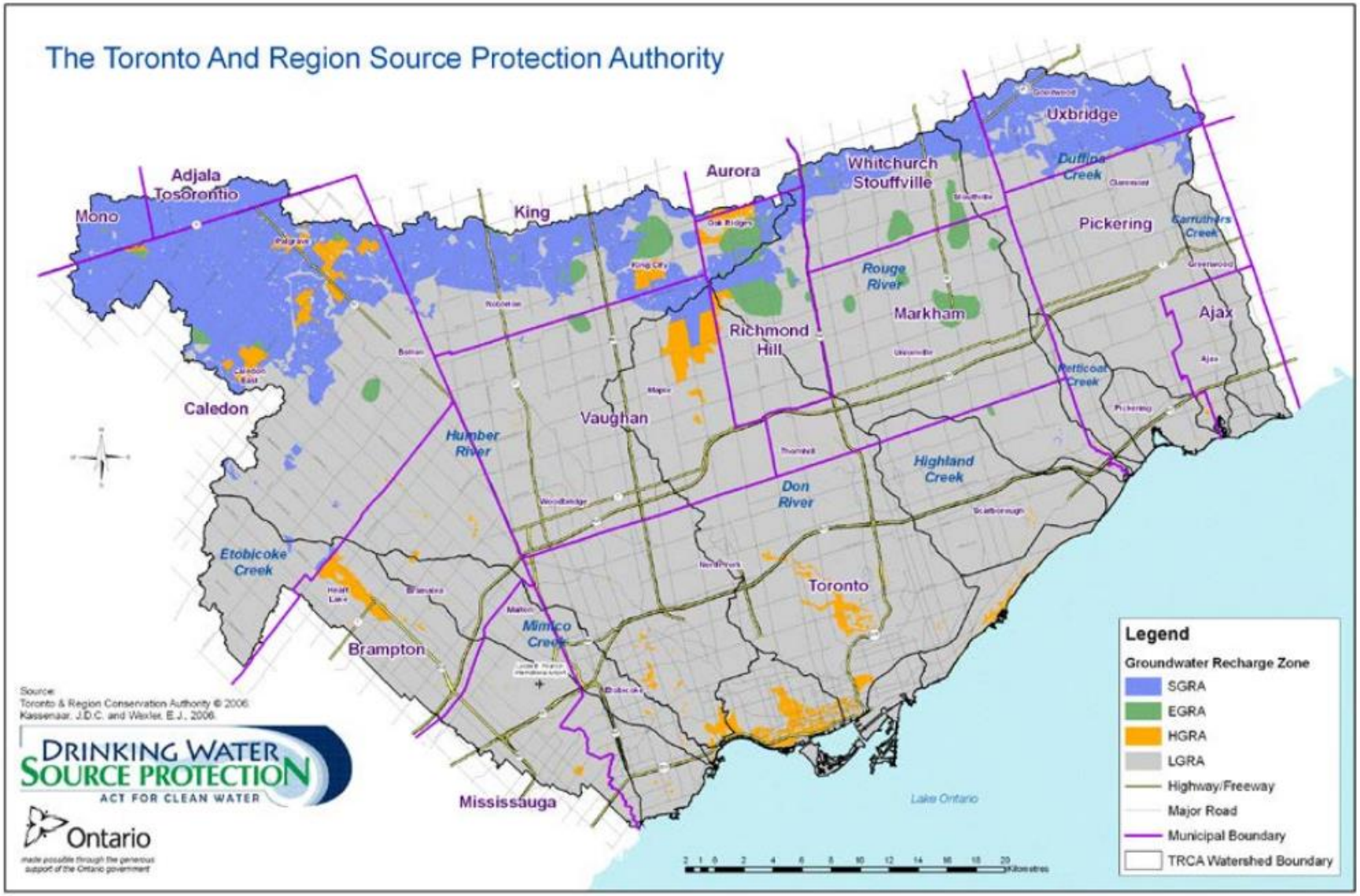
TABLE E.1: SUMMARY OF UNIT FLOW RELATIONSHIPS
HUMBER RIVER WATERSHED

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

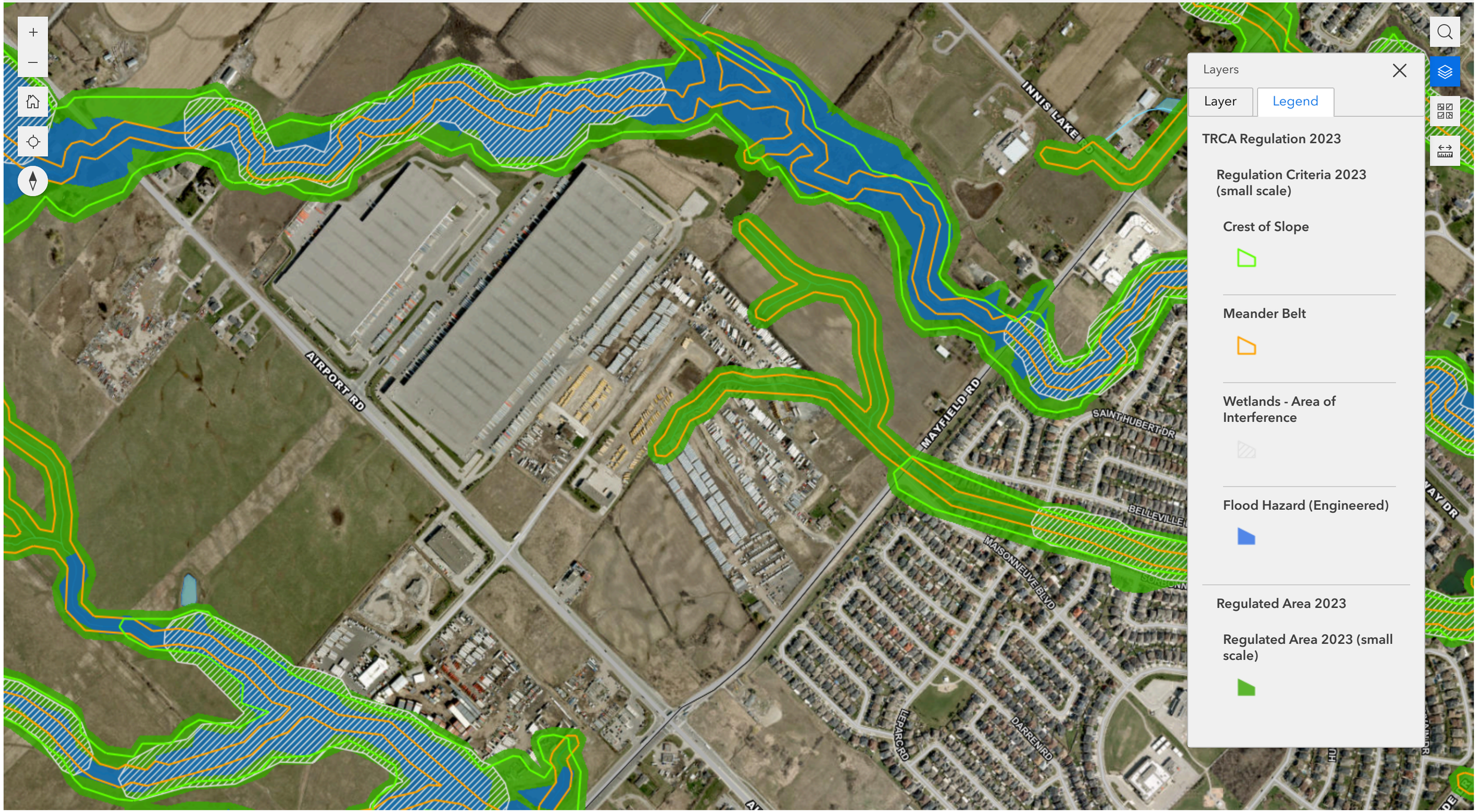
Note:
1. Q - Unit flow (Lls/ha - litres per second per hectare).
2. A - Area in hectares (ha).

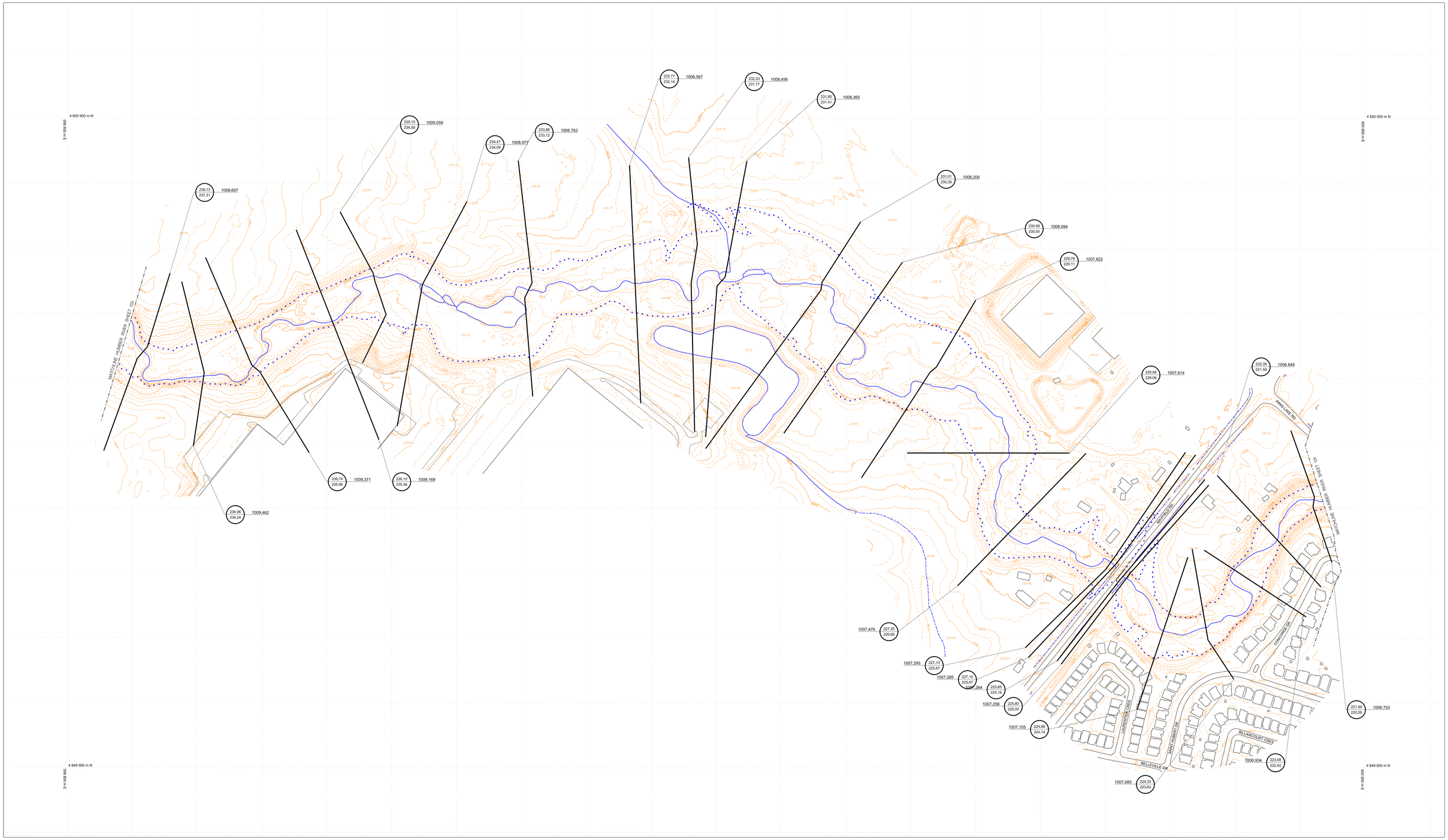
TORONTO AND REGION Conservation for The Living City

Figure C 10: Recharge Area Classification



TRCA Regulation Mapping





REVISIONS			
NO.	DESCRIPTION	BY	DATE

LEGEND

Cross-Section Label

Cross-Section Leader Line

Regional Flood Elevation (m)

Cross-Section Number 14.060 172.00

100 Year Flood Elevation (m) 172.00

Cross-Section Length

REGULATORY FLOOD ELEVATION IS THE HIGHER OF THE TWO ELEVATIONS DISPLAYED

LEGEND

- Contour Index
- Contour 1 metre
- Contour 0.5 metre
- Contour Label 100
- Spot Elevation 100.00
- Road
- Parking Lot / Large Driveway
- Rail Line
- Bridge / Large Culvert
- Water Feature
- Ditch
- Marsh
- Building
- Regulatory Flood Line

The elevation data on this map was produced by TRCA from a DEM with 1.0 m grid resolution. The DEM was created using mass points with a vertical accuracy tolerance of +/- 0.10m RMSE on hard flat surfaces. The mass points were collected using LiDAR flown in 2014 by Airborne Imaging.
Downstream of Mayfield Rd.:
The planimetric data on this map was acquired from the City of Brampton Open Data Catalogue in 2017. The vintage of the data may not match with the elevation dataset and is for reference only.
Upstream of Mayfield Rd.:
The planimetric data on this map was compiled from a variety of sources of different vintage and may not match with the elevation dataset. This data is for reference only.
Building footprints were acquired from Peel Region in 2017.
The vertical datum is mean sea level as established by the Geodetic Survey of Canada.
CGVD 1928-1978 Ontario Adjusted Version
The horizontal datum is North American Datum 1983, U.T.M. 6° projection Zone 17, Central Meridian 87° W
Grid interval 100 metres.

PLEASE NOTE:
FLOODLINE ELEVATIONS ARE SUBJECT TO CHANGE DUE TO REVISED INFORMATION.

Elevation Data provided by:

AIRBORNE IMAGING
A Clean Harbors Company

COLE ENGINEERING
70 VALLEYWOOD DRIVE, MARKHAM, ON L3R 4T5
T:416.987.6161 / 905.940.6161 F:905.940.2064

PLEASE NOTE:
THE PROFESSIONAL ENGINEER'S SEAL VERIFIES THE FLOOD LINE AND ASSOCIATED DATA. NOT THE MAP DATA UNLESS OTHERWISE NOTED

LICENSED PROFESSIONAL ENGINEER
O.F. SANDERS
PROVINCE OF ONTARIO

FLOOD PLAIN MAPPING PROGRAM

FLOODLINE APPROVED DATE: 2018-05-18

Toronto and Region Conservation for The Living City
5 Shoreham Drive Downsview Ontario M3N 1S4 (416) 661-6600

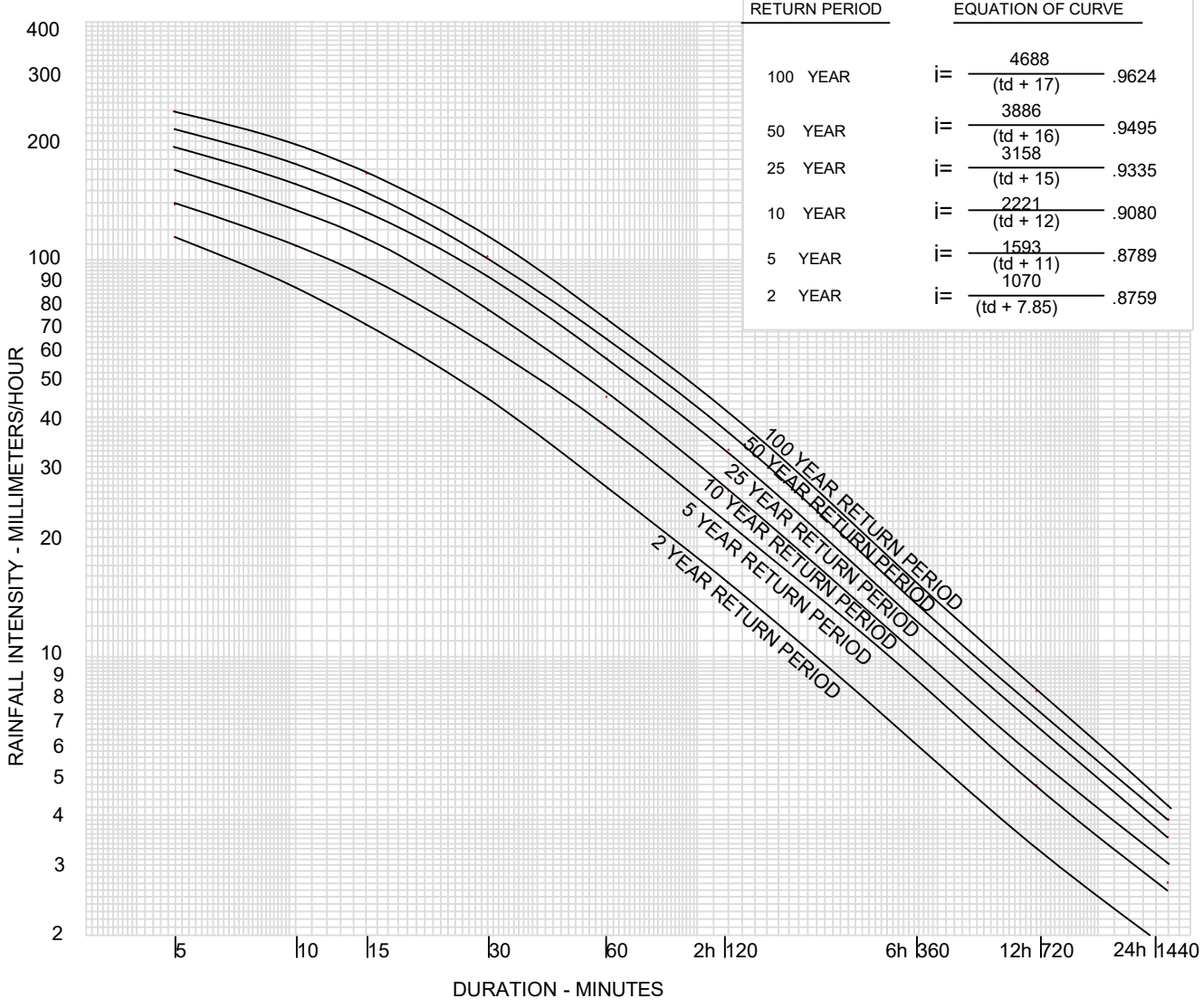
Scale 1:2000

Metres 100 0 100 200 Metres

Feet 200 0 200 400 600 800 1000 Feet

HUMBER RIVER

SHEET No. 132



RETURN PERIOD	EQUATION OF CURVE	
100 YEAR	$i = \frac{4688}{(td + 17)}$	.9624
50 YEAR	$i = \frac{3886}{(td + 16)}$	.9495
25 YEAR	$i = \frac{3158}{(td + 15)}$	.9335
10 YEAR	$i = \frac{2221}{(td + 12)}$	.9080
5 YEAR	$i = \frac{1593}{(td + 11)}$	.8789
2 YEAR	$i = \frac{1070}{(td + 7.85)}$	.8759

INLET TIMES

SUBURBAN RESIDENTIAL	
(ROOF DRAINS UNCONNECTED)	15 min
(ROOF DRAINS CONNECTED)	10 min
SUBURBAN, COMMERCIAL, INDUSTRIAL MULTIPLE FAMILY	10 min
DOWNTOWN COMMERCIAL, HIGH DENSITY APARTMENTS, EXPRESSWAYS	5 min

RUNOFF COEFFICIENT

COMMERCIAL	
- DOWNTOWN & SUBURBAN SHOPPING	0.90
INDUSTRIAL	
- DOWNTOWN	0.90
- SUBURBAN INDUSTRIAL PARKS	0.75
RESIDENTIAL	
- APARTMENTS	0.75
- ROW DWELLINGS	0.70
- DUPLEX DWELLINGS	0.70
- SEMIDETACHED - DOWNTOWN	0.60
- SINGLE FAMILY - DOWNTOWN	0.60
- SEMIDETACHED - SUBURBAN	0.50
- SINGLE FAMILY - SUBURBAN	0.40
SCHOOLS, CHURCHES, HOSPITALS	0.75
PARKS, CEMETERIES, RAIL YARDS	
(OVER 4 Ha)	0.20
(UNDER 4 Ha)	0.25
PARKING LOTS ASPHALT & GRAVEL	0.90

TOWN OF CALEDON

RAINFALL INTENSITY CURVES

NO.	REVISION	APR'D	DATE
3	ADDITION OF TEXT		APR 19
2	STANDARD 104 NOW 103		JAN 08
1	STANDARD 112.01 NOW 104		JUNE 08

APR'D: C.C. DATE: FEB 2000

DRAWN: BJM SCALE: N.T.S.

STANDARD No. 103

TOWN OF CALEDON

DEVELOPMENT_____

CONSULTANT _____

MAJOR DRAINAGE AREA_____

ENGINEERING SERVICES - STORM DRAINAGE DESIGN CHAI
FOR CIRCULAR DRAINS FLOWING FULL

LOCATION					DRAINAGE AREA				RUNOFF				PIPE SELECTION						
	FROM		TO																
STREET	MH No.	Sta.	MH No.	Sta.	A ha.	C	A*C	Cumul. A*C	Tc External min	Cumul. Tc (Ti- __) min	i mm/h	Q m3/s	Pipe L m	Pipe So m/m	Pipe Dia. mm	Actual Capacity (full) m3/s	V (Average) m/s	^ V Change in Velocity m/s (Max 0.6)	Time of Flow min

To Be Submitted on 11x17 Paper

SHEET No. _____ OF _____ DATE _____

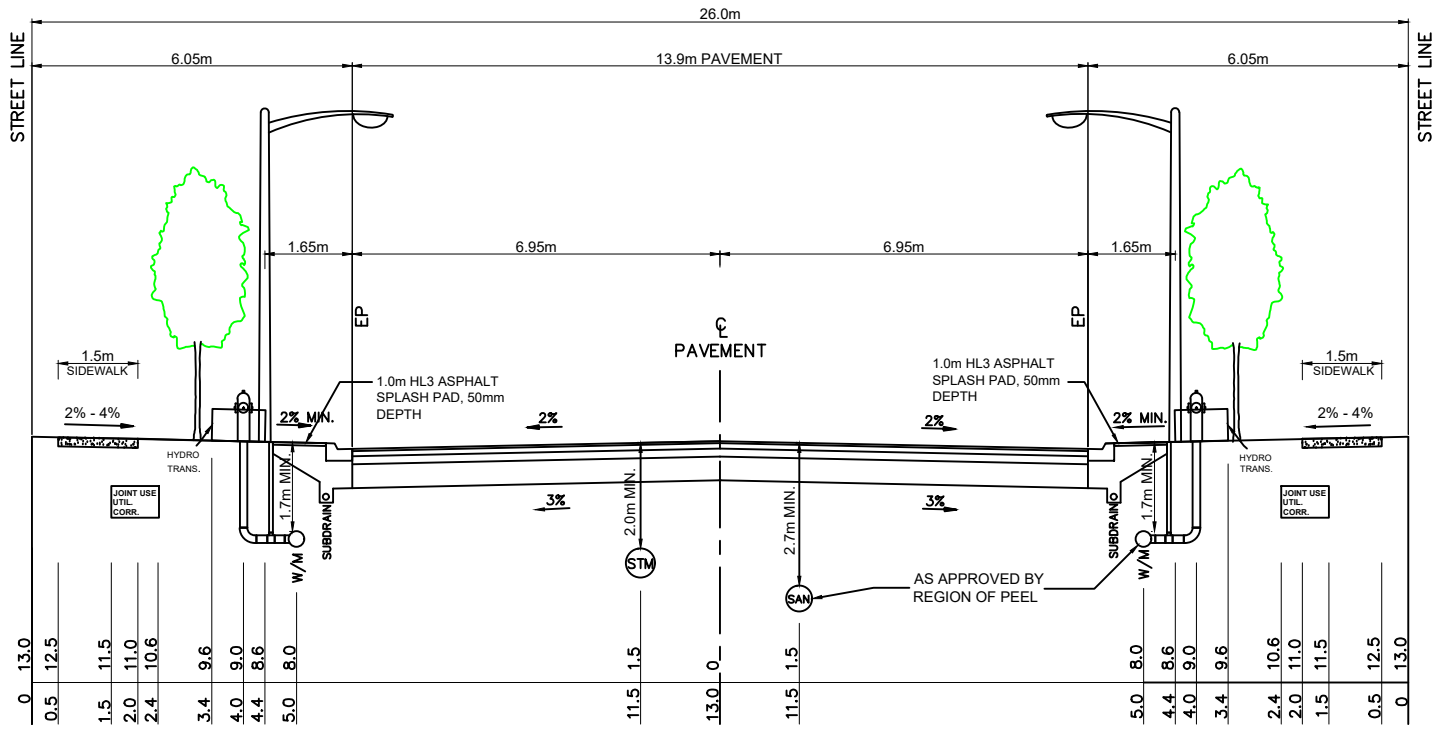
DESIGNED BY _____

RT

CHECKED BY _____

	PROFILE							
		UPSTREAM			DOWNSTREAM			NOTES / DESCRIPTIONS
Minor Losses m	Fall in Sewer m	Surface Elev. m	Inv. Elev. m	Cover m	Surface Elev. m	Inv. Elev. m	Cover m	

TOWN STANDARD No. 104



NOTES

1. UTILITY CORRIDOR TO HAVE A MINIMUM COVER OF 0.9 m.
2. WATERMAIN TO HAVE A MINIMUM COVER OF 1.7 m.
3. THE FOLLOWING IS A MINIMUM ROAD BASE AND WILL REQUIRE A SOILS REPORT VERIFICATION
   - 40 mm HL3 HS
   - 110 mm HDBC
   - 150 mm GRANULAR "A"
   - 450 mm GRANULAR "B"
4. THE BOULEVARDS REQUIRE A MINIMUM OF 300mm OF TOPSOIL AND NURSERY SOD.
5. TREES TO BE PLACEDIN LOCATIONS PER APPROVED LANDSCAPE PLANS.
6. STREETLIGHT FIXTURE PER APPROVED TOWN OF CALEDON STANDARD.
7. FULL LENGTH MINIMUM 100 MM DIA.SUB-DRAINS C/W FILTERCLOTH SHALL BE INSTALLED, AS PER APPROVED TOWN STANDARD NO. 218.
8. SUB-GRADE SHALL BE COMPACTED TO A MINIMUM 95% OF S.P.D. AT OPTIMUM MOISTURE CONTENT.
9. WHERE POSSIBLE MANHOLE LIDS TO BELOCATED OUT OF TIRE LANE OF TRAFFIC.
10. 1.0 m SPLASH PAD TO BE PATTERNED CONCRETE AS PER APPROVED TOWN OF CALEDON STANDARD NO. 218.
11. LONG DIMENSION OF TRANSFORMER TO BE PARALLEL TO STREETLINE.

TOWN OF CALEDON

26.0m INDUSTRIAL COLLECTOR
14.5m ROADWAY (13.9m PAVEMENT)

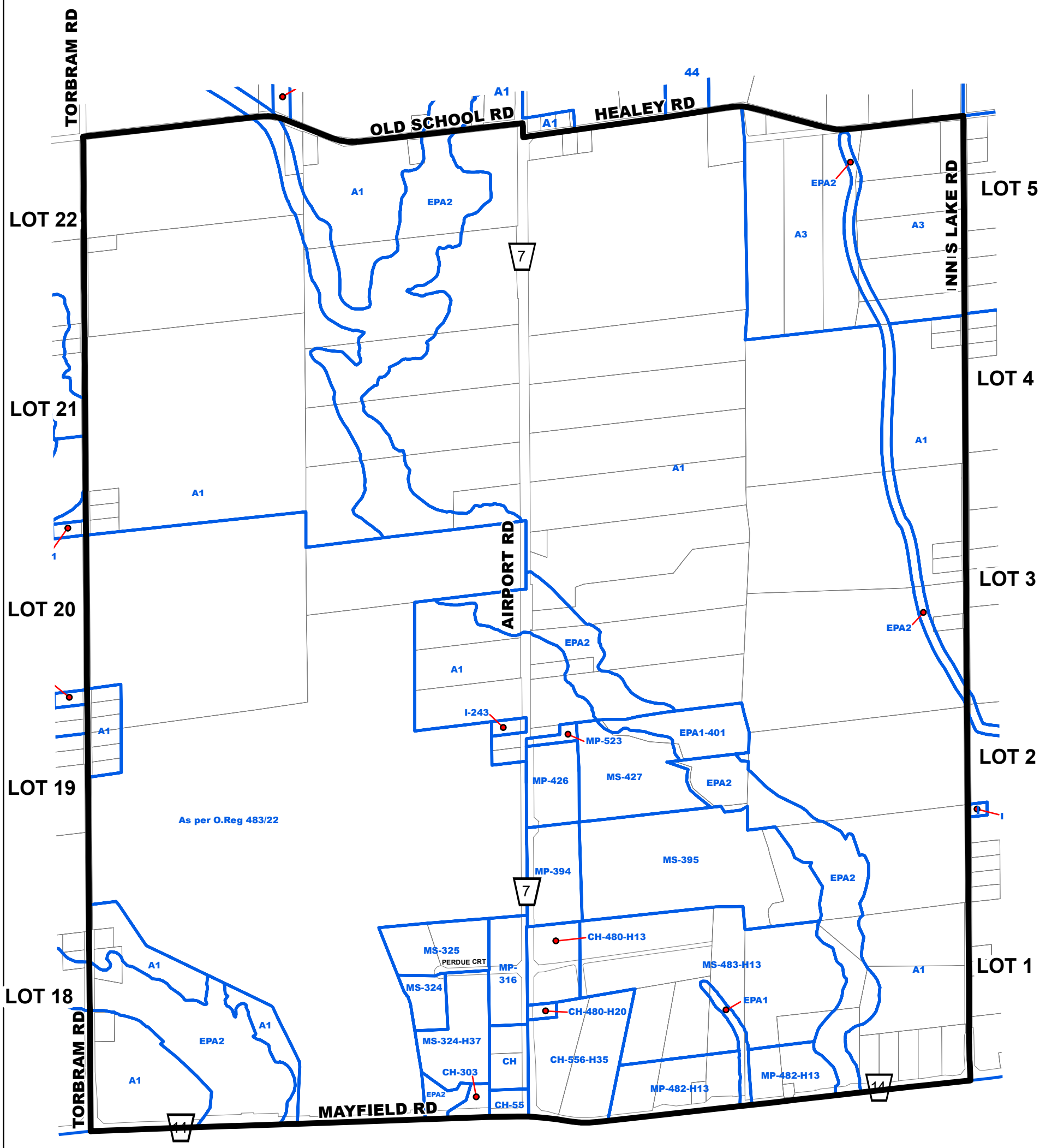
NO.	REVISION	APR'D	DATE
4	TEXT AND SLOPE REVISION		APR 19
3	DIMENSION AND TEXT REVISION		JAN. 09
2	DIMENSION AND LAYOUT REVISION		JULY 08
1	DIMENSION EDIT, STD No. 209 NOW 211		JUNE 08

APR'D: C.C. | DATE: JUNE 08
DRAWN: | SCALE: N.T.S.

STANDARD No. 211

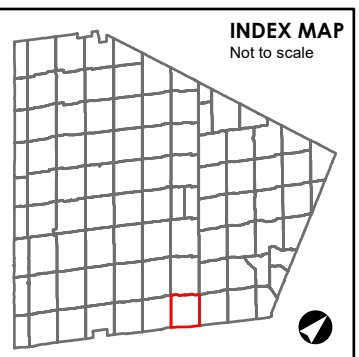
CON. 6 E.H.S. (CHING)

CON. 1 (ALB)



This copy is provided for convenience only. If necessary, the original may be referred to in the office of the Town Clerk.

INDEX MAP
Not to scale



A2 ZONE SYMBOL

A2-### ZONE SYMBOL
Note: Number of suffixes represent Exceptions which can be looked up in the Exceptions section of the By-law.

ZONE BOUNDARY

STRUCTURAL ENVELOPE MAP

NIAGARA ESCARPMENT DEVELOPMENT CONTROL AREA
Lands lying within the Development Control area pursuant to the Niagara Planning and Development Act are subject to permit requirements under Ontario Regulations 685/50, as amended.

OAK RIDGES MORAINE CONSERVATION PLAN AREA BOUNDARY

WELLHEAD PROTECTION AREA BOUNDARY
WP-2 WP-5 WP-10 WP-25
Zone Maps amended to indicate the 2, 5, 10, and 25 year Wellhead Protection Areas.

The base data on this map is provided for convenience only. The Town of Caledon is not responsible for any deficiency or inaccuracy in the base data, and will not accept any liability whatsoever therefor. The reporduction of the base data, in whole or in part, by any means is prohibited without the prior written permission of the Town of Caledon.

BY-LAW 2006-50

ZONE MAP 4

SCHEDULE "A"

0 137.5 275 m 550

TOWN OF CALEDON

Date: 3 April 2006

Revised: November 29, 2022

File: S:\POLICY SECTION\GIS\zoning_bylaw\2015_mxd

4

TOWN OF CALEDON

Schedule N

TULLAMORE LAND USE AREA

- Prestige Industrial
- General Industrial
- Highway Commercial
- Environmental Policy Area
- Settlement Area Boundary
- Conceptual Stormwater Management Facility
- Conceptual Road Network
- Regional Road
- Local Road

Base Data Source: Town of Caledon

0 50 100 200 300 400 m

AIRPORT RD

INNIS LAKE RD

PERDUE CT

MAYFIELD RD

TOWN OF CALEDON
CITY OF BRAMPTON

7

14

Salt Creek

March 2024 Office Consolidation

SECTION 7
COMMERCIAL ZONES

7.1 GENERAL PROHIBITION

No *person* shall, within any **Commercial *Zone***, use any land, or erect, *alter*, enlarge, use or maintain any *building* or *structure* for any *use* other than as permitted in **Table 7.1** of Subsection 7.2 and in accordance with the standards contained in **Table 7.2** of Subsection 7.3, the General Provisions contained in Section 4 and the Parking, Loading & Delivery Standards contained in Section 5.

7.2 PERMITTED USES

Uses permitted in a **Commercial *Zone*** are noted by the symbol '✓' in the column applicable to that *Zone* and corresponding with the row for a specific permitted *use* in **Table 7.1**. A number(s) following the symbol '✓' , *zone* heading or identified permitted *use*, indicates that one or more conditions apply to the *use* noted or, in some cases, to the entire *Zone*. Conditions are listed below the Permitted Use Table, **Table 7.1**.

The **Commercial *Zones*** established by this By-law are as follows:

CC Core Commercial
CCV Village Core Commercial
C General Commercial
CN Neighbourhood Commercial
CV Village Commercial
CH Highway Commercial
CHB Bolton Highway Commercial
CHV Village Highway Commercial
CT Tourist Camp Commercial

TABLE 7.1

	ZONE								
USE	**CC**	**CCV (12)**	**C**	**CN**	**CV**	**CH**	**CHV**	**CHB**	**CT**
Animal Hospital	✓		✓		✓	✓	✓	✓	
Art Gallery	✓	✓			✓				
Artist Studio & Gallery	✓	✓			✓				
Bakery		✓							
Boarding House	✓								
Building, Apartment		✓							
Business Office	✓	✓	✓	✓	✓			✓	
Clinic	✓	✓	✓	✓	✓	✓	✓		

Convenience Store	✓(4)	✓(4)	✓(4)	✓(4)	✓(4)				
Drive-Through Service Facility			✓ (13)			✓ (13)	✓ (13)	✓ (13)	
Dry Cleaning or Laundry Outlet	✓	✓	✓	✓	✓				
Dwelling, Accessory					✓ (9) (11)	✓ (10) (11)	✓ (10) (11)		✓
Dwelling, Common Element Townhouse		✓							
Dwelling, Freehold Townhouse		✓							
Dwelling, Townhouse		✓							
Dwelling Unit		✓							
Dwelling Unit, Accessory	✓ (7) (8)				✓ (7) (9)	✓ (7) (10)	✓(7)		✓(7)
Factory Outlet								✓	
Farmers' Market		✓			✓	✓	✓	✓	
Financial Institution	✓	✓	✓	✓	✓	✓	✓	✓	
Fitness Centre	✓	✓	✓	✓	✓	✓	✓	✓	
Funeral Home	✓		✓		✓				
Grocery Store		✓	✓ (5)						
Hotel	✓	✓	✓			✓	✓	✓	
Industrial Use								✓	
Laundromat	✓	✓	✓	✓	✓				
Merchandise Service Shop	✓	✓	✓		✓			✓	
Motel	✓		✓			✓	✓	✓	
Motor Vehicle Gas Bar					✓	✓	✓	✓	
Motor Vehicle Rental Establishment					✓	✓	✓	✓	
Motor Vehicle Repair Facility					✓	✓	✓	✓	
Motor Vehicle Sales Establishment					✓	✓	✓	✓	
Motor Vehicle Service Centre					✓	✓	✓	✓	
Motor Vehicle Used Sales Establishment					✓	✓	✓	✓	
Open Storage Area, Accessory						✓	✓	✓ (14)	

Outside Display or Sales Area, Accessory								✓	
Parking Area, Commercial	✓	✓	✓	✓	✓	✓	✓	✓	
Parking Area, Municipal	✓	✓							
Personal Service Shop	✓	✓	✓	✓	✓				
Place of Assembly	✓	✓	✓		✓	✓	✓	✓	
Place of Entertainment	✓	✓	✓		✓ **(1)**	✓	✓ **(1)**	✓	
Private Club	✓	✓	✓	✓	✓	✓	✓	✓	
Research Establishment								✓	
Restaurant	✓	✓	✓	✓	✓	✓	✓	✓	
Retail Store	✓	✓	✓	✓	✓ **(6)**	✓ **(6)**	✓ **(6)**		
Retail Store, Accessory								✓ **(2)**	
Sales, Service and Repair Shop	✓	✓	✓	✓	✓				
Tourist Camp									✓
Training Facility	✓	✓	✓		✓			✓	
Video Outlet/Rental Store	✓ **(3)**	✓	✓ **(3)**	✓ **(3)**	✓ **(3)**				
Warehouse								✓	
Warehouse, Public Self-Storage								✓	
Warehouse, Wholesale								✓	

Footnotes For Table 7.1

(1) Excluding a cinema or theatre.

(2) An *accessory retail store* shall not exceed 93 m^2 *net floor area*.

(3) A *video outlet/rental store* shall not exceed 185 m^2 *net floor area*.

(4) *Convenience store* not to exceed a maximum 160 m^2 *net floor area*.

(5) *Grocery store* not to exceed a maximum 1100 m^2 *net floor area*.

(6) A *retail store* shall not exceed 925 m^2 *net floor area* per *building.*

(7) Unit size not to exceed 15% of commercial *net floor area*.

(8) **CC *Zone*** permits a *boarding house* as well as 3 *accessory dwelling units* per commercial establishment.

(9) **CV *Zone*** permits both 1 a*ccessory dwelling* and 1 a*ccessory dwelling unit* per establishment.

(10) **CH *Zone*** and **CHV *Zone*** permit a maximum of 1 a*ccessory dwelling* or 1 a*ccessory dwelling unit* per establishment.

(11) *Accessory dwelling* size shall be governed by the applicable *lot* coverage and *yard* requirements.

(12) CCV Zone – The following provisions shall apply to any building abutting Kennedy Road or Dougall Avenue:

i. Only commercial uses shall be permitted on the first storey;
ii. Only dwelling units, business offices and hotel uses shall be permitted on storeys above the first storey;
iii. Entrances and lobbies used to service those uses listed in (ii) above shall be permitted on the first storey.

(13) Subject to compliance with Section 4.9, *drive-through service facilities* shall only be permitted in the Settlement Areas of Bolton and Mayfield West, and in Tullamore, Victoria, Sandhill, and Caledon Village only in existing commercial zones along Hurontario Street (Highway 10) and Charleston Sideroad (Regional Road 24).

(14) *Open Storage Area, Accessory* shall not be permitted with an *Industrial Use*

7.3 ZONE STANDARDS

No *person* shall, within any Commercial *Zone*, use any *lot* or erect, *alter*, use any *building* or *structure* except in accordance with the following *zone* provisions as set out in **Table 7.2**. A number(s) following the *zone* standard, *zone* heading or description of the standard, indicates an additional *Zone* requirement. These additional standards are listed at the end of **Table 7.2**.

TABLE 7.2

	ZONES								
STANDARD	**CC**	**CCV (12)**	**C**	**CN**	**CV**	**CH**	**CHV**	**CHB (7)**	**CT**
***Lot Area* (Minima):**	275 m^2	N/A	0.8ha	2,000 m^2	2,000 m^2				8,000 m^2
Motor Vehicle Service Centre						2,000 m^2	2,000 m^2	2,000 m^2	
Motel						2,750 m^2	2,750 m^2		

Hotel or M*otel*								2,750 m^2	
Other *uses* on *unserviced lot*						2,040 m^2	2,040 m^2	2,040 m^2	
Other *uses* on *partially serviced* lot						1,390 m^2	1,390 m^2	1,390 m^2	
Other *uses* on *fully serviced lot*						460 m^2	460 m^2	460 m^2	
***Lot Frontages* (Minima)**	Nil	9m	30m	30m	30m				45m
Motor Vehicle Service Centre, Hotel or Motel						40m	40m	40m	
Other *uses* on *fully serviced lot*						9m	9m	9m	
Other *uses* on any other *lot*						30m	30m	30m	
***Building Area* (Maximum)**	75%	N/A	25%	30%	25%	30%	30%	30%	25%
Building Setback (Minimum)									9m **(8)**
Front Yard		**(9)**							
Minimum	Nil	0.3m	15m	9m	9m	18m	18m	18m	
Maximum		2m							
Exterior Side Yard		**(11)**							
Minimum	Nil	0.3m	15m	9m	9m	18m	18m	18m	
Maximum		2m							
***Rear Yard* (Minima)**	6m	6m							
From a *rear lot line* abutting a Residential *zone* or a *lot* containing a Residential *use*			19.5 m			10.5m	10.5m	10.5m	
From a *rear lot line* abutting a Residential *zone*				9m	10.5m				
From any other *rear lot line*			15m	6m	7.5m	7.5m	7.5m	7.5m	
***Interior Side Yard* (Minima)**		**(11)**							
From an *interior side lot line*	1.5m	3m		9m	4.5m				

abutting a Residential *zone*									
From an *interior side lot line* abutting a Residential *zone* or a *lot* containing a Residential *use*			12m			10.5m	10.5m	10.5m	
From any other *interior side lot line*	Nil	Nil	7.5m	6m	3m	7.5m	7.5m	7.5m	
***Motor Vehicle Gas Bar Setback* (Minima)**									
From any *lot line*					4.5m **(6)**	6m **(6)**	6m **(6)**	6m **(6)**	
From any *sight triangle*					3m **(6)**	3m **(6)**	3m **(6)**	3m **(6)**	
Building Height									
Minimum									
Maximum	10.5m		10.5 m	10.5m	10.5m	10.5m	10.5m	10.5m	10.5m
Main Building (Minimum)		7.5m							
Main Building (Maximum)		15m							
***Landscaping Area* (Minimum)**	Nil	Nil	10%		20%	20%	20%	20%	30%
***Gross Floor Area* (Maxima)**									
Retail Store	465 m^2				925 m^2	925 m^2	925 m^2		
Retail Store, Accessory								93 m^2	
***Planting Strip Widths* (Minima):**		1.5m	4.5m	3m	3m	3m	3m	6m	6m
Along an *interior side lot line*	1.5m								
Along a *rear lot line*	3m								
***Planting Strip* Location**	**(1)**	**(10)**	**(2)**	**(1)**	**(1)**	**(3)**	**(3)**	**(3)**	**(4)**
***Play Facility Area* (Minimum)**									4%
***Play Facility* Location**									6m **(5)**

***Driveway Setbacks* (Minima)**		1.5m	4.5m						6m
From a *lot line* abutting a Residential *Zone*	1.5m			1.5m	4.5m	4.5m			
From a *lot line* abutting a Residential *zone* or a *lot* containing a Residential Use							4.5m	6m	
From any other *lot line*	Nil			Nil	1.5m	1.5m	1.5m	1.5m	
***Parking Space Setback* (Minima)**									
From any *street line*	1.5m	3m	1.5m	3m	1.5m	1.5m	1.5m	6m	
From any *lot line* abutting a Residential *zone*	4.5m	3m		4.5m	4.5m				
From any *lot line* abutting a Residential *zone* or a *lot* containing a Residential *use*			4.5m			4.5m	4.5m		
From any other *lot line*		1.5m						1.5m	
From any *lot line*									6m

Footnotes for Table 7.2

(1) **CC *Zone*, CN *Zone*, CV *Zone*** – A *planting strip* shall be required along any portion of a *rear lot line* and any portion of an *interior side lot line* which abuts a Residential *Zone*.

(2) **C *Zone*** - A *planting strip* shall be required along any of a *rear lot line* and any portion of an *interior side lot line* which abut a Residential *Zone* or which abuts a *lot* containing a Residential *use*.

(3) **CH *Zone*, CHV *Zone*, CHB *Zone*** – A *planting strip* shall be required along any *front lot line* and any *exterior lot line* and along any portion of a *rear lot line* and any portion of an *interior side lot line* which abut a Residential *Zone* or which abut a lot containing a Residential *use.*

(4) **CT *Zone*** – A *planting strip* shall be required along every *lot line* except that no *planting strip* shall be required for a length of 15m along a *front lot line* between a *tourist camp* management office and a *street*.

(5) **CT *Zone*** – No part of any *play facility* shall be located closer to any *lot line* than 6m

(6) *Motor Vehicle Gas Bar setback* – Where a *motor vehicle gas bar* includes a canopy or roof structure, the required *setback* shall be measured to the nearest part of the canopy or roof structure.

(7) **CHB *Zone*** – The following performance standards shall apply to a *Factory Outlet, Industrial Use*, *Merchandise Service Shop*, and a *Warehouse*:

(i) *Lot Area* (minimum):	925m^2
(ii) *Lot Frontage* (minimum):	30m
(iii) *Building Area* (maximum):	50%
(iv) *Yard, Front* (minimum):	
- from *lot line* abutting Residential *zone*	20m
- from any other *front lot line*	18m
(v) *Yard, Rear* (minimum):	
- from *lot line* abutting Residential *zone*	15m
- from *lot line* abutting provincial highway	18m
- from any other *rear lot line*	7.5m
(vi) *Yard, Interior Side* (minimum):	
- from *side lot line* abutting a Residential *zone* or *lot* containing Residential *use*	15m
- any other *side lot line*	7.5m
(vii) *Floor Area, Net*	
- *Factory Outlet*	20% of *net floor area* of permitted *industrial use* to which it is *accessory*

(8) **CT *Zone*** – *Building* Separations (minima):

Between tourist vehicles	6m
(i) Between tourist vehicle and Management office	9m
(ii) Between tourist vehicle and Recreation building	12m
(iii) Between *main building* and Detached *accessory building*	2m
(iv) Between detached *accessory buildings*	1m

(9) CCV *Zone* – Within the CCV Zo*ne*, with the exception of driveways and pedestrian walkways, lands abutting Kennedy Road or Dougall Avenue shall be developed with a continuous *building* face.

(10) CCV *Zone* – A *planting strip* shall be required along each *street line* adjacent to a *parking area*.

(11) CCV *Zone* – The minimum setback for any type of first *storey* residential *use* shall be 3m.

(12) CCV *Zone* – Within the CCV *Zone* the following special standards shall apply:

(i) For Holding Provisions see CCV-H15 in Subsection 13.3;

(ii) For the purpose of this *zone*, each of the two parcels of land located on the north and south sides of Dougall Ave. west of Kennedy Road shall each be deemed to be one *lot*, regardless of the number of *buildings* constructed thereon and regardless of any subdivision thereof by any means. Further the *lot line* abutting Dougall Ave. shall be considered to be the *front lot line*.

(iii) Notwithstanding any other provision of this By-law, no *building* or *structure* or part thereof and no chimney, pilaster or similar ornamental *structure* or part thereof and no *patio* or *porch* or part thereof and no machinery or equipment or part thereof and no fence, sidewalk or walkway or part thereof shall be located in any part of a *yard* that is subject to a registered easement;

(iv) Notwithstanding Section 5.4.2 and 5.4.4 only one *delivery space* shall be required on the *lot* described in Section 12(ii) above.

(v) The minimum off street parking requirement for any commercial *use* shall be 1 *parking space* per 34 m^2 of *gross floor area* or portion thereof.

(vi) The minimum off street parking requirement for any *apartment building* shall be 1.25 *parking spaces* per *dwelling unit* plus the requirement for any commercial *use* as noted in (v) above.

(vii) For the purpose of this *zone*, Section 4.38 with respect to *Sight Triangles* shall not apply.

(viii) In addition to the requirements of Section 4.5, air conditioners or heat pumps shall not be located in the *front yard* or *exterior side yard*.

(ix) For the purpose of this *zone, Building Height* shall be calculated using the vertical distance measured from the average elevation of the established grade at the front of such *building* to the median level between eaves and ridge on a gable, gambrel or hip roof.

(x) For the purpose of this *zone*, Established Grade, with reference to a *building*, shall be calculated using the average elevation of the finished surface of the ground where it meets the exterior of the front of such *building*.

SECTION 8

INDUSTRIAL ZONES

8.1 GENERAL PROHIBITION

No *person* shall, within any **Industrial *Zone***, use any land, or erect, *alter*, enlarge, use or maintain any *building* or *structure* for any *use* other than as permitted in **Table 8.1** of Subsection 8.2 and in accordance with the standards contained in **Table 8.2** of Subsection 8.3, the General Provisions contained in Section 4 and the Parking, Loading & Delivery Standards contained in Section 5.

8.2 PERMITTED USES

Uses permitted in an **Industrial *Zone*** are noted by the symbol '✓' in the column applicable to that *Zone* and corresponding with the row for a specific permitted *use* in **Table 8.1**. A number(s) following the symbol '✓' , *zone* heading or identified permitted *use*, indicates that one or more conditions apply to the *use* noted or, in some cases, to the entire *Zone*. Conditions are listed below the Permitted Use Table, **Table 8.1**.

The **Industrial *Zones*** established by this By-law are as follows:

MP Prestige Industrial
MS Serviced Industrial
MU Unserviced Industrial
MA Airport Industrial
MX Extractive Industrial
MD Waste Management

TABLE 8.1

	ZONE					
USE	**MP**	**MS**	**MU**	**MA**	**MX**	**MD**
Adult Video Store		✓				
Airport				✓		
Bulk Storage Facility		✓	✓			
Business Office	✓					
Cannabis-Related Use-Indoor	✓ **(3)**	✓ **(3)**				
Contractor's Facility		✓	✓			
Dry Cleaning or Laundry Plant	✓	✓				
Equipment Storage Building	✓	✓	✓			
Factory Outlet	✓	✓	✓			
Farm					✓	
Financial Institution	✓ **(2)**					
Gasoline Pump Island, Accessory	✓	✓	✓	✓		

Gravel Pit					✓	
Industrial Hemp-Related Use-Indoor	✓ **(3)**	✓ **(3)**				
Industrial Use	✓	✓	✓			
Light Equipment Rental Establishment	✓	✓				
Maintenance Garage, Accessory	✓	✓	✓			
Merchandise Service Shop	✓	✓	✓			
Motor Vehicle Body Shop		✓	✓			
Motor Vehicle Compound		✓	✓			
Motor Vehicle Gas Bar		✓				
Motor Vehicle Repair Facility		✓	✓			
Motor Vehicle Towing Facility		✓	✓			
Open Storage Area, Accessory		✓	✓	✓	✓	
Outside Display or Sales Area, Accessory		✓	✓			
Place of Assembly	✓					
Place of Worship	✓					
Quarry					✓	
Research Establishment	✓	✓				
Restaurant	✓ **(2)**	✓ **(2)**		✓ **(2)**		
Retail Store, Accessory	✓ **(1)**	✓ **(1)**				
Sanitary Landfill Site						✓
Sewage Treatment Facility						✓
Training Facility	✓					
Transportation Depot		✓	✓			
Warehouse	✓	✓	✓			
Warehouse, Public Self-Storage	✓	✓	✓			
Warehouse, Wholesale	✓	✓	✓			
Waste Processing Facility						✓
Waste Transfer Facility						✓

Footnotes for Table 8.1

(1) Must comply with Section 8.4.1

(2) Must comply with Section 8.4.2

(3) Must comply with Section 4.8 Cannabis or Industrial Hemp Uses.

8.3 ZONE STANDARDS

No *person* shall, within any **Industrial *Zone***, use any *lot* or erect, *alter*, use any *building* or *structure* except in accordance with the following *zone* provisions. A number(s) following the *zone* standard, *zone* heading or description of the standard, indicates an additional *Zone* requirement. These additional standards are listed at the end of *Table 8.2*.

TABLE 8.2

	ZONE					
STANDARD	**MP**	**MS**	**MU**	**MA**	**MX**	**MD**
***Lot Areas* (Minima):**	925 m^2	925 m^2	4,000 m^2	Nil	1ha	
Sanitary landfill site						4ha
Other Non-Residential *uses*						1ha
***Lot Frontage* (Minimum)**	30m	30m	50m	30m	10m	10m
***Building Area* (Minimum)**						
For a *Transportation Depot*		10% **(22)** **(23)**	10% **(22)** **(23)**			
***Building Area* (Maximum)**	50%	50% **(22)**	10% **(22)**	**(9)**	900 m^2	
Sanitary landfill site						180m^2
Sewage treatment facility						20%
Other Non-Residential *uses*						35%
***Yards* (Minima)**	**(14)**	**(14)** **(24)**	15m **(24)**		**(15)**	
From a *lot line* abutting a *zone* other than an Industrial *zone*				30m		
From any other *lot line*				21m		
***Front Yards* (Minima)**					30m	18m
From a *front lot line* abutting a Residential *zone*	20m					
From a *front lot line* abutting a Residential *zone* or a *lot* containing a Residential *use*		20m				
From a *front lot line* abutting a Provincial Highway	14m					
From any other *front lot line*	9m	9m				
***Exterior Side Yards* (Minima)**					30m	18m
From an *exterior side lot line* abutting a Residential *zone*	15m					
From an *exterior side lot line* abutting a Residential *zone* or a *lot* containing a Residential *use*		15m				
From an *exterior side lot line* abutting a Provincial Highway	14m					

From any other *exterior side lot line*	7.5m	7.5m				
Rear Yards (Minima)						
From a *rear lot line* abutting a Residential *zone* or a *lot* containing a Residential *use*		15m				
From a *rear lot line* abutting a Residential *zone*	15m				90m	
From a *rear lot line* abutting a Provincial Highway	14m					
From a *rear lot line* abutting a *zone* other than an MD or MX *Zone*						15m
From any other *rear lot line*	7.5m	7.5m			30m	3m
***Interior Side Yards* (Minima)**						
From an *interior side lot line* abutting a *zone* other than an MD or MX *Zone*						15m
From any other *lot line*						3m
From an *interior side lot line* abutting a Residential *zone*					90m	
From any other *interior side lot line*	**(1)**	**(5)**			30m	
From an *interior side lot line* abutting a Residential *zone* or a *lot* containing a Residential *use*	15m	15m				
***Gasoline Pump Island, Accessory* Setbacks (Minima)**				30m **(11) (16)**		
From any *street line*	**(21)**	6m **(16)**	6m **(16)**			
From any other *lot line*	4.5m **(16)**	4.5m **(16)**	4.5m **(16)**			
Excavation Setbacks (Minima)						
From any *lot line*					15m	
From any *street line*					30m	
***Accessory Open Storage Area* Setbacks (Minima)**		**(19) (24)**	**(20) (24)**			
From any *lot* line which abuts a Residential *zone*					90m	
From any other *lot line*					30m	
***Accessory Outside Sales* or *Display Area* Setback (Minimum)**						
From any *street line*		9m				
***Building Heights* (Maxima)**	18m	12.2m	12.2m		25m	12.2m
Residential *buildings*				10.5 m		
Non-Residential *Building*				12.2 m		
***Landscaping Area* (Minimum)**	10% **(13)**	10%	10%		5%	25%
***Net Floor Area* (Maxima)**						
Factory Outlet	20%	20%				

	(3)	**(6)**				
An indoor Sales Display Area associated with a W*holesale Warehouse*	33% **(4)**					
***Planting Strip Width* (Minimum):**	6 m	6 m	3 m	15 m	15 m	7.5 m
***Planting Strip* Location**	**(2) (17) (18)**	**(7) (17) (18)**	**(8)**	**(10)**	**(10)**	**(12)**
Landfill Area *Setbacks* (Minima)						
From any *street line*						30 m
From any *lot line* which abuts a *zone* other than an MD or MX *Zone*						90 m
***Driveway Setbacks* (Minima)**		**(24)**	**(24)**			
From a *lot line* abutting a Residential *zone*	4.5m					
Where a *driveway* forms part of a mutual *driveway* on an adjacent *lot*	Nil					
From any other *lot line*	1.5m	1.5m	1.5m	3m	3m	3m
From a *lot line* abutting a Residential *zone* or a *lot* containing a Residential use		4.5m	4.5m			
From a *lot line* abutting a *zone* other than an Industrial *zone*				9m		
From a *lot line* abutting a *zone* other than an MX or MD *zone*					9m	9.5m
***Parking Space Setbacks* (Minima)**		**(24)**	**(24)**			
From any front *lot line*	6m	6m				
From any other *lot line*	3m	3m				
From any *street line*			1.5m	3m	3m	3m
From any *lot line* abutting a Residential *zone* or a *lot* containing a Residential *use*			4.5m		9m	
From any *lot line* abutting a *zone* other than an Industrial *zone*				9m		
From any *lot line* abutting a *zone* other than an MD or MX *zone*						9m

Footnotes For Table 8.2

(1) **MP** *Zone* – Minimum *interior side yard* from any other *interior side lot line* shall be 3m on one side, 6m on other side

(2) **MP** *Zone* – A *planting strip* shall be required along each *front lot line* and each *exterior side lot line* and along any portion of a rear *lot line*, which abuts a Residential *zone* line or a *lot* containing a Residential *use*, and along any portion of an *interior side lot line* which abuts a Residential *zone* or a *lot* containing a Residential *use*.

(3) **MP** *Zone* – The maximum *net floor area* of a *factory outlet* shall be 20% of the *net floor area* of the *industrial facility* to which it is *accessory*.

(4) **MP** *Zone* – The maximum *net floor area* of a sales display area associated with a *wholesale warehouse use* shall be 33% of the total *net floor area*.

(5) **MS** *Zone* – The minimum *interior side yard* from any other *interior side lot line* shall be 3m on one side; 6m on other side.

(6) **MS** *Zone* – The maximum *net floor area* of a *factory outlet* shall be 20% of the *gross floor area* of the *industrial use* to which it is accessory.

(7) **MS** *Zone* – A *planting strip* shall be required along each *front lot line*.

(8) **MU** *Zone* – A *planting strip* shall be required along any portion of a *rear lot line* and any portion of an *interior side lot line* which abuts a Residential *zone* or which abuts a *lot* containing a Residential *use*.

(9) **MA** *Zone* – The maximum *building area* shall be the lesser of 5%; or 0.4 hectares.

(10) **MA** *Zone***, MX** *Zone* – A *planting strip* shall be required along each *front lot line*. A *planting strip* shall also be required along any portion of a *rear lot line* and any portion of an *interior side lot line* which abut a Residential *zone*.

(11) **MA** *Zone* – No *accessory gasoline pump island* shall be located closer to any *lot line* than 30m.

(12) **MD** *Zone* – A *planting strip* shall be required along any portion of a *rear lot line* and any portion of an *interior side lot line* which abut a *zone* other than an **MD** or **MX** *zone*.

(13) **MP** *Zone* - The required minimum *Landscaping Area* for a *corner lot* shall be 12.5%

(14) **MP** *Zone*, **MS** *Zone* - Notwithstanding any *building setback* provisions to the contrary, no *building setback* shall be required from any portion of a *lot line* which abuts a railroad right-of-way.

(15) **MX** *Zone* - Notwithstanding any *building setback* provisions to the contrary, no *building setback* shall be required from any portion of a *lot line* which abuts a railroad right-of-way or abuts another *lot* in an **MX** *Zone*.

(16) **MP** *Zone***, MS** *Zone,* **MU** *Zone,* **MA** *Zone - Accessory Gasoline Pump Island Setback* – Where an *Accessory Gasoline Pump Island* includes a canopy or roof *structure*, the required *setback* shall be measured to the nearest part of the canopy or roof *structure*.

(17) **MP** and **MS** *Zone* – In addition to the *Planting Strip* Widths and Locations noted in **Table 8.2**, the following provisions shall also apply:

(i) Minimum width abutting an arterial road or Provincial Highway 9.0m

(ii) Minimum width where truck *parking* or *loading spaces* are provided adjacent to an arterial road or Provincial Highway 12.0m

(iii) Minimum width required on all *interior side yards* except where there is a mutual *driveway* along an *interior side lot line*. 1.5m

(18) **MP** and **MS** *Zone* – Tullamore Industrial Commercial Secondary Plan Area– A *planting strip* along an arterial road shall be a minimum of 12m, and a *planting strip* for all internal roads within the Tullamore Industrial Commercial Secondary Plan Area shall be a minimum of 8 m.

(19) No open storage area shall be located:

(i) In a *front yard* or *exterior side yard*; or
(ii) Closer than 6 metres to any *lot line* unless a chain-link fence, at least 1.8 metres high, is constructed along that *lot line*.

(20) No open storage area shall be located:

(i) in a *front yard* or an *exterior side yard*; or
(ii) in a *rear yard* adjacent to a *rear lot line* of such *lot* which abuts a Residential *zone* or abuts a *lot* containing a Residential *use*; or
(iii) in a *side yard* adjacent to an *interior side lot line* of such *lot* which abuts a Residential *zone* or abuts a *lot* containing a Residential *use*; or
(iv) closer than 6 metres to any *lot line* if combustible materials are stored there.

(21) No accessory gasoline pump island shall be permitted in a *front yard* or in an *exterior side yard*.

(22) **MS** and **MU** *Zones* – Section 4.2.5 shall not apply to *transportation depots.*

(23) **MS** and **MU** *Zones* – For the purpose of calculating the minimum *building area*, it shall mean that portion of the *lot area* excluding any *landscaping area* permitted to be covered by one or more *building envelope.*

(24) **MS** and **MU** *Zones* – No parking, storing or staging for a *transportation depot* shall be located:

i) in a *front yard* or an *exterior side yard*; or

ii) in a *rear yard* adjacent to a *rear lot line* of such *lot* which abuts a residential *zone* or abuts a *lot* containing a Residential *use*; or

iii) in a *side yard* adjacent to an *interior side lot line* of such *lot* which abuts a Residential *zone* or abuts a *lot* containing a Residential *use.*

8.4 SPECIAL PROVISIONS AND STANDARDS FOR INDUSTRIAL ZONES

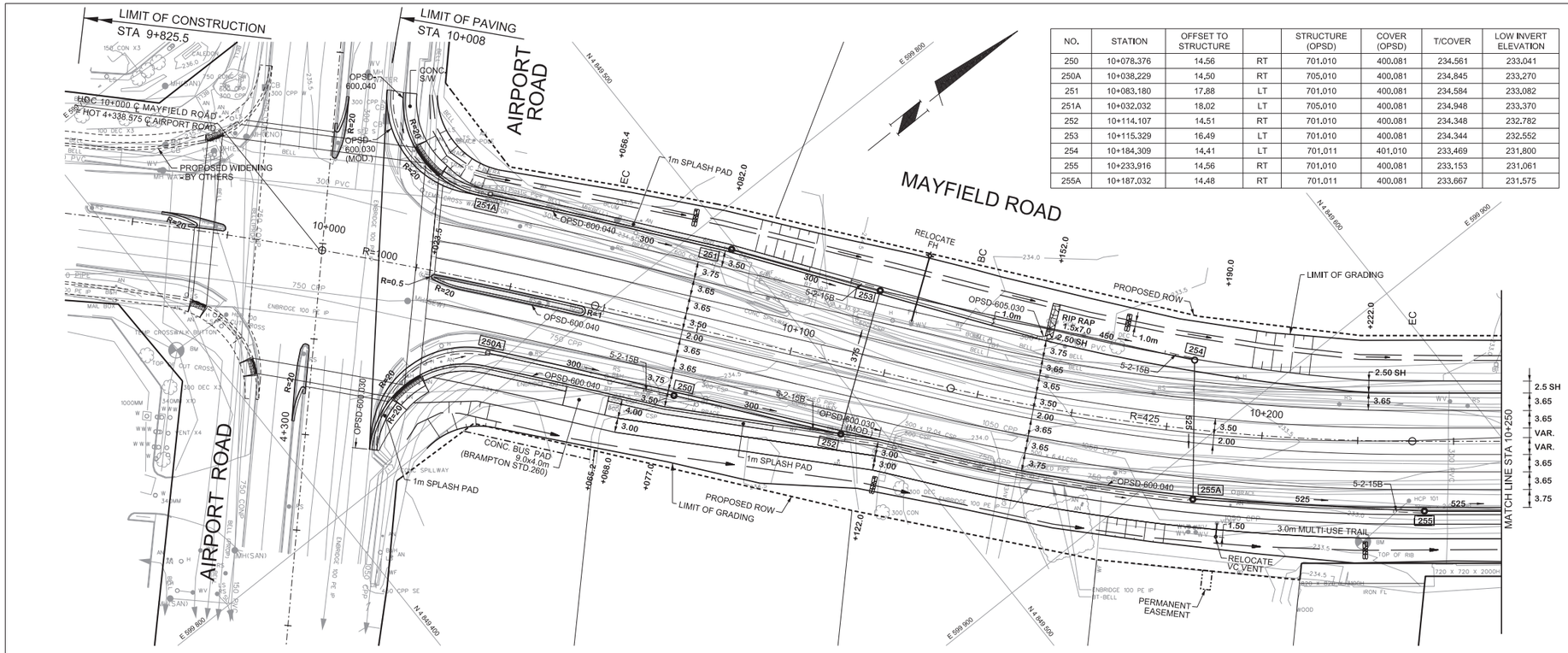
8.4.1 *Retail Store, Accessory* shall comply with the following provisions:

a) An *Accessory Retail Store* shall only be permitted as accessory to a permitted *industrial use* and for the retail sale and/or display of products manufactured or assembled on the *premises*;
b) An *Accessory Retail Store* shall only be located on the ground floor of the *building* in which the *industrial use* is located;
c) The area devoted to an *accessory retail store* shall not exceed 500 m^2 or 15% of the total *gross floor area* devoted to the *industrial use*, whichever is less; and
d) An *Accessory Retail Store* may be permitted in a free-standing *building* located on the same lot as a permitted *industrial use*, provided that the total *net floor area* of the *Accessory Retail Store* does not exceed 300 m^2.

8.4.2 *Financial Institution* and/or *Restaurant* shall comply with the following provisions:

a) The area devoted to the *Financial Institution* or *Restaurant* shall not exceed 15% of the total *gross floor area* of all *buildings* on a *lot*, to a maximum of 500 m^2.

NO.	STATION	OFFSET TO STRUCTURE		STRUCTURE (OPSD)	COVER (OPSD)	T/COVER	LOW INVERT ELEVATION
250	10+078.376	14.56	RT	701.010	400.081	234.561	233.041
250A	10+038.229	14.50	RT	705.010	400.081	234.845	233.270
251	10+083.180	17.88	LT	701.010	400.081	234.584	233.082
251A	10+032.032	18.02	LT	705.010	400.081	234.948	233.370
252	10+114.107	14.51	RT	701.010	400.081	234.348	232.782
253	10+115.329	16.49	LT	701.010	400.081	234.344	232.552
254	10+184.309	14.41	LT	701.011	401.010	233.469	231.800
255	10+233.916	14.56	RT	701.010	400.081	233.153	231.061
255A	10+187.032	14.48	RT	701.011	400.081	233.667	231.575



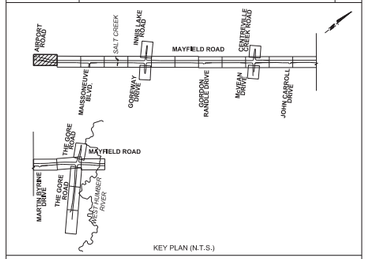
			235.24	235.13	234.98	234.82	234.66	234.49	234.29	234.09	233.89	233.67	233.45	233.23	PROP. ROAD EL.
235.17	235.23	235.36	235.20	235.03	234.86	234.75	234.58	234.37	234.22	233.99	233.80	233.58	233.35	233.17	EX. ROAD ELEV.
9+960	9+980	10+000	10+020	10+040	10+060	10+080	10+100	10+120	10+140	10+160	10+180	10+200	10+220	10+240	ROAD CHAINAGE

SERVICE DATA

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

REVISIONS

DATE	DETAILS	INIT.



LEGEND:

COLOUR PATTERNED CONCRETE

ROCK FLOW CHECK DAM OPSD-219.210 OR OPSD-219.211

NOTE:

1. ADJUST ALL MANHOLES, VALVE CHAMBERS, CATCHBASINS, WATER VALVES AND HAND WELLS IMPACTED BY CONSTRUCTION TO SUIT FINAL GRAES.

General Notes

All Driveways Are ASPHALT Unless Otherwise Noted
All Water And Sanitary Service Locations Are Approximate And Must Be Located Accurately In The Field
All Horizontal And Vertical Bends Are In Degrees
All Pipes Size In mm
20C Existing Water Service, Size In mm
WS20 Proposed Water Service, Size In mm
B.M. No, Description Location Elev,
The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction, Location Of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

IBI GROUP
100-175 Galaxy Boulevard
Toronto ON M9W 0C9 Canada
tel 416 679 1930 fax 416 675 4620 ibigroup.com

Designed by | Chkd. | Approved by

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

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

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

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

Region of Peel
Working for you

MAYFIELD ROAD

(FROM AIRPORT ROAD TO THE GORE ROAD)

NEW CONSTRUCTION

STA. 10+000 TO STA. 10+250

CAD Area	X-XX	Area	X-XX	Project No.	11-4075 & 13-4065
Checked by		Drawn by	T.Y.		
Date		Sheet	20 of	Plan No.	**XXXXX-D**

12/19/2017
USER:steve.yoo
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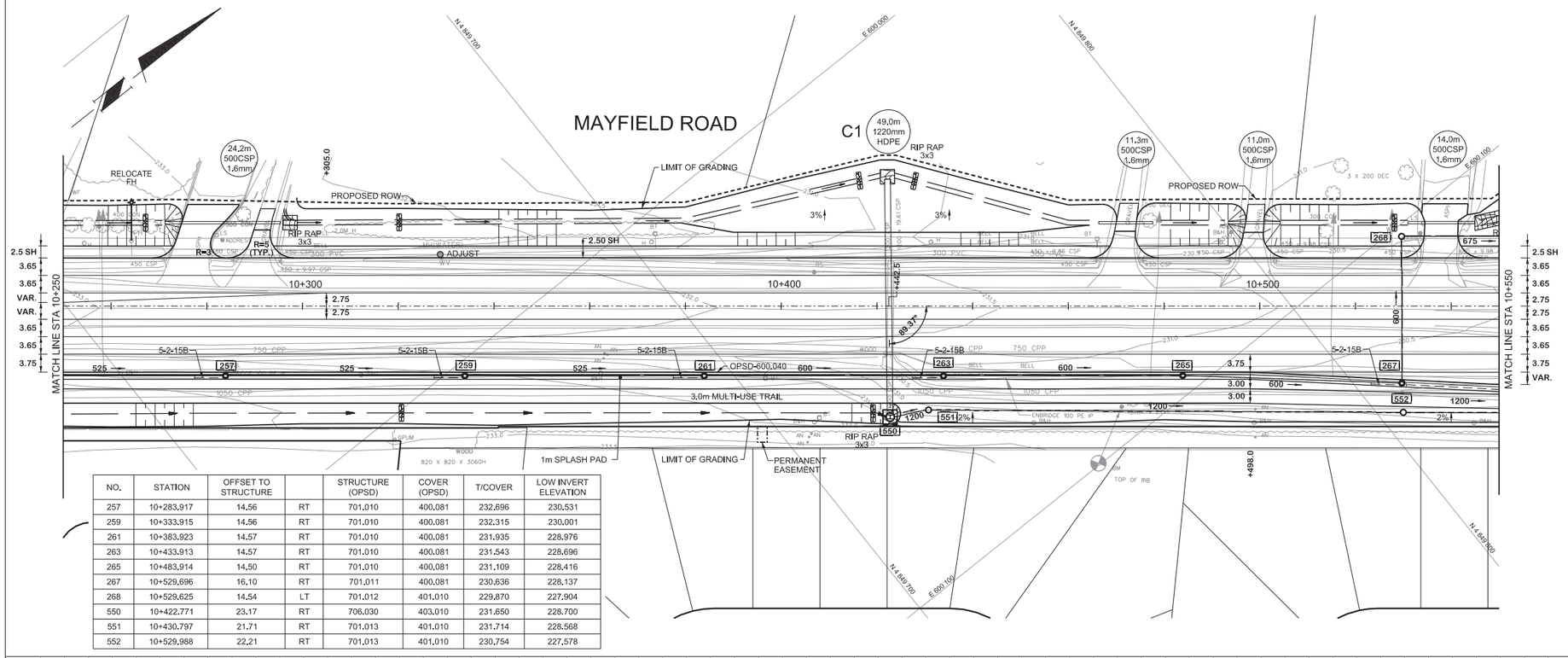
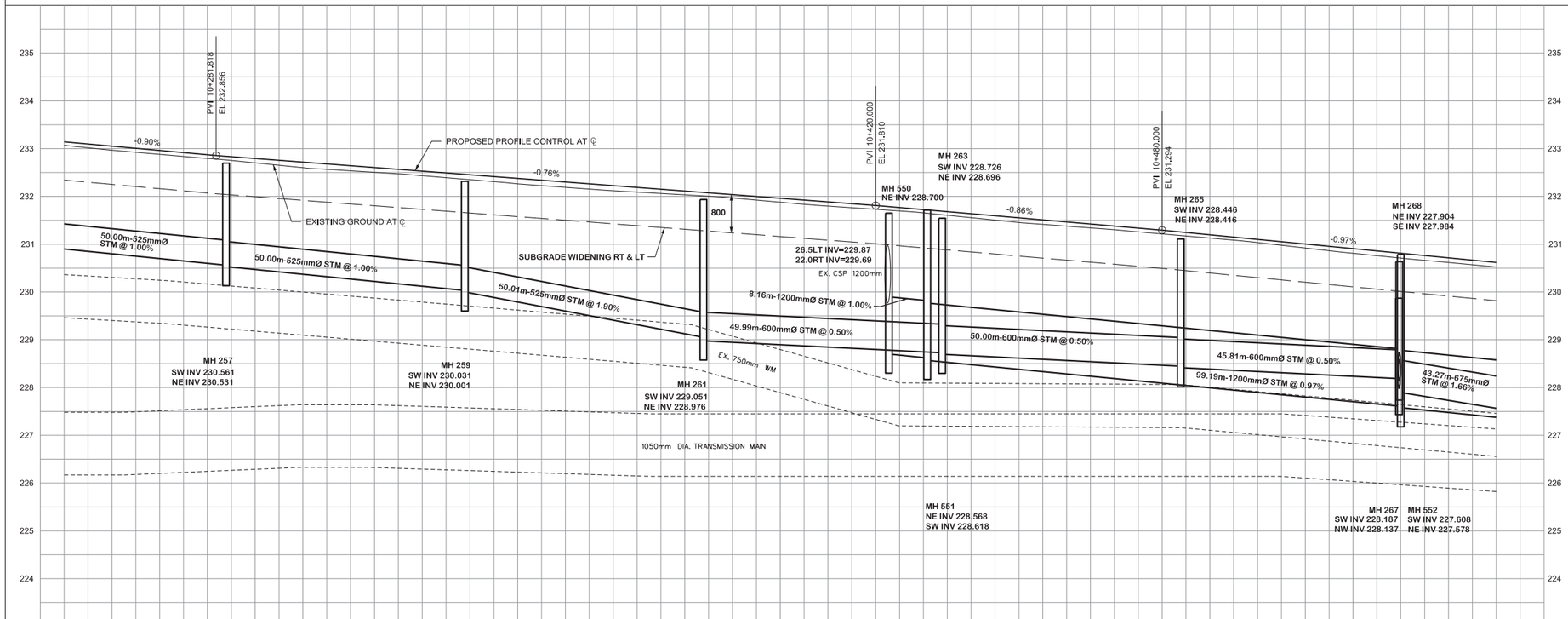


NO.	STATION	OFFSET TO STRUCTURE		STRUCTURE (OPSD)	COVER (OPSD)	T/COVER	LOW INVERT ELEVATION
257	10+283.917	14.56	RT	701.010	400.081	232.696	230.531
259	10+333.915	14.56	RT	701.010	400.081	232.315	230.001
261	10+383.923	14.57	RT	701.010	400.081	231.935	228.976
263	10+433.913	14.57	RT	701.010	400.081	231.543	228.696
265	10+483.914	14.50	RT	701.010	400.081	231.109	228.416
267	10+529.696	16.10	RT	701.011	400.081	230.636	228.137
268	10+529.625	14.54	LT	701.012	401.010	229.870	227.904
550	10+422.771	23.17	RT	706.030	403.010	231.650	228.700
551	10+430.797	21.71	RT	701.013	401.010	231.714	228.568
552	10+529.988	22.21	RT	701.013	401.010	230.754	227.578



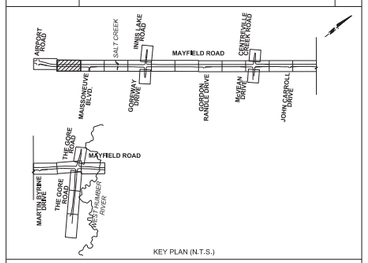
233.05	232.87	232.72	232.57	232.42	232.26	232.11	231.96	231.81	231.64	231.47	231.29	231.10	230.91	230.71	PROP. ROAD EL.
232.97	232.79	232.60	232.47	232.31	232.15	232.03	231.88	231.73	231.55	231.38	231.22	231.03	230.81	230.62	EX. ROAD ELEV.
10+260	10+280	10+300	10+320	10+340	10+360	10+380	10+400	10+420	10+440	10+460	10+480	10+500	10+520	10+540	ROAD CHAINAGE

SERVICE DATA

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

REVISIONS

DATE	DETAILS	INIT.



General Notes

All Driveways Are ASPHALT Unless Otherwise Noted
All Water And Sanitary Service Locations Are Approximate And Must Be Located Accurately In The Field
All Horizontal And Vertical Bends Are In Degrees
All Pipes Size In mm
20C Existing Water Service, Size In mm
WS20 Proposed Water Service, Size In mm
B.M. No. Elev.
Description
Location
The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction. Location Of Existing Utilities Approximate Only. To Be Verified In Field By Contractor.

IBI GROUP
100-175 Galaxy Boulevard
Toronto ON M9W 0C9 Canada
tel 416 679 1930 fax 416 675 4620 ibigroup.com

Designed by | Approved by

Chkd.

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

THE REGIONAL MUNICIPALITY OF PEEL
CITY OF MISSISSAUGA WORKS DEPT.
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ONTARIO MINISTRY OF TRANSPORTATION
ONTARIO CLEAN WATER AGENCY
HYDRO ONE NETWORKS
ENERSOURCE, HYDRO MISSISSAUGA
HYDRO ONE BRAMPTON

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

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

Region of Peel
Working for you

MAYFIELD ROAD

(FROM AIRPORT ROAD TO THE GORE ROAD)

NEW CONSTRUCTION

STA. 10+250 TO STA. 10+550

CAD Area X-XX	Area X-XX	Project No.	11-4075 & 13-4065
Checked by	Drawn by T.Y.		
Date	Sheet 21 of	Plan No.	XXXXX-D

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USER:steve.yoo
12/19/2017

NO.	STATION	OFFSET TO STRUCTURE		STRUCTURE (OPSD)	COVER (OPSD)	T/COVER	LOW INVERT ELEVATION
269	10+572.891	14.61	LT	701.012	401.010	229.420	226.867
269A	10+572.882	17.93	RT	705.010	400.081	230.169	228.419
270	10+633.888	14.49	LT	701.010	401.010	228.898	227.197
270A	10+633.882	18.02	RT	701.010	400.081	229.611	227.613
270B	10+668.052	31.64	RT	705.010	400.081	228.875	227.827
271	10+675.506	14.56	LT	701.010	401.010	229.302	227.510
271A	10+682.251	14.34	RT	705.010	400.081	229.264	227.764

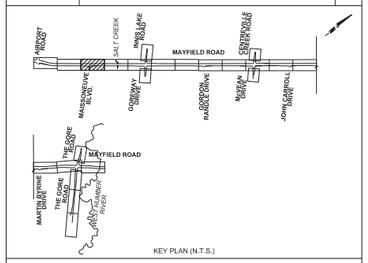
NO.	STATION	OFFSET TO STRUCTURE		STRUCTURE (OPSD)	COVER (OPSD)	T/COVER	LOW INVERT ELEVATION
272	10+572.920	16.18	LT	STC 9000	STC 9000	229.101	226.823
273	10+725.589	14.52	RT	705.020	400.081x2	229.089	227.595
275	10+779.250	14.56	RT	701.010	400.081	229.313	227.297
277	10+839.250	14.50	RT	701.010	400.081	229.666	226.917
553	10+638.926	22.74	RT	701.013	401.010	229.660	226.400
554	10+636.393	28.83	LT	706.010	403.010	229.661	226.400

SERVICE DATA

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

REVISIONS

DATE	DETAILS	INIT.



KEY PLAN (N.T.S.)

NOTE:

1. REINSTALL CONCRETE SIDEWALK AFTER REMOVE EXISTING CULVERT.

General Notes

All Driveways Are ASPHALT Unless Otherwise Noted
All Water And Sanitary Service Locations Are Approximate And Must Be Located Accurately In The Field
All Horizontal And Vertical Bends Are In Degrees
All Pipes Size In mm
20C Existing Water Service, Size In mm
WS20 Proposed Water Service, Size In mm
B.M. No, Description Location Elev.
The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction. Location Of Existing Utilities Approximate Only. To Be Verified In Field By Contractor.

IBI GROUP
100-175 Galaxy Boulevard
Toronto ON M9W 0C9 Canada
tel 416 679 1930 fax 416 675 4620 ibigroup.com

Designed by | Chkd. | Approved by

NOTICE TO CONTRACTOR

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THE REGIONAL MUNICIPALITY OF PEEL
CITY OF MISSISSAUGA WORKS DEPT.
CITY OF BRAMPTON WORKS DEPT.
TOWN OF CALEDON WORKS DEPT.
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ENBRIDGE INCORPORATED-GAS DISTRIBUTION
ONTARIO MINISTRY OF TRANSPORTATION
ONTARIO CLEAN WATER AGENCY
HYDRO ONE NETWORKS
ENERSOURCE, HYDRO MISSISSAUGA
HYDRO ONE BRAMPTON
CABLE TELEVISION/FIBREOPTIC PROVIDERS:
BELL CANADA
ENERSOURCE TELECOM
HYDRO ONE TELECOM
ROGERS CABLE
ALLSTREAM
PSN (PUBLIC SECTOR NETWORK)
FUTUREWAY (FCI BROADBAND)

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

Region of Peel
Working for you

MAYFIELD ROAD

(FROM AIRPORT ROAD TO THE GORE ROAD)

NEW CONSTRUCTION

STA. 10+550 TO STA. 10+850

CAD Area X-XX	Area X-XX	Project No.	11-4075 & 13-4065
Checked by	Drawn by T.Y.		
Date	Sheet 22 of	Plan No.	XXXXX-D

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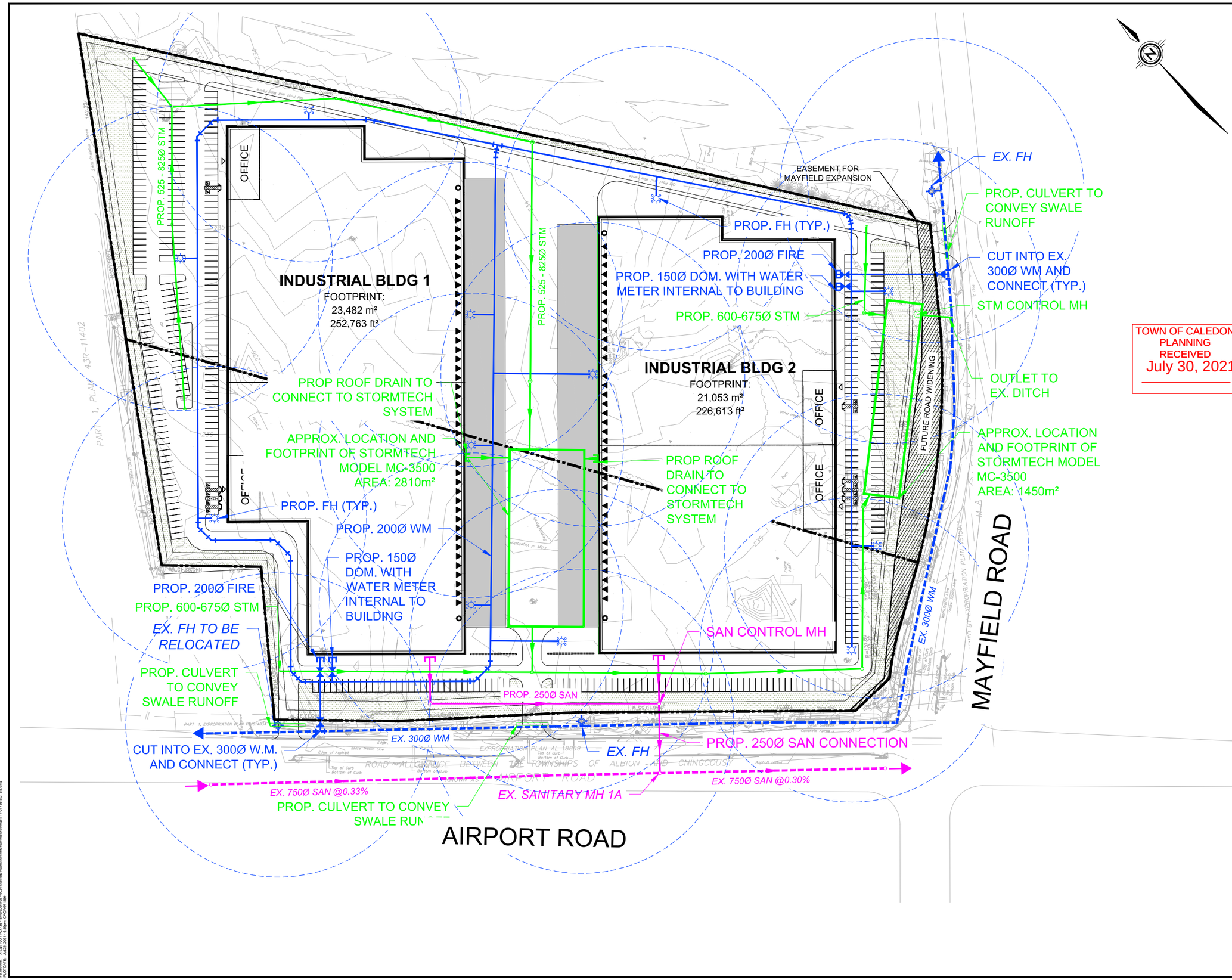
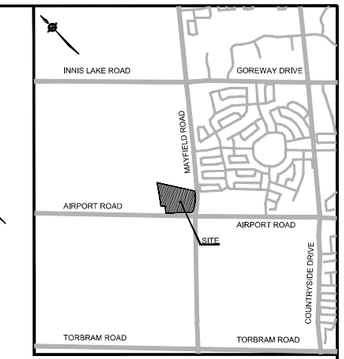
USER:steve.yoo
12/19/2017





KEY PLAN NTS

TOWN OF CALEDON
PLANNING
RECEIVED
July 30, 2021

LEGEND

- LIMIT OF PROPERTY
- EX. WATERMAIN
- EX. FIRE HYDRANT
- HYDRANT COVERAGE RADIUS
- EX. SAN SEWER
- EX. SEWER MANHOLE
- EX. CATCHBASIN
- PROP. WATERMAIN
- PROP. WATER VALVE
- PROP. HYDRANT & BOLLARDS
- PROP. SAN SEWER
- PROP. STM SEWER
- PROP. CATCHBASINS
- PROP. CATCHBASIN MANHOLE
- PROP. SEWER MANHOLE

SURVEY: DAVID J. PESCE SURVEYING

DATE OF SURVEY: JULY 13, 2011

NOTE: ALL ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO REGION OF PEEL BENCHMARK NO. 48, HAVING A POSTED ELEVATION OF 229,756 M, BENCHMARK IS LOCATED ON THE SOUTH FACE AT THE EAST CORNER OF GARAGE OF A RED BRICK BUNGALOW LOCATED ON THE NORTH SIDE OF SEVENTEENTH SIDEROAD (REGIONAL ROAD #14). APPROX. 0.80KM EAST OF AIRPORT ROAD

No.	REVISIONS TO DRAWING	BY	DATE	APPR.
1	ISSUED FOR CLIENT REVIEW	G.W	2021-07-22	A.D.R

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MUNICIPALITY
TOWN OF CALEDON

PROJECT TITLE
6034 MAYFIELD ROAD

SHEET TITLE
PRELIMINARY SITE SERVICING FIGURE

CONSULTANT
wsp
100 Commerce Valley Dr. West, Thornhill, ON Canada L3T 0A1
t: 905.882.1100 f: 905.882.0055 www.wsp.com

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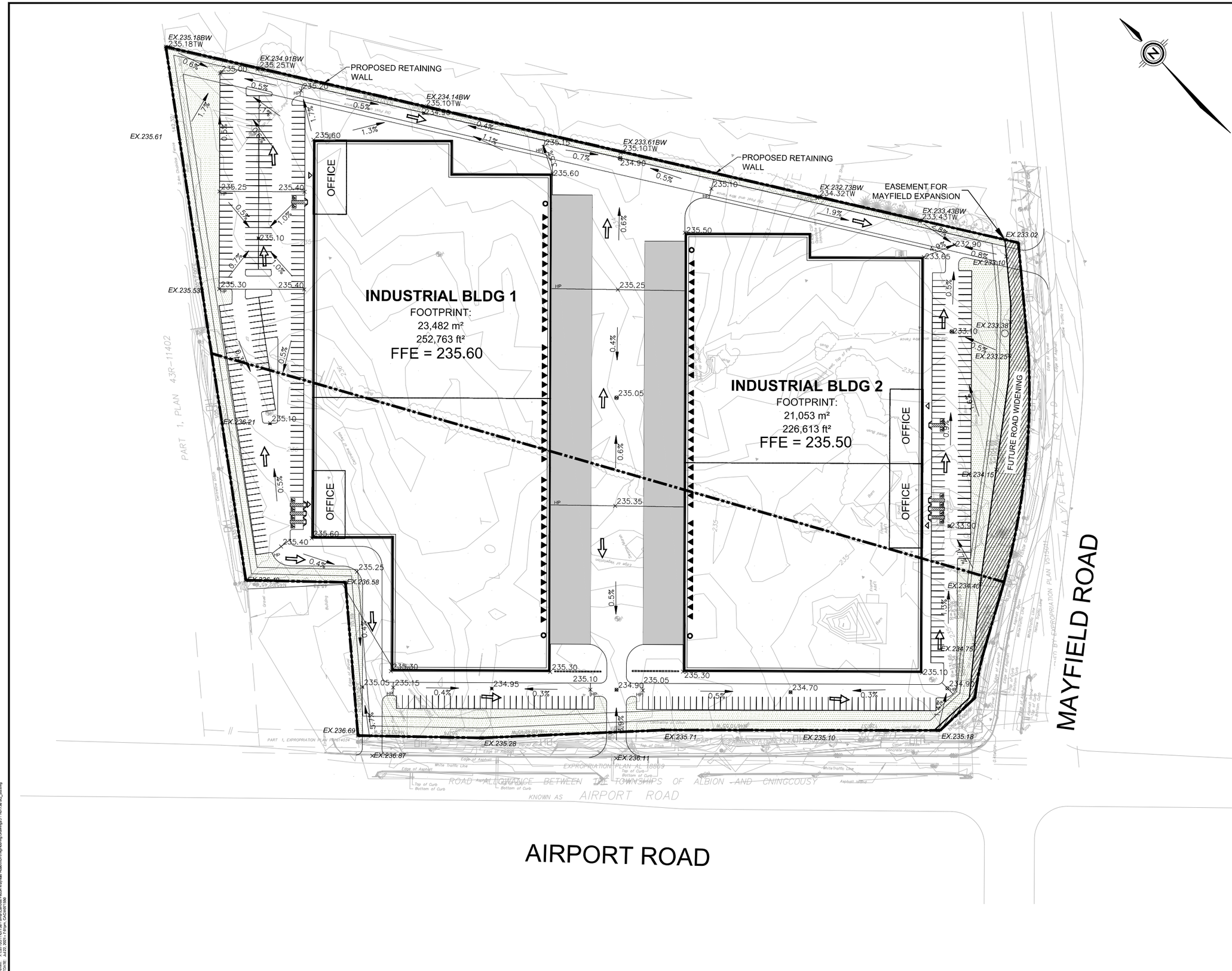
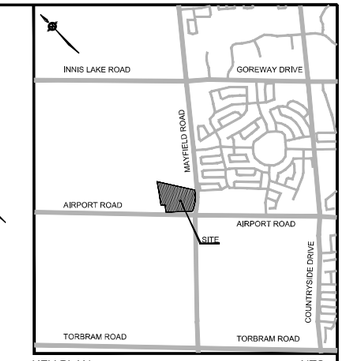
DWG. NUMBER	SHEET NUMBER
211-07736	4





KEY PLAN NTS

LEGEND

	LIMIT OF PROPERTY
EX.±216.25	EX. ELEVATION
216.25	PROP. ELEVATION
0.5%	PROPOSED SLOPE
	OVERLAND FLOW DIRECTION
BW	BOTTOM OF WALL
TW	TOP OF WALL

SURVEY: DAVID J. PESCE SURVEYING

DATE OF SURVEY: JULY 13, 2011

NOTE: ALL ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO REGION OF PEEL BENCHMARK NO. 48, HAVING A POSTED ELEVATION OF 229,756 M. BENCHMARK IS LOCATED ON THE SOUTH FACE AT THE EAST CORNER OF GARAGE OF A RED BRICK BUNGALOW LOCATED ON THE NORTH SIDE OF SEVENTEENTH SIDEROAD (REGIONAL ROAD #14). APPROX. 0.80KM EAST OF AIRPORT ROAD

No.	REVISIONS TO DRAWING	BY	DATE	APPR.
1	ISSUED FOR CLIENT REVIEW	G.W	2021-07-22	A.D.R

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DWG. NUMBER	SHEET NUMBER
211-07736	5

CHART H2-6A - HYDROLOGIC SOIL GROUPS FOR PRINCIPAL SOIL TEXTURES IDENTIFIED ON AGRICULTURAL SOILS MAPS (6)

Soils Series	Soil Texture	Hyd. Soil Grp.	Soils Series	Soil Texture	Hyd. Soil Grp.	Soils Series	Soil Texture	Hyd. Soil Grp.
Alberton	si l	BC	Bolingbr.	s	A	"	c	C
Allendale	s l	B	Bondhead	s l	AB	"	l	BC
Alliston	s l	AB	"	l	B	Camilla	s l	AB
Almonte	si c l	C	Bookton	s l	AB	"	si l	BC
Ameliasbg	c l	C	Boomer	l	B	Campbell	si c	C
"	l	B	Brady	s l	AB	Cane	si l	BC
Ancaster	si l &s	B	"	s	A	"	si c l	C
"	si l	BC	Brant	s &si l	B	Carp	c &c l	C
Anstruther	s	A	Brantford	si l	BC	Casey	si l	BC
Appleton	si l & s	B	"	si c l	C	Cashel	c	D
Atherley	c	C	"	l	BC	Castor	s l	AB
"	si c l	C	"	c l	D	"	si l	BC
Athol	s l	A	Brentha	s l	A	"	c	C
Atwood	c	C	"	l	B	Chesley	si l	BC
Ayr	s l	B	Brethour	si l	BC	"	si c l	C
Bainsville	s	B	Breypen	limest.	B	"	c l	C
"	si l	B	Bridgman	s	A	Chinguac'y	l	BC
Balderson	s l	B	Brighton	s	A	"	si l	BC
Bamford	s	AB	"	s l	AB	"	c l	C
Bancroft	s	A	Brisbane	s g	AB	"	c	D
"	s l	B		l	B	Christy	s l	B
Bass	c	D	Brockport	c	D	Clyde	l	BC
Bastard	s	A	Brooke	l	B	"	si l	BC
Battersea	si l	BC	Brookston	s l	B	"	c l	C
"	s l	AB	"	l	C	"	c	C
Bearbrook	s l	B	"	si l	C	Colborne	s	A
"	si c l	C	"	si c l	C	Colwood	s l	B
"	c	C	"	c l	C	"	si l	B
Belmeade	m & c	B	"	c	C	"	l	BC
Bennington	s l	B	Bucke	s	AB	Codrington	si l	BC
"	s	A	"	s l	AB	Conestogo	l	BC
"	si l	A	Burford	s l	A	Conover	c l	C
Berrien	s	AB	"	l	AB	"	l	BC
"	s l	AB	Burnbrae	l	B	Cooksville	c	D
Berriedale	s & si	AB	Burnstown	l	B	Coutts	s l	AB
Beverly	l	BC	Burpee	s	A	"	l	BC
"	si l	C	Burris	c l	C	Craigleith	c	C
"	si c l	C	Buzwah	si c l	C	Cramahe	s g	A
Binbrook	si l	C	Buzwah	c l	D	Crombie	s l	B
Blackwell	c	C	Caledon	s l	A	"	si l	BC
Blanche	si l	BC	"	l	B	Dack	c	D
Blue	c l	C	Calstor	c l	C	Dalton	s	AB

Notes: 1. See footnotes to Chart H2-2.

2. Key to abbreviations: c - clay; f - fine; g - gravel; l - loam; ma - marl; m - muck; p - peat; r - rock; s - sand; si - silt.

CHART H2-6A (Cont'd)

CHART H2-6A - continued

Soils Series	Soil Texture	Hyd. Soil Grp.	Soils Series	Soil Texture	Hyd. Soil Grp.	Soils Series	Soil Texture	Hyd. Soil Grp.
Darlington	s	B	"	c l	C	Heidelburg	f s l	B
"	l	C	Ferndale	si l	BC	Hendrie	s /g	AB
Dawson	s l	A	"	c l	C	Henwood	s /g	A
"	l	B	Flamboro	s	B	Hespeler	s l	B
Deloro	l	B	"	s l	B	Hillier	c &c l	C
Devlin	si c /	C	Floradale	l	B	Hillsburgh	s l	A
	c l		Fonthill	g	A	Himsworth	si l	BC
Dinorwic	c	BC	"	l	B	Hinchinbr.	s l	B
Dobie	c /l	BC	Font	g s l	A	"	l	BC
Doe	s l	B	Forbes	c	D	"	si l	BC
"	si l	BC	Fox	s	A	Honeywood	s l	AB
Donald	l	B	"	s l	AB	"	si l	BC
Donnybrook	s g	A	"	gr l	AB	"	s	A
"	s l	AB	Foxboro	s	A	Howland	s l	B
"	l	B	Franktown	l	B	"	l	BC
Dorion	c /l	C	Freeport	s l	B	Huron	s l	B
Dorking	si c l	BC	Galesburg	s l	A	"	l	BC
Dumfries	s l	A	"	l	AB	"	si l	BC
"	l	AB	Gameland	s /g	AB	"	c l	CorD
Dunmer	s l	A	Gananoque	c	C	"	c	D
"	l	B	Gerow	c l	C	Innisville	s l	B
Dundonald	s l	AB	Gilford	s l	B	Jeddo	l	BC
Dunedin	c	D	"	l	B	"	c l	C
Dymond	s l	AB	Gordon	si c	C	"	c	D
"	l	B	Granby	s	B	Kagawong	si l	BC
Eagle Lake	s /g	AB	"	s l	B	Kars	s /g	A
Eamer	l	BC	Grand	l	B	"	s l	B
Earlton	si l	B	Grenville	s l	A	Kemble	si l	BC
"	c l	C	"	l	BC	"	si c l	C
Eastport	s	A	Grimsby	s l	A	"	si c	C
Edenvale	s	AB	Guelph	s l	A	"	c l	D
"	s l	B	"	l	BC	Kenabeek	s	B
Eganville	l	B	"	si l	BC	"	s l	B
Elderslie	si l	BC	Guelin	s l	AB	Killean	l /s l	AB
"	si c l	C	"	l	B	King	si l	BC
"	c l	C	Gwillimb.	g	AB	"	c l	C
Eldorado	s l	A	Haileybury	si c l	C	Kirkland	s l	A
"	l	B	"	si c	C	Kossuth	s l	B
Elk Pit	s g	A	"	c	CD	L'Achigan	s	AB
Ellwood	c l	C	Haldimand	si l	BC	Lambton	l	BC
Elmbrook	si l	BC	"	si c l	C	"	si l	BC
"	c l	C	"	c	CorD	Lanark	c	C
"	c	C	"	c l	C	Lansdowne	c /si l	C
Elmira	l	B	Hanbury	si c l	C	Leech	si c l	C
Elmsley	s l	B	"	si c	C	"	c l	D
Embro	s l	BC	"	c	D	Leitrim	g	B
"	si l	C	Harkaway	l	B	Leith	si l	BC
Emily	l	B	"	si l	BC	Lily	l /s l	B
Emo	c & p	C	Harriston	l	BC	Lincoln	si c	C
Englehart	s l	B	"	si l	BC	"	c	C
Evanturel	si l	BC	Harrow	s	A	Lindsay	c l	C
"	si c l	C	"	s l	AB	"	c	C
Falardeau	si l	BC	"	l	B	Lisbon	s l	A
"	si c l	C	Havelock	s /g	A	Listowel	l	B/BC
Farmington	s l	A	Hawkesvi.	l	B	"	si l	BC
"	l	B	Haysville	s l	AB	Little Cur.	c	C

CHART H2-6A - continued

Soils Series	Soil Texture	Hyd. Soil Grp.	Soils Series	Soil Texture	Hyd. Soil Grp.	Soils Series	Soil Texture	Hyd. Soil Grp.
Lockport	c	D	Mountain	s l	AB	"	l	C
London	l	BC	Muck	m	B	"	si l	C
"	si l	BC	Murray	si l /f		"	si c l	CD
Lovering	si c l	C		s	B	"	c l	CD
"	c	D	Napanee	c /si l	C	"	c	CD
"	c l	CD	Neebing	s /si	B	Petherwick	si l	BC
Lyons	l	B	Nepean	s	AB	Phipps	si c l	C
Macton	l	B	Newburgh	s l	A	"	c l	C
Magnetawan	si l	BC	"	si l	BC	Piccadilly	s l	B
Mallard	s	AB	Newcastle	l	BC	"	l	BC
"	s l	AB	"	c l	C	"	si l	BC
Malton	c	C	"	si l	BC	Pike	c	D
Mannheim	l	B	Newton	s l	B	Pike Lake	l	B
Manotick	s	AB	Nelson	c	D	Plainfield	s	A
Maplewood	si l	BC	New lisk.	si c	C	Pontypool	s	A
Marionville	s	B	"	c	C	"	s l	AB
"	s l	B	Niagara	c	D	Powassan	si l	BC
Martin	s /g	AB	Nipissing	s /si	B	Preston	s l	B
Maryhill	l	BC	Norham	si l	BC	Raglan	s /g	A
Matilda	l	BC	North Gow.	c l	C	Rainy Riv.	p	B
Matson	si l	BC	"	c	C	Renfrew	c l	C
Medonte	si l	BC	O'Connor	c	D	"	l	BC
"	si c l	C	Oliver	l /si l	B-BC	Rideau	c l	D
McCool	c	C	Oneida	l	BC	"	c	D
McInnis Cr	c l/l		"	si l	BC	Rosslyn	s /g	A
	&P	BC	"	si c l	C	Rubicon	s	AB
McIntyre	s	AB	"	c l	D	"	s l	AB
Miami	l	BC	Ontario	l	BC	Sandford	c	D
"	si l	BC	Osgoode	l	BC	Sargent	s /g	A
"	c l	D	"	si l	BC	"	s l	AB
"	g l	AB	"	si c l	C	Saugeen	si l	BC
Milberta	c /si		Oshtemo	s	A	"	si c l	C
	c l	C	Osnabruck	c l	C	"	c l	D
Mill	s	B	Osprey	s l	A	Schomberg	si l	BC
	s l	B	"	l	B	"	si c l	C
Milliken	s l	AB	Otonabee	s l	A	"	c l	C
"	l	BC	"	l	B	Scoble	si c	C
Minesing	ma si		Otterskin	s l	B	Seely's Bay	si c l	C
	c l	BC	Oxdrift	c	D	Shashawan	l	B
"	ma c	C	Paipoonge	c	C	Shenston	c l &p	BC
Mississauga	c	C	Parkhill	l	BC	Sidney	c	C
Monaghan	l	BC	"	si l	BC	Sifton	si c /c	
"	si l	BC	Peat	p	B		l	C
"	c l	C	Peel	c	D	Simcoe	si l	BC
Monteagle	s l	A	Pelham	s l	A	"	si c l	C
"	sl + r	B	Pense	si l	BC	"	c l	C
Moose	s l	B	Pense	si c l	C	Slate River	s /l	B
"	l	BC	Perch	c	C	Smithfield	si l	C
Morley	c si		Percy	s	A	"	si l	C
	c l	C	"	f s l	B	"	c l	CD
Morrisburg	c	C	"	s l	B	Smithville	l	BC
Moscow	si c	C	Perth	s l	AB	"	si c l	C

CHART H2-6A (Cont'd)

CHART H2-6A - continued

Soils Series	Soil Texture	Hyd. Soil Grp.	Soils Series	Soil Texture	Hyd. Soil Grp.	Soils Series	Soil Texture	Hyd. Soil Grp.
"	si l	BC	Uplands	s	A			
Snedden	si c l	C	"	s l	A			
Solmesville	c l	C	Upsala	f s	AB			
South Bay	c l	D	Vars	l	B			
"	c	D	Vasey	s l	AB			
Spohn	s /g /		"	l	B			
	c	BC	Vergennes	si l	BC			
Springvale	s l	A	"	l	BC			
Stafford	l	B	"	c	C			
Stockdale	si l/f		Vincent	si l	BC			
	s	B	"	si c l	C			
St. Clem.	s l	A	"	c l	D			
"	si c l	C	Vineland	s l	AB			
St. Jacobs	l	B	Wabi	s l	A			
St. Peter	s /g	A	"	l	B			
St. Rosalie	c	C	Wabigoon	c	C			
St. Samuel	s	B	Waterloo	s	A			
"	s l	B	"	s l	A			
St. Thomas	s	A	Watrin	s	B			
Sullivan	s	A	Waupoos	c l	D			
"	s l	A	"	c	D			
Sutton Bay	s	B	Wauseon	s l	B			
"	s l	B	Wayside	s	AB			
Tansley	c	D	Welland	c	C			
Tavistock	s l	AB	Wellesley	s l	AB			
"	si l	BC	"	si c l	C			
Tecumseth	s	AB	Wemyss	s l	AB			
			Wendigo	s	A			
Teeswater	si l	B	"	s l + r	AB			
Temisk'g	r &c	C	"	s l	AB			
Tennyson	s l	A	Wendover	c l	D			
Thames	c l	D	"	c	D			
Thorah	s	B	Westmeath	s	A			
Thornloe	c	C	Whitby	l	BC			
Thwaites	si l	BC	White Lake	s /g	A			
Tioga	s	A	Whitfield	si l	B			
"	s l	A	Wiarton	l	B			
Toledo	si l	BC	"	si l	BC			
"	si c l	C	Wilmot	s l	B			
"	c l	C	"	si c l	C			
"	c	C	Winona	s l	AB			
Trafalgar	c	D	Woburn	s l	A			
Trent	s	AB	"	l	B*			
Tuscola	s l	AB	Wolford	c l	D			
"	si l	BC	Wolsey	si c	C			
Tweed	s l	A	Wooler	si l/f				
"	s l + r	AB		s	AB			
"	r	AB	Woolwich	l	BC			
Undiffer'd	s l + r	AB or B(dep. on depth)	Worthing.	s /g /c	BC			
			Wyevale	s /g	A			

Design Chart 1.07: Runoff Coefficients

- Urban for 5 to 10-Year Storms

Land Use		Runoff Coefficient	
		Min.	Max.
Pavement	- asphalt or concrete	0.80	0.95
- brick		0.70	0.85
Gravel roads and shoulders		0.40	0.60
Roofs		0.70	0.95
Business	- downtown	0.70	0.95
- neighbourhood		0.50	0.70
- light		0.50	0.80
- heavy		0.60	0.90
Residential	- single family urban	0.30	0.50
- multiple, detached		0.40	0.60
- multiple, attached		0.60	0.75
- suburban		0.25	0.40
Industrial	- light	0.50	0.80
- heavy		0.60	0.90
Apartments		0.50	0.70
Parks, cemeteries		0.10	0.25
Playgrounds (unpaved)		0.20	0.35
Railroad yards		0.20	0.35
Unimproved areas		0.10	0.30
Lawns	- Sandy soil		
- flat, to 2%		0.05	0.10
- average, 2 to 7%		0.10	0.15
- steep, over 7%		0.15	0.20
- Clayey soil			
- flat, to 2%		0.13	0.17
- average, 2 to 7%		0.18	0.22
- steep, over 7%		0.25	0.35

For flat or permeable surfaces, use the lower values. For steeper or more impervious surfaces, use the higher values. For return period of more than 10 years, increase above values as 25-year - add 10%, 50-year - add 20%, 100-year - add 25%.

The coefficients listed above are for unfrozen ground.

Design Chart 1.07: Runoff Coefficients (Continued)

- Rural

Land Use & Topography[3]	Soil Texture		
	Open Sand Loam	Loam or Silt Loam	Clay Loam or Clay
CULTIVATED			
Flat 0 - 5% Slopes	0.22	0.35	0.55
Rolling 5 - 10% Slopes	0.30	0.45	0.60
Hilly 10- 30% Slopes	0.40	0.65	0.70
PASTURE			
Flat 0 - 5% Slopes	0.10	0.28	0.40
Rolling 5 - 10% Slopes	0.15	0.35	0.45
Hilly 10- 30% Slopes	0.22	0.40	0.55
WOODLAND OR CUTOVER			
Flat 0 - 5% Slopes	0.08	0.25	0.35
Rolling 5 - 10% Slopes	0.12	0.30	0.42
Hilly 10- 30% Slopes	0.18	0.35	0.52
BARE ROCK	COVERAGE[3]		
	30%	50%	70%
Flat 0 - 5% Slopes	0.40	0.55	0.75
Rolling 5 - 10% Slopes	0.50	0.65	0.80
Hilly 10- 30% Slopes	0.55	0.70	0.85
LAKES AND WETLANDS	0.05		

[2] Terrain Slopes

[3] Interpolate for other values of % imperviousness

Sources: American Society of Civil Engineers - ASCE (1960)
U.S. Department of Agriculture (1972)

Design Chart 1.08: Hydrologic Soil Groups

- Based on Surficial Geology Maps

Map Ref.No.	Soil Type or Texture	Hydrologic Soil Group (Tentative)
	Ground Moraine	
1a	Usually sandy till, stony, varying depth. (Most widespread type in Shield).	Usually B (shallow); may be A or AB
1b	Clayey till, varying depth.	BC-C
	End or Interlobate Moraine	
2a	Sand & stones, deep. (May be rough topography).	A
2b	Sand & stones capped by till, deep.	A-C depending on type of till.
2c	Sand & stones, deep. (Smoother topography).	A
	Kames & Eskers	
3a	Sand & stones, deep. (May be rough topography).	A
3b	Sand & stones capped by till, deep.	A-C depending on type of till.
3c	Sand & stones, deep. (Smoother topography).	A
	Lacustrine	
4a	Clay & silt, in lowlands.	BC-C
4b	Fine sand, in lowlands.	AB-B
4c	Sand, in lowlands.	AB
4d	Sand (deltas & valley trains).	A-AB
	Outwash	
5	Sand, some gravel, deep.	A
	Aeolian	
6	Very fine sand & silt, shallow. (Loess)	B
	Bedrock	
7	Bare bedrock (normally negligible areas).	Varies according to rock type.

Source: Ministry of Natural Resources - MNR

Design Chart 1.08: Hydrologic Soil Groups (Continued)

- Based on Soil Texture

Sands, Sandy Loams and Gravels	
- overlying sand, gravel or limestone bedrock, very well drained	A
- ditto, imperfectly drained	AB
- shallow, overlying Precambrian bedrock or clay subsoil	B
Medium to Coarse Loams	
- overlying sand, gravel or limestone, well drained	AB
- shallow, overlying Precambrian bedrock or clay subsoil	B
Medium Textured Loams	
- shallow, overlying limestone bedrock	B
- overlying medium textured subsoil	BC
Silt Loams, Some Loams	
- with good internal drainage	BC
- with slow internal drainage and good external drainage	C
Clays, Clay Loams, Silty Clay Loams	
- with good internal drainage	C
- with imperfect or poor external drainage	C
- with slow internal drainage and good external drainage	D

Source: U.S. Department of Agriculture (1972)

Design Chart 1.09: Soil/Land Use Curve Numbers

Land Use	Treatment or Practice	Hydrologic Condition[4]	Hydrologic Soil Group			
			A	B	C	D
Fallow	Straight row	---	77	86	91	94
Row crops	"	Poor	72	81	88	91
	"	Good	67	78	85	89
	Contoured	Poor	70	79	84	88
	"	Good	65	75	82	86
	" and terraced	Poor	66	74	8	82
	" " "	Good	62	71	78	81
Small grain	Straight row	Poor	65	76	84	88
		Good	63	75	83	87
	Contoured	Poor	63	74	82	85
		Good	61	73	81	84
	" and terraced	Poor	61	72	79	82
		Good	59	70	78	81
Close-seeded	Straight row	Poor	66	77	85	89
legumes[2]	" "	Good	58	72	81	85
or	Contoured	Poor	64	75	83	85
rotation	"	Good	55	69	78	83
meadow	" and terraced	Poor	63	73	80	83
	" and terraced	Good	51	67	76	80
Pasture		Poor	68	79	86	89
or range		Fair	49	69	79	84
	Contoured	Good	39	61	74	80
	"	Poor	47	67	81	88
	"	Fair	25	59	75	83
		Good	6	35	70	79
Meadow		Good	30	58	71	78
Woods		Poor	45	66	77	83
		Fair	36	60	73	79
		Good	25	55	70	77
Farmsteads		---	59	74	82	86
		---	72	82	87	89
		---	74	84	90	92

For average anticedent soil moisture condition (AMC II)
[2] Close-drilled or broadcast.

[4] The hydrologic condition of cropland is good if a good crop rotation practice is used; it is poor if one crop is grown continuously.

Source: U.S. Department of Agriculture (1972)

Design Chart 1.09: Soil Conservation Service Curve Numbers (Continued)

Land Use or Surface	Hydrologic Soil Group						
	A	AB	B	BC	C	CD	D
Fallow (special cases only)	77	82	86	89	91	93	94
Crop and other improved land	66** (62)	70** (68)	74	78	82	84	86 AMC I
Pasture & other unimproved land	58* (38)	62* (51)	65	71	76	79	81
Woodlots and forest	50* (30)	54* (44)	58	65	71	74	77
Impervious areas (paved)							98
Bare bedrock draining directly to stream by surface flow							98
Bare bedrock draining indirectly to stream as groundwater (usual case)							70
Lakes and wetlands							50

Notes

(i) All values are based on AMC II except those marked by * (AMC III) or ** (mean of AMC II and AMC III).

(ii) Values in brackets are AMC II and are to be used only for special cases.

(iii) Table is not applicable to frozen soils or to periods in which snowmelt contributes to runoff.

Appendix D

Reduced Engineering Drawings

- CP-1 Concept Plan
- LU-1 Existing Land Use Plan
- GEN-1 Existing Servicing Plan
- GEN-1-A Existing Servicing Plan
- GEN-2 General Servicing Plan
- STM-1 Pre-Development Storm Drainage Plan
- STM-2 Post-Development Storm Drainage Plan
- STM-3 Post-Development Storm Sub-Catchment Drainage Plan
- SAN-1 Sanitary Drainage Plan
- LG-1 Grading Plan
- ESC-1 Erosion and Sediment Control Plan
- SWM-1 Conceptual LID Plan
- PP-1 Street A (Davis Lane) Plan and Profile – STA. -0+018 to STA. 0+600
- PP-2 Street A (Davis Lane) Plan and Profile – STA. 0+600 to STA. 1+280
- PND-1 Storm Water Management Pond 1 & 2 Plan View
- PND-2 Storm Water Management Pond 1 (West)
- PND-3 Storm Water Management Pond 2 (East)

LEGEND

- LIMIT OF DRAFT PLAN OF SUBDIVISION
- LIMIT OF STUDY AREA
- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- LIMIT OF TOWN OWNED LAND
- 233.00 EXISTING CONTOURS
- EXISTING DRAINAGE DITCH/SWALE
- EXISTING EDGE OF ASPHALT/GRAVEL
- EXISTING DRIVEWAY ENTRANCE FOR 12151 & 12117 AIRPORT ROAD
- TRCA REGULATORY FLOODLINE
- SALT CREEK MEANDER BELT
- 30m MEANDER BELT SETBACK

AIRPORT ROAD

TULLAMORE BUSINESS PARK (VITRANS LOGISTICS)
12203 AIRPORT ROAD
COUNTERPOINT ENGINEERING
REF. No. 05257

AIRFIELD DEVELOPMENTS INC.
c/o KIRST PRO SHOPPING CENTRES
700 APPLEWOOD CRESCENT, SUITE 100
VAUGHAN, ONTARIO, L4K 5X3
ATTN: EMILY FOUKHTMAN

LIMIT OF STUDY AREA/LIMIT OF DRAFT PLAN OF SUBDIVISION

BLOCK 1
1.468 ha.

PROPERTY # 1
12151 AIRPORT ROAD

BLOCK 2
4.800 ha.

CURRENTLY OWNED TOWN LANDS.
EX. DAVIS LANE LEGAL LINE WORK
TAKEN FROM PLAN 43R-36141,
PLAN OF SURVEY PART OF LOT 1,
CONCESSION 1, TOWN OF CALEDON,
REGIONAL MUNICIPALITY OF PEEL,
PREPARED BY SCHAEFFER DZALDOV
BENNETT LTD., DATED SEPT. 30, 2014.

LIMIT OF DRAFT PLAN OF SUBDIVISION

PURDUE CT.

BLOCK 8 0.107 ha.
BLOCK 9 0.253 ha.

BLOCK 111
0.274 ha.

PROPERTY # 2
12117 AIRPORT ROAD
BLOCK 102
4.416 ha.

BLOCK 3
2.108 ha.

PROP. EASEMENT FOR
12151 AIRPORT ROAD
STORM AND SANITARY
SERVICING AND MAJOR
OVERLAND FLOW

LIMIT OF DRAFT PLAN OF SUBDIVISION

FUT. DRAINAGE EASEMENT

LIMIT OF STUDY AREA

PROPERTY # 3
AIRPORT ROAD

BLOCK 101
1.363 ha.

26.0m

EX. POND

26.0m R.O.W. PER CALEDON
STANDARD No. 211

STREET A (DAVIS LANE) LIMIT OF DRAFT PLAN OF SUBDIVISION

BLOCK 113
0.373 ha.

BLOCK 10
0.336 ha.

BLOCK 11
0.292 ha.

PROPERTY # 4
12101 AIRPORT ROAD

BLOCK 103
0.312 ha.

BLOCK 112
0.047 ha.

BLOCK 9.A
TEMPORARY TURNING CIRCLE
(PER STANDARD No.217)

EX.
CHANNEL

BLOCK 6
1.785 ha.

BLOCK 4
4.655 ha.

BLOCK 5
4.079 ha.

12 STREET A (DAVIS LANE)

BLOCK 12
1.201 ha.

PROPERTY # 10
MAYFIELD ROAD

BLOCK 106
6.903 ha.

INDUSTRIAL CUL-DE-SAC
TYPE A PER CALEDON
STANDARD No. 215

BLOCK 21
1.695 ha.

30m MEANDER
BELT SETBACK
(T.B.C.)
(LIMIT OF
DEVELOPMENT
LANDS)

BLOCK 114
0.519 ha.

FUT. STREET B

MEANDER BELT
(FSR SUBMISSION)

BLOCK 105
5.095 ha.

PROPERTY # 8
6186 MAYFIELD ROAD

PROPERTY # 9
6230 MAYFIELD ROAD

FUT. DRAINAGE EASEMENT

BLOCK 107
0.775 ha.

PROPERTY # 13
6340 MAYFIELD ROAD
BLOCK 108
3.104 ha.

SALT CREEK

BLOCK 22
2.727 ha.

BLOCK 104
3.737 ha.

PROPERTY # 5
0 AIRPORT ROAD

PROPERTY # 6
6034 MAYFIELD ROAD

PROPERTY # 7
6086 MAYFIELD ROAD

SMARTCENTRES (ON BEHALF OF AIRFIELD DEVELOPMENTS INC. AND AIRFIELD II DEVELOPMENTS INC.)
PROPOSED OPA AND ZBA TO HIGHWAY COMMERCIAL FOR
TWO (2) INDUSTRIAL BUILDINGS AND PARKING

LIMIT OF DRAFT PLAN OF SUBDIVISION

FUT. CHANNEL
(253m LENGTH)

FUT. 35m
ENVIRONMENTAL
BLOCK

BLOCK 15
0.445 ha.

S.W.M.
POND 1
2.14 ha

PROPERTY # 11
6206 MAYFIELD ROAD
BLOCK 14
1.469 ha.

BLOCK 115
1.133 ha.

FUT. S.W.M.
POND 2
1.133 ha

PROPERTY # 12
6296 MAYFIELD ROAD

BLOCK 110
0.686 ha.

BLOCK 109
0.095 ha.

BLOCK 119
0.048 ha.

MAYFIELD ROAD

BLOCK 116
0.192 ha.

BLOCK 7
0.063 ha.

BLOCK 13
0.219 ha.

30.00m

26.00m

STORM POND
AFTER ROADS

LIMIT OF STUDY AREA

LIMIT OF STUDY AREA

LIMIT OF DRAFT PLAN OF SUBDIVISION

BLOCK 16
0.121 ha.

BLOCK 17
0.101 ha.

BLOCK 18
0.040 ha.

BLOCK 19
0.083 ha.

BLOCK 20
0.023 ha.

BLOCK 117
0.030 ha.

BLOCK 118
0.094 ha.

BLOCK 120
0.277 ha.

MAYFIELD ROAD

FUTURE EDGE OF R.O.W.
ROYAL LINKS CIRCLE

FUTURE EDGE OF R.O.W.

FUT.
CULVERT

CARMEL CRESCENT

CITADEL CRESCENT

LAURENTIDE CRESCENT

MAISONNEUVE BLVD.

CASTLEMORE NORTH
SECONDARY PLAN
CITY OF BRAMPTON

EX. 35m WIDE
ENVIRONMENTAL
PROTECTION CORRIDOR

35m

AIRPORT ROAD

TRCA REGULATORY
(FSR SUBMISSION)

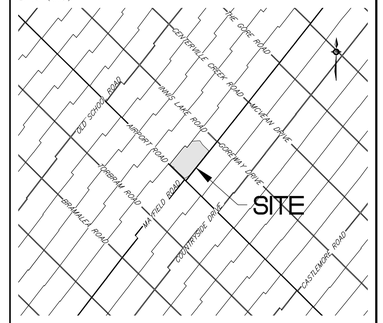
EX. POND

SALT CREEK

MEANDER BELT
2022

TRCA REGULATORY
FLOOD LINE 2022

KEY MAP (N.T.S.)



GENERAL NOTES

1. EXISTING CONTOUR INFORMATION DERIVED FROM FIRST BASE SOLUTIONS DEM SPRING 2002 AND TOPOGRAPHICAL SURVEY FROM DAVID J. PESCE SURVEYING (JULY 2011).
2. EXISTING PARCEL FABRIC DERIVED FROM FIRST BASE SOLUTIONS TERANET SPRING 2010
3. EXISTING SERVICING INFORMATION DERIVED FROM AS RECORDED DRAWINGS PROVIDED BY THE TOWN OF CALEDON AND REGION OF PEEL.

LAND USE STATISTICS

PHASE 1

	PROPERTY	AREA (ha)											
		1	2	3	4	5	6	7	8	9	10	11	12	13
RESIDENTIAL	BLOCK 1	1.468												
	BLOCK 2	4.800												
	BLOCK 3										2.108			
	BLOCK 4								4.655					
	BLOCK 5									4.079				
	BLOCK 6										1.785			
	BLOCK 7											0.055		
	BLOCK 8	0.107												
	BLOCK 9		0.253											
	BLOCK 10								0.336					
	BLOCK 11									0.292				
	BLOCK 12										1.201			
	BLOCK 13											0.237		
	BLOCK 14									1.469				
	BLOCK 15									0.445				
	BLOCK 16								0.121					
	BLOCK 17									0.101				
	BLOCK 18									0.040				
	BLOCK 19									0.083				
	BLOCK 20									0.023				
	BLOCK 21													
	BLOCK 22													
	Total Lot Area (ha.)	6.375	0.500	0.233	0.000	0.000	0.000	0.000	5.117	4.521	5.094	0.292	0.000	0.000
	Percent Developable Land	100%		0%					85%	83%	58%		17%	

FUTURE

	PROPERTY	AREA (ha)											
		1	2	3	4	5	6	7	8	9	10	11	12	13
RESIDENTIAL	BLOCK 101			1.363										
	BLOCK 102		4.416											
	BLOCK 103				0.312									
	BLOCK 104					3.737								
	BLOCK 105						5.095							
	BLOCK 106										6.903			
	BLOCK 107										0.775			1.336
	BLOCK 108												0.095	
	BLOCK 109													
	BLOCK 110										0.686			
	BLOCK 111		0.274											
	BLOCK 112				0.047									
	BLOCK 113					0.373								
	BLOCK 114										0.519			
	BLOCK 115											1.133		
	BLOCK 116					0.192								
	BLOCK 117													
	BLOCK 118													
	BLOCK 119													
	BLOCK 120													
	Total Lot Area (ha.)	0.000	4.416	1.657	0.312	3.576	5.458	0.000	0.000	0.000	10.103	0.000	0.095	1.336
	Percent Developable Land		100%	83%	100%	98%	93%				79%		96%	83%

NO.	BY	DATE	REVISION	CONS. CHECKED	TOWN APPR'D
0	JP	2024-03	DRAFT PLAN SUBMISSION		
1	JP	2025-02	REVISED DRAFT PLAN SUBMISSION		

BENCH MARK:

CONSULTANT

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

ENGINEER'S STAMP

APPROVED FOR CONSTRUCTION

DAVID LOVERIDGE CD., B.ENG., P. ENG.
DIRECTOR OF PUBLIC WORKS

DATE

PROJECT NAME

TULLAMORE SECONDARY PLAN AREA
FUNCTIONAL SERVICING REPORT

PUBLIC WORKS DEPARTMENT

REGION OF PEEL

TOWN OF CALEDON

CONCEPT PLAN

SCALE: HORIZ. 1:2000	VERT.	PROJECT No.	CAL-13304
DESIGNED BY: JJH	DRAWN BY: JJH	DRAWING No.	CP-1
CHECKED BY: JP	DATE: AUG. 2022		

G:\Eng_30\CAL-13304\Design Dwgs\CAL-13304_FSR_CP-1 NOV 2024.dwg Layout: CP-1 Plotted: Feb 14, 2025 @ 9:02am by kschulz The Jones Consulting Group Ltd.

TULLAMORE BUSINESS PARK (VITRANS LOGISTICS)
12203 AIRPORT ROAD
COUNTERPOINT ENGINEERING
REF. No. 05257

AIRPORT ROAD

PURDUE CT.

LIMIT OF STUDY AREA/LIMIT OF DRAFT PLAN OF SUBDIVISION

STREET A (DAVIS LANE)

LIMIT OF DRAFT PLAN OF SUBDIVISION

EX. POND

STREET A (DAVIS LANE)

LIMIT OF DRAFT PLAN OF SUBDIVISION

LIMIT OF DRAFT PLAN OF SUBDIVISION

STREET A (DAVIS LANE)

LIMIT OF STUDY AREA

EXISTING CHANNEL

STREET B

EXISTING ENVIRONMENTAL CORRIDOR

PROPOSED CHANNEL (253m LENGTH)

PROPOSED 35m ENVIRONMENTAL BLOCK

S.W.M. POND 1

S.W.M. POND 2

LIMIT OF STUDY AREA

LIMIT OF DRAFT PLAN OF SUBDIVISION

REFER TO OPA 239

MAYFIELD ROAD

PROPOSED CULVERT

EX. POND

LIMIT OF STUDY AREA

SALT CREEK

TRCA REGULATORY (FSR SUBMISSION)

83.44m

30m MEANDER BELT SETBACK (TO BE CONFIRMED)

30m MEANDER BELT SETBACK (T.B.C.)

MEANDER BELT (FSR SUBMISSION)

SALT CREEK

47.46m

LIMIT OF STUDY AREA

SALT CREEK

MAYFIELD

ROYAL LINKS CIRCLE

CARMEL CRESCENT

CITADEL CRESCENT

CASTLEMORE NORTH SECONDARY PLAN CITY OF BRAMPTON

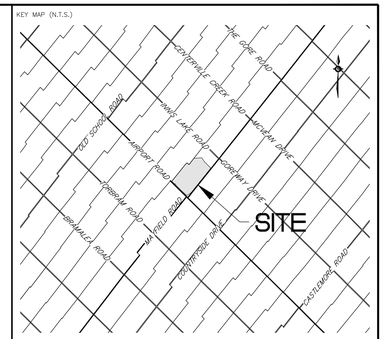
MAISONNEUVE BLVD.

LAURENTIDE CRESCENT

AIRPORT ROAD

MAYFIELD ROAD

KEY MAP (N.T.S.)



GENERAL NOTES

1. EXISTING CONTOUR INFORMATION DERIVED FROM FIRST BASE SOLUTIONS DEM SPRING 2002 AND TOPOGRAPHICAL SURVEY FROM DAVID J. PESCE SURVEYING (JULY 2011).
2. EXISITNG PARCEL FABRIC DERIVED FROM FIRST BASE SOLUTIONS TERANET SPRING 2010
3. EXISTING SERVICING INFORMATION DERIVED FROM AS RECORDED DRAWINGS PROVIDED BY THE TOWN OF CALEDON AND REGION OF PEEL.

LAND USE LEGEND

- PRESTIGE INDUSTRIAL
- GENERAL INDUSTRIAL
- HIGHWAY COMMERCIAL
- ENVIRONMENTAL POLICY AREA
- LIMIT OF DRAFT PLAN OF SUBDIVISION
- LIMIT OF STUDY AREA
- TRCA REGION FLOODLINE
- SALT CREEK MEANDER BELT
- 30m MEANDER BELT SETBACK

NO.	BY	DATE	REVISION	CONS. CHECKED	TOWN APPR'D
0	JP	2024-03	DRAFT PLAN SUBMISSION		
1	JP	2025-02	REVISED DRAFT PLAN SUBMISSION		

BENCH MARK:

CONSULTANT

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

ENGINEER'S STAMP

APPROVED FOR CONSTRUCTION

DAVID LOVERIDGE CD., B.ENG., P. ENG.
DIRECTOR OF PUBLIC WORKS

DATE

PROJECT NAME

TULLAMORE SECONDARY PLAN AREA
FUNCTIONAL SERVICING REPORT

PUBLIC WORKS DEPARTMENT

REGION OF PEEL

TOWN OF CALEDON

EXISTING LAND USE PLAN

SCALE: HORIZ. N.T.S.	VERT.	PROJECT No.	CAL-13304
DESIGNED BY: JJH	DRAWN BY: JJH	DRAWING No.	LU-1
CHECKED BY: JP	DATE: DEC. 2015		

G:\Eng_30\CAL-13304\Design Dwgs\CAL-13304_FSR_LU-1 FEB 2025.dwg Layout:LU-1 Plotted Feb 14, 2025 @ 8:45am by kschulz The Jones Consulting Group Ltd.

MAYPORT DISTRIBUTION FACILITY
12333 AIRPORT ROAD
JOHNSON, SUSTRONK, WEINSTEIN AND ASSOCIATES
REF. No. 12-30

TULLAMORE BUSINESS PARK (VITRANS LOGISTICS)
12203 AIRPORT ROAD
COUNTERPOINT ENGINEERING
REF. No. 05257

AIRPORT ROAD

LIMIT OF STUDY AREA/LIMIT OF DRAFT PLAN OF SUBDIVISION

CURRENTLY OWNED TOWN LANDS.
EX. DAVIS LANE LEGAL LINE WORK TAKEN FROM PLAN 43R-36141, PLAN OF SURVEY PART OF LOT 1, CONCESSION 1, TOWN OF CALEDON, REGIONAL MUNICIPALITY OF PEEL. PREPARED BY SCHAEFFER DZALDOV BENNETT LTD., DATED SEPT. 30, 2014.

EX. ASPHALT AND GRAVEL BASED ON TOWN OF CALEDON AERIAL IMAGERY, DATED 2024

EX. 350mmø WATERMAIN

PROPERTY # 1
12151 AIRPORT ROAD
GREENWAY CARRIERS
AIRPORT 12151 INC.
EX. STORM SERVICE INV.=227.14
EX. SANITARY SERVICE INV.=TBC

DAVIS LANE

PURDUE CT.

LIMIT OF DRAFT PLAN OF SUBDIVISION

EX. LIMIT OF GRAVEL/ASPHALT (TYP.)

EX. 150mmø SANITARY SERVICE INV. 235.53±

PROPERTY # 2
12117 AIRPORT ROAD
FATEH TRANSPORT
FORMERLY LAIDLAW TRANSIT LTD.
EMC GROUP LTD.
REF. No. 202132

EX. POND

PROPERTY # 3
PART 3, PLAN 43R-36141
PREET TRANSPORT CARRIER INC.

EX. SANITARY MH
E INV.=223.156
W INV.=223.139

PROPERTY # 4
12101 AIRPORT ROAD
MOTORWAY SALES AND SERVICE

EX. STORM SERVICE INV.=235.85

AIRPORT ROAD

LIMIT OF STUDY AREA

PROPERTY # 5
0 AIRPORT ROAD
PART 1, PLAN 43R-34197
SMARTCENTRES

PROPERTY # 6
6034 MAYFIELD ROAD
UNDEVELOPED
SMARTCENTRES

PROPERTY # 7
6086 MAYFIELD ROAD
FALCON XPRESS
TRANSPORTATION GROUP
6086 MAYFIELD INC.

PROPERTY # 8
6186 MAYFIELD ROAD
AIRPORT-MAYFIELD PARKING
M&M CARRIERS

PROPERTY # 9
6230 MAYFIELD ROAD
PART 1, PLAN 43R-11401
ALPHA HAULERS YARD
6230 MAYFIELD INC.

PROPERTY # 10
PT LT 1, CON 1 ALBION
UNDEVELOPED

LIMIT OF DRAFT PLAN OF SUBDIVISION

PROPERTY # 11
6206 MAYFIELD ROAD

EX. 600mmø CULVERT

EX. 450mmø CULVERT SW INV. 232.14 NE INV. 232.10

EX. 450mmø CULVERT SW INV. 231.95 NE INV. 231.91

EX. 400mmø CULVERT SW INV. 230.46 NE INV. 230.32

EX. 1200mmø CULVERT NW INV. 229.95 NE INV. 229.83

LIMIT OF STUDY AREA

LIMIT OF DRAFT PLAN OF SUBDIVISION

EX. 600mmø CULVERT

MAYFIELD ROAD

ROYAL LINKS CIRCLE

EX. 400mmø CULVERT SW INV. 230.17 NE INV. 230.30

EX. CULVERT SW INV. 229.65 NE INV. 229.70

EX. 900mmø CULVERT

CARMEL CRESCENT

CITADEL CRESCENT

VALES OF CASTLEMORE NORTH
SECONDARY PLAN
CITY OF BRAMPTON

MAISONNEUVE BLVD

EX. 1800x2500mm ELIPICAL CULVERT NW OBV. 225.83 SE OBV. 225.63

EX. CULVERT SW INV. 228.88 NE INV. 228.85

LAURENTIDE CRESCENT

SALT CREEK

EX. POND

LIMIT OF STUDY AREA

TRCA REGULATORY (FSR SUBMISSION)

MEANDER BELT 2022

30m MEANDER BELT SETBACK (TO BE CONFIRMED)

30m MEANDER BELT SETBACK (T.B.C.)

TRCA REGULATORY FLOOD LINE 2022

MEANDER BELT (FSR SUBMISSION)

PROPERTY # 13
6340 MAYFIELD ROAD

PROPERTY # 12
6296 MAYFIELD ROAD

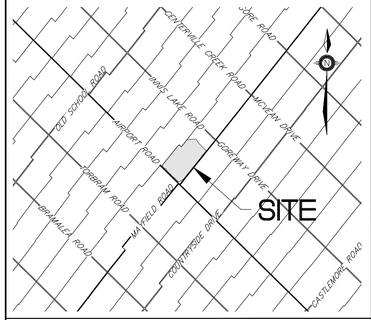
EX. 400mmø CULVERT SW INV. 226.76 NW INV. 226.63

EX. BRIDGE OVER SALT CREEK

LIMIT OF STUDY AREA

MAYFIELD ROAD

KEY MAP (N.T.S.)



GENERAL NOTES

1. EXISTING CONTOUR INFORMATION COMPILED FROM FIRST BASE SOLUTIONS DEM SPRING 2002 AND TOPOGRAPHICAL SURVEY FROM DAVID J. PESCE SURVEYING (JULY 2011).
2. EXISTING PARCEL FABRIC DERIVED FROM FIRST BASE SOLUTIONS TERANET SPRING 2010
3. EXISTING SERVICING INFORMATION DERIVED FROM AS RECORDED DRAWINGS PROVIDED BY THE TOWN OF CALEDON AND REGION OF PEEL.

LEGEND

- LIMIT OF STUDY AREA
- LIMIT OF DRAFT PLAN OF SUBDIVISION
- TRCA REGULATORY FLOOD LINE
- MEANDER BELT
- EXISTING DRIPLINE
- EXISTING DITCH
- EXISTING SANITARY SEWER, MANHOLE AND DIRECTION OF FLOW
- EXISTING STORM SEWER, MANHOLE AND DIRECTION OF FLOW
- EXISTING 200mmø WATERMAIN
- EXISTING 300mmø WATERMAIN
- EXISTING 750mmø WATERMAIN
- EXISTING 1050mmø WATERMAIN
- TOWN OWNED LANDS
- EXISTING GRAVEL/ASPHALT AREAS

NO.	BY	DATE	REVISION	CONS. CHECKED	TOWN APPR'D.
0	JP	2024-03	DRAFT PLAN SUBMISSION		
1	JP	2025-02	REVISED DRAFT PLAN SUBMISSION		

BENCH MARK:

CONSULTANT

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

ENGINEER'S STAMP

DAVID LOVERIDGE CD., B.ENG., P. ENG.
DIRECTOR OF PUBLIC WORKS

DATE

PROJECT NAME

TULLAMORE SECONDARY PLAN AREA
FUNCTIONAL SERVICING REPORT

PUBLIC WORKS DEPARTMENT

REGION OF PEEL

TOWN OF CALEDON

EXISTING SERVICING PLAN

SCALE: HORIZ. 1:2000 VERT.		PROJECT No.	CAL-13304
DESIGNED BY: JJH	DRAWN BY: JJH	DRAWING No.	GEN-1
CHECKED BY: JP	DATE: DEC 2014		

G:\Eng_3D\CAL-13304\Design Dwgs\CAL-13304_FSR_2000 NOVEMBER 2024.dwg Layout:GEN-1 Plotted: Feb. 14, 2025 @ 1:15pm by kschutz, The Jones Consulting Group Ltd.

MAYPORT DISTRIBUTION FACILITY
12333 AIRPORT ROAD
JOHNSON, SUSTRONK, WEINSTEIN AND ASSOCIATES
REF. No. 12-30

TULLAMORE BUSINESS PARK (VITRANS LOGISTICS)
12203 AIRPORT ROAD
COUNTERPOINT ENGINEERING
REF. No. 05257

AIRPORT ROAD

PURDUE CT.

DAVIS LANE

LIMIT OF STUDY AREA/LIMIT OF DRAFT PLAN OF SUBDIVISION

CURRENTLY OWNED TOWN LANDS.
EX. DAVIS LANE LEGAL LINE WORK TAKEN FROM PLAN 43R-36141, PLAN OF SURVEY PART OF LOT 1, CONCESSION 1, TOWN OF CALEDON, REGIONAL MUNICIPALITY OF PEEL, PREPARED BY SCHAEFFER DZALDOV BENNETT LTD., DATED SEPT. 30th 2014.

EX. ASPHALT AND GRAVEL BASED ON TOWN OF CALEDON AERIAL IMAGERY, DATED 2024

PROPERTY # 1
12151 AIRPORT ROAD
GREENWAY CARRIERS
AIRPORT 12151 INC.
EX. STORM SERVICE INV.=227.14
EX. SANITARY SERVICE INV.=TBC

PROPERTY # 2
12117 AIRPORT ROAD
FATEH TRANSPORT
FORMERLY LAIDLAW TRANSIT LTD.
EMC GROUP LTD.
REF. No. 202132
EX. 150mmø SANITARY SERVICE INV. 235.535

PROPERTY # 3
PART 3, PLAN 43R-36141
PREET TRANSPORT CARRIER INC.

EX. SANITARY MH
E INV.=223.156
W INV.=223.139

PROPERTY # 4
12101 AIRPORT ROAD
MOTORWAY SALES AND SERVICE
EX. STORM SERVICE INV.=235.85

PROPERTY # 5
0 AIRPORT ROAD
PART 1, PLAN 43R-34197
SMARTCENTRES

PROPERTY # 6
6034 MAYFIELD ROAD
UNDEVELOPED
SMARTCENTRES

PROPERTY # 7
6086 MAYFIELD ROAD
FALCON XPRESS TRANSPORTATION GROUP
6086 MAYFIELD INC.

PROPERTY # 8
6186 MAYFIELD ROAD
AIRPORT-MAYFIELD PARKING
M&W CARRIERS

PROPERTY # 9
6230 MAYFIELD ROAD
PART 1, PLAN 43R-11401
ALPHA HAULERS YARD
6230 MAYFIELD INC.

PROPERTY # 10
PT LT 1, CON 1 ALBION
UNDEVELOPED

PROPERTY # 11
6206 MAYFIELD ROAD

PROPERTY # 12
6296 MAYFIELD ROAD

PROPERTY # 13
6340 MAYFIELD ROAD

EX. POND

SALT CREEK

TRCA REGULATORY (FSR SUBMISSION)

MEANDER BELT 2022

TRCA REGULATORY FLOOD LINE 2022

30m MEANDER BELT SETBACK (T.B.C.)

30m MEANDER BELT SETBACK (TO BE CONFIRMED)

MEANDER BELT (FSR SUBMISSION)

EX. BRIDGE OVER SALT CREEK

EX. 600mmø CULVERT

EX. 450mmø CULVERT

EX. 400mmø CULVERT

MAYFIELD ROAD

ROYAL LINKS CIRCLE

CARMEL CRESCENT

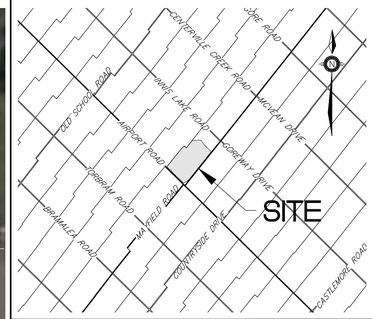
CITADEL CRESCENT

LAURENTIDE CRESCENT

VALES OF CASTLEMORE NORTH SECONDARY PLAN CITY OF BRAMPTON

KAISORNEUVE BLVD

KEY MAP (N.T.S.)



GENERAL NOTES

1. EXISTING CONTOUR INFORMATION COMPILED FROM FIRST BASE SOLUTIONS DEM SPRING 2002 AND TOPOGRAPHICAL SURVEY FROM DAVID J. PESCE SURVEYING (JULY 2011).
2. EXISTING PARCEL FABRIC DERIVED FROM FIRST BASE SOLUTIONS TERANET SPRING 2010
3. EXISTING SERVICING INFORMATION DERIVED FROM AS RECORDED DRAWINGS PROVIDED BY THE TOWN OF CALEDON AND REGION OF PEEL.

LEGEND

- LIMIT OF STUDY AREA
- LIMIT OF DRAFT PLAN OF SUBDIVISION
- TRCA REGULATORY FLOOD LINE
- MEANDER BELT
- EXISTING DRIPLINE
- EXISTING DITCH
- EXISTING SANITARY SEWER, MANHOLE AND DIRECTION OF FLOW
- EXISTING STORM SEWER, MANHOLE AND DIRECTION OF FLOW
- EXISTING 200mmø WATERMAIN
- EXISTING 300mmø WATERMAIN
- EXISTING 750mmø WATERMAIN
- EXISTING 1050mmø WATERMAIN
- TOWN OWNED LANDS
- EXISTING GRAVEL/ASPHALT AREAS

NO.	BY	DATE	REVISION	CONS. CHECKED	TOWN APPR'D
0	JP	2024-03	DRAFT PLAN SUBMISSION		
1	JP	2025-02	REVISED DRAFT PLAN SUBMISSION		

BENCH MARK:

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ENGINEER'S STAMP

DAVID LOVERIDGE CD., B.ENG., P. ENG.
DIRECTOR OF PUBLIC WORKS

DATE

PROJECT NAME

TULLAMORE SECONDARY PLAN AREA
FUNCTIONAL SERVICING REPORT

PUBLIC WORKS DEPARTMENT

REGION OF PEEL

TOWN OF CALEDON

EXISTING SERVICING PLAN

SCALE: HORIZ. 1:2000	VERT.	PROJECT No.	CAL-13304
DESIGNED BY: JJH	DRAWN BY: JJH	DRAWING No.	GEN-1-A
CHECKED BY: JP	DATE: DEC 2014		

G:\Eng_3D\CAL-13304\Design_Dwgs\CAL-13304_FSR_2000_NOVEMBER 2024.dwg, Layout:GEN-1-A Plotted: Feb 14, 2025 @ 1:29pm by kschultz The Jones Consulting Group Ltd.

MAYPORT DISTRIBUTION FACILITY
12333 AIRPORT ROAD
JOHNSON, SUSTRONK, WEINSTEIN AND ASSOCIATES
REF. No. 12-30

TULLAMORE BUSINESS PARK (VITRANS LOGISTICS)
12203 AIRPORT ROAD
COUNTERPOINT ENGINEERING
REF. No. 05257

AIRPORT ROAD

LIMIT OF STUDY AREA/LIMIT OF DRAFT PLAN OF SUBDIVISION

BLOCK 1 | BLOCK 2 | BLOCK 3 | BLOCK 4 | BLOCK 5 | BLOCK 6 | BLOCK 7 | BLOCK 8 | BLOCK 9 | BLOCK 10 | BLOCK 11 | BLOCK 12 | BLOCK 13 | BLOCK 14 | BLOCK 15 | BLOCK 16 | BLOCK 17 | BLOCK 18 | BLOCK 19 | BLOCK 20 | BLOCK 101 | BLOCK 102 | BLOCK 103 | BLOCK 104 | BLOCK 105 | BLOCK 106 | BLOCK 107 | BLOCK 108 | BLOCK 109 | BLOCK 110 | BLOCK 111 | BLOCK 112 | BLOCK 113 | BLOCK 114 | BLOCK 115 | BLOCK 116 | BLOCK 117 | BLOCK 118 | BLOCK 119 | BLOCK 120

STREET 'A' (DAVIS LANE)

PURDUE CT.

FUT. STREET B

MAYFIELD ROAD

ROYAL LINKS CIRCLE

CARMEL CRESCENT

CITADEL CRESCENT

LAURENTIDE CRESCENT

MAISONNEUVE BLVD.

VALES OF CASTLEMORE NORTH
SECONDARY PLAN
CITY OF BRAMPTON

SMARTCENTRES (ON BEHALF OF AIRFIELD DEVELOPMENTS INC. AND AIRFIELD II DEVELOPMENTS INC.) PROPOSED TWO (2) INDUSTRIAL BUILDINGS AND PARKING WITH PRIVATE SEWER AND WATERMAINS AND CONNECTIONS TO THE MUNICIPAL SYSTEM. REFER TO THE PRELIMINARY SITE SERVICING FIGURE (SHEET No. 4), DATED JULY 22, 2021, PREPARED BY WSP (DRAWING No. 211-07736)

THE EXISTING WATER AND SANITARY SERVICES FOR 12117 AIRPORT ROAD ARE TO BE REMOVED AND CONNECTED TO NEW ROW SERVICING WORKS AS PART OF THE FUTURE ROAD EXTENSION, BY OTHERS.

PROP. SANITARY AND WATER SERVICE CONNECTIONS

PROP. SANITARY, WATER AND STORM SERVICE CONNECTIONS

PROP. SANITARY AND STORM SERVICE CONNECTIONS

PROP. EASEMENT FOR 12151 AIRPORT ROAD STORM AND SANITARY SERVICING AND MAJOR OVERLAND FLOW

TEMP. OVERLAND FLOW SWALE & DRAINAGE EASEMENT

PROP. SANITARY, WATER AND STORM SERVICE CONNECTIONS

PROP. 250mmø SANITARY CONNECTION TO EX. MH, CONNECTION INV. 231.35±

PROP. 300mmø W/M CONNECTION TO EX. 300mmø W/M

TEMP. STORM CONNECTION

EX. 150mmø SANITARY SEWER

EX. SANITARY MH
N INV.=230.92
S INV.=230.90

EX. 750mmø SANITARY SEWER @ 0.33%

EX. SANITARY MH 12
N INV.=230.431
S INV.=230.451

EX. SANITARY MH
E INV.=223.156
W INV.=223.139

EX. 150mmø SANITARY SEWER INV. 235.53±

EX. 200mmø WATER SERVICE

PROP. 26m R.O.W. PER CALEDON STANDARD No. 211 (TYP.)

PROP. 300mmø W/M (TYP.)

PROP. SAN SEWER BH/MW-13 HWT 232.3

PROP. STM SEWER AUG.18/23

FUT. 300mmø W/M

FUT. SAN SEWER

FUT. STM SEWER

TEMP. DITCH INLET INV.=229.94

EX. POND

EX. POND OUTLET =230.64

TEMPORARY TURNING CIRCLE

PROP. 300mm DIAM. W/M CONNECTION TO EX. 300mmø W/M (BY OTHERS)

PROP. 300mm DIAM. W/M CONNECTION TO EX. 300mmø W/M (BY OTHERS)

PROP. 300mm DIAM. W/M CONNECTION TO EX. 300mmø W/M (BY OTHERS)

PROP. STORM OUTLET TO EX. DITCH (BY OTHERS)

PROP. 250mmø SAN CONNECTION TO EX. 750mmø SAN APPROX. INVERT 230.25 (BY OTHERS)

PROP. STORM OUTLET TO SEWER (MINOR) AND EX. DITCH (MAJOR)

PROP. SANITARY CONNECTION

PROP. 300mmø W/M CONNECTION TO EX. 300mmø W/M

PROP. MAJOR AND MINOR BH-15 STORM INLET FOR MAYFIELD ROAD DITCH

PROP. 300mmø W/M CONNECTION TO EX. 300mmø W/M

PROP. STORM OUTLET TO SEWER (MINOR) AND EX. DITCH (MAJOR)

PROP. SANITARY CONNECTION

PROP. 250mmø SAN CONNECTION TO EX. 250mmø SAN EX. INV.=224.52

S.W.M. POND 1
2.14ha

FUT. 35m WIDE ENVIRONMENTAL PROTECTION CORRIDOR

FUT. S.W.M. POND 2
1.133ha

PROP. OGS FOR STM OUTLET

FUT. 3048mm X 1524mm BOX CULVERT

EX. 1800x2500mm ELIPICAL CULVERT
NW OBV. 225.87
SE OBV. 225.62

PROP. 300mmø W/M CONNECTION TO FUTURE 300mmø W/M

EX. 35m WIDE ENVIRONMENTAL PROTECTION CORRIDOR

FUT. DRAINAGE EASEMENT

LIMIT OF STUDY AREA

LIMIT OF DRAFT PLAN OF SUBDIVISION

EX. POND

SALT CREEK

TRCA REGULATORY (FSR SUBMISSION)

MEANDER BELT 2022

30m MEANDER BELT SETBACK (T.B.C.)

30m MEANDER BELT SETBACK TO BE CONFIRMED

TRCA REGULATORY FLOOD LINE 2022

BLOCK 21 ENVIRONMENTAL PROTECTION

MEANDER BELT (FSR SUBMISSION)

BLOCK 22 ENVIRONMENTAL PROTECTION

FUT. SAN SEWER

FUT. STM SEWER

FUT. 3RD PIPE SYSTEM

HAZEL FLOOD LIMIT

FUT. DRAINAGE EASEMENT

EX. 300mmø WATERMAIN

EX. 750mmø SAN SEWER @ 0.4%

EX. 1050mmø TRANSMISSION MAIN

EX. 200mmø WATERMAIN

EX. 750mmø C.P.P. WATERMAIN

EX. VALVE CHAMBER

EX. DRAIN CHAMBER

PROP. 250mmø SAN SEWER @ 0.92%

EX. 250mmø SAN SEWER @ 0.92%

EX. 1050mmø TRANSMISSION MAIN

EX. 750mmø C.P.P. WATERMAIN

EX. 300mmø WATERMAIN

EX. 200mmø WATERMAIN

EX. 1050mmø TRANSMISSION MAIN

EX. 750mmø C.P.P. WATERMAIN

EX. 300mmø WATERMAIN

EX. 750mmø C.P.P. WATERMAIN

EX. 1050mmø TRANSMISSION MAIN

EX. 300mmø WATERMAIN

EX. VALVE CHAMBER

EX. DRAIN CHAMBER

EX. 750mmø C.P.P. WATERMAIN

EX. 1050mmø TRANSMISSION MAIN

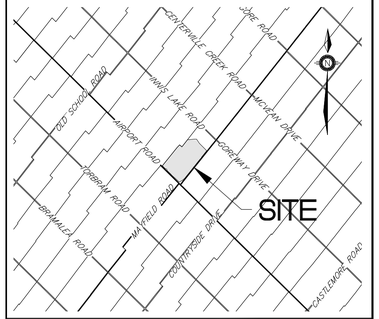
EX. 300mmø WATERMAIN

EX. 200mmø WATERMAIN

EX. 1050mmø TRANSMISSION MAIN

EX. 750mmø C.P.P. WATERMAIN

KEY MAP (N.T.S.)



GENERAL NOTES

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3. EXISTING SERVICING INFORMATION DERIVED FROM AS RECORDED DRAWINGS PROVIDED BY THE TOWN OF CALEDON AND REGION OF PEEL.

LEGEND

- LIMIT OF STUDY AREA
- LIMIT OF DRAFT PLAN OF SUBDIVISION
- TRCA REGULATORY FLOOD LINE
- MEANDER BELT
- EXISTING DRIPLINE
- EXISTING DITCH
- FUTURE DITCH
- EXISTING SANITARY SEWER, MANHOLE AND DIRECTION OF FLOW
- EXISTING STORM SEWER, MANHOLE AND DIRECTION OF FLOW
- EXISTING 200mmø WATERMAIN
- EXISTING 300mmø WATERMAIN
- EXISTING 750mmø WATERMAIN
- EXISTING 1050mmø WATERMAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED THIRD PIPE SYSTEM
- PROPOSED WATERMAIN
- PROPOSED SLOPING (3:1)

NO.	BY	DATE	REVISION	CONS. CHECKED	TOWN APPR'D
0	JP	2024-03	DRAFT PLAN SUBMISSION		
1	JP	2025-02	REVISED DRAFT PLAN SUBMISSION		

BENCH MARK:

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ENGINEER'S STAMP

APPROVED FOR CONSTRUCTION

DAVID LOVERIDGE CD., B.ENG., P. ENG.
DIRECTOR OF PUBLIC WORKS

DATE

PROJECT NAME

TULLAMORE SECONDARY PLAN AREA
FUNCTIONAL SERVICING REPORT

PUBLIC WORKS DEPARTMENT

REGION OF PEEL

TOWN OF CALEDON

GENERAL SERVICING PLAN

SCALE: HORIZ. 1:2000	VERT.	PROJECT No.	CAL-13304
DESIGNED BY: JJH	DRAWN BY: JJH	DRAWING No.	GEN-2
CHECKED BY: JP	DATE: DEC 2014		

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MAYPORT DISTRIBUTION FACILITY
12333 AIRPORT ROAD
JOHNSON, SUSTRONK, WEINSTEIN AND ASSOCIATES
REF. No. 12-30

TULLAMORE BUSINESS PARK (VITRANS LOGISTICS)
12203 AIRPORT ROAD
COUNTERPOINT ENGINEERING
REF. No. 05257

AIRPORT ROAD

SALT CREEK

EX. POND

LIMIT OF STUDY AREA/LIMIT OF DRAFT PLAN OF SUBDIVISION

LIMIT OF DRAFT PLAN OF SUBDIVISION

LIMIT OF STUDY AREA

LIMIT OF GRAVEL/ASPHALT (TYP.)

BLOCK 1
BLOCK 2
BLOCK 3
BLOCK 4
BLOCK 5
BLOCK 6
BLOCK 7
BLOCK 8
BLOCK 9
BLOCK 10
BLOCK 11
BLOCK 12
BLOCK 13
BLOCK 14
BLOCK 15
BLOCK 16
BLOCK 17
BLOCK 18
BLOCK 19
BLOCK 20
BLOCK 101
BLOCK 102
BLOCK 103
BLOCK 104
BLOCK 105
BLOCK 106
BLOCK 107
BLOCK 108
BLOCK 109
BLOCK 110
BLOCK 111
BLOCK 112
BLOCK 113
BLOCK 114
BLOCK 115
BLOCK 116
BLOCK 117
BLOCK 118
BLOCK 119
BLOCK 120

102 | 1,001
19.0

101 | 1,892
38.6

EX. 150mmø SANITARY SEWER

PROP. 250mmø SANITARY CONNECTION TO EX. MH, CONNECTION INV. 231.35±

EX. SANITARY MH
N INV.=230.92
S INV.=230.90

EX. 750mmø SANITARY SEWER @ 0.33%

EX. 150mmø SANITARY SEWER

EX. SANITARY MH
E INV.=223.156
W INV.=223.139

EX. SANITARY MH 12
N INV.=230.431
S INV.=230.451

EX. 150mmø SANITARY SERVICE
INV. 235.53±

FUT. SAN SEWER

PROP. SAN SEWER BH/MW-1 HWT 232 AUG.18/23

STREET A (DAVIS LANE)

FUT. STREET B

FUT. SAN SEWER

SMARTCENTRES (ON BEHALF OF AIRFIELD DEVELOPMENTS INC. AND AIRFIELD II DEVELOPMENTS INC.) PROPOSED TWO (2) INDUSTRIAL BUILDINGS AND PARKING WITH PRIVATE SEWER AND WATERMAINS AND CONNECTIONS TO THE MUNICIPAL SYSTEM. REFER TO THE PRELIMINARY SITE SERVICING FIGURE (SHEET No. 4), DATED JULY 22, 2021, PREPARED BY WSP (DRAWING No. 211-07736)

OPA AND ZBLA APPLICATION TO ZONE ALL HIGHWAY COMMERCIAL

PROP. 250mmø SAN CONNECTION TO EX. 750mmø SAN APPROX. INVERT 230.25 (BY OTHERS)

EX. 750mmø SAN SEWER @ 0.4%

PROP. SANITARY CONNECTION

EX. 1200mmø DIA.VERT NW INV. 229.96 NE INV. 229.83

S.W.M. POND 1
2.14ha

FUT. 35m WIDE ENVIRONMENTAL PROTECTION CORRIDOR

FUT. S.W.M. POND 2
1.133ha

35m

30m MEANDER BELT SETBACK (T.B.C.)

30m MEANDER BELT SETBACK (TO BE CONFIRMED)

TRCA REGULATORY (FSR SUBMISSION)

MEANDER BELT 2022

TRCA REGULATORY FLOOD LINE 2022

BLOCK 21 ENVIRONMENTAL PROTECTION

MEANDER BELT (FSR SUBMISSION)

BLOCK 22 ENVIRONMENTAL PROTECTION

PROP. 250mmø SAN CONNECTION TO EX. 250mmø SAN EX. INV. 224.52

EX. 250mmø SAN SEWER @ 0.92%

EX. 1800x2500mm ELIPICAL DIA.VERT NW OBV. 225.81 SE OBV. 225.62

EX. 35m WIDE ENVIRONMENTAL PROTECTION CORRIDOR

ROYAL LINKS CIRCLE

CARMEL CRESCENT

CITADEL CRESCENT

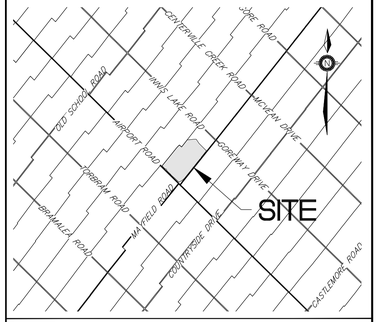
LAURENTIDE CRESCENT

MAYFIELD ROAD

MAISONNEUVE BLVD.

VALES OF CASTLEMORE NORTH SECONDARY PLAN CITY OF BRAMPTON

KEY MAP (N.T.S.)



GENERAL NOTES

1. EXISTING CONTOUR INFORMATION COMPILED FROM FIRST BASE SOLUTIONS DEM SPRING 2002 AND TOPOGRAPHICAL SURVEY FROM DAVID J. PESCE SURVEYING (JULY 2011).
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3. EXISTING SERVICING INFORMATION DERIVED FROM AS RECORDED DRAWINGS PROVIDED BY THE TOWN OF CALEDON AND REGION OF PEEL.

LEGEND

- TRCA REGULATORY FLOOD LINE
- MEANDER BELT
- LIMIT OF DRAFT PLAN OF SUBDIVISION
- SANITARY DRAINAGE BOUNDARY
- EXISTING SANITARY SEWER, MANHOLE AND DIRECTION OF FLOW
- PROPOSED SANITARY SEWER, MANHOLE AND DIRECTION OF FLOW

101 | 1899
34.37

- SANITARY AREA NUMBER
- TOTAL POPULATION
- AREA (HECTARES)
- DIRECTION OF SANITARY FLOW

NO.	BY	DATE	REVISION	CONS. CHECKED	TOWN APPR'D
0	JP	2024-05	DRAFT PLAN SUBMISSION		
1	JP	2025-02	REVISED DRAFT PLAN SUBMISSION		

BENCH MARK:

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F. 705.734.1056

ENGINEER'S STAMP

APPROVED FOR CONSTRUCTION

DAVID LOVERIDGE CD., B.ENG., P. ENG.
DIRECTOR OF PUBLIC WORKS — DATE

PROJECT NAME
TULLAMORE SECONDARY PLAN AREA
FUNCTIONAL SERVICING REPORT

PUBLIC WORKS DEPARTMENT

REGION OF PEEL

TOWN OF CALEDON

SANITARY DRAINAGE PLAN

SCALE: HORIZ. 1:2000	VERT.	PROJECT No.	CAL-13304
DESIGNED BY: JJH	DRAWN BY: JJH	DRAWING No.	SAN-1
CHECKED BY: JP	DATE: DEC 2014		

G:\Eng_3D\CAL-13304\Design Dwgs\CAL-13304_FSR_2000 NOVEMBER 2024.dwg Layout:SAN-1 Plotted Feb 14, 2025 @ 2:27pm by kschulz The Jones Consulting Group Ltd.

MAYPORT DISTRIBUTION FACILITY
12333 AIRPORT ROAD
JOHNSON, SUSTRONK, WEINSTEIN AND ASSOCIATES
REF. No. 12-30

TULLAMORE BUSINESS PARK (VITRANS LOGISTICS)
12203 AIRPORT ROAD
COUNTERPOINT ENGINEERING
REF. No. 05257

SMARTCENTRES (ON BEHALF OF AIRFIELD DEVELOPMENTS INC. AND AIRFIELD II DEVELOPMENTS INC.) PROPOSED TWO (2) INDUSTRIAL BUILDINGS AND PARKING WITH PRIVATE SEWER AND WATERMAINS AND CONNECTIONS TO THE MUNICIPAL SYSTEM. REFER TO THE PRELIMINARY SITE SERVICING FIGURE (SHEET No. 4), DATED JULY 22, 2021, PREPARED BY WSP (DRAWING No. 211-07736)

AIRPORT ROAD

PURDUE CT.

ROYAL LINKS CIRCLE

MAYFIELD ROAD

CARMEL CRESCENT

CITADEL CRESCENT

LAURENTIDE CRESCENT

VALES OF CASTLEMORE NORTH
SECONDARY PLAN
CITY OF BRAMPTON

STREET A (DAVIS LANE)

FUT. STREET B

MAISONNEUVE BLVD.

SALT CREEK

EX. POND

LIMIT OF STUDY AREA

LIMIT OF TOWN OWNED LANDS

FUT. DRAINAGE EASEMENT

TRCA REGULATORY
(FSR SUBMISSION)

MEANDER BELT
2022

TRCA REGULATORY
FLOOD LINE 2022

30m MEANDER BELT SETBACK
TO BE CONFIRMED

BLOCK 21
ENVIRONMENTAL PROTECTION

MEANDER BELT

BLOCK 22
ENVIRONMENTAL PROTECTION

FUT. 35m WIDE
ENVIRONMENTAL
PROTECTION CORRIDOR

EX. 35m WIDE
ENVIRONMENTAL
PROTECTION CORRIDOR

S.W.M.
POND 1

FUT. S.W.M. POND 2

PROP. 12.0m WIDE
EMERGENCY
OVERFLOW WEIR
INV. 226.70

FUT. 6.0m WIDE
EMERGENCY
OVERFLOW WEIR
INV. 228.40

MAJOR OVERLAND
FLOW INLET TO SWMP

FUT. MAJOR OVERLAND
FLOW INLET TO SWMP
HAZEL FLOOD LIMIT

PROP. 3000mmx1500mm
CONC. BOX CULVERT

PROP. 26m R.O.W. PER CALEDON
STANDARD No. 211 (TYP.)

PROP. EASEMENT FOR
12151 AIRPORT ROAD
STORM AND SANITARY
SERVICING AND MAJOR
OVERLAND FLOW

TEMP. DRAINAGE
EASEMENT

PROP. OVERLAND FLOW
SPILL TO ROW
ELEV=231.90m

TEMPORARY TURNING
CIRCLE

EX. POND OUTLET
=230.64

GRADE ROAD TO
MATCH EXISTING

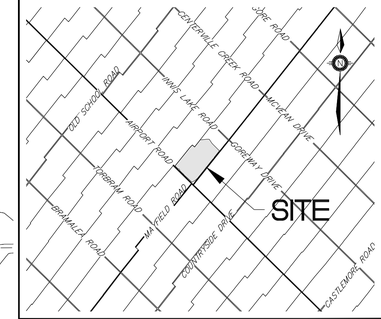
PROP. TEMP. MATCH
INTO EX. LOCATION

BLOCK 1
BLOCK 2
BLOCK 3
BLOCK 4
BLOCK 5
BLOCK 6
BLOCK 9
BLOCK 10
BLOCK 11
BLOCK 12
BLOCK 13
BLOCK 14
BLOCK 15
BLOCK 16
BLOCK 17
BLOCK 18
BLOCK 19
BLOCK 20
BLOCK 101
BLOCK 102
BLOCK 103
BLOCK 104
BLOCK 105
BLOCK 106
BLOCK 107
BLOCK 108
BLOCK 109
BLOCK 110
BLOCK 111
BLOCK 112
BLOCK 113
BLOCK 114
BLOCK 115
BLOCK 116
BLOCK 117
BLOCK 118
BLOCK 119
BLOCK 120

BH/MW-1 HWT 231.5 AUG.18/23
BH/MW-2 HWT 231.1 AUG.18/23
BH/MW-3 HWT 233.2 AUG.18/23
BH/MW-4 HWT 233.2 AUG.18/23
BH/MW-5 HWT 231.5 AUG.18/23
BH/MW-6 HWT 230.2 AUG.18/23
BH/MW-7 HWT 231.8 AUG.18/23
BH/MW-8 HWT 229.5 AUG.18/23
BH/MW-9 HWT 228.3 AUG.18/23
BH/MW-10 HWT 229.5 AUG.18/23
BH/MW-11 HWT 231.4 AUG.18/23
BH/MW-12 HWT 229.0 AUG.18/23
BH/MW-13 HWT 232.1 AUG.18/23
BH/MW-14 HWT 224.5 AUG.18/23

Ex. 600mm CULVERT
Ex. 450mm CULVERT SW INV. 232.14 NE INV. 232.10
Ex. 450mm CULVERT SW INV. 231.95 NE INV. 231.21
Ex. 400mm CULVERT SW INV. 230.46 NE INV. 230.32
Ex. 400mm CULVERT SW INV. 230.10 NE INV. 230.30
Ex. 1200mm CULVERT NW INV. 229.36 NE INV. 229.61
Ex. CULVERT SW INV. 229.65 NE INV. 229.70
Ex. 900mm CULVERT
Ex. 450mm CULVERT SW INV. 226.76 NE INV. 226.43
Ex. CULVERT SW INV. 226.88 NE INV. 226.85
Ex. 1800x2600mm ELIPICAL CULVERT NW OBV. 225.81 SE OBV. 225.62

KEY MAP (N.T.S.)



GENERAL NOTES

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LEGEND

- EXISTING CONTOURS
- EXISTING DRIPLINE
- EXISTING DITCH
- LIMIT OF DRAFT PLAN OF SUBDIVISION
- LIMIT OF STUDY AREA
- TRCA REGULATORY FLOOD LINE
- SALT CREEK MEANDER BELT
- 30m MEANDER BELT SETBACK
- PROPOSED DITCH
- ×255.58 EXISTING SPOT ELEVATION
- ×231.54 PROPOSED SPOT ELEVATION
- 1.0% PROPOSED GRADIENT SLOPE
- PROPOSED SLOPING (3:1)
- OVERLAND FLOW DIRECTION

NO.	BY	DATE	REVISION	CONS. CHECKED	TOWN APPR'D
0	JJP	2024-03	DRAFT PLAN SUBMISSION		
1	JJP	2025-02	REVISED DRAFT PLAN SUBMISSION		

BENCH MARK:

CONSULTANT

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ENGINEER'S STAMP

APPROVED FOR CONSTRUCTION

DAVID LOVERIDGE CO., B.ENG., P. ENG. — DIRECTOR OF PUBLIC WORKS — DATE

PROJECT NAME

TULLAMORE SECONDARY PLAN AREA
FUNCTIONAL SERVICING REPORT

PUBLIC WORKS DEPARTMENT

REGION OF PEEL

TOWN OF CALEDON

GRADING PLAN

SCALE: HORIZ. 1:2000	VERT.	PROJECT No.	CAL-13304
DESIGNED BY: JJH	DRAWN BY: JJH	DRAWING No.	LG-1
CHECKED BY: JP	DATE: DEC 2015		

G:\Eng_3D\CAL-13304\Design Dwgs\CAL-13304_FSR_GRADING NOVEMBER 2024.dwg Layout:LG-1 Plotted Feb 14, 2025 @ 8:29am by kschultz The Jones Consulting Group Ltd.

TULLAMORE BUSINESS PARK (VITRANS LOGISTICS)
12203 AIRPORT ROAD
COUNTERPOINT ENGINEERING
REF. No. 05257

AIRFIELD DEVELOPMENTS INC.
c/o FIRST PRO SHOPPING CENTRES
700 ANNEWOOD CRESCENT, SUITE 100
VAUGHAN, ONTARIO, L4K 5X3
ATTN: EMILY FOUKHTMAN

RITA POLSINELLI
13040 8th CONCESSION
KING CITY, ONTARIO, L7B 1K4

AIRPORT ROAD

PURDUE CT.

MAYFIELD ROAD

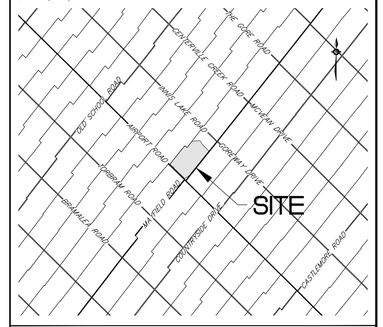
LIMIT OF STUDY AREA/LIMIT OF DRAFT PLAN OF SUBDIVISION

LIMIT OF STUDY AREA

LIMIT OF DRAFT PLAN OF SUBDIVISION

BLOCK 1 1.468 ha.
PROP. SILT FENCE AS PER TRCA DWG. No. 03
BH/MW-2 HWT 231.1 AUG.18/23
BH/MW-1 HWT 231.5 AUG.18/23
BH-3
BH-4
BH-6
PROPERTY # 1 12151 AIRPORT ROAD
BLOCK 2 4.800 ha.
BH/MW-5 HWT 231.5 AUG.18/23
BH/MW-8 HWT 233.1 AUG.18/22
BLOCK 3 2.108 ha.
BH-24
BH/MW-7 HWT 231.8 AUG.18/23
BLOCK 8 0.107 ha.
BLOCK 9 0.233 ha.
BLOCK 111 0.274 ha.
PROPERTY # 2 12117 AIRPORT ROAD
FUTURE PHASE
BLOCK 102 4.416 ha.
EX. POND
PROPERTY # 3 AIRPORT ROAD
BLOCK 101 1.363 ha.
PROP. SILT FENCE AS PER TRCA DWG. No. 03
26.0m R.O.W. PER CALEDON STANDARD No. 211
PROPERTY # 4 12101 AIRPORT ROAD
BLOCK 103 0.312 ha.
BLOCK 112 0.047 ha.
BLOCK 113 0.373 ha.
BLOCK 10 0.335 ha.
BH/MW-3 HWT 232.9 AUG.18/23
BLOCK 11 0.242 ha.
BH-23
BH-18
STREET A (DAVIS LANE)
PROP. SILT FENCE AS PER TRCA DWG. No. 03
EX. CHANNEL
BLOCK 6 1.285 ha.
BLOCK 4 4.655 ha.
BLOCK 5 4.079 ha.
BH/MW-22 HWT 229.5 AUG.18/23
BLOCK 105 5.095 ha.
PROPERTY # 8 6186 MAYFIELD ROAD
BH-17
BH/MW-11 HWT 231.4 AUG.18/23
PROPERTY # 9 6230 MAYFIELD ROAD
BH/MW-21 HWT 230.2 AUG.18/23
BLOCK 104 3.737 ha.
FUTURE PHASE
CURRENT PHASE
PROP. CHANNEL (253m LENGTH)
PROPERTY # 5 0 AIRPORT ROAD
PROPERTY # 6 6034 MAYFIELD ROAD
PROPERTY # 7 6086 MAYFIELD ROAD
SMARTCENTRES (ON BEHALF OF AIRFIELD DEVELOPMENTS INC. AND AIRFIELD II DEVELOPMENTS INC.) PROPOSED OPA AND ZBA TO HIGHWAY COMMERCIAL FOR TWO (2) INDUSTRIAL BUILDINGS AND PARKING
BH-16
BLOCK 15 0.445 ha.
S.W.M. POND 1 2.14 ha
BH/MW-10 HWT 229.5 AUG.18/23
BH/MW-20 HWT 232.4 AUG.18/23
PROP. SILT FENCE AS PER TRCA DWG. No. 03
PROPERTY # 11 6206 MAYFIELD ROAD
BLOCK 14 1.460 ha.
BH/MW-19 HWT 224.3 AUG.18/23
BH-14
BLOCK 7
BLOCK 13
BLOCK 116 0.192 ha.
BLOCK 16 0.121 ha.
BLOCK 17 0.101 ha.
BLOCK 18 0.040 ha.
BLOCK 19 0.083 ha.
BLOCK 20 0.023 ha.
MAYFIELD ROAD
FUTURE EDGE OF R.O.W.
ROYAL LINKS CIRCLE
PROP. MUD MAT AS PER TRCA DWG. No. 05
CARMEL CRESCENT
CITADEL CRESCENT
CASTLEMORE NORTH SECONDARY PLAN CITY OF BRAMPTON
MAISONNEUVE BLVD.
BLOCK 20 STREET A (DAVIS LANE)
BLOCK 110 0.486 ha.
BLOCK 115 0.152 ha.
S.W.M. POND 2 1.907 ha
BLOCK 107 0.775 ha.
FUT. 35m ENVIRONMENTAL BLOCK
PROPERTY # 12 6296 MAYFIELD ROAD
BLOCK 109 0.095 ha.
BLOCK 119 0.048 ha.
BLOCK 117 0.030 ha.
BLOCK 118 0.024 ha.
BLOCK 120 0.117 ha.
PROP. FUT. CULVERT
FUTURE EDGE OF R.O.W.
LAURENTIDE CRESCENT
EX. 35m WIDE ENVIRONMENTAL PROTECTION CORRIDOR
35m
EX. 1200mm CULVERT SW INV. 229.96 NE INV. 229.83
EX. 400mm CULVERT SW INV. 230.13 NE INV. 230.00
EX. 450mm CULVERT SW INV. 231.95 NE INV. 231.82
EX. 400mm CULVERT SW INV. 230.46 NE INV. 230.32
EX. 600mm CULVERT SW INV. 232.14 NE INV. 232.10
EX. 600mm CULVERT
EX. EDGE OF R.O.W.
EX. 1800x2500mm ELIPICAL CULVERT INV. OBV. 225.99± SE OBV. 225.62
EX. CULVERT SW INV. 226.26 NE INV. 226.13
EX. 400mm CULVERT SW INV. 226.76 NE INV. 226.43
EX. BRIDGE OVER SALT CREEK
EX. LOW AT R.O.W.
SALT CREEK
EX. POND
BLOCK 106 0.903 ha.
PROPERTY # 10 MAYFIELD ROAD
FUT. INDUSTRIAL CUL-DE-SAC TYPE A PER CALEDON STANDARD No. 215
30m MEANDER BELT SETBACK (T.B.C.)
BLOCK 114 0.519 ha
STREET B
BLOCK 21 1.695 ha.
MEANDER BELT (FSR SUBMISSION)
PROPERTY # 13 6340 MAYFIELD ROAD
BLOCK 108 3.104 ha.
BLOCK 22 2.727 ha.
TRCA REGULATORY (FSR SUBMISSION)
MEANDER BELT 2022
TRCA REGULATORY FLOOD LINE 2022

KEY MAP (N.T.S.)



GENERAL NOTES

1. EXISTING CONTOUR INFORMATION DERIVED FROM FIRST BASE SOLUTIONS DEM SPRING 2002 AND TOPOGRAPHICAL SURVEY FROM DAVID J. PESCE SURVEYING (JULY 2011).
2. EXISTING PARCEL FABRIC DERIVED FROM FIRST BASE SOLUTIONS TERANET SPRING 2010
3. EXISTING SERVICING INFORMATION DERIVED FROM AS RECORDED DRAWINGS PROVIDED BY THE TOWN OF CALEDON AND REGION OF PEEL.

LEGEND

- PROP. SILTATION CONTROL FENCE PER TRCA DWG. No. 03
- LIMIT OF DRAFT PLAN OF SUBDIVISION
- LIMIT OF STUDY AREA
- TRCA REGULATORY FLOODLINE
- SALT CREEK MEANDER BELT
- 30m MEANDER BELT SETBACK

NO.	BY	DATE	REVISION	CONS. CHECKED	TOWN APPR'D
0	JP	2024-03	DRAFT PLAN SUBMISSION		
1	JP	2025-02	REVISED DRAFT PLAN SUBMISSION		

BENCH MARK:

CONSULTANT

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS

229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

ENGINEER'S STAMP

APPROVED FOR CONSTRUCTION

DAVID LOVERIDGE CD., B.ENG., P. ENG.
DIRECTOR OF PUBLIC WORKS

DATE

PROJECT NAME

TULLAMORE SECONDARY PLAN AREA
FUNCTIONAL SERVICING REPORT

PUBLIC WORKS DEPARTMENT

REGION OF PEEL

TOWN OF CALEDON

EROSION AND SEDIMENT CONTROL PLAN

SCALE: HORIZ. 1:2000 VERT.		PROJECT No.	CAL-13304
DESIGNED BY: KS/JP	DRAWN BY: KS	DRAWING No.	ESC-1
CHECKED BY: JP	DATE: NOV. 2023		

G:\Eng_30\CAL-13304\Design Dwgs\CAL-13304_FSR_ESC-1 Plotted Feb 14, 2025 @ 8:16am by kschulz The Jones Consulting Group Ltd.

MAYPORT DISTRIBUTION FACILITY
12333 AIRPORT ROAD
JOHNSON, SUSTRONK, WEINSTEIN AND ASSOCIATES
REF. No. 12-30

TULLAMORE BUSINESS PARK (VITRANS LOGISTICS)
12203 AIRPORT ROAD
COUNTERPOINT ENGINEERING
REF. No. 05257

SMARTCENTRES (ON BEHALF OF AIRFIELD DEVELOPMENTS INC. AND AIRFIELD II DEVELOPMENTS INC.) PROPOSED TWO (2) INDUSTRIAL BUILDINGS AND PARKING WITH PRIVATE SEWER AND WATERMAINS AND CONNECTIONS TO THE MUNICIPAL SYSTEM. REFER TO THE PRELIMINARY SITE SERVICING FIGURE (SHEET No. 4), DATED JULY 22, 2021, PREPARED BY WSP (DRAWING No. 211-07736)

AIRPORT ROAD

PURDUE CT.

DAVIS LANE

MAYFIELD ROAD

ROYAL LINKS CIRCLE

CARMEL CRESCENT

CITADEL CRESCENT

LAURENTIDE CRESCENT

MAISONNEUVE BLVD.

VALES OF CASTLEMORE NORTH
SECONDARY PLAN
CITY OF BRAMPTON

SALT CREEK

EX. POND

LIMIT OF STUDY AREA/LIMIT OF DRAFT PLAN OF SUBDIVISION

LIMIT OF STUDY AREA

LIMIT OF DRAFT PLAN OF SUBDIVISION

CURRENTLY OWNED TOWN LANDS. EX. DAVIS LANE LEGAL LINE WORK TAKEN FROM PLAN 43R-36141, PLAN OF SURVEY PART OF LOT 1, CONCESSION 1, TOWN OF CALEDON, REGIONAL MUNICIPALITY OF PEEL, PREPARED BY SCHAEFFER DZALDOV BENNETT LTD., DATED SEPT. 30, 2014.

EX. ASPHALT AND GRAVEL BASED ON TOWN OF CALEDON AERIAL IMAGERY, DATED 2024

EX. LIMIT OF GRAVEL/ASPHALT (TYP.)

105 | 0.20 | 0.83

103 | 0.55 | 40.71

104 | 0.55 | 2.27

101 | 0.55 | 0.39

102 | 0.55 | 8.91

TRCA REGULATORY (FSR SUBMISSION)

MEANDER BELT 2022

TRCA REGULATORY FLOOD LINE 2022

30m MEANDER BELT SETBACK (T.B.C.)

30m MEANDER BELT SETBACK (TO BE CONFIRMED)

MEANDER BELT (FSR SUBMISSION)

EX. 600mmø CULVERT

EX. 450mmø CULVERT SW INV. 232.14 NE INV. 232.10

EX. 450mmø CULVERT SW INV. 231.85 NE INV. 231.72

EX. 400mmø CULVERT SW INV. 230.46 NE INV. 230.32

EX. 1200mmø CULVERT NW INV. 229.84 NE INV. 229.60

EX. 400mmø CULVERT SW INV. 230.13 NE INV. 230.00

EX. CULVERT SW INV. 229.65 NE INV. 229.70

EX. 600mmø CULVERT

EX. 400mmø CULVERT SW INV. 226.76 NW INV. 226.42

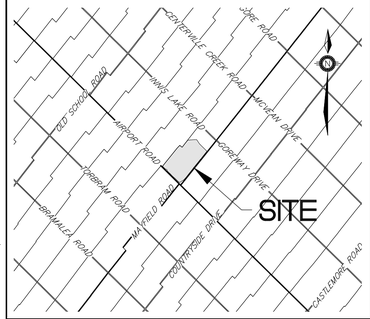
EX. BRIDGE OVER SALT CREEK

EX. CULVERT SW INV. 228.89 NE INV. 228.85

EX. 1800x2500mm ELLIPICAL CULVERT NW OBV. 225.61 SE OBV. 225.62

BH/MW-1 HWT 231.5 AUG.18/23
BH/MW-2 HWT 231.1 AUG.18/23
BH/MW-3 HWT 231.5 AUG.18/23
BH/MW-4 HWT 232.5 AUG.18/23
BH/MW-5 HWT 231.5 AUG.18/23
BH/MW-6 HWT 231.5 AUG.18/23
BH/MW-7 HWT 231.8 AUG.18/23
BH/MW-9 HWT 226.3 AUG.18/23
BH/MW-10 HWT 229.5 AUG.18/23
BH/MW-11 HWT 233.4 AUG.18/23
BH/MW-13 HWT 232.5 AUG.18/23
BH/MW-14 HWT 231.2 AUG.18/23
BH/MW-15 HWT 231.2 AUG.18/23
BH/MW-16 HWT 231.2 AUG.18/23
BH/MW-17 HWT 231.2 AUG.18/23
BH/MW-18 HWT 231.2 AUG.18/23
BH/MW-19 HWT 224.3 AUG.18/23
BH/MW-20 HWT 222.4 AUG.18/23
BH/MW-21 HWT 230.2 AUG.18/23
BH/MW-22 HWT 229.0 AUG.18/23
BH/MW-23 HWT 231.2 AUG.18/23
BH/MW-24 HWT 231.2 AUG.18/23

KEY MAP (N.T.S.)



GENERAL NOTES

1. EXISTING CONTOUR INFORMATION COMPILED FROM FIRST BASE SOLUTIONS DEM SPRING 2002 AND TOPOGRAPHICAL SURVEY FROM DAVID J. PESCE SURVEYING (JULY 2011).
2. EXISTING PARCEL FABRIC DERIVED FROM FIRST BASE SOLUTIONS TERANET SPRING 2010
3. EXISTING SERVICING INFORMATION DERIVED FROM AS RECORDED DRAWINGS PROVIDED BY THE TOWN OF CALEDON AND REGION OF PEEL.

LEGEND

- EXISTING CONTOURS
- EXISTING DRIPLINE
- LIMIT OF STUDY AREA
- LIMIT OF DRAFT PLAN OF SUBDIVISION
- TRCA REGULATORY FLOOD LINE
- MEANDER BELT
- PRE-DEVELOPMENT STORM CATCHMENT BOUNDARY
- STORM CATCHMENT NUMBER
- RUN OFF COEFFICIENT
- AREA (HECTARES)
- DIRECTION OF EXTERNAL STORM DRAINAGE
- DIRECTION OF STORM DRAINAGE
- EXISTING DITCH
- EXISTING STORM SEWER, MANHOLE AND DIRECTION OF FLOW
- TOWN OWNED LANDS
- EXISTING GRAVEL/ASPHALT AREAS

NO.	BY	DATE	REVISION	CONS. CHECKED	TOWN APPR'D
0	JP	2024-03	DRAFT PLAN SUBMISSION		
1	JP	2025-02	REVISED DRAFT PLAN SUBMISSION		

BENCH MARK:

CONSULTANT
JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
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Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

ENGINEER'S STAMP

APPROVED FOR CONSTRUCTION

DAVID LOVERIDGE CD., B.ENG., P. ENG.
DIRECTOR OF PUBLIC WORKS

DATE

PROJECT NAME
TULLAMORE SECONDARY PLAN AREA
FUNCTIONAL SERVICING REPORT

PUBLIC WORKS DEPARTMENT

REGION OF PEEL

TOWN OF CALEDON

PRE-DEVELOPMENT
STORM DRAINAGE PLAN

SCALE: HORIZ. 1:2000	VERT.	PROJECT No.	CAL-13304
DESIGNED BY: JJH	DRAWN BY: JJH	DRAWING No.	STM-1
CHECKED BY: JP	DATE: DEC 2014		

G:\Eng_3D\CAL-13304\Design Dwgs\CAL-13304_FSR_2000 NOVEMBER 2024.dwg Layout:STM-1 Plotted: Feb 14, 2025 @ 1:55pm by kschulz The Jones Consulting Group Ltd.

Block Number	Block Area (ha)	Max. Rooftop Area (ha)	Rooftop Controls (40L/s/ha)	Max. Lot Level Area (ha)	Lot Level Control (180L/s/ha)	Target Water Balance Requirements (1,274 m^3/yr/ha)
1	1.47	0.44	0.0176 m^3/s	1.03	0.1848 m^3/s	1,869
2	4.80	2.33	0.0932 m^3/s	2.47	0.4441 m^3/s	6,218
3	2.11	1.05	0.0421 m^3/s	1.05	0.1894 m^3/s	2,682
4	4.65	2.33	0.0930 m^3/s	2.33	0.4187 m^3/s	5,928
5&7	4.13	2.07	0.0826 m^3/s	2.07	0.3719 m^3/s	5,266
6	1.78	0.89	0.0356 m^3/s	0.89	0.1605 m^3/s	2,272
101	1.36	0.41	0.0163 m^3/s	0.95	0.1717 m^3/s	1,737
102	4.42	2.20	0.0881 m^3/s	2.22	0.3988 m^3/s	5,630
103	0.31	0.09	0.0037 m^3/s	0.22	0.0392 m^3/s	396
106	6.90	3.45	0.1380 m^3/s	3.45	0.6212 m^3/s	8,794
107	0.78	0.39	0.0154 m^3/s	0.39	0.0697 m^3/s	987
108 & 109	3.20	1.60	0.0639 m^3/s	1.60	0.2879 m^3/s	4,076
Total Private Lands	**35.91 ha**	**17.25 ha**	**0.6901 m^3/s**	**18.66 ha**	**3.3585 m^3/s**	**45,855 m^3/yr**

MAYPORT DISTRIBUTION FACILITY
12333 AIRPORT ROAD
JOHNSON, SUSTRONK, WEINSTEIN AND ASSOCIATES
REF. No. 12-30

TULLAMORE BUSINESS PARK (VITRANS LOGISTICS)
12203 AIRPORT ROAD
COUNTERPOINT ENGINEERING
REF. No. 05257

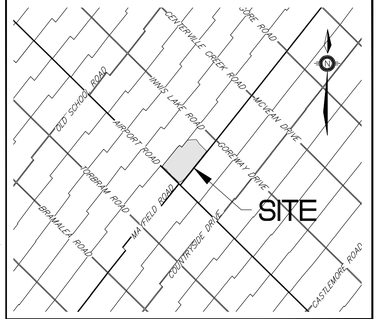
SMARTCENTRES (ON BEHALF OF AIRFIELD DEVELOPMENTS INC. AND AIRFIELD II DEVELOPMENTS INC.) PROPOSED TWO (2) INDUSTRIAL BUILDINGS AND PARKING WITH PRIVATE SEWER AND WATERMAINS AND CONNECTIONS TO THE MUNICIPAL SYSTEM. REFER TO THE PRELIMINARY SITE SERVICING FIGURE (SHEET No. 4), DATED JULY 22, 2021, PREPARED BY WSP (DRAWING No. 211-07736)

AIRPORT ROAD
PURDUE CT.
STREET A (DAVIS LANE)
FUT. STREET B
MAYFIELD ROAD
ROYAL LINKS CIRCLE
CARMEL CRESCENT
CITADEL CRESCENT
LAURENTIDE CRESCENT
MAISONNEUVE BLVD.
VALES OF CASTLEMORE NORTH SECONDARY PLAN CITY OF BRAMPTON

LIMIT OF STUDY AREA / LIMIT OF DRAFT PLAN OF SUBDIVISION
LIMIT OF DRAFT PLAN OF SUBDIVISION
LIMIT OF STUDY AREA
EX. POND
SALT CREEK
TRCA REGULATORY (FSR SUBMISSION)
MEANDER BELT 2022
TRCA REGULATORY FLOOD LINE 2022
30m MEANDER BELT SETBACK (T.B.C.)
30m MEANDER BELT SETBACK (TO BE CONFIRMED)
BLOCK 21 ENVIRONMENTAL PROTECTION
MEANDER BELT (FSR SUBMISSION)
BLOCK 22 ENVIRONMENTAL PROTECTION
EX. 35m WIDE ENVIRONMENTAL PROTECTION CORRIDOR
FUT. 35m WIDE ENVIRONMENTAL PROTECTION CORRIDOR
HAZEL FLOOD LIMIT
FUT. 3RD PIPE SYSTEM
FUT. STM SEWER
PROP. STORM SEWER FOR SERVICE CONNECTION
PROP. STM SEWER
TEMP. STORM CONNECTION
TEMP. DITCH INLET INV.=229.94
TEMP. OVERLAND FLOW SWALE & DRAINAGE EASEMENT
EX. LIMIT OF GRAVEL/ASPHALT (TYP.)
EX. 300mmø WATERMAIN
EX. POND OUTLET =230.64
S.W.M. POND 1 2.14ha
PROP. MAJOR AND MINOR STORM INLET FOR MAYFIELD ROAD DITCH
FUT. S.W.M. POND 2 1.133ha
PROP. OGS FOR STM OUTLET
PROP. STORM OUTLET TO EX. DITCH (BY OTHERS)
PROP. STORM OUTLET TO SEWER (MINOR) AND EX. DITCH (MAJOR)
PROP. STORM OUTLET TO SEWER (MINOR) AND EX. DITCH (MAJOR)
EX. 600mmø CULVERT
EX. 450mmø CULVERT SW INV. 232.14 NE INV. 232.10
EX. 450mmø CULVERT SW INV. 231.95 NE INV. 231.71
EX. 400mmø CULVERT SW INV. 230.46 NE INV. 230.32
EX. 1200mmø CULVERT NW INV. 229.89 NE INV. 229.83
EX. 400mmø CULVERT SW INV. 230.13 NE INV. 230.00
EX. CULVERT SW INV. 229.65 NE INV. 229.70
EX. 400mmø CULVERT SW INV. 226.76 NE INV. 226.41
EX. BRIDGE OVER SALT CREEK
EX. CULVERT SW INV. 228.88 NE INV. 228.81
EX. 1800x2500mm ELLIPICAL CULVERT NW INV. 225.81 SE INV. 225.63
PROP. 3048mm x 1524mm BOX CULVERT
EX. 35m WIDE ENVIRONMENTAL PROTECTION CORRIDOR

BLOCK 1 — 206 | 93 — 1.40
BLOCK 2 — 207 | 95 — 4.45
BLOCK 3 — 401 | 75 — 1.30
BLOCK 101 — 205 | 93 — 1.36
BLOCK 102 — 209 | 96 — 4.42
BLOCK 103 — 210 | 93 — 0.31
BLOCK 104 — 211 | 92 — 2.65
BLOCK 105 — 201 | 96 — 4.65
BLOCK 106 — 301 | 96 — 6.90
BLOCK 107 — 303 | 96 — 0.77
BLOCK 108 — 305 | 68 — 1.13
BLOCK 109 — 404 | 74 — 0.89
BLOCK 111 — 208 | 96 — 2.05
BLOCK 112 — 304 | 90 — 0.52
BLOCK 113 — 302 | 96 — 3.20
BLOCK 114 — 204 | 96 — 1.78
BLOCK 115 — 202 | 96 — 4.13
BLOCK 116 — 203 | 93 — 2.02
BLOCK 117 — 403 | 92 — 0.21
BLOCK 118 — 402 | 91 — 0.22
BLOCK 119 — 212 | 66 — 2.13
BLOCK 120

KEY MAP (N.T.S.)



GENERAL NOTES

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2. EXISTING PARCEL FABRIC DERIVED FROM FIRST BASE SOLUTIONS TERANET SPRING 2010
3. EXISTING SERVICING INFORMATION DERIVED FROM AS RECORDED DRAWINGS PROVIDED BY THE TOWN OF CALEDON AND REGION OF PEEL.

LEGEND

- EXISTING CONTOURS
- EXISTING DRIPLINE
- LIMIT OF STUDY AREA
- LIMIT OF DRAFT PLAN OF SUBDIVISION
- TRCA REGULATORY FLOOD LINE
- MEANDER BELT
- POST-DEVELOPMENT STORM CATCHMENT BOUNDARY
- EXISTING STORM SEWER, MANHOLE AND DIRECTION OF FLOW
- PROPOSED STORM SEWER, MANHOLE AND DIRECTION OF FLOW
- PROPOSED THIRD PIPE SYSTEM, MANHOLE AND DIRECTION OF FLOW
- PROPOSED STORM SERVICE STUB AND DIRECTION OF FLOW
- STORM SUB CATCHMENT NUMBER
- CURVE NUMBER OR % IMPERVIOUS (18 | 0.90 / 1.24)
- AREA (HECTARES)
- DIRECTION OF EXTERNAL STORM DRAINAGE
- DIRECTION OF STORM DRAINAGE
- EXISTING DITCH
- PROPOSED DITCH
- PROPOSED SLOPING (3:1)

NO.	BY	DATE	REVISION	CONS. CHECKED	TOWN APPR'D
0	JP	2024-03	DRAFT PLAN SUBMISSION		
1	JP	2025-02	REVISED DRAFT PLAN SUBMISSION		

BENCH MARK:

CONSULTANT
JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
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Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

ENGINEER'S STAMP

APPROVED FOR CONSTRUCTION

DAVID LOVERIDGE CD., B.ENG., P. ENG. DIRECTOR OF PUBLIC WORKS — DATE

PROJECT NAME
TULLAMORE SECONDARY PLAN AREA
FUNCTIONAL SERVICING REPORT

PUBLIC WORKS DEPARTMENT

REGION OF PEEL

TOWN OF CALEDON

POST-DEVELOPMENT
STORM DRAINAGE PLAN

SCALE: HORIZ. 1:2000	VERT.	PROJECT No.	CAL-13304
DESIGNED BY: JJH	DRAWN BY: JJH	DRAWING No.	STM-2
CHECKED BY: JP	DATE: DEC 2014		

G:\Eng_3D\CAL-13304\Design Dwgs\CAL-13304_FSR_2000 NOVEMBER 2024.dwg Layout:STM-2 Plotted: Feb 14, 2025 @ 2:12pm by kschulz The Jones Consulting Group Ltd.

MAYPORT DISTRIBUTION FACILITY
12333 AIRPORT ROAD
JOHNSON, SUSTRONK, WEINSTEIN AND ASSOCIATES
REF. No. 12-30

TULLAMORE BUSINESS PARK (VITRANS LOGISTICS)
12203 AIRPORT ROAD
COUNTERPOINT ENGINEERING
REF. No. 05257

AIRPORT ROAD

PURDUE CT.

LIMIT OF STUDY AREA

LIMIT OF DRAFT PLAN OF SUBDIVISION

BLOCK 1
BLOCK 2
BLOCK 3
BLOCK 8
BLOCK 9
BLOCK 14
BLOCK 101
BLOCK 111
BLOCK 102
BLOCK 103
BLOCK 112
BLOCK 113
BLOCK 10
BLOCK 11
BLOCK 104
BLOCK 4
BLOCK 5
BLOCK 6
BLOCK 7
BLOCK 114
BLOCK 107
BLOCK 108
BLOCK 15
BLOCK 110
BLOCK 116
BLOCK 16
BLOCK 17
BLOCK 18
BLOCK 19
BLOCK 20
BLOCK 117
BLOCK 118
BLOCK 120
BLOCK 106
BLOCK 109
BLOCK 119

EX. 300mmø WATERMAIN

EX. STORM SERVICE INV.=227.14

TEMP. STORM CONNECTION

PROP. STORM SEWER FOR SERVICE CONNECTION (TYP.)

EX. LIMIT OF GRAVEL/ASPHALT (TYP.)

TEMP. DITCH INLET INV.=229.94

EX. POND

TEMP. OVERLAND FLOW SWALE & DRAINAGE EASEMENT

STREET A (DAVIS LANE)

PROP. STM SEWER

FUT. STM SEWER

EX. POND OUTLET =230.64

FUT. STREET B

FUT. STM SEWER

FUT. 3RD PIPE SYSTEM

HAZEL FLOOD LIMIT

SMARTCENTRES (ON BEHALF OF AIRFIELD DEVELOPMENTS INC. AND AIRFIELD II DEVELOPMENTS INC.) PROPOSED TWO (2) INDUSTRIAL BUILDINGS AND PARKING WITH PRIVATE SEWER AND WATERMAINS AND CONNECTIONS TO THE MUNICIPAL SYSTEM. REFER TO THE PRELIMINARY SITE SERVICING FIGURE (SHEET No. 4), DATED JULY 22, 2021, PREPARED BY WSP (DRAWING No. 211-07736)

EXT1 3.78ha
EXT1A

EXT2 5.47ha
EXT2A

S.W.M. POND 1
2.14ha

PROP. MAJOR AND MINOR STORM INLET FOR MAYFIELD ROAD DITCH

PROP. STORM OUTLET TO EX. DITCH (BY OTHERS)

PROP. STORM OUTLET TO SEWER (MINOR) AND EX. DITCH (MAJOR)

PROP. STORM OUTLET TO SEWER (MINOR) AND EX. DITCH (MAJOR)

FUT. 35m WIDE ENVIRONMENTAL PROTECTION CORRIDOR

FUT. S.W.M. POND 2
1.133ha

PROP. OGS FOR STM OUTLET

EX. 450mmø CULVERT
SW INV. 232.14
NE INV. 232.10

EX. 450mmø CULVERT
SW INV. 231.95
NE INV. 231.73

EX. 400mmø CULVERT
SW INV. 230.46
NE INV. 230.32

EX. 1200mmø CULVERT
NW INV. 229.83
NE INV. 229.63

EX. 600mmø CULVERT

EX. 400mmø CULVERT
SW INV. 230.13
NE INV. 230.30

EX. CULVERT
SW INV. 229.65
NE INV. 229.70

EX. 900mmø CULVERT

FUT. 3048mm X 1524mm BOX CULVERT

EX. 1800x2300mm ELIPICAL CULVERT
NW OBV. 225.43
SE OBV. 225.63

EX. CULVERT
SW INV. 226.38
NE INV. 226.85

EX. 1200mmø CULVERT
SW INV. 226.39
NW INV. 226.71

EX. BRIDGE OVER SALT CREEK

EX. 35m WIDE ENVIRONMENTAL PROTECTION CORRIDOR

TRCA REGULATORY (FSR SUBMISSION)

MEANDER BELT 2022

TRCA REGULATORY FLOOD LINE 2022

30m MEANDER BELT SETBACK (T.B.C.)

30m MEANDER BELT SETBACK (TO BE CONFIRMED)

BLOCK 21 ENVIRONMENTAL PROTECTION

MEANDER BELT (FSR SUBMISSION)

BLOCK 22 ENVIRONMENTAL PROTECTION

SALT CREEK

ROYAL LINKS CIRCLE

CARMEL CRESCENT

CITADEL CRESCENT

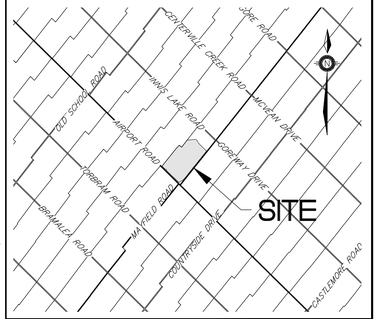
LAURENTIDE CRESCENT

MAISONNEUVE BLVD

MAYFIELD ROAD

VALES OF CASTLEMORE NORTH SECONDARY PLAN
CITY OF BRAMPTON

KEY MAP (N.T.S.)



GENERAL NOTES
1. EXISTING CONTOUR INFORMATION COMPILED FROM FIRST BASE SOLUTIONS DEM SPRING 2002 AND TOPOGRAPHICAL SURVEY FROM DAVID J. PESCE SURVEYING (JULY 2011).
2. EXISTING PARCEL FABRIC DERIVED FROM FIRST BASE SOLUTIONS TERANET SPRING 2010.
3. EXISTING SERVICING INFORMATION DERIVED FROM AS RECORDED DRAWINGS PROVIDED BY THE TOWN OF CALEDON AND REGION OF PEEL.

LEGEND

- EXISTING CONTOURS
- EXISTING DRIPLINE
- LIMIT OF STUDY AREA
- LIMIT OF DRAFT PLAN OF SUBDIVISION
- TRCA REGULATORY FLOOD LINE
- MEANDER BELT
- POST-DEVELOPMENT STORM CATCHMENT BOUNDARY
- EXISTING STORM SEWER, MANHOLE AND DIRECTION OF FLOW
- PROPOSED STORM SEWER, MANHOLE AND DIRECTION OF FLOW
- PROPOSED THIRD PIPE SYSTEM, MANHOLE AND DIRECTION OF FLOW
- PROPOSED STORM SERVICE STUB AND DIRECTION OF FLOW
- STORM SUB CATCHMENT NUMBER
- CURVE NUMBER OR % IMPERVIOUS (18 | 0.90 / 1.24)
- AREA (HECTARES)
- DIRECTION OF EXTERNAL STORM DRAINAGE
- DIRECTION OF STORM DRAINAGE
- EXISTING DITCH
- PROPOSED DITCH
- PROPOSED SLOPING (3:1)

NO.	BY	DATE	REVISION	CONS. CHECKED	TOWN APPR'D
0	JJP	2024-03	DRAFT PLAN SUBMISSION		
1	JJP	2025-02	REVISED DRAFT PLAN SUBMISSION		

BENCH MARK:

CONSULTANT

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.794.2538
F. 705.734.1056

ENGINEER'S STAMP

APPROVED FOR CONSTRUCTION

DAVID LOVERIDGE CD., B.ENG., P. ENG.
DIRECTOR OF PUBLIC WORKS

DATE

PROJECT NAME

TULLAMORE SECONDARY PLAN AREA
FUNCTIONAL SERVICING REPORT

PUBLIC WORKS DEPARTMENT

REGION OF PEEL

TOWN OF CALEDON

POST-DEVELOPMENT
STORM SUB-CATCHMENT DRAINAGE PLAN

SCALE: HORIZ. 1:2000	VERT.		PROJECT No. CAL-13304
DESIGNED BY: JJH	DRAWN BY: JJH		DRAWING No. STM-3
CHECKED BY: JP	DATE: DEC 2014		

G:\Eng_3D\CAL-13304\Design Dwgs\CAL-13304_FSR_2000 NOVEMBER 2024.dwg Layout:STM-3, Plotted Feb 14, 2025 @ 2:22pm by kschulz The Jones Consulting Group Ltd.

TULLAMORE BUSINESS PARK (VITRANS LOGISTICS)
12203 AIRPORT ROAD
COUNTERPOINT ENGINEERING
REF. No. 05257

AIRFIELD DEVELOPMENTS INC.
c/o FIRST PRO SHOPPING CENTRES
700 APPLEWOOD CRESCENT, SUITE 100
VAUGHAN, ONTARIO, L4K 5X3
ATTN: EMILY FOUKHTMAN

AIRPORT ROAD

PURDUE CT.

MAYFIELD ROAD

LIMIT OF STUDY AREA/LIMIT OF DRAFT PLAN OF SUBDIVISION

LIMIT OF DRAFT PLAN OF SUBDIVISION

LIMIT OF STUDY AREA

PROPERTY # 1
12151 AIRPORT ROAD

PROPERTY # 2
12117 AIRPORT ROAD

PROPERTY # 3
AIRPORT ROAD

PROPERTY # 4
12101 AIRPORT ROAD

PROPERTY # 5
0 AIRPORT ROAD

PROPERTY # 6
6034 MAYFIELD ROAD

PROPERTY # 7
6086 MAYFIELD ROAD

PROPERTY # 8
6186 MAYFIELD ROAD

PROPERTY # 9
6230 MAYFIELD R

PROPERTY # 10
MAYFIELD ROAD

PROPERTY # 11
6206 MAYFIELD RO

PROPERTY # 12
6296 MAYFIELD ROAD

PROPERTY # 13
6340 MAYFIELD ROAD

BLOCK 1
BLOCK 2
BLOCK 3
BLOCK 4
BLOCK 5
BLOCK 6
BLOCK 7
BLOCK 8
BLOCK 9
BLOCK 10
BLOCK 11
BLOCK 12
BLOCK 13
BLOCK 14
BLOCK 15
BLOCK 16
BLOCK 17
BLOCK 18
BLOCK 19
BLOCK 20
BLOCK 21
BLOCK 22
BLOCK 101
BLOCK 102
BLOCK 103
BLOCK 104
BLOCK 105
BLOCK 106
BLOCK 107
BLOCK 108
BLOCK 109
BLOCK 110
BLOCK 111
BLOCK 112
BLOCK 113
BLOCK 114
BLOCK 115
BLOCK 116
BLOCK 117
BLOCK 118
BLOCK 119
BLOCK 120

CURRENTLY OWNED TOWN LANDS.
EX. DAVIS LANE LEGAL LINE WORK TAKEN FROM PLAN 43R-36141, PLAN OF SURVEY PART OF LOT 1, CONCESSION 1, TOWN OF CALEDON, REGIONAL MUNICIPALITY OF PEEL, PREPARED BY SCHAEFFER DZALDOV BENNETT LTD., DATED SEPT. 30, 2014.

26.0m R.O.W. PER CALEDON STANDARD No. 211

STREET A (DAVIS LANE)

PROP. EASEMENT FOR 12151 AIRPORT ROAD STORM AND SANITARY SERVICING AND MAJOR OVERLAND FLOW

FUT. DRAINAGE EASEMENT

EX. POND

EX. CHANNEL

BLOCK 9.A TEMPORARY TURNING CIRCLE (PER STANDARD No.217)

INDUSTRIAL CUL-DE-SAC TYPE A PER CALEDON STANDARD No. 215

FUT. STREET B

30m MEANDER BELT SETBACK (T.B.C.) (LIMIT OF DEVELOPMENT LANDS)

FUT. DRAINAGE EASEMENT

FUT. CHANNEL (253m LENGTH)

FUT. 35m ENVIRONMENTAL BLOCK

S.W.M. POND 1
2.14 ha

FUT. S.W.M. POND 2
1.133 ha

STORM POND AFTER ROADS

SMARTCENTRES (ON BEHALF OF AIRFIELD DEVELOPMENTS INC. AND AIRFIELD II DEVELOPMENTS INC.)
PROPOSED OPA AND ZBA TO HIGHWAY COMMERCIAL FOR TWO (2) INDUSTRIAL BUILDINGS AND PARKING

FUTURE EDGE OF R.O.W.
ROYAL LINKS CIRCLE

CARMEL CRESCENT

CITADEL CRESCENT

LAURENTIDE CRESCENT

CASTLEMORE NORTH SECONDARY PLAN CITY OF BRAMPTON

MAISONNEUVE BLVD.

FUTURE EDGE OF R.O.W.

FUT. CULVERT

EX. 35m WIDE ENVIRONMENTAL PROTECTION CORRIDOR

SALT CREEK

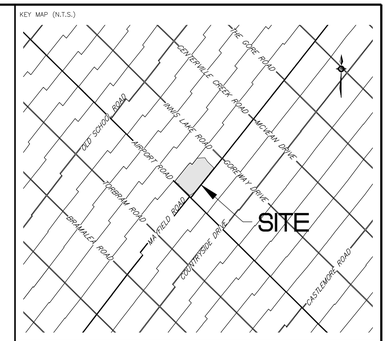
TRCA REGULATORY (FSR SUBMISSION)

MEANDER BELT 2022

TRCA REGULATORY FLOOD LINE 2022

MEANDER BELT (FSR SUBMISSION)

KEY MAP (N.T.S.)



GENERAL NOTES

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3. EXISTING SERVICING INFORMATION DERIVED FROM AS RECORDED DRAWINGS PROVIDED BY THE TOWN OF CALEDON AND REGION OF PEEL.

LEGEND

- LIMIT OF DRAFT PLAN OF SUBDIVISION
- LIMIT OF STUDY AREA
- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- LIMIT OF TOWN OWNED LAND
- 235.00 EXISTING CONTOURS
- EXISTING DRAINAGE DITCH/SWALE
- EXISTING EDGE OF ASPHALT/GRAVEL
- TRCA REGULATORY FLOODLINE
- SALT CREEK MEANDER BELT
- 30m MEANDER BELT SETBACK
- POST-DEVELOPMENT STORM CATCHMENT BOUNDARY
- 119 75% 0.08 — STORM SUB CATCHMENT NUMBER / CURVE NUMBER OR % IMPERVIOUS / AREA (HECTARES)

NO.	BY	DATE	REVISION	CONS. CHECKED	TOWN APPR'D
0	JP	2024-03	DRAFT PLAN SUBMISSION		
1	JP	2025-02	REVISED DRAFT PLAN SUBMISSION		

BENCH MARK:

CONSULTANT

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PLANNERS & ENGINEERS

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F. 705.734.1056

ENGINEER'S STAMP

APPROVED FOR CONSTRUCTION

DAVID LOVERIDGE CD., B.ENG., P. ENG.
DIRECTOR OF PUBLIC WORKS

DATE

PROJECT NAME

TULLAMORE SECONDARY PLAN AREA
FUNCTIONAL SERVICING REPORT

PUBLIC WORKS DEPARTMENT

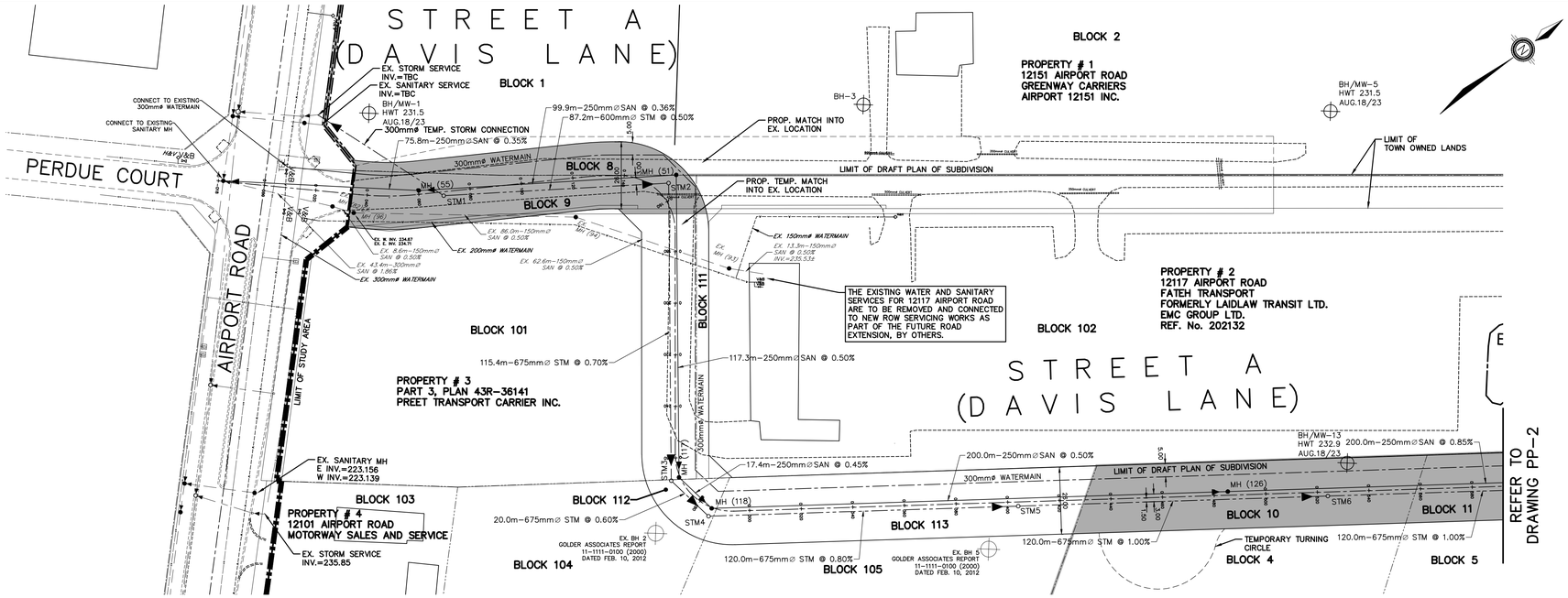
REGION OF PEEL

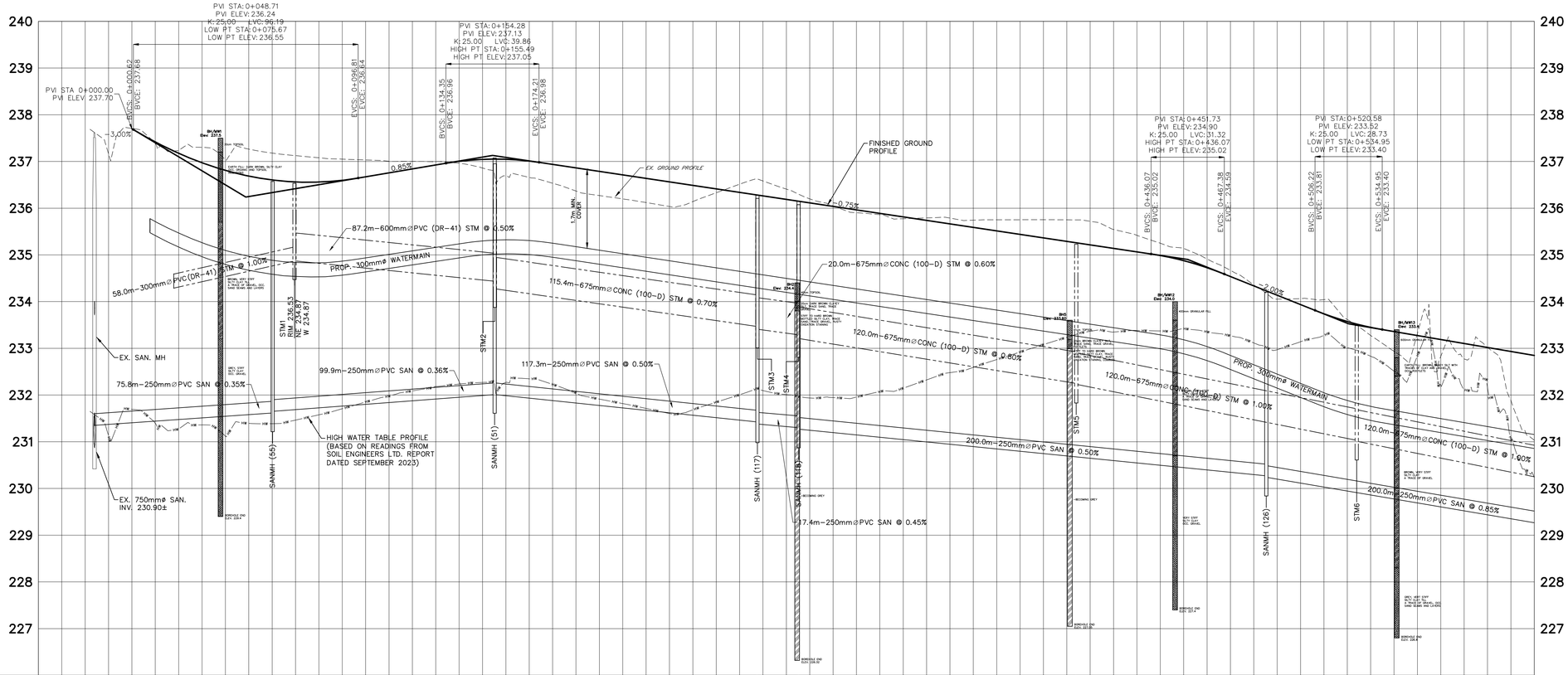
TOWN OF CALEDON

CONCEPTUAL LID PLAN

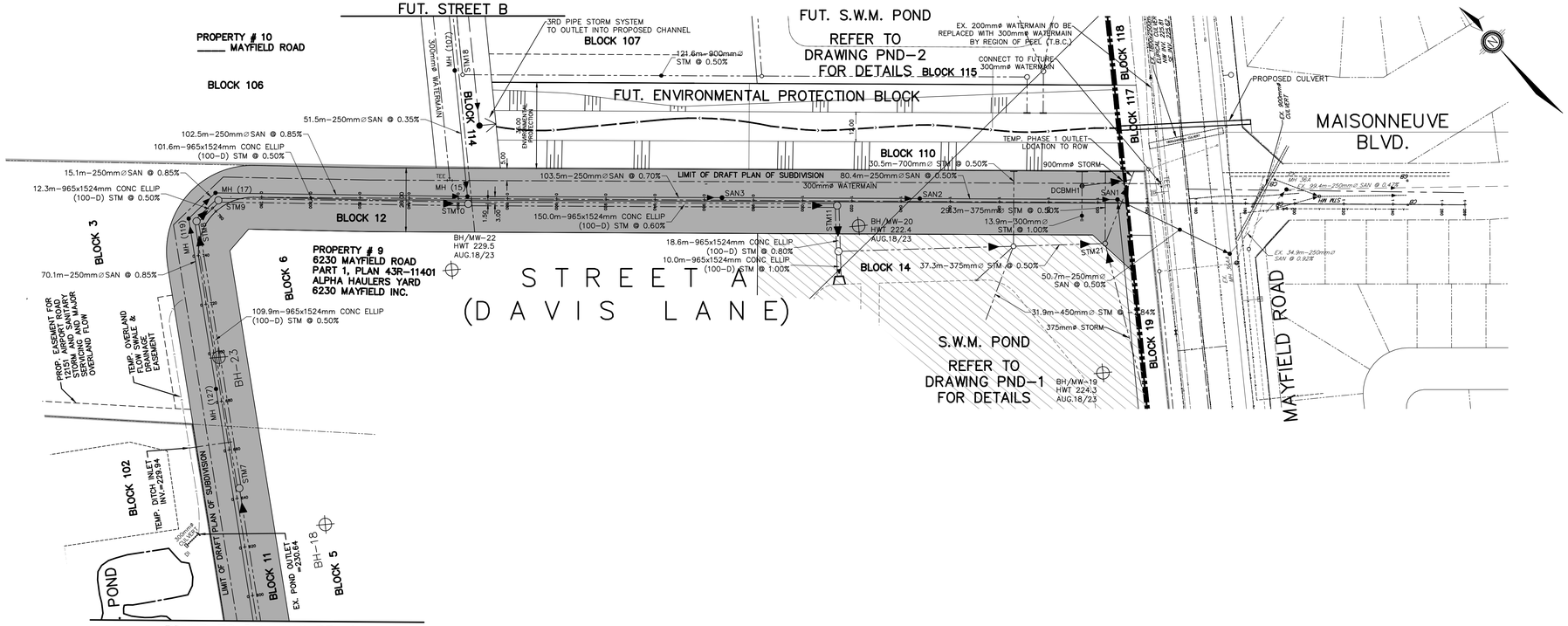
SCALE: HORIZ. 1:2000	VERT.	PROJECT No. CAL-13304
DESIGNED BY: JJH	DRAWN BY: JJH	DRAWING No. SWM-1
CHECKED BY: JP	DATE: FEB. 2025	

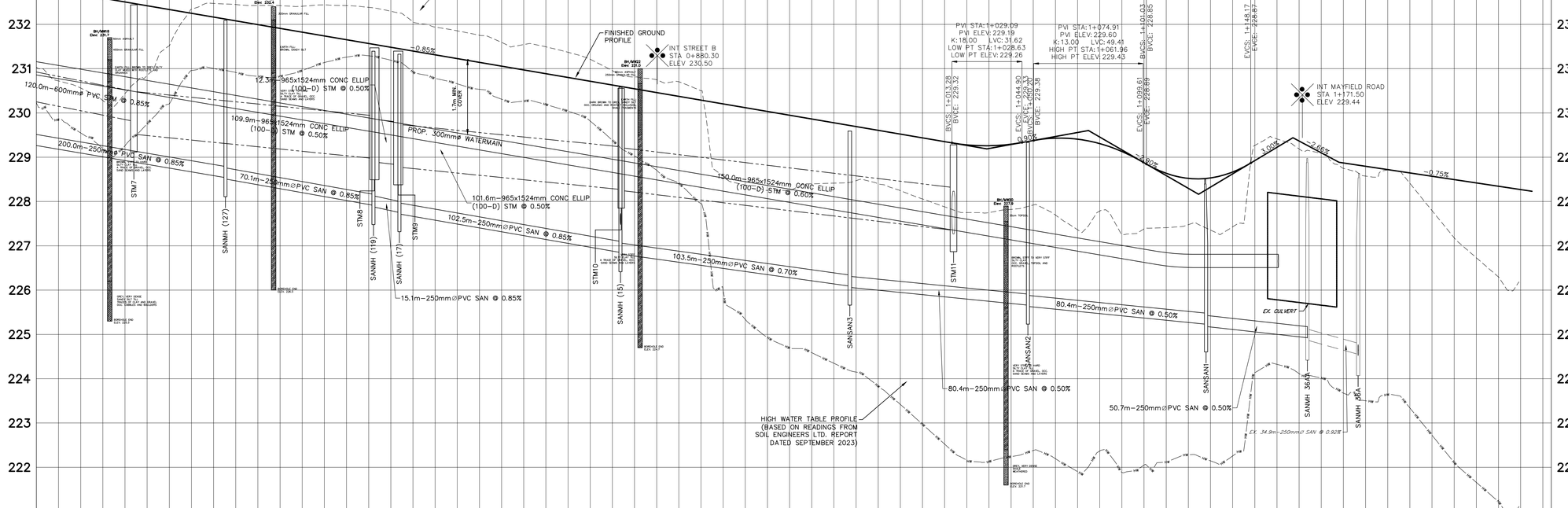
G:\Eng_30\CAL-13304\Design Dwgs\CAL-13304_FSR_CP-1 NOV 2024.dwg Layout:SWM-1 Plotted: Feb 14, 2025 @ 2:44pm by kschulz The Jones Consulting Group Ltd.


STREET A
(DAVIS LANE)
BLOCK 1
BLOCK 2
PROPERTY # 1
12151 AIRPORT ROAD
GREENWAY CARRIERS
AIRPORT 12151 INC.
EX. STORM SERVICE
INV.=TBC
EX. SANITARY SERVICE
INV.=TBC
BH/MW-1
HWT 231.5
AUG.18/23
300mmø TEMP. STORM CONNECTION
CONNECT TO EXISTING
300mmø WATERMAIN
CONNECT TO EXISTING
SANITARY MH
HWY 10 SB
PERDUE COURT
AIRPORT ROAD
LIMIT OF STUDY AREA
75.8m-250mmØ SAN @ 0.35%
99.9m-250mmØ SAN @ 0.36%
87.2m-600mmØ STM @ 0.50%
PROP. MATCH INTO
EX. LOCATION
BH-3
BH/MW-5
HWT 231.5
AUG.18/23
LIMIT OF
TOWN OWNED LANDS
LIMIT OF DRAFT PLAN OF SUBDIVISION
BLOCK 8
BLOCK 9
MH (51)
STM2
PROP. TEMP. MATCH
INTO EX. LOCATION
MH (55)
STM1
MH (56)
EX. 86.0m-150mmØ
SAN @ 0.50%
EX. 62.6m-150mmØ
SAN @ 0.50%
EX. 200mmø WATERMAIN
EX. 150mmø WATERMAIN
EX. 13.3m-150mmØ
SAN @ 0.50%
INV.=235.53±
EX. 8.6m-150mmØ
SAN @ 0.50%
EX. 4.3m-350mmØ
SAN @ 1.86%
EX. 300mmø WATERMAIN
Ex. MH (93)
THE EXISTING WATER AND SANITARY
SERVICES FOR 12117 AIRPORT ROAD
ARE TO BE REMOVED AND CONNECTED
TO NEW ROW SERVICING WORKS AS
PART OF THE FUTURE ROAD
EXTENSION, BY OTHERS.
PROPERTY # 2
12117 AIRPORT ROAD
FATCH TRANSPORT
FORMERLY LAIDLAW TRANSIT LTD.
EMC GROUP LTD.
REF. No. 202132
BLOCK 101
BLOCK 102
BLOCK 111
115.4m-675mmØ STM @ 0.70%
117.3m-250mmØ SAN @ 0.50%
PROPERTY # 3
PART 3, PLAN 43R-36141
PREET TRANSPORT CARRIER INC.
STREET A
(DAVIS LANE)
EX. SANITARY MH
E INV.=223.156
W INV.=223.139
BLOCK 103
PROPERTY # 4
12101 AIRPORT ROAD
MOTORWAY SALES AND SERVICE
EX. STORM SERVICE
INV.=235.85
BLOCK 112
BLOCK 104
20.0m-675mmØ STM @ 0.60%
EX. BH 2
GOLDER ASSOCIATES REPORT
11-1111-0100 (2000)
DATED FEB. 10, 2012
MH (117)
300mmø WATERMAIN
STM3
MH (118)
STM4
17.4m-250mmØ SAN @ 0.45%
200.0m-250mmØ SAN @ 0.50%
300mmø WATERMAIN
LIMIT OF DRAFT PLAN OF SUBDIVISION
MH (126)
STM5
STM6
BH/MW-13
HWT 232.9
AUG.18/23
200.0m-250mmØ SAN @ 0.85%
BLOCK 113
BLOCK 10
BLOCK 11
BLOCK 105
120.0m-675mmØ STM @ 0.80%
EX. BH 5
GOLDER ASSOCIATES REPORT
11-1111-0100 (2000)
DATED FEB. 10, 2012
120.0m-675mmØ STM @ 1.00%
TEMPORARY TURNING
CIRCLE
BLOCK 4
BLOCK 5
120.0m-675mmØ STM @ 1.00%
REFER TO
DRAWING PP-2


PVI STA: 0+048.71
PVI ELEV: 236.24
K: 25.00 LVC: 96.19
LOW PT STA: 0+075.67
LOW PT ELEV: 236.55
PVI STA: 0+000.00
PVI ELEV: 237.70
BVCS: 0+000.62
BVCE: 237.68
EVCS: 0+096.81
EVCE: 236.64
PVI STA: 0+154.28
PVI ELEV: 237.13
K: 25.00 LVC: 39.86
HIGH PT STA: 0+155.49
HIGH PT ELEV: 237.05
BVCS: 0+134.35
BVCE: 236.96
EVCS: 0+174.21
EVCE: 236.98
PVI STA: 0+451.73
PVI ELEV: 234.90
K: 25.00 LVC: 31.32
HIGH PT STA: 0+436.07
HIGH PT ELEV: 235.02
BVCS: 0+436.07
BVCE: 235.02
EVCS: 0+467.38
EVCE: 234.59
PVI STA: 0+520.58
PVI ELEV: 233.52
K: 25.00 LVC: 28.73
LOW PT STA: 0+534.95
LOW PT ELEV: 233.40
BVCS: 0+506.22
BVCE: 233.81
EVCS: 0+534.95
EVCE: 233.40
3.00%
0.85%
0.75%
2.00%
FINISHED GROUND
PROFILE
EX. GROUND PROFILE
1.7m MIN. COVER
87.2m-600mmØ PVC (DR-41) STM @ 0.50%
PROP. 300mmø WATERMAIN
58.0m-300mmØ PVC (DR-41) STM @ 1.00%
20.0m-675mmØ CONC (100-D) STM @ 0.60%
115.4m-675mmØ CONC (100-D) STM @ 0.70%
120.0m-675mmØ CONC (100-D) STM @ 0.80%
120.0m-675mmØ CONC (100-D) STM @ 1.00%
120.0m-675mmØ CONC (100-D) STM @ 1.00%
99.9m-250mmØ PVC SAN @ 0.36%
75.8m-250mmØ PVC SAN @ 0.35%
117.3m-250mmØ PVC SAN @ 0.50%
200.0m-250mmØ PVC SAN @ 0.50%
200.0m-250mmØ PVC SAN @ 0.85%
17.4m-250mmØ PVC SAN @ 0.45%
EX. SAN. MH
EX. 750mmø SAN.
INV. 230.90±
HIGH WATER TABLE PROFILE
(BASED ON READINGS FROM
SOIL ENGINEERS LTD. REPORT
DATED SEPTEMBER 2023)
STM1
RIM 236.53
NE 234.87
W 234.87
STM2
STM3
STM4
STM5
STM6
SANMH (51)
SANMH (55)
SANMH (117)
SANMH (118)
SANMH (126)
BH/MW1
Elev 231.5
BH/MW3
Elev 233.8
BH/MW5
Elev 233.5
BOREHOLE END
ELEV. 229.9
BOREHOLE END
ELEV. 230.0
BOREHOLE END
ELEV. 230.8
BOREHOLE END
ELEV. 228.8
BOREHOLE END
ELEV. 224.0
240
239
238
237
236
235
234
233
232
231
230
229
228
227

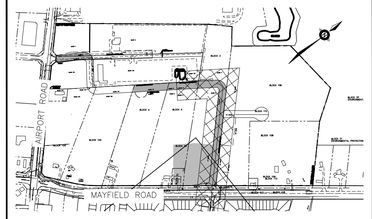
| | | |





STORM INVERTS	229.81 / 229.52 ; 228.97 / 228.89 / 228.83 / 228.78 ; 228.27 / 228.25 ; 227.35
SANITARY INVERTS	228.54 / 228.51 ; 227.91 / 227.88 / 227.75 / 227.72 ; 226.85 / 226.81 ; 226.09 / 226.06 ; 225.66 / 225.63 ; 225.23 / 225.18 ; 224.93
EXISTING C/L GRADE PROPOSED C/L GRADE	230.6 / 232.68 ; 230.4 / 232.51 ; 231.5 / 232.34 ; 232.5 / 232.17 ; 232.4 / 231.99 ; 232.4 / 231.82 ; 232.4 / 231.65 ; 232.3 / 231.48 ; 231.9 / 231.31 ; 231.8 / 231.14 ; 231.5 / 230.97 ; 231.4 / 230.80 ; 231.0 / 230.63 ; 230.7 / 230.46 ; 230.5 / 230.29 ; 228.4 / 230.12 ; 228.3 / 229.95 ; 228.4 / 229.78 ; 228.4 / 229.61 ; 228.1 / 229.44 ; 227.8 / 229.28 ; 227.8 / 229.11 ; 227.7 / 228.94 ; 227.8 / 228.91 ; 227.8 / 228.88 ; 227.5 / 228.52 ; 227.4 / 228.69 ; 229.4 / 229.22 ; 229.1 / 229.10 ; 228.6 / 228.80 ; 228.4 / 228.65 ; 227.2 / 228.50 ; 226.1 / 228.35
STATION	0+620 ; 0+640 ; 0+660 ; 0+680 ; 0+700 ; 0+720 ; 0+740 ; 0+760 ; 0+780 ; 0+800 ; 0+820 ; 0+840 ; 0+860 ; 0+880 ; 0+900 ; 0+920 ; 0+940 ; 0+960 ; 0+980 ; 1+000 ; 1+020 ; 1+040 ; 1+060 ; 1+080 ; 1+100 ; 1+120 ; 1+140 ; 1+160 ; 1+180 ; 1+200 ; 1+220 ; 1+240 ; 1+260 ; 1+280 ; 1+283.84

KEY MAP (N.T.S.)



GENERAL NOTES

LEGEND

LIMIT OF DRAFT PLAN OF SUBDIVISION

LIMIT OF STUDY AREA

NO.	BY	DATE	REVISION	CONS. CHECKED	TOWN APPR'D
0	JP	2024-03	DRAFT PLAN SUBMISSION		
1	JP	2025-02	REVISED DRAFT PLAN SUBMISSION		

BENCH MARK:

CONSULTANT

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS

229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

ENGINEER'S STAMP

APPROVED FOR CONSTRUCTION

DAVID LOVERIDGE CD., B.ENG., P. ENG. DIRECTOR OF PUBLIC WORKS — DATE

PROJECT NAME

TULLAMORE SECONDARY PLAN AREA

PUBLIC WORKS DEPARTMENT

REGION OF PEEL

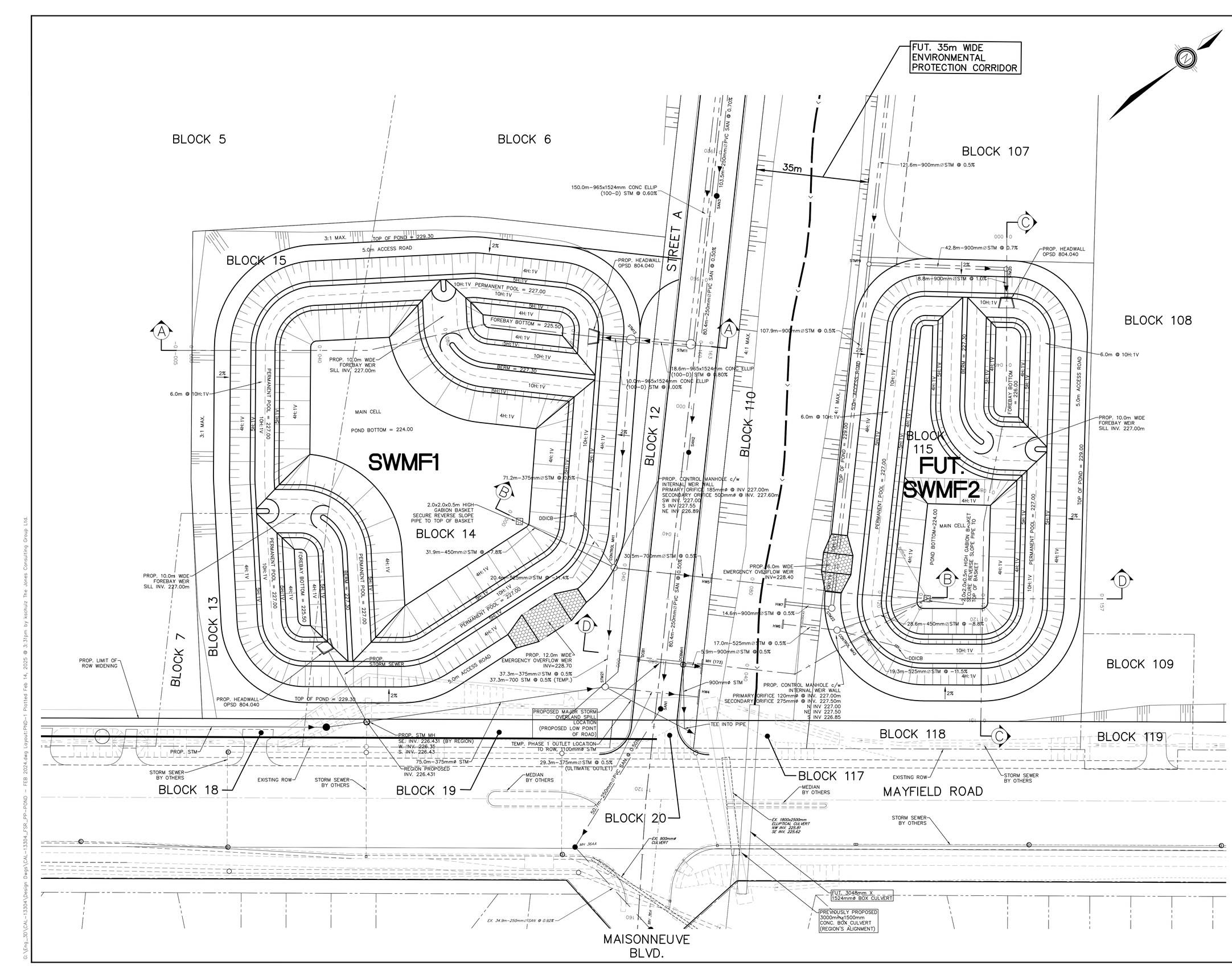
TOWN OF CALEDON

STREET A (DAVIS LANE) PLAN AND PROFILE

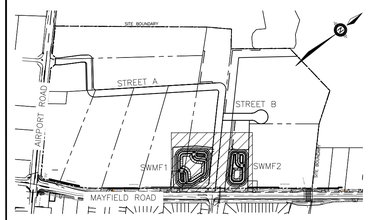
STA. 0+600 TO STA. 1+280

SCALE: HORIZ. 1:1000 VERT. 1:50		PROJECT No. CAL-13304
DESIGNED BY: JJH	DRAWN BY: JJH	DRAWING No. PP-2
CHECKED BY: JP	DATE: DEC 2015	

G:\Eng_3D\CAL-13304\Design Dwgs\CAL-13304_FSR_PP-STREET A-C NOVEMBER 2024.dwg Layout:PP-2 Plotted: Feb 14, 2025 @ 1:12pm by kshulz The Jones Consulting Group Ltd.



KEY MAP (N.T.S.)



GENERAL NOTES

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2. EXISTING PARCEL FABRIC DERIVED FROM FIRST BASE SOLUTIONS TERANET SPRING 2010
3. EXISTING SERVICING INFORMATION DERIVED FROM AS RECORDED DRAWINGS PROVIDED BY THE TOWN OF CALEDON AND REGION OF PEEL.

LEGEND

FUTURE DRAINAGE CHANNEL

SECTION IDENTIFIER

NO.	BY	DATE	REVISION	CONS. CHECKED	TOWN APPR'D
0	JP	2024-03	DRAFT PLAN SUBMISSION		
1	JP	2025-02	REVISED DRAFT PLAN SUBMISSION		

BENCH MARK:

ELEVATION NOTE

ELEVATIONS ARE OF GEODETIC ORIGIN (CGVD-1928:78), AND ARE DERIVED FROM GNSS OBSERVATIONS AND NATURAL RESOURCES CANADA'S GEOID MODEL HT2.0.

LOCAL BENCHMARK

TOP OF IRON BAR LOCATED AT SOUTHEAST CORNER OF No. 6206 BRICK BUILDING, HAVING AN ELEVATION OF 330.37 METRES.

CONSULTANT

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
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ENGINEER'S STAMP

APPROVED FOR CONSTRUCTION

DAVID LOVERIDGE CD., B.ENG., P. ENG. DIRECTOR OF PUBLIC WORKS — DATE

PROJECT NAME

TULLAMORE SECONDARY PLAN AREA

PUBLIC WORKS DEPARTMENT

REGION OF PEEL

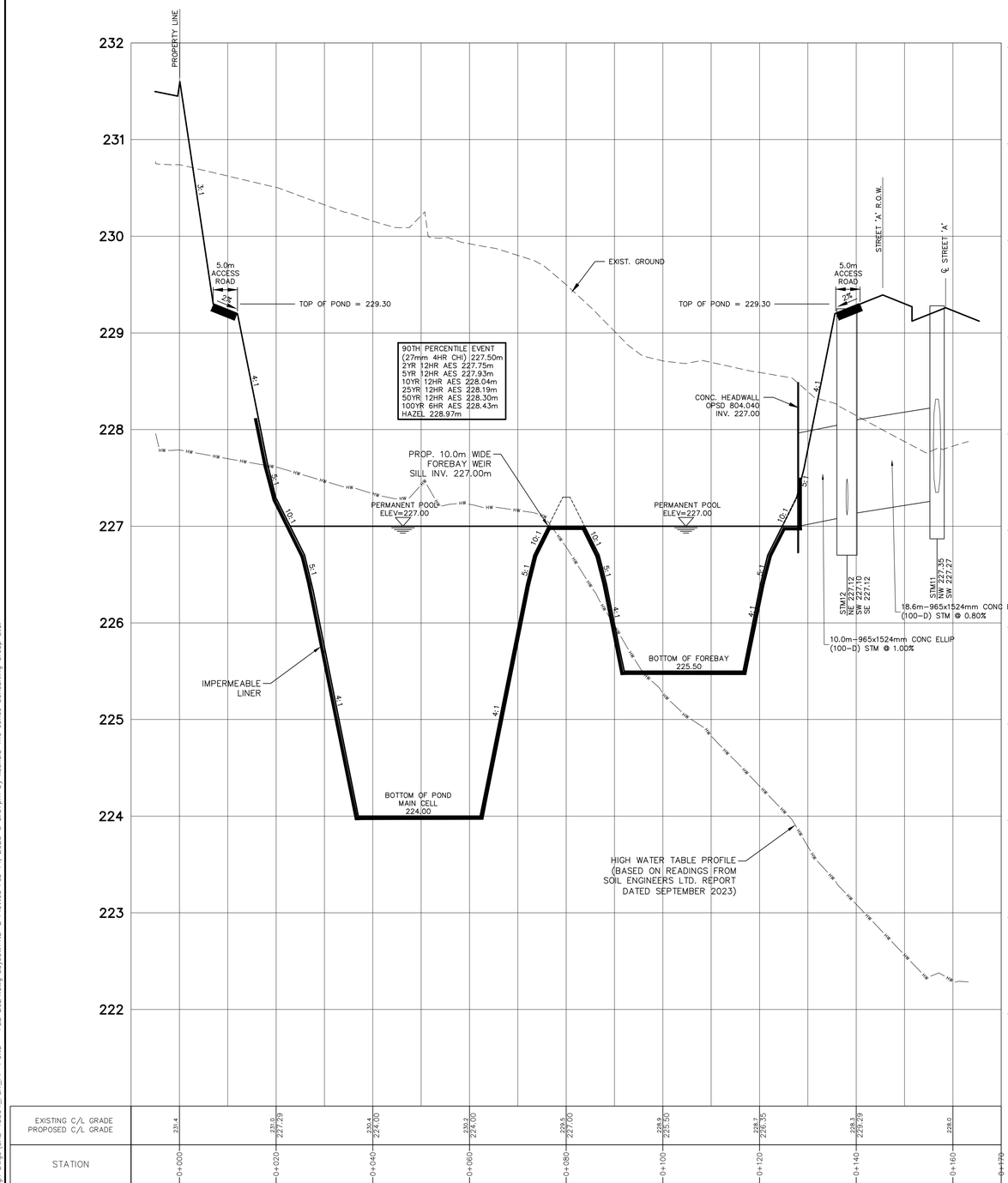
TOWN OF CALEDON

STORM WATER MANAGEMENT POND 1 & 2 PLAN VIEW

SCALE: HORIZ. 1:500	VERT. N/A	PROJECT No.	CAL–13304
DESIGNED BY: MF	DRAWN BY: JJH	FIGURE No.	PND–1
CHECKED BY: JP	DATE: DEC 2015		

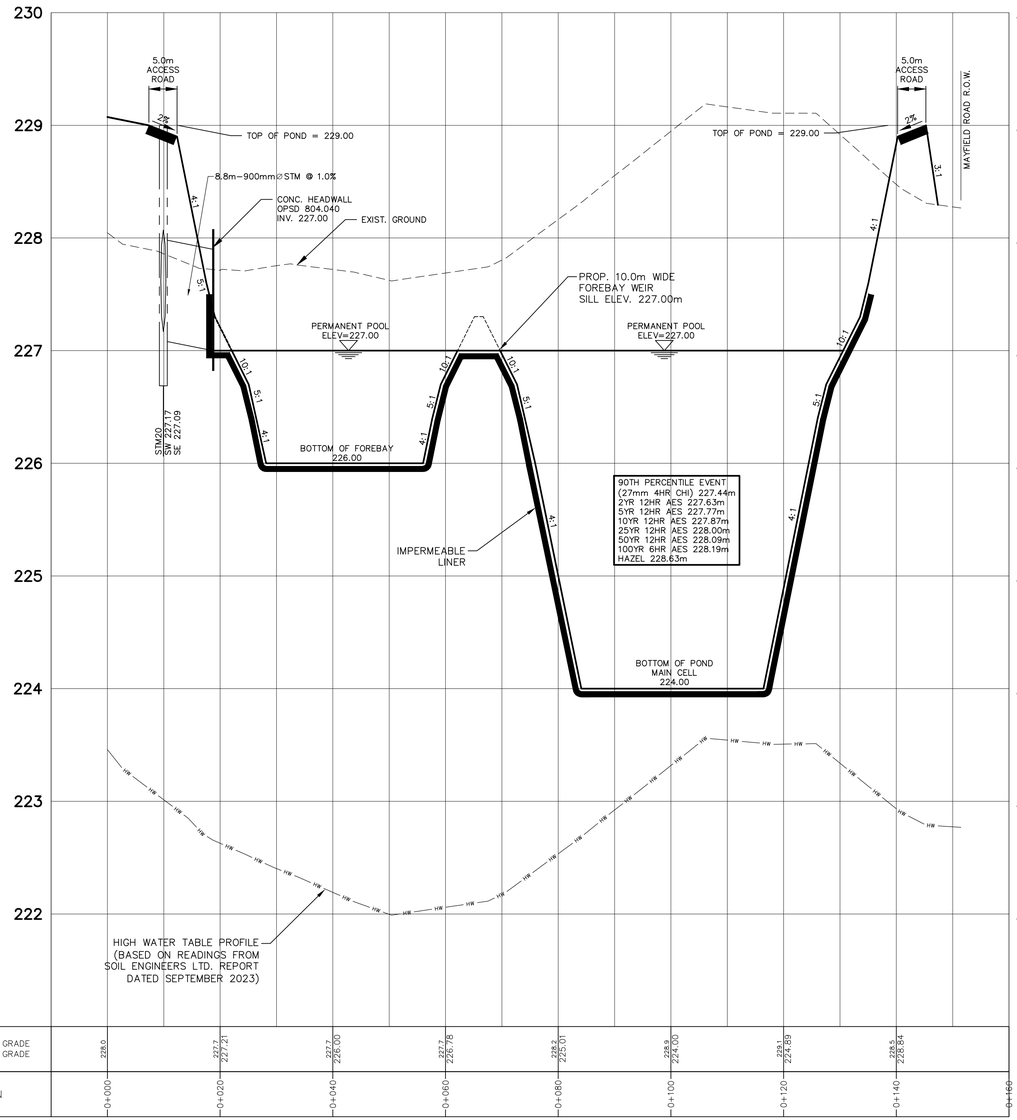
C:\Eng_3D\CAL-13304\Design Dwgs\CAL-13304_FSR_PP-POND - FEB 2024.dwg Layout:PND-1 Plotted Feb 14, 2025 @ 3:31pm by kschulz The Jones Consulting Group Ltd.

SWMF1 : SECTION A-A

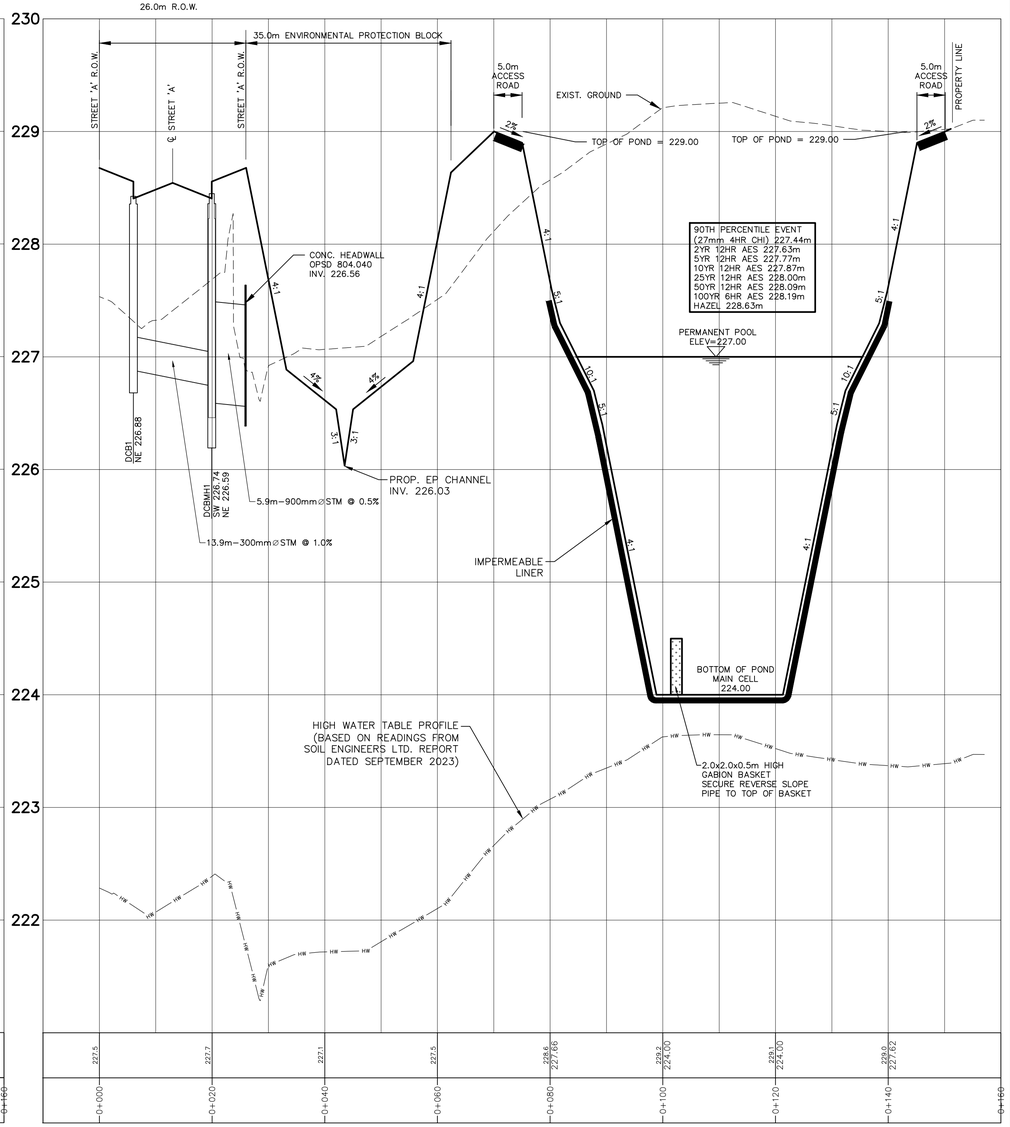


| | | |

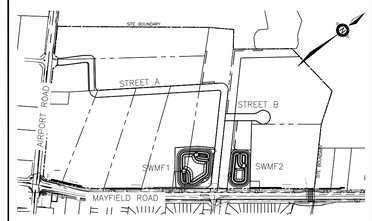
POND 2 : SECTION C-C



POND 2 : SECTION D-D



KEY MAP (N.T.S.)



GENERAL NOTES

1. EXISTING CONTOUR INFORMATION COMPILED FROM FIRST BASE SOLUTIONS DEM SPRING 2002 AND TOPOGRAPHICAL SURVEY FROM DAVID J. PESCE SURVEYING (JULY 2011).
2. EXISITNG PARCEL FABRIC DERIVED FROM FIRST BASE SOLUTIONS TERANET SPRING 2010
3. EXISTING SERVICING INFORMATION DERIVED FROM AS RECORDED DRAWINGS PROVIDED BY THE TOWN OF CALEDON AND REGION OF PEEL.

NO.	BY	DATE	REVISION	CONS. CHECKED	TOWN APPR'D
0	JJP	2024-03	DRAFT PLAN SUBMISSION		
1	JJP	2025-02	REVISED DRAFT PLAN SUBMISSION		

BENCH MARK:

ELEVATION NOTE

ELEVATIONS ARE OF GEODETIC ORIGIN (CGVD-1928:78), AND ARE DERIVED FROM GNSS OBSERVATIONS AND NATURAL RESOURCES CANADA'S GEOID MODEL HT2.0.

LOCAL BENCHMARK

TOP OF IRON BAR LOCATED AT SOUTHEAST CORNER OF No. 6206 BRICK BUILDING, HAVING AN ELEVATION OF 230.37 METRES.

CONSULTANT

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS

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ENGINEER'S STAMP

APPROVED FOR CONSTRUCTION

DAVID LOVERIDGE CD., B.ENG., P. ENG.
DIRECTOR OF PUBLIC WORKS

DATE

PROJECT NAME

TULLAMORE SECONDARY PLAN AREA

PUBLIC WORKS DEPARTMENT

REGION OF PEEL

TOWN OF CALEDON

STORM WATER MANAGEMENT POND 2 (EAST)
SECTION C-C
SECTION D-D

SCALE: HORIZ. 1:500	VERT. 1:25	PROJECT No. CAL-13304
DESIGNED BY: JJH	DRAWN BY: JJH	FIGURE No. PND-3
CHECKED BY: JP	DATE: DEC 2015	

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