



URBANTECH[®]

FUNCTIONAL SERVICING AND STORMWATER MANAGEMENT REPORT

Bronte River Subdivision

Town of Oakville

Prepared for

Bronte River Limited Partnership

Project #: 20-657

December 2021

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1 INTRODUCTION

Urbantech Consulting has been retained as consulting engineers by the Bronte River Limited Partnership to complete a Functional Servicing Report (FSR) in support of zoning bylaw amendment and draft plan approval applications for the proposed 12.12 ha Bronte River development in the Town of Oakville.

As shown on Drawing **SLP-1**, the Subject Lands are bounded by the following:

- To the north by a future development site (Eaglewood Communities) adjacent Bronte Road and beside Bronte Creek Provincial Park;
- To the south by a residential property;
- To the east by Bronte Road;
- To the west by the Bronte Creek valley and Bronte Creek Provincial Park.

The site is comprised of municipal Lot 21, Concession 2, South of Dundas Street as shown on the October 7, 2021 survey prepared by J.D. Barnes.

The site falls within the Town of Oakville Liveable Oakville Plan and currently is partially occupied by the Enns Estate and a few single-family dwellings adjacent to Bronte Road.

The subject development lies within both the Bronte Creek and 14 Mile Creek subwatersheds. Refer to **Drawing STM-1** for the delineation between the two subwatersheds. Drainage from the site within the Bronte Creek watershed exits the Subject Lands into a minor tributary of the Bronte Creek. The minor tributary is hereinafter referred to as BCT (Bronte Creek Tributary). Lands tributary to 14 Mile Creek drain to the roadside ditch adjacent to Bronte Road.

1.1 Study Purpose

This FSR outlines the servicing details for the proposed storm drainage, sanitary sewer and water distribution systems required to service the subject development. The recommended servicing plans have been prepared in accordance with design criteria and requirements of the Town of Oakville, Region of Halton, and Conservation Halton (CH).

The information in this report is intended to assist regulatory agencies in their review of the planning applications for the proposed development. Additionally, consideration is given to the future development site (Eaglewood Communities) situated to the north of the subject development, which benefits from mutual services indicated within Street A.

1.2 Planning Context

Bronte River Limited Partnership is proposing to develop the Subject Lands with residential and open space uses consistent with the Livable Oakville Plan.

An Official Plan Amendment (OPA) was approved for the Subject Lands by the Ontario Municipal Board (OMB) (now Ontario Land Tribunal) in 2017 (Case no. PL141318). The OPA designated the Subject Lands Medium Density Residential, Low Density Residential, Natural Area, Parkway Belt and Greenbelt. The limits of the Natural Area were determined through field

staking prior to the OMB hearing and includes a 30 m buffer from the dripline of the woodlands. The 30 m buffer consists of a 10 m woodland buffer and a 20 m enhancement area. As part of the planning application, the woodland dripline and physical top of bank were recently re-staked with the Region of Halton and CH, respectively. These updated staked limits have been used when creating the constraint limits. In addition, a stable top of bank assessment was previously completed by Terraprobe and the stable top of bank limit, as determined through that study, has also been used to establish constraint limits, where the stable top of bank is greater than the physical top of bank. Given that CH completed an updated physical top of bank staking, Terraprobe has updated the stable top of bank assessment to reflect these minor revisions and confirmed that the conclusions of the previous report remain unchanged.

The Parkway Belt West Plan (PBWP) overlay applies to lands within the Medium Density Residential and Low Density Residential land use designations and the OP policy states that these lands form part of the PBWP and until such time that these lands are removed from the PBWP and come under the jurisdiction of the Town, the policies of the PBWP shall govern the use of land. Four of the five properties have been removed from the PBWP plan and an application to remove the fifth property (1350 Bronte Road) has been submitted to the Province.

A pre-consultation meeting was conducted with Town of Oakville, Halton Region Planning staff and CH staff in May 2021 and a pre-consultation form was provided which outlined the submission requirements. A site walk was also conducted with CH and Town staff on August 18th 2021 and with Region staff on September 7, 2021.

A pre-consultation meeting was held with Engineering staff at Halton Region on October 15, 2021.

The standard North Oakville EIR/FSS Terms of Reference was adapted for the site and the Table of Contents has been mapped to the sections in each subconsultants report. Refer to **Appendix G** for the original North Oakville EIR/FSS Terms of Reference document as well as

1.3 Development Concept

In reference to the **Draft Plan of Subdivision** prepared by Korsiak Urban Planning, the subject development consists of:

1. 39 single detached dwellings including one existing dwelling to remain post-development.
2. 103 condominium town homes;
3. 2.09 ha buffer block from natural heritage features;
4. 5.32 ha woodlot block;
5. 0.05 ha of road widening;
6. 1.00 ha of 17 m ROW (583 m).

The development concept proposes Street A as a single access road, which aligns with the opposing Saw Whet Boulevard. Street A further provides access to the Eaglewood Communities lands via a private driveway.

1.4 Background Studies

The servicing plan and development concept presented within this report are an extension of the information contained in the following reports:

1. Preliminary Geotechnical Investigation Proposed Residential Development 1350 Bronte Road (November 2021) by DS Consultants;
2. Preliminary Geotechnical Investigation Proposed Residential Development 1326 - 1342 Bronte Road (September 2020) by DS Consultants;
3. Erosion Assessment (December 2021) by GEO Morphix;
4. Drainage and Stormwater Management Draft Detailed Design Report (March 2010) by McCormick Rankin Corporation.
5. Scoped Environmental Impact Assessment 1300, 1316, 1326, 1350 and 1354 Bronte Road (December 2021) by Beacon Environmental Limited
6. Bronte Green Development / Enns Property Stormwater Management Requirements (September 2016) by J.F. Sabourin and Associates

2 EXISTING CONDITIONS

2.1 Land Use

The existing development consists of single-family residential dwellings, a large expanse of lawn area, a farm pond and a woodlot in the south portion of the Subject Lands. Refer to Drawing **EXC-1** for a visual summary of the existing conditions.

2.2 Geotechnical and Hydrogeology

In support of the draft plan application, site-specific soils reports have been prepared by DS Consultants Ltd. The studies dated September 2020 for 1326 – 1342 Bronte Road and November 2021 for 1350 Bronte Road are reproduced in **Appendix F**.

The report outlines the following subsurface conditions:

- 75 mm to 150 mm of topsoil underlain by fill material extending to depths from 0.8 to 5 m below the ground surface.
- Under the fill material cohesionless deposits of silt, silty sand to sandy silt, gravelly sand to sand and gravel were encountered up to depth of 2.3 to 6 m below the ground surface.
- Cohesive deposits of silty clay and clayey silt till were encountered in all boreholes and extended to the maximum drill depths of BH20-1 to BH20-3.
- In boreholes BH20-4 to BH20-14 sandy silt deposits were encountered below the cohesive deposits and extended to depths of 6.0 to 8.2 m below the ground surface.

Groundwater levels were measured by DS Consultants between August 2020 and June 2021 which indicated that the groundwater ranged from 0.92 to 5.1 m below the ground surface.

3 GRADING DESIGN

3.1 Design Standards

The proposed grading design of the subject development considers the following requirements and constraints:

1. Conforms to the Town of Oakville design criteria.
2. Provided appropriate cover on proposed servicing.
3. Achieve stormwater management and environmental objectives;
4. Provides overland flow conveyance for major storm conditions;
5. Addresses boundary drainage conditions where surrounding lands are not developing at the present time;
6. Matches existing vertical boundary conditions;
7. Optimizes cut and fill operations to minimize import/export.;
8. Ensures compatibility with extensions of roads into surrounding lands;
9. Minimizes the need for retaining walls;
10. Adheres to the recommendations of the EIA;
11. Enables the existing detached dwelling on Block 16 to remain.

3.2 Grading Design

Table 3-1 summarizes key design features contained in the proposed grading design. Refer to **Drawings GR-1** and **SD-1** for complementary information, sections, and details.

Table 3-1: Grading Design

Matching Existing Ground	The rear yards of Lots 1 through 17 (inclusive) grade to existing ground.
Existing Detached Dwelling (Block 16)	The centreline road profile of Street A adjacent to Block 16 (approx. STA. 0+375 to STA. 0+400) has been designed to enable the existing detached dwelling to remain in place. The rear yard of Block 16 grades to existing ground.
Mono-Sloped Lane (Condo Block 40)	Lanes B, D, and E are mono-sloped roads within Condo Block 40. Refer to Drawing SD-1 for the typical cross section.
Mono-Sloped Lane with Valley Gutter (Condo Block 40)	Lanes A and C feature a valley gutter adjacent the street parking within Condo Block 40. Refer to Drawing SD-1 for the typical cross section.
Compatibility with Bronte Road (Condo Block 40)	The townhouse units adjacent Bronte Road within Condo Block 40 may require 6-9 risers including a retaining wall along a portion of the Bronte Road right of way. This grade difference is the result of draining requirements and utility servicing with appropriate cover along Lane D.



Bio-Filtration	Stormwater from a portion of the site is discharged into a proposed biofiltration system adjacent Lots 18 through 23 and the Lane B townhouse units. The total length of the system is approximately 170m. It maintains a trapezoidal cross section with a 6m bottom width, 3:1 side slopes, 12m top width with a varied bank height. Refer to Drawing SD-1 for typical cross sections. See Section 4 for stormwater design and performance.
Outfall Channel and Habitat Restoration	Downstream of the biofiltration system will be a naturized outfall channel with pocket wetlands that ties into BCT. Restorative measures are proposed for BCT downstream of the naturalized outfall channel.

3.3 Roads

The subject development proposes 3 typical road cross sections as follows.

- a) Street A - Town of Oakville's STD 7-22A (17.0m Right-of-Way)
- b) Private Street mono-sloped
- c) Private Street Mono-sloped with on-street Parking

Refer to **Drawing SD-1** for typical road cross sections.

4 STORM DRAINAGE AND STORMWATER MANAGEMENT

4.1 Drainage Criteria

In accordance with the Town of Oakville, Halton Region and CH standards, the design criteria for the site are as follows:

1. Provide erosion control and meet pre-development flows for Bronte Creek. For 14 Mile Creek meet the pre-development targets outlined in Bronte Green Development / Enns Property Stormwater Management Requirements (September 2016) by J.F. Sabourin and Associates.
2. Provide extended detention for 24-48 hour drawdown based on the erosion threshold target flow rate established by GEO Morphix.
3. Ensure minimum MECP enhanced (Level 1) stormwater quality treatment of runoff is provided.
4. Maintain pre-development water balance through the use of LID measures.
5. Provide safe overland flow conveyance of the 100-year event

As identified in the document Bronte Green Development / Enns Property Stormwater Management Requirements (September 2016) by J.F. Sabourin and Associates, a portion of the site drains down Bronte Road via a ditch to node E733 where it is discharged to 14 Mile Creek. 49.18 ha of drainage area drain to node E733 including the Bronte River property. **Table 4-1** shows the unitary target rates to meet pre-development rates in 14 Mile Creek based on the total drainage area.

Table 4-1: 14 Mile Creek Target Flow Rates

Storm Event	Existing Flow (m ³ /s)	Existing Flow Unit Rate (m ³ /s/ha)
2-year	0.895	0.018
5-year	1.928	0.039
10-year	2.723	0.055
25-year	3.844	0.078
50-year	4.679	0.095
100-year	5.554	0.113
Regional	6.05	0.123

4.1.1 Previous SWM Strategies

The original SWM strategy outlined by DSEL and JFSA as part of the Bronte Green hearing / approvals involved the use of a conventional wet pond discharged to the Bronte Road sewer. The pond over-controlled the entire area (including the Bronte Creek catchments) to the extremely low release rates for the Bronte Road sewer / Fourteen Mile Creek. The resulting pond required in excess of 20,000 m³ to manage the Regional storm and would have had extremely long drawdown times due to the restricted release rate. The pond required to service the lands would have occupied a considerable portion of the Subject Lands.

Two stormwater management options were considered for the Subject Lands. Option A consists of a conventional SWM pond which would collect drainage from the whole site and would discharge all flows to 14 Mile Creek. Option B, the preferred option, consists of a bio-filtration swale which will collect drainage from the north portion of the site and outlet to the Bronte Creek Tributary, while the remaining drainage will be controlled by a super pipe that ultimately outlets to 14 Mile Creek. Refer to **Drawing STM-3** for the approximate footprint and location of the two SWM strategies.

Table 4-2: SWM Strategies

Metrics	Evaluated SWM Strategies	
	A SWM Pond	B Bio-filtration Swale
Footprint	SWM pond would occupy approximately ~0.8 ha including access roads. ¹	Filtration swale will occupy approximately 0.34 ha.
Maintenance	Standard wet pond maintenance, including dredging, bi-annual inspections of SWM ponds, landscaping, monitoring, cleanout, access road.	Inspections, monitoring. Refer to Section 4.5.3 for maintenance.
Impact to Development	Significant impact to the development/land use plan as 0.8 ha SWM pond on a parcel that is 5 ha of developable area is excessive and not an efficient use of land. Excessive earthworks and importing of fill will be required to direct all site drainage to facility.	No impact provided swale is contained within the 30 m NHS buffer. Earthworks can be reduced as the site can be directed to two different outlets.
Practicality and Function	Pond is significantly oversized to over control Bronte Creek drainage area and 14 Mile Creek drainage area to low release rates. Large facility for a 5 ha area of developable land, estimated to be nearly double a typical regional control facility. This option dismisses the capacity of BCT outlet. Single source of end of pipe quality control.	Balances the flows to each outlet to avoid significant Town owned infrastructure. Utilizes all available outlets with the smallest footprint. Uses LID measures to provided erosion mitigation, and treatment train approach to quality control (use of OGS, bio-filtration swale). Added benefit that the bio-filtration swale will improve water balance through evapotranspiration.



Metrics	Evaluated SWM Strategies	
	A SWM Pond	B Bio-filtration Swale
Maintaining Drainage Boundaries	Does not respect existing boundaries and does not maintain flows to Bronte Creek. Introduces more drainage area and runoff volume to the 14 Mile Creek environmental features and channel.	Drainage to both 14 Mile Creek and Bronte Creek are maintained.
Approximate Maintenance Cost (~ every 10 years)	\$200,000 for pond cleanout	\$75,000 for LID cleanout

¹ Based on Bronte Green Development / Enns Property Stormwater Management Requirements (September 2016) by J.F. Sabourin and Associates.

4.2 Existing Conditions

A Visual Otthymo model was created to model the drainage from the site to both Bronte Creek and 14 Mile Creek. Based on the Town of Oakville Standards a 24-hour Chicago rainfall Distribution was used to simulate the rainfall on the site.

4.2.1 Bronte Creek

Under existing conditions, surface flows from approximately 3.70 ha of the site drains to the existing farm pond located to the west of the 14 Mile Creek/Bronte Creek watershed drainage divide. Flows from the farm pond discharge overland to the south-west corner of the site where they enter BCT. Flows from BCT ultimately enter Bronte Creek. Additionally, 6.86 ha of external area to the north is also conveyed through the Subject Lands.

Table 4-3 provides flows entering BCT under existing conditions, including the 6.86 ha external area. The pre-development drainage areas are shown on **Drawing STM-1**.

Table 4-3: Existing Flows to Bronte Creek Tributary

Outlet	Area	Storm	Flow (m³/s)
Bronte Creek	10.56 ha	25 mm 4-hour	0.061
		5-year	0.395
		100-year	1.01

4.2.2 14 Mile Creek

Under existing conditions 3.26 ha of the Subject Lands drains to the east to Bronte Road where it is conveyed north by an existing ditch, approximately 245 m long, on the west side of the Bronte Road which outlets to 14 Mile Creek.

Table 4-4 provides flows entering 14 Mile Creek from the east portion of the site under existing conditions. The pre-development drainage areas are shown on **Drawing STM-1**.

Table 4-4: Existing Flows to 14 Mile Creek

Outlet	Area	Storm	Flow (m³/s)
14 Mile Creek	3.26 ha	25 mm 4-hour	0.027
		5-year	0.176
		100-year	0.460

4.3 Storm Sewer Design

Storm sewers within the subdivision are sized to convey the 5-year storm in accordance with Town of Oakville Standards. Local storm sewer pipes generally range in size from 300 mm to 750 mm diameter. There are two proposed outlets, one to each of the watersheds, 14 Mile Creek and Bronte Creek

See **Drawing STM-2** for drainage areas and pipe networks and **Appendix B** for storm design sheets. The following sections describe the key elements of the storm sewer system.

4.3.1 Bronte Creek Outlet

The Bronte Creek outlet is comprised of the following 3 elements:

- 1) 2 storm sewer outfalls into a bio-filtration swale
- 2) A bio-filtration swale
- 3) A restored and naturalized outfall channel with intermittent wetland pockets.

Details of the bio-filtration swale are presented in Section 4.4.1 and 4.5.1. Restoration measures are described in detail in the GEO Morphix Report.

4.3.2 Bypass Pipe

A 750 mm bypass pipe is designed to convey 100 year flows from the ~ 6.8 ha external area to the north as well as the rear yards located in the north-west portion of the Subject Lands. The bypass pipe outlets to the restored channel at the downstream end of the bio-filtration swale.

4.3.3 Bronte Road Storm Sewer

Bronte Road contains an existing storm sewer that ranges in size from 375 to 750 mm and receives flows primarily from the Bronte Road ROW. Flows from the site within the 14 Mile Creek watershed will be discharged to the existing sewer via a new 450 mm storm sewer where street A connects to Bronte Road.

A dual drainage analysis with PCSWMM was undertaken to verify the capacity of the Bronte Road storm sewer. The capacity analysis has indicated that there is a minimum 264 L/s of surplus capacity during the 10-year event. The limiting pipe in the system is a 450 mm diameter storm sewer located between MH 26 and MH 41. Refer to Urbantech Bronte Road Storm Sewer Capacity Analysis in **Appendix C** for further details.

The PCSWMM model was also used to demonstrate that the 100-year controlled flow from the site can be conveyed in the sewer with surcharge while maintaining the hydraulic grade line below the ground surface. Refer to Section 4.5.2 in the report for more details regarding the proposed on-site controls

4.3.4 Super Pipe

To achieve target flows for the portion of the site discharging to the Bronte Road sewer, a super pipe is proposed upstream of MH 24. The super pipe will be a 51 m long- 1500 mm diameter concrete storm sewer. A 129 mm orifice plate will be located within MH 25 to create the storage in the super pipe. The super pipe provides 90 m³ of storage. The super pipe also provides quantity control for the Eaglewood Communities Street A frontage and the 0.35 ha external area to the north to meet flows target for the 14 Mile Creek watershed. Additional storage is provided on the Eaglewood Communities property to meet target flows as outlined in Section 4.5.2.

Drawing PP-1 shows the location of the super pipe.

4.3.5 Piped Outfall to Bronte Creek

The recommended stormwater outfall is as shown on **Drawing GR-1 and Drawing SD-1**. At the request of CH, consideration was to be given to installing a traditional piped outfall into the Bronte Creek valley as opposed to utilizing a restored natural outlet as described in Section 4.3.1. **Drawing PP-3** presents a conceptual piped outfall design in comparison to the design proposal **Table 4-5** provides an evaluation matrix comparing the two outfall scenarios.

Table 4-5: Evaluation Matrix-Outfall Options

Metric	Outfall Options	
	A Naturalized Outfall to BCT	B Pipe to Bronte Creek
Construction Access	Primarily within development property, minimal disturbance within vegetated areas, outfall improvements to be hand placed or with small machine within NHS.	Construct a temporary access road consisting of numerous switchbacks to achieve a practical road gradient (5-10%) for machine access.
Restoration	Naturalized channel outfall, refer to restorative measures proposed by GEO Morphix. < 1 years to re-establish vegetation.	Re-topsoil and re-vegetate disturbed area, extensive erosion protection until stabilized. Many decades required to re-establish vegetation.
Volume of Earthworks	nil	50,000 m ³
Limit of Disturbance in Key Natural Heritage Features of the NHS	265 m ²	10,000 m ²
Technical Complexity	Minimal complexity.	Highly complex.

Metric	Outfall Options	
	A Naturalized Outfall to BCT	B Pipe to Bronte Creek
Maintenance of Infrastructure	Minimal	Inspections of deep drop shaft and outfall pipe (Town) in perpetuity.
Approvals	CH permit	CH permit, DFO, MECP, Ontario Parks
Land Ownership	Bronte Creek Provincial Park, Bronte River LP	Bronte Creek Provincial Park, Bronte River LP
Cost	\$	\$\$\$\$\$
Construction Duration	1 week	90 days
Ecological Impacts	Localized impact of low magnitude and short term; improvements to BCT through restoration of natural channel in location of existing man-made ponds	Widespread impact of high magnitude and long term; significant vegetation removal and grading required along valley slopes to access valley with equipment; fill within Bronte Creek required in order to get equipment from access road to outfall location; armouring required at outfall location
Geomorphological Form and Function	Maintenance of flows to ravine, restoration of channel form and function through artificial pond removal, positive outcomes.	Loss of flows to ravine, armouring required within Bronte Creek, negative impact.
Geomorphological Impacts/Erosion	Impacts are mitigated through erosion threshold and localized erosion protection.	Requires localized erosion protection in creek and floodplain.
Interaction with Geomorphological Hazard	Impacts are mitigated through localized erosion protection.	Well within hazard envelope of Bronte Creek / not mitigated, given the size of Bronte Creek and access erosion hazard is harder to address initially and in the long-term.

Refer to reports by Beacon and GEO Morphix for further discussion regarding the natural heritage and natural hazard aspects of the Piped Outfall assessment.

As a result of the analysis, it is recommended that the naturalized outfall to BCT is the preferred approach for the Bronte Creek outfall as it will result in significantly less disturbance to the NHS including the slopes and vegetation along the Bronte Creek valley, it is more cost effective, it will provide for easier maintenance access in the future and will not require the installation of an outfall on Ontario Parks lands.

4.3.1 Hydraulic Grade Line and Sump Pumps

In support of the detailed design a hydraulic grade line analysis will be undertaken within the development to verify the performance of the proposed storm sewer system that is tributary to Bronte Creek. It is anticipated that sump pumps will be required in all units due to the backwater influence of the bio-filtration facility.

4.4 Quality Control

4.4.1 Bronte Creek

As identified in Section 4.1, 24-48 hours of drawdown is recommended for the 25 mm 4-hour storm event. Additionally, GEO Morphix has undertaken an erosion threshold analysis on the existing natural outfall from the site into the Bronte Creek valley. The GEO Morphix study recommended an erosion threshold flow of ~37 L/s. to mitigate erosive impacts after development. The bio-filtration swale has been designed to fully contain runoff from the 25 mm event. Runoff percolates through the floor of the bio-filtration swale through engineered topsoil (special topsoil/sand mixture). Beneath engineered topsoil is a rock gallery with a perforated under drain that collects filtered flows that are released to the natural outfall channel.

An impervious liner is proposed beneath the bio-filtration swale to preclude groundwater intrusion into the swale and underdrain.

The maximum flow through the biofiltration media is estimated to be 7 L/s (0.007 m³/s) assuming a contact area of ~1,050 m², and a percolation rate in the engineered soil of 25 mm/hour, which is below the threshold flow specified by GEO Morphix. For the 585 m³ of storage required for the 25 mm event, this results in an extended detention of the 25 mm event of 23 hours.

Enhanced (Level 1) water quality protection through the removal of >80% of total suspended solids (TSS) will be provided through the use of two OGS's (located at the south end of Street A and Lane A) and the bio-filtration system which will store and filtrate up to approximately 585 m³ of stormwater per storm event. The removal efficiency of the treatment train as well as OGS sizing will take place at detailed design.

4.4.2 14 Mile Creek

Due to the small total area of the lands entering the super pipe (~0.72 ha) it is not practical to provide 24 hours of detention with a minimum 75 mm orifice. A waiver of the extended detention requirement is requested.

Enhanced (Level 1) water quality protection will be achieved though the use of an OGS located adjacent to MH25 which is located at the most downstream end of Street A and downstream of the outlet from the Eaglewood Communities site.

Final sizing of the OGS will be provided at detailed design.

4.5 Quantity Control

4.5.1 Bronte Creek

Visual Otthymo was used to determine the bio-filtration swale storage required to control the 25 mm 4-hour event release rate at BCT outlet to the GEO Morphix erosion threshold as well as to determine the placement and size of the overflow weir. All stormwater during the 25 mm 4-hour event will be stored in the bio-filtration swale and filtered at a rate of approximately 7 L/s. Flows deeper than 0.52 m will enter into a ditch inlet with a 370 mm orifice up to a depth of 0.96 m. A weir located at 0.96 m above the bottom of the LID will convey the remaining 100-year flows up to a depth of 0.03 m above the weir and will have 0.3 m of freeboard. The weir is also able to convey flows from the 100-year storm in the event of back-to-back storms up to a depth of approximately 0.27 m above the weir while keeping the flows contained within the LID. The weir size calculations can be found in **Appendix B**.

Table 4-6 summarizes the total flow downstream of the bio-filtration swale including external and uncontrolled areas, and storage values required in the LID based on the VO6 model.

Table 4-6: Flow and Bio-Filtration Swale Storage Volumes

Storm Event	Existing Flow Rate (m ³ /s)	Post Development Flows (m ³ /s)	Volume Required (m ³)
2-year	0.224	0.216	717
5-year	0.395	0.395	882
10-year	0.529	0.530	1,002
25-year	0.720	0.710	1,164
50-year	0.860	0.839	1,274
100-year	1.01	0.976	1,381

As the bio-filtration swale has a total volume of 1,592 m³ and has an available volume of 1,385 m³ at the 100-year water level it will be able to effectively control the flows to BCT. Refer to the VO6 model output provided in **Appendix B** and see **Drawing SD-1** for a cross section of the bio-filtration swale.

4.5.2 14 Mile Creek

For the stormwater being conveyed to 14 Mile Creek watershed, quantity controls for the site will be provided with a super pipe within Street A and a storage tank (105 m³) within the Eaglewood Communities site. The flows will be controlled to unit flow targets presented in the Bronte Green Development / Enns Property Stormwater Management Requirements (September 2016) by J.F. Sabourin and Associates based on the natural existing drainage from the three properties that is being conveyed to 14 Mile Creek watershed. The 5-year release rates for the Subject Lands' super pipe and Eaglewood Communities tank were determined on an area x RC basis based on the total allowable release rates, where Eaglewood Communities is 60% and Bronte River LP is 40%. As the Eaglewood Communities tank is restricted by the release rate of one orifice, a weir is proposed downstream of the super pipe to use the additional allocated flows for the properties.

The target flow rates to 14 Mile Creek watershed and the flow values from the VO6 model downstream of the confluence of the storage tank and super pipe are shown in **Table 4-7** below.

Table 4-7: 14 Mile Creek Flow Rates

Storm Event	Existing Flow Unit Rate (m ³ /s/ha)	Target Flow Rate based on 4.08 ha (m ³ /s)	Post Development Flows Bronte River - Uncontrolled (m ³ /s)	Post Development Flows Bronte River – Superpipe (m ³ /s)	Post Development Flows Eaglewood Communities Tank (m ³ /s)	Total Flow to 14 Mile Creek (m ³ /s) ¹
5-year	0.039	0.160	0.035	0.055	0.093	0.160
10-year	0.055	0.226	0.042	0.140	0.105	0.213
25-year	0.078	0.319	0.051	0.178	0.121	0.265
50-year	0.095	0.388	0.060	0.205	0.132	0.314
100-year	0.113	0.461	0.067	0.234	0.141	0.361
Regional	0.123	0.502	0.02	0.092	0.069	0.181

¹Note total flows are based on AddHyd 51 in VO6 which adds the flows based on hydrograph timing and not arithmetically.

The target flow rates are met through the use of the following measures:

- A 105 m³ storage tank within the Eaglewood Communities lands outfitted with a 247 mm orifice plate, and
- A 51 m long 1500 mm super pipe and 45.6 m of 450 mm pipe providing 97 m³ of storage within Street A outfitted with a 129 mm orifice plate and 1 m wide weir.

The orifice calculations and VO6 output can be found in **Appendix B**.

As mentioned in Section 4.3.2, the controlled flows being conveyed to the 14 Mile Creek watershed will enter directly into the Bronte Road stormwater pipe, including 100-year capture on Street A. The controlled flows from the super pipe will enter the Bronte Road storm sewer at proposed MH 26 and the controlled flows from the Eaglewood Communities tank will enter the system at MH 25. The uncontrolled flows from Bronte River will be entering the Bronte Road storm system at existing MH 37.

An HGL for the Bronte Road storm sewer was computed using PCSWMM using the controlled 100-year flows from the site to verify that all water is able to be contained within the storm infrastructure in Bronte Road. The outlet to 14 Mile Creek was set to have tailwater located at the obvert of the outlet pipe. The model indicated that the 100-year flows from the site including the 100-year flows captured on Bronte Road can be conveyed in the existing storm sewer under surcharge. The PCSWMM model shows that the 100-year flows from the site do not result in a hydraulic grade line that is above the Bronte Road surface. Key results of the HGL analysis are shown in **Table 4-8** below.

Table 4-8: 100-Year HGL Results

Name	Rim Elev. (m)	Max. Surface Depth (m)	Max. HGL (m)	Freeboard (m)
CBMH_51	129.168	0.18	127.1	2.068
CBMH_55	129.437	0.1	126.7	2.737
CBMH_57	129.61	0.09	126.62	2.99
CBMH_59	129.831	0.06	127.75	2.081
CBMH53	129.245	0.12	126.89	2.355
OGS1	130.25	-	128.44	1.81
MH25	130.25	-	128.46	1.79
MH24	130.96	-	128.48	2.48
MH_31	130.839	0.07	128.87	1.969
MH_37	130.223	0.1	128.3	1.923
MH_41	129.693	0.11	127.75	1.943
MH_47	129.299	0.14	127.44	1.859
MH_49	129.224	0.12	127.21	2.014
MH27NULL	129.941	0.1	128.29	1.651
OGS_1	129.742	-	126.76	2.982

Refer to the SWM Calculations, VO6 model output and PCSWMM model output provided in **Appendix B**.

4.5.3 Operations and Maintenance

Maintenance of stormwater management facilities is critical to ensure they are functioning properly. One of the main reasons for SWM facility failures and/or poor performance in the past is a lack of maintenance.

Inspection is the first step for the maintenance work. Based on the inspection reports, the necessity of the maintenance works can be decided and scheduled. Inspection of the trench can be broadly divided into two types. The details of the inspection types are described below.

- A) Construction Inspections - During and following construction, the trench should be inspected to ensure that the construction process has not compromised its effectiveness. Construction inspections take place during several points in the construction sequence, specific to the type of LID BMP, but at a minimum should be done weekly and include the following:
1. During site preparation, prior to BMP excavation and grading to ensure the contributing drainage area is stabilized or that adequate ESCs or flow diversion devices are in place and confirm that construction materials meet design specifications.
 2. At the completion of excavation and grading, prior to backfilling, ensure depths, slopes and elevations are acceptable.

3. After final grading, prior to planting to ensure depths, slopes and elevations are acceptable.
 4. Prior to hand-off points in the construction sequence when the contractor responsible for the work changes (i.e., hand-offs between the storm sewer servicing, paving, building, and landscaping contractors).
 5. After every large storm event (e.g., 15 mm rainfall depth or greater) to ensure ESCs and pretreatment or flow diversion devices are functioning and adequately maintained.
- B) Routine Inspections - Regular inspections (twice annually, at a minimum) completed as part of routine maintenance tasks over the operating phase of the BMP life-cycle to determine if maintenance task frequencies are adequate. After the construction and after handing over the bioswale to the maintenance authority, the bio-filtration swale should be monitored regularly to identify the maintenance requirement and monitor the performance. The routine inspection works are done mainly by visual inspection. The maintenance work will be carried based on the inspection report.

Based on the inspection report, the decision to carry out maintenance work can be made. Routine maintenance tasks are described below.

Table 4-9 describes routine maintenance tasks for the bio-filtration swale, organized by the BMP component. Tasks involving removal of trash, debris and sediment in such contexts may need to be done more frequently (i.e., higher standards may be warranted).

Table 4-9: List of Common Maintenance Tasks

Component	Maintenance Tasks
Contributing Drainage Area	- Remove trash, debris, and sediment from pavements - Replant or seed bare soil areas
Inlets	- Keep free of obstructions. - Remove trash, debris, and sediment - Measure sediment depth or volume during each cleaning or annually to estimate the accumulation rate and optimize the frequency of maintenance
Perimeter	- Remove trash, debris, and accumulated sediment - Repair the side slope if erosion occurs
Vegetation	- Water the sod on the first growing season - Remove weeds and undesirable plants - Replace dead plantings annually to achieve 80% cover by the third growing season - Do not apply chemical fertilizers



Component	Maintenance Tasks
Filter Bed	- Remove trash bi-annually to quarterly; - Rake regularly to remove thatch and prevent sediment crusts; - Aerate and dethatch to maintain soil permeability and dense grass cover - Repair sunken areas when ≥ 10 cm deep and barren/eroded areas when ≥ 30 cm long; - Remove sediment when > 5 cm deep or time to drain water ponded behind check dams exceeds 48 hours
Storage Bed	Remove accumulated sediment when ≥ 8 cm depth (requires BMP to be fully drained first)
Subdrain and Monitoring Port	Flush out accumulated sediment with hose or pressure washer

4.6 Water Balance

The Town of Oakville standards indicate that the stormwater management plan for the site should include LIDs. **Table 4-10** outlines possible measures that could be utilized in residential land uses. Measures to be employed on the site are shown in bold typeface.

Table 4-10: LID Measures

LID Measure	Notes
Rainwater Harvesting	Source control for groundwater recharge if used for irrigation.
Downspout Disconnection	Enhanced groundwater recharge when used in conjunction with topsoil amendments.
Soak Away Pits/ Infiltration Chambers	Engineered underground rock filled galleries or chambers that store and infiltrate runoff.
Bio-infiltration Swales	Enhanced vegetative swale with filtration, attenuation and infiltration capabilities. * Note 1
Permeable Pavement	Promote infiltration/filtration through paved surfaces
Grassed Swales	Conveyance LID to be located on continuous strips of green space. Promote infiltration and TSS removal.
Additional Topsoil	Minimum 200 mm of topsoil in landscape enhances groundwater recharge
Rear Yard Infiltration Trenches/Swales	Rear yard drainage swale with 150mm topsoil granular storage media and perforated underdrain.



LID Measure	Notes
Perforated Pipe Systems	Dual purpose (conveyance and infiltration) perforated storm sewer designed to exfiltrate into surrounding bedding.
Rain Gardens	Landscape elements designed to attenuate / infiltrate runoff, usually from nearby roofs
Enhanced Tree Pits	Enlarged tree pits or topsoil filled chamber designed to receive direct runoff from streets for infiltration.

Notes

1 The potential for infiltration through the floor of the biofiltration swale (no liner) will be field determined following the decommissioning of the on-site man-made pond which may lower groundwater levels such that infiltration is feasible.

LID measures and objectives will be refined as the site design advances and updated geotechnical and hydrogeological information is available.

5 WASTEWATER SERVICING

5.1 Design Criteria

The wastewater design criteria used in this report is in accordance with the Halton Region Water and Wastewater Linear Design Manual and Town of Oakville design standards:

Design Flow:

- Residential Flow = 0.275 m³ per capita / day
- Harmon Peaking Factor: min = 2.0, max = 4.0
- Infiltration Allowance = 0.286 L/ha/s

Population Equivalents

- Single Family = 55 pp/ha
- Townhouse, Maisonette = 135 pp/ha
- Apartments = 285 pp/ha
- Apartments = 2.75 ppu (where unit No. are known)

5.2 Existing Conditions

The existing wastewater network in the vicinity of the site includes:

- A 300 mm dia. Sanitary Sewer on Bronte Road.
- A 200 mm Stub Sanitary Sewer located on Yellow Rose Circle

Refer to **Drawing SAN-1** for the location of the existing wastewater network in the vicinity of the site.

5.3 Proposed Wastewater

The site will be serviced through a network of 200 mm gravity sewers within the proposed public rights of way. Service stubs will be provided to the condominium block and the condominium blocks will be serviced with private sanitary sewers.

The site has a total service area of 5.43 ha and contemplates 39 single family units and 103 townhouse units with a total population of 734. The anticipated wastewater flow from the site including infiltration and peaking is 12.1 l/s.

A new outfall sewer is proposed within the west boulevard of the Bronte Road which ultimately crosses Bronte Road and connects to a stub within Yellow Rose Circle.

The proposed outfall sewer will cross in front of the adjacent Eaglewood Communities property.

The stub sewer was installed within Yellow Rose Circle and was intended to service the Subject Lands. The stub is appropriately sized.

The proposed crossing of Bronte Road will likely intercept an existing 300mm sewer hence diverting flows into the new outfall. The Bronte Green design made accommodation for some lands situated to the north of the Eaglewood Communities property.

The placement of the outfall sewer within the west boulevard of Bronte Road is based on initial discussions with Halton Region with a view to minimizing disturbance within the paved portion of Bronte Road. The final placement of the sewer will be subject to further study as it relates to utility conflicts and property needs.

Refer to **Drawing SAN-1** for drainage areas and the proposed sanitary sewer layout, **Drawing PP-2** for details of the outfall Sewer within the Bronte Road Right of way and to **Appendix D** for sanitary sewer capacity calculations.

6 WATER SERVICING

6.1 Design Criteria

The watermain design criteria used in this report is in accordance with the Halton Region Water and Wastewater Linear Design Manual and Town of Oakville design standards:

Water Demand Design Criteria:

- Average Daily Demand = 0.275 m³ per capita
- Maximum Daily Demand Peaking Factor = 2.25
- Peak Hourly Demand Peaking Factor = 4

Population Equivalents

- Single Family = 55 pp/ha
- Townhouse, Maisonette = 135 pp/ha
- Apartments = 285 pp/ha
- Apartments = 2.75 ppu (where unit No. are known)

6.2 Existing Conditions

The existing water network in the vicinity of the site includes:

- A 300 mm dia. watermain on Bronte Road;
- A 1050 mm dia. Watermain on Bronte Road.

Refer to **Drawing WM-1** for the location of the existing watermains in the vicinity of the site.

6.3 Local Watermains

Water servicing will be provided to the development through network of minimum 200 mm diameter watermains within the public and private streets. Refer to **Drawing WM-1** for details of the preliminary site watermain layout.

Water servicing will also be provided to the neighboring Eaglewood Communities property via a connection to the proposed watermain on Street A.

Final watermain sizes will be determined at the detailed design stage.

6.4 Watermain Connection Options

The Subject Lands are located at the upper end of Pressure Zone 2. As a result, when a hydrant flow test was conducted on an existing hydrant situated on the east side of Bronte Road north of Saw Whet Boulevard it showed a lower than typical available flow of 99.6 L/s @ 20 psi. Fire flow calculations and the hydrant flow rate test results are provided in **Appendix E**. In order to service the site three options for watermain connections are being considered:



- 1) Move the Pressure Zone 3 boundary south by relocating the existing check valve from Bronte Road just north of Yellow Rose Circle to south of Saw Whet Boulevard. The Subject Lands will then be able to connect to the existing 300 mm diameter watermain on Bronte Road. This option is preferred and was identified through consultation with Halton Region.
- 2) Extend a new watermain along Saw Whet Boulevard and connect to an existing 300 mm diameter Pressure Zone 3 watermain on Merton Road within the Bronte Green subdivision.
- 3) Connect to existing the 300 mm diameter watermain on Bronte Road within Pressure Zone 2. Additional studies and water modelling would be required to demonstrate that the site is able to be serviced by the infrastructure in Bronte Road in its current state.

The final water connection details will be determined through further study and collaboration with Halton Region.

Halton Region has advised that that water pressure zones are being revised but the Subject Lands will not be impacted by the change.

7 EROSION AND SEDIMENT CONTROL

Erosion and sediment controls will be implemented during all site construction works including topsoil stripping, bulk earthworks, foundation excavation, site servicing and stockpiling of materials and will conform to the **Erosion and Sediment Control Guide for Urban Construction (2019)**. These measures will include:

- 1) Installing heavy duty silt control fencing along the perimeter of the site at strategic locations.
- 2) Installing a temporary mud mat at the construction site entrance.
- 3) Installing temporary cutoff swales or ESC ponds.
- 4) Wrapping the tops of all inlet structures with filter fabric and using install silt sacks after servicing.
- 5) Maintenance of flow from external lands during construction.
- 6) Inspecting all sediment and erosion controls to maintain them in good repair until such time as the Engineer or the City approves their removal.
- 7) Appropriate dewatering of existing ponds in compliance with Agency discharge requirements.

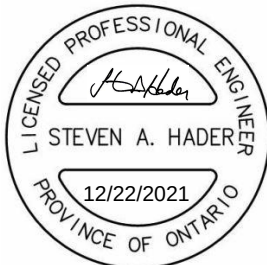
Refer to **Drawings ESC-1** for Erosion and Sediment control measures and details.

8 CONCLUSIONS

This report has demonstrated that:

- The proposed site can be graded to match to existing elevations at all property lines while generally adhering to Town of Oakville grading standards and specifications.
- Storm sewers are sized based on the 5-year Town IDF parameters. 100-year capture is assumed for Street A at Bronte Road.
- The grading design provides for the safe conveyance of overland flows to the bio-filtration swale.
- Quality and erosion control for lands tributary to Bronte Creek will be provided by two OGS' and a bio-filtration swale.
- Quantity control for lands tributary to Bronte Creek will be provided in the bio-filtration swale.
- The outfall to Bronte Creek involves restoration of a former natural outlet (i.e., removal of man-made ponds) to BCT.
- A 750 mm bypass pipe will convey water from the external area to the north and rear yards from the north-west portion of the site to the restored natural outlet at BCT.
- Quantity control for lands tributary to 14 Mile Creek will be provided in a super pipe within Street A and an underground storage tank to be installed on adjacent private property (Eaglewood Communities).
- Quality control for the flows being conveyed to 14 Mile Creek will be achieved through the use of an OGS.
- Water balance measures through the use of LIDs will be determined as the project progresses.
- Wastewater servicing to the site will be provided by a new sewer to be installed along Bronte Road connecting to an existing sewer stub at Yellow Rose Circle that was designed to accommodate the Subject Lands.
- Water servicing to the site will be provided via a new water connection to existing infrastructure located within Bronte Road. The site may need to be connected to Pressure Zone 3. Details of the connection to Pressure Zone 3 will be determined at a later date.
- Erosion and sediment control measures will be implemented during all construction works and will be maintained and inspected regularly.

Report Prepared by:



Steven A. Hader, P. Eng.
Senior Project Manager



Janna Ormond B.Eng., EIT
Municipal Design Assistant

APPENDIX A

Drawings and Figures

- SLP-1 Site Location Plan
- GR-1 Preliminary Grading Plan
- SD-1 Sections & Details
- EXC-1 Existing Conditions Plan
- STM-1 Pre-Development Storm Drainage Plan
- STM-2 Post-Development Storm Drainage Plan
- STM-3 Pond Alternatives Plan
- SAN-1 Preliminary Sanitary Drainage Plan
- WM-1 Watermain Distribution Plan
- ESC-1 Erosion and Sediment Control Plan
- ESC-2 Erosion and Sediment Control Details
- PP-1 Street A (STA. 0+000.000 to STA. 0+160.000)
- PP-2 Bronte Road (STA. 2+720.000 to STA. 3+040.000)
- PP-3 Storm Outfall to Bronte Creek-Options

APPENDIX B

SWM Calculations

STORM SEWER DESIGN SHEET				
5 Year Storm				
BRLP				
Town of Oakville				

PROJECT DETAILS				
Project No: 20-657				
Date: 20-Dec-21				
Designed by: E.L.				
Checked by: S.H.				

DESIGN CRITERIA				
Min. Diameter =	300	mm	Rainfall Intensity =	$\frac{A}{(Tc+B)^c}$
Mannings 'n' =	0.013			
Starting Tc =	10	min	A =	1170
			B =	5.8
Factor of Safety =	5	%	c =	0.843
NOMINAL PIPE SIZE USED				

STREET	FROM MH	TO MH	AREA (ha)	RUNOFF COEFFICIENT "R"	'AR'	ACCUM. 'AR'	RAINFALL INTENSITY (mm/hr)	FLOW (m³/s)	CONSTANT FLOW (m³/s)	ACCUM. CONSTANT FLOW (m³/s)	TOTAL FLOW (m³/s)	LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m³/s)	FULL FLOW VELOCITY (m/s)	INITIAL Tc (min)	TIME OF CONCENTRATION (min)	ACC. TIME OF CONCENTRATION (min)	PERCENT FULL (%)
BRONTE RD	EX MH31	EX MH37	0.48	0.65	0.31	0.31	114.2	0.099			0.099	100.1	0.65	375	0.141	1.28	10.00	1.30	11.30	70%
BRONTE RD	EX MH37	27	0.47	0.65	0.31	0.62	106.8	0.183			0.183	54.1	0.65	450	0.230	1.45	11.30	0.62	11.93	80%
EXT		22	0.35	0.25	0.09	0.09														
STREET D	22	23	0.07	0.65	0.05	0.05	114.2	0.014			0.014	57.2	1.00	300	0.097	1.37	10.00	0.70	10.70	15%
STREET A		23	0.10	0.65	0.07	0.07														
STREET A	23	24	0.13	0.65	0.08	0.13	110.1	0.040			0.040	51.0	0.30	1500	3.872	2.19	10.70	0.39	11.08	1%
STREET A	24	25	0.14	0.65	0.09	0.22	108.0	0.066			0.066	45.6	0.50	450	0.202	1.27	11.08	0.60	11.68	33%
Eaglewood	PLUG1	25	0.40	0.90	0.36	0.36	114.2	0.114			0.114	20.1	0.50	375	0.124	1.12	10.00	0.30	10.30	92%
STREET A	25	OGS1		0.65		0.58	104.9	0.169			0.169	3.0	0.50	450	0.202	1.27	11.68	0.04	11.72	84%
STREET A	OGS1	26		0.65		0.58	104.7	0.169			0.169	20.3	0.50	450	0.202	1.27	11.72	0.27	11.99	84%
BRONTE RD	26	EX MH41	0.24	0.65	0.16	0.74	103.3	0.212			0.212	45.6	0.65	450	0.230	1.45	11.99	0.53	12.52	92%
BRONTE RD	EX MH41	EX MH47	0.22	0.65	0.14	0.88	100.8	0.246			0.246	86.0	0.35	600	0.363	1.28	12.52	1.12	13.63	68%
BRONTE RD	EX MH47	EX MH49	0.18	0.75	0.14	1.02	95.9	0.270			0.270	48.0	0.40	600	0.388	1.37	13.63	0.58	14.21	70%
BRONTE RD	EX MH49	EX CBMH51	0.11	0.75	0.08	1.10	93.6	0.285			0.285	11.2	0.45	600	0.412	1.46	14.21	0.13	14.34	69%
BRONTE RD	EX CBMH51	EX CBMH53	0.12	0.75	0.09	1.19	93.1	0.307			0.307	42.0	0.55	600	0.455	1.61	14.34	0.43	14.78	67%
BRONTE RD	EX CBMH53	EX CBMH55	0.20	0.75	0.15	1.34	91.4	0.340			0.340	45.0	0.50	675	0.594	1.66	14.78	0.45	15.23	57%
BRONTE RD	EX CBMH55	EX CBMH57	0.21	0.75	0.16	1.50	89.8	0.373			0.373	45.0	0.50	675	0.594	1.66	15.23	0.45	15.68	63%
BRONTE RD	EX CBMH59	EX CBMH57	0.11	0.75	0.08	0.08	114.2	0.026			0.026	50.0	0.50	300	0.068	0.97	10.00	0.86	10.86	38%
BRONTE RD	EX CBMH57	EX OGS1	0.44	0.75	0.33	1.91	88.2	0.467			0.467	3.1	0.35	750	0.659	1.49	15.68	0.03	15.72	71%
BRONTE RD	EX OGS1	EX HW				1.91	88.0	0.466			0.466	14.1	0.35	750	0.659	1.49	15.72	0.16	15.87	71%
STORM BYPASS	HW1A	14A		0.25			114.2		0.666	0.666	0.666	38.8	3.50	750	2.083	4.71	10.00	0.14	10.14	32%
	14A	15A		0.70			113.4		0.666	0.666	0.666	11.0	0.50	750	0.787	1.78	10.14	0.10	10.24	85%
	15A	16A		0.70			112.8		0.666	0.666	0.666	22.2	0.50	750	0.787	1.78	10.24	0.21	10.45	85%
	16A	17A		0.70			111.6		0.666	0.666	0.666	37.9	0.50	750	0.787	1.78	10.45	0.35	10.80	85%
	17A	116A					109.5		0.666	0.666	0.666	13.5	0.50	750	0.787	1.78	10.80	0.13	10.93	85%
	116A	HW2A					108.8		0.666	0.666	0.666	30.8	3.00	750	1.928	4.36	10.93	0.12	11.05	35%
EXT		22	0.37	0.35	0.13	0.13														
		22	0.43	0.35	0.15	0.15														
		22	0.35	0.35	0.12	0.12														

STORM SEWER DESIGN SHEET

5 Year Storm

BRLP

Town of Oakville

PROJECT DETAILS

Project No: 20-657

Date: 20-Dec-21

Designed by: E.L.

Checked by: S.H.

DESIGN CRITERIA

Min. Diameter = 300 mm

Mannings 'n'= 0.013

Starting Tc = 10 min

Factor of Safety = 5 %

Rainfall Intensity = $\frac{A}{(Tc+B)^c}$

A = 1170

B = 5.8

c = 0.843

NOMINAL PIPE SIZE USED

STREET	FROM MH	TO MH	AREA (ha)	RUNOFF COEFFICIENT "R"	'AR'	ACCUM. 'AR'	RAINFALL INTENSITY (mm/hr)	FLOW (m³/s)	CONSTANT FLOW (m³/s)	ACCUM. CONSTANT FLOW (m³/s)	TOTAL FLOW (m³/s)	LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m³/s)	FULL FLOW VELOCITY (m/s)	INITIAL Tc (min)	TIME OF CONCENTRATION (min)	ACC. TIME OF CONCENTRATION (min)	PERCENT FULL (%)
STREET A	11	12	0.13	0.70	0.09	0.09	114.2	0.029			0.029	38.6	0.50	300	0.068	0.97	10.00	0.67	10.67	42%
STREET B	1	9	0.17	0.70	0.12	0.12	114.2	0.038			0.038	56.3	0.30	300	0.053	0.75	10.00	1.25	11.25	71%
STREET B	RLCB	9	0.37	0.50	0.19	0.19	114.2	0.059			0.059	34.0	1.00	300	0.097	1.37	10.00	0.41	10.41	61%
STREET B	9	10	0.09	0.70	0.06	0.37	107.1	0.109			0.109	31.8	0.30	450	0.156	0.98	11.25	0.54	11.79	70%
STREET B	10	12	0.16	0.70	0.11	0.48	104.3	0.139			0.139	49.2	0.30	450	0.156	0.98	11.79	0.84	12.63	89%
STREET B	12	7	0.20	0.70	0.14	0.71	100.3	0.198			0.198	70.9	0.30	525	0.236	1.09	12.63	1.09	13.71	84%
STREET B		5	0.24	0.70	0.17	0.17														
STREET B	5	6	0.12	0.70	0.08	0.25	114.2	0.080			0.080	30.1	0.30	375	0.096	0.87	10.00	0.58	10.58	84%
STREET B	6	7	0.18	0.70	0.13	0.38	110.8	0.117			0.117	59.4	0.30	450	0.156	0.98	10.58	1.01	11.59	75%
STREET B	7	8				1.09	95.6	0.289			0.289	6.5	0.30	600	0.336	1.19	13.71	0.09	13.80	86%
LANE E	13	14	0.29	0.80	0.23	0.23	114.2	0.074			0.074	111.7	0.30	375	0.096	0.87	10.00	2.14	12.14	77%
LANE B	14	8	0.07	0.80	0.06	0.29	102.6	0.082			0.082	27.8	0.30	375	0.096	0.87	12.14	0.53	12.67	85%
BIOSWALE	8	MH100				1.38	95.2	0.364			0.364	29.3	0.15	750	0.431	0.98	13.80	0.50	14.30	84%
BIOSWALE	MH100	HW2				1.38	93.2	0.357			0.357	7.9	0.15	750	0.431	0.98	14.30	0.13	14.44	83%
LANE C	20	21	0.37	0.80	0.30	0.30	114.2	0.094			0.094	112.9	0.30	450	0.156	0.98	10.00	1.92	11.92	60%
LANE B	21	17	0.09	0.80	0.07	0.37	103.7	0.106			0.106	38.9	0.30	450	0.156	0.98	11.92	0.66	12.58	68%
LANE A	18	19	0.30	0.80	0.24	0.24	114.2	0.076			0.076	79.3	0.30	375	0.096	0.87	10.00	1.52	11.52	79%
LANE A	19	17				0.24	105.7	0.070			0.070	6.3	0.30	375	0.096	0.87	11.52	0.12	11.64	73%
LANE B	15	16	0.24	0.80	0.19	0.19	114.2	0.061			0.061	84.4	0.30	375	0.096	0.87	10.00	1.62	11.62	63%
LANE B	16	17	0.05	0.80	0.04	0.23	105.2	0.068			0.068	20.3	0.30	375	0.096	0.87	11.62	0.39	12.01	71%
BIOSWALE	17	HW1				0.84	100.6	0.235			0.235	31.9	0.15	675	0.326	0.91	12.58	0.58	13.16	72%

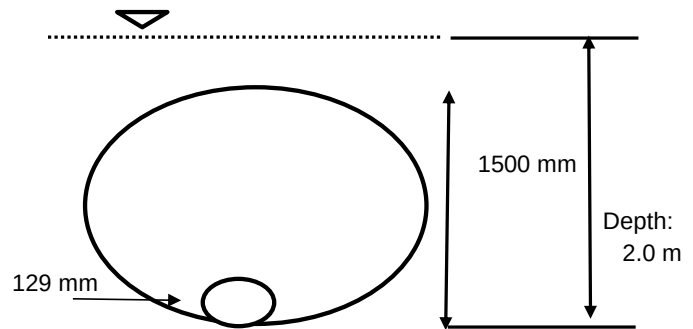
CALCULATION OF STORAGE SIZE AND RATING CURVE BASED ON ORIFICE SIZE
BRLP Super Pipe



Project Name: BRLP
Municipality: Oakville
Project No.: 20-657
Date: 20-Dec-21

Prepared by: J.P.O
Checked by: S.H

Elevation (m)	Height (m)	Volume (m³)	Flow rate (m³/s)
128.00	0.00	0.00	0.000
129.25	1.25	52.25	0.039
130.00	2.00	97.25	0.239



Calculation of Orifice		
$A = \pi D^2 \div 4$		0.013 m²
$h = \text{Depth of Tank} - (\frac{D}{2})$		
$(1500\text{mm}) - (\frac{196}{2}) =$		1.94 m
C		0.82
$2g = 2 \times 9.81$		19.62 m/s²
$Q = CA\sqrt{2gh}$		0.050 m³/s

Calculation of Weir	
$Q = BxCdxH^{3/2} + SxCdxH^{5/2}$	
where:	Q=flow rate (m³/s)
	H= head on the weir (m)
	B=width of the weir (m)
	S= side slopes of weir (H:V)
Side Slope	1 :1
Flow Depth	0.22 m
Bottom Width	1.0 m
Capacity, Q	0.19 m³/s

Invert: **128.00 m**
Orifice size: **0.129 mm**

Name	Description	Result
SUPER PIPE	Quantity control only	
	Depth	2.00 m
	Provided Volume	97 m³
	Required Volume from VO6	91 m³
	Total	<u>97 m³</u>

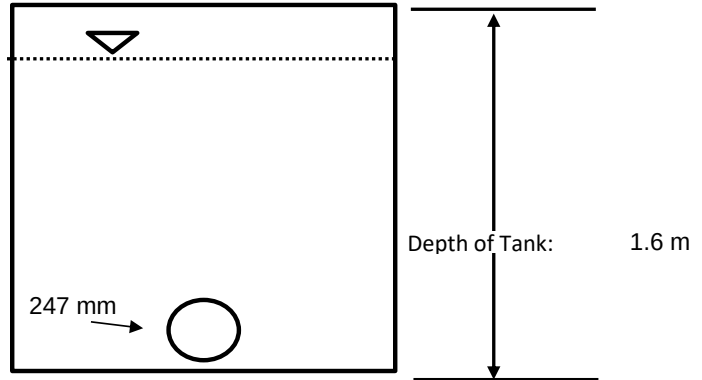
CALCULATION OF STORAGE SIZE AND RATING CURVE BASED ON ORIFICE SIZE
Eaglewood Tank



Project Name: BRLP
Municipality: Oakville
Project No.: 20-657
Date: 20-Dec-21

Prepared by: J.P.O
Checked by: S.H

Elevation (m)	Height (m)	Volume (m³)	Flow rate (m³/s)
128.25	0.00	0.00	0.000
128.25	0.00	0.00	0.000
128.40	0.15	10.16	0.021
128.55	0.30	20.32	0.053
128.70	0.45	30.48	0.073
128.85	0.60	40.65	0.088
129.00	0.75	50.81	0.100
129.15	0.90	60.97	0.112
129.30	1.05	71.13	0.122
129.45	1.20	81.29	0.132
129.60	1.35	91.45	0.140
129.80	1.55	105.00	0.152



Calculation of Orifice

$$A = \pi D^2 \div 4 = 0.048 \text{ m}^2$$

$$h = \text{Depth of Tank} - \left(\frac{D}{2}\right) = 1.427 \text{ m}$$

$$(2270\text{mm}) - \left(\frac{75}{2}\right) =$$

$$C = 0.6$$

$$2g = 2 \times 9.81 = 19.62 \text{ m/s}^2$$

$$Q = CA\sqrt{2gh} = 0.152 \text{ m}^3/\text{s}$$

Q target (from VH model) **0.141 m³/s**
Q and Q target are matched
Therefore, orifice is 247 mm

Invert: **127.73 m**
Orifice size: **247 mm**

Name	Description	Result
Eaglewood Tank	Quantity control only	
	Storage tank footprint	68 m²
	Depth of Storage Tank	1.55 m
	Provided Volume 105 m³	
	Required Volume from VO6 103 m³	
	Total	105 m³

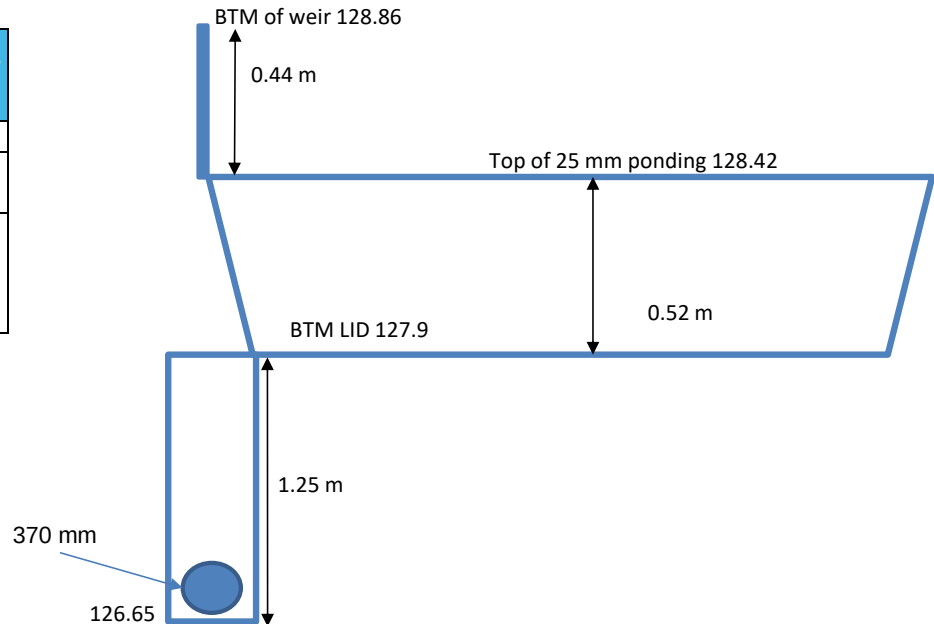
CALCULATION OF STORAGE SIZE AND RATING CURVE BASED ON ORIFICE SIZE
Bio-filtration Swale



Project Name: BRLP
Municipality: Oakville
Project No.: 20-657
Date: 20-Dec-21

Prepared by: J.P.O
Checked by: S.H

Source	Volume (m³)	Flow rate (m³/s)
Infiltration	585	0.007
Orifice + Infiltration	1321	0.427
Orifice + Infiltration + 0.03 m above weir	1385	0.494



Calculation of Orifice		
$A = \pi D^2 \div 4$		0.108 m²
$h = \text{Depth of Tank} - (\frac{D}{2})$		2.02 m
$(1500\text{mm}) - (\frac{196}{2}) =$		
C		0.62
$2g = 2 \times 9.81$		19.62 m/s²
$Q = CA\sqrt{2gh}$		0.420 m³/s

Calculation of Weir		
$Q = BxCdH^{3/2} + SxCdH^{5/2}$		
where:	$Q = \text{flow rate (m³/s)}$	
	$H = \text{head on the weir (m)}$	
	$B = \text{width of the weir (m)}$	
	$S = \text{side slopes of weir (H:V)}$	
Side Slope	3 :1	
Flow Depth	0.03 m	
Bottom Width	7.0 m	
Capacity, Q	0.07 m³/s	

Invert: **127.73 m**
Orifice size: **370 mm**

Name	Description	Result
Bio-filtration Swale	Provided Volume	1385 m³
	Required Volume from VO6	1381 m³
	Total	<u>1385 m³</u>



URBANTECH[®]

SWM DESIGN CALCULATIONS LID WEIR

Project Name: BRLP
Municipality: Oakville
Project No.: 20-657
Date: 12/20/2021

Prepared by: J.P.O
Checked by: S.H

#REF!

Input Parameters:

Side Slope, S ₁	3	:1 (8%)
Side Slope, S ₂	3	:1 (8%)
Spillway Invert	128.50	m
Water Level	128.77	m
Flow Depth, H	0.27	m
Bottom Width, B:	7.0	m

Weir equation: $Q = BxC_d x H^{3/2} + SxC_d x H^{5/2}$
 $C_d = 1.5$

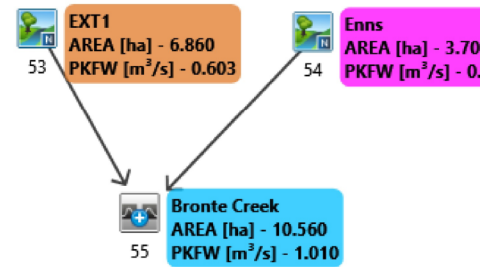
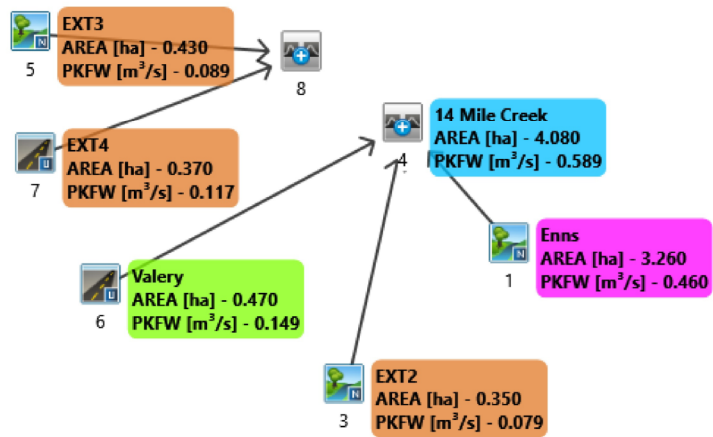
where:
 Q =flow rate (m³/s)
 H = head on the weir (m)
 B =width of the weir (m)
 S = side slopes of weir (H:V)

Computed Values:

Capacity, Q at 128.77m 1.64 m³/s

Emergency Flow Required via
Spillway 1.59 m³/s

The proposed emergency spillway provides sufficient capacity.



=====

V V I SSSSS U U A L (v 6.1.2003)
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

000 TTTT TTTT H H Y Y M M 000 TM
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O O T T H H Y M M O O
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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 6.1-New\VO2\voin.dat

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DATE: 11/24/2021 TIME: 04:50:20
USER:

COMMENTS: _____

** SIMULATION : 100-yr 24hr **

| CHICAGO STORM | IDF curve parameters: A=2150.000
| Ptotal= 98.13 mm | B= 5.700
C= 0.861

used in: $INTENSITY = A / (t + B)^C$

Duration of storm = 24.00 hrs

Storm time step = 10.00 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
0.17	0.59	6.17	2.22	12.17	1.96	18.17	0.87
0.33	0.60	6.33	2.43	12.33	1.89	18.33	0.86
0.50	0.61	6.50	2.70	12.50	1.82	18.50	0.85
0.67	0.63	6.67	3.03	12.67	1.76	18.67	0.84
0.83	0.64	6.83	3.46	12.83	1.71	18.83	0.82
1.00	0.65	7.00	4.04	13.00	1.65	19.00	0.81
1.17	0.67	7.17	4.89	13.17	1.60	19.17	0.80
1.33	0.68	7.33	6.21	13.33	1.56	19.33	0.79
1.50	0.70	7.50	8.59	13.50	1.52	19.50	0.78
1.67	0.71	7.67	14.09	13.67	1.48	19.67	0.77
1.83	0.73	7.83	39.57	13.83	1.44	19.83	0.76
2.00	0.75	8.00	200.80	14.00	1.40	20.00	0.75
2.17	0.77	8.17	54.10	14.17	1.37	20.17	0.74
2.33	0.79	8.33	25.64	14.33	1.33	20.33	0.73
2.50	0.81	8.50	16.48	14.50	1.30	20.50	0.73
2.67	0.83	8.67	12.09	14.67	1.27	20.67	0.72
2.83	0.85	8.83	9.54	14.83	1.24	20.83	0.71
3.00	0.88	9.00	7.88	15.00	1.22	21.00	0.70
3.17	0.91	9.17	6.73	15.17	1.19	21.17	0.69
3.33	0.94	9.33	5.87	15.33	1.17	21.33	0.69
3.50	0.97	9.50	5.22	15.50	1.14	21.50	0.68
3.67	1.00	9.67	4.70	15.67	1.12	21.67	0.67
3.83	1.04	9.83	4.28	15.83	1.10	21.83	0.66
4.00	1.08	10.00	3.93	16.00	1.08	22.00	0.66
4.17	1.12	10.17	3.63	16.17	1.06	22.17	0.65
4.33	1.16	10.33	3.38	16.33	1.04	22.33	0.64
4.50	1.22	10.50	3.16	16.50	1.02	22.50	0.64
4.67	1.27	10.67	2.97	16.67	1.01	22.67	0.63
4.83	1.33	10.83	2.81	16.83	0.99	22.83	0.62
5.00	1.40	11.00	2.66	17.00	0.97	23.00	0.62
5.17	1.48	11.17	2.53	17.17	0.96	23.17	0.61
5.33	1.56	11.33	2.41	17.33	0.94	23.33	0.61
5.50	1.66	11.50	2.30	17.50	0.93	23.50	0.60
5.67	1.77	11.67	2.20	17.67	0.91	23.67	0.59
5.83	1.90	11.83	2.11	17.83	0.90	23.83	0.59
6.00	2.04	12.00	2.03	18.00	0.88	24.00	0.58

 | CALIB |
 | NASHYD (0054) | Area (ha)= 3.70 Curve Number (CN)= 73.0

| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
 ----- U.H. Tp(hrs)= 0.21

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68

3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Unit Hyd Qpeak (cms)= 0.673

PEAK FLOW (cms)= 0.475 (i)

TIME TO PEAK (hrs)= 8.167

RUNOFF VOLUME (mm)= 46.292

TOTAL RAINFALL (mm)= 98.135

RUNOFF COEFFICIENT = 0.472

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0053)			
ID= 1 DT= 5.0 min			

Area (ha)= 6.86		Curve Number (CN)= 73.0	
Ia (mm)= 5.00		# of Linear Res.(N)= 3.00	
U.H. Tp(hrs)= 0.37			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87	
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87	
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86	
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86	
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85	
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85	
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84	
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84	
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82	
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82	
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81	
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81	
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80	
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80	
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79	
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79	
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78	
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78	
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77	
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77	
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76	
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76	
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75	
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75	
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74	
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74	
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73	
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73	
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73	
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73	
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72	
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72	
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71	
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71	
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70	
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70	
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69	
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69	
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69	
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69	
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68	
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68	
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67	
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67	
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66	

3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Unit Hyd Qpeak (cms)= 0.708

PEAK FLOW (cms)= 0.603 (i)

TIME TO PEAK (hrs)= 8.333

RUNOFF VOLUME (mm)= 46.358

TOTAL RAINFALL (mm)= 98.135

RUNOFF COEFFICIENT = 0.472

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0055)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0053):	6.86	0.603	8.33	46.36
+ ID2= 2 (0054):	3.70	0.475	8.17	46.29
=====				
ID = 3 (0055):	10.56	1.010	8.25	46.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0001)	Area (ha)=	3.26	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.18	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69

3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Unit Hyd Qpeak (cms)= 0.707

PEAK FLOW (cms)= 0.460 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 46.221
TOTAL RAINFALL (mm)= 98.135
RUNOFF COEFFICIENT = 0.471

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0003) | Area (ha)= 0.35 Curve Number (CN)= 73.0

| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
 ----- U.H. Tp(hrs)= 0.08

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68

3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.079 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 43.506

TOTAL RAINFALL (mm)= 98.135

RUNOFF COEFFICIENT = 0.443

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0006)			
ID= 1 DT= 5.0 min			

Area (ha)=		0.47	
Total Imp(%)=		43.00	Dir. Conn.(%)= 43.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.20	0.27

Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	55.98	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69

3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)=	200.80	88.98
over (min)	5.00	10.00
Storage Coeff. (min)=	1.36 (ii)	8.76 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.33	0.12

TOTALS

PEAK FLOW (cms)=	0.11	0.04	0.149 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	97.13	46.37	68.18
TOTAL RAINFALL (mm)=	98.13	98.13	98.13
RUNOFF COEFFICIENT =	0.99	0.47	0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0004) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0001):    3.26    0.460    8.08    46.22
+ ID2= 2 ( 0003):    0.35    0.079    8.00    43.51
=====
ID = 3 ( 0004):    3.61    0.510    8.08    45.96

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| ADD HYD ( 0004) |
| 3 + 2 = 1 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 3 ( 0004):    3.61    0.510    8.08    45.96
+ ID2= 2 ( 0006):    0.47    0.149    8.00    68.18
=====
ID = 1 ( 0004):    4.08    0.589    8.00    48.52

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| CALIB |
| NASHYD ( 0005) | Area (ha)= 0.43 Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
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          U.H. Tp(hrs)= 0.09

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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82

0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62

5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Unit Hyd Qpeak (cms)= 0.175

PEAK FLOW (cms)= 0.089 (i)
TIME TO PEAK (hrs)= 8.000
RUNOFF VOLUME (mm)= 44.863
TOTAL RAINFALL (mm)= 98.135
RUNOFF COEFFICIENT = 0.457

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0007)	Area (ha)= 0.37
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.21
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	49.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84

0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62

4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)= 200.80 88.98
over (min) 5.00 10.00
Storage Coeff. (min)= 1.27 (ii) 8.67 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.33 0.12

TOTALS

PEAK FLOW (cms)= 0.09 0.04 0.117 (iii)
TIME TO PEAK (hrs)= 8.00 8.08 8.00
RUNOFF VOLUME (mm)= 97.13 46.37 68.18
TOTAL RAINFALL (mm)= 98.13 98.13 98.13
RUNOFF COEFFICIENT = 0.99 0.47 0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0008)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0005):	0.43	0.089	8.00	44.86
+ ID2= 2 (0007):	0.37	0.117	8.00	68.18
=====				
ID = 3 (0008):	0.80	0.206	8.00	55.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

=====

=====

```
V   V   I   SSSSS   U   U   A   L           (v 6.1.2003)
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
W       I   SSSSS   UUUUU   A   A   LLLLL
```

```
000   TTTT   TTTT   H   H   Y   Y   M   M   000   TM
0   0   T       T   H   H   Y Y   MM MM   0   0
0   0   T       T   H   H   Y   M   M   0   0
000   T       T   H   H   Y   M   M   000
```

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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 6.1-New\V02\voin.dat

Output filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\0
bd6d1c9-05ac-4d95-8969-44863a6e594a\

Summary filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\0
bd6d1c9-05ac-4d95-8969-44863a6e594a\

DATE: 11/24/2021

TIME: 04:50:19

USER:

COMMENTS: _____

** SIMULATION : 10-yr 24hr **

| CHICAGO STORM |
Ptotal= 70.24 mm

IDF curve parameters: A=1400.000

B= 5.800

C= 0.848

used in: INTENSITY = A / (t + B)^C

Duration of storm = 24.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.46	6.17	1.69	12.17	1.49	18.17	0.68
0.33	0.47	6.33	1.85	12.33	1.44	18.33	0.67
0.50	0.48	6.50	2.04	12.50	1.39	18.50	0.66
0.67	0.49	6.67	2.29	12.67	1.35	18.67	0.65
0.83	0.50	6.83	2.61	12.83	1.31	18.83	0.64
1.00	0.51	7.00	3.04	13.00	1.27	19.00	0.63
1.17	0.52	7.17	3.65	13.17	1.23	19.17	0.62
1.33	0.53	7.33	4.61	13.33	1.20	19.33	0.62
1.50	0.54	7.50	6.32	13.50	1.16	19.50	0.61
1.67	0.55	7.67	10.23	13.67	1.13	19.67	0.60
1.83	0.57	7.83	27.82	13.83	1.10	19.83	0.59
2.00	0.58	8.00	134.79	14.00	1.08	20.00	0.59
2.17	0.60	8.17	37.76	14.17	1.05	20.17	0.58
2.33	0.61	8.33	18.29	14.33	1.03	20.33	0.57
2.50	0.63	8.50	11.91	14.50	1.00	20.50	0.56
2.67	0.64	8.67	8.81	14.67	0.98	20.67	0.56
2.83	0.66	8.83	7.00	14.83	0.96	20.83	0.55
3.00	0.68	9.00	5.82	15.00	0.94	21.00	0.55
3.17	0.70	9.17	4.99	15.17	0.92	21.17	0.54
3.33	0.73	9.33	4.37	15.33	0.90	21.33	0.53
3.50	0.75	9.50	3.89	15.50	0.88	21.50	0.53
3.67	0.77	9.67	3.52	15.67	0.87	21.67	0.52
3.83	0.80	9.83	3.21	15.83	0.85	21.83	0.52
4.00	0.83	10.00	2.95	16.00	0.83	22.00	0.51
4.17	0.86	10.17	2.74	16.17	0.82	22.17	0.51
4.33	0.90	10.33	2.55	16.33	0.81	22.33	0.50
4.50	0.94	10.50	2.39	16.50	0.79	22.50	0.50
4.67	0.98	10.67	2.25	16.67	0.78	22.67	0.49
4.83	1.02	10.83	2.13	16.83	0.76	22.83	0.49
5.00	1.08	11.00	2.02	17.00	0.75	23.00	0.48
5.17	1.13	11.17	1.92	17.17	0.74	23.17	0.48
5.33	1.20	11.33	1.83	17.33	0.73	23.33	0.47
5.50	1.27	11.50	1.75	17.50	0.72	23.50	0.47
5.67	1.35	11.67	1.68	17.67	0.71	23.67	0.46
5.83	1.45	11.83	1.61	17.83	0.70	23.83	0.46
6.00	1.56	12.00	1.55	18.00	0.69	24.00	0.46

CALIB				
NASHYD (0054)	Area	(ha)=	3.70	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)= 3.00

----- U.H. Tp(hrs)= 0.21

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53

3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Unit Hyd Qpeak (cms)= 0.673

PEAK FLOW (cms)= 0.248 (i)

TIME TO PEAK (hrs)= 8.167

RUNOFF VOLUME (mm)= 26.694

TOTAL RAINFALL (mm)= 70.237

RUNOFF COEFFICIENT = 0.380

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB |
| NASHYD ( 0053) | Area (ha)= 6.86 Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
-----
| U.H. Tp(hrs)= 0.37

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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68	
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68	
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67	
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67	
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66	
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66	
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65	
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65	
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64	
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64	
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63	
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63	
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62	
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62	
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62	
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62	
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61	
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61	
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60	
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60	
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59	
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59	
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59	
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59	
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58	
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58	
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57	
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57	
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56	
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56	
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56	
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56	
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55	
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55	
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55	
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55	
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54	
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54	
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53	
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53	
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53	
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53	
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52	
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52	
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52	
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52	

3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Unit Hyd Qpeak (cms)= 0.708

PEAK FLOW (cms)= 0.316 (i)

TIME TO PEAK (hrs)= 8.333

RUNOFF VOLUME (mm)= 26.731

TOTAL RAINFALL (mm)= 70.237

RUNOFF COEFFICIENT = 0.381

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0055)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0053):	6.86	0.316	8.33	26.73
+ ID2= 2 (0054):	3.70	0.248	8.17	26.69
=====				
ID = 3 (0055):	10.56	0.529	8.25	26.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0001)		Area (ha)= 3.26	Curve Number (CN)= 73.0	
ID= 1 DT= 5.0 min		Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
-----		U.H. Tp(hrs)= 0.18		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68	
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68	
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67	
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67	
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66	
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66	
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65	
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65	
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64	
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64	
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63	
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63	
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62	
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62	
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62	
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62	
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61	
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61	
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60	
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60	
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59	
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59	
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59	
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59	
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58	
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58	
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57	
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57	
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56	
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56	
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56	
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56	
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55	
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55	
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55	
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55	
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54	
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54	

3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Unit Hyd Qpeak (cms)= 0.707

PEAK FLOW (cms)= 0.237 (i)

TIME TO PEAK (hrs)= 8.083

RUNOFF VOLUME (mm)= 26.652

TOTAL RAINFALL (mm)= 70.237

RUNOFF COEFFICIENT = 0.379

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0003)	Area	(ha)=	0.35	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)= 3.00

----- U.H. Tp(hrs)= 0.08

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53

3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.040 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 25.087

TOTAL RAINFALL (mm)= 70.237

RUNOFF COEFFICIENT = 0.357

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0006)	Area (ha)= 0.47
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.27
Dep. Storage	(mm)=	1.00	5.00

Average Slope	(%)=	1.00	2.00
Length	(m)=	55.98	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53

3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)=	134.79	45.43
over (min)	5.00	15.00
Storage Coeff. (min)=	1.60 (ii)	11.28 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.32	0.09

TOTALS

PEAK FLOW (cms)=	0.08	0.02	0.086 (iii)
TIME TO PEAK (hrs)=	8.00	8.17	8.00
RUNOFF VOLUME (mm)=	69.24	26.74	45.00
TOTAL RAINFALL (mm)=	70.24	70.24	70.24
RUNOFF COEFFICIENT =	0.99	0.38	0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 73.0 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 ( 0004) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
      ID1= 1 ( 0001):  3.26  0.237  8.08  26.65
      + ID2= 2 ( 0003):  0.35  0.040  8.00  25.09
      =====
      ID = 3 ( 0004):  3.61  0.264  8.08  26.50
  
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0004) |
| 3 + 2 = 1 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
      ID1= 3 ( 0004):  3.61  0.264  8.08  26.50
      + ID2= 2 ( 0006):  0.47  0.086  8.00  45.00
      =====
      ID = 1 ( 0004):  4.08  0.309  8.00  28.63
  
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| CALIB
| NASHYD ( 0005) | Area (ha)= 0.43 Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
-----
          U.H. Tp(hrs)= 0.09
  
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
    0.083      0.46 | 6.083      1.69 | 12.083      1.49 | 18.08      0.68
    0.167      0.46 | 6.167      1.69 | 12.167      1.49 | 18.17      0.68
    0.250      0.47 | 6.250      1.85 | 12.250      1.44 | 18.25      0.67
    0.333      0.47 | 6.333      1.85 | 12.333      1.44 | 18.33      0.67
    0.417      0.48 | 6.417      2.04 | 12.417      1.39 | 18.42      0.66
    0.500      0.48 | 6.500      2.04 | 12.500      1.39 | 18.50      0.66
    0.583      0.49 | 6.583      2.29 | 12.583      1.35 | 18.58      0.65
    0.667      0.49 | 6.667      2.29 | 12.667      1.35 | 18.67      0.65
    0.750      0.50 | 6.750      2.61 | 12.750      1.31 | 18.75      0.64
    0.833      0.50 | 6.833      2.61 | 12.833      1.31 | 18.83      0.64
  
```

0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48

5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Unit Hyd Qpeak (cms)= 0.175

PEAK FLOW (cms)= 0.046 (i)
TIME TO PEAK (hrs)= 8.000
RUNOFF VOLUME (mm)= 25.869
TOTAL RAINFALL (mm)= 70.237
RUNOFF COEFFICIENT = 0.368

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0007)		Area (ha)=	0.37
ID= 1 DT= 5.0 min		Total Imp(%)=	43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.21
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	49.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65

0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49

4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)= 134.79 45.43
over (min) 5.00 15.00
Storage Coeff. (min)= 1.49 (ii) 11.17 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.33 0.09

TOTALS

PEAK FLOW (cms)= 0.06 0.02 0.067 (iii)
TIME TO PEAK (hrs)= 8.00 8.17 8.00
RUNOFF VOLUME (mm)= 69.24 26.74 44.99
TOTAL RAINFALL (mm)= 70.24 70.24 70.24
RUNOFF COEFFICIENT = 0.99 0.38 0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0008)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0005):	0.43	0.046	8.00	25.87
+ ID2= 2 (0007):	0.37	0.067	8.00	44.99
=====				
ID = 3 (0008):	0.80	0.113	8.00	34.71

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

=====

```

V   V   I   SSSSS U   U   A   L           (v 6.1.2003)
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
  WV    I   SSSSS UUUUU A   A  LLLLL

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000  TTTT  TTTT  H   H   Y   Y   M   M   000  TM
O   O   T    T   H   H   Y Y   MM MM  O   O
O   O   T    T   H   H   Y   M   M   O   O
000    T    T   H   H   Y   M   M   000

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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 6.1-New\V02\voin.dat

Output filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\d7f1fd3b-3838-4b2e-925e-c45d18ca1c87\

Summary filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\d7f1fd3b-3838-4b2e-925e-c45d18ca1c87\

DATE: 11/24/2021

TIME: 04:50:20

USER:

COMMENTS: _____

```

*****
** SIMULATION : 25MM4HRC_10min Edited 2012 **
*****

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READ STORM	Filename: C:\Users\jannaormond\AppData\Local\Temp\c533fd6c-47fd-4e3e-b554-21b7ea511c36\8ba51073
Ptotal= 25.00 mm	Comments: 25MM4HRC_10min Edited 2012

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.17	2.07	1.17	5.70	2.17	5.19	3.17	2.80
0.33	2.27	1.33	10.78	2.33	4.47	3.33	2.62
0.50	2.52	1.50	50.21	2.50	3.95	3.50	2.48
0.67	2.88	1.67	13.37	2.67	3.56	3.67	2.35
0.83	3.38	1.83	8.29	2.83	3.25	3.83	2.23
1.00	4.18	2.00	6.30	3.00	3.01	4.00	2.14

CALIB	
NASHYD (0054)	Area (ha)= 3.70 Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.21

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Unit Hyd Qpeak (cms)= 0.673

PEAK FLOW (cms)= 0.027 (i)

TIME TO PEAK (hrs)= 1.750

RUNOFF VOLUME (mm)= 3.504

TOTAL RAINFALL (mm)= 24.996

RUNOFF COEFFICIENT = 0.140

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	

NASHYD (0053)	Area (ha)= 6.86	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
-----	U.H. Tp(hrs)= 0.37	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Unit Hyd Qpeak (cms)= 0.708

PEAK FLOW (cms)= 0.038 (i)
 TIME TO PEAK (hrs)= 2.000
 RUNOFF VOLUME (mm)= 3.508
 TOTAL RAINFALL (mm)= 24.996
 RUNOFF COEFFICIENT = 0.140

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0055)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0053):	6.86	0.038	2.00	3.51
+ ID2= 2 (0054):	3.70	0.027	1.75	3.50
=====				
ID = 3 (0055):	10.56	0.061	1.83	3.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0001)	Area (ha)= 3.26	Curve Number (CN)= 73.0	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	

----- U.H. Tp(hrs)= 0.18

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Unit Hyd Qpeak (cms)= 0.707

PEAK FLOW (cms)= 0.027 (i)

TIME TO PEAK (hrs)= 1.667

RUNOFF VOLUME (mm)= 3.498

TOTAL RAINFALL (mm)= 24.996

RUNOFF COEFFICIENT = 0.140

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0003)	Area (ha)=	0.35	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.08	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48

0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.004 (i)

TIME TO PEAK (hrs)= 1.500

RUNOFF VOLUME (mm)= 3.293

TOTAL RAINFALL (mm)= 24.996

RUNOFF COEFFICIENT = 0.132

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0006)	Area (ha)= 0.47
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.27
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	55.98	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)= 50.21 2.97

over (min)	5.00	35.00	
Storage Coeff. (min)=	2.38 (ii)	31.17 (ii)	
Unit Hyd. Tpeak (min)=	5.00	35.00	
Unit Hyd. peak (cms)=	0.30	0.03	
			TOTALS
PEAK FLOW (cms)=	0.03	0.00	0.028 (iii)
TIME TO PEAK (hrs)=	1.50	2.17	1.50
RUNOFF VOLUME (mm)=	24.00	3.51	12.28
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.14	0.49

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 73.0 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 (0004)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0001):	3.26	0.027	1.67	3.50
+ ID2= 2 (0003):	0.35	0.004	1.50	3.29
=====				
ID = 3 (0004):	3.61	0.029	1.67	3.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0004)				
3 + 2 = 1				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0004):	3.61	0.029	1.67	3.48
+ ID2= 2 (0006):	0.47	0.028	1.50	12.28
=====				
ID = 1 (0004):	4.08	0.049	1.50	4.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0005)	Area (ha)=	0.43	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.09	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Unit Hyd Qpeak (cms)= 0.175

PEAK FLOW (cms)= 0.005 (i)

TIME TO PEAK (hrs)= 1.500

RUNOFF VOLUME (mm)= 3.395

TOTAL RAINFALL (mm)= 24.996

RUNOFF COEFFICIENT = 0.136

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0007)	Area (ha)= 0.37
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.21
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	49.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80

0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)= 50.21 2.97
over (min) 5.00 35.00
Storage Coeff. (min)= 2.21 (ii) 31.01 (ii)
Unit Hyd. Tpeak (min)= 5.00 35.00
Unit Hyd. peak (cms)= 0.30 0.03

TOTALS

PEAK FLOW (cms)= 0.02 0.00 0.022 (iii)
TIME TO PEAK (hrs)= 1.50 2.17 1.50
RUNOFF VOLUME (mm)= 24.00 3.51 12.27
TOTAL RAINFALL (mm)= 25.00 25.00 25.00
RUNOFF COEFFICIENT = 0.96 0.14 0.49

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0008) |
| 1 + 2 = 3 |
-----
          AREA    QPEAK    TPEAK    R.V.
          (ha)    (cms)    (hrs)    (mm)
ID1= 1 ( 0005):  0.43  0.005    1.50    3.40
+ ID2= 2 ( 0007):  0.37  0.022    1.50   12.27
=====
ID = 3 ( 0008):  0.80  0.027    1.50    7.50

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
=====
=====
V   V   I   SSSSS  U   U   A   L           (v 6.1.2003)
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
 WV I SSSSS UUUUU A A LLLLL

000 TTTT TTTT H H Y Y M M 000 TM
 O O T T H H Y Y MM MM O O
 O O T T H H Y M M O O
 000 T T H H Y M M 000

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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 6.1-New\V02\voin.dat

Output filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\4
 e6581a0-e2c7-4781-bced-5cc299c8ac52\

Summary filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\4
 e6581a0-e2c7-4781-bced-5cc299c8ac52\

DATE: 11/24/2021

TIME: 04:50:19

USER:

COMMENTS: _____

 ** SIMULATION : 25-yr 24hr **

CHICAGO STORM	IDF curve parameters: A=1680.000
Ptotal= 82.47 mm	B= 5.600
	C= 0.851
	used in: INTENSITY = A / (t + B)^C
	Duration of storm = 24.00 hrs
	Storm time step = 10.00 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
0.17	0.53	6.17	1.95	12.17	1.73	18.17	0.78
0.33	0.54	6.33	2.14	12.33	1.67	18.33	0.77
0.50	0.55	6.50	2.36	12.50	1.61	18.50	0.76
0.67	0.56	6.67	2.65	12.67	1.56	18.67	0.75
0.83	0.57	6.83	3.02	12.83	1.51	18.83	0.74
1.00	0.58	7.00	3.51	13.00	1.46	19.00	0.73
1.17	0.60	7.17	4.23	13.17	1.42	19.17	0.72
1.33	0.61	7.33	5.35	13.33	1.38	19.33	0.71
1.50	0.62	7.50	7.33	13.50	1.34	19.50	0.70
1.67	0.64	7.67	11.88	13.67	1.31	19.67	0.69
1.83	0.65	7.83	32.57	13.83	1.27	19.83	0.68
2.00	0.67	8.00	162.17	14.00	1.24	20.00	0.67
2.17	0.69	8.17	44.31	14.17	1.21	20.17	0.67
2.33	0.70	8.33	21.32	14.33	1.18	20.33	0.66
2.50	0.72	8.50	13.85	14.50	1.16	20.50	0.65
2.67	0.74	8.67	10.24	14.67	1.13	20.67	0.64
2.83	0.76	8.83	8.13	14.83	1.11	20.83	0.64
3.00	0.79	9.00	6.75	15.00	1.08	21.00	0.63
3.17	0.81	9.17	5.78	15.17	1.06	21.17	0.62
3.33	0.84	9.33	5.06	15.33	1.04	21.33	0.61
3.50	0.86	9.50	4.51	15.50	1.02	21.50	0.61
3.67	0.89	9.67	4.07	15.67	1.00	21.67	0.60
3.83	0.92	9.83	3.71	15.83	0.98	21.83	0.60
4.00	0.96	10.00	3.42	16.00	0.96	22.00	0.59
4.17	1.00	10.17	3.16	16.17	0.95	22.17	0.58
4.33	1.04	10.33	2.95	16.33	0.93	22.33	0.58
4.50	1.08	10.50	2.76	16.50	0.91	22.50	0.57
4.67	1.13	10.67	2.60	16.67	0.90	22.67	0.57
4.83	1.18	10.83	2.46	16.83	0.88	22.83	0.56
5.00	1.24	11.00	2.33	17.00	0.87	23.00	0.56
5.17	1.31	11.17	2.22	17.17	0.85	23.17	0.55
5.33	1.38	11.33	2.12	17.33	0.84	23.33	0.54
5.50	1.47	11.50	2.02	17.50	0.83	23.50	0.54
5.67	1.56	11.67	1.94	17.67	0.81	23.67	0.53
5.83	1.67	11.83	1.86	17.83	0.80	23.83	0.53
6.00	1.80	12.00	1.79	18.00	0.79	24.00	0.52

CALIB			
NASHYD (0054)	Area (ha)=	3.70	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.21	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59

4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Unit Hyd Qpeak (cms)= 0.673

PEAK FLOW (cms)= 0.338 (i)

TIME TO PEAK (hrs)= 8.167

RUNOFF VOLUME (mm)= 34.960

TOTAL RAINFALL (mm)= 82.474

RUNOFF COEFFICIENT = 0.424

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0053)			
ID= 1 DT= 5.0 min			

Area (ha)= 6.86		Curve Number (CN)= 73.0	
Ia (mm)= 5.00		# of Linear Res.(N)= 3.00	
U.H. Tp(hrs)= 0.37			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78

0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58

4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Unit Hyd Qpeak (cms)= 0.708

PEAK FLOW (cms)= 0.430 (i)

TIME TO PEAK (hrs)= 8.333

RUNOFF VOLUME (mm)= 35.009

TOTAL RAINFALL (mm)= 82.474

RUNOFF COEFFICIENT = 0.424

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0055)				
1	+	2	=	3
		AREA	QPEAK	TPEAK
		(ha)	(cms)	(hrs)
		R.V.		
		(mm)		
ID1= 1 (0053):		6.86	0.430	8.33
+ ID2= 2 (0054):		3.70	0.338	8.17
		=====		
ID = 3 (0055):		10.56	0.720	8.25
		=====		
		34.99		

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0001)				
ID= 1	DT= 5.0 min	Area	(ha)=	3.26
		Ia	(mm)=	5.00
		U.H. Tp	(hrs)=	0.18
		Curve Number (CN)= 73.0		
		# of Linear Res.(N)= 3.00		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60

3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Unit Hyd Qpeak (cms)= 0.707

PEAK FLOW (cms)= 0.325 (i)

TIME TO PEAK (hrs)= 8.083

RUNOFF VOLUME (mm)= 34.906

TOTAL RAINFALL (mm)= 82.474

RUNOFF COEFFICIENT = 0.423

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0003)	Area (ha)=	0.35	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
-----		U.H. Tp(hrs)=	0.08

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59

4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.056 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 32.855

TOTAL RAINFALL (mm)= 82.474

RUNOFF COEFFICIENT = 0.398

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0006)	Area (ha)= 0.47
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.20	0.27
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	55.98	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78	
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78	
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77	
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77	
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76	
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76	
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75	
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75	
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74	
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74	
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73	
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73	
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72	
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72	
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71	
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71	
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70	
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70	
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69	
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69	
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68	
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68	
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67	
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67	
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67	
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67	
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66	
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66	
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65	
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65	
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64	
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64	
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64	
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64	
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63	
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63	
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62	
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62	
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61	
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61	
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61	
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61	
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60	
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60	
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60	

3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)=	162.17	62.74
over (min)	5.00	10.00
Storage Coeff. (min)=	1.49 (ii)	9.99 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.33	0.11

			TOTALS
PEAK FLOW (cms)=	0.09	0.03	0.114 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	81.47	35.01	54.98
TOTAL RAINFALL (mm)=	82.47	82.47	82.47
RUNOFF COEFFICIENT =	0.99	0.42	0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0004) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0001):    3.26    0.325    8.08    34.91
+ ID2= 2 ( 0003):    0.35    0.056    8.00    32.86
=====
ID = 3 ( 0004):    3.61    0.362    8.08    34.71

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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| ADD HYD ( 0004) |
| 3 + 2 = 1 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 3 ( 0004):    3.61    0.362    8.08    34.71
+ ID2= 2 ( 0006):    0.47    0.114    8.00    54.98
=====
ID = 1 ( 0004):    4.08    0.424    8.00    37.04

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| CALIB
| NASHYD ( 0005) |
| ID= 1 DT= 5.0 min |
-----
Area      (ha)=    0.43    Curve Number (CN)= 73.0
Ia        (mm)=    5.00    # of Linear Res.(N)= 3.00
U.H. Tp(hrs)=    0.09

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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71

1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54

5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Unit Hyd Qpeak (cms)= 0.175

PEAK FLOW (cms)= 0.063 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 33.880

TOTAL RAINFALL (mm)= 82.474

RUNOFF COEFFICIENT = 0.411

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0007)	Area (ha)= 0.37
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.21
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	49.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72

1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54

5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)=	162.17	62.74
over (min)	5.00	10.00
Storage Coeff. (min)=	1.38 (ii)	9.89 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.33	0.11

TOTALS

PEAK FLOW (cms)=	0.07	0.02	0.090 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	81.47	35.02	54.98
TOTAL RAINFALL (mm)=	82.47	82.47	82.47
RUNOFF COEFFICIENT =	0.99	0.42	0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0008)					
1 + 2 = 3		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0005):		0.43	0.063	8.00	33.88
+ ID2= 2 (0007):		0.37	0.090	8.00	54.98
=====					
ID = 3 (0008):		0.80	0.153	8.00	43.64

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

=====

V	V	I	SSSSS	U	U	A	L	(v 6.1.2003)
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	

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      WV      I      SSSSS  UUUUU  A  A  LLLLL

      000      TTTT   TTTT   H  H  Y  Y  M  M  000      TM
      0  0      T      T   H  H  Y  Y  MM MM  0  0
      0  0      T      T   H  H  Y      M  M  0  0
      000      T      T   H  H  Y      M  M  000

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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 6.1-New\V02\voin.dat

Output filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\07c48f31-3b22-4c89-a549-0e1840107f39\

Summary filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\07c48f31-3b22-4c89-a549-0e1840107f39\

DATE: 11/24/2021

TIME: 04:50:19

USER:

COMMENTS: _____

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*****
** SIMULATION : 2-yr 24hr          **
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| CHICAGO STORM | IDF curve parameters: A= 725.000
| Ptotal= 48.69 mm | B= 4.800
|                  | C= 0.808
-----
used in: INTENSITY = A / (t + B)^C

Duration of storm = 24.00 hrs
Storm time step   = 10.00 min
Time to peak ratio = 0.33

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN

hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.17	0.40	6.17	1.35	12.17	1.21	18.17	0.57
0.33	0.41	6.33	1.47	12.33	1.17	18.33	0.57
0.50	0.41	6.50	1.61	12.50	1.13	18.50	0.56
0.67	0.42	6.67	1.79	12.67	1.10	18.67	0.55
0.83	0.43	6.83	2.02	12.83	1.06	18.83	0.55
1.00	0.44	7.00	2.32	13.00	1.03	19.00	0.54
1.17	0.45	7.17	2.74	13.17	1.01	19.17	0.53
1.33	0.46	7.33	3.39	13.33	0.98	19.33	0.53
1.50	0.47	7.50	4.51	13.50	0.96	19.50	0.52
1.67	0.48	7.67	6.95	13.67	0.93	19.67	0.51
1.83	0.49	7.83	17.30	13.83	0.91	19.83	0.51
2.00	0.50	8.00	82.18	14.00	0.89	20.00	0.50
2.17	0.51	8.17	23.06	14.17	0.87	20.17	0.50
2.33	0.52	8.33	11.78	14.33	0.85	20.33	0.49
2.50	0.54	8.50	7.99	14.50	0.83	20.50	0.48
2.67	0.55	8.67	6.09	14.67	0.81	20.67	0.48
2.83	0.56	8.83	4.95	14.83	0.80	20.83	0.47
3.00	0.58	9.00	4.19	15.00	0.78	21.00	0.47
3.17	0.60	9.17	3.64	15.17	0.77	21.17	0.46
3.33	0.61	9.33	3.23	15.33	0.75	21.33	0.46
3.50	0.63	9.50	2.91	15.50	0.74	21.50	0.46
3.67	0.65	9.67	2.65	15.67	0.73	21.67	0.45
3.83	0.67	9.83	2.44	15.83	0.71	21.83	0.45
4.00	0.70	10.00	2.26	16.00	0.70	22.00	0.44
4.17	0.72	10.17	2.11	16.17	0.69	22.17	0.44
4.33	0.75	10.33	1.98	16.33	0.68	22.33	0.43
4.50	0.78	10.50	1.86	16.50	0.67	22.50	0.43
4.67	0.81	10.67	1.76	16.67	0.66	22.67	0.43
4.83	0.85	10.83	1.67	16.83	0.64	22.83	0.42
5.00	0.89	11.00	1.59	17.00	0.64	23.00	0.42
5.17	0.93	11.17	1.52	17.17	0.63	23.17	0.41
5.33	0.98	11.33	1.46	17.33	0.62	23.33	0.41
5.50	1.04	11.50	1.40	17.50	0.61	23.50	0.41
5.67	1.10	11.67	1.34	17.67	0.60	23.67	0.40
5.83	1.17	11.83	1.29	17.83	0.59	23.83	0.40
6.00	1.26	12.00	1.25	18.00	0.58	24.00	0.40

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| CALIB                                     |
| NASHYD ( 0054) | Area (ha)= 3.70 Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
-----
| U.H. Tp(hrs)= 0.21

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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44

4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Unit Hyd Qpeak (cms)= 0.673

PEAK FLOW (cms)= 0.105 (i)

TIME TO PEAK (hrs)= 8.167

RUNOFF VOLUME (mm)= 13.846

TOTAL RAINFALL (mm)= 48.688

RUNOFF COEFFICIENT = 0.284

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB |
| NASHYD ( 0053) | Area (ha)= 6.86 Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
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| U.H. Tp(hrs)= 0.37

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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----
TIME    RAIN | TIME    RAIN | ' TIME    RAIN | TIME    RAIN
hrs     mm/hr | hrs     mm/hr | ' hrs     mm/hr | hrs     mm/hr
0.083   0.40 | 6.083   1.35 | 12.083   1.21 | 18.08   0.57
0.167   0.40 | 6.167   1.35 | 12.167   1.21 | 18.17   0.57

```


0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43

4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Unit Hyd Qpeak (cms)= 0.708

PEAK FLOW (cms)= 0.135 (i)

TIME TO PEAK (hrs)= 8.417

RUNOFF VOLUME (mm)= 13.865

TOTAL RAINFALL (mm)= 48.688

RUNOFF COEFFICIENT = 0.285

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0055)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0053):	6.86	0.135	8.42	13.87
+ ID2= 2 (0054):	3.70	0.105	8.17	13.85
=====				
ID = 3 (0055):	10.56	0.224	8.25	13.86

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0001)				
ID= 1 DT= 5.0 min				

Area	(ha)=	3.26	Curve Number	(CN)= 73.0
Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
U.H. Tp	(hrs)=	0.18		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57	
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57	
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57	
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57	
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56	
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56	
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55	
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55	
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55	
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55	
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54	
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54	
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53	
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53	
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53	
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53	
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52	
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52	
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51	
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51	
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51	
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51	
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50	
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50	
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50	
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50	
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49	
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49	
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48	
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48	
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48	
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48	
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47	
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47	
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47	
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47	
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46	
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46	
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46	
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46	
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46	
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46	
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45	
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45	

3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Unit Hyd Qpeak (cms)= 0.707

PEAK FLOW (cms)= 0.100 (i)

TIME TO PEAK (hrs)= 8.167

RUNOFF VOLUME (mm)= 13.824

TOTAL RAINFALL (mm)= 48.688

RUNOFF COEFFICIENT = 0.284

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB |
| NASHYD ( 0003) | Area (ha)= 0.35 Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
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| U.H. Tp(hrs)= 0.08

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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44

4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.017 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 13.012

TOTAL RAINFALL (mm)= 48.688

RUNOFF COEFFICIENT = 0.267

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0006)
ID= 1 DT= 5.0 min

Area (ha)= 0.47
Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.27
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	55.98	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57	
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57	
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57	
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57	
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56	
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56	
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55	
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55	
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55	
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55	
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54	
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54	
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53	
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53	
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53	
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53	
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52	
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52	
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51	
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51	
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51	
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51	
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50	
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50	
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50	
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50	
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49	
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49	
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48	
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48	
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48	
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48	
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47	
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47	
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47	
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47	
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46	
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46	
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46	
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46	
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46	
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46	
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45	
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45	
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45	
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45	

3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)=	82.18	15.21
over (min)	5.00	20.00
Storage Coeff. (min)=	1.95 (ii)	16.94 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.31	0.06

TOTALS

PEAK FLOW (cms)=	0.05	0.01	0.048 (iii)
TIME TO PEAK (hrs)=	8.00	8.25	8.00
RUNOFF VOLUME (mm)=	47.69	13.87	28.39
TOTAL RAINFALL (mm)=	48.69	48.69	48.69
RUNOFF COEFFICIENT =	0.98	0.28	0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0004)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0001):	3.26	0.100	8.17	13.82
+ ID2= 2 (0003):	0.35	0.017	8.00	13.01
=====				
ID = 3 (0004):	3.61	0.111	8.08	13.75

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0004)				
3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0004):	3.61	0.111	8.08	13.75
+ ID2= 2 (0006):	0.47	0.048	8.00	28.39
=====				
ID = 1 (0004):	4.08	0.141	8.00	15.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0005)	Area (ha)=	0.43	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.09	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57	
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57	
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57	
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57	
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56	
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56	
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55	
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55	
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55	
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55	
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54	
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54	
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53	
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53	
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53	
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53	

1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41

5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Unit Hyd Qpeak (cms)= 0.175

PEAK FLOW (cms)= 0.019 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 13.418

TOTAL RAINFALL (mm)= 48.688

RUNOFF COEFFICIENT = 0.276

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0007)	Area (ha)= 0.37
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.21
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	49.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53

1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41

5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)=	82.18	15.21
over (min)	5.00	20.00
Storage Coeff. (min)=	1.82 (ii)	16.81 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.32	0.06

TOTALS

PEAK FLOW (cms)=	0.04	0.01	0.038 (iii)
TIME TO PEAK (hrs)=	8.00	8.25	8.00
RUNOFF VOLUME (mm)=	47.69	13.87	28.38
TOTAL RAINFALL (mm)=	48.69	48.69	48.69
RUNOFF COEFFICIENT =	0.98	0.28	0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 73.0 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 (0008)					
1 + 2 = 3		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0005):		0.43	0.019	8.00	13.42
+ ID2= 2 (0007):		0.37	0.038	8.00	28.38
=====					
ID = 3 (0008):		0.80	0.057	8.00	20.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

=====

=====

V	V	I	SSSSS	U	U	A	L	(v 6.1.2003)
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	
WV		I	SSSSS	UUUUU	A	A	LLLLL	

```

      000   TTTT   TTTT   H   H   Y   Y   M   M   000   TM
      0   0   T       T   H   H   Y   Y   MM MM  0   0
      0   0   T       T   H   H   Y       M   M  0   0
      000       T       T   H   H       Y       M   M  000

```

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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 6.1-New\V02\voin.dat

Output filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\6
 00efb58-87e7-4341-94ac-aec1e7b9b176\

Summary filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\6
 00efb58-87e7-4341-94ac-aec1e7b9b176\

DATE: 11/24/2021

TIME: 04:50:20

USER:

COMMENTS: _____

```

*****
** SIMULATION : 50-yr 24hr **
*****

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-----
| CHICAGO STORM |
| Ptotal= 89.46 mm |
-----

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IDF curve parameters: A=1960.000
 B= 5.800
 C= 0.861

used in: INTENSITY = A / (t + B)^C

Duration of storm = 24.00 hrs
 Storm time step = 10.00 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

0.17	0.54	6.17	2.03	12.17	1.79	18.17	0.80
0.33	0.55	6.33	2.22	12.33	1.72	18.33	0.78
0.50	0.56	6.50	2.46	12.50	1.66	18.50	0.77
0.67	0.57	6.67	2.76	12.67	1.61	18.67	0.76
0.83	0.58	6.83	3.16	12.83	1.56	18.83	0.75
1.00	0.59	7.00	3.69	13.00	1.51	19.00	0.74
1.17	0.61	7.17	4.47	13.17	1.46	19.17	0.73
1.33	0.62	7.33	5.68	13.33	1.42	19.33	0.72
1.50	0.63	7.50	7.86	13.50	1.38	19.50	0.71
1.67	0.65	7.67	12.90	13.67	1.35	19.67	0.70
1.83	0.67	7.83	36.22	13.83	1.31	19.83	0.70
2.00	0.68	8.00	182.06	14.00	1.28	20.00	0.69
2.17	0.70	8.17	49.51	14.17	1.25	20.17	0.68
2.33	0.72	8.33	23.49	14.33	1.22	20.33	0.67
2.50	0.74	8.50	15.09	14.50	1.19	20.50	0.66
2.67	0.76	8.67	11.06	14.67	1.16	20.67	0.65
2.83	0.78	8.83	8.73	14.83	1.14	20.83	0.65
3.00	0.80	9.00	7.21	15.00	1.11	21.00	0.64
3.17	0.83	9.17	6.15	15.17	1.09	21.17	0.63
3.33	0.85	9.33	5.37	15.33	1.07	21.33	0.63
3.50	0.88	9.50	4.77	15.50	1.04	21.50	0.62
3.67	0.91	9.67	4.29	15.67	1.02	21.67	0.61
3.83	0.95	9.83	3.91	15.83	1.00	21.83	0.61
4.00	0.98	10.00	3.59	16.00	0.99	22.00	0.60
4.17	1.02	10.17	3.32	16.17	0.97	22.17	0.59
4.33	1.06	10.33	3.09	16.33	0.95	22.33	0.59
4.50	1.11	10.50	2.89	16.50	0.93	22.50	0.58
4.67	1.16	10.67	2.72	16.67	0.92	22.67	0.57
4.83	1.22	10.83	2.56	16.83	0.90	22.83	0.57
5.00	1.28	11.00	2.43	17.00	0.89	23.00	0.56
5.17	1.35	11.17	2.31	17.17	0.87	23.17	0.56
5.33	1.42	11.33	2.20	17.33	0.86	23.33	0.55
5.50	1.51	11.50	2.10	17.50	0.85	23.50	0.55
5.67	1.61	11.67	2.01	17.67	0.83	23.67	0.54
5.83	1.73	11.83	1.93	17.83	0.82	23.83	0.54
6.00	1.87	12.00	1.85	18.00	0.81	24.00	0.53

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| CALIB |
| NASHYD ( 0054) | Area (ha)= 3.70 Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
-----
| U.H. Tp(hrs)= 0.21

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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----
TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN

```

hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59

4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Unit Hyd Qpeak (cms)= 0.673

PEAK FLOW (cms)= 0.404 (i)
TIME TO PEAK (hrs)= 8.167
RUNOFF VOLUME (mm)= 39.920
TOTAL RAINFALL (mm)= 89.457
RUNOFF COEFFICIENT = 0.446

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-----
| CALIB |
| NASHYD ( 0053) |
| ID= 1 DT= 5.0 min |
-----
| Area (ha)= 6.86 | Curve Number (CN)= 73.0 |
| Ia (mm)= 5.00 | # of Linear Res.(N)= 3.00 |
| U.H. Tp(hrs)= 0.37 |

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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78

0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58

4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Unit Hyd Qpeak (cms)= 0.708

PEAK FLOW (cms)= 0.513 (i)

TIME TO PEAK (hrs)= 8.333

RUNOFF VOLUME (mm)= 39.976

TOTAL RAINFALL (mm)= 89.457

RUNOFF COEFFICIENT = 0.447

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0055)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0053):	6.86	0.513	8.33	39.98
+ ID2= 2 (0054):	3.70	0.404	8.17	39.92
=====				
ID = 3 (0055):	10.56	0.860	8.25	39.96

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0001)				
ID= 1 DT= 5.0 min				

Area	(ha)=	3.26	Curve Number	(CN)= 73.0
Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
U.H. Tp	(hrs)=	0.18		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80	
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80	
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78	
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78	
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77	
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77	
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76	
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76	
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75	
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75	
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74	
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74	
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73	
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73	
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72	
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72	
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71	
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71	
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70	
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70	
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70	
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70	
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69	
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69	
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68	
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68	
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67	
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67	
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66	
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66	
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65	
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65	
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65	
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65	
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64	
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64	
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63	
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63	
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63	
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63	
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62	
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62	
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61	
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61	
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61	

3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Unit Hyd Qpeak (cms)= 0.707

PEAK FLOW (cms)= 0.390 (i)

TIME TO PEAK (hrs)= 8.083

RUNOFF VOLUME (mm)= 39.857

TOTAL RAINFALL (mm)= 89.457

RUNOFF COEFFICIENT = 0.446

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB |
| NASHYD ( 0003) | Area (ha)= 0.35 Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
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| U.H. Tp(hrs)= 0.08

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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----
TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN

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hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59

4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.067 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 37.516

TOTAL RAINFALL (mm)= 89.457

RUNOFF COEFFICIENT = 0.419

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0006)	Area (ha)= 0.47
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.20	0.27
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	55.98	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60

4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)=	182.06	75.28
over (min)	5.00	10.00
Storage Coeff. (min)=	1.42 (ii)	9.33 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.33	0.12

TOTALS

PEAK FLOW (cms)=	0.10	0.04	0.131 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	88.46	39.98	60.81
TOTAL RAINFALL (mm)=	89.46	89.46	89.46
RUNOFF COEFFICIENT =	0.99	0.45	0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0004)|

1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
-----	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0001):	3.26	0.390	8.08	39.86
+ ID2= 2 (0003):	0.35	0.067	8.00	37.52
=====				
ID = 3 (0004):	3.61	0.433	8.08	39.63

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0004)	AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0004):	3.61	0.433	8.08	39.63
+ ID2= 2 (0006):	0.47	0.131	8.00	60.81
=====				
ID = 1 (0004):	4.08	0.502	8.00	42.07

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0005)	Area (ha)=	0.43	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
-----	U.H. Tp(hrs)=	0.09	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71

1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54

5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Unit Hyd Qpeak (cms)= 0.175

PEAK FLOW (cms)= 0.075 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 38.687

TOTAL RAINFALL (mm)= 89.457

RUNOFF COEFFICIENT = 0.432

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0007)		Area (ha)=	0.37
ID= 1 DT= 5.0 min		Total Imp(%)=	43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.21
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	49.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72

1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55

5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)=	182.06	75.28
over (min)	5.00	10.00
Storage Coeff. (min)=	1.32 (ii)	9.23 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.33	0.12

TOTALS

PEAK FLOW (cms)=	0.08	0.03	0.104 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	88.46	39.98	60.81
TOTAL RAINFALL (mm)=	89.46	89.46	89.46
RUNOFF COEFFICIENT =	0.99	0.45	0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0008)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0005):	0.43	0.075	8.00	38.69
+ ID2= 2 (0007):	0.37	0.104	8.00	60.81
=====				
ID = 3 (0008):	0.80	0.179	8.00	48.92

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

=====

V	V	I	SSSSS	U	U	A	L	(v 6.1.2003)
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	

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      000   TTTT   TTTT   H   H   Y   Y   M   M   000   TM
      0   0   T       T   H   H   Y   Y   MM MM   0   0
      0   0   T       T   H   H   Y       M   M   0   0
      000       T       T   H   H       Y       M   M   000

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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 6.1-New\V02\voin.dat

Output filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\9b08468-45f9-4a19-9da1-3412aeee716a\

Summary filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\9b08468-45f9-4a19-9da1-3412aeee716a\

DATE: 11/24/2021

TIME: 04:50:20

USER:

COMMENTS: _____

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*****
** SIMULATION : 5-yr 24hr **
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| CHICAGO STORM |
| Ptotal= 60.87 mm |
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IDF curve parameters: A=1170.000
 B= 5.800
 C= 0.843

used in: INTENSITY = A / (t + B)^C

Duration of storm = 24.00 hrs
 Storm time step = 10.00 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
0.17	0.41	6.17	1.50	12.17	1.32	18.17	0.60

0.33	0.42	6.33	1.64	12.33	1.28	18.33	0.59
0.50	0.43	6.50	1.81	12.50	1.24	18.50	0.59
0.67	0.44	6.67	2.02	12.67	1.20	18.67	0.58
0.83	0.44	6.83	2.30	12.83	1.16	18.83	0.57
1.00	0.45	7.00	2.68	13.00	1.13	19.00	0.56
1.17	0.46	7.17	3.21	13.17	1.09	19.17	0.56
1.33	0.47	7.33	4.05	13.33	1.06	19.33	0.55
1.50	0.48	7.50	5.53	13.50	1.03	19.50	0.54
1.67	0.50	7.67	8.89	13.67	1.01	19.67	0.54
1.83	0.51	7.83	23.90	13.83	0.98	19.83	0.53
2.00	0.52	8.00	114.21	14.00	0.96	20.00	0.52
2.17	0.53	8.17	32.36	14.17	0.93	20.17	0.52
2.33	0.55	8.33	15.80	14.33	0.91	20.33	0.51
2.50	0.56	8.50	10.34	14.50	0.89	20.50	0.50
2.67	0.58	8.67	7.68	14.67	0.87	20.67	0.50
2.83	0.59	8.83	6.11	14.83	0.85	20.83	0.49
3.00	0.61	9.00	5.09	15.00	0.84	21.00	0.49
3.17	0.63	9.17	4.37	15.17	0.82	21.17	0.48
3.33	0.65	9.33	3.83	15.33	0.80	21.33	0.48
3.50	0.67	9.50	3.42	15.50	0.79	21.50	0.47
3.67	0.69	9.67	3.09	15.67	0.77	21.67	0.47
3.83	0.71	9.83	2.82	15.83	0.76	21.83	0.46
4.00	0.74	10.00	2.60	16.00	0.74	22.00	0.46
4.17	0.77	10.17	2.41	16.17	0.73	22.17	0.45
4.33	0.80	10.33	2.25	16.33	0.72	22.33	0.45
4.50	0.83	10.50	2.11	16.50	0.71	22.50	0.44
4.67	0.87	10.67	1.99	16.67	0.69	22.67	0.44
4.83	0.91	10.83	1.88	16.83	0.68	22.83	0.44
5.00	0.96	11.00	1.78	17.00	0.67	23.00	0.43
5.17	1.01	11.17	1.70	17.17	0.66	23.17	0.43
5.33	1.06	11.33	1.62	17.33	0.65	23.33	0.42
5.50	1.13	11.50	1.55	17.50	0.64	23.50	0.42
5.67	1.20	11.67	1.49	17.67	0.63	23.67	0.42
5.83	1.28	11.83	1.43	17.83	0.62	23.83	0.41
6.00	1.38	12.00	1.37	18.00	0.61	24.00	0.41

CALIB			
NASHYD (0054)			
ID= 1 DT= 5.0 min			

Area (ha)=		3.70	Curve Number (CN)= 73.0
Ia (mm)=		5.00	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)=		0.21	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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

0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45

4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Unit Hyd Qpeak (cms)= 0.673

PEAK FLOW (cms)= 0.185 (i)

TIME TO PEAK (hrs)= 8.167

RUNOFF VOLUME (mm)= 20.804

TOTAL RAINFALL (mm)= 60.873

RUNOFF COEFFICIENT = 0.342

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0053)			
ID= 1 DT= 5.0 min			

Area (ha)= 6.86		Curve Number (CN)= 73.0	
Ia (mm)= 5.00		# of Linear Res.(N)= 3.00	
U.H. Tp(hrs)= 0.37			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59

0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44

4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Unit Hyd Qpeak (cms)= 0.708

PEAK FLOW (cms)= 0.236 (i)

TIME TO PEAK (hrs)= 8.333

RUNOFF VOLUME (mm)= 20.834

TOTAL RAINFALL (mm)= 60.873

RUNOFF COEFFICIENT = 0.342

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0055)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0053):	6.86	0.236	8.33	20.83
+ ID2= 2 (0054):	3.70	0.185	8.17	20.80
=====				
ID = 3 (0055):	10.56	0.395	8.25	20.82

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0001)				
ID= 1 DT= 5.0 min	Area	(ha)=	3.26	Curve Number (CN)= 73.0
	Ia	(mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.18		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60	
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60	
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59	
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59	
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59	
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59	
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58	
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58	
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57	
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57	
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56	
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56	
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56	
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56	
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55	
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55	
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54	
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54	
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54	
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54	
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53	
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53	
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52	
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52	
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52	
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52	
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51	
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51	
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50	
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50	
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50	
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50	
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49	
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49	
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49	
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49	
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48	
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48	
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48	
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48	
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47	
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47	
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47	
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47	
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46	
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46	

3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Unit Hyd Qpeak (cms)= 0.707

PEAK FLOW (cms)= 0.176 (i)

TIME TO PEAK (hrs)= 8.167

RUNOFF VOLUME (mm)= 20.772

TOTAL RAINFALL (mm)= 60.873

RUNOFF COEFFICIENT = 0.341

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0003)			
ID= 1 DT= 5.0 min			

Area (ha)=		0.35	Curve Number (CN)= 73.0
Ia (mm)=		5.00	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)=		0.08	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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

0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45

4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.030 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 19.552

TOTAL RAINFALL (mm)= 60.873

RUNOFF COEFFICIENT = 0.321

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | CALIB |
 | STANDHYD (0006) | Area (ha)= 0.47
 | ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.27
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	55.98	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46

4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)= 114.21 26.93
over (min) 5.00 15.00
Storage Coeff. (min)= 1.71 (ii) 13.64 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.32 0.08

TOTALS

PEAK FLOW (cms)= 0.06 0.01 0.071 (iii)
TIME TO PEAK (hrs)= 8.00 8.17 8.00
RUNOFF VOLUME (mm)= 59.87 20.84 37.60
TOTAL RAINFALL (mm)= 60.87 60.87 60.87
RUNOFF COEFFICIENT = 0.98 0.34 0.62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0004) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.

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-----
              (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0001):    3.26    0.176    8.17    20.77
+ ID2= 2 ( 0003):    0.35    0.030    8.00    19.55
=====
ID = 3 ( 0004):    3.61    0.196    8.08    20.65

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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| ADD HYD ( 0004) |
| 3 + 2 = 1 |
-----
              AREA      QPEAK      TPEAK      R.V.
              (ha)      (cms)      (hrs)      (mm)
ID1= 3 ( 0004):    3.61    0.196    8.08    20.65
+ ID2= 2 ( 0006):    0.47    0.071    8.00    37.60
=====
ID = 1 ( 0004):    4.08    0.235    8.00    22.61

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| CALIB
| NASHYD ( 0005) |
| ID= 1 DT= 5.0 min |
-----
Area      (ha)=    0.43      Curve Number      (CN)= 73.0
Ia        (mm)=    5.00      # of Linear Res.(N)= 3.00
U.H. Tp(hrs)=    0.09

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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54

1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42

5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Unit Hyd Qpeak (cms)= 0.175

PEAK FLOW (cms)= 0.034 (i)
 TIME TO PEAK (hrs)= 8.000
 RUNOFF VOLUME (mm)= 20.162
 TOTAL RAINFALL (mm)= 60.873
 RUNOFF COEFFICIENT = 0.331

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0007)	Area (ha)= 0.37
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.21
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	49.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55

1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42

5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)=	114.21	26.93
over (min)	5.00	15.00
Storage Coeff. (min)=	1.59 (ii)	13.52 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.33	0.08

TOTALS

PEAK FLOW (cms)=	0.05	0.01	0.056 (iii)
TIME TO PEAK (hrs)=	8.00	8.17	8.00
RUNOFF VOLUME (mm)=	59.87	20.84	37.60
TOTAL RAINFALL (mm)=	60.87	60.87	60.87
RUNOFF COEFFICIENT =	0.98	0.34	0.62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0008)				
1 + 2 = 3				

ID1= 1 (0005):	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
+ ID2= 2 (0007):	0.43	0.034	8.00	20.16
	0.37	0.056	8.00	37.60
=====				
ID = 3 (0008):	0.80	0.089	8.00	28.23

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

=====

V	V	I	SSSSS	U	U	A	L	(v 6.1.2003)
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	

000	TTTTT	TTTTT	H	H	Y	Y	M	M	000	TM

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O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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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 6.1-New\V02\voin.dat

Output filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\352e3f51-25c5-4b2f-9618-a41e45214d9d\

Summary filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\352e3f51-25c5-4b2f-9618-a41e45214d9d\

DATE: 11/24/2021

TIME: 04:50:21

USER:

COMMENTS: _____

 ** SIMULATION : Hazel **

READ STORM	Filename: C:\Users\jannaormond\AppData\Local\Temp\c533fd6c-47fd-4e3e-b554-21b7ea511c36\59007f2
Ptotal=212.00 mm	Comments: Hazel

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
1.00	6.00	4.00	13.00	7.00	23.00	10.00	53.00
2.00	4.00	5.00	17.00	8.00	13.00	11.00	38.00
3.00	6.00	6.00	13.00	9.00	13.00	12.00	13.00

CALIB				
NASHYD (0054)		Area (ha)= 3.70	Curve Number (CN)= 73.0	
ID= 1 DT= 5.0 min		Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
-----		U.H. Tp(hrs)= 0.21		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00		6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00		6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00		6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00		6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00		6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00		6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00		6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00		6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00		6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00		6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00		6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00		7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00		7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00		7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00		7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00		7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00		7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00		7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00		7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00		7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00		7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00		7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00		7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00		8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00		8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00		8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00		8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00		8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00		8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00		8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00		8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00		8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00		8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00		8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00		8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00		9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 0.673

PEAK FLOW (cms)= 0.456 (i)

TIME TO PEAK (hrs)= 10.000

RUNOFF VOLUME (mm)= 142.157

TOTAL RAINFALL (mm)= 212.000

RUNOFF COEFFICIENT = 0.671

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-----
| CALIB |
| NASHYD ( 0053) | Area (ha)= 6.86 Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.37
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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083 6.00 | 3.083 13.00 | 6.083 23.00 | 9.08 53.00
0.167 6.00 | 3.167 13.00 | 6.167 23.00 | 9.17 53.00
0.250 6.00 | 3.250 13.00 | 6.250 23.00 | 9.25 53.00
0.333 6.00 | 3.333 13.00 | 6.333 23.00 | 9.33 53.00
0.417 6.00 | 3.417 13.00 | 6.417 23.00 | 9.42 53.00
0.500 6.00 | 3.500 13.00 | 6.500 23.00 | 9.50 53.00
0.583 6.00 | 3.583 13.00 | 6.583 23.00 | 9.58 53.00
0.667 6.00 | 3.667 13.00 | 6.667 23.00 | 9.67 53.00
0.750 6.00 | 3.750 13.00 | 6.750 23.00 | 9.75 53.00
0.833 6.00 | 3.833 13.00 | 6.833 23.00 | 9.83 53.00
0.917 6.00 | 3.917 13.00 | 6.917 23.00 | 9.92 53.00
1.000 6.00 | 4.000 13.00 | 7.000 23.00 | 10.00 53.00
1.083 4.00 | 4.083 17.00 | 7.083 13.00 | 10.08 38.00
1.167 4.00 | 4.167 17.00 | 7.167 13.00 | 10.17 38.00
1.250 4.00 | 4.250 17.00 | 7.250 13.00 | 10.25 38.00
1.333 4.00 | 4.333 17.00 | 7.333 13.00 | 10.33 38.00
1.417 4.00 | 4.417 17.00 | 7.417 13.00 | 10.42 38.00
1.500 4.00 | 4.500 17.00 | 7.500 13.00 | 10.50 38.00
1.583 4.00 | 4.583 17.00 | 7.583 13.00 | 10.58 38.00
1.667 4.00 | 4.667 17.00 | 7.667 13.00 | 10.67 38.00
1.750 4.00 | 4.750 17.00 | 7.750 13.00 | 10.75 38.00
1.833 4.00 | 4.833 17.00 | 7.833 13.00 | 10.83 38.00
1.917 4.00 | 4.917 17.00 | 7.917 13.00 | 10.92 38.00
2.000 4.00 | 5.000 17.00 | 8.000 13.00 | 11.00 38.00
2.083 6.00 | 5.083 13.00 | 8.083 13.00 | 11.08 13.00
2.167 6.00 | 5.167 13.00 | 8.167 13.00 | 11.17 13.00
2.250 6.00 | 5.250 13.00 | 8.250 13.00 | 11.25 13.00
```

2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 0.708

PEAK FLOW (cms)= 0.794 (i)

TIME TO PEAK (hrs)= 10.083

RUNOFF VOLUME (mm)= 142.357

TOTAL RAINFALL (mm)= 212.000

RUNOFF COEFFICIENT = 0.671

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0055)					
1 + 2 = 3					

		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0053):		6.86	0.794	10.08	142.36
+ ID2= 2 (0054):		3.70	0.456	10.00	142.16
=====					
ID = 3 (0055):		10.56	1.239	10.08	142.29

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0001)					
ID= 1 DT= 5.0 min					

	Area	(ha)=	3.26	Curve Number	(CN)= 73.0
	Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp	(hrs)=	0.18		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00

0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 0.707

PEAK FLOW (cms)= 0.404 (i)

TIME TO PEAK (hrs)= 10.000

RUNOFF VOLUME (mm)= 141.937

TOTAL RAINFALL (mm)= 212.000

RUNOFF COEFFICIENT = 0.670

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0003)			
ID= 1 DT= 5.0 min			

Area (ha)= 0.35		Curve Number (CN)= 73.0	
Ia (mm)= 5.00		# of Linear Res.(N)= 3.00	
U.H. Tp(hrs)= 0.08			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.041 (i)

TIME TO PEAK (hrs)= 10.000

RUNOFF VOLUME (mm)= 133.601

TOTAL RAINFALL (mm)= 212.000

RUNOFF COEFFICIENT = 0.630

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
STANDHYD (0006)	Area	(ha)=	0.47	
ID= 1 DT= 5.0 min	Total Imp(%)=	43.00	Dir. Conn.(%)=	43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.27
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	55.98	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00

2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)= 53.00 45.24
over (min) 5.00 15.00
Storage Coeff. (min)= 2.33 (ii) 12.02 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.30 0.09

TOTALS

PEAK FLOW (cms)= 0.03 0.03 0.063 (iii)
TIME TO PEAK (hrs)= 9.58 10.00 10.00
RUNOFF VOLUME (mm)= 211.00 142.38 171.88
TOTAL RAINFALL (mm)= 212.00 212.00 212.00
RUNOFF COEFFICIENT = 1.00 0.67 0.81

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0004) |
| 1 + 2 = 3 |
-----
          AREA    QPEAK    TPEAK    R.V.
          (ha)    (cms)    (hrs)    (mm)
ID1= 1 ( 0001):    3.26    0.404    10.00    141.94
+ ID2= 2 ( 0003):    0.35    0.041    10.00    133.60
=====
ID = 3 ( 0004):    3.61    0.445    10.00    141.13

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0004) |
| 3 + 2 = 1 |
-----
          AREA    QPEAK    TPEAK    R.V.
          (ha)    (cms)    (hrs)    (mm)
ID1= 3 ( 0004):    3.61    0.445    10.00    141.13
+ ID2= 2 ( 0006):    0.47    0.063    10.00    171.88
=====
ID = 1 ( 0004):    4.08    0.507    10.00    144.67

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| CALIB                                     |
| NASHYD ( 0005) | Area (ha)= 0.43 Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.09

```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00

3.000 6.00 | 6.000 13.00 | 9.000 13.00 | 12.00 13.00

Unit Hyd Qpeak (cms)= 0.175

PEAK FLOW (cms)= 0.052 (i)

TIME TO PEAK (hrs)= 10.000

RUNOFF VOLUME (mm)= 137.768

TOTAL RAINFALL (mm)= 212.000

RUNOFF COEFFICIENT = 0.650

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| STANDHYD (0007) | Area (ha)= 0.37
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.21
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	49.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00

1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)= 53.00 45.24
over (min) 5.00 15.00
Storage Coeff. (min)= 2.16 (ii) 11.86 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.31 0.09

TOTALS

PEAK FLOW (cms)= 0.02 0.03 0.049 (iii)
TIME TO PEAK (hrs)= 9.50 10.00 10.00
RUNOFF VOLUME (mm)= 211.00 142.38 171.87
TOTAL RAINFALL (mm)= 212.00 212.00 212.00
RUNOFF COEFFICIENT = 1.00 0.67 0.81

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0008) |
| 1 + 2 = 3 |
-----
      AREA      QPEAK      TPEAK      R.V.
      (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0005):  0.43  0.052  10.00  137.77
+ ID2= 2 ( 0007):  0.37  0.049  10.00  171.87
=====
ID = 3 ( 0008):  0.80  0.101  10.00  153.54

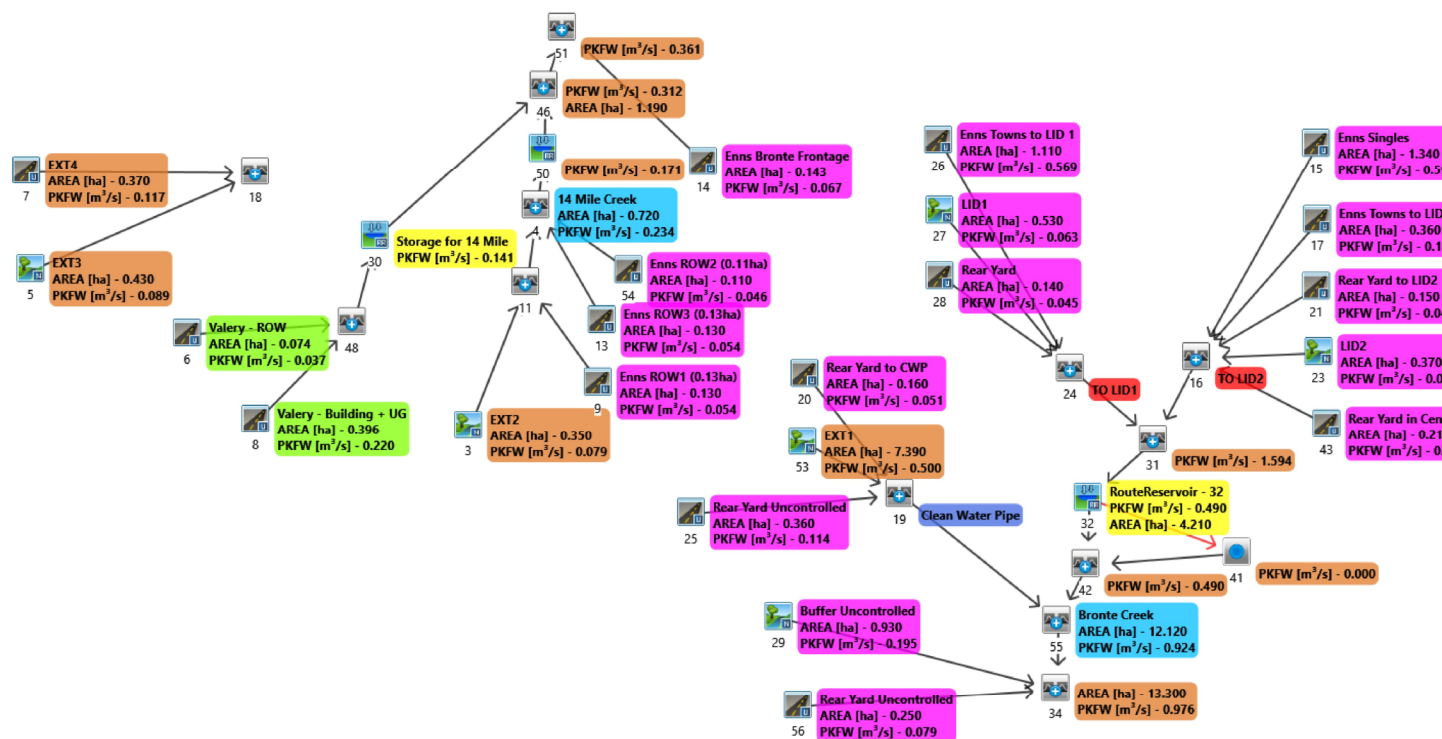
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH

=====

=====



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V V I SSSSS U U A L (v 6.1.2003)
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

000 TTTTT TTTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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***** D E T A I L E D O U T P U T *****

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DATE: 11/24/2021 TIME: 04:52:10
USER:

COMMENTS: _____

** SIMULATION : 100-yr 24hr **

| CHICAGO STORM | IDF curve parameters: A=2150.000
| Ptotal= 98.13 mm | B= 5.700
C= 0.861

used in: $INTENSITY = A / (t + B)^C$

Duration of storm = 24.00 hrs

Storm time step = 10.00 min

Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.59	6.17	2.22	12.17	1.96	18.17	0.87
0.33	0.60	6.33	2.43	12.33	1.89	18.33	0.86
0.50	0.61	6.50	2.70	12.50	1.82	18.50	0.85
0.67	0.63	6.67	3.03	12.67	1.76	18.67	0.84
0.83	0.64	6.83	3.46	12.83	1.71	18.83	0.82
1.00	0.65	7.00	4.04	13.00	1.65	19.00	0.81
1.17	0.67	7.17	4.89	13.17	1.60	19.17	0.80
1.33	0.68	7.33	6.21	13.33	1.56	19.33	0.79
1.50	0.70	7.50	8.59	13.50	1.52	19.50	0.78
1.67	0.71	7.67	14.09	13.67	1.48	19.67	0.77
1.83	0.73	7.83	39.57	13.83	1.44	19.83	0.76
2.00	0.75	8.00	200.80	14.00	1.40	20.00	0.75
2.17	0.77	8.17	54.10	14.17	1.37	20.17	0.74
2.33	0.79	8.33	25.64	14.33	1.33	20.33	0.73
2.50	0.81	8.50	16.48	14.50	1.30	20.50	0.73
2.67	0.83	8.67	12.09	14.67	1.27	20.67	0.72
2.83	0.85	8.83	9.54	14.83	1.24	20.83	0.71
3.00	0.88	9.00	7.88	15.00	1.22	21.00	0.70
3.17	0.91	9.17	6.73	15.17	1.19	21.17	0.69
3.33	0.94	9.33	5.87	15.33	1.17	21.33	0.69
3.50	0.97	9.50	5.22	15.50	1.14	21.50	0.68
3.67	1.00	9.67	4.70	15.67	1.12	21.67	0.67
3.83	1.04	9.83	4.28	15.83	1.10	21.83	0.66
4.00	1.08	10.00	3.93	16.00	1.08	22.00	0.66
4.17	1.12	10.17	3.63	16.17	1.06	22.17	0.65
4.33	1.16	10.33	3.38	16.33	1.04	22.33	0.64
4.50	1.22	10.50	3.16	16.50	1.02	22.50	0.64
4.67	1.27	10.67	2.97	16.67	1.01	22.67	0.63
4.83	1.33	10.83	2.81	16.83	0.99	22.83	0.62
5.00	1.40	11.00	2.66	17.00	0.97	23.00	0.62
5.17	1.48	11.17	2.53	17.17	0.96	23.17	0.61
5.33	1.56	11.33	2.41	17.33	0.94	23.33	0.61
5.50	1.66	11.50	2.30	17.50	0.93	23.50	0.60
5.67	1.77	11.67	2.20	17.67	0.91	23.67	0.59
5.83	1.90	11.83	2.11	17.83	0.90	23.83	0.59
6.00	2.04	12.00	2.03	18.00	0.88	24.00	0.58

 | CALIB |
 | NASHYD (0005) | Area (ha)= 0.43 Curve Number (CN)= 73.0

| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
 ----- U.H. Tp(hrs)= 0.09

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68

3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Unit Hyd Qpeak (cms)= 0.175

PEAK FLOW (cms)= 0.089 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 44.863

TOTAL RAINFALL (mm)= 98.135

RUNOFF COEFFICIENT = 0.457

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0007)	Area (ha)= 0.37
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.16	0.21

Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	49.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69

3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)=	200.80	88.98
over (min)	5.00	10.00
Storage Coeff. (min)=	1.27 (ii)	8.67 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.33	0.12

TOTALS

PEAK FLOW (cms)=	0.09	0.04	0.117 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	97.13	46.37	68.18
TOTAL RAINFALL (mm)=	98.13	98.13	98.13
RUNOFF COEFFICIENT =	0.99	0.47	0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0018)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0005):	0.43	0.089	8.00	44.86
+ ID2= 2 (0007):	0.37	0.117	8.00	68.18
=====				
ID = 3 (0018):	0.80	0.206	8.00	55.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0053)			
ID= 1 DT= 5.0 min			

Area	(ha)=	7.39	Curve Number (CN)= 73.0
Ia	(mm)=	5.00	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)=	0.53		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76

1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58

6.000 2.04 | 12.000 2.03 | 18.000 0.88 | 24.00 0.58

Unit Hyd Qpeak (cms)= 0.535

PEAK FLOW (cms)= 0.500 (i)

TIME TO PEAK (hrs)= 8.583

RUNOFF VOLUME (mm)= 46.363

TOTAL RAINFALL (mm)= 98.135

RUNOFF COEFFICIENT = 0.472

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB |
| STANDHYD ( 0020) | Area (ha)= 0.16
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00
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		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.09
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	32.66	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77

1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59

5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)=	200.80	88.98
over (min)	5.00	10.00
Storage Coeff. (min)=	0.99 (ii)	8.38 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.34	0.12

TOTALS

PEAK FLOW (cms)=	0.04	0.02	0.051 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	97.13	46.37	68.16
TOTAL RAINFALL (mm)=	98.13	98.13	98.13
RUNOFF COEFFICIENT =	0.99	0.47	0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0025)	Area (ha)= 0.36
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.15	0.21	
Dep. Storage (mm)=	1.00	5.00	
Average Slope (%)=	1.00	2.00	
Length (m)=	48.99	40.00	
Mannings n =	0.013	0.250	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84

0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62

4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)= 200.80 88.98
over (min) 5.00 10.00
Storage Coeff. (min)= 1.26 (ii) 8.65 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.33 0.12

TOTALS

PEAK FLOW (cms)= 0.09 0.03 0.114 (iii)
TIME TO PEAK (hrs)= 8.00 8.08 8.00
RUNOFF VOLUME (mm)= 97.13 46.37 68.18
TOTAL RAINFALL (mm)= 98.13 98.13 98.13
RUNOFF COEFFICIENT = 0.99 0.47 0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0019)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0020):	0.16	0.051	8.00	68.16
+ ID2= 2 (0025):	0.36	0.114	8.00	68.18
=====				
ID = 3 (0019):	0.52	0.165	8.00	68.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| ADD HYD ( 0019) |
| 3 + 2 = 1 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 3 ( 0019):    0.52    0.165    8.00    68.18
+ ID2= 2 ( 0053):    7.39    0.500    8.58    46.36
=====
ID = 1 ( 0019):    7.91    0.524    8.50    47.80

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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB
| NASHYD ( 0023) |
| ID= 1 DT= 5.0 min |
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          Area      (ha)=    0.37      Curve Number      (CN)= 73.0
          Ia        (mm)=    5.00      # of Linear Res.(N)= 3.00
          U.H. Tp(hrs)=    0.15

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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73

2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Unit Hyd Qpeak (cms)= 0.094

PEAK FLOW (cms)= 0.058 (i)

TIME TO PEAK (hrs)= 8.083

RUNOFF VOLUME (mm)= 46.104
TOTAL RAINFALL (mm)= 98.135
RUNOFF COEFFICIENT = 0.470

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| STANDHYD (0015) | Area (ha)= 1.34
| ID= 1 DT= 5.0 min | Total Imp(%)= 71.00 Dir. Conn.(%)= 71.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.95	0.39
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	94.52	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74

2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)= 200.80
over (min) 5.00

88.98
10.00

Storage Coeff. (min)=	1.87 (ii)	5.60 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.32	0.15	
			TOTALS
PEAK FLOW (cms)=	0.53	0.07	0.593 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	97.13	46.37	82.41
TOTAL RAINFALL (mm)=	98.13	98.13	98.13
RUNOFF COEFFICIENT =	0.99	0.47	0.84

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 73.0 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 (0017)	Area (ha)= 0.36
ID= 1 DT= 5.0 min	Total Imp(%)= 86.00 Dir. Conn.(%)= 85.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.31	0.05	
Dep. Storage (mm)=	1.00	5.00	
Average Slope (%)=	1.00	2.00	
Length (m)=	48.99	40.00	
Mannings n =	0.013	0.250	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80

1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61

5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)= 200.80 100.10
over (min) 5.00 5.00
Storage Coeff. (min)= 1.26 (ii) 3.86 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.33 0.25

TOTALS

PEAK FLOW (cms)= 0.17 0.01 0.185 (iii)
TIME TO PEAK (hrs)= 8.00 8.00 8.00
RUNOFF VOLUME (mm)= 97.13 48.23 89.80
TOTAL RAINFALL (mm)= 98.13 98.13 98.13
RUNOFF COEFFICIENT = 0.99 0.49 0.92

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0021) | Area (ha)= 0.15
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.09
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	31.62	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87

0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64

4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)= 200.80 88.98
over (min) 5.00 10.00
Storage Coeff. (min)= 0.97 (ii) 8.36 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.34 0.12

TOTALS

PEAK FLOW (cms)= 0.04 0.01 0.048 (iii)
TIME TO PEAK (hrs)= 8.00 8.08 8.00
RUNOFF VOLUME (mm)= 97.13 46.37 68.16
TOTAL RAINFALL (mm)= 98.13 98.13 98.13
RUNOFF COEFFICIENT = 0.99 0.47 0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0043)	Area (ha)=	0.21	
ID= 1 DT= 5.0 min	Total Imp(%)=	43.00	Dir. Conn.(%)= 43.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.09	0.12

Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	37.42	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69

3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)=	200.80	88.98
over (min)	5.00	10.00
Storage Coeff. (min)=	1.07 (ii)	8.47 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.34	0.12

TOTALS

PEAK FLOW (cms)=	0.05	0.02	0.067 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	97.13	46.37	68.18
TOTAL RAINFALL (mm)=	98.13	98.13	98.13
RUNOFF COEFFICIENT =	0.99	0.47	0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0016)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0015):	1.34	0.593	8.00	82.41
+ ID2= 2 (0017):	0.36	0.185	8.00	89.80
=====				
ID = 3 (0016):	1.70	0.778	8.00	83.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0016)				
3 + 2 = 1				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0016):	1.70	0.778	8.00	83.97
+ ID2= 2 (0021):	0.15	0.048	8.00	68.16
=====				
ID = 1 (0016):	1.85	0.826	8.00	82.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0016)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0016):	1.85	0.826	8.00	82.69
+ ID2= 2 (0023):	0.37	0.058	8.08	46.10
=====				
ID = 3 (0016):	2.22	0.876	8.00	76.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0016)				
3 + 2 = 1				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0016):	2.22	0.876	8.00	76.59
+ ID2= 2 (0043):	0.21	0.067	8.00	68.18
=====				
ID = 1 (0016):	2.43	0.943	8.00	75.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB                                     |
| NASHYD ( 0027) | Area (ha)= 0.53 Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.23

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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70

3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Unit Hyd Qpeak (cms)= 0.086

PEAK FLOW (cms)= 0.063 (i)

TIME TO PEAK (hrs)= 8.167

RUNOFF VOLUME (mm)= 46.318

TOTAL RAINFALL (mm)= 98.135

RUNOFF COEFFICIENT = 0.472

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0026)	Area (ha)= 1.11
ID= 1 DT= 5.0 min	Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.95	0.16
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	86.02	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71

2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)=	200.80	88.98
over (min)	5.00	5.00
Storage Coeff. (min)=	1.77 (ii)	4.35 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.32	0.23

TOTALS

PEAK FLOW (cms)=	0.53	0.04	0.569 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	97.13	46.37	90.03
TOTAL RAINFALL (mm)=	98.13	98.13	98.13

RUNOFF COEFFICIENT = 0.99 0.47 0.92

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0028) | Area (ha)= 0.14
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.08
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	30.55	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76

1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58

6.000 2.04 | 12.000 2.03 | 18.000 0.88 | 24.00 0.58

Max.Eff.Inten.(mm/hr)=	200.80	88.98	
over (min)	5.00	10.00	
Storage Coeff. (min)=	0.95 (ii)	8.34 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.34	0.13	
			TOTALS
PEAK FLOW (cms)=	0.03	0.01	0.045 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	97.13	46.37	68.16
TOTAL RAINFALL (mm)=	98.13	98.13	98.13
RUNOFF COEFFICIENT =	0.99	0.47	0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0024)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0026):	1.11	0.569	8.00	90.03
+ ID2= 2 (0027):	0.53	0.063	8.17	46.32
=====				
ID = 3 (0024):	1.64	0.607	8.00	75.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0024)				
3 + 2 = 1				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0024):	1.64	0.607	8.00	75.90
+ ID2= 2 (0028):	0.14	0.045	8.00	68.16
=====				
ID = 1 (0024):	1.78	0.651	8.00	75.29

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0031)

1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
-----	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0016):	2.43	0.943	8.00	75.87
+ ID2= 2 (0024):	1.78	0.651	8.00	75.29
=====				
ID = 3 (0031):	4.21	1.594	8.00	75.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0032)	OVERFLOW IS ON			
IN= 2---> OUT= 1				
DT= 1.0 min				

	OUTFLOW	STORAGE		OUTFLOW STORAGE
	(cms)	(ha.m.)		(cms) (ha.m.)
	0.0000	0.0000		0.4270 0.1321
	0.0070	0.0585		0.4940 0.1385
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0031)	4.210	1.594	8.00	75.62
OUTFLOW: ID= 1 (0032)	4.210	0.490	8.20	66.35
OVERFLOW: ID= 3 (0003)	0.000	0.000	0.00	0.00

TOTAL NUMBER OF SIMULATION OVERFLOW = 0
CUMULATIVE TIME OF OVERFLOW (HOURS) = 0.00
PERCENTAGE OF TIME OVERFLOWING (%) = 0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 30.72
TIME SHIFT OF PEAK FLOW (min)= 12.00
MAXIMUM STORAGE USED (ha.m.)= 0.1381

Junction Command(0041)

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 3(0032)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0041)	0.00	0.00	0.00	0.00

ADD HYD (0042)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
*** W A R N I N G :	HYDROGRAPH	0041	<ID= 2>	IS DRY.
*** W A R N I N G :	HYDROGRAPH	0003	= HYDROGRAPH	0001

```

ID1= 1 ( 0032):      4.21  0.490      8.20  66.35
+ ID2= 2 ( 0041):      0.00  0.000      0.00  0.00
=====
ID = 3 ( 0042):      4.21  0.490      8.20  66.35

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| ADD HYD ( 0055) |
| 1 + 2 = 3 |
-----
                        AREA      QPEAK      TPEAK      R.V.
                        (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0019):      7.91  0.524      8.50  47.80
+ ID2= 2 ( 0042):      4.21  0.490      8.20  66.35
=====
ID = 3 ( 0055):     12.12  0.924      8.33  54.24

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| CALIB |
| NASHYD ( 0029) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 0.93      Curve Number (CN)= 73.0
Ia (mm)= 5.00      # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.05

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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77

1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59

5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Unit Hyd Qpeak (cms)= 0.710

PEAK FLOW (cms)= 0.195 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 35.375

TOTAL RAINFALL (mm)= 98.135

RUNOFF COEFFICIENT = 0.360

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0056)	Area (ha)= 0.25
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.11	0.14
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	40.82	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78

1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59

5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)= 200.80 88.98
over (min) 5.00 10.00
Storage Coeff. (min)= 1.13 (ii) 8.52 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.34 0.12

TOTALS

PEAK FLOW (cms)= 0.06 0.02 0.079 (iii)
TIME TO PEAK (hrs)= 8.00 8.08 8.00
RUNOFF VOLUME (mm)= 97.13 46.37 68.17
TOTAL RAINFALL (mm)= 98.13 98.13 98.13
RUNOFF COEFFICIENT = 0.99 0.47 0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0034) |
| 1 + 2 = 3 |
-----
          AREA    QPEAK    TPEAK    R.V.
          (ha)    (cms)    (hrs)    (mm)
ID1= 1 ( 0029):    0.93    0.195    8.00    35.38
+ ID2= 2 ( 0055):   12.12    0.924    8.33    54.24
=====
ID = 3 ( 0034):   13.05    0.957    8.33    52.90

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0034) |
| 3 + 2 = 1 |
-----
          AREA    QPEAK    TPEAK    R.V.
          (ha)    (cms)    (hrs)    (mm)
ID1= 3 ( 0034):   13.05    0.957    8.33    52.90
+ ID2= 2 ( 0056):    0.25    0.079    8.00    68.17
=====
ID = 1 ( 0034):   13.30    0.976    8.33    53.18

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| CALIB |
| NASHYD ( 0003) | Area (ha)= 0.35 Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.08

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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

```

TIME	RAIN	TIME	RAIN	'	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	'	hrs	mm/hr	hrs	mm/hr
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87	
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87	
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86	
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86	
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85	
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85	
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84	
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84	
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82	
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82	
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81	
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81	
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80	
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80	
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79	
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79	
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78	
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78	
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77	
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77	
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76	
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76	
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75	
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75	
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74	
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74	
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73	
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73	
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73	
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73	
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72	
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72	
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71	
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71	
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70	
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70	
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69	

3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.079 (i)
TIME TO PEAK (hrs)= 8.000
RUNOFF VOLUME (mm)= 43.506
TOTAL RAINFALL (mm)= 98.135
RUNOFF COEFFICIENT = 0.443

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| STANDHYD (0009) | Area (ha)= 0.13

| ID= 1 DT= 5.0 min | Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70

3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)=	200.80	88.98
over (min)	5.00	10.00
Storage Coeff. (min)=	0.93 (ii)	5.17 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.34	0.16

TOTALS

PEAK FLOW (cms)=	0.05	0.01	0.054 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	97.13	46.37	78.84
TOTAL RAINFALL (mm)=	98.13	98.13	98.13
RUNOFF COEFFICIENT =	0.99	0.47	0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0003):	0.35	0.079	8.00	43.51
+ ID2= 2 (0009):	0.13	0.054	8.00	78.84
=====				
ID = 3 (0011):	0.48	0.133	8.00	53.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
STANDHYD (0013)				
ID= 1 DT= 5.0 min				

	Area (ha)=	0.13		
	Total Imp(%)=	64.00	Dir. Conn.(%)=	64.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.08	0.05	
Dep. Storage	(mm)=	1.00	5.00	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	29.44	40.00	
Mannings n	=	0.013	0.250	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81

1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61

5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)= 200.80 88.98
over (min) 5.00 10.00
Storage Coeff. (min)= 0.93 (ii) 5.17 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.34 0.16

TOTALS

PEAK FLOW (cms)= 0.05 0.01 0.054 (iii)
TIME TO PEAK (hrs)= 8.00 8.08 8.00
RUNOFF VOLUME (mm)= 97.13 46.37 78.84
TOTAL RAINFALL (mm)= 98.13 98.13 98.13
RUNOFF COEFFICIENT = 0.99 0.47 0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0054) | Area (ha)= 0.11
| ID= 1 DT= 5.0 min | Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.04
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	27.08	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65

4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)= 200.80 88.98
over (min) 5.00 10.00
Storage Coeff. (min)= 0.88 (ii) 5.13 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.34 0.16

TOTALS

PEAK FLOW (cms)= 0.04 0.01 0.046 (iii)
TIME TO PEAK (hrs)= 8.00 8.08 8.00
RUNOFF VOLUME (mm)= 97.13 46.37 78.84
TOTAL RAINFALL (mm)= 98.13 98.13 98.13
RUNOFF COEFFICIENT = 0.99 0.47 0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0004) |
1 + 2 = 3

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)

ID1= 1 (0011):	0.48	0.133	8.00	53.08
+ ID2= 2 (0013):	0.13	0.054	8.00	78.84
=====				
ID = 3 (0004):	0.61	0.187	8.00	58.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0004)				
3 + 2 = 1				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0004):	0.61	0.187	8.00	58.57
+ ID2= 2 (0054):	0.11	0.046	8.00	78.84
=====				
ID = 1 (0004):	0.72	0.234	8.00	61.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0050)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min				

	OUTFLOW	STORAGE	OUTFLOW	STORAGE
	(cms)	(ha.m.)	(cms)	(ha.m.)
	0.0000	0.0000	0.2390	0.0097
	0.0390	0.0052	0.0000	0.0000

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0004)	0.720	0.234	8.00	61.66
OUTFLOW: ID= 1 (0050)	0.720	0.171	8.08	61.63

PEAK FLOW REDUCTION [Qout/Qin](%)= 73.01
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0091

CALIB				
STANDHYD (0006)	Area (ha)=	0.07		
ID= 1 DT= 5.0 min	Total Imp(%)=	80.00	Dir. Conn.(%)=	80.00

	IMPERVIOUS	PERVIOUS (i)		
Surface Area (ha)=	0.06	0.01		
Dep. Storage (mm)=	1.00	5.00		
Average Slope (%)=	1.00	2.00		
Length (m)=	22.21	40.00		
Mannings n =	0.013	0.250		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87	
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87	
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86	
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86	
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85	
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85	
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84	
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84	
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82	
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82	
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81	
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81	
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80	
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80	
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79	
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79	
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78	
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78	
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77	
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77	
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76	
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76	
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75	
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75	
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74	
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74	
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73	
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73	
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73	
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73	
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72	
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72	
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71	
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71	
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70	
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70	
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69	
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69	
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69	
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69	
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68	
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68	
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67	
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67	
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66	

3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)=	200.80	88.98
over (min)	5.00	5.00
Storage Coeff. (min)=	0.78 (ii)	3.85 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.34	0.25

			TOTALS
PEAK FLOW (cms)=	0.03	0.00	0.037 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	97.13	46.37	86.98
TOTAL RAINFALL (mm)=	98.13	98.13	98.13
RUNOFF COEFFICIENT =	0.99	0.47	0.89

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0008)	Area (ha)= 0.40
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.39	0.00
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	51.38	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71

2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)=	200.80	88.98
over (min)	5.00	5.00
Storage Coeff. (min)=	1.30 (ii)	2.15 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.33	0.31

TOTALS

PEAK FLOW (cms)=	0.22	0.00	0.220 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	97.13	46.37	96.63
TOTAL RAINFALL (mm)=	98.13	98.13	98.13

RUNOFF COEFFICIENT = 0.99 0.47 0.98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0048) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0006):    0.07    0.037    8.00    86.98
+ ID2= 2 ( 0008):    0.40    0.220    8.00    96.63
=====
ID = 3 ( 0048):    0.47    0.256    8.00    95.11
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| RESERVOIR( 0030) |
| IN= 2---> OUT= 1 |
| DT= 5.0 min |
-----
          OVERFLOW IS OFF
          OUTFLOW      STORAGE      OUTFLOW      STORAGE
          (cms)      (ha.m.)      (cms)      (ha.m.)
          0.0000      0.0000      0.1120      0.0061
          0.0210      0.0010      0.1220      0.0071
          0.0530      0.0020      0.1320      0.0081
          0.0730      0.0030      0.1400      0.0091
          0.0880      0.0041      0.1520      0.0105
          0.1000      0.0051      0.0000      0.0000

          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
INFLOW : ID= 2 ( 0048)    0.470    0.256    8.00    95.11
OUTFLOW: ID= 1 ( 0030)    0.470    0.141    8.08    95.10

          PEAK FLOW REDUCTION [Qout/Qin](%)= 55.02
          TIME SHIFT OF PEAK FLOW (min)= 5.00
          MAXIMUM STORAGE USED (ha.m.)= 0.0103
```

```
-----
| ADD HYD ( 0046) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
```

ID1= 1 (0030):	0.47	0.141	8.08	95.10
+ ID2= 2 (0050):	0.72	0.171	8.08	61.63
=====				
ID = 3 (0046):	1.19	0.312	8.08	74.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0014)	Area (ha)=	0.14	
ID= 1 DT= 5.0 min	Total Imp(%)=	71.00	Dir. Conn.(%)= 71.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.10	0.04
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	30.88	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74

2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)= 200.80
over (min) 5.00

88.98
5.00

Storage Coeff. (min)=	0.96 (ii)	4.69 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.22	
			TOTALS
PEAK FLOW (cms)=	0.06	0.01	0.067 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	97.13	46.37	82.41
TOTAL RAINFALL (mm)=	98.13	98.13	98.13
RUNOFF COEFFICIENT =	0.99	0.47	0.84

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0051) |
| 1 + 2 = 3 |
-----

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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0014):	0.14	0.067	8.00	82.41
+ ID2= 2 (0046):	1.19	0.312	8.08	74.84
=====				
ID = 3 (0051):	1.33	0.361	8.00	75.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

V   V   I   SSSSS U   U   A   L           (v 6.1.2003)
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

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000  TTTTT TTTTT H   H   Y   Y   M   M   000  TM
O   O   T    T   H   H   Y   Y   MM  MM  O   O
O   O   T    T   H   H   Y    M   M   O   O
000    T    T   H   H   Y    M   M   000

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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 6.1-New\V02\voin.dat

Output filename:
C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\31e4b75-62ca-4d9b-add5-dc94d65f3a09\
Summary filename:
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DATE: 11/24/2021

TIME: 04:52:09

USER:

COMMENTS: _____

** SIMULATION : 10-yr 24hr **

| CHICAGO STORM |
Ptotal= 70.24 mm

IDF curve parameters: A=1400.000
B= 5.800
C= 0.848

used in: INTENSITY = $A / (t + B)^C$

Duration of storm = 24.00 hrs
Storm time step = 10.00 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
0.17	0.46	6.17	1.69	12.17	1.49	18.17	0.68
0.33	0.47	6.33	1.85	12.33	1.44	18.33	0.67
0.50	0.48	6.50	2.04	12.50	1.39	18.50	0.66
0.67	0.49	6.67	2.29	12.67	1.35	18.67	0.65
0.83	0.50	6.83	2.61	12.83	1.31	18.83	0.64
1.00	0.51	7.00	3.04	13.00	1.27	19.00	0.63
1.17	0.52	7.17	3.65	13.17	1.23	19.17	0.62
1.33	0.53	7.33	4.61	13.33	1.20	19.33	0.62
1.50	0.54	7.50	6.32	13.50	1.16	19.50	0.61
1.67	0.55	7.67	10.23	13.67	1.13	19.67	0.60
1.83	0.57	7.83	27.82	13.83	1.10	19.83	0.59

2.00	0.58	8.00	134.79	14.00	1.08	20.00	0.59
2.17	0.60	8.17	37.76	14.17	1.05	20.17	0.58
2.33	0.61	8.33	18.29	14.33	1.03	20.33	0.57
2.50	0.63	8.50	11.91	14.50	1.00	20.50	0.56
2.67	0.64	8.67	8.81	14.67	0.98	20.67	0.56
2.83	0.66	8.83	7.00	14.83	0.96	20.83	0.55
3.00	0.68	9.00	5.82	15.00	0.94	21.00	0.55
3.17	0.70	9.17	4.99	15.17	0.92	21.17	0.54
3.33	0.73	9.33	4.37	15.33	0.90	21.33	0.53
3.50	0.75	9.50	3.89	15.50	0.88	21.50	0.53
3.67	0.77	9.67	3.52	15.67	0.87	21.67	0.52
3.83	0.80	9.83	3.21	15.83	0.85	21.83	0.52
4.00	0.83	10.00	2.95	16.00	0.83	22.00	0.51
4.17	0.86	10.17	2.74	16.17	0.82	22.17	0.51
4.33	0.90	10.33	2.55	16.33	0.81	22.33	0.50
4.50	0.94	10.50	2.39	16.50	0.79	22.50	0.50
4.67	0.98	10.67	2.25	16.67	0.78	22.67	0.49
4.83	1.02	10.83	2.13	16.83	0.76	22.83	0.49
5.00	1.08	11.00	2.02	17.00	0.75	23.00	0.48
5.17	1.13	11.17	1.92	17.17	0.74	23.17	0.48
5.33	1.20	11.33	1.83	17.33	0.73	23.33	0.47
5.50	1.27	11.50	1.75	17.50	0.72	23.50	0.47
5.67	1.35	11.67	1.68	17.67	0.71	23.67	0.46
5.83	1.45	11.83	1.61	17.83	0.70	23.83	0.46
6.00	1.56	12.00	1.55	18.00	0.69	24.00	0.46

| CALIB |
| NASHYD (0005) | Area (ha)= 0.43 Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.09

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64

0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48

5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Unit Hyd Qpeak (cms)= 0.175

PEAK FLOW (cms)= 0.046 (i)
TIME TO PEAK (hrs)= 8.000
RUNOFF VOLUME (mm)= 25.869
TOTAL RAINFALL (mm)= 70.237
RUNOFF COEFFICIENT = 0.368

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0007)		Area (ha)=	0.37
ID= 1 DT= 5.0 min		Total Imp(%)=	43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.21
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	49.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65

0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49

4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)= 134.79 45.43
over (min) 5.00 15.00
Storage Coeff. (min)= 1.49 (ii) 11.17 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.33 0.09

TOTALS

PEAK FLOW (cms)= 0.06 0.02 0.067 (iii)
TIME TO PEAK (hrs)= 8.00 8.17 8.00
RUNOFF VOLUME (mm)= 69.24 26.74 44.99
TOTAL RAINFALL (mm)= 70.24 70.24 70.24
RUNOFF COEFFICIENT = 0.99 0.38 0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0018)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0005):	0.43	0.046	8.00	25.87
+ ID2= 2 (0007):	0.37	0.067	8.00	44.99
=====				
ID = 3 (0018):	0.80	0.113	8.00	34.71

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB |

NASHYD (0053)	Area (ha)=	7.39	Curve Number (CN)=	73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
-----	U.H. Tp(hrs)=	0.53		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53

3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Unit Hyd Qpeak (cms)= 0.535

PEAK FLOW (cms)= 0.265 (i)

TIME TO PEAK (hrs)= 8.583

RUNOFF VOLUME (mm)= 26.735

TOTAL RAINFALL (mm)= 70.237

RUNOFF COEFFICIENT = 0.381

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB		
STANDHYD (0020)	Area (ha)= 0.16	
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00	Dir. Conn.(%)= 43.00

IMPERVIOUS PERVIOUS (i)

Surface Area	(ha)=	0.07	0.09
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	32.66	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54

3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)=	134.79	45.43
over (min)	5.00	15.00
Storage Coeff. (min)=	1.16 (ii)	10.83 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.34	0.09

TOTALS

PEAK FLOW (cms)=	0.03	0.01	0.029 (iii)
TIME TO PEAK (hrs)=	8.00	8.17	8.00
RUNOFF VOLUME (mm)=	69.24	26.74	44.97
TOTAL RAINFALL (mm)=	70.24	70.24	70.24
RUNOFF COEFFICIENT =	0.99	0.38	0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

- CN* = 73.0 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 (0025)	Area (ha)= 0.36
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.15	0.21
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	48.99	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58

2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)= 134.79 45.43
 over (min) 5.00 15.00
 Storage Coeff. (min)= 1.48 (ii) 11.15 (ii)

Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.33	0.09	
			TOTALS
PEAK FLOW (cms)=	0.06	0.01	0.066 (iii)
TIME TO PEAK (hrs)=	8.00	8.17	8.00
RUNOFF VOLUME (mm)=	69.24	26.74	44.99
TOTAL RAINFALL (mm)=	70.24	70.24	70.24
RUNOFF COEFFICIENT =	0.99	0.38	0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0019)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0020):	0.16	0.029	8.00	44.97
+ ID2= 2 (0025):	0.36	0.066	8.00	44.99
=====				
ID = 3 (0019):	0.52	0.095	8.00	44.99

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0019)				
3 + 2 = 1				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0019):	0.52	0.095	8.00	44.99
+ ID2= 2 (0053):	7.39	0.265	8.58	26.73
=====				
ID = 1 (0019):	7.91	0.281	8.50	27.93

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0023)	Area (ha)=	0.37	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
		U.H. Tp(hrs)=	0.15

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68	
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68	
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67	
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67	
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66	
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66	
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65	
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65	
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64	
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64	
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63	
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63	
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62	
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62	
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62	
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62	
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61	
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61	
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60	
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60	
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59	
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59	
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59	
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59	
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58	
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58	
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57	
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57	
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56	
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56	
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56	
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56	
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55	
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55	
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55	
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55	
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54	
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54	
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53	
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53	
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53	
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53	
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52	
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52	
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52	
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52	

3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Unit Hyd Qpeak (cms)= 0.094

PEAK FLOW (cms)= 0.030 (i)

TIME TO PEAK (hrs)= 8.083

RUNOFF VOLUME (mm)= 26.585

TOTAL RAINFALL (mm)= 70.237

RUNOFF COEFFICIENT = 0.378

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0015)		Area (ha)=	1.34
ID= 1 DT= 5.0 min		Total Imp(%)=	71.00 Dir. Conn.(%)= 71.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.95	0.39
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	94.52	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68	
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68	
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67	
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67	
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66	
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66	
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65	
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65	
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64	
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64	
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63	
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63	
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62	
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62	
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62	
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62	
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61	
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61	
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60	
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60	
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59	
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59	
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59	
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59	
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58	
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58	
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57	
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57	
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56	
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56	
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56	
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56	
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55	
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55	
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55	
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55	
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54	
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54	
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53	
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53	
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53	
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53	
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52	
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52	

3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)=	134.79	45.43
over (min)	5.00	10.00
Storage Coeff. (min)=	2.19 (ii)	6.57 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.31	0.14

			TOTALS
PEAK FLOW (cms)=	0.35	0.04	0.384 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	69.24	26.74	56.91
TOTAL RAINFALL (mm)=	70.24	70.24	70.24
RUNOFF COEFFICIENT =	0.99	0.38	0.81

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0017)	Area (ha)= 0.36
ID= 1 DT= 5.0 min	Total Imp(%)= 86.00 Dir. Conn.(%)= 85.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.31	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	48.99	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56

2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)=	134.79	51.69
over (min)	5.00	5.00
Storage Coeff. (min)=	1.48 (ii)	4.52 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.33	0.23

TOTALS

PEAK FLOW (cms)=	0.11	0.01	0.122 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	69.24	28.05	63.06

TOTAL RAINFALL (mm)=	70.24	70.24	70.24
RUNOFF COEFFICIENT =	0.99	0.40	0.90

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0021)	Area (ha)= 0.15
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.06	0.09
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	31.62	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60

1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46

5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)=	134.79	45.43	
over (min)	5.00	15.00	
Storage Coeff. (min)=	1.14 (ii)	10.81 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.34	0.09	
			TOTALS
PEAK FLOW (cms)=	0.02	0.01	0.027 (iii)
TIME TO PEAK (hrs)=	8.00	8.17	8.00
RUNOFF VOLUME (mm)=	69.24	26.74	44.97
TOTAL RAINFALL (mm)=	70.24	70.24	70.24
RUNOFF COEFFICIENT =	0.99	0.38	0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0043)	Area (ha)= 0.21
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.12
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	37.42	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65

0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49

4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)=	134.79	45.43
over (min)	5.00	15.00
Storage Coeff. (min)=	1.26 (ii)	10.93 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.33	0.09

TOTALS

PEAK FLOW (cms)=	0.03	0.01	0.038 (iii)
TIME TO PEAK (hrs)=	8.00	8.17	8.00
RUNOFF VOLUME (mm)=	69.24	26.74	44.97
TOTAL RAINFALL (mm)=	70.24	70.24	70.24
RUNOFF COEFFICIENT =	0.99	0.38	0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 73.0 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 (0016)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0015):	1.34	0.384	8.00	56.91
+ ID2= 2 (0017):	0.36	0.122	8.00	63.06
=====				
ID = 3 (0016):	1.70	0.505	8.00	58.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0016)				
3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0016):	1.70	0.505	8.00	58.21
+ ID2= 2 (0021):	0.15	0.027	8.00	44.97
=====				
ID = 1 (0016):	1.85	0.533	8.00	57.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0016)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0016):	1.85	0.533	8.00	57.14
+ ID2= 2 (0023):	0.37	0.030	8.08	26.58
=====				
ID = 3 (0016):	2.22	0.558	8.00	52.05

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0016)				
3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0016):	2.22	0.558	8.00	52.05
+ ID2= 2 (0043):	0.21	0.038	8.00	44.97
=====				
ID = 1 (0016):	2.43	0.596	8.00	51.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
NASHYD (0027)	Area (ha)= 0.53 Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.23

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67

0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50

4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Unit Hyd Qpeak (cms)= 0.086

PEAK FLOW (cms)= 0.033 (i)

TIME TO PEAK (hrs)= 8.167

RUNOFF VOLUME (mm)= 26.708

TOTAL RAINFALL (mm)= 70.237

RUNOFF COEFFICIENT = 0.380

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0026)		Area (ha)= 1.11	
ID= 1 DT= 5.0 min		Total Imp(%)= 86.00	Dir. Conn.(%)= 86.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.95	0.16
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	86.02	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68

0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50

4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)= 134.79 45.43
over (min) 5.00 10.00
Storage Coeff. (min)= 2.07 (ii) 5.10 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.31 0.16

TOTALS

PEAK FLOW (cms)= 0.36 0.02 0.369 (iii)
TIME TO PEAK (hrs)= 8.00 8.08 8.00
RUNOFF VOLUME (mm)= 69.24 26.74 63.29
TOTAL RAINFALL (mm)= 70.24 70.24 70.24
RUNOFF COEFFICIENT = 0.99 0.38 0.90

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0028) | Area (ha)= 0.14
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 0.06 0.08
Dep. Storage (mm)= 1.00 5.00

Average Slope	(%)=	1.00	2.00
Length	(m)=	30.55	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53

3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)=	134.79	45.43
over (min)	5.00	15.00
Storage Coeff. (min)=	1.11 (ii)	10.79 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.34	0.09

TOTALS

PEAK FLOW (cms)=	0.02	0.01	0.026 (iii)
TIME TO PEAK (hrs)=	8.00	8.17	8.00
RUNOFF VOLUME (mm)=	69.24	26.74	44.97
TOTAL RAINFALL (mm)=	70.24	70.24	70.24
RUNOFF COEFFICIENT =	0.99	0.38	0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 73.0 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 ( 0024) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
      ID1= 1 ( 0026):  1.11  0.369  8.00  63.29
    + ID2= 2 ( 0027):  0.53  0.033  8.17  26.71
    =====
      ID = 3 ( 0024):  1.64  0.388  8.00  51.46
  
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0024) |
| 3 + 2 = 1 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
      ID1= 3 ( 0024):  1.64  0.388  8.00  51.46
    + ID2= 2 ( 0028):  0.14  0.026  8.00  44.97
    =====
      ID = 1 ( 0024):  1.78  0.413  8.00  50.95
  
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0031) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
      ID1= 1 ( 0016):  2.43  0.596  8.00  51.43
    + ID2= 2 ( 0024):  1.78  0.413  8.00  50.95
    =====
      ID = 3 ( 0031):  4.21  1.010  8.00  51.23
  
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| RESERVOIR( 0032) |
| IN= 2---> OUT= 1 |
| DT= 1.0 min |
-----
          OVERFLOW IS ON
          OUTFLOW      STORAGE      OUTFLOW      STORAGE
          (cms)      (ha.m.)      (cms)      (ha.m.)
          0.0000      0.0000      0.4270      0.1321
          0.0070      0.0585      0.4940      0.1385
          =====
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
  
```

INFLOW : ID= 2 (0031)	4.210	1.010	8.00	51.23
OUTFLOW: ID= 1 (0032)	4.210	0.245	8.25	42.37
OVERFLOW: ID= 3 (0003)	0.000	0.000	0.00	0.00

TOTAL NUMBER OF SIMULATION OVERFLOW = 0
 CUMULATIVE TIME OF OVERFLOW (HOURS) = 0.00
 PERCENTAGE OF TIME OVERFLOWING (%) = 0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 24.22
 TIME SHIFT OF PEAK FLOW (min)= 15.00
 MAXIMUM STORAGE USED (ha.m.)= 0.1002

Junction Command(0041)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0032)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0041)	0.00	0.00	0.00	0.00

 | ADD HYD (0042) |
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
*** W A R N I N G : HYDROGRAPH 0041 <ID= 2> IS DRY.				
*** W A R N I N G : HYDROGRAPH 0003 = HYDROGRAPH 0001				
ID1= 1 (0032):	4.21	0.245	8.25	42.37
+ ID2= 2 (0041):	0.00	0.000	0.00	0.00
=====				
ID = 3 (0042):	4.21	0.245	8.25	42.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

 | ADD HYD (0055) |
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0019):	7.91	0.281	8.50	27.93
+ ID2= 2 (0042):	4.21	0.245	8.25	42.37
=====				
ID = 3 (0055):	12.12	0.503	8.42	32.95

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0029)		Area (ha)= 0.93	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min		Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
-----		U.H. Tp(hrs)= 0.05	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68	
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68	
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67	
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67	
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66	
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66	
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65	
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65	
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64	
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64	
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63	
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63	
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62	
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62	
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62	
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62	
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61	
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61	
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60	
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60	
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59	
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59	
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59	
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59	
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58	
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58	
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57	
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57	
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56	
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56	
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56	
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56	
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55	
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55	
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55	
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55	
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54	
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54	

3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Unit Hyd Qpeak (cms)= 0.710

PEAK FLOW (cms)= 0.101 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 20.399

TOTAL RAINFALL (mm)= 70.237

RUNOFF COEFFICIENT = 0.290

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0056)	Area (ha)=	0.25	
ID= 1 DT= 5.0 min	Total Imp(%)=	43.00	Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.11	0.14
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	40.82	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55

3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)=	134.79	45.43
over (min)	5.00	15.00
Storage Coeff. (min)=	1.32 (ii)	11.00 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.33	0.09

TOTALS

PEAK FLOW (cms)=	0.04	0.01	0.046 (iii)
TIME TO PEAK (hrs)=	8.00	8.17	8.00
RUNOFF VOLUME (mm)=	69.24	26.74	44.98
TOTAL RAINFALL (mm)=	70.24	70.24	70.24
RUNOFF COEFFICIENT =	0.99	0.38	0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 73.0 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 ( 0034) |
| 1 + 2 = 3      |
-----
                AREA    QPEAK    TPEAK    R.V.
                (ha)    (cms)    (hrs)    (mm)
ID1= 1 ( 0029):    0.93    0.101    8.00    20.40
+ ID2= 2 ( 0055):   12.12    0.503    8.42    32.95
=====
ID = 3 ( 0034):   13.05    0.518    8.37    32.05

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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| ADD HYD ( 0034) |
| 3 + 2 = 1      |
-----
                AREA    QPEAK    TPEAK    R.V.
                (ha)    (cms)    (hrs)    (mm)
ID1= 3 ( 0034):   13.05    0.518    8.37    32.05
+ ID2= 2 ( 0056):    0.25    0.046    8.00    44.98
=====
ID = 1 ( 0034):   13.30    0.530    8.33    32.30

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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB          |
| NASHYD ( 0003) | Area (ha)= 0.35   Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00   # of Linear Res.(N)= 3.00
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                U.H. Tp(hrs)= 0.08

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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66

0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49

4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.040 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 25.087

TOTAL RAINFALL (mm)= 70.237

RUNOFF COEFFICIENT = 0.357

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0009)		Area (ha)=	0.13
ID= 1 DT= 5.0 min		Total Imp(%)=	64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67

0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50

4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)= 134.79 45.43
over (min) 5.00 10.00
Storage Coeff. (min)= 1.09 (ii) 6.06 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.34 0.15

TOTALS

PEAK FLOW (cms)= 0.03 0.00 0.035 (iii)
TIME TO PEAK (hrs)= 8.00 8.08 8.00
RUNOFF VOLUME (mm)= 69.24 26.74 53.92
TOTAL RAINFALL (mm)= 70.24 70.24 70.24
RUNOFF COEFFICIENT = 0.99 0.38 0.77

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0011)|
| 1 + 2 = 3 |
-----
      AREA      QPEAK      TPEAK      R.V.
      (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0003):  0.35  0.040  8.00  25.09
+ ID2= 2 ( 0009):  0.13  0.035  8.00  53.92
=====
ID = 3 ( 0011):  0.48  0.075  8.00  32.90

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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
STANDHYD (0013)	Area (ha)= 0.13
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68	
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68	
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67	
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67	
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66	
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66	
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65	
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65	
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64	
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64	
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63	
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63	
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62	
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62	
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62	
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62	
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61	
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61	
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60	
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60	
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59	
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59	
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59	
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59	
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58	
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58	
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57	
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57	
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56	
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56	

2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)=	134.79	45.43
over (min)	5.00	10.00
Storage Coeff. (min)=	1.09 (ii)	6.06 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.34	0.15

TOTALS

PEAK FLOW (cms)=	0.03	0.00	0.035 (iii)

TIME TO PEAK	(hrs)=	8.00	8.08	8.00
RUNOFF VOLUME	(mm)=	69.24	26.74	53.92
TOTAL RAINFALL	(mm)=	70.24	70.24	70.24
RUNOFF COEFFICIENT	=	0.99	0.38	0.77

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0054) | Area (ha)= 0.11
| ID= 1 DT= 5.0 min | Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00
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		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.04
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	27.08	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61

1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46

5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)=	134.79	45.43
over (min)	5.00	10.00
Storage Coeff. (min)=	1.04 (ii)	6.01 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.34	0.15

TOTALS

PEAK FLOW (cms)=	0.03	0.00	0.030 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	69.24	26.74	53.92
TOTAL RAINFALL (mm)=	70.24	70.24	70.24
RUNOFF COEFFICIENT =	0.99	0.38	0.77

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0004)				
1 + 2 = 3				

ID1= 1 (0011):	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
	0.48	0.075	8.00	32.90
+ ID2= 2 (0013):	0.13	0.035	8.00	53.92
=====				
ID = 3 (0004):	0.61	0.110	8.00	37.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0004)				
3 + 2 = 1				

ID1= 3 (0004):	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
	0.61	0.110	8.00	37.38
+ ID2= 2 (0054):	0.11	0.030	8.00	53.92
=====				
ID = 1 (0004):	0.72	0.140	8.00	39.91

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| RESERVOIR( 0050) |
| IN= 2---> OUT= 1 |
| DT= 5.0 min      |
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OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.2390	0.0097
0.0390	0.0052	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0004)	0.720	0.140	8.00	39.91
OUTFLOW: ID= 1 (0050)	0.720	0.093	8.08	39.87

PEAK FLOW REDUCTION [Qout/Qin](%)= 66.46
 TIME SHIFT OF PEAK FLOW (min)= 5.00
 MAXIMUM STORAGE USED (ha.m.)= 0.0069

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| CALIB          |
| STANDHYD ( 0006) |
| ID= 1 DT= 5.0 min |
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Area (ha)= 0.07
 Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.06	0.01
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	22.21	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62

1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47

5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)= 134.79 45.43
over (min) 5.00 5.00
Storage Coeff. (min)= 0.92 (ii) 4.52 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.34 0.23

TOTALS

PEAK FLOW (cms)= 0.02 0.00 0.024 (iii)
TIME TO PEAK (hrs)= 8.00 8.00 8.00
RUNOFF VOLUME (mm)= 69.24 26.74 59.64
TOTAL RAINFALL (mm)= 70.24 70.24 70.24
RUNOFF COEFFICIENT = 0.99 0.38 0.85

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0008)	Area (ha)=	0.40	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.39	0.00
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	51.38	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68

0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50

4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)= 134.79 45.43
over (min) 5.00 5.00
Storage Coeff. (min)= 1.52 (ii) 2.52 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.33 0.29

TOTALS

PEAK FLOW (cms)= 0.15 0.00 0.147 (iii)
TIME TO PEAK (hrs)= 8.00 8.00 8.00
RUNOFF VOLUME (mm)= 69.24 26.74 68.81
TOTAL RAINFALL (mm)= 70.24 70.24 70.24
RUNOFF COEFFICIENT = 0.99 0.38 0.98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0048) |
| 1 + 2 = 3 |
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ID1= 1 ( 0006): 0.07 0.024 8.00 59.64
+ ID2= 2 ( 0008): 0.40 0.147 8.00 68.81
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ID = 3 (0048): 0.47 0.171 8.00 67.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0030)		OVERFLOW IS OFF			
IN= 2---> OUT= 1					
DT= 5.0 min					
		OUTFLOW	STORAGE	OUTFLOW	STORAGE
		(cms)	(ha.m.)	(cms)	(ha.m.)
		0.0000	0.0000	0.1120	0.0061
		0.0210	0.0010	0.1220	0.0071
		0.0530	0.0020	0.1320	0.0081
		0.0730	0.0030	0.1400	0.0091
		0.0880	0.0041	0.1520	0.0105
		0.1000	0.0051	0.0000	0.0000
		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0048)		0.470	0.171	8.00	67.37
OUTFLOW: ID= 1 (0030)		0.470	0.105	8.08	67.35

PEAK FLOW REDUCTION [Qout/Qin](%)= 61.54
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0063

ADD HYD (0046)					
1 + 2 = 3					
		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0030):		0.47	0.105	8.08	67.35
+ ID2= 2 (0050):		0.72	0.093	8.08	39.87
ID = 3 (0046):		1.19	0.198	8.08	50.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
STANDHYD (0014)		Area (ha)=	0.14		
ID= 1 DT= 5.0 min		Total Imp(%)=	71.00	Dir. Conn.(%)=	71.00
		IMPERVIOUS	PERVIOUS (i)		
Surface Area	(ha)=	0.10	0.04		
Dep. Storage	(mm)=	1.00	5.00		
Average Slope	(%)=	1.00	2.00		
Length	(m)=	30.88	40.00		
Mannings n	=	0.013	0.250		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68	
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68	
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67	
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67	
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66	
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66	
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65	
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65	
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64	
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64	
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63	
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63	
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62	
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62	
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62	
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62	
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61	
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61	
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60	
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60	
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59	
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59	
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59	
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59	
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58	
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58	
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57	
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57	
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56	
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56	
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56	
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56	
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55	
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55	
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55	
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55	
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54	
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54	
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53	
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53	
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53	
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53	
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52	
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52	

3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)=	134.79	45.43
over (min)	5.00	10.00
Storage Coeff. (min)=	1.12 (ii)	5.50 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.34	0.16

			TOTALS
PEAK FLOW (cms)=	0.04	0.00	0.042 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	69.24	26.74	56.90
TOTAL RAINFALL (mm)=	70.24	70.24	70.24
RUNOFF COEFFICIENT =	0.99	0.38	0.81

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0051) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0014):    0.14    0.042    8.00    56.90
+ ID2= 2 ( 0046):    1.19    0.198    8.08    50.72
=====
ID = 3 ( 0051):    1.33    0.213    8.08    51.39

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
=====
=====
V   V   I   SSSSS   U   U   A   L           (v 6.1.2003)
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
000    TTTTT   TTTTT   H   H   Y   Y   M   M   000   TM
O   O   T       T   H   H   Y Y   MM MM   O   O
O   O   T       T   H   H   Y   M   M   O   O
000    T       T   H   H   Y   M   M   000

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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 6.1-New\V02\voin.dat

Output filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\0981c04-540c-4e80-850a-12445a166d8f\

Summary filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\0981c04-540c-4e80-850a-12445a166d8f\

DATE: 11/24/2021

TIME: 04:52:09

USER:

COMMENTS: _____

 ** SIMULATION : 25MM4HRC_10min Edited 2012 **

READ STORM	Filename: C:\Users\jannaormond\AppData\Local\Temp\7c2ba79c-6b0b-4a49-a2f4-0cf1b94d9596\8ba51073
Ptotal= 25.00 mm	Comments: 25MM4HRC_10min Edited 2012

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	2.07	1.17	5.70	2.17	5.19	3.17	2.80
0.33	2.27	1.33	10.78	2.33	4.47	3.33	2.62
0.50	2.52	1.50	50.21	2.50	3.95	3.50	2.48
0.67	2.88	1.67	13.37	2.67	3.56	3.67	2.35
0.83	3.38	1.83	8.29	2.83	3.25	3.83	2.23
1.00	4.18	2.00	6.30	3.00	3.01	4.00	2.14

CALIB	Area (ha)= 0.43	Curve Number (CN)= 73.0
NASHYD (0005)	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)= 0.09	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Unit Hyd Qpeak (cms)= 0.175

PEAK FLOW (cms)= 0.005 (i)

TIME TO PEAK (hrs)= 1.500

RUNOFF VOLUME (mm)= 3.395

TOTAL RAINFALL (mm)= 24.996

RUNOFF COEFFICIENT = 0.136

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| STANDHYD (0007) | Area (ha)= 0.37
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.21
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	49.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)=	50.21	2.97
over (min)	5.00	35.00
Storage Coeff. (min)=	2.21 (ii)	31.01 (ii)
Unit Hyd. Tpeak (min)=	5.00	35.00
Unit Hyd. peak (cms)=	0.30	0.03

TOTALS

PEAK FLOW (cms)=	0.02	0.00	0.022 (iii)

TIME TO PEAK	(hrs)=	1.50	2.17	1.50
RUNOFF VOLUME	(mm)=	24.00	3.51	12.27
TOTAL RAINFALL	(mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT	=	0.96	0.14	0.49

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0018)				
1 + 2 = 3				

ID1= 1 (0005):	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
	0.43	0.005	1.50	3.40
+ ID2= 2 (0007):	0.37	0.022	1.50	12.27
=====				
ID = 3 (0018):	0.80	0.027	1.50	7.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0053)	Area (ha)=	7.39	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
-----		U.H. Tp(hrs)=	0.53

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Unit Hyd Qpeak (cms)= 0.535

PEAK FLOW (cms)= 0.034 (i)

TIME TO PEAK (hrs)= 2.250

RUNOFF VOLUME (mm)= 3.509

TOTAL RAINFALL (mm)= 24.996

RUNOFF COEFFICIENT = 0.140

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| STANDHYD (0020) | Area (ha)= 0.16
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.09
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	32.66	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)=	50.21	2.97
over (min)	5.00	35.00
Storage Coeff. (min)=	1.72 (ii)	30.51 (ii)
Unit Hyd. Tpeak (min)=	5.00	35.00
Unit Hyd. peak (cms)=	0.32	0.04

			TOTALS
PEAK FLOW (cms)=	0.01	0.00	0.010 (iii)

TIME TO PEAK	(hrs)=	1.50	2.17	1.50
RUNOFF VOLUME	(mm)=	24.00	3.51	12.20
TOTAL RAINFALL	(mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT	=	0.96	0.14	0.49

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0025)	Area (ha)=	0.36	
ID= 1 DT= 5.0 min	Total Imp(%)=	43.00	Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.21
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	48.99	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)=	50.21	2.97
over (min)	5.00	35.00
Storage Coeff. (min)=	2.19 (ii)	30.99 (ii)
Unit Hyd. Tpeak (min)=	5.00	35.00
Unit Hyd. peak (cms)=	0.31	0.04

				TOTALS
PEAK FLOW	(cms)=	0.02	0.00	0.022 (iii)
TIME TO PEAK	(hrs)=	1.50	2.17	1.50
RUNOFF VOLUME	(mm)=	24.00	3.51	12.26
TOTAL RAINFALL	(mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT	=	0.96	0.14	0.49

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0019) |
| 1 + 2 = 3 |
-----

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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0020):	0.16	0.010	1.50	12.20
+ ID2= 2 (0025):	0.36	0.022	1.50	12.26
=====				
ID = 3 (0019):	0.52	0.031	1.50	12.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0019) |
| 3 + 2 = 1 |
-----

```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0019):	0.52	0.031	1.50	12.24
+ ID2= 2 (0053):	7.39	0.034	2.25	3.51
=====				
ID = 1 (0019):	7.91	0.038	2.17	4.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| CALIB |
| NASHYD ( 0023) |
| ID= 1 DT= 5.0 min |
-----

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Area (ha)=	0.37	Curve Number (CN)=	73.0
Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.15		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Unit Hyd Qpeak (cms)= 0.094

PEAK FLOW (cms)= 0.003 (i)

TIME TO PEAK (hrs)= 1.583

RUNOFF VOLUME (mm)= 3.488

TOTAL RAINFALL (mm)= 24.996

RUNOFF COEFFICIENT = 0.140

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0015)	Area (ha)= 1.34
ID= 1 DT= 5.0 min	Total Imp(%)= 71.00 Dir. Conn.(%)= 71.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.95	0.39
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	94.52	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48

0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)= 50.21 2.97
over (min) 5.00 35.00
Storage Coeff. (min)= 3.25 (ii) 32.05 (ii)
Unit Hyd. Tpeak (min)= 5.00 35.00
Unit Hyd. peak (cms)= 0.27 0.03

TOTALS

PEAK FLOW (cms)= 0.13 0.00 0.128 (iii)
TIME TO PEAK (hrs)= 1.50 2.17 1.50
RUNOFF VOLUME (mm)= 24.00 3.51 18.04
TOTAL RAINFALL (mm)= 25.00 25.00 25.00
RUNOFF COEFFICIENT = 0.96 0.14 0.72

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0017) | Area (ha)= 0.36
| ID= 1 DT= 5.0 min | Total Imp(%)= 86.00 Dir. Conn.(%)= 85.00
|-----|

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.31	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	48.99	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62

0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)= 50.21 5.70
over (min) 5.00 10.00
Storage Coeff. (min)= 2.19 (ii) 6.71 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.31 0.14

TOTALS

PEAK FLOW (cms)= 0.04 0.00 0.043 (iii)
TIME TO PEAK (hrs)= 1.50 1.58 1.50
RUNOFF VOLUME (mm)= 24.00 3.83 20.96
TOTAL RAINFALL (mm)= 25.00 25.00 25.00
RUNOFF COEFFICIENT = 0.96 0.15 0.84

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0021)	Area (ha)=	0.15	
ID= 1 DT= 5.0 min	Total Imp(%)=	43.00	Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.09
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	31.62	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80

0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)= 50.21 2.97
over (min) 5.00 35.00
Storage Coeff. (min)= 1.69 (ii) 30.48 (ii)
Unit Hyd. Tpeak (min)= 5.00 35.00
Unit Hyd. peak (cms)= 0.32 0.04

TOTALS

PEAK FLOW (cms)= 0.01 0.00 0.009 (iii)
TIME TO PEAK (hrs)= 1.50 2.17 1.50
RUNOFF VOLUME (mm)= 24.00 3.51 12.20
TOTAL RAINFALL (mm)= 25.00 25.00 25.00
RUNOFF COEFFICIENT = 0.96 0.14 0.49

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0043) | Area (ha)= 0.21
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.12
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	37.42	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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

0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)= 50.21 2.97
over (min) 5.00 35.00
Storage Coeff. (min)= 1.87 (ii) 30.66 (ii)
Unit Hyd. Tpeak (min)= 5.00 35.00
Unit Hyd. peak (cms)= 0.32 0.04

TOTALS

PEAK FLOW (cms)= 0.01 0.00 0.013 (iii)
TIME TO PEAK (hrs)= 1.50 2.17 1.50
RUNOFF VOLUME (mm)= 24.00 3.51 12.23
TOTAL RAINFALL (mm)= 25.00 25.00 25.00
RUNOFF COEFFICIENT = 0.96 0.14 0.49

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0016) |
| 1 + 2 = 3 |
-----
          AREA    QPEAK    TPEAK    R.V.
          (ha)    (cms)    (hrs)    (mm)
ID1= 1 ( 0015):  1.34  0.128  1.50  18.04
+ ID2= 2 ( 0017):  0.36  0.043  1.50  20.96
=====
ID = 3 ( 0016):  1.70  0.171  1.50  18.66

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0016) |
| 3 + 2 = 1 |
-----
          AREA    QPEAK    TPEAK    R.V.

```

```

-----
              (ha)      (cms)      (hrs)      (mm)
ID1= 3 ( 0016):    1.70    0.171    1.50    18.66
+ ID2= 2 ( 0021):    0.15    0.009    1.50    12.20
=====
ID = 1 ( 0016):    1.85    0.180    1.50    18.14

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0016) |
| 1 + 2 = 3 |
-----
              AREA      QPEAK      TPEAK      R.V.
              (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0016):    1.85    0.180    1.50    18.14
+ ID2= 2 ( 0023):    0.37    0.003    1.58    3.49
=====
ID = 3 ( 0016):    2.22    0.182    1.50    15.69

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0016) |
| 3 + 2 = 1 |
-----
              AREA      QPEAK      TPEAK      R.V.
              (ha)      (cms)      (hrs)      (mm)
ID1= 3 ( 0016):    2.22    0.182    1.50    15.69
+ ID2= 2 ( 0043):    0.21    0.013    1.50    12.23
=====
ID = 1 ( 0016):    2.43    0.195    1.50    15.40

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| CALIB
| NASHYD ( 0027) | Area (ha)= 0.53 Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
-----
U.H. Tp(hrs)= 0.23

```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48

0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Unit Hyd Qpeak (cms)= 0.086

PEAK FLOW (cms)= 0.004 (i)

TIME TO PEAK (hrs)= 1.750

RUNOFF VOLUME (mm)= 3.505

TOTAL RAINFALL (mm)= 24.996

RUNOFF COEFFICIENT = 0.140

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0026)	Area (ha)= 1.11
ID= 1 DT= 5.0 min	Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.95	0.16
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	86.02	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)= 50.21 4.69

over (min)	5.00	10.00	
Storage Coeff. (min)=	3.07 (ii)	7.57 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.27	0.13	
			TOTALS
PEAK FLOW (cms)=	0.13	0.00	0.130 (iii)
TIME TO PEAK (hrs)=	1.50	1.58	1.50
RUNOFF VOLUME (mm)=	24.00	3.51	21.13
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.14	0.85

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 73.0 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 (0028)	Area (ha)=	0.14	
ID= 1 DT= 5.0 min	Total Imp(%)=	43.00	Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.06	0.08	
Dep. Storage (mm)=	1.00	5.00	
Average Slope (%)=	1.00	2.00	
Length (m)=	30.55	40.00	
Mannings n =	0.013	0.250	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)=	50.21	2.97	
over (min)	5.00	35.00	
Storage Coeff. (min)=	1.65 (ii)	30.45 (ii)	
Unit Hyd. Tpeak (min)=	5.00	35.00	
Unit Hyd. peak (cms)=	0.32	0.04	
			TOTALS
PEAK FLOW (cms)=	0.01	0.00	0.008 (iii)
TIME TO PEAK (hrs)=	1.50	2.17	1.50
RUNOFF VOLUME (mm)=	24.00	3.51	12.18
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.14	0.49

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 73.0 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 (0024)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0026):	1.11	0.130	1.50	21.13
+ ID2= 2 (0027):	0.53	0.004	1.75	3.50
=====				
ID = 3 (0024):	1.64	0.132	1.50	15.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0024)				
3 + 2 = 1				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0024):	1.64	0.132	1.50	15.43
+ ID2= 2 (0028):	0.14	0.008	1.50	12.18
=====				
ID = 1 (0024):	1.78	0.140	1.50	15.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0031)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.

	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0016):	2.43	0.195	1.50	15.40
+ ID2= 2 (0024):	1.78	0.140	1.50	15.18
=====				
ID = 3 (0031):	4.21	0.335	1.50	15.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0032)	OVERFLOW IS ON			
IN= 2---> OUT= 1	OUTFLOW		STORAGE	
DT= 1.0 min	(cms)	(ha.m.)	(cms)	(ha.m.)
	0.0000	0.0000	0.4270	0.1321
	0.0070	0.0585	0.4940	0.1385

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0031)	4.210	0.335	1.50	15.30
OUTFLOW: ID= 1 (0032)	4.210	0.007	4.08	11.35
OVERFLOW: ID= 3 (0003)	0.000	0.000	0.00	0.00

TOTAL NUMBER OF SIMULATION OVERFLOW = 0
CUMULATIVE TIME OF OVERFLOW (HOURS) = 0.00
PERCENTAGE OF TIME OVERFLOWING (%) = 0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 2.08
TIME SHIFT OF PEAK FLOW (min)=155.00
MAXIMUM STORAGE USED (ha.m.)= 0.0582

| Junction Command(0041) |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0032)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0041)	0.00	0.00	0.00	0.00

ADD HYD (0042)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				

*** W A R N I N G : HYDROGRAPH 0041 <ID= 2> IS DRY.
*** W A R N I N G : HYDROGRAPH 0003 = HYDROGRAPH 0001

ID1= 1 (0032):	4.21	0.007	4.08	11.35

```

+ ID2= 2 ( 0041):      0.00  0.000  0.00  0.00
=====
ID = 3 ( 0042):      4.21  0.007  4.08  11.35

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0055) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0019):      7.91  0.038  2.17  4.08
+ ID2= 2 ( 0042):      4.21  0.007  4.08  11.35
=====
ID = 3 ( 0055):      12.12  0.043  2.25  6.61

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| CALIB |
| NASHYD ( 0029) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 0.93  Curve Number (CN)= 73.0
Ia (mm)= 5.00  # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.05

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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Unit Hyd Qpeak (cms)= 0.710

PEAK FLOW (cms)= 0.012 (i)
 TIME TO PEAK (hrs)= 1.500
 RUNOFF VOLUME (mm)= 2.677
 TOTAL RAINFALL (mm)= 24.996
 RUNOFF COEFFICIENT = 0.107

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```

-----
| CALIB |
| STANDHYD ( 0056) | Area (ha)= 0.25
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00
-----

```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.11	0.14
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	40.82	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)=	50.21	2.97
over (min)	5.00	35.00
Storage Coeff. (min)=	1.97 (ii)	30.76 (ii)
Unit Hyd. Tpeak (min)=	5.00	35.00
Unit Hyd. peak (cms)=	0.31	0.04

TOTALS

PEAK FLOW (cms)=	0.01	0.00	0.015 (iii)
TIME TO PEAK (hrs)=	1.50	2.17	1.50
RUNOFF VOLUME (mm)=	24.00	3.51	12.24
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.14	0.49

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

- CN* = 73.0 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 (0034)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0029):	0.93	0.012	1.50	2.68
+ ID2= 2 (0055):	12.12	0.043	2.25	6.61
=====				
ID = 3 (0034):	13.05	0.050	1.50	6.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0034)				
3 + 2 = 1				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0034):	13.05	0.050	1.50	6.33
+ ID2= 2 (0056):	0.25	0.015	1.50	12.24
=====				
ID = 1 (0034):	13.30	0.065	1.50	6.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0003)				
ID= 1 DT= 5.0 min				

	Area	(ha)=	0.35	Curve Number (CN)= 73.0
	Ia	(mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.08		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35

0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.004 (i)
 TIME TO PEAK (hrs)= 1.500
 RUNOFF VOLUME (mm)= 3.293
 TOTAL RAINFALL (mm)= 24.996
 RUNOFF COEFFICIENT = 0.132

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0009)	Area (ha)= 0.13
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)= 50.21 2.97
 over (min) 5.00 35.00
 Storage Coeff. (min)= 1.62 (ii) 30.41 (ii)

Unit Hyd. Tpeak (min)=	5.00	35.00	
Unit Hyd. peak (cms)=	0.32	0.04	
			TOTALS
PEAK FLOW (cms)=	0.01	0.00	0.012 (iii)
TIME TO PEAK (hrs)=	1.50	2.17	1.50
RUNOFF VOLUME (mm)=	24.00	3.51	16.46
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.14	0.66

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0003):	0.35	0.004	1.50	3.29
+ ID2= 2 (0009):	0.13	0.012	1.50	16.46
=====				
ID = 3 (0011):	0.48	0.016	1.50	6.86

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB		
STANDHYD (0013)		Area (ha)= 0.13
ID= 1 DT= 5.0 min		Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80

0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)= 50.21 2.97
over (min) 5.00 35.00
Storage Coeff. (min)= 1.62 (ii) 30.41 (ii)
Unit Hyd. Tpeak (min)= 5.00 35.00
Unit Hyd. peak (cms)= 0.32 0.04

TOTALS

PEAK FLOW (cms)= 0.01 0.00 0.012 (iii)
TIME TO PEAK (hrs)= 1.50 2.17 1.50
RUNOFF VOLUME (mm)= 24.00 3.51 16.46
TOTAL RAINFALL (mm)= 25.00 25.00 25.00
RUNOFF COEFFICIENT = 0.96 0.14 0.66

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0054) | Area (ha)= 0.11
| ID= 1 DT= 5.0 min | Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.04
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	27.08	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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

0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)= 50.21 2.97
over (min) 5.00 35.00
Storage Coeff. (min)= 1.54 (ii) 30.33 (ii)
Unit Hyd. Tpeak (min)= 5.00 35.00
Unit Hyd. peak (cms)= 0.33 0.04

TOTALS

PEAK FLOW (cms)= 0.01 0.00 0.010 (iii)
TIME TO PEAK (hrs)= 1.50 2.17 1.50
RUNOFF VOLUME (mm)= 24.00 3.51 16.44
TOTAL RAINFALL (mm)= 25.00 25.00 25.00
RUNOFF COEFFICIENT = 0.96 0.14 0.66

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0004) |
| 1 + 2 = 3 |
-----
          AREA    QPEAK    TPEAK    R.V.
          (ha)    (cms)    (hrs)    (mm)
ID1= 1 ( 0011):    0.48    0.016    1.50    6.86
+ ID2= 2 ( 0013):    0.13    0.012    1.50    16.46
=====
ID = 3 ( 0004):    0.61    0.028    1.50    8.90

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0004) |
| 3 + 2 = 1 |
-----
          AREA    QPEAK    TPEAK    R.V.

```

	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0004):	0.61	0.028	1.50	8.90
+ ID2= 2 (0054):	0.11	0.010	1.50	16.44
=====				
ID = 1 (0004):	0.72	0.037	1.50	10.05

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0050)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min				
	OUTFLOW	STORAGE	OUTFLOW	STORAGE
	(cms)	(ha.m.)	(cms)	(ha.m.)
	0.0000	0.0000	0.2390	0.0097
	0.0390	0.0052	0.0000	0.0000
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0004)	0.720	0.037	1.50	10.05
OUTFLOW: ID= 1 (0050)	0.720	0.015	1.58	10.02

PEAK FLOW REDUCTION [Qout/Qin](%)= 40.94
 TIME SHIFT OF PEAK FLOW (min)= 5.00
 MAXIMUM STORAGE USED (ha.m.)= 0.0021

CALIB			
STANDHYD (0006)	Area (ha)=	0.07	
ID= 1 DT= 5.0 min	Total Imp(%)=	80.00	Dir. Conn.(%)= 80.00
	IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.06	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	22.21	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48

0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)= 50.21 2.97
over (min) 5.00 35.00
Storage Coeff. (min)= 1.36 (ii) 30.16 (ii)
Unit Hyd. Tpeak (min)= 5.00 35.00
Unit Hyd. peak (cms)= 0.33 0.04

TOTALS

PEAK FLOW (cms)= 0.01 0.00 0.008 (iii)
TIME TO PEAK (hrs)= 1.50 2.17 1.50
RUNOFF VOLUME (mm)= 24.00 3.51 19.78
TOTAL RAINFALL (mm)= 25.00 25.00 25.00
RUNOFF COEFFICIENT = 0.96 0.14 0.79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0008) | Area (ha)= 0.40
| ID= 1 DT= 5.0 min | Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.39	0.00
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	51.38	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62

0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)= 50.21 4.69
over (min) 5.00 5.00
Storage Coeff. (min)= 2.26 (ii) 3.74 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.30 0.25

TOTALS

PEAK FLOW (cms)= 0.05 0.00 0.054 (iii)
TIME TO PEAK (hrs)= 1.50 1.50 1.50
RUNOFF VOLUME (mm)= 24.00 3.51 23.79
TOTAL RAINFALL (mm)= 25.00 25.00 25.00
RUNOFF COEFFICIENT = 0.96 0.14 0.95

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0048)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0006):	0.07	0.008	1.50	19.78
+ ID2= 2 (0008):	0.40	0.054	1.50	23.79
=====				
ID = 3 (0048):	0.47	0.062	1.50	23.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0030)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min				
	OUTFLOW	STORAGE	OUTFLOW	STORAGE
	(cms)	(ha.m.)	(cms)	(ha.m.)
	0.0000	0.0000	0.1120	0.0061
	0.0210	0.0010	0.1220	0.0071
	0.0530	0.0020	0.1320	0.0081

0.0730	0.0030		0.1400	0.0091
0.0880	0.0041		0.1520	0.0105
0.1000	0.0051		0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0048)	0.470	0.062	1.50	23.16
OUTFLOW: ID= 1 (0030)	0.470	0.047	1.50	23.15

PEAK FLOW REDUCTION [Qout/Qin](%)= 75.06
 TIME SHIFT OF PEAK FLOW (min)= 0.00
 MAXIMUM STORAGE USED (ha.m.)= 0.0021

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-----
| ADD HYD ( 0046) |
| 1 + 2 = 3 |
-----
      AREA    QPEAK    TPEAK    R.V.
      (ha)    (cms)    (hrs)    (mm)
ID1= 1 ( 0030):  0.47  0.047    1.50   23.15
+ ID2= 2 ( 0050):  0.72  0.015    1.58   10.02
=====
ID = 3 ( 0046):  1.19  0.060    1.50   15.20
  
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| CALIB |
| STANDHYD ( 0014) |
| ID= 1 DT= 5.0 min |
-----
      Area (ha)= 0.14
      Total Imp(%)= 71.00   Dir. Conn.(%)= 71.00
  
```

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.10	0.04
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	30.88	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083    2.07 | 1.083    5.70 | 2.083    5.19 | 3.08    2.80
0.167    2.07 | 1.167    5.70 | 2.167    5.19 | 3.17    2.80
0.250    2.27 | 1.250   10.78 | 2.250    4.47 | 3.25    2.62
0.333    2.27 | 1.333   10.78 | 2.333    4.47 | 3.33    2.62
0.417    2.52 | 1.417   50.21 | 2.417    3.95 | 3.42    2.48
0.500    2.52 | 1.500   50.21 | 2.500    3.95 | 3.50    2.48
  
```

0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)= 50.21 2.97
over (min) 5.00 35.00
Storage Coeff. (min)= 1.66 (ii) 30.46 (ii)
Unit Hyd. Tpeak (min)= 5.00 35.00
Unit Hyd. peak (cms)= 0.32 0.04

TOTALS

PEAK FLOW (cms)= 0.01 0.00 0.014 (iii)
TIME TO PEAK (hrs)= 1.50 2.17 1.50
RUNOFF VOLUME (mm)= 24.00 3.51 17.91
TOTAL RAINFALL (mm)= 25.00 25.00 25.00
RUNOFF COEFFICIENT = 0.96 0.14 0.72

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0051)|
| 1 + 2 = 3 |
-----
      AREA      QPEAK      TPEAK      R.V.
      (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0014):  0.14  0.014  1.50  17.91
+ ID2= 2 ( 0046):  1.19  0.060  1.50  15.20
=====
ID = 3 ( 0051):  1.33  0.074  1.50  15.49

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

=====

V V I SSSSS U U A L (v 6.1.2003)

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

000 TTTTT TTTTT H H Y Y M M 000 TM


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O O T T H H Y Y M M O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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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 6.1-New\VO2\voin.dat

Output filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\3
 7e0787e-4b13-49f3-9649-c09e619488a2\

Summary filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\3
 7e0787e-4b13-49f3-9649-c09e619488a2\

DATE: 11/24/2021

TIME: 04:52:06

USER:

COMMENTS: _____

```

*****
** SIMULATION : 25-yr 24hr **
*****

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-----
| CHICAGO STORM |
| Ptotal= 82.47 mm |
-----

```

IDF curve parameters: A=1680.000
 B= 5.600
 C= 0.851

used in: INTENSITY = $A / (t + B)^C$

Duration of storm = 24.00 hrs
 Storm time step = 10.00 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
0.17	0.53	6.17	1.95	12.17	1.73	18.17	0.78
0.33	0.54	6.33	2.14	12.33	1.67	18.33	0.77

0.50	0.55	6.50	2.36	12.50	1.61	18.50	0.76
0.67	0.56	6.67	2.65	12.67	1.56	18.67	0.75
0.83	0.57	6.83	3.02	12.83	1.51	18.83	0.74
1.00	0.58	7.00	3.51	13.00	1.46	19.00	0.73
1.17	0.60	7.17	4.23	13.17	1.42	19.17	0.72
1.33	0.61	7.33	5.35	13.33	1.38	19.33	0.71
1.50	0.62	7.50	7.33	13.50	1.34	19.50	0.70
1.67	0.64	7.67	11.88	13.67	1.31	19.67	0.69
1.83	0.65	7.83	32.57	13.83	1.27	19.83	0.68
2.00	0.67	8.00	162.17	14.00	1.24	20.00	0.67
2.17	0.69	8.17	44.31	14.17	1.21	20.17	0.67
2.33	0.70	8.33	21.32	14.33	1.18	20.33	0.66
2.50	0.72	8.50	13.85	14.50	1.16	20.50	0.65
2.67	0.74	8.67	10.24	14.67	1.13	20.67	0.64
2.83	0.76	8.83	8.13	14.83	1.11	20.83	0.64
3.00	0.79	9.00	6.75	15.00	1.08	21.00	0.63
3.17	0.81	9.17	5.78	15.17	1.06	21.17	0.62
3.33	0.84	9.33	5.06	15.33	1.04	21.33	0.61
3.50	0.86	9.50	4.51	15.50	1.02	21.50	0.61
3.67	0.89	9.67	4.07	15.67	1.00	21.67	0.60
3.83	0.92	9.83	3.71	15.83	0.98	21.83	0.60
4.00	0.96	10.00	3.42	16.00	0.96	22.00	0.59
4.17	1.00	10.17	3.16	16.17	0.95	22.17	0.58
4.33	1.04	10.33	2.95	16.33	0.93	22.33	0.58
4.50	1.08	10.50	2.76	16.50	0.91	22.50	0.57
4.67	1.13	10.67	2.60	16.67	0.90	22.67	0.57
4.83	1.18	10.83	2.46	16.83	0.88	22.83	0.56
5.00	1.24	11.00	2.33	17.00	0.87	23.00	0.56
5.17	1.31	11.17	2.22	17.17	0.85	23.17	0.55
5.33	1.38	11.33	2.12	17.33	0.84	23.33	0.54
5.50	1.47	11.50	2.02	17.50	0.83	23.50	0.54
5.67	1.56	11.67	1.94	17.67	0.81	23.67	0.53
5.83	1.67	11.83	1.86	17.83	0.80	23.83	0.53
6.00	1.80	12.00	1.79	18.00	0.79	24.00	0.52

CALIB					
NASHYD (0005)		Area (ha)=	0.43	Curve Number (CN)=	73.0
ID= 1 DT= 5.0 min		Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
		U.H. Tp(hrs)=	0.09		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78

0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58

4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Unit Hyd Qpeak (cms)= 0.175

PEAK FLOW (cms)= 0.063 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 33.880

TOTAL RAINFALL (mm)= 82.474

RUNOFF COEFFICIENT = 0.411

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-----
| CALIB |
| STANDHYD ( 0007) |
| ID= 1 DT= 5.0 min |
-----

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Area (ha)= 0.37
Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.21
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	49.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58

4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)=	162.17	62.74
over (min)	5.00	10.00
Storage Coeff. (min)=	1.38 (ii)	9.89 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.33	0.11

TOTALS

PEAK FLOW (cms)=	0.07	0.02	0.090 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	81.47	35.02	54.98
TOTAL RAINFALL (mm)=	82.47	82.47	82.47
RUNOFF COEFFICIENT =	0.99	0.42	0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0018) |
1 + 2 = 3

AREA	QPEAK	TPEAK	R.V.
(ha)	(cms)	(hrs)	(mm)

ID1= 1 (0005):	0.43	0.063	8.00	33.88
+ ID2= 2 (0007):	0.37	0.090	8.00	54.98
=====				
ID = 3 (0018):	0.80	0.153	8.00	43.64

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0053)	Area (ha)=	7.39	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
-----		U.H. Tp(hrs)=	0.53

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64

2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Unit Hyd Qpeak (cms)= 0.535

PEAK FLOW (cms)= 0.359 (i)
TIME TO PEAK (hrs)= 8.583
RUNOFF VOLUME (mm)= 35.014
TOTAL RAINFALL (mm)= 82.474
RUNOFF COEFFICIENT = 0.425

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB                                     |
| STANDHYD ( 0020) | Area (ha)= 0.16      |
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00   Dir. Conn.(%)= 43.00
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		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.09
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	32.66	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65

2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)=	162.17	62.74
over (min)	5.00	10.00
Storage Coeff. (min)=	1.08 (ii)	9.58 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.34	0.11

TOTALS

PEAK FLOW	(cms)=	0.03	0.01	0.039 (iii)
TIME TO PEAK	(hrs)=	8.00	8.08	8.00
RUNOFF VOLUME	(mm)=	81.47	35.02	54.96
TOTAL RAINFALL	(mm)=	82.47	82.47	82.47
RUNOFF COEFFICIENT	=	0.99	0.42	0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0025) | Area (ha)= 0.36
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00
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		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.21
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	48.99	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70

1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53

5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)=	162.17	62.74	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.37 (ii)	9.88 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.33	0.11	
			TOTALS
PEAK FLOW (cms)=	0.07	0.02	0.088 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	81.47	35.02	54.98
TOTAL RAINFALL (mm)=	82.47	82.47	82.47
RUNOFF COEFFICIENT =	0.99	0.42	0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0019) |
| 1 + 2 = 3 |
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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0020):	0.16	0.039	8.00	54.96
+ ID2= 2 (0025):	0.36	0.088	8.00	54.98
=====				
ID = 3 (0019):	0.52	0.127	8.00	54.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD ( 0019) |
| 3 + 2 = 1 |
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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0019):	0.52	0.127	8.00	54.97
+ ID2= 2 (0053):	7.39	0.359	8.58	35.01
=====				
ID = 1 (0019):	7.91	0.377	8.50	36.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0023)	Area (ha)=	0.37	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.15	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62

3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Unit Hyd Qpeak (cms)= 0.094

PEAK FLOW (cms)= 0.041 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 34.817
TOTAL RAINFALL (mm)= 82.474
RUNOFF COEFFICIENT = 0.422

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| STANDHYD (0015) | Area (ha)= 1.34

| ID= 1 DT= 5.0 min | Total Imp(%)= 71.00 Dir. Conn.(%)= 71.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.95	0.39
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	94.52	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63

3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)=	162.17	62.74
over (min)	5.00	10.00
Storage Coeff. (min)=	2.04 (ii)	6.10 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.31	0.15

TOTALS

PEAK FLOW (cms)=	0.43	0.05	0.470 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	81.47	35.01	68.00
TOTAL RAINFALL (mm)=	82.47	82.47	82.47
RUNOFF COEFFICIENT =	0.99	0.42	0.82

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0017) | Area (ha)= 0.36
| ID= 1 DT= 5.0 min | Total Imp(%)= 86.00 Dir. Conn.(%)= 85.00
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		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.31	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	48.99	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67

2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)=	162.17	70.98	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.37 (ii)	4.20 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.33	0.24	
			TOTALS
PEAK FLOW (cms)=	0.14	0.01	0.148 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	81.47	36.58	74.74
TOTAL RAINFALL (mm)=	82.47	82.47	82.47
RUNOFF COEFFICIENT =	0.99	0.44	0.91

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0021)	Area (ha)=	0.15	
ID= 1 DT= 5.0 min	Total Imp(%)=	43.00	Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.06	0.09	
Dep. Storage (mm)=	1.00	5.00	
Average Slope (%)=	1.00	2.00	
Length (m)=	31.62	40.00	
Mannings n =	0.013	0.250	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73

1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55

5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)= 162.17 62.74
over (min) 5.00 10.00
Storage Coeff. (min)= 1.06 (ii) 9.56 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.34 0.11

TOTALS

PEAK FLOW (cms)= 0.03 0.01 0.037 (iii)
TIME TO PEAK (hrs)= 8.00 8.08 8.00
RUNOFF VOLUME (mm)= 81.47 35.02 54.96
TOTAL RAINFALL (mm)= 82.47 82.47 82.47
RUNOFF COEFFICIENT = 0.99 0.42 0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0043) | Area (ha)= 0.21
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.12
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	37.42	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58

4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)=	162.17	62.74
over (min)	5.00	10.00
Storage Coeff. (min)=	1.17 (ii)	9.67 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.34	0.11

TOTALS

PEAK FLOW (cms)=	0.04	0.01	0.051 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	81.47	35.02	54.97
TOTAL RAINFALL (mm)=	82.47	82.47	82.47
RUNOFF COEFFICIENT =	0.99	0.42	0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0016) |
| 1 + 2 = 3       |
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AREA	QPEAK	TPEAK	R.V.
(ha)	(cms)	(hrs)	(mm)

ID1= 1 (0015):	1.34	0.470	8.00	68.00
+ ID2= 2 (0017):	0.36	0.148	8.00	74.74
=====				
ID = 3 (0016):	1.70	0.618	8.00	69.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0016)				
3 + 2 = 1				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0016):	1.70	0.618	8.00	69.43
+ ID2= 2 (0021):	0.15	0.037	8.00	54.96
=====				
ID = 1 (0016):	1.85	0.654	8.00	68.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0016)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0016):	1.85	0.654	8.00	68.25
+ ID2= 2 (0023):	0.37	0.041	8.08	34.82
=====				
ID = 3 (0016):	2.22	0.689	8.00	62.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0016)				
3 + 2 = 1				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0016):	2.22	0.689	8.00	62.68
+ ID2= 2 (0043):	0.21	0.051	8.00	54.97
=====				
ID = 1 (0016):	2.43	0.741	8.00	62.01

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0027)	Area (ha)=	0.53	Curve Number (CN)=	73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00

	U.H. Tp(hrs)=	0.23		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78	
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78	
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77	
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77	
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76	
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76	
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75	
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75	
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74	
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74	
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73	
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73	
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72	
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72	
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71	
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71	
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70	
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70	
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69	
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69	
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68	
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68	
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67	
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67	
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67	
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67	
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66	
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66	
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65	
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65	
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64	
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64	
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64	
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64	
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63	
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63	
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62	
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62	
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61	
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61	
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61	
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61	
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60	
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60	
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60	

3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Unit Hyd Qpeak (cms)= 0.086

PEAK FLOW (cms)= 0.045 (i)

TIME TO PEAK (hrs)= 8.167

RUNOFF VOLUME (mm)= 34.979

TOTAL RAINFALL (mm)= 82.474

RUNOFF COEFFICIENT = 0.424

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0026)			
ID= 1 DT= 5.0 min			

		Area (ha)=	1.11
		Total Imp(%)=	86.00 Dir. Conn.(%)= 86.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.95	0.16
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	86.02	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60

3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)=	162.17	62.74
over (min)	5.00	5.00
Storage Coeff. (min)=	1.92 (ii)	4.74 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.31	0.22

TOTALS

PEAK FLOW (cms)=	0.43	0.03	0.454 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	81.47	35.02	74.97
TOTAL RAINFALL (mm)=	82.47	82.47	82.47
RUNOFF COEFFICIENT =	0.99	0.42	0.91

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0028) | Area (ha)= 0.14
 | ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.08
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	30.55	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64

2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)=	162.17	62.74
over (min)	5.00	10.00
Storage Coeff. (min)=	1.03 (ii)	9.54 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.34	0.12

TOTALS

PEAK FLOW (cms)=	0.03	0.01	0.034 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00

RUNOFF VOLUME	(mm)=	81.47	35.02	54.96
TOTAL RAINFALL	(mm)=	82.47	82.47	82.47
RUNOFF COEFFICIENT	=	0.99	0.42	0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0024) |
| 1 + 2 = 3 |
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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0026):	1.11	0.454	8.00	74.97
+ ID2= 2 (0027):	0.53	0.045	8.17	34.98
=====				
ID = 3 (0024):	1.64	0.481	8.00	62.05

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| ADD HYD ( 0024) |
| 3 + 2 = 1 |
-----

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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0024):	1.64	0.481	8.00	62.05
+ ID2= 2 (0028):	0.14	0.034	8.00	54.96
=====				
ID = 1 (0024):	1.78	0.515	8.00	61.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| ADD HYD ( 0031) |
| 1 + 2 = 3 |
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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0016):	2.43	0.741	8.00	62.01
+ ID2= 2 (0024):	1.78	0.515	8.00	61.49
=====				
ID = 3 (0031):	4.21	1.256	8.00	61.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0032)	OVERFLOW IS ON				
IN= 2---> OUT= 1					
DT= 1.0 min	OUTFLOW	STORAGE		OUTFLOW	STORAGE
-----	(cms)	(ha.m.)		(cms)	(ha.m.)
	0.0000	0.0000		0.4270	0.1321
	0.0070	0.0585		0.4940	0.1385

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0031)	4.210	1.256	8.00	61.79
OUTFLOW: ID= 1 (0032)	4.210	0.337	8.23	52.67
OVERFLOW: ID= 3 (0003)	0.000	0.000	0.00	0.00

TOTAL NUMBER OF SIMULATION OVERFLOW = 0
 CUMULATIVE TIME OF OVERFLOW (HOURS) = 0.00
 PERCENTAGE OF TIME OVERFLOWING (%) = 0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 26.86
 TIME SHIFT OF PEAK FLOW (min)= 14.00
 MAXIMUM STORAGE USED (ha.m.)= 0.1164

| Junction Command(0041) |

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 3(0032)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0041)	0.00	0.00	0.00	0.00

| ADD HYD (0042) |

| 1 + 2 = 3 |

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
*** W A R N I N G : HYDROGRAPH 0041 <ID= 2> IS DRY.				
*** W A R N I N G : HYDROGRAPH 0003 = HYDROGRAPH 0001				
ID1= 1 (0032):	4.21	0.337	8.23	52.67
+ ID2= 2 (0041):	0.00	0.000	0.00	0.00
=====				
ID = 3 (0042):	4.21	0.337	8.23	52.67

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0055) |

1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
-----	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0019):	7.91	0.377	8.50	36.33
+ ID2= 2 (0042):	4.21	0.337	8.23	52.67
=====				
ID = 3 (0055):	12.12	0.675	8.40	42.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0029)	Area (ha)= 0.93	Curve Number (CN)= 73.0	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
-----	U.H. Tp(hrs)= 0.05		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65

2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Unit Hyd Qpeak (cms)= 0.710

PEAK FLOW (cms)= 0.139 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 26.715

TOTAL RAINFALL (mm)= 82.474

RUNOFF COEFFICIENT = 0.324

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| STANDHYD (0056) | Area (ha)= 0.25
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.11	0.14
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	40.82	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66

2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)=	162.17	62.74
over (min)	5.00	10.00
Storage Coeff. (min)=	1.23 (ii)	9.73 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00

Unit Hyd. peak (cms)=	0.33	0.11	
			TOTALS
PEAK FLOW (cms)=	0.05	0.02	0.061 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	81.47	35.02	54.97
TOTAL RAINFALL (mm)=	82.47	82.47	82.47
RUNOFF COEFFICIENT =	0.99	0.42	0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0034) |
| 1 + 2 = 3 |
-----
          AREA    QPEAK    TPEAK    R.V.
          (ha)    (cms)    (hrs)    (mm)
ID1= 1 ( 0029):    0.93    0.139    8.00    26.72
+ ID2= 2 ( 0055):   12.12    0.675    8.40    42.00
=====
ID = 3 ( 0034):   13.05    0.696    8.33    40.91

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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| ADD HYD ( 0034) |
| 3 + 2 = 1 |
-----
          AREA    QPEAK    TPEAK    R.V.
          (ha)    (cms)    (hrs)    (mm)
ID1= 3 ( 0034):   13.05    0.696    8.33    40.91
+ ID2= 2 ( 0056):    0.25    0.061    8.00    54.97
=====
ID = 1 ( 0034):   13.30    0.710    8.33    41.18

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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB          |
| NASHYD ( 0003) | Area (ha)= 0.35 Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
-----
          U.H. Tp(hrs)= 0.08

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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59

4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.056 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 32.855

TOTAL RAINFALL (mm)= 82.474

RUNOFF COEFFICIENT = 0.398

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0009)		Area (ha)=	0.13
ID= 1 DT= 5.0 min		Total Imp(%)=	64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78	
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78	
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77	
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77	
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76	
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76	
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75	
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75	
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74	
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74	
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73	
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73	
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72	
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72	
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71	
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71	
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70	
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70	
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69	
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69	
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68	
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68	
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67	
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67	
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67	
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67	
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66	
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66	
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65	
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65	
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64	
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64	
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64	
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64	
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63	
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63	
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62	
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62	
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61	
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61	
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61	
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61	
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60	
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60	
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60	

3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)=	162.17	62.74
over (min)	5.00	10.00
Storage Coeff. (min)=	1.01 (ii)	5.63 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.34	0.15

			TOTALS
PEAK FLOW (cms)=	0.04	0.01	0.043 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	81.47	35.02	64.73
TOTAL RAINFALL (mm)=	82.47	82.47	82.47
RUNOFF COEFFICIENT =	0.99	0.42	0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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				

ID1= 1 (0003):	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
	0.35	0.056	8.00	32.86
+ ID2= 2 (0009):	0.13	0.043	8.00	64.73
=====				
ID = 3 (0011):	0.48	0.099	8.00	41.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
STANDHYD (0013)				
ID= 1 DT= 5.0 min				

	Area (ha)=	0.13		
	Total Imp(%)=	64.00	Dir. Conn.(%)=	64.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.08	0.05	
Dep. Storage	(mm)=	1.00	5.00	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	29.44	40.00	
Mannings n	=	0.013	0.250	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68

1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52

6.000 1.80 | 12.000 1.79 | 18.000 0.79 | 24.00 0.52

Max.Eff.Inten.(mm/hr)=	162.17	62.74	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.01 (ii)	5.63 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.34	0.15	
			TOTALS
PEAK FLOW (cms)=	0.04	0.01	0.043 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	81.47	35.02	64.73
TOTAL RAINFALL (mm)=	82.47	82.47	82.47
RUNOFF COEFFICIENT =	0.99	0.42	0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0054)	Area (ha)= 0.11	
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00	Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.04
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	27.08	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74

0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56

5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)= 162.17 62.74
over (min) 5.00 10.00
Storage Coeff. (min)= 0.96 (ii) 5.58 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.34 0.16

TOTALS

PEAK FLOW (cms)= 0.03 0.01 0.036 (iii)
TIME TO PEAK (hrs)= 8.00 8.08 8.00
RUNOFF VOLUME (mm)= 81.47 35.02 64.73
TOTAL RAINFALL (mm)= 82.47 82.47 82.47
RUNOFF COEFFICIENT = 0.99 0.42 0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0004) |
| 1 + 2 = 3 |
-----
          AREA    QPEAK    TPEAK    R.V.
          (ha)    (cms)    (hrs)    (mm)
ID1= 1 ( 0011):    0.48    0.099    8.00    41.49
+ ID2= 2 ( 0013):    0.13    0.043    8.00    64.73
=====
ID = 3 ( 0004):    0.61    0.141    8.00    46.44

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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD ( 0004) |

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3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.
-----	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0004):	0.61	0.141	8.00	46.44
+ ID2= 2 (0054):	0.11	0.036	8.00	64.73
=====				
ID = 1 (0004):	0.72	0.178	8.00	49.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0050)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min				
-----	OUTFLOW	STORAGE		OUTFLOW
	(cms)	(ha.m.)		(cms)
	0.0000	0.0000		0.2390
	0.0390	0.0052		0.0000

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0004)	0.720	0.178	8.00	49.24
OUTFLOW: ID= 1 (0050)	0.720	0.124	8.08	49.20

PEAK FLOW REDUCTION [Qout/Qin](%)= 69.88
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0077

CALIB			
STANDHYD (0006)	Area (ha)=	0.07	
ID= 1 DT= 5.0 min	Total Imp(%)=	80.00	Dir. Conn.(%)= 80.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	22.21	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76

0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57

4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)=	162.17	62.74
over (min)	5.00	5.00
Storage Coeff. (min)=	0.85 (ii)	4.19 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.34	0.24

TOTALS

PEAK FLOW (cms)=	0.03	0.00	0.029 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	81.47	35.02	72.18
TOTAL RAINFALL (mm)=	82.47	82.47	82.47
RUNOFF COEFFICIENT =	0.99	0.42	0.88

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0008)	Area (ha)= 0.40
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.39	0.00
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	51.38	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60

3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)=	162.17	62.74
over (min)	5.00	5.00
Storage Coeff. (min)=	1.41 (ii)	2.34 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.33	0.30

TOTALS

PEAK FLOW (cms)=	0.18	0.00	0.177 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	81.47	35.02	81.01
TOTAL RAINFALL (mm)=	82.47	82.47	82.47
RUNOFF COEFFICIENT =	0.99	0.42	0.98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0048) |
| 1 + 2 = 3 |
-----

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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0006):	0.07	0.029	8.00	72.18
+ ID2= 2 (0008):	0.40	0.177	8.00	81.01
=====				
ID = 3 (0048):	0.47	0.207	8.00	79.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| RESERVOIR( 0030) |
| IN= 2---> OUT= 1 |
| DT= 5.0 min |
-----

```

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.1120	0.0061
0.0210	0.0010	0.1220	0.0071
0.0530	0.0020	0.1320	0.0081
0.0730	0.0030	0.1400	0.0091
0.0880	0.0041	0.1520	0.0105
0.1000	0.0051	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0048)	0.470	0.207	8.00	79.62
OUTFLOW: ID= 1 (0030)	0.470	0.121	8.08	79.61

PEAK FLOW REDUCTION [Qout/Qin](%)= 58.61
 TIME SHIFT OF PEAK FLOW (min)= 5.00
 MAXIMUM STORAGE USED (ha.m.)= 0.0079

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-----
| ADD HYD ( 0046) |
| 1 + 2 = 3 |
-----

```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	0.47	0.121	8.08	79.61
+ ID2= 2 (0050):	0.72	0.124	8.08	49.20
=====				
ID = 3 (0046):	1.19	0.245	8.08	61.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| CALIB |
| STANDHYD ( 0014) |
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Area (ha)= 0.14

| ID= 1 DT= 5.0 min | Total Imp(%)= 71.00 Dir. Conn.(%)= 71.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.10	0.04
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	30.88	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63

3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)=	162.17	62.74
over (min)	5.00	10.00
Storage Coeff. (min)=	1.04 (ii)	5.11 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.34	0.16

TOTALS

PEAK FLOW (cms)=	0.05	0.01	0.051 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	81.47	35.02	67.99
TOTAL RAINFALL (mm)=	82.47	82.47	82.47
RUNOFF COEFFICIENT =	0.99	0.42	0.82

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0051) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0014):    0.14    0.051    8.00    67.99
+ ID2= 2 ( 0046):    1.19    0.245    8.08    61.21
=====
ID = 3 ( 0051):    1.33    0.265    8.00    61.94
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
V  V  I  SSSSS  U  U  A  L          (v 6.1.2003)
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
WV   I  SSSSS  UUUUU  A  A  LLLLL
```

```
000  TTTT  TTTT  H  H  Y  Y  M  M  000  TM
0  0  T    T  H  H  Y  Y  MM MM 0  0
0  0  T    T  H  H  Y    M  M  0  0
000  T    T  H  H  Y    M  M  000
```

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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 6.1-New\V02\voin.dat

Output filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\d
19d2f44-edef-4993-94d7-4ee9dafa550f\

Summary filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\d
19d2f44-edef-4993-94d7-4ee9dafa550f\

DATE: 11/24/2021

TIME: 04:52:11

USER:

COMMENTS: _____

** SIMULATION : 2-yr 24hr **

| CHICAGO STORM |
Ptotal= 48.69 mm

IDF curve parameters: A= 725.000

B= 4.800

C= 0.808

used in: INTENSITY = $A / (t + B)^C$

Duration of storm = 24.00 hrs

Storm time step = 10.00 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
0.17	0.40	6.17	1.35	12.17	1.21	18.17	0.57
0.33	0.41	6.33	1.47	12.33	1.17	18.33	0.57
0.50	0.41	6.50	1.61	12.50	1.13	18.50	0.56
0.67	0.42	6.67	1.79	12.67	1.10	18.67	0.55
0.83	0.43	6.83	2.02	12.83	1.06	18.83	0.55
1.00	0.44	7.00	2.32	13.00	1.03	19.00	0.54
1.17	0.45	7.17	2.74	13.17	1.01	19.17	0.53
1.33	0.46	7.33	3.39	13.33	0.98	19.33	0.53
1.50	0.47	7.50	4.51	13.50	0.96	19.50	0.52
1.67	0.48	7.67	6.95	13.67	0.93	19.67	0.51
1.83	0.49	7.83	17.30	13.83	0.91	19.83	0.51
2.00	0.50	8.00	82.18	14.00	0.89	20.00	0.50
2.17	0.51	8.17	23.06	14.17	0.87	20.17	0.50
2.33	0.52	8.33	11.78	14.33	0.85	20.33	0.49
2.50	0.54	8.50	7.99	14.50	0.83	20.50	0.48
2.67	0.55	8.67	6.09	14.67	0.81	20.67	0.48
2.83	0.56	8.83	4.95	14.83	0.80	20.83	0.47
3.00	0.58	9.00	4.19	15.00	0.78	21.00	0.47
3.17	0.60	9.17	3.64	15.17	0.77	21.17	0.46
3.33	0.61	9.33	3.23	15.33	0.75	21.33	0.46
3.50	0.63	9.50	2.91	15.50	0.74	21.50	0.46

3.67	0.65	9.67	2.65	15.67	0.73	21.67	0.45
3.83	0.67	9.83	2.44	15.83	0.71	21.83	0.45
4.00	0.70	10.00	2.26	16.00	0.70	22.00	0.44
4.17	0.72	10.17	2.11	16.17	0.69	22.17	0.44
4.33	0.75	10.33	1.98	16.33	0.68	22.33	0.43
4.50	0.78	10.50	1.86	16.50	0.67	22.50	0.43
4.67	0.81	10.67	1.76	16.67	0.66	22.67	0.43
4.83	0.85	10.83	1.67	16.83	0.64	22.83	0.42
5.00	0.89	11.00	1.59	17.00	0.64	23.00	0.42
5.17	0.93	11.17	1.52	17.17	0.63	23.17	0.41
5.33	0.98	11.33	1.46	17.33	0.62	23.33	0.41
5.50	1.04	11.50	1.40	17.50	0.61	23.50	0.41
5.67	1.10	11.67	1.34	17.67	0.60	23.67	0.40
5.83	1.17	11.83	1.29	17.83	0.59	23.83	0.40
6.00	1.26	12.00	1.25	18.00	0.58	24.00	0.40

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| CALIB |
| NASHYD ( 0005) | Area (ha)= 0.43 Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
-----
| U.H. Tp(hrs)= 0.09

```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51

1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40

5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Unit Hyd Qpeak (cms)= 0.175

PEAK FLOW (cms)= 0.019 (i)
 TIME TO PEAK (hrs)= 8.000
 RUNOFF VOLUME (mm)= 13.418
 TOTAL RAINFALL (mm)= 48.688
 RUNOFF COEFFICIENT = 0.276

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB |
| STANDHYD ( 0007) | Area (ha)= 0.37
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00
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		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.21
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	49.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52

1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40

5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)=	82.18	15.21
over (min)	5.00	20.00
Storage Coeff. (min)=	1.82 (ii)	16.81 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.32	0.06

TOTALS

PEAK FLOW (cms)=	0.04	0.01	0.038 (iii)
TIME TO PEAK (hrs)=	8.00	8.25	8.00
RUNOFF VOLUME (mm)=	47.69	13.87	28.38
TOTAL RAINFALL (mm)=	48.69	48.69	48.69
RUNOFF COEFFICIENT =	0.98	0.28	0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0018)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0005):	0.43	0.019	8.00	13.42
+ ID2= 2 (0007):	0.37	0.038	8.00	28.38
=====				
ID = 3 (0018):	0.80	0.057	8.00	20.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)=	7.39	Curve Number (CN)=	73.0
NASHYD (0053)	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.53		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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

0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44

4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Unit Hyd Qpeak (cms)= 0.535

PEAK FLOW (cms)= 0.114 (i)

TIME TO PEAK (hrs)= 8.583

RUNOFF VOLUME (mm)= 13.867

TOTAL RAINFALL (mm)= 48.688

RUNOFF COEFFICIENT = 0.285

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | CALIB |
 | STANDHYD (0020) | Area (ha)= 0.16
 | ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.09
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	32.66	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57	
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57	
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57	
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57	
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56	
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56	
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55	
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55	
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55	
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55	
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54	
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54	
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53	
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53	
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53	
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53	
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52	
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52	
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51	
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51	
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51	
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51	
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50	
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50	
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50	
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50	
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49	
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49	
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48	
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48	
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48	
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48	
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47	
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47	
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47	
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47	
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46	
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46	
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46	
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46	
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46	
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46	
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45	
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45	
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45	
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45	
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44	
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44	

4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)= 82.18 15.21
over (min) 5.00 20.00
Storage Coeff. (min)= 1.41 (ii) 16.40 (ii)
Unit Hyd. Tpeak (min)= 5.00 20.00
Unit Hyd. peak (cms)= 0.33 0.06

TOTALS

PEAK FLOW (cms)= 0.02 0.00 0.017 (iii)
TIME TO PEAK (hrs)= 8.00 8.25 8.00
RUNOFF VOLUME (mm)= 47.69 13.87 28.36
TOTAL RAINFALL (mm)= 48.69 48.69 48.69
RUNOFF COEFFICIENT = 0.98 0.28 0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0025) | Area (ha)= 0.36
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.21
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	48.99	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47

3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)=	82.18	15.21
over (min)	5.00	20.00
Storage Coeff. (min)=	1.80 (ii)	16.79 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.32	0.06

TOTALS

PEAK FLOW (cms)=	0.04	0.00	0.037 (iii)
TIME TO PEAK (hrs)=	8.00	8.25	8.00
RUNOFF VOLUME (mm)=	47.69	13.87	28.38
TOTAL RAINFALL (mm)=	48.69	48.69	48.69
RUNOFF COEFFICIENT =	0.98	0.28	0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 73.0 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 ( 0019) |
| 1 + 2 = 3      |
-----
                AREA    QPEAK    TPEAK    R.V.
                (ha)    (cms)    (hrs)    (mm)
      ID1= 1 ( 0020):    0.16    0.017    8.00    28.36
+ ID2= 2 ( 0025):    0.36    0.037    8.00    28.38
=====
      ID = 3 ( 0019):    0.52    0.054    8.00    28.38
  
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| ADD HYD ( 0019) |
| 3 + 2 = 1      |
-----
                AREA    QPEAK    TPEAK    R.V.
                (ha)    (cms)    (hrs)    (mm)
      ID1= 3 ( 0019):    0.52    0.054    8.00    28.38
+ ID2= 2 ( 0053):    7.39    0.114    8.58    13.87
=====
      ID = 1 ( 0019):    7.91    0.123    8.58    14.82
  
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| CALIB          |
| NASHYD ( 0023) | Area (ha)= 0.37   Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00   # of Linear Res.(N)= 3.00
-----
                U.H. Tp(hrs)= 0.15
  
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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56

0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43

4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Unit Hyd Qpeak (cms)= 0.094

PEAK FLOW (cms)= 0.013 (i)

TIME TO PEAK (hrs)= 8.083

RUNOFF VOLUME (mm)= 13.789

TOTAL RAINFALL (mm)= 48.688

RUNOFF COEFFICIENT = 0.283

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0015)		Area (ha)=	1.34
ID= 1 DT= 5.0 min		Total Imp(%)=	71.00 Dir. Conn.(%)= 71.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.95	0.39
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	94.52	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57

0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43

4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)= 82.18 15.21
over (min) 5.00 20.00
Storage Coeff. (min)= 2.67 (ii) 17.66 (ii)
Unit Hyd. Tpeak (min)= 5.00 20.00
Unit Hyd. peak (cms)= 0.29 0.06

TOTALS

PEAK FLOW (cms)= 0.21 0.01 0.216 (iii)
TIME TO PEAK (hrs)= 8.00 8.25 8.00
RUNOFF VOLUME (mm)= 47.69 13.87 37.87
TOTAL RAINFALL (mm)= 48.69 48.69 48.69
RUNOFF COEFFICIENT = 0.98 0.28 0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0017) | Area (ha)= 0.36
| ID= 1 DT= 5.0 min | Total Imp(%)= 86.00 Dir. Conn.(%)= 85.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.31	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	48.99	40.00

Mannings n = 0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46

3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)=	82.18	21.91
over (min)	5.00	10.00
Storage Coeff. (min)=	1.80 (ii)	5.51 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.32	0.16

TOTALS

PEAK FLOW (cms)=	0.07	0.00	0.072 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	47.69	14.71	42.74
TOTAL RAINFALL (mm)=	48.69	48.69	48.69
RUNOFF COEFFICIENT =	0.98	0.30	0.88

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0021)
ID= 1 DT= 5.0 min

Area (ha)= 0.15
 Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.09
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	31.62	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57	
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57	
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57	
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57	
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56	
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56	
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55	
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55	
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55	
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55	
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54	
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54	
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53	
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53	
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53	
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53	
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52	
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52	
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51	
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51	
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51	
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51	
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50	
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50	
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50	
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50	
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49	
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49	
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48	
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48	

2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)=	82.18	15.21
over (min)	5.00	20.00
Storage Coeff. (min)=	1.38 (ii)	16.38 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.33	0.06

TOTALS

PEAK FLOW (cms)=	0.01	0.00	0.015 (iii)

TIME TO PEAK	(hrs)=	8.00	8.25	8.00
RUNOFF VOLUME	(mm)=	47.69	13.87	28.36
TOTAL RAINFALL	(mm)=	48.69	48.69	48.69
RUNOFF COEFFICIENT	=	0.98	0.28	0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0043)	Area (ha)=	0.21	
ID= 1 DT= 5.0 min	Total Imp(%)=	43.00	Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.12
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	37.42	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52

1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40

5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)= 82.18 15.21
over (min) 5.00 20.00
Storage Coeff. (min)= 1.53 (ii) 16.52 (ii)
Unit Hyd. Tpeak (min)= 5.00 20.00
Unit Hyd. peak (cms)= 0.33 0.06

TOTALS

PEAK FLOW (cms)= 0.02 0.00 0.022 (iii)
TIME TO PEAK (hrs)= 8.00 8.25 8.00
RUNOFF VOLUME (mm)= 47.69 13.87 28.36
TOTAL RAINFALL (mm)= 48.69 48.69 48.69
RUNOFF COEFFICIENT = 0.98 0.28 0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0016) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0015):    1.34    0.216    8.00    37.87
+ ID2= 2 ( 0017):    0.36    0.072    8.00    42.74
=====
ID = 3 ( 0016):    1.70    0.288    8.00    38.90

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0016) |
| 3 + 2 = 1 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 3 ( 0016):    1.70    0.288    8.00    38.90
+ ID2= 2 ( 0021):    0.15    0.015    8.00    28.36
=====
ID = 1 ( 0016):    1.85    0.304    8.00    38.05

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.


```

-----
| ADD HYD ( 0016) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0016):    1.85    0.304    8.00    38.05
+ ID2= 2 ( 0023):    0.37    0.013    8.08    13.79
=====
ID = 3 ( 0016):    2.22    0.314    8.00    34.00

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0016) |
| 3 + 2 = 1 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 3 ( 0016):    2.22    0.314    8.00    34.00
+ ID2= 2 ( 0043):    0.21    0.022    8.00    28.36
=====
ID = 1 ( 0016):    2.43    0.336    8.00    33.52

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| CALIB
| NASHYD ( 0027) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 0.53   Curve Number (CN)= 73.0
Ia (mm)= 5.00    # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.23

```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

```

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53

1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41

5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Unit Hyd Qpeak (cms)= 0.086

PEAK FLOW (cms)= 0.014 (i)

TIME TO PEAK (hrs)= 8.167

RUNOFF VOLUME (mm)= 13.853

TOTAL RAINFALL (mm)= 48.688

RUNOFF COEFFICIENT = 0.285

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0026)	Area (ha)= 1.11
ID= 1 DT= 5.0 min	Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.95	0.16
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	86.02	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54

1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41

5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)= 82.18 18.96
over (min) 5.00 10.00
Storage Coeff. (min)= 2.52 (ii) 6.22 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.29 0.15

TOTALS

PEAK FLOW (cms)= 0.21 0.01 0.220 (iii)
TIME TO PEAK (hrs)= 8.00 8.08 8.00
RUNOFF VOLUME (mm)= 47.69 13.87 42.95
TOTAL RAINFALL (mm)= 48.69 48.69 48.69
RUNOFF COEFFICIENT = 0.98 0.28 0.88

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0028) | Area (ha)= 0.14
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.08
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	30.55	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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

0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44

4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)= 82.18 15.21
over (min) 5.00 20.00
Storage Coeff. (min)= 1.36 (ii) 16.35 (ii)
Unit Hyd. Tpeak (min)= 5.00 20.00
Unit Hyd. peak (cms)= 0.33 0.06

TOTALS

PEAK FLOW (cms)= 0.01 0.00 0.014 (iii)
TIME TO PEAK (hrs)= 8.00 8.25 8.00
RUNOFF VOLUME (mm)= 47.69 13.87 28.36
TOTAL RAINFALL (mm)= 48.69 48.69 48.69
RUNOFF COEFFICIENT = 0.98 0.28 0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0024) |
1 + 2 = 3
ID1= 1 (0026): AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
1.11 0.220 8.00 42.95

+ ID2= 2 (0027):	0.53	0.014	8.17	13.85
=====				
ID = 3 (0024):	1.64	0.228	8.00	33.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0024)				
3 + 2 = 1				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0024):	1.64	0.228	8.00	33.55
+ ID2= 2 (0028):	0.14	0.014	8.00	28.36
=====				
ID = 1 (0024):	1.78	0.242	8.00	33.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0031)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0016):	2.43	0.336	8.00	33.52
+ ID2= 2 (0024):	1.78	0.242	8.00	33.14
=====				
ID = 3 (0031):	4.21	0.578	8.00	33.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0032)	OVERFLOW IS ON			
IN= 2---> OUT= 1				
DT= 1.0 min				

	OUTFLOW	STORAGE	OUTFLOW	STORAGE
	(cms)	(ha.m.)	(cms)	(ha.m.)
	0.0000	0.0000	0.4270	0.1321
	0.0070	0.0585	0.4940	0.1385
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0031)	4.210	0.578	8.00	33.36
OUTFLOW: ID= 1 (0032)	4.210	0.082	8.50	24.91
OVERFLOW: ID= 3 (0003)	0.000	0.000	0.00	0.00

TOTAL NUMBER OF SIMULATION OVERFLOW = 0
 CUMULATIVE TIME OF OVERFLOW (HOURS) = 0.00
 PERCENTAGE OF TIME OVERFLOWING (%) = 0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 14.23
 TIME SHIFT OF PEAK FLOW (min)= 30.00

MAXIMUM STORAGE USED (ha.m.)= 0.0717

| Junction Command(0041) |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0032)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0041)	0.00	0.00	0.00	0.00

| ADD HYD (0042) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
*** W A R N I N G : HYDROGRAPH 0041 <ID= 2> IS DRY.				
*** W A R N I N G : HYDROGRAPH 0003 = HYDROGRAPH 0001				
ID1= 1 (0032):	4.21	0.082	8.50	24.91
+ ID2= 2 (0041):	0.00	0.000	0.00	0.00
=====				
ID = 3 (0042):	4.21	0.082	8.50	24.91

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0055) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0019):	7.91	0.123	8.58	14.82
+ ID2= 2 (0042):	4.21	0.082	8.50	24.91
=====				
ID = 3 (0055):	12.12	0.205	8.50	18.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB
| NASHYD (0029) |
| ID= 1 DT= 5.0 min |

Area (ha)=	0.93	Curve Number (CN)=	73.0
Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.05		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44

4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Unit Hyd Qpeak (cms)= 0.710

PEAK FLOW (cms)= 0.043 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 10.581

TOTAL RAINFALL (mm)= 48.688

RUNOFF COEFFICIENT = 0.217

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0056)	Area (ha)= 0.25
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.11	0.14
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	40.82	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57	
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57	
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57	
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57	
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56	
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56	
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55	
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55	
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55	
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55	
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54	
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54	
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53	
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53	
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53	
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53	
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52	
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52	
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51	
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51	
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51	
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51	
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50	
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50	
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50	
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50	
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49	
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49	
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48	
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48	
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48	
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48	
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47	
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47	
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47	
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47	
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46	
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46	
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46	
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46	
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46	
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46	
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45	
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45	
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45	
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45	

3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)=	82.18	15.21
over (min)	5.00	20.00
Storage Coeff. (min)=	1.61 (ii)	16.61 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.32	0.06

TOTALS

PEAK FLOW (cms)=	0.02	0.00	0.026 (iii)
TIME TO PEAK (hrs)=	8.00	8.25	8.00
RUNOFF VOLUME (mm)=	47.69	13.87	28.36
TOTAL RAINFALL (mm)=	48.69	48.69	48.69
RUNOFF COEFFICIENT =	0.98	0.28	0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0034)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0029):	0.93	0.043	8.00	10.58
+ ID2= 2 (0055):	12.12	0.205	8.50	18.33
=====				
ID = 3 (0034):	13.05	0.212	8.50	17.77

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0034)				
3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0034):	13.05	0.212	8.50	17.77
+ ID2= 2 (0056):	0.25	0.026	8.00	28.36
=====				
ID = 1 (0034):	13.30	0.216	8.50	17.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0003)	Area (ha)=	0.35	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.08	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57	
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57	
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57	
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57	
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56	
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56	
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55	
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55	
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55	
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55	
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54	
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54	
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53	
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53	
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53	
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53	

1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41

5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.017 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 13.012

TOTAL RAINFALL (mm)= 48.688

RUNOFF COEFFICIENT = 0.267

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0009)	Area (ha)= 0.13
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53

1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41

5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)= 82.18 15.21
over (min) 5.00 20.00
Storage Coeff. (min)= 1.33 (ii) 16.32 (ii)
Unit Hyd. Tpeak (min)= 5.00 20.00
Unit Hyd. peak (cms)= 0.33 0.06

TOTALS

PEAK FLOW (cms)= 0.02 0.00 0.019 (iii)
TIME TO PEAK (hrs)= 8.00 8.25 8.00
RUNOFF VOLUME (mm)= 47.69 13.87 35.48
TOTAL RAINFALL (mm)= 48.69 48.69 48.69
RUNOFF COEFFICIENT = 0.98 0.28 0.73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0003):	0.35	0.017	8.00	13.01
+ ID2= 2 (0009):	0.13	0.019	8.00	35.48
=====				
ID = 3 (0011):	0.48	0.036	8.00	19.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0013)	Area (ha)=	0.13	
ID= 1 DT= 5.0 min	Total Imp(%)=	64.00	Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00

Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46

3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)=	82.18	15.21
over (min)	5.00	20.00
Storage Coeff. (min)=	1.33 (ii)	16.32 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.33	0.06

TOTALS

PEAK FLOW (cms)=	0.02	0.00	0.019 (iii)
TIME TO PEAK (hrs)=	8.00	8.25	8.00
RUNOFF VOLUME (mm)=	47.69	13.87	35.48
TOTAL RAINFALL (mm)=	48.69	48.69	48.69
RUNOFF COEFFICIENT =	0.98	0.28	0.73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0054) | Area   (ha)= 0.11
| ID= 1 DT= 5.0 min | Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00
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		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.04
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	27.08	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49

2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)=	82.18	15.21
over (min)	5.00	20.00
Storage Coeff. (min)=	1.26 (ii)	16.25 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.33	0.06

				TOTALS
PEAK FLOW	(cms)=	0.02	0.00	0.016 (iii)
TIME TO PEAK	(hrs)=	8.00	8.25	8.00
RUNOFF VOLUME	(mm)=	47.69	13.87	35.48
TOTAL RAINFALL	(mm)=	48.69	48.69	48.69
RUNOFF COEFFICIENT	=	0.98	0.28	0.73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0004) |
| 1 + 2 = 3 |
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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0011):	0.48	0.036	8.00	19.10
+ ID2= 2 (0013):	0.13	0.019	8.00	35.48
=====				
ID = 3 (0004):	0.61	0.056	8.00	22.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| ADD HYD ( 0004) |
| 3 + 2 = 1 |
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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0004):	0.61	0.056	8.00	22.59
+ ID2= 2 (0054):	0.11	0.016	8.00	35.48
=====				
ID = 1 (0004):	0.72	0.072	8.00	24.56

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| RESERVOIR( 0050) |
| IN= 2---> OUT= 1 |
| DT= 5.0 min |
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OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.2390	0.0097
0.0390	0.0052	0.0000	0.0000

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

INFLOW : ID= 2 (0004) 0.720 0.072 8.00 24.56
 OUTFLOW: ID= 1 (0050) 0.720 0.029 8.08 24.53

PEAK FLOW REDUCTION [Qout/Qin](%)= 40.07
 TIME SHIFT OF PEAK FLOW (min)= 5.00
 MAXIMUM STORAGE USED (ha.m.)= 0.0039

 | CALIB |
 | STANDHYD (0006) | Area (ha)= 0.07
 | ID= 1 DT= 5.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	22.21	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50

2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)= 82.18

18.96

over (min)	5.00	10.00	
Storage Coeff. (min)=	1.12 (ii)	5.51 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.34	0.16	
			TOTALS
PEAK FLOW (cms)=	0.01	0.00	0.014 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	47.69	13.87	38.85
TOTAL RAINFALL (mm)=	48.69	48.69	48.69
RUNOFF COEFFICIENT =	0.98	0.28	0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 73.0 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 (0008)	Area (ha)=	0.40	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.39	0.00	
Dep. Storage (mm)=	1.00	5.00	
Average Slope (%)=	1.00	2.00	
Length (m)=	51.38	40.00	
Mannings n =	0.013	0.250	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54

1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41

5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)=	82.18	18.96
over (min)	5.00	5.00
Storage Coeff. (min)=	1.85 (ii)	3.07 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.32	0.27

TOTALS

PEAK FLOW (cms)=	0.09	0.00	0.089 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	47.69	13.87	47.35
TOTAL RAINFALL (mm)=	48.69	48.69	48.69
RUNOFF COEFFICIENT =	0.98	0.28	0.97

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0048)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0006):	0.07	0.014	8.00	38.85
+ ID2= 2 (0008):	0.40	0.089	8.00	47.35
=====				
ID = 3 (0048):	0.47	0.103	8.00	46.01

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0030)				
IN= 2---> OUT= 1				
DT= 5.0 min				

OVERFLOW IS OFF				
	OUTFLOW	STORAGE	OUTFLOW	STORAGE
	(cms)	(ha.m.)	(cms)	(ha.m.)
	0.0000	0.0000	0.1120	0.0061

0.0210	0.0010		0.1220	0.0071
0.0530	0.0020		0.1320	0.0081
0.0730	0.0030		0.1400	0.0091
0.0880	0.0041		0.1520	0.0105
0.1000	0.0051		0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0048)	0.470	0.103	8.00	46.01
OUTFLOW: ID= 1 (0030)	0.470	0.072	8.00	46.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 69.75
 TIME SHIFT OF PEAK FLOW (min)= 0.00
 MAXIMUM STORAGE USED (ha.m.)= 0.0035

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| ADD HYD ( 0046) |
| 1 + 2 = 3 |
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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	0.47	0.072	8.00	46.00
+ ID2= 2 (0050):	0.72	0.029	8.08	24.53
=====				
ID = 3 (0046):	1.19	0.100	8.08	33.01

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB |
| STANDHYD ( 0014) |
| ID= 1 DT= 5.0 min |
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Area (ha)=	0.14		
Total Imp(%)=	71.00	Dir. Conn.(%)=	71.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.10	0.04
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	30.88	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57

0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43

4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)= 82.18 15.21
over (min) 5.00 20.00
Storage Coeff. (min)= 1.37 (ii) 16.36 (ii)
Unit Hyd. Tpeak (min)= 5.00 20.00
Unit Hyd. peak (cms)= 0.33 0.06

TOTALS

PEAK FLOW (cms)= 0.02 0.00 0.024 (iii)
TIME TO PEAK (hrs)= 8.00 8.25 8.00
RUNOFF VOLUME (mm)= 47.69 13.87 37.86
TOTAL RAINFALL (mm)= 48.69 48.69 48.69
RUNOFF COEFFICIENT = 0.98 0.28 0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0051) |
| 1 + 2 = 3 |
-----
      AREA      QPEAK      TPEAK      R.V.
      (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0014):  0.14  0.024  8.00  37.86
+ ID2= 2 ( 0046):  1.19  0.100  8.08  33.01
=====
ID = 3 ( 0051):  1.33  0.119  8.00  33.53

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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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=====
=====
V   V   I   SSSSS U   U   A   L           (v 6.1.2003)
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
```

```
000   TTTTT TTTTT H   H   Y   Y   M   M   000   TM
O   O   T       T   H   H   Y   Y   MM MM   O   O
O   O   T       T   H   H   Y       M   M   O   O
000       T       T   H   H   Y       M   M   000
```

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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 6.1-New\V02\voin.dat

Output filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\960d0bbc-ac6d-4129-8664-a993e6a37f5a\

Summary filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\960d0bbc-ac6d-4129-8664-a993e6a37f5a\

DATE: 11/24/2021

TIME: 04:52:08

USER:

COMMENTS: _____

```
-----
*****
** SIMULATION : 50-yr 24hr           **
*****
```

| CHICAGO STORM | IDF curve parameters: A=1960.000

Ptotal= 89.46 mm

B= 5.800

C= 0.861

used in: INTENSITY = A / (t + B)^C

Duration of storm = 24.00 hrs

Storm time step = 10.00 min

Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.54	6.17	2.03	12.17	1.79	18.17	0.80
0.33	0.55	6.33	2.22	12.33	1.72	18.33	0.78
0.50	0.56	6.50	2.46	12.50	1.66	18.50	0.77
0.67	0.57	6.67	2.76	12.67	1.61	18.67	0.76
0.83	0.58	6.83	3.16	12.83	1.56	18.83	0.75
1.00	0.59	7.00	3.69	13.00	1.51	19.00	0.74
1.17	0.61	7.17	4.47	13.17	1.46	19.17	0.73
1.33	0.62	7.33	5.68	13.33	1.42	19.33	0.72
1.50	0.63	7.50	7.86	13.50	1.38	19.50	0.71
1.67	0.65	7.67	12.90	13.67	1.35	19.67	0.70
1.83	0.67	7.83	36.22	13.83	1.31	19.83	0.70
2.00	0.68	8.00	182.06	14.00	1.28	20.00	0.69
2.17	0.70	8.17	49.51	14.17	1.25	20.17	0.68
2.33	0.72	8.33	23.49	14.33	1.22	20.33	0.67
2.50	0.74	8.50	15.09	14.50	1.19	20.50	0.66
2.67	0.76	8.67	11.06	14.67	1.16	20.67	0.65
2.83	0.78	8.83	8.73	14.83	1.14	20.83	0.65
3.00	0.80	9.00	7.21	15.00	1.11	21.00	0.64
3.17	0.83	9.17	6.15	15.17	1.09	21.17	0.63
3.33	0.85	9.33	5.37	15.33	1.07	21.33	0.63
3.50	0.88	9.50	4.77	15.50	1.04	21.50	0.62
3.67	0.91	9.67	4.29	15.67	1.02	21.67	0.61
3.83	0.95	9.83	3.91	15.83	1.00	21.83	0.61
4.00	0.98	10.00	3.59	16.00	0.99	22.00	0.60
4.17	1.02	10.17	3.32	16.17	0.97	22.17	0.59
4.33	1.06	10.33	3.09	16.33	0.95	22.33	0.59
4.50	1.11	10.50	2.89	16.50	0.93	22.50	0.58
4.67	1.16	10.67	2.72	16.67	0.92	22.67	0.57
4.83	1.22	10.83	2.56	16.83	0.90	22.83	0.57
5.00	1.28	11.00	2.43	17.00	0.89	23.00	0.56
5.17	1.35	11.17	2.31	17.17	0.87	23.17	0.56
5.33	1.42	11.33	2.20	17.33	0.86	23.33	0.55
5.50	1.51	11.50	2.10	17.50	0.85	23.50	0.55
5.67	1.61	11.67	2.01	17.67	0.83	23.67	0.54
5.83	1.73	11.83	1.93	17.83	0.82	23.83	0.54
6.00	1.87	12.00	1.85	18.00	0.81	24.00	0.53

CALIB				
NASHYD (0005)		Area (ha)=	0.43	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min		Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
-----		U.H. Tp(hrs)=	0.09	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63

3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Unit Hyd Qpeak (cms)= 0.175

PEAK FLOW (cms)= 0.075 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 38.687

TOTAL RAINFALL (mm)= 89.457

RUNOFF COEFFICIENT = 0.432

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)= 0.37
STANDHYD (0007)	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00
ID= 1 DT= 5.0 min	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.21
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	49.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63

3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)=	182.06	75.28
over (min)	5.00	10.00
Storage Coeff. (min)=	1.32 (ii)	9.23 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.33	0.12

TOTALS

PEAK FLOW (cms)=	0.08	0.03	0.104 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	88.46	39.98	60.81
TOTAL RAINFALL (mm)=	89.46	89.46	89.46
RUNOFF COEFFICIENT =	0.99	0.45	0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 73.0 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 ( 0018) |
| 1 + 2 = 3 |
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                AREA    QPEAK    TPEAK    R.V.
                (ha)    (cms)    (hrs)    (mm)
      ID1= 1 ( 0005):    0.43    0.075    8.00    38.69
+ ID2= 2 ( 0007):    0.37    0.104    8.00    60.81
=====
      ID = 3 ( 0018):    0.80    0.179    8.00    48.92
  
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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB |
| NASHYD ( 0053) |
| ID= 1 DT= 5.0 min |
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Area (ha)= 7.39    Curve Number (CN)= 73.0
Ia (mm)= 5.00    # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.53
  
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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70

1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54

5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Unit Hyd Qpeak (cms)= 0.535

PEAK FLOW (cms)= 0.427 (i)

TIME TO PEAK (hrs)= 8.583

RUNOFF VOLUME (mm)= 39.981

TOTAL RAINFALL (mm)= 89.457

RUNOFF COEFFICIENT = 0.447

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB |
| STANDHYD ( 0020) | Area (ha)= 0.16
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00
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		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.09
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	32.66	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71

1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54

5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)=	182.06	75.28	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.03 (ii)	8.93 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.34	0.12	
TOTALS			
PEAK FLOW (cms)=	0.03	0.01	0.045 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	88.46	39.98	60.79
TOTAL RAINFALL (mm)=	89.46	89.46	89.46
RUNOFF COEFFICIENT =	0.99	0.45	0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0025)	Area (ha)= 0.36
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.15	0.21
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	48.99	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77

0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57

4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)= 182.06 75.28
over (min) 5.00 10.00
Storage Coeff. (min)= 1.31 (ii) 9.22 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.33 0.12

TOTALS

PEAK FLOW (cms)= 0.08 0.03 0.101 (iii)
TIME TO PEAK (hrs)= 8.00 8.08 8.00
RUNOFF VOLUME (mm)= 88.46 39.98 60.81
TOTAL RAINFALL (mm)= 89.46 89.46 89.46
RUNOFF COEFFICIENT = 0.99 0.45 0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0019) |
| 1 + 2 = 3 |
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          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0020):    0.16    0.045      8.00    60.79
+ ID2= 2 ( 0025):    0.36    0.101      8.00    60.81
=====
ID = 3 ( 0019):    0.52    0.146      8.00    60.81

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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

 | ADD HYD (0019) |
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0019):	0.52	0.146	8.00	60.81
+ ID2= 2 (0053):	7.39	0.427	8.58	39.98
=====				
ID = 1 (0019):	7.91	0.448	8.50	41.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

 | CALIB |
 | NASHYD (0023) |
ID= 1 DT= 5.0 min

Area (ha)=	0.37	Curve Number (CN)=	73.0
Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.15		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68

2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Unit Hyd Qpeak (cms)= 0.094

PEAK FLOW (cms)= 0.049 (i)
 TIME TO PEAK (hrs)= 8.083
 RUNOFF VOLUME (mm)= 39.757
 TOTAL RAINFALL (mm)= 89.457
 RUNOFF COEFFICIENT = 0.444

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0015)	Area (ha)= 1.34
ID= 1 DT= 5.0 min	Total Imp(%)= 71.00 Dir. Conn.(%)= 71.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.95	0.39
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	94.52	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69

2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)=	182.06	75.28	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.94 (ii)	5.83 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.31	0.15	
			TOTALS
PEAK FLOW (cms)=	0.48	0.06	0.533 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	88.46	39.98	74.40
TOTAL RAINFALL (mm)=	89.46	89.46	89.46
RUNOFF COEFFICIENT =	0.99	0.45	0.83

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 73.0 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 (0017)	Area (ha)= 0.36
ID= 1 DT= 5.0 min	Total Imp(%)= 86.00 Dir. Conn.(%)= 85.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.31	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	48.99	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74

1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56

5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)= 182.06 84.94
over (min) 5.00 5.00
Storage Coeff. (min)= 1.31 (ii) 4.01 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.33 0.24

TOTALS

PEAK FLOW (cms)= 0.15 0.01 0.167 (iii)
TIME TO PEAK (hrs)= 8.00 8.00 8.00
RUNOFF VOLUME (mm)= 88.46 41.68 81.44
TOTAL RAINFALL (mm)= 89.46 89.46 89.46
RUNOFF COEFFICIENT = 0.99 0.47 0.91

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0021) | Area (ha)= 0.15
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.09
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	31.62	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59

4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)=	182.06	75.28
over (min)	5.00	10.00
Storage Coeff. (min)=	1.01 (ii)	8.91 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.34	0.12

TOTALS

PEAK FLOW (cms)=	0.03	0.01	0.042 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	88.46	39.98	60.79
TOTAL RAINFALL (mm)=	89.46	89.46	89.46
RUNOFF COEFFICIENT =	0.99	0.45	0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0043)	Area (ha)= 0.21
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.12
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	37.42	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63

3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)=	182.06	75.28
over (min)	5.00	10.00
Storage Coeff. (min)=	1.11 (ii)	9.02 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.34	0.12

TOTALS

PEAK FLOW (cms)=	0.05	0.02	0.059 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	88.46	39.98	60.81
TOTAL RAINFALL (mm)=	89.46	89.46	89.46
RUNOFF COEFFICIENT =	0.99	0.45	0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 73.0 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 (0016)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0015):	1.34	0.533	8.00	74.40
+ ID2= 2 (0017):	0.36	0.167	8.00	81.44
=====				
ID = 3 (0016):	1.70	0.699	8.00	75.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0016)				
3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0016):	1.70	0.699	8.00	75.89
+ ID2= 2 (0021):	0.15	0.042	8.00	60.79
=====				
ID = 1 (0016):	1.85	0.741	8.00	74.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0016)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0016):	1.85	0.741	8.00	74.66
+ ID2= 2 (0023):	0.37	0.049	8.08	39.76
=====				
ID = 3 (0016):	2.22	0.784	8.00	68.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0016)				
3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0016):	2.22	0.784	8.00	68.85
+ ID2= 2 (0043):	0.21	0.059	8.00	60.81

=====

ID = 1 (0016): 2.43 0.843 8.00 68.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0027)	Area (ha)=	0.53	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.23	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65

2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Unit Hyd Qpeak (cms)= 0.086

PEAK FLOW (cms)= 0.054 (i)
TIME TO PEAK (hrs)= 8.167
RUNOFF VOLUME (mm)= 39.941
TOTAL RAINFALL (mm)= 89.457
RUNOFF COEFFICIENT = 0.446

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | CALIB |
 | STANDHYD (0026) | Area (ha)= 1.11
 | ID= 1 DT= 5.0 min | Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.95	0.16
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	86.02	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65

2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)=	182.06	75.28
over (min)	5.00	5.00
Storage Coeff. (min)=	1.84 (ii)	4.52 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.32	0.23

TOTALS

PEAK FLOW (cms)=	0.48	0.03	0.513 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00

RUNOFF VOLUME	(mm)=	88.46	39.98	81.67
TOTAL RAINFALL	(mm)=	89.46	89.46	89.46
RUNOFF COEFFICIENT	=	0.99	0.45	0.91

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0028)	Area (ha)=	0.14	
ID= 1 DT= 5.0 min	Total Imp(%)=	43.00	Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.08
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	30.55	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70

1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54

5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)=	182.06	75.28
over (min)	5.00	10.00
Storage Coeff. (min)=	0.99 (ii)	8.89 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.34	0.12

TOTALS

PEAK FLOW (cms)=	0.03	0.01	0.039 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	88.46	39.98	60.79
TOTAL RAINFALL (mm)=	89.46	89.46	89.46
RUNOFF COEFFICIENT =	0.99	0.45	0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0024)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0026):	1.11	0.513	8.00	81.67
+ ID2= 2 (0027):	0.53	0.054	8.17	39.94
=====				
ID = 3 (0024):	1.64	0.545	8.00	68.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0024)				
3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0024):	1.64	0.545	8.00	68.18
+ ID2= 2 (0028):	0.14	0.039	8.00	60.79
=====				
ID = 1 (0024):	1.78	0.584	8.00	67.60

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| ADD HYD ( 0031) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
      ID1= 1 ( 0016):  2.43    0.843    8.00    68.15
+ ID2= 2 ( 0024):  1.78    0.584    8.00    67.60
=====
      ID = 3 ( 0031):  4.21    1.427    8.00    67.92

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| RESERVOIR( 0032) |
| IN= 2---> OUT= 1 |
| DT= 1.0 min |
-----
          OUTFLOW      STORAGE      |      OUTFLOW      STORAGE
          (cms)      (ha.m.)      |      (cms)      (ha.m.)
          0.0000      0.0000      |      0.4270      0.1321
          0.0070      0.0585      |      0.4940      0.1385

          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
INFLOW : ID= 2 ( 0031)  4.210      1.427    8.00    67.92
OUTFLOW: ID= 1 ( 0032)  4.210      0.400    8.22    58.76
OVERFLOW: ID= 3 ( 0003)  0.000      0.000    0.00    0.00

```

TOTAL NUMBER OF SIMULATION OVERFLOW = 0
 CUMULATIVE TIME OF OVERFLOW (HOURS) = 0.00
 PERCENTAGE OF TIME OVERFLOWING (%) = 0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 28.02
 TIME SHIFT OF PEAK FLOW (min)= 13.00
 MAXIMUM STORAGE USED (ha.m.)= 0.1274

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| Junction Command(0041) |
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          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
INFLOW : ID= 3( 0032)  0.00    0.00    0.00    0.00
OUTFLOW: ID= 2( 0041)  0.00    0.00    0.00    0.00

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-----
| ADD HYD ( 0042) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)

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*** W A R N I N G : HYDROGRAPH 0041 <ID= 2> IS DRY.

*** W A R N I N G : HYDROGRAPH 0003 = HYDROGRAPH 0001

ID1= 1 (0032):	4.21	0.400	8.22	58.76
+ ID2= 2 (0041):	0.00	0.000	0.00	0.00
=====				
ID = 3 (0042):	4.21	0.400	8.22	58.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0055)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0019):	7.91	0.448	8.50	41.35
+ ID2= 2 (0042):	4.21	0.400	8.22	58.76
=====				
ID = 3 (0055):	12.12	0.796	8.40	47.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0029)				
ID= 1 DT= 5.0 min				

Area	(ha)=	0.93	Curve Number	(CN)= 73.0
Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
U.H. Tp	(hrs)=	0.05		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71

1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54

5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Unit Hyd Qpeak (cms)= 0.710

PEAK FLOW (cms)= 0.166 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 30.505

TOTAL RAINFALL (mm)= 89.457

RUNOFF COEFFICIENT = 0.341

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0056)		Area (ha)=	0.25
ID= 1 DT= 5.0 min		Total Imp(%)=	43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.11	0.14
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	40.82	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72

1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55

5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)= 182.06 75.28
over (min) 5.00 10.00
Storage Coeff. (min)= 1.17 (ii) 9.08 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.34 0.12

TOTALS

PEAK FLOW (cms)= 0.05 0.02 0.070 (iii)
TIME TO PEAK (hrs)= 8.00 8.08 8.00
RUNOFF VOLUME (mm)= 88.46 39.98 60.81
TOTAL RAINFALL (mm)= 89.46 89.46 89.46
RUNOFF COEFFICIENT = 0.99 0.45 0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0034) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0029):    0.93    0.166    8.00    30.51
+ ID2= 2 ( 0055):   12.12    0.796    8.40    47.40
=====
ID = 3 ( 0034):   13.05    0.822    8.33    46.19

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0034) |
| 3 + 2 = 1 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 3 ( 0034):   13.05    0.822    8.33    46.19
+ ID2= 2 ( 0056):    0.25    0.070    8.00    60.81
=====
ID = 1 ( 0034):   13.30    0.839    8.33    46.47

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| CALIB                                     |
| NASHYD ( 0003) | Area (ha)= 0.35 Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.08

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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64

3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.067 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 37.516

TOTAL RAINFALL (mm)= 89.457

RUNOFF COEFFICIENT = 0.419

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0009)	Area (ha)= 0.13
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.08	0.05
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	29.44	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65

2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)=	182.06	75.28
over (min)	5.00	10.00
Storage Coeff. (min)=	0.97 (ii)	5.38 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.34	0.16

TOTALS

PEAK FLOW (cms)=	0.04	0.01	0.049 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	88.46	39.98	70.99
TOTAL RAINFALL (mm)=	89.46	89.46	89.46

RUNOFF COEFFICIENT = 0.99 0.45 0.79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0011) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0003):    0.35    0.067      8.00    37.52
+ ID2= 2 ( 0009):    0.13    0.049      8.00    70.99
=====
ID = 3 ( 0011):    0.48    0.115      8.00    46.58
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB          |
| STANDHYD ( 0013) |
| ID= 1 DT= 5.0 min |
-----
          Area      (ha)=    0.13
          Total Imp(%)= 64.00   Dir. Conn.(%)= 64.00

          IMPERVIOUS      PERVIOUS (i)
Surface Area      (ha)=    0.08      0.05
Dep. Storage      (mm)=    1.00      5.00
Average Slope      (%)=    1.00      2.00
Length            (m)=   29.44     40.00
Mannings n        =    0.013     0.250
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083    0.54 | 6.083    2.03 | 12.083    1.79 | 18.08    0.80
0.167    0.54 | 6.167    2.03 | 12.167    1.79 | 18.17    0.80
0.250    0.55 | 6.250    2.22 | 12.250    1.72 | 18.25    0.78
0.333    0.55 | 6.333    2.22 | 12.333    1.72 | 18.33    0.78
0.417    0.56 | 6.417    2.46 | 12.417    1.66 | 18.42    0.77
0.500    0.56 | 6.500    2.46 | 12.500    1.66 | 18.50    0.77
0.583    0.57 | 6.583    2.76 | 12.583    1.61 | 18.58    0.76
0.667    0.57 | 6.667    2.76 | 12.667    1.61 | 18.67    0.76
0.750    0.58 | 6.750    3.16 | 12.750    1.56 | 18.75    0.75
```

0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56

5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)= 182.06 75.28
over (min) 5.00 10.00
Storage Coeff. (min)= 0.97 (ii) 5.38 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.34 0.16

TOTALS

PEAK FLOW (cms)= 0.04 0.01 0.049 (iii)
TIME TO PEAK (hrs)= 8.00 8.08 8.00
RUNOFF VOLUME (mm)= 88.46 39.98 70.99
TOTAL RAINFALL (mm)= 89.46 89.46 89.46
RUNOFF COEFFICIENT = 0.99 0.45 0.79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0054) | Area (ha)= 0.11
| ID= 1 DT= 5.0 min | Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.04
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	27.08	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60

4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)= 182.06 75.28
over (min) 5.00 10.00
Storage Coeff. (min)= 0.92 (ii) 5.33 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.34 0.16

TOTALS

PEAK FLOW (cms)= 0.04 0.01 0.041 (iii)
TIME TO PEAK (hrs)= 8.00 8.08 8.00
RUNOFF VOLUME (mm)= 88.46 39.98 70.99
TOTAL RAINFALL (mm)= 89.46 89.46 89.46
RUNOFF COEFFICIENT = 0.99 0.45 0.79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0004)|

1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0011):	0.48	0.115	8.00	46.58
+ ID2= 2 (0013):	0.13	0.049	8.00	70.99
=====				
ID = 3 (0004):	0.61	0.164	8.00	51.78

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0004)	AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0004):	0.61	0.164	8.00	51.78
+ ID2= 2 (0054):	0.11	0.041	8.00	70.99
=====				
ID = 1 (0004):	0.72	0.205	8.00	54.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0050)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW	STORAGE	OUTFLOW	STORAGE
	(cms)	(ha.m.)	(cms)	(ha.m.)
	0.0000	0.0000	0.2390	0.0097
	0.0390	0.0052	0.0000	0.0000

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0004)	0.720	0.205	8.00	54.72
OUTFLOW: ID= 1 (0050)	0.720	0.147	8.08	54.68

PEAK FLOW REDUCTION [Qout/Qin](%)= 71.62
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0084

CALIB	
STANDHYD (0006)	Area (ha)= 0.07
ID= 1 DT= 5.0 min	Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.06	0.01
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	22.21	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61

3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)=	182.06	75.28
over (min)	5.00	5.00
Storage Coeff. (min)=	0.82 (ii)	4.00 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.34	0.24

TOTALS

PEAK FLOW (cms)=	0.03	0.00	0.033 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	88.46	39.98	78.76
TOTAL RAINFALL (mm)=	89.46	89.46	89.46
RUNOFF COEFFICIENT =	0.99	0.45	0.88

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0008)	Area (ha)= 0.40	
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.39	0.00
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	51.38	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65

2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)=	182.06	75.28
over (min)	5.00	5.00
Storage Coeff. (min)=	1.35 (ii)	2.23 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.33	0.30

TOTALS

PEAK FLOW (cms)=	0.20	0.00	0.199 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00

RUNOFF VOLUME	(mm)=	88.46	39.98	87.97
TOTAL RAINFALL	(mm)=	89.46	89.46	89.46
RUNOFF COEFFICIENT	=	0.99	0.45	0.98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0048)				
1 + 2 = 3				

ID1= 1 (0006):	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
+ ID2= 2 (0008):	0.07	0.033	8.00	78.76
	0.40	0.199	8.00	87.97
=====				
ID = 3 (0048):	0.47	0.232	8.00	86.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0030)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min				

	OUTFLOW	STORAGE	OUTFLOW	STORAGE
	(cms)	(ha.m.)	(cms)	(ha.m.)
	0.0000	0.0000	0.1120	0.0061
	0.0210	0.0010	0.1220	0.0071
	0.0530	0.0020	0.1320	0.0081
	0.0730	0.0030	0.1400	0.0091
	0.0880	0.0041	0.1520	0.0105
	0.1000	0.0051	0.0000	0.0000

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0048)	0.470	0.232	8.00	86.52
OUTFLOW: ID= 1 (0030)	0.470	0.132	8.08	86.51

PEAK FLOW REDUCTION [Qout/Qin](%)= 56.93
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0091

ADD HYD (0046)

1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	0.47	0.132	8.08	86.51
+ ID2= 2 (0050):	0.72	0.147	8.08	54.68
=====				
ID = 3 (0046):	1.19	0.279	8.08	67.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
STANDHYD (0014)	Area (ha)=	0.14		
ID= 1 DT= 5.0 min	Total Imp(%)=	71.00	Dir. Conn.(%)=	71.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.10	0.04
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	30.88	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69

2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)=	182.06	75.28	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.99 (ii)	4.88 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.22	
			TOTALS
PEAK FLOW (cms)=	0.05	0.01	0.060 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	88.46	39.98	74.39
TOTAL RAINFALL (mm)=	89.46	89.46	89.46
RUNOFF COEFFICIENT =	0.99	0.45	0.83

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0051)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0014):	0.14	0.060	8.00	74.39
+ ID2= 2 (0046):	1.19	0.279	8.08	67.25
=====				
ID = 3 (0051):	1.33	0.314	8.00	68.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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V	V	I	SSSSS	U	U	A	L					(v 6.1.2003)
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					

000	TTTTT	TTTTT	H	H	Y	Y	M	M	000	TM	
0	0	T	T	H	H	Y	Y	MM	MM	0	0
0	0	T	T	H	H	Y		M	M	0	0
000	T	T	H	H	Y		M	M	000		

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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 6.1-New\VO2\voin.dat

Output filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\d89de411-e61e-43ab-b347-9e0727469958\

Summary filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\d89de411-e61e-43ab-b347-9e0727469958\

DATE: 11/24/2021

TIME: 04:52:12

USER:

COMMENTS: _____

 ** SIMULATION : 5-yr 24hr **

 | CHICAGO STORM |
Ptotal= 60.87 mm

IDF curve parameters: A=1170.000
 B= 5.800
 C= 0.843

used in: INTENSITY = $A / (t + B)^C$

Duration of storm = 24.00 hrs

Storm time step = 10.00 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
0.17	0.41	6.17	1.50	12.17	1.32	18.17	0.60
0.33	0.42	6.33	1.64	12.33	1.28	18.33	0.59
0.50	0.43	6.50	1.81	12.50	1.24	18.50	0.59
0.67	0.44	6.67	2.02	12.67	1.20	18.67	0.58
0.83	0.44	6.83	2.30	12.83	1.16	18.83	0.57
1.00	0.45	7.00	2.68	13.00	1.13	19.00	0.56
1.17	0.46	7.17	3.21	13.17	1.09	19.17	0.56
1.33	0.47	7.33	4.05	13.33	1.06	19.33	0.55
1.50	0.48	7.50	5.53	13.50	1.03	19.50	0.54

1.67	0.50	7.67	8.89	13.67	1.01	19.67	0.54
1.83	0.51	7.83	23.90	13.83	0.98	19.83	0.53
2.00	0.52	8.00	114.21	14.00	0.96	20.00	0.52
2.17	0.53	8.17	32.36	14.17	0.93	20.17	0.52
2.33	0.55	8.33	15.80	14.33	0.91	20.33	0.51
2.50	0.56	8.50	10.34	14.50	0.89	20.50	0.50
2.67	0.58	8.67	7.68	14.67	0.87	20.67	0.50
2.83	0.59	8.83	6.11	14.83	0.85	20.83	0.49
3.00	0.61	9.00	5.09	15.00	0.84	21.00	0.49
3.17	0.63	9.17	4.37	15.17	0.82	21.17	0.48
3.33	0.65	9.33	3.83	15.33	0.80	21.33	0.48
3.50	0.67	9.50	3.42	15.50	0.79	21.50	0.47
3.67	0.69	9.67	3.09	15.67	0.77	21.67	0.47
3.83	0.71	9.83	2.82	15.83	0.76	21.83	0.46
4.00	0.74	10.00	2.60	16.00	0.74	22.00	0.46
4.17	0.77	10.17	2.41	16.17	0.73	22.17	0.45
4.33	0.80	10.33	2.25	16.33	0.72	22.33	0.45
4.50	0.83	10.50	2.11	16.50	0.71	22.50	0.44
4.67	0.87	10.67	1.99	16.67	0.69	22.67	0.44
4.83	0.91	10.83	1.88	16.83	0.68	22.83	0.44
5.00	0.96	11.00	1.78	17.00	0.67	23.00	0.43
5.17	1.01	11.17	1.70	17.17	0.66	23.17	0.43
5.33	1.06	11.33	1.62	17.33	0.65	23.33	0.42
5.50	1.13	11.50	1.55	17.50	0.64	23.50	0.42
5.67	1.20	11.67	1.49	17.67	0.63	23.67	0.42
5.83	1.28	11.83	1.43	17.83	0.62	23.83	0.41
6.00	1.38	12.00	1.37	18.00	0.61	24.00	0.41

CALIB					
NASHYD (0005)	Area (ha)=	0.43	Curve Number (CN)=	73.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
-----	U.H. Tp(hrs)=	0.09			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58

0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44

4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Unit Hyd Qpeak (cms)= 0.175

PEAK FLOW (cms)= 0.034 (i)
TIME TO PEAK (hrs)= 8.000
RUNOFF VOLUME (mm)= 20.162
TOTAL RAINFALL (mm)= 60.873
RUNOFF COEFFICIENT = 0.331

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| STANDHYD (0007) | Area (ha)= 0.37
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.21
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	49.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59

0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44

4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)= 114.21 26.93
over (min) 5.00 15.00
Storage Coeff. (min)= 1.59 (ii) 13.52 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.33 0.08

TOTALS

PEAK FLOW (cms)= 0.05 0.01 0.056 (iii)
TIME TO PEAK (hrs)= 8.00 8.17 8.00
RUNOFF VOLUME (mm)= 59.87 20.84 37.60
TOTAL RAINFALL (mm)= 60.87 60.87 60.87
RUNOFF COEFFICIENT = 0.98 0.34 0.62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0018) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0005):    0.43    0.034    8.00    20.16
+ ID2= 2 ( 0007):    0.37    0.056    8.00    37.60
=====
ID = 3 ( 0018):    0.80    0.089    8.00    28.23

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0053)		Area (ha)= 7.39	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min		Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
-----		U.H. Tp(hrs)= 0.53	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60	
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60	
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59	
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59	
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59	
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59	
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58	
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58	
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57	
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57	
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56	
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56	
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56	
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56	
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55	
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55	
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54	
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54	
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54	
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54	
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53	
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53	
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52	
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52	
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52	
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52	
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51	
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51	
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50	
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50	
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50	
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50	
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49	
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49	
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49	
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49	
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48	
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48	

3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Unit Hyd Qpeak (cms)= 0.535

PEAK FLOW (cms)= 0.199 (i)

TIME TO PEAK (hrs)= 8.583

RUNOFF VOLUME (mm)= 20.836

TOTAL RAINFALL (mm)= 60.873

RUNOFF COEFFICIENT = 0.342

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0020)	Area (ha)=	0.16	
ID= 1 DT= 5.0 min	Total Imp(%)=	43.00	Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.09
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	32.66	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49

3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)=	114.21	26.93
over (min)	5.00	15.00
Storage Coeff. (min)=	1.24 (ii)	13.17 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.33	0.08

TOTALS

PEAK FLOW (cms)=	0.02	0.00	0.024 (iii)
TIME TO PEAK (hrs)=	8.00	8.17	8.00
RUNOFF VOLUME (mm)=	59.87	20.84	37.58
TOTAL RAINFALL (mm)=	60.87	60.87	60.87
RUNOFF COEFFICIENT =	0.98	0.34	0.62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 73.0 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 ( 0025) | Area (ha)= 0.36 |
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00   Dir. Conn.(%)= 43.00
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		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.21
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	48.99	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52

2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)= 114.21

26.93

over (min)	5.00	15.00	
Storage Coeff. (min)=	1.58 (ii)	13.51 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.33	0.08	
			TOTALS
PEAK FLOW (cms)=	0.05	0.01	0.054 (iii)
TIME TO PEAK (hrs)=	8.00	8.17	8.00
RUNOFF VOLUME (mm)=	59.87	20.84	37.60
TOTAL RAINFALL (mm)=	60.87	60.87	60.87
RUNOFF COEFFICIENT =	0.98	0.34	0.62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 73.0 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 (0019)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0020):	0.16	0.024	8.00	37.58
+ ID2= 2 (0025):	0.36	0.054	8.00	37.60
=====				
ID = 3 (0019):	0.52	0.078	8.00	37.60

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0019)				
3 + 2 = 1				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0019):	0.52	0.078	8.00	37.60
+ ID2= 2 (0053):	7.39	0.199	8.58	20.84
=====				
ID = 1 (0019):	7.91	0.212	8.50	21.94

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0023)	Area (ha)=	0.37	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.15	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47

3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Unit Hyd Qpeak (cms)= 0.094

PEAK FLOW (cms)= 0.022 (i)

TIME TO PEAK (hrs)= 8.083

RUNOFF VOLUME (mm)= 20.719

TOTAL RAINFALL (mm)= 60.873

RUNOFF COEFFICIENT = 0.340

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | CALIB |
 | STANDHYD (0015) |
ID= 1 DT= 5.0 min

Area (ha)= 1.34
 Total Imp(%)= 71.00 Dir. Conn.(%)= 71.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.95	0.39
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	94.52	40.00

Mannings n = 0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47

3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)=	114.21	33.64
over (min)	5.00	10.00
Storage Coeff. (min)=	2.34 (ii)	7.02 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.30	0.14

TOTALS

PEAK FLOW (cms)=	0.30	0.03	0.320 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	59.87	20.84	48.55
TOTAL RAINFALL (mm)=	60.87	60.87	60.87
RUNOFF COEFFICIENT =	0.98	0.34	0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0017)
ID= 1 DT= 5.0 min

Area (ha)= 0.36
 Total Imp(%)= 86.00 Dir. Conn.(%)= 85.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.31	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	48.99	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60	
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60	
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59	
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59	
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59	
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59	
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58	
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58	
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57	
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57	
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56	
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56	
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56	
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56	
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55	
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55	
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54	
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54	
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54	
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54	
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53	
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53	
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52	
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52	
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52	
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52	
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51	
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51	
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50	
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50	

2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)=	114.21	38.48
over (min)	5.00	5.00
Storage Coeff. (min)=	1.58 (ii)	4.83 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.33	0.22

TOTALS
0.102 (iii)

PEAK FLOW (cms)=	0.10	0.01

TIME TO PEAK	(hrs)=	8.00	8.00	8.00
RUNOFF VOLUME	(mm)=	59.87	21.96	54.18
TOTAL RAINFALL	(mm)=	60.87	60.87	60.87
RUNOFF COEFFICIENT	=	0.98	0.36	0.89

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0021) | Area (ha)= 0.15
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00
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		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.09
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	31.62	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54

1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42

5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)= 114.21 26.93
over (min) 5.00 15.00
Storage Coeff. (min)= 1.21 (ii) 13.14 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.33 0.08

TOTALS

PEAK FLOW (cms)= 0.02 0.00 0.023 (iii)
TIME TO PEAK (hrs)= 8.00 8.17 8.00
RUNOFF VOLUME (mm)= 59.87 20.84 37.58
TOTAL RAINFALL (mm)= 60.87 60.87 60.87
RUNOFF COEFFICIENT = 0.98 0.34 0.62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0043) | Area (ha)= 0.21
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.12
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	37.42	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59

0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44

4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)= 114.21 26.93
over (min) 5.00 15.00
Storage Coeff. (min)= 1.34 (ii) 13.27 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.33 0.08

TOTALS

PEAK FLOW (cms)= 0.03 0.01 0.032 (iii)
TIME TO PEAK (hrs)= 8.00 8.17 8.00
RUNOFF VOLUME (mm)= 59.87 20.84 37.58
TOTAL RAINFALL (mm)= 60.87 60.87 60.87
RUNOFF COEFFICIENT = 0.98 0.34 0.62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0016) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0015):    1.34    0.320    8.00    48.55
+ ID2= 2 ( 0017):    0.36    0.102    8.00    54.18
=====
ID = 3 ( 0016):    1.70    0.422    8.00    49.74

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0016) |
| 3 + 2 = 1 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
      ID1= 3 ( 0016):  1.70  0.422  8.00  49.74
+ ID2= 2 ( 0021):  0.15  0.023  8.00  37.58
=====
      ID = 1 ( 0016):  1.85  0.445  8.00  48.76

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0016) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
      ID1= 1 ( 0016):  1.85  0.445  8.00  48.76
+ ID2= 2 ( 0023):  0.37  0.022  8.08  20.72
=====
      ID = 3 ( 0016):  2.22  0.464  8.00  44.08

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0016) |
| 3 + 2 = 1 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
      ID1= 3 ( 0016):  2.22  0.464  8.00  44.08
+ ID2= 2 ( 0043):  0.21  0.032  8.00  37.58
=====
      ID = 1 ( 0016):  2.43  0.495  8.00  43.52

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| CALIB
| NASHYD ( 0027) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 0.53 Curve Number (CN)= 73.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.23

```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083    0.41 | 6.083    1.50 | 12.083    1.32 | 18.08    0.60
0.167    0.41 | 6.167    1.50 | 12.167    1.32 | 18.17    0.60

```


0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45

4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Unit Hyd Qpeak (cms)= 0.086

PEAK FLOW (cms)= 0.024 (i)

TIME TO PEAK (hrs)= 8.167

RUNOFF VOLUME (mm)= 20.815

TOTAL RAINFALL (mm)= 60.873

RUNOFF COEFFICIENT = 0.342

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0026)	Area (ha)=	1.11	
ID= 1 DT= 5.0 min	Total Imp(%)=	86.00	Dir. Conn.(%)= 86.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.95	0.16
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	86.02	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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

0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45

4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)= 114.21 33.64
over (min) 5.00 10.00
Storage Coeff. (min)= 2.21 (ii) 5.45 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.30 0.16

TOTALS

PEAK FLOW (cms)= 0.30 0.01 0.310 (iii)
TIME TO PEAK (hrs)= 8.00 8.08 8.00
RUNOFF VOLUME (mm)= 59.87 20.84 54.41
TOTAL RAINFALL (mm)= 60.87 60.87 60.87
RUNOFF COEFFICIENT = 0.98 0.34 0.89

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0028) | Area (ha)= 0.14
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00
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IMPERVIOUS PERVIOUS (i)

Surface Area	(ha)=	0.06	0.08
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	30.55	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48

3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)=	114.21	26.93
over (min)	5.00	15.00
Storage Coeff. (min)=	1.19 (ii)	13.12 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.33	0.08

TOTALS

PEAK FLOW (cms)=	0.02	0.00	0.021 (iii)
TIME TO PEAK (hrs)=	8.00	8.17	8.00
RUNOFF VOLUME (mm)=	59.87	20.84	37.58
TOTAL RAINFALL (mm)=	60.87	60.87	60.87
RUNOFF COEFFICIENT =	0.98	0.34	0.62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

- CN* = 73.0 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 (0024)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0026):	1.11	0.310	8.00	54.41
+ ID2= 2 (0027):	0.53	0.024	8.17	20.82
=====				
ID = 3 (0024):	1.64	0.324	8.00	43.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0024)				
3 + 2 = 1				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0024):	1.64	0.324	8.00	43.55
+ ID2= 2 (0028):	0.14	0.021	8.00	37.58
=====				
ID = 1 (0024):	1.78	0.345	8.00	43.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0031)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0016):	2.43	0.495	8.00	43.52
+ ID2= 2 (0024):	1.78	0.345	8.00	43.08
=====				
ID = 3 (0031):	4.21	0.840	8.00	43.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0032)				
IN= 2---> OUT= 1				
DT= 1.0 min				

OVERFLOW IS ON				
	OUTFLOW	STORAGE	OUTFLOW	STORAGE
	(cms)	(ha.m.)	(cms)	(ha.m.)
	0.0000	0.0000	0.4270	0.1321
	0.0070	0.0585	0.4940	0.1385

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0031)	4.210	0.840	8.00	43.34
OUTFLOW: ID= 1 (0032)	4.210	0.177	8.32	34.73
OVERFLOW: ID= 3 (0003)	0.000	0.000	0.00	0.00

TOTAL NUMBER OF SIMULATION OVERFLOW = 0
 CUMULATIVE TIME OF OVERFLOW (HOURS) = 0.00
 PERCENTAGE OF TIME OVERFLOWING (%) = 0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 21.01
 TIME SHIFT OF PEAK FLOW (min)= 19.00
 MAXIMUM STORAGE USED (ha.m.)= 0.0882

Junction Command(0041)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0032)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0041)	0.00	0.00	0.00	0.00

 | ADD HYD (0042) |
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
*** W A R N I N G : HYDROGRAPH 0041 <ID= 2> IS DRY.				
*** W A R N I N G : HYDROGRAPH 0003 = HYDROGRAPH 0001				
ID1= 1 (0032):	4.21	0.177	8.32	34.73
+ ID2= 2 (0041):	0.00	0.000	0.00	0.00
=====				
ID = 3 (0042):	4.21	0.177	8.32	34.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

 | ADD HYD (0055) |
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0019):	7.91	0.212	8.50	21.94
+ ID2= 2 (0042):	4.21	0.177	8.32	34.73
=====				
ID = 3 (0055):	12.12	0.376	8.42	26.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0029)	Area (ha)=	0.93	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.05	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49

3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Unit Hyd Qpeak (cms)= 0.710

PEAK FLOW (cms)= 0.076 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 15.898

TOTAL RAINFALL (mm)= 60.873

RUNOFF COEFFICIENT = 0.261

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| STANDHYD (0056) | Area (ha)= 0.25
 | ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

 IMPERVIOUS PERVIOUS (i)
 Surface Area (ha)= 0.11 0.14
 Dep. Storage (mm)= 1.00 5.00
 Average Slope (%)= 1.00 2.00
 Length (m)= 40.82 40.00
 Mannings n = 0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49

2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)=	114.21	26.93
over (min)	5.00	15.00
Storage Coeff. (min)=	1.42 (ii)	13.34 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.33	0.08

TOTALS

PEAK FLOW (cms)=	0.03	0.01	0.038 (iii)
TIME TO PEAK (hrs)=	8.00	8.17	8.00
RUNOFF VOLUME (mm)=	59.87	20.84	37.58
TOTAL RAINFALL (mm)=	60.87	60.87	60.87
RUNOFF COEFFICIENT =	0.98	0.34	0.62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0034) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0029):    0.93    0.076    8.00    15.90
+ ID2= 2 ( 0055):   12.12    0.376    8.42    26.38
=====
ID = 3 ( 0034):   13.05    0.387    8.42    25.63
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 0034) |
| 3 + 2 = 1 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 3 ( 0034):   13.05    0.387    8.42    25.63
+ ID2= 2 ( 0056):    0.25    0.038    8.00    37.58
=====
ID = 1 ( 0034):   13.30    0.395    8.38    25.86
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0003) | Area (ha)= 0.35 Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
-----
U.H. Tp(hrs)= 0.08
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083   0.41 | 6.083   1.50 | 12.083  1.32 | 18.08   0.60
0.167   0.41 | 6.167   1.50 | 12.167  1.32 | 18.17   0.60
0.250   0.42 | 6.250   1.64 | 12.250  1.28 | 18.25   0.59
0.333   0.42 | 6.333   1.64 | 12.333  1.28 | 18.33   0.59
```

0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44

4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.030 (i)

TIME TO PEAK (hrs)= 8.000

RUNOFF VOLUME (mm)= 19.552

TOTAL RAINFALL (mm)= 60.873

RUNOFF COEFFICIENT = 0.321

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0009)	Area (ha)= 0.13
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60

0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45

4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)= 114.21 26.93
over (min) 5.00 15.00
Storage Coeff. (min)= 1.16 (ii) 13.09 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.34 0.08

TOTALS

PEAK FLOW (cms)= 0.03 0.00 0.028 (iii)
TIME TO PEAK (hrs)= 8.00 8.17 8.00
RUNOFF VOLUME (mm)= 59.87 20.84 45.80
TOTAL RAINFALL (mm)= 60.87 60.87 60.87
RUNOFF COEFFICIENT = 0.98 0.34 0.75

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0011)|
| 1 + 2 = 3 |
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ID1= 1 ( 0003): 0.35 0.030 8.00 19.55
+ ID2= 2 ( 0009): 0.13 0.028 8.00 45.80
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ID = 3 (0011): 0.48 0.058 8.00 26.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0013) Area (ha)= 0.13
ID= 1 DT= 5.0 min Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51

2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)=	114.21	26.93
over (min)	5.00	15.00
Storage Coeff. (min)=	1.16 (ii)	13.09 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.34	0.08

				TOTALS
PEAK FLOW	(cms)=	0.03	0.00	0.028 (iii)
TIME TO PEAK	(hrs)=	8.00	8.17	8.00
RUNOFF VOLUME	(mm)=	59.87	20.84	45.80
TOTAL RAINFALL	(mm)=	60.87	60.87	60.87
RUNOFF COEFFICIENT	=	0.98	0.34	0.75

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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		Area	(ha)=	0.11
STANDHYD (0054)		Total Imp(%)=	64.00	Dir. Conn.(%)= 64.00
ID= 1 DT= 5.0 min				

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.04
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	27.08	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60	
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60	
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59	
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59	
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59	
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59	
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58	
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58	
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57	
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57	
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56	
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56	
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56	
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56	
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55	
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55	

1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42

5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)= 114.21 26.93
over (min) 5.00 15.00
Storage Coeff. (min)= 1.11 (ii) 13.03 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.34 0.08

TOTALS

PEAK FLOW (cms)= 0.02 0.00 0.023 (iii)
TIME TO PEAK (hrs)= 8.00 8.17 8.00
RUNOFF VOLUME (mm)= 59.87 20.84 45.80
TOTAL RAINFALL (mm)= 60.87 60.87 60.87
RUNOFF COEFFICIENT = 0.98 0.34 0.75

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0004) |
| 1 + 2 = 3 |
-----
      AREA    QPEAK    TPEAK    R.V.
      (ha)    (cms)    (hrs)    (mm)
ID1= 1 ( 0011):  0.48  0.058    8.00  26.66
+ ID2= 2 ( 0013):  0.13  0.028    8.00  45.80
=====
ID = 3 ( 0004):  0.61  0.085    8.00  30.74

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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| ADD HYD ( 0004) |
| 3 + 2 = 1 |
-----
      AREA    QPEAK    TPEAK    R.V.
      (ha)    (cms)    (hrs)    (mm)
ID1= 3 ( 0004):  0.61  0.085    8.00  30.74
+ ID2= 2 ( 0054):  0.11  0.023    8.00  45.80
=====
ID = 1 ( 0004):  0.72  0.108    8.00  33.04

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0050)		OVERFLOW IS OFF			
IN= 2---> OUT= 1					
DT= 5.0 min					
		OUTFLOW	STORAGE	OUTFLOW	STORAGE
		(cms)	(ha.m.)	(cms)	(ha.m.)
		0.0000	0.0000	0.2390	0.0097
		0.0390	0.0052	0.0000	0.0000
		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0004)		0.720	0.108	8.00	33.04
OUTFLOW: ID= 1 (0050)		0.720	0.055	8.08	33.00
PEAK FLOW REDUCTION [Qout/Qin](%)= 50.82					
TIME SHIFT OF PEAK FLOW (min)= 5.00					
MAXIMUM STORAGE USED (ha.m.)= 0.0057					

CALIB					
STANDHYD (0006)					
ID= 1 DT= 5.0 min					
		Area (ha)=	0.07		
		Total Imp(%)=	80.00	Dir. Conn.(%)=	80.00
		IMPERVIOUS	PERVIOUS (i)		
Surface Area	(ha)=	0.06	0.01		
Dep. Storage	(mm)=	1.00	5.00		
Average Slope	(%)=	1.00	2.00		
Length	(m)=	22.21	40.00		
Mannings n	=	0.013	0.250		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56

1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43

5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)= 114.21 33.64
over (min) 5.00 5.00
Storage Coeff. (min)= 0.98 (ii) 4.83 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.34 0.22

TOTALS

PEAK FLOW (cms)= 0.02 0.00 0.020 (iii)
TIME TO PEAK (hrs)= 8.00 8.00 8.00
RUNOFF VOLUME (mm)= 59.87 20.84 50.30
TOTAL RAINFALL (mm)= 60.87 60.87 60.87
RUNOFF COEFFICIENT = 0.98 0.34 0.83

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0008) | Area (ha)= 0.40
| ID= 1 DT= 5.0 min | Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.39	0.00
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	51.38	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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

0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45

4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)=	114.21	33.64
over (min)	5.00	5.00
Storage Coeff. (min)=	1.62 (ii)	2.69 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.32	0.29

TOTALS

PEAK FLOW (cms)=	0.12	0.00	0.125 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	59.87	20.84	59.48
TOTAL RAINFALL (mm)=	60.87	60.87	60.87
RUNOFF COEFFICIENT =	0.98	0.34	0.98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0048) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0006):   AREA   QPEAK   TPEAK   R.V.
                  (ha)    (cms)   (hrs)   (mm)
                  0.07   0.020   8.00   50.30

```

```

+ ID2= 2 ( 0008):      0.40   0.125    8.00   59.48
=====
ID = 3 ( 0048):      0.47   0.145    8.00   58.04

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| RESERVOIR( 0030) | OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT= 5.0 min      |
-----

```

	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1120	0.0061
	0.0210	0.0010	0.1220	0.0071
	0.0530	0.0020	0.1320	0.0081
	0.0730	0.0030	0.1400	0.0091
	0.0880	0.0041	0.1520	0.0105
	0.1000	0.0051	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0048)	0.470	0.145	8.00	58.04
OUTFLOW: ID= 1 (0030)	0.470	0.093	8.08	58.02

```

PEAK FLOW REDUCTION [Qout/Qin](%)= 64.02
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0052

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-----
| ADD HYD ( 0046) |
| 1 + 2 = 3       |
-----

```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	0.47	0.093	8.08	58.02
+ ID2= 2 (0050):	0.72	0.055	8.08	33.00
=====				
ID = 3 (0046):	1.19	0.148	8.08	42.88

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| CALIB          |
| STANDHYD ( 0014) |
| ID= 1 DT= 5.0 min |
-----

```

Area (ha)=	0.14		
Total Imp(%)=	71.00	Dir. Conn.(%)=	71.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.10	0.04
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	30.88	40.00

Mannings n = 0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47

3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)=	114.21	33.64
over (min)	5.00	10.00
Storage Coeff. (min)=	1.20 (ii)	5.87 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.33	0.15

TOTALS

PEAK FLOW (cms)=	0.03	0.00	0.035 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	59.87	20.84	48.54
TOTAL RAINFALL (mm)=	60.87	60.87	60.87
RUNOFF COEFFICIENT =	0.98	0.34	0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0051) |
| 1 + 2 = 3 |
-----

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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0014):	0.14	0.035	8.00	48.54
+ ID2= 2 (0046):	1.19	0.148	8.08	42.88
=====				
ID = 3 (0051):	1.33	0.160	8.00	43.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH

```

V   V   I   SSSSS U   U   A   L           (v 6.1.2003)
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
VW    I   SSSSS UUUUU A   A  LLLLL

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000  TTTTT TTTTT H   H   Y   Y   M   M   000  TM
0   0   T   T   H   H   Y   Y   MM  MM  0   0
0   0   T   T   H   H   Y   M   M   0   0
000  T   T   H   H   Y   M   M   000

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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 6.1-New\V02\voin.dat

Output filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\43015b56-3c10-413d-9541-9270893d3778\

Summary filename:

C:\Users\jannaormond\AppData\Local\Civica\XH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\43015b56-3c10-413d-9541-9270893d3778\

DATE: 11/24/2021

TIME: 04:52:07

USER:

COMMENTS: _____

** SIMULATION : Hazel **

READ STORM	Filename: C:\Users\jannaormond\AppData\Local\Temp\7c2ba79c-6b0b-4a49-a2f4-0cf1b94d9596\59007f2
Ptotal=212.00 mm	Comments: Hazel

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
1.00	6.00	4.00	13.00	7.00	23.00	10.00	53.00
2.00	4.00	5.00	17.00	8.00	13.00	11.00	38.00
3.00	6.00	6.00	13.00	9.00	13.00	12.00	13.00

CALIB	Area (ha)= 0.43	Curve Number (CN)= 73.0
NASHYD (0005)	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)= 0.09	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00

0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 0.175

PEAK FLOW (cms)= 0.052 (i)

TIME TO PEAK (hrs)= 10.000

RUNOFF VOLUME (mm)= 137.768

TOTAL RAINFALL (mm)= 212.000

RUNOFF COEFFICIENT = 0.650

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | CALIB |
 | STANDHYD (0007) |
ID= 1 DT= 5.0 min

Area (ha)= 0.37
 Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.21
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	49.67	40.00

Mannings n = 0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	45.24
over (min)	5.00	15.00
Storage Coeff. (min)=	2.16 (ii)	11.86 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.31	0.09

				TOTALS
PEAK FLOW	(cms)=	0.02	0.03	0.049 (iii)
TIME TO PEAK	(hrs)=	9.50	10.00	10.00
RUNOFF VOLUME	(mm)=	211.00	142.38	171.87
TOTAL RAINFALL	(mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT	=	1.00	0.67	0.81

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0018) |
| 1 + 2 = 3 |
-----

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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0005):	0.43	0.052	10.00	137.77
+ ID2= 2 (0007):	0.37	0.049	10.00	171.87
=====				
ID = 3 (0018):	0.80	0.101	10.00	153.54

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| CALIB |
| NASHYD ( 0053) |
| ID= 1 DT= 5.0 min |
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Area (ha)=	7.39	Curve Number (CN)=	73.0
Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.53		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----

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TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00

0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 0.535

PEAK FLOW (cms)= 0.788 (i)

TIME TO PEAK (hrs)= 10.333

RUNOFF VOLUME (mm)= 142.376

TOTAL RAINFALL (mm)= 212.000

RUNOFF COEFFICIENT = 0.672

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0020)	Area (ha)= 0.16
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.07	0.09
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	32.66	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00
Max.Eff.Inten.(mm/hr)=		53.00		45.24			
over (min)		5.00		15.00			
Storage Coeff. (min)=		1.68	(ii)	11.38	(ii)		
Unit Hyd. Tpeak (min)=		5.00		15.00			
Unit Hyd. peak (cms)=		0.32		0.09			
						TOTALS	
PEAK FLOW (cms)=		0.01		0.01		0.021	(iii)

TIME TO PEAK	(hrs)=	9.42	10.00	10.00
RUNOFF VOLUME	(mm)=	211.00	142.38	171.85
TOTAL RAINFALL	(mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT	=	1.00	0.67	0.81

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0025)	Area (ha)=	0.36	
ID= 1 DT= 5.0 min	Total Imp(%)=	43.00	Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.21
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	48.99	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00

1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)= 53.00 45.24
over (min) 5.00 15.00
Storage Coeff. (min)= 2.15 (ii) 11.84 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.31 0.09

TOTALS

PEAK FLOW (cms)= 0.02 0.03 0.048 (iii)
TIME TO PEAK (hrs)= 9.50 10.00 10.00
RUNOFF VOLUME (mm)= 211.00 142.38 171.87
TOTAL RAINFALL (mm)= 212.00 212.00 212.00
RUNOFF COEFFICIENT = 1.00 0.67 0.81

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0019) |
| 1 + 2 = 3 |
-----
      AREA      QPEAK      TPEAK      R.V.
      (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0020):  0.16  0.021  10.00  171.85
+ ID2= 2 ( 0025):  0.36  0.048  10.00  171.87
=====
ID = 3 ( 0019):  0.52  0.069  10.00  171.86

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 0019) |
| 3 + 2 = 1 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 3 ( 0019):    0.52    0.069    10.00    171.86
+ ID2= 2 ( 0053):    7.39    0.788    10.33    142.38
=====
ID = 1 ( 0019):    7.91    0.841    10.33    144.31
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0023) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 0.37 Curve Number (CN)= 73.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.15
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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----- TRANSFORMED HYETOGRAPH -----
```

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00

2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 0.094

PEAK FLOW (cms)= 0.046 (i)

TIME TO PEAK (hrs)= 10.000

RUNOFF VOLUME (mm)= 141.580

TOTAL RAINFALL (mm)= 212.000

RUNOFF COEFFICIENT = 0.668

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0015)	Area (ha)= 1.34
ID= 1 DT= 5.0 min	Total Imp(%)= 71.00 Dir. Conn.(%)= 71.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.95	0.39
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	94.52	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00

0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)= 53.00 45.24
 over (min) 5.00 15.00
 Storage Coeff. (min)= 3.18 (ii) 12.88 (ii)
 Unit Hyd. Tpeak (min)= 5.00 15.00
 Unit Hyd. peak (cms)= 0.27 0.08

TOTALS
 PEAK FLOW (cms)= 0.14 0.05 0.187 (iii)
 TIME TO PEAK (hrs)= 9.83 10.00 10.00
 RUNOFF VOLUME (mm)= 211.00 142.38 191.09
 TOTAL RAINFALL (mm)= 212.00 212.00 212.00
 RUNOFF COEFFICIENT = 1.00 0.67 0.90

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0017)	Area (ha)= 0.36
ID= 1 DT= 5.0 min	Total Imp(%)= 86.00 Dir. Conn.(%)= 85.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.31	0.05
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	48.99	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00

2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)= 53.00 49.18
over (min) 5.00 10.00
Storage Coeff. (min)= 2.15 (ii) 6.57 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.31 0.14

TOTALS

PEAK FLOW (cms)= 0.05 0.01 0.052 (iii)
TIME TO PEAK (hrs)= 9.58 10.00 10.00
RUNOFF VOLUME (mm)= 211.00 145.71 201.20
TOTAL RAINFALL (mm)= 212.00 212.00 212.00
RUNOFF COEFFICIENT = 1.00 0.69 0.95

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0021) | Area (ha)= 0.15
| ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.09
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	31.62	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00

0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	45.24
over (min)	5.00	15.00
Storage Coeff. (min)=	1.65 (ii)	11.34 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.32	0.09

			TOTALS
PEAK FLOW (cms)=	0.01	0.01	0.020 (iii)
TIME TO PEAK (hrs)=	9.42	10.00	10.00
RUNOFF VOLUME (mm)=	211.00	142.38	171.84
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	1.00	0.67	0.81

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0043)
ID= 1 DT= 5.0 min

Area (ha)= 0.21
 Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.12
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	37.42	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	'	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	'	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	'	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	'	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	'	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	'	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	'	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	'	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	'	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	'	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	'	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	'	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	'	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	'	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	'	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	'	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	'	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	'	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	'	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	'	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	'	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	'	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	'	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	'	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	'	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	'	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	'	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	'	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	'	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	'	8.500	13.00	11.50	13.00

2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)= 53.00 45.24
over (min) 5.00 15.00
Storage Coeff. (min)= 1.83 (ii) 11.52 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.32 0.09

TOTALS

PEAK FLOW (cms)= 0.01 0.01 0.028 (iii)
TIME TO PEAK (hrs)= 9.50 10.00 10.00
RUNOFF VOLUME (mm)= 211.00 142.38 171.85
TOTAL RAINFALL (mm)= 212.00 212.00 212.00
RUNOFF COEFFICIENT = 1.00 0.67 0.81

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0016)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0015):	1.34	0.187	10.00	191.09
+ ID2= 2 (0017):	0.36	0.052	10.00	201.20
=====				
ID = 3 (0016):	1.70	0.239	10.00	193.23

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0016)	AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0016):	1.70	0.239	10.00	193.23
+ ID2= 2 (0021):	0.15	0.020	10.00	171.84
=====				
ID = 1 (0016):	1.85	0.259	10.00	191.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 0016) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0016):    1.85    0.259    10.00    191.50
+ ID2= 2 ( 0023):    0.37    0.046    10.00    141.58
=====
ID = 3 ( 0016):    2.22    0.305    10.00    183.18
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 0016) |
| 3 + 2 = 1 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 3 ( 0016):    2.22    0.305    10.00    183.18
+ ID2= 2 ( 0043):    0.21    0.028    10.00    171.85
=====
ID = 1 ( 0016):    2.43    0.333    10.00    182.20
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0027) | Area (ha)= 0.53 Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
-----
U.H. Tp(hrs)= 0.23
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083 6.00 | 3.083 13.00 | 6.083 23.00 | 9.08 53.00
0.167 6.00 | 3.167 13.00 | 6.167 23.00 | 9.17 53.00
0.250 6.00 | 3.250 13.00 | 6.250 23.00 | 9.25 53.00
0.333 6.00 | 3.333 13.00 | 6.333 23.00 | 9.33 53.00
0.417 6.00 | 3.417 13.00 | 6.417 23.00 | 9.42 53.00
0.500 6.00 | 3.500 13.00 | 6.500 23.00 | 9.50 53.00
0.583 6.00 | 3.583 13.00 | 6.583 23.00 | 9.58 53.00
0.667 6.00 | 3.667 13.00 | 6.667 23.00 | 9.67 53.00
0.750 6.00 | 3.750 13.00 | 6.750 23.00 | 9.75 53.00
0.833 6.00 | 3.833 13.00 | 6.833 23.00 | 9.83 53.00
0.917 6.00 | 3.917 13.00 | 6.917 23.00 | 9.92 53.00
1.000 6.00 | 4.000 13.00 | 7.000 23.00 | 10.00 53.00
```


1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 0.086

PEAK FLOW (cms)= 0.065 (i)

TIME TO PEAK (hrs)= 10.000

RUNOFF VOLUME (mm)= 142.236

TOTAL RAINFALL (mm)= 212.000

RUNOFF COEFFICIENT = 0.671

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0026)	Area (ha)= 1.11
ID= 1 DT= 5.0 min	Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.95	0.16
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	86.02	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)= 53.00 45.24
over (min) 5.00 10.00
Storage Coeff. (min)= 3.01 (ii) 7.41 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.28 0.13

TOTALS

PEAK FLOW (cms)= 0.14 0.02 0.160 (iii)
TIME TO PEAK (hrs)= 9.75 10.00 10.00
RUNOFF VOLUME (mm)= 211.00 142.38 201.39

TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	1.00	0.67	0.95

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0028)	Area (ha)= 0.14
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.06	0.08
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	30.55	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00

1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)= 53.00 45.24
over (min) 5.00 15.00
Storage Coeff. (min)= 1.62 (ii) 11.31 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.32 0.09

TOTALS

PEAK FLOW (cms)= 0.01 0.01 0.019 (iii)
TIME TO PEAK (hrs)= 9.42 10.00 10.00
RUNOFF VOLUME (mm)= 211.00 142.38 171.84
TOTAL RAINFALL (mm)= 212.00 212.00 212.00
RUNOFF COEFFICIENT = 1.00 0.67 0.81

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0024) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0026):    1.11    0.160    10.00    201.39
+ ID2= 2 ( 0027):    0.53    0.065    10.00    142.24
=====
ID = 3 ( 0024):    1.64    0.225    10.00    182.27

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0024) |
| 3 + 2 = 1 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
      ID1= 3 ( 0024):    1.64    0.225    10.00    182.27
+ ID2= 2 ( 0028):    0.14    0.019    10.00    171.84
=====
      ID = 1 ( 0024):    1.78    0.244    10.00    181.45

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0031) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
      ID1= 1 ( 0016):    2.43    0.333    10.00    182.20
+ ID2= 2 ( 0024):    1.78    0.244    10.00    181.45
=====
      ID = 3 ( 0031):    4.21    0.577    10.00    181.88

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| RESERVOIR( 0032) |
| IN= 2---> OUT= 1 |
| DT= 1.0 min |
-----
          OVERFLOW IS ON
          OUTFLOW      STORAGE      OUTFLOW      STORAGE
          (cms)      (ha.m.)      (cms)      (ha.m.)
          0.0000      0.0000      0.4270      0.1321
          0.0070      0.0585      0.4940      0.1385

```

```

          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
INFLOW : ID= 2 ( 0031)    4.210      0.577    10.00    181.88
OUTFLOW: ID= 1 ( 0032)    4.100      0.494     9.88    179.44
OVERFLOW: ID= 3 ( 0003)    0.110      0.174     9.57    179.44

```

```

TOTAL NUMBER OF SIMULATION OVERFLOW = 0
CUMULATIVE TIME OF OVERFLOW (HOURS) = 0.00
PERCENTAGE OF TIME OVERFLOWING (%) = 0.00

```

```

PEAK FLOW REDUCTION [Qout/Qin](%)= 85.67
TIME SHIFT OF PEAK FLOW (min)= -7.00
MAXIMUM STORAGE USED (ha.m.)= 0.1385

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-----
| Junction Command(0041) |

```

```

-----
                AREA      QPEAK      TPEAK      R.V.
                (ha)      (cms)      (hrs)      (mm)
INFLOW : ID= 3( 0032)  0.11      0.17      9.57      179.44
OUTFLOW: ID= 2( 0041)  0.11      0.17      9.57      179.44
-----

```

```

-----
| ADD HYD ( 0042) |
| 1 + 2 = 3 |
-----
                AREA      QPEAK      TPEAK      R.V.
                (ha)      (cms)      (hrs)      (mm)
      ID1= 1 ( 0032):  4.10      0.494      9.88      179.44
+ ID2= 2 ( 0041):  0.11      0.174      9.57      179.44
=====
      ID = 3 ( 0042):  4.21      0.577      10.00      179.44
-----

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0055) |
| 1 + 2 = 3 |
-----
                AREA      QPEAK      TPEAK      R.V.
                (ha)      (cms)      (hrs)      (mm)
      ID1= 1 ( 0019):  7.91      0.841      10.33      144.31
+ ID2= 2 ( 0042):  4.21      0.577      10.00      179.44
=====
      ID = 3 ( 0055):  12.12      1.367      10.00      156.52
-----

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| CALIB
| NASHYD ( 0029) | Area (ha)= 0.93      Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00      # of Linear Res.(N)= 3.00
-----
                U.H. Tp(hrs)= 0.05
-----

```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00

0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 0.710

PEAK FLOW (cms)= 0.089 (i)

TIME TO PEAK (hrs)= 10.000

RUNOFF VOLUME (mm)= 108.633

TOTAL RAINFALL (mm)= 212.000

RUNOFF COEFFICIENT = 0.512

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | CALIB |
 | STANDHYD (0056) | Area (ha)= 0.25
 | ID= 1 DT= 5.0 min | Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.11	0.14
Dep. Storage	(mm)=	1.00	5.00

Average Slope	(%)=	1.00	2.00
Length	(m)=	40.82	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	45.24
over (min)	5.00	15.00
Storage Coeff. (min)=	1.92 (ii)	11.62 (ii)

Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.31	0.09	
			TOTALS
PEAK FLOW (cms)=	0.02	0.02	0.033 (iii)
TIME TO PEAK (hrs)=	9.50	10.00	10.00
RUNOFF VOLUME (mm)=	211.00	142.38	171.86
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	1.00	0.67	0.81

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0034) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0029):    0.93    0.089    10.00    108.63
+ ID2= 2 ( 0055):   12.12    1.367    10.00    156.52
=====
ID = 3 ( 0034):   13.05    1.456    10.00    153.10

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0034) |
| 3 + 2 = 1 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 3 ( 0034):   13.05    1.456    10.00    153.10
+ ID2= 2 ( 0056):    0.25    0.033    10.00    171.86
=====
ID = 1 ( 0034):   13.30    1.489    10.00    153.46

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| CALIB |
| NASHYD ( 0003) | Area (ha)= 0.35 Curve Number (CN)= 73.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
-----
          U.H. Tp(hrs)= 0.08

```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.041 (i)

TIME TO PEAK (hrs)= 10.000

RUNOFF VOLUME (mm)= 133.601

TOTAL RAINFALL (mm)= 212.000

RUNOFF COEFFICIENT = 0.630

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | CALIB
 | STANDHYD (0009)
ID= 1 DT= 5.0 min

Area (ha)= 0.13
 Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00

2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)= 53.00 45.24
over (min) 5.00 15.00
Storage Coeff. (min)= 1.58 (ii) 11.27 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.33 0.09

TOTALS

PEAK FLOW (cms)= 0.01 0.01 0.018 (iii)
TIME TO PEAK (hrs)= 9.42 10.00 10.00
RUNOFF VOLUME (mm)= 211.00 142.38 186.25
TOTAL RAINFALL (mm)= 212.00 212.00 212.00
RUNOFF COEFFICIENT = 1.00 0.67 0.88

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0003):  0.35  0.041  10.00  133.60
+ ID2= 2 ( 0009):  0.13  0.018  10.00  186.25
=====
ID = 3 ( 0011):  0.48  0.059  10.00  147.86

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| CALIB
| STANDHYD ( 0013)|
| ID= 1 DT= 5.0 min |
-----
          Area    (ha)=  0.13
          Total Imp(%)= 64.00  Dir. Conn.(%)= 64.00

```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00

Mannings n = 0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	45.24
over (min)	5.00	15.00
Storage Coeff. (min)=	1.58 (ii)	11.27 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.33	0.09

				TOTALS
PEAK FLOW	(cms)=	0.01	0.01	0.018 (iii)
TIME TO PEAK	(hrs)=	9.42	10.00	10.00
RUNOFF VOLUME	(mm)=	211.00	142.38	186.25
TOTAL RAINFALL	(mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT	=	1.00	0.67	0.88

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0054)	Area (ha)=	0.11	
ID= 1 DT= 5.0 min	Total Imp(%)=	64.00	Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.04
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	27.08	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00

1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)= 53.00 45.24
over (min) 5.00 15.00
Storage Coeff. (min)= 1.50 (ii) 11.20 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.33 0.09

TOTALS

PEAK FLOW (cms)= 0.01 0.00 0.015 (iii)
TIME TO PEAK (hrs)= 9.42 10.00 10.00
RUNOFF VOLUME (mm)= 211.00 142.38 186.25
TOTAL RAINFALL (mm)= 212.00 212.00 212.00
RUNOFF COEFFICIENT = 1.00 0.67 0.88

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0004) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0011): 0.48 0.059 10.00 147.86
+ ID2= 2 ( 0013): 0.13 0.018 10.00 186.25
=====

```

ID = 3 (0004): 0.61 0.077 10.00 156.04

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 0004) |
| 3 + 2 = 1 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
      ID1= 3 ( 0004): 0.61 0.077 10.00 156.04
+ ID2= 2 ( 0054): 0.11 0.015 10.00 186.25
=====
      ID = 1 ( 0004): 0.72 0.092 10.00 160.66
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| RESERVOIR( 0050) |
| IN= 2---> OUT= 1 |
| DT= 5.0 min |
-----
          OVERFLOW IS OFF
          OUTFLOW      STORAGE      |      OUTFLOW      STORAGE
          (cms)      (ha.m.)      |      (cms)      (ha.m.)
          0.0000      0.0000      |      0.2390      0.0097
          0.0390      0.0052      |      0.0000      0.0000

          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
INFLOW : ID= 2 ( 0004) 0.720 0.092 10.00 160.66
OUTFLOW: ID= 1 ( 0050) 0.720 0.092 10.00 160.62
```

PEAK FLOW REDUCTION [Qout/Qin](%)= 99.63
TIME SHIFT OF PEAK FLOW (min)= 0.00
MAXIMUM STORAGE USED (ha.m.)= 0.0064

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-----
| CALIB |
| STANDHYD ( 0006) |
| ID= 1 DT= 5.0 min |
-----
          Area (ha)= 0.07
          Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00

          IMPERVIOUS      PERVIOUS (i)
Surface Area (ha)= 0.06 0.01
Dep. Storage (mm)= 1.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 22.21 40.00
Mannings n = 0.013 0.250
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	45.24
over (min)	5.00	15.00
Storage Coeff. (min)=	1.34 (ii)	11.03 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.33	0.09

TOTALS

PEAK FLOW (cms)=	0.01	0.00	0.011 (iii)
TIME TO PEAK (hrs)=	9.33	10.00	10.00
RUNOFF VOLUME (mm)=	211.00	142.38	197.18
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	1.00	0.67	0.93

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 ( 0008) | Area (ha)= 0.40 |
| ID= 1 DT= 5.0 min | Total Imp(%)= 99.00   Dir. Conn.(%)= 99.00
-----

```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.39	0.00
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	51.38	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00

1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)= 53.00 45.24
over (min) 5.00 5.00
Storage Coeff. (min)= 2.21 (ii) 3.66 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.30 0.25

TOTALS

PEAK FLOW (cms)= 0.06 0.00 0.058 (iii)
TIME TO PEAK (hrs)= 9.58 10.00 10.00
RUNOFF VOLUME (mm)= 211.00 142.38 210.31
TOTAL RAINFALL (mm)= 212.00 212.00 212.00
RUNOFF COEFFICIENT = 1.00 0.67 0.99

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0048)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0006):	0.07	0.011	10.00	197.18
+ ID2= 2 (0008):	0.40	0.058	10.00	210.31
=====				
ID = 3 (0048):	0.47	0.069	10.00	208.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0030)	OVERFLOW IS OFF

| IN= 2---> OUT= 1 |
 | DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.1120	0.0061
0.0210	0.0010	0.1220	0.0071
0.0530	0.0020	0.1320	0.0081
0.0730	0.0030	0.1400	0.0091
0.0880	0.0041	0.1520	0.0105
0.1000	0.0051	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0048)	0.470	0.069	10.00	208.24
OUTFLOW: ID= 1 (0030)	0.470	0.069	10.00	208.23

PEAK FLOW REDUCTION [Qout/Qin](%)= 99.87
 TIME SHIFT OF PEAK FLOW (min)= 0.00
 MAXIMUM STORAGE USED (ha.m.)= 0.0028

| ADD HYD (0046) |
 | 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	0.47	0.069	10.00	208.23
+ ID2= 2 (0050):	0.72	0.092	10.00	160.62
=====				
ID = 3 (0046):	1.19	0.161	10.00	179.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB
 | STANDHYD (0014) |
 | ID= 1 DT= 5.0 min |

Area (ha)= 0.14
 Total Imp(%)= 71.00 Dir. Conn.(%)= 71.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.10	0.04
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	30.88	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 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

0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	45.24
over (min)	5.00	15.00
Storage Coeff. (min)=	1.63 (ii)	11.32 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.32	0.09

TOTALS

PEAK FLOW (cms)=	0.01	0.01	0.020 (iii)
TIME TO PEAK (hrs)=	9.42	10.00	10.00
RUNOFF VOLUME (mm)=	211.00	142.38	191.06
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	1.00	0.67	0.90

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 73.0 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 ( 0051) |
| 1 + 2 = 3      |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
          ID1= 1 ( 0014):      0.14      0.020      10.00      191.06
          + ID2= 2 ( 0046):      1.19      0.161      10.00      179.43
          =====
          ID = 3 ( 0051):      1.33      0.181      10.00      180.67
  
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

PCSWMM Report

100-Year Capacity

Model Enns Valery Bronte Road Capacity - 100-year.inp

Urbantech Consulting

November 24, 2021

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Summary 1: Subcatchment statistics

Name	Enns Valery Bronte Road Capacity - 100-year
Max. width (m)	49
Min. width (m)	11
Max. area (ha)	0.49
Min. area (ha)	0.11
Total area (ha)	3.04
Max. length of overland flow (m)	100
Min. length of overland flow (m)	100
Max. slope (%)	0.5
Min. slope (%)	0.5
Max. imperviousness (%)	64
Min. imperviousness (%)	64
Max. imp. roughness	0.013
Min. imp. roughness	0.013
Max. perv. roughness	0.25
Min. perv. roughness	0.25
Max. imp. depression storage (mm)	1
Min. imp. depression storage (mm)	1
Max. perv. depression storage (mm)	5
Min. perv. depression storage (mm)	5

Summary 2: Node statistics

Name	Enns Valery Bronte Road Capacity - 100-year
Max. ground elev. (m)	131.249
Min. ground elev. (m)	129.168
Max. invert elev. (m)	130.839
Min. invert elev. (m)	125.7
Max. depth (m)	4.042
Min. depth (m)	0.41

Summary 3: Conduit statistics

Name	Enns Valery Bronte Road Capacity - 100-year
Max. roughness	0.01
Min. roughness	0.01
Max. entry loss coef.	0
Min. entry loss coef.	0
Max. exit loss coef.	0
Min. exit loss coef.	0
Max. avg. loss coef.	0
Min. avg. loss coef.	0
Max. length (m)	400
Min. length (m)	3
Total length (m)	1537.896
Max. slope (m/m)	0.0065
Min. slope (m/m)	0.0004

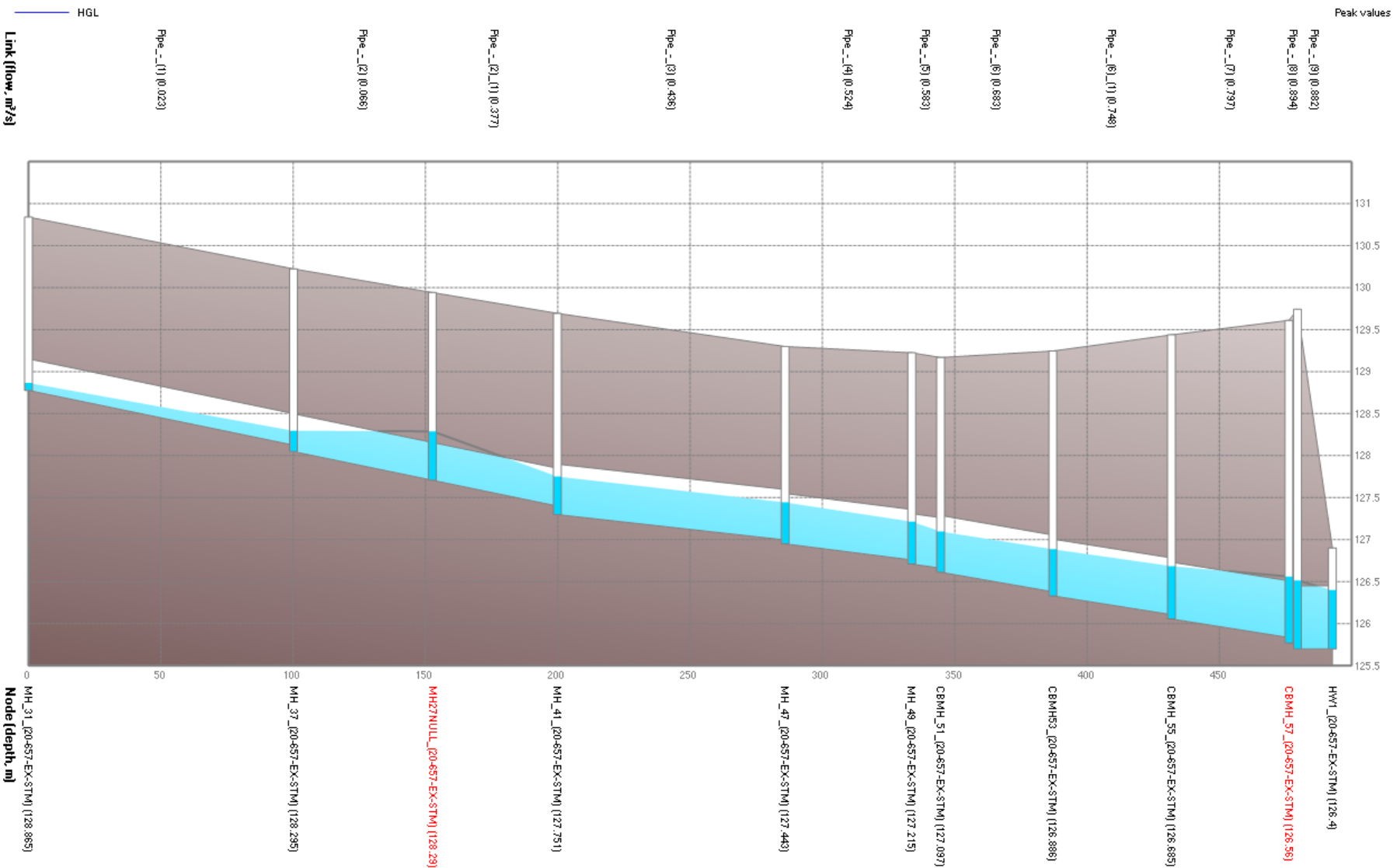


Figure 1: Enns 100-Year HGL

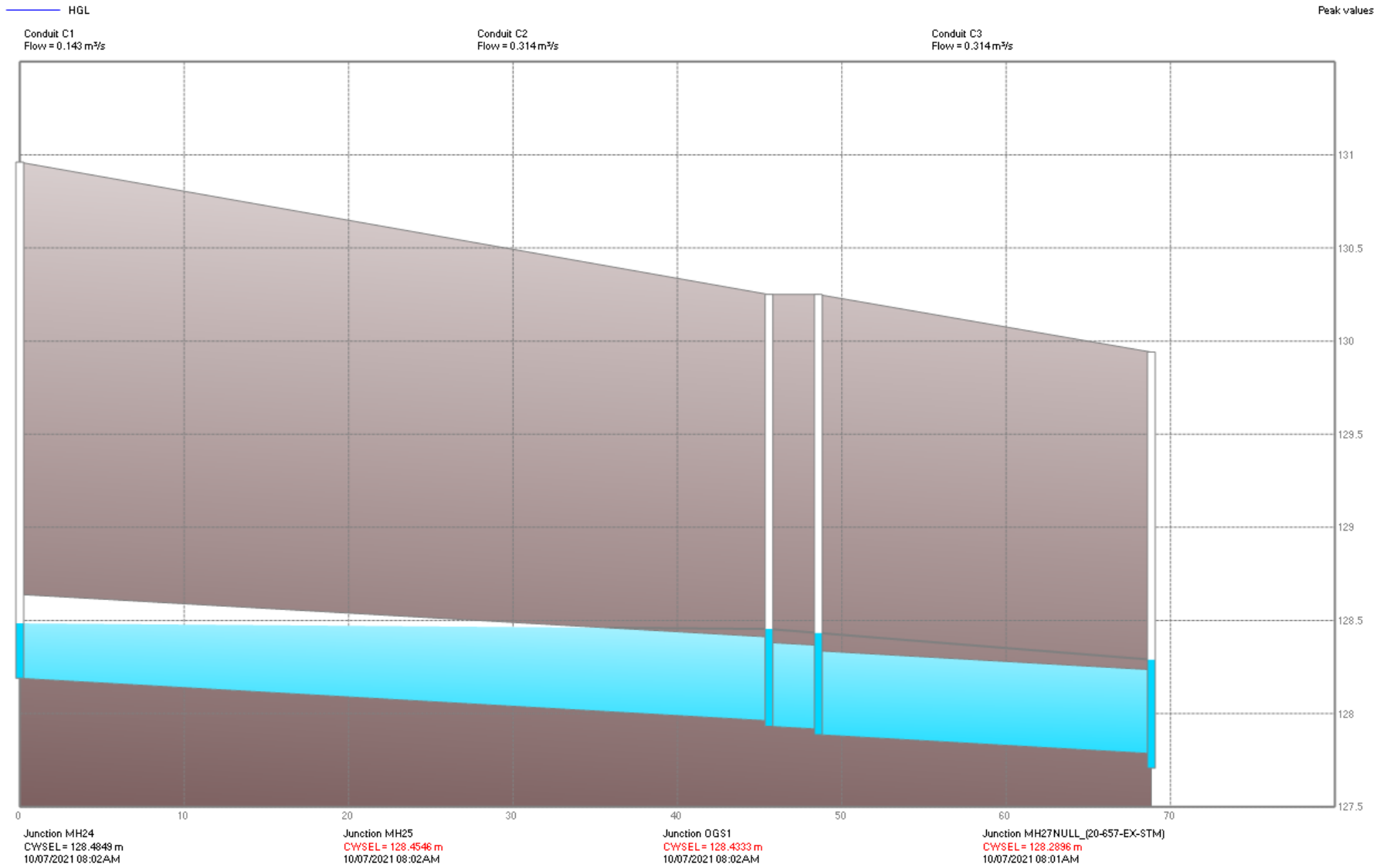


Figure 2: Street A 100-Year HGL

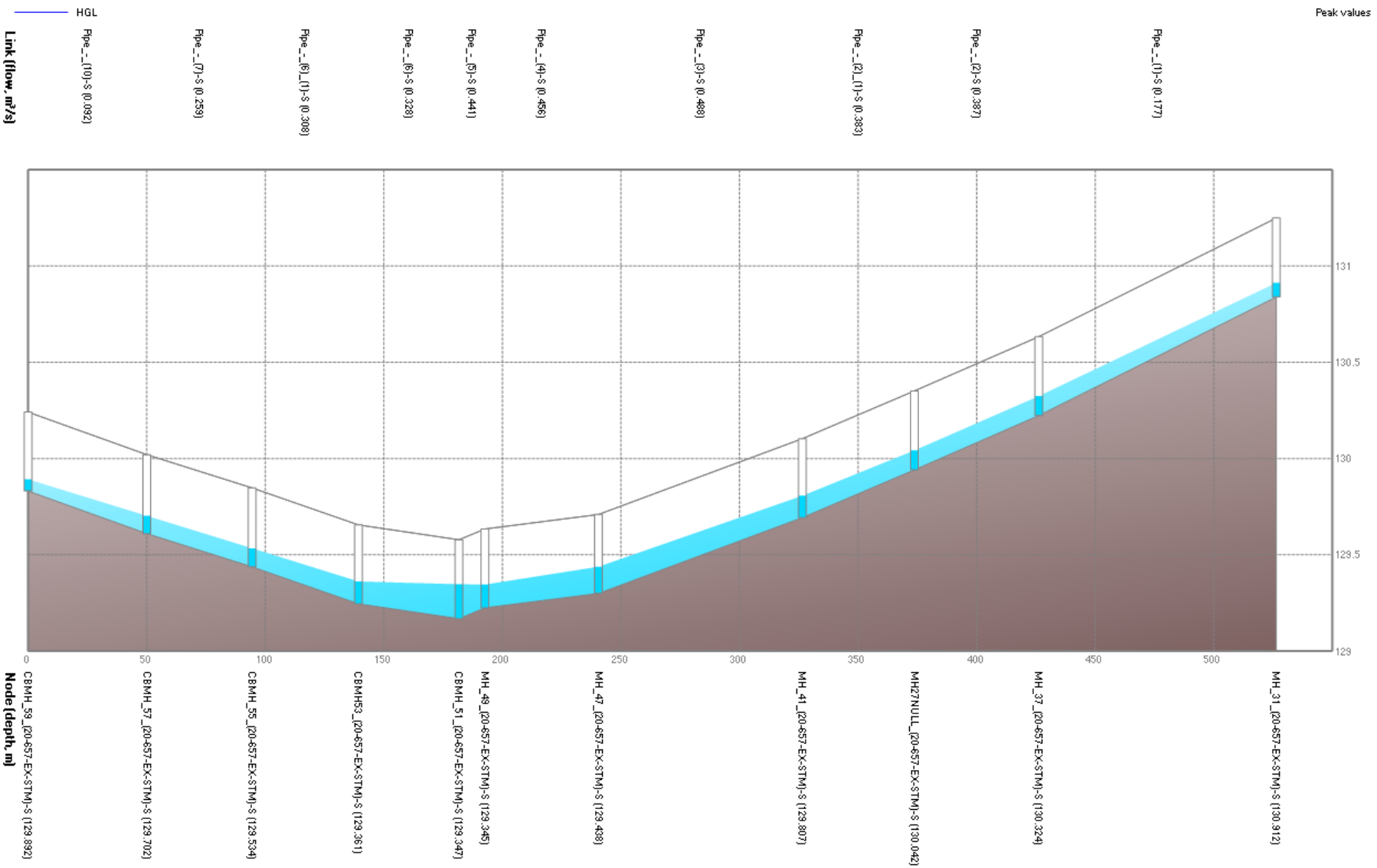


Figure 3: Bronte Road Major System Flows

Table 1: Conduits

Name	Inlet Node	Outlet Node	Length (m)	Roughness	Inlet Elev. (m)	Outlet Elev. (m)	Geom1 (m)	Max. Flow (m ³ /s)	Max. Unit Flow (m ³ /s/ha)
C1	MH24	MH25	45.571	0.01	128.19	127.962	0.45	0.143	0
C2	MH25	OGS1	3	0.01	127.932	127.917	0.45	0.314	0
C3	OGS1	MH27NULL_(20-657-EX-STM)	20.255	0.01	127.887	127.786	0.45	0.314	0
C4	CBMH_51_(20-657-EX-STM)-S	OF1	400	0.01	129.168	129	0.4	0.513	0.169
Pipe_-_ (1)	MH_31_(20-657-EX-STM)	MH_37_(20-657-EX-STM)	100.132	0.01	128.776	128.125	0.375	0.023	0.048
Pipe_-_ (1)-S	MH_31_(20-657-EX-STM)-S	MH_37_(20-657-EX-STM)-S	100.132	0.01	130.839	130.223	0	0.177	0.369
Pipe_-_ (10)	CBMH_59_(20-657-EX-STM)	CBMH_57_(20-657-EX-STM)	50.039	0.01	127.66	127.41	0.3	0.017	0.065
Pipe_-_ (10)-S	CBMH_59_(20-657-EX-STM)-S	CBMH_57_(20-657-EX-STM)-S	50.039	0.01	129.831	129.61	0	0.092	0.354
Pipe_-_ (2)	MH_37_(20-657-EX-STM)	MH27NULL_(20-657-EX-STM)	52.453	0.01	128.048	127.707	0.45	0.066	0.069
Pipe_-_ (2)_ (1)	MH27NULL_(20-657-EX-STM)	MH_41_(20-657-EX-STM)	47.262	0.01	127.707	127.4	0.45	0.377	0.397
Pipe_-_ (2)_ (1)-S	MH27NULL_(20-657-EX-STM)-S	MH_41_(20-657-EX-STM)-S	47.262	0.01	129.941	129.693	0	0.383	0.403
Pipe_-_ (2)-S	MH_37_(20-657-EX-STM)-S	MH27NULL_(20-657-EX-STM)-S	52.453	0.01	130.223	129.941	0	0.39	0.411
Pipe_-_ (3)	MH_41_(20-657-EX-STM)	MH_47_(20-657-EX-STM)	86.03	0.01	127.298	126.997	0.6	0.436	0.311
Pipe_-_ (3)-S	MH_41_(20-657-EX-STM)-S	MH_47_(20-657-EX-STM)-S	86.03	0.01	129.693	129.299	0	0.489	0.349
Pipe_-_ (4)	MH_47_(20-657-EX-STM)	MH_49_(20-657-EX-STM)	47.851	0.01	126.95	126.759	0.6	0.524	0.33
Pipe_-_ (4)-S	MH_47_(20-657-EX-STM)-S	MH_49_(20-657-EX-STM)-S	47.851	0.01	129.299	129.224	0	0.457	0.287
Pipe_-_ (5)	MH_49_(20-657-EX-STM)	CBMH_51_(20-657-EX-STM)	10.938	0.01	126.71	126.661	0.6	0.584	0.338
Pipe_-_ (5)-S	MH_49_(20-657-EX-STM)-S	CBMH_51_(20-657-EX-STM)-S	10.938	0.01	129.224	129.168	0	0.444	0.257
Pipe_-_ (6)	CBMH_51_(20-657-EX-STM)	CBMH53_(20-657-EX-STM)	42.356	0.01	126.613	126.38	0.675	0.685	0.225
Pipe_-_ (6)_ (1)	CBMH53_(20-657-EX-STM)	CBMH_55_(20-657-EX-STM)	44.849	0.01	126.332	126.108	0.675	0.753	0.248
Pipe_-_ (6)_ (1)-S	CBMH_55_(20-657-EX-STM)-S	CBMH53_(20-657-EX-STM)-S	44.849	0.01	129.437	129.245	0	0.31	0.316
Pipe_-_ (6)-S	CBMH53_(20-657-EX-STM)-S	CBMH_51_(20-657-EX-STM)-S	42.356	0.01	129.245	129.168	0	0.329	0.274
Pipe_-_ (7)	CBMH_55_(20-657-EX-STM)	CBMH_57_(20-657-EX-STM)	44.423	0.01	126.057	125.835	0.675	0.822	0.27
Pipe_-_ (7)-S	CBMH_57_(20-657-EX-STM)-S	CBMH_55_(20-657-EX-STM)-S	44.423	0.01	129.61	129.437	0	0.26	0.347
Pipe_-_ (8)	CBMH_57_(20-657-EX-STM)	OGS_1_(20-657-EX-STM)	3.21	0.01	125.77	125.759	0.75	0.958	0.315
Pipe_-_ (9)	OGS_1_(20-657-EX-STM)	HW1_(20-657-EX-STM)	13.194	0.01	125.7	125.654	0.75	0.971	0.319

Table 2A: Subcatchments

Name	Rain Gage	Outlet	Area (ha)	Width (m)	Flow Length (m)	Slope (%)	Imperv. (%)	N Imperv	N Perv	Curve Number	Groundwater	Precipitation (mm)
S1	Chicago_24h_100year	MH_31_(20-657-EX-STM)-S	0.48	48	100	0.5	64	0.013	0.25	73	NO	98.14
S10	Chicago_24h_100year	CBMH_51_(20-657-EX-STM)-S	0.11	11	100	0.5	64	0.013	0.25	73	NO	98.14
S2	Chicago_24h_100year	MH_37_(20-657-EX-STM)-S	0.47	47	100	0.5	64	0.013	0.25	73	NO	98.14
S3	Chicago_24h_100year	MH_41_(20-657-EX-STM)-S	0.45	45	100	0.5	64	0.013	0.25	73	NO	98.14
S4	Chicago_24h_100year	MH_47_(20-657-EX-STM)-S	0.19	19	100	0.5	64	0.013	0.25	73	NO	98.14
S5	Chicago_24h_100year	MH_49_(20-657-EX-STM)-S	0.14	14	100	0.5	64	0.013	0.25	73	NO	98.14
S6	Chicago_24h_100year	CBMH53_(20-657-EX-STM)-S	0.22	22	100	0.5	64	0.013	0.25	73	NO	98.14
S7	Chicago_24h_100year	CBMH_55_(20-657-EX-STM)-S	0.23	23	100	0.5	64	0.013	0.25	73	NO	98.14
S8	Chicago_24h_100year	CBMH_57_(20-657-EX-STM)-S	0.49	49	100	0.5	64	0.013	0.25	73	NO	98.14
S9	Chicago_24h_100year	CBMH_59_(20-657-EX-STM)-S	0.26	26	100	0.5	64	0.013	0.25	73	NO	98.14

Table 2B: Subcatchments

Name	Runon (mm)	Evaporation (mm)	Infiltration (mm)	Runoff Depth (mm)	Peak Runoff (m ³ /s)	Runoff Coefficient
S1	0	0	5.59	92.53	0.21	0.943
S10	0	0	5.59	92.53	0.05	0.943
S2	0	0	5.59	92.53	0.2	0.943
S3	0	0	5.59	92.53	0.19	0.943
S4	0	0	5.59	92.53	0.08	0.943
S5	0	0	5.59	92.53	0.06	0.943
S6	0	0	5.59	92.53	0.09	0.943
S7	0	0	5.59	92.53	0.1	0.943
S8	0	0	5.59	92.53	0.21	0.943
S9	0	0	5.59	92.53	0.11	0.943

Table 3A: Junctions

Name	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Initial Depth (m)	Surcharge Depth (m)	Baseline (m ³ /s)	Avg. Depth (m)	Max. Depth (m)	Max. HGL (m)	Max. Total Inflow (m ³ /s)	Contributing Area (ha)	Contributing Imp. Area (ha)
CBMH_51_(20-657-EX-STM)	NO	126.613	129.168	2.555	0	0.41	0	0.32	0.49	127.1	0.684	3.04	1.946
CBMH_51_(20-657-EX-STM)-S	NO	129.168	129.578	0.41	0	0	0	0.04	0.18	129.35	0.807	3.04	1.946
CBMH_55_(20-657-EX-STM)	NO	126.057	129.437	3.38	0	0.41	0	0.38	0.64	126.7	0.79	3.04	1.946
CBMH_55_(20-657-EX-STM)-S	NO	129.437	129.847	0.41	0	0	0	0.01	0.1	129.53	0.358	0.98	0.627
CBMH_57_(20-657-EX-STM)	NO	125.77	129.61	3.84	0	0.41	0	0.66	0.85	126.62	0.87	3.04	1.946
CBMH_57_(20-657-EX-STM)-S	NO	129.61	130.02	0.41	0	0	0	0.01	0.09	129.7	0.302	0.75	0.48
CBMH_59_(20-657-EX-STM)	NO	127.66	129.831	2.171	0	0.41	0	0.02	0.09	127.75	0.018	0.26	0.166
CBMH_59_(20-657-EX-STM)-S	NO	129.831	130.241	0.41	0	0	0	0.01	0.06	129.89	0.111	0.26	0.166
CBMH53_(20-657-EX-STM)	NO	126.332	129.245	2.913	0	0.41	0	0.33	0.55	126.89	0.741	3.04	1.946
CBMH53_(20-657-EX-STM)-S	NO	129.245	129.655	0.41	0	0	0	0.01	0.12	129.36	0.403	1.2	0.768
MH_31_(20-657-EX-STM)	NO	128.776	130.839	2.063	0	0.41	0	0.02	0.09	128.87	0.023	0.48	0.307
MH_31_(20-657-EX-STM)-S	NO	130.839	131.249	0.41	0	0	0	0.01	0.07	130.91	0.206	0.48	0.307
MH_37_(20-657-EX-STM)	NO	128.048	130.223	2.175	0	0.41	0	0.08	0.25	128.3	0.069	0.95	0.608
MH_37_(20-657-EX-STM)-S	YES	130.223	130.633	0.41	0	0	0.067	0.05	0.1	130.32	0.445	0.95	0.608
MH_41_(20-657-EX-STM)	NO	127.298	129.693	2.395	0	0.41	0	0.38	0.45	127.75	0.436	1.4	0.896
MH_41_(20-657-EX-STM)-S	NO	129.693	130.103	0.41	0	0	0	0.05	0.11	129.81	0.567	1.4	0.896
MH_47_(20-657-EX-STM)	NO	126.95	129.299	2.349	0	0.41	0	0.37	0.49	127.44	0.524	1.59	1.018
MH_47_(20-657-EX-STM)-S	NO	129.299	129.709	0.41	0	0	0	0.06	0.14	129.44	0.563	1.59	1.018
MH_49_(20-657-EX-STM)	NO	126.71	129.224	2.514	0	0.41	0	0.36	0.5	127.21	0.584	1.73	1.107
MH_49_(20-657-EX-STM)-S	NO	129.224	129.634	0.41	0	0	0	0.04	0.12	129.35	0.501	1.73	1.107
MH24	YES	128.19	130.96	2.77	0	0	0.141	0.24	0.29	128.48	0.141	0	0
MH25	YES	127.932	130.25	2.318	0	0	0.171	0.39	0.52	128.46	0.314	0	0
MH27NULL_(20-657-EX-STM)	NO	127.707	129.941	2.234	0	0.41	0	0.42	0.58	128.29	0.377	0.95	0.608
MH27NULL_(20-657-EX-STM)-S	NO	129.941	130.351	0.41	0	0	0	0.05	0.1	130.04	0.39	0.95	0.608
OGS_1_(20-657-EX-STM)	NO	125.7	129.742	4.042	0	0	0	0.73	1.06	126.76	0.958	3.04	1.946
OGS1	NO	127.887	130.25	2.363	0	0	0	0.42	0.55	128.44	0.314	0	0

Table 3B: Junctions

Name	Max. Unit Flow (m ³ /s/ha)
CBMH_51_(20-657-EX-STM)	0.225
CBMH_51_(20-657-EX-STM)-S	0.265
CBMH_55_(20-657-EX-STM)	0.26
CBMH_55_(20-657-EX-STM)-S	0.365
CBMH_57_(20-657-EX-STM)	0.286
CBMH_57_(20-657-EX-STM)-S	0.403
CBMH_59_(20-657-EX-STM)	0.069
CBMH_59_(20-657-EX-STM)-S	0.427
CBMH53_(20-657-EX-STM)	0.244
CBMH53_(20-657-EX-STM)-S	0.336
MH_31_(20-657-EX-STM)	0.048
MH_31_(20-657-EX-STM)-S	0.429
MH_37_(20-657-EX-STM)	0.073
MH_37_(20-657-EX-STM)-S	0.468
MH_41_(20-657-EX-STM)	0.311
MH_41_(20-657-EX-STM)-S	0.405
MH_47_(20-657-EX-STM)	0.33
MH_47_(20-657-EX-STM)-S	0.354
MH_49_(20-657-EX-STM)	0.338
MH_49_(20-657-EX-STM)-S	0.29
MH24	0
MH25	0
MH27NULL_(20-657-EX-STM)	0.397
MH27NULL_(20-657-EX-STM)-S	0.411
OGS_1_(20-657-EX-STM)	0.315
OGS1	0

APPENDIX C

Bronte Road Storm Sewer Capacity Analysis



URBANTECH®

Memorandum

To: Ronald MacKenzie, Halton Region **Date:** December 2021

Cc:

From: Andrew Fata, M.Sc., P.Eng.

Re: Bronte Road Storm Sewer Capacity Analysis

The following memo describes the dual-drainage analysis of the proposed major and minor systems on Bronte Road.

For the purpose of determining the available capacity in the Bronte Road storm sewer system, a PCSWMM dual drainage model was used to provide information on the depth and flow on the streets and in the minor system.

The Drainage and Stormwater Management Draft Detailed Design Report (March 2010) by McCormick Rankin Corporation indicated that the Bronte Road storm sewer was sized to accommodate the 10-year event. It was indicated by Halton Region that another analysis for the Bronte Road storm sewer system had been completed by SNC Lavalin, however; this report and design sheets were not available from either SNC Lavalin or Halton Region so conclusions could not be reviewed.

The Rational Method sewer design sheet has been reproduced based on the information provided in the McCormick Rankin report as well as updated drainage areas based on available topography.

The sewer design was evaluated in the PCSWMM model. The minor system level of service was assessed based on nominal pipe capacity and free flow during the 10-year storm. PCSWMM includes several hydrology methods to simulate rainfall-runoff responses. Chicago design storms were created using the IDF data from the Town of Oakville. The 24-hour Chicago design storm distribution with 10 minute time steps was considered appropriate to use for the different storm events in accordance with the Town of Oakville standards and results in more conservative / higher peak flow rates and the starting time of concentration.

ROW Geometry

Bronte Road was modelled using a representative cross section to reflect the appropriate geometry, cross-section and road roughness. Refer to the attached cross section. The overland flow system typically consists of streets with flows constrained by the curb along both sides of the street. The overland invert levels were set at the curb elevation level. If the flow into the minor system is restricted due to catchbasin inlet capacity, each major system node indicates the representative depth of flow for the major system, which is then conveyed to the next downstream road link.

Subcatchments / Hydrology

While the Rational method was used to replicate the flows determined in McCormick Rankin report, the PCSWMM model included hydrologic modelling of the subcatchments. The modelling produced more conservative (higher) flows. To accurately quantify the runoff that enters the sewer system and overland flow routes along the Bronte Road, the McCormick Rankin subcatchments were delineated based available topography which increased the area along the west boulevard as shown on **Drawing STM-1**. The approximate impervious area for catchments was determined to be 65% based on the representative cross section.

Model Setup

The PCSWMM model directs the Bronte ROW subcatchments to discharge to the major system nodes, and then to the minor system via outlet rating curve links which represent catchbasin capture.

The outlet rating curves represent stormwater capture by modelling the capture of the existing side inlet catchbasins along Bronte Road and allowing stormwater to enter the minor system from the major system or vice versa. The rating curve for side inlet capture was determined in Hydraflow Express inlet capacity calculator and is based on the dimensions from OPSD 400.08 and Region of Peel standard Drawing 5-2-12-A, as Halton Region does not have a standard drawing for side inlet catchbasins at this time. The resulting capture curve is multiplied by the number of side inlet catchbasins connecting to the sewer along each given road link. A maximum inlet capacity of 50 L/s was used based on the “Modeling Catchbasins and Inlets in SWMM” article published in 2018 in the Journal of Water Management Modeling”. The capture is also consistent with published capture curves in the City of Burlington, City of Toronto and City of Markham SWM guidelines.

The minor system is based on the design on as-built drawings provided by Halton Region and appropriate Manning’s roughness and loss parameters have been assigned.

Simulations / Results

The 10-year storm simulation demonstrates that there is a minimum of 264 L/s of pipe capacity within the system downstream of the subject lands, so there is adequate capacity for the Enns development to be connected directly to the Bronte Road infrastructure and release limited flows. The total flow calculated established by the McCormick Rankin report in the pipe at this location was 0.64 m³/s, and 0.659 m³/s as determined by Urbantech’s updated Rational Method design. The PCSWMM model produced a more conservative 10-year flow of 0.82 m³/s, however; when incorporating hydrograph timing and the actual capture capacity of the side inlet catchbasins the peak total flow captured into the sewer is 0.386 m³/s. The table below outlines the results of the PCSWMM analysis.

Name	MH to MH	Pipe Size	Max. Flow (m³/s)	% Full	% Depth	Surface Depth (Based on 0.41 m)
Pipe_-_ (1)	MH 31 to MH 37	0.375	0.017	9%	21%	-
ROW1	MH 31 to MH 37	-	0.109	1%	17%	0.0697
Pipe_-_ (10)	MH59 to MH57	0.3	0.013	14%	26%	-
ROW10	MH59 to MH57	-	0.056	0%	16%	0.0656
Pipe_-_ (2)	MH27 to MH41	0.45	0.043	14%	26%	-
Pipe_-_ (2) (1)	MH27 to MH41	0.45	0.043	14%	26%	-
ROW 2-1	MH27 to MH41	-	0.195	1%	2%	0.082
ROW2	MH37 to MH27	-	0.201	1%	19%	0.0779
Pipe_-_ (3)	MH41 to MH47	0.6	0.075	16%	27%	-
ROW3	MH41 to MH47	-	0.26	1%	24%	0.0984
Pipe_-_ (4)	MH47 to MH49	0.6	0.131	26%	35%	-
ROW4	MH47 to MH49	-	0.233	2%	24%	0.0984
Pipe_-_ (5)	MH49 to MH51	0.6	0.159	3%	37%	-
ROW5	MH49 to MH51	-	0.229	1%	25%	0.1025
Pipe_-_ (6)	MH51 to MH53	0.675	0.218	27%	35%	-
Pipe_-_ (6) (1)	MH53 to MH55	0.675	0.25	32%	48%	-
ROW 6-1	MH53 to MH55	-	0.188	1%	22%	0.0902
ROW6	MH51 to MH53	-	0.206	2%	25%	0.1025
Pipe_-_ (7)	MH55 to MH57	0.675	0.286	37%	82%	-
ROW7	MH55 to MH57	-	0.159	1%	19%	0.0779
Pipe_-_ (8)	MH57 to OGS_1	0.75	0.394	46%	99%	-

The detailed PC-SWMM results are included in the 10-year model reports (attached).

Regards,
Urbantech® Consulting

Andrew Fata, M.Sc., P.Eng.
Senior Associate, Water Resources

Janna Ormond B.Eng., EIT
Municipal Design Assistant

Attachments:

- 10-year PC-SWMM report
- Digital Model files (10-year simulation)



STORM SEWER DESIGN SHEET

10 Year Storm

Bronte Road

Town of Oakville

PROJECT DETAILS

Project No: 20-65

Date: 24-Nov-2

Designed by: E.L

Checked by: S.H

DESIGN CRITERIA

$$\text{Min. Diameter} = 300 \text{ mm} \quad \text{Rainfall Intensity} = \frac{A}{(Tc+B)^c}$$

$$\text{Mannings 'n'} = 0.013$$

Starting Tc = 10 min A = 1400

Factor of Safety = 5 % c = 0.848

NOMINAL PIPE SIZE USED

[illegible]

Inlet Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Thursday, Oct 21 2021

Single Side Inlet Catchbasin

Curb Inlet

Location	= On grade
Curb Length (m)	= 0.6100
Throat Height (mm)	= 87.0000
Grate Area (sqm)	= -0-
Grate Width (m)	= -0-
Grate Length (m)	= -0-

Gutter

Slope, Sw (m/m)	= 0.135
Slope, Sx (m/m)	= 0.001
Local Depr (mm)	= -0-
Gutter Width (m)	= 0.3000
Gutter Slope (%)	= 0.5000
Gutter n-value	= 0.013

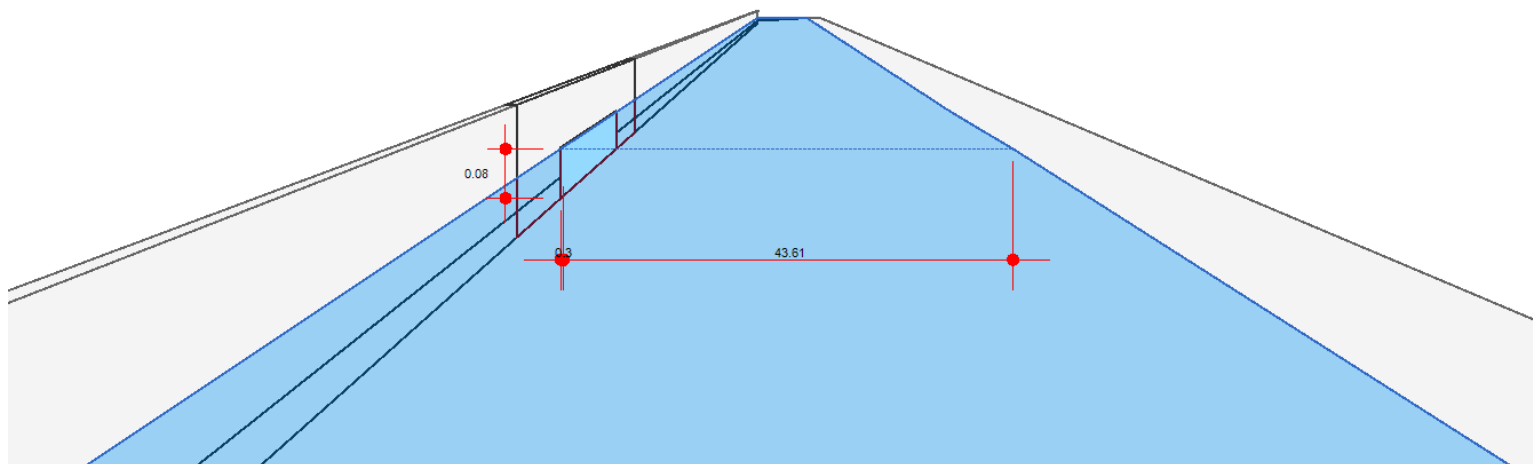
Calculations

Compute by:	Q vs Depth
Max Depth (mm)	= 400

Highlighted

Q Total (cms)	= 0.5000
Q Capt (cms)	= 0.0144
Q Bypass (cms)	= 0.4856
Depth at Inlet (mm)	= 84.1096
Efficiency (%)	= 3
Gutter Spread (m)	= 43.9096
Gutter Vel (m/s)	= 0.5154
Bypass Spread (m)	= 43.4249
Bypass Depth (mm)	= 83.6249

All dimensions in meters



PCSWMM Report

Model Enns Valery Bronte Road Capacity - 10-year - No
Enns.inp

Urbantech Consulting
November 24, 2021

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Summary 1: Subcatchment statistics

Name	Enns Valery Bronte Road Capacity
Max. width (m)	49
Min. width (m)	11
Max. area (ha)	0.49
Min. area (ha)	0.11
Total area (ha)	3.04
Max. length of overland flow (m)	100
Min. length of overland flow (m)	100
Max. slope (%)	0.5
Min. slope (%)	0.5
Max. imperviousness (%)	64
Min. imperviousness (%)	64
Max. imp. roughness	0.013
Min. imp. roughness	0.013
Max. perv. roughness	0.25
Min. perv. roughness	0.25
Max. imp. depression storage (mm)	1
Min. imp. depression storage (mm)	1
Max. perv. depression storage (mm)	5
Min. perv. depression storage (mm)	5

Summary 2: Node statistics

Name	Enns Valery Bronte Road Capacity
Max. ground elev. (m)	132.355
Min. ground elev. (m)	129.14
Max. invert elev. (m)	130.839
Min. invert elev. (m)	0
Max. depth (m)	4.042
Min. depth (m)	0.41

Summary 3: Conduit statistics

Name	Enns Valery Bronte Road Capacity
Max. roughness	0.01
Min. roughness	0.01
Max. entry loss coef.	0
Min. entry loss coef.	0
Max. exit loss coef.	0
Min. exit loss coef.	0
Max. avg. loss coef.	0
Min. avg. loss coef.	0
Max. length (m)	400
Min. length (m)	3
Total length (m)	2531.779
Max. slope (m/m)	0.0065
Min. slope (m/m)	0.0004

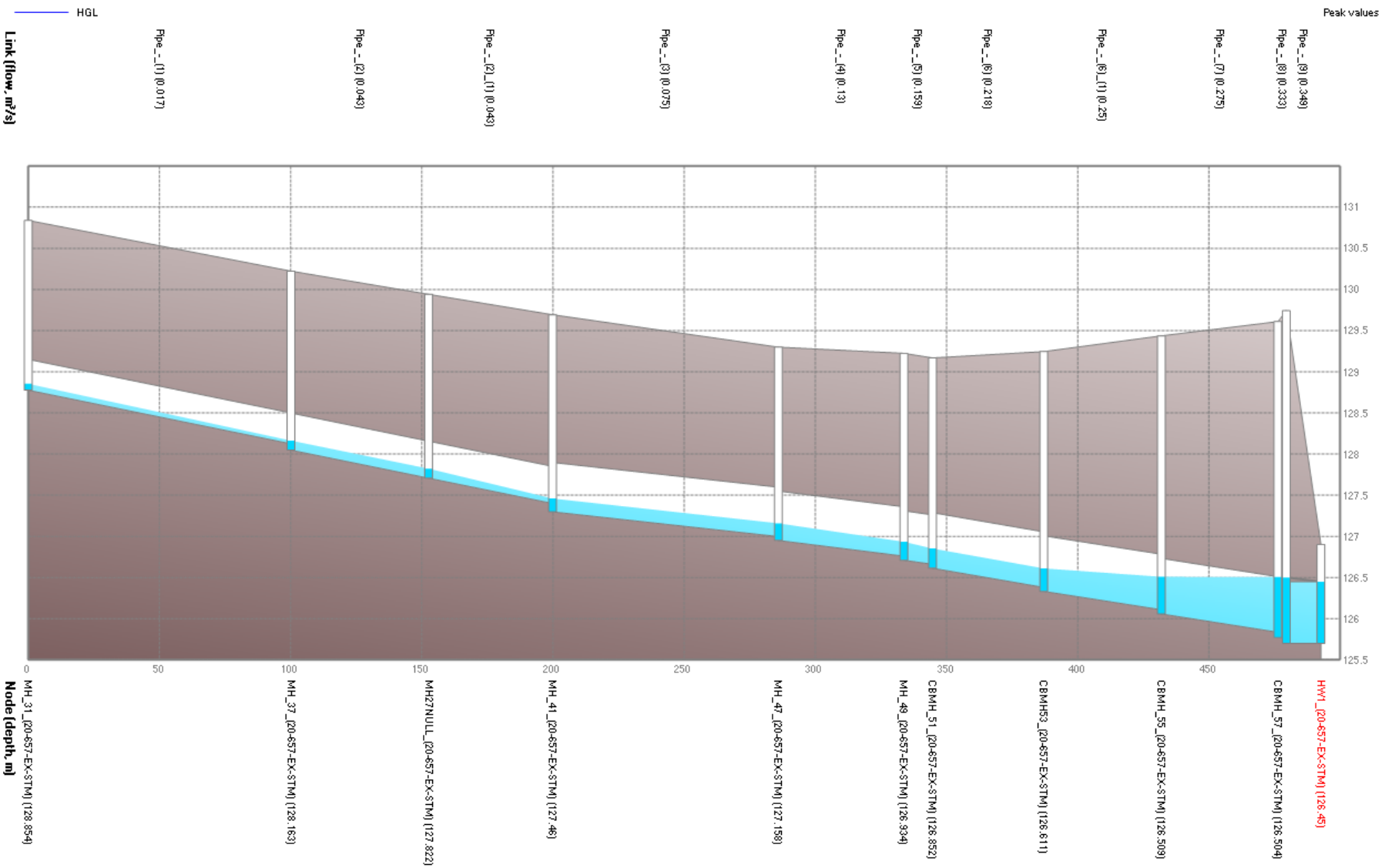


Figure 1: 10-Year Bronte Road Capacity

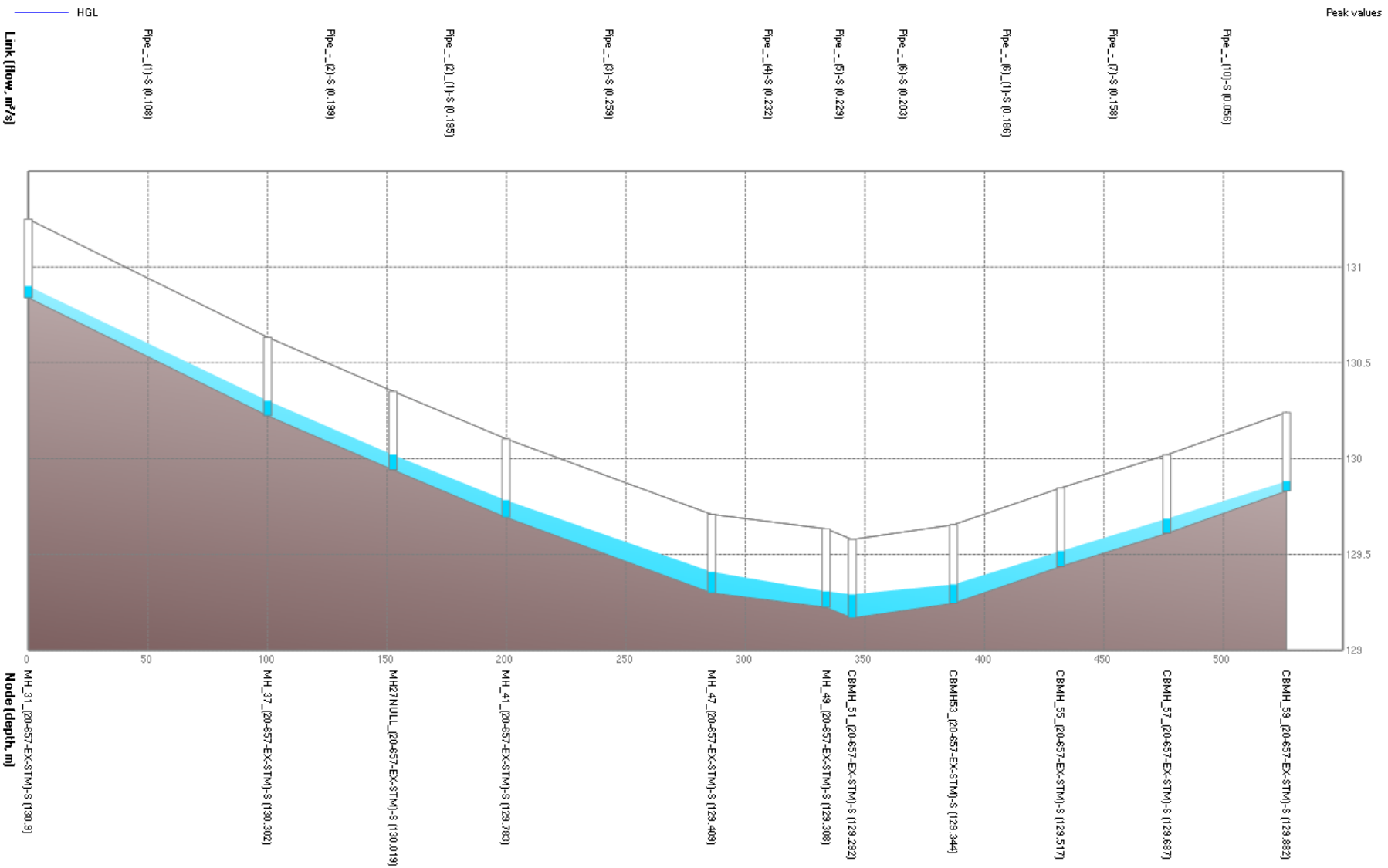


Figure 2: 10-Year Bronte Road Surface Flows

Table 1: Conduits

Name	Inlet Node	Outlet Node	Length (m)	Roughness	Inlet Elev. (m)	Outlet Elev. (m)	Geom1 (m)	Max. Flow (m ³ /s)	Max. Unit Flow (m ³ /s/ha)
C1	J3	J2	45.571	0.01	128.19	127.962	0.45	0	0
C2	J2	J1	3	0.01	127.932	127.917	0.45	0	0
C3	J1	MH27NULL_(20-657-EX-STM)	20.255	0.01	127.887	127.786	0.45	0	0
C4	CBMH_51_(20-657-EX-STM)-S	OF1	400	0.01	129.168	129	0.4	0.247	0.081
Pipe_-_ (1)	MH_31_(20-657-EX-STM)	MH_37_(20-657-EX-STM)	100.132	0.01	128.776	128.125	0.375	0.017	0.035
Pipe_-_ (1)-S	MH_31_(20-657-EX-STM)-S	MH_37_(20-657-EX-STM)-S	100.132	0.01	130.839	130.223	0	0.109	0.227
Pipe_-_ (10)	CBMH_59_(20-657-EX-STM)	CBMH_57_(20-657-EX-STM)	50.039	0.01	127.66	127.41	0.3	0.013	0.05
Pipe_-_ (10)-S	CBMH_59_(20-657-EX-STM)-S	CBMH_57_(20-657-EX-STM)-S	50.039	0.01	129.831	129.61	0	0.056	0.215
Pipe_-_ (2)	MH_37_(20-657-EX-STM)	MH27NULL_(20-657-EX-STM)	52.453	0.01	128.048	127.707	0.45	0.043	0.045
Pipe_-_ (2)_ (1)	MH27NULL_(20-657-EX-STM)	MH_41_(20-657-EX-STM)	47.262	0.01	127.707	127.4	0.45	0.043	0.045
Pipe_-_ (2)_ (1)-S	MH27NULL_(20-657-EX-STM)-S	MH_41_(20-657-EX-STM)-S	47.262	0.01	129.941	129.693	0	0.195	0.205
Pipe_-_ (2)-S	MH_37_(20-657-EX-STM)-S	MH27NULL_(20-657-EX-STM)-S	52.453	0.01	130.223	129.941	0	0.201	0.212
Pipe_-_ (3)	MH_41_(20-657-EX-STM)	MH_47_(20-657-EX-STM)	86.03	0.01	127.298	126.997	0.6	0.075	0.054
Pipe_-_ (3)-S	MH_41_(20-657-EX-STM)-S	MH_47_(20-657-EX-STM)-S	86.03	0.01	129.693	129.299	0	0.26	0.186
Pipe_-_ (4)	MH_47_(20-657-EX-STM)	MH_49_(20-657-EX-STM)	47.851	0.01	126.95	126.759	0.6	0.131	0.082
Pipe_-_ (4)-S	MH_47_(20-657-EX-STM)-S	MH_49_(20-657-EX-STM)-S	47.851	0.01	129.299	129.224	0	0.233	0.147
Pipe_-_ (5)	MH_49_(20-657-EX-STM)	CBMH_51_(20-657-EX-STM)	10.938	0.01	126.71	126.661	0.6	0.159	0.092
Pipe_-_ (5)-S	MH_49_(20-657-EX-STM)-S	CBMH_51_(20-657-EX-STM)-S	10.938	0.01	129.224	129.168	0	0.229	0.132
Pipe_-_ (6)	CBMH_51_(20-657-EX-STM)	CBMH53_(20-657-EX-STM)	42.356	0.01	126.613	126.38	0.675	0.218	0.072
Pipe_-_ (6)_ (1)	CBMH53_(20-657-EX-STM)	CBMH_55_(20-657-EX-STM)	44.849	0.01	126.332	126.108	0.675	0.25	0.082
Pipe_-_ (6)_ (1)-S	CBMH_55_(20-657-EX-STM)-S	CBMH53_(20-657-EX-STM)-S	44.849	0.01	129.437	129.245	0	0.188	0.192
Pipe_-_ (6)-S	CBMH53_(20-657-EX-STM)-S	CBMH_51_(20-657-EX-STM)-S	42.356	0.01	129.245	129.168	0	0.206	0.172
Pipe_-_ (7)	CBMH_55_(20-657-EX-STM)	CBMH_57_(20-657-EX-STM)	44.423	0.01	126.057	125.835	0.675	0.286	0.094
Pipe_-_ (7)-S	CBMH_57_(20-657-EX-STM)-S	CBMH_55_(20-657-EX-STM)-S	44.423	0.01	129.61	129.437	0	0.159	0.212
Pipe_-_ (8)	CBMH_57_(20-657-EX-STM)	OGS_1_(20-657-EX-STM)	3.21	0.01	125.77	125.759	0.75	0.394	0.13
Pipe_-_ (9)	OGS_1_(20-657-EX-STM)	HW1_(20-657-EX-STM)	13.194	0.01	125.7	125.654	0.75	0.386	0.127

Table 2A: Subcatchments

Name	Rain Gage	Outlet	Area (ha)	Width (m)	Flow Length (m)	Slope (%)	Imperv. (%)	N Imperv	N Perv	Curve Number	Groundwater	Precipitation (mm)
S1	Chicago_24h_10year	MH_31_(20-657-EX-STM)-S	0.48	48	100	0.5	64	0.013	0.25	73	NO	70.24
S10	Chicago_24h_10year	CBMH_51_(20-657-EX-STM)-S	0.11	11	100	0.5	64	0.013	0.25	73	NO	70.24
S2	Chicago_24h_10year	MH_37_(20-657-EX-STM)-S	0.47	47	100	0.5	64	0.013	0.25	73	NO	70.24
S3	Chicago_24h_10year	MH_41_(20-657-EX-STM)-S	0.45	45	100	0.5	64	0.013	0.25	73	NO	70.24
S4	Chicago_24h_10year	MH_47_(20-657-EX-STM)-S	0.19	19	100	0.5	64	0.013	0.25	73	NO	70.24
S5	Chicago_24h_10year	MH_49_(20-657-EX-STM)-S	0.14	14	100	0.5	64	0.013	0.25	73	NO	70.24
S6	Chicago_24h_10year	CBMH53_(20-657-EX-STM)-S	0.22	22	100	0.5	64	0.013	0.25	73	NO	70.24
S7	Chicago_24h_10year	CBMH_55_(20-657-EX-STM)-S	0.23	23	100	0.5	64	0.013	0.25	73	NO	70.24
S8	Chicago_24h_10year	CBMH_57_(20-657-EX-STM)-S	0.49	49	100	0.5	64	0.013	0.25	73	NO	70.24
S9	Chicago_24h_10year	CBMH_59_(20-657-EX-STM)-S	0.26	26	100	0.5	64	0.013	0.25	73	NO	70.24

Table 2B: Subcatchments

Name	Runon (mm)	Evaporation (mm)	Infiltration (mm)	Runoff Depth (mm)	Peak Runoff (m ³ /s)	Runoff Coefficient
S1	0	0	5.8	64.4	0.13	0.917
S10	0	0	5.8	64.4	0.03	0.917
S2	0	0	5.8	64.4	0.13	0.917
S3	0	0	5.8	64.4	0.12	0.917
S4	0	0	5.8	64.4	0.05	0.917
S5	0	0	5.8	64.4	0.04	0.917
S6	0	0	5.8	64.4	0.06	0.917
S7	0	0	5.8	64.4	0.06	0.917
S8	0	0	5.8	64.4	0.13	0.917
S9	0	0	5.8	64.4	0.07	0.917

Table 3A: Junctions

Name	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Initial Depth (m)	Surcharge Depth (m)	Baseline (m ³ /s)	Avg. Depth (m)	Max. Depth (m)	Max. HGL (m)	Max. Total Inflow (m ³ /s)	Contributing Area (ha)	Contributing Imp. Area (ha)
CBMH_51_(20-657-EX-STM)	NO	126.613	129.168	2.555	0	0.41	0	0.06	0.24	126.85	0.218	3.04	1.946
CBMH_51_(20-657-EX-STM)-S	NO	129.168	129.578	0.41	0	0	0	0.02	0.12	129.29	0.451	3.04	1.946
CBMH_55_(20-657-EX-STM)	NO	126.057	129.437	3.38	0	0.41	0	0.1	0.45	126.51	0.273	3.04	1.946
CBMH_55_(20-657-EX-STM)-S	NO	129.437	129.847	0.41	0	0	0	0.01	0.08	129.52	0.221	0.98	0.627
CBMH_57_(20-657-EX-STM)	NO	125.77	129.61	3.84	0	0.41	0	0.21	0.73	126.5	0.319	3.04	1.946
CBMH_57_(20-657-EX-STM)-S	NO	129.61	130.02	0.41	0	0	0	0.01	0.08	129.69	0.189	0.75	0.48
CBMH_59_(20-657-EX-STM)	NO	127.66	129.831	2.171	0	0.41	0	0.02	0.08	127.74	0.013	0.26	0.166
CBMH_59_(20-657-EX-STM)-S	NO	129.831	130.241	0.41	0	0	0	0.01	0.05	129.88	0.07	0.26	0.166
CBMH53_(20-657-EX-STM)	NO	126.332	129.245	2.913	0	0.41	0	0.06	0.28	126.61	0.25	3.04	1.946
CBMH53_(20-657-EX-STM)-S	NO	129.245	129.655	0.41	0	0	0	0.01	0.1	129.34	0.245	1.2	0.768
J1	NO	127.887	130.25	2.363	0	0	0	0	0	127.89	0	0	0
J2	NO	127.932	130.25	2.318	0	0	0	0	0	127.93	0	0	0
J3	NO	128.19	130.96	2.77	0	0	0	0	0	128.19	0	0	0
MH_31_(20-657-EX-STM)	NO	128.776	130.839	2.063	0	0.41	0	0.03	0.08	128.85	0.018	0.48	0.307
MH_31_(20-657-EX-STM)-S	NO	130.839	131.249	0.41	0	0	0	0.01	0.06	130.9	0.13	0.48	0.307
MH_37_(20-657-EX-STM)	NO	128.048	130.223	2.175	0	0.41	0	0.04	0.12	128.16	0.043	0.95	0.608
MH_37_(20-657-EX-STM)-S	NO	130.223	130.633	0.41	0	0	0	0.01	0.08	130.3	0.236	0.95	0.608
MH_41_(20-657-EX-STM)	NO	127.298	129.693	2.395	0	0.41	0	0.05	0.16	127.46	0.075	1.4	0.896
MH_41_(20-657-EX-STM)-S	NO	129.693	130.103	0.41	0	0	0	0.02	0.09	129.78	0.307	1.4	0.896
MH_47_(20-657-EX-STM)	NO	126.95	129.299	2.349	0	0.41	0	0.06	0.21	127.16	0.131	1.59	1.018
MH_47_(20-657-EX-STM)-S	NO	129.299	129.709	0.41	0	0	0	0.02	0.11	129.41	0.303	1.59	1.018
MH_49_(20-657-EX-STM)	NO	126.71	129.224	2.514	0	0.41	0	0.06	0.22	126.93	0.159	1.73	1.107
MH_49_(20-657-EX-STM)-S	NO	129.224	129.634	0.41	0	0	0	0.01	0.08	129.31	0.258	1.73	1.107
MH27_(20-657-STM)	NO	127.6	129.14	1.54	0	0	0	0	0	127.6	0	0	0
MH27NULL_(20-657-EX-STM)	NO	127.707	129.941	2.234	0	0.41	0	0.04	0.12	127.82	0.043	0.95	0.608
MH27NULL_(20-657-EX-STM)-S	NO	129.941	130.351	0.41	0	0	0	0.01	0.08	130.02	0.201	0.95	0.608

Table 3A: Junctions (continued...)

Name	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Initial Depth (m)	Surcharge Depth (m)	Baseline (m ³ /s)	Avg. Depth (m)	Max. Depth (m)	Max. HGL (m)	Max. Total Inflow (m ³ /s)	Contributing Area (ha)	Contributing Imp. Area (ha)
OGS_1_(20-657-EX-STM)	NO	125.7	129.742	4.042	0	0	0	0.28	0.82	126.52	0.394	3.04	1.946

Table 3B: Junctions

Name	Max. Unit Flow (m ³ /s/ha)
CBMH_51_(20-657-EX-STM)	0.072
CBMH_51_(20-657-EX-STM)-S	0.148
CBMH_55_(20-657-EX-STM)	0.09
CBMH_55_(20-657-EX-STM)-S	0.226
CBMH_57_(20-657-EX-STM)	0.105
CBMH_57_(20-657-EX-STM)-S	0.252
CBMH_59_(20-657-EX-STM)	0.05
CBMH_59_(20-657-EX-STM)-S	0.269
CBMH53_(20-657-EX-STM)	0.082
CBMH53_(20-657-EX-STM)-S	0.204
J1	0
J2	0
J3	0
MH_31_(20-657-EX-STM)	0.038
MH_31_(20-657-EX-STM)-S	0.271
MH_37_(20-657-EX-STM)	0.045
MH_37_(20-657-EX-STM)-S	0.248
MH_41_(20-657-EX-STM)	0.054
MH_41_(20-657-EX-STM)-S	0.219

Table 3B: Junctions (continued...)

Name	Max. Unit Flow (m ³ / s / ha)
MH_47_(20-657-EX-STM)	0.082
MH_47_(20-657-EX-STM)-S	0.191
MH_49_(20-657-EX-STM)	0.092
MH_49_(20-657-EX-STM)-S	0.149
MH27_(20-657-STM)	0
MH27NULL_(20-657-EX-STM)	0.045
MH27NULL_(20-657-EX-STM)-S	0.212
OGS_1_(20-657-EX-STM)	0.13

Q		Inlet		Gutter	
Total	Captured	Depth	Efficiency	Depth	Spread
(cms)	(cms)	(mm)	(%)	(mm)	(m)
0.0050	0.0042	44.9854	85	44.9854	4.7854
0.0100	0.0055	48.5211	55	48.5211	8.3211
0.0150	0.0062	50.5968	41	50.5968	10.3968
0.0200	0.0066	52.1635	33	52.1635	11.9635
0.0250	0.0069	53.4589	28	53.4589	13.2589
0.0300	0.0072	54.5744	24	54.5744	14.3744
0.0350	0.0075	55.5681	21	55.5681	15.3681
0.0400	0.0077	56.4642	19	56.4642	16.2642
0.0450	0.0079	57.2902	17	57.2902	17.0902
0.0500	0.0080	58.0522	16	58.0522	17.8522
0.0550	0.0082	58.7654	15	58.7654	18.5654
0.0600	0.0084	59.4360	14	59.4360	19.2360
0.0650	0.0085	60.0730	13	60.0730	19.8730
0.0700	0.0087	60.6765	12	60.6765	20.4765
0.0750	0.0088	61.2496	12	61.2496	21.0496
0.0800	0.0089	61.8013	11	61.8013	21.6012
0.0850	0.0090	62.3316	11	62.3316	22.1316
0.0900	0.0092	62.8376	10	62.8376	22.6376
0.0950	0.0093	63.3283	10	63.3283	23.1283
0.1000	0.0094	63.8038	9	63.8038	23.6038
0.1050	0.0095	64.2610	9	64.2610	24.0610
0.1100	0.0096	64.7060	9	64.7060	24.5060
0.1150	0.0097	65.1388	8	65.1388	24.9388
0.1200	0.0098	65.5594	8	65.5594	25.3594
0.1250	0.0099	65.9679	8	65.9679	25.7679
0.1300	0.0100	66.3641	8	66.3641	26.1641
0.1350	0.0101	66.7542	7	66.7542	26.5542
0.1400	0.0102	67.1322	7	67.1322	26.9322
0.1450	0.0102	67.5041	7	67.5041	27.3041
0.1500	0.0103	67.8668	7	67.8668	27.6668
0.1550	0.0104	68.2203	7	68.2203	28.0203
0.1600	0.0105	68.5678	7	68.5678	28.3678
0.1650	0.0106	68.9092	6	68.9092	28.7092
0.1700	0.0107	69.2445	6	69.2445	29.0445
0.1750	0.0107	69.5706	6	69.5706	29.3706
0.1800	0.0108	69.8937	6	69.8937	29.6937
0.1850	0.0109	70.2107	6	70.2107	30.0107
0.1900	0.0110	70.5216	6	70.5216	30.3216
0.1950	0.0110	70.8264	6	70.8264	30.6264
0.2000	0.0111	71.1281	6	71.1281	30.9281
0.2050	0.0112	71.4238	5	71.4238	31.2238
0.2100	0.0113	71.7133	5	71.7133	31.5133
0.2150	0.0113	72.0029	5	72.0029	31.8029
0.2200	0.0114	72.2833	5	72.2833	32.0833
0.2250	0.0115	72.5637	5	72.5637	32.3637
0.2300	0.0115	72.8381	5	72.8381	32.6381
0.2350	0.0116	73.1093	5	73.1093	32.9093
0.2400	0.0117	73.3776	5	73.3776	33.1776
0.2450	0.0117	73.6397	5	73.6397	33.4397

Q		Inlet		Gutter	
Total	Captured	Depth	Efficiency	Depth	Spread
(cms)	(cms)	(mm)	(%)	(mm)	(m)
0.2500	0.0118	73.9018	5	73.9018	33.7018
0.2550	0.0118	74.1578	5	74.1578	33.9578
0.2600	0.0119	74.4108	5	74.4108	34.2108
0.2650	0.0120	74.6638	5	74.6638	34.4638
0.2700	0.0120	74.9107	4	74.9107	34.7107
0.2750	0.0121	75.1545	4	75.1545	34.9545
0.2800	0.0122	75.3984	4	75.3984	35.1984
0.2850	0.0122	75.6361	4	75.6361	35.4361
0.2900	0.0123	75.8739	4	75.8739	35.6739
0.2950	0.0123	76.1086	4	76.1086	35.9086
0.3000	0.0124	76.3402	4	76.3402	36.1402
0.3050	0.0124	76.5688	4	76.5688	36.3688
0.3100	0.0125	76.7974	4	76.7974	36.5974
0.3150	0.0126	77.0199	4	77.0199	36.8199
0.3200	0.0126	77.2424	4	77.2424	37.0424
0.3250	0.0127	77.4619	4	77.4619	37.2619
0.3300	0.0127	77.6813	4	77.6813	37.4813
0.3350	0.0128	77.8977	4	77.8977	37.6977
0.3400	0.0128	78.1111	4	78.1111	37.9111
0.3450	0.0129	78.3214	4	78.3214	38.1214
0.3500	0.0129	78.5317	4	78.5317	38.3317
0.3550	0.0130	78.7420	4	78.7420	38.5420
0.3600	0.0130	78.9462	4	78.9462	38.7462
0.3650	0.0131	79.1505	4	79.1505	38.9505
0.3700	0.0131	79.3547	4	79.3547	39.1547
0.3750	0.0132	79.5559	4	79.5559	39.3559
0.3800	0.0132	79.7540	3	79.7540	39.5540
0.3850	0.0133	79.9521	3	79.9521	39.7521
0.3900	0.0133	80.1472	3	80.1472	39.9472
0.3950	0.0134	80.3422	3	80.3422	40.1422
0.4000	0.0134	80.5343	3	80.5343	40.3343
0.4050	0.0135	80.7263	3	80.7263	40.5263
0.4100	0.0135	80.9153	3	80.9153	40.7153
0.4150	0.0136	81.1042	3	81.1042	40.9042
0.4200	0.0136	81.2932	3	81.2932	41.0932
0.4250	0.0137	81.4761	3	81.4761	41.2761
0.4300	0.0137	81.6620	3	81.6620	41.4620
0.4350	0.0138	81.8449	3	81.8449	41.6449
0.4400	0.0138	82.0247	3	82.0247	41.8247
0.4450	0.0139	82.2076	3	82.2076	42.0076
0.4500	0.0139	82.3844	3	82.3844	42.1844
0.4550	0.0140	82.5642	3	82.5642	42.3642
0.4600	0.0140	82.7380	3	82.7380	42.5380
0.4650	0.0140	82.9147	3	82.9147	42.7147
0.4700	0.0141	83.0885	3	83.0885	42.8885
0.4750	0.0141	83.2622	3	83.2622	43.0622
0.4800	0.0142	83.4329	3	83.4329	43.2329
0.4850	0.0142	83.6036	3	83.6036	43.4036
0.4900	0.0143	83.7743	3	83.7743	43.5743

Q		Inlet		Gutter	
Total	Captured	Depth	Efficiency	Depth	Spread
(cms)	(cms)	(mm)	(%)	(mm)	(m)
0.4950	0.0143	83.9419	3	83.9419	43.7419
0.5000	0.0144	84.1096	3	84.1096	43.9096
0.5050	0.0144	84.2772	3	84.2772	44.0772
0.5100	0.0144	84.4418	3	84.4418	44.2418
0.5150	0.0145	84.6064	3	84.6064	44.4064
0.5200	0.0145	84.7679	3	84.7679	44.5679
0.5250	0.0146	84.9295	3	84.9295	44.7295
0.5300	0.0146	85.0910	3	85.0910	44.8910
0.5350	0.0147	85.2526	3	85.2526	45.0526
0.5400	0.0147	85.4111	3	85.4111	45.2111
0.5450	0.0147	85.5695	3	85.5695	45.3696
0.5500	0.0148	85.7281	3	85.7281	45.5281
0.5550	0.0148	85.8835	3	85.8835	45.6835
0.5600	0.0149	86.0390	3	86.0390	45.8389
0.5650	0.0149	86.1944	3	86.1944	45.9944
0.5700	0.0149	86.3498	3	86.3498	46.1498
0.5750	0.0150	86.5022	3	86.5022	46.3022
0.5800	0.0150	86.6546	3	86.6546	46.4546
0.5850	0.0151	86.8070	3	86.8070	46.6070
0.5900	0.0151	86.9564	3	86.9564	46.7564
0.5950	0.0151	87.1057	3	87.1057	46.9057
0.6000	0.0152	87.2551	3	87.2551	47.0551
0.6050	0.0152	87.4045	3	87.4045	47.2044
0.6100	0.0153	87.5508	3	87.5508	47.3508
0.6150	0.0153	87.7001	2	87.7001	47.5001
0.6200	0.0153	87.8434	2	87.8434	47.6434
0.6250	0.0154	87.9897	2	87.9897	47.7897
0.6300	0.0154	88.1360	2	88.1360	47.9360
0.6350	0.0155	88.2792	2	88.2792	48.0792
0.6400	0.0155	88.4225	2	88.4225	48.2225
0.6450	0.0155	88.5627	2	88.5627	48.3627
0.6500	0.0156	88.7059	2	88.7059	48.5059
0.6550	0.0156	88.8462	2	88.8462	48.6462
0.6600	0.0156	88.9864	2	88.9864	48.7864
0.6650	0.0157	89.1266	2	89.1266	48.9266
0.6700	0.0157	89.2668	2	89.2668	49.0668
0.6750	0.0158	89.4039	2	89.4039	49.2039
0.6800	0.0158	89.5411	2	89.5411	49.3411
0.6850	0.0158	89.6783	2	89.6783	49.4783
0.6900	0.0159	89.8154	2	89.8154	49.6154
0.6950	0.0159	89.9526	2	89.9526	49.7526
0.7000	0.0159	90.0867	2	90.0867	49.8867
0.7050	0.0160	90.2208	2	90.2208	50.0208
0.7100	0.0160	90.3549	2	90.3549	50.1549
0.7150	0.0160	90.4890	2	90.4890	50.2890
0.7200	0.0161	90.6231	2	90.6231	50.4231
0.7250	0.0161	90.7542	2	90.7542	50.5542
0.7300	0.0162	90.8853	2	90.8853	50.6853
0.7350	0.0162	91.0163	2	91.0163	50.8163

Q		Inlet		Gutter	
Total	Captured	Depth	Efficiency	Depth	Spread
(cms)	(cms)	(mm)	(%)	(mm)	(m)
0.7400	0.0162	91.1474	2	91.1474	50.9474
0.7450	0.0163	91.2785	2	91.2785	51.0785
0.7500	0.0163	91.4065	2	91.4065	51.2065
0.7550	0.0163	91.5375	2	91.5375	51.3375
0.7600	0.0164	91.6656	2	91.6656	51.4656
0.7650	0.0164	91.7936	2	91.7936	51.5936
0.7700	0.0164	91.9216	2	91.9216	51.7216
0.7750	0.0165	92.0466	2	92.0466	51.8466
0.7800	0.0165	92.1746	2	92.1746	51.9746
0.7850	0.0165	92.2995	2	92.2995	52.0995
0.7900	0.0166	92.4245	2	92.4245	52.2245
0.7950	0.0166	92.5495	2	92.5495	52.3495
0.8000	0.0166	92.6744	2	92.6744	52.4744
0.8050	0.0167	92.7964	2	92.7964	52.5964
0.8100	0.0167	92.9213	2	92.9213	52.7213
0.8150	0.0167	93.0433	2	93.0433	52.8433
0.8200	0.0168	93.1652	2	93.1652	52.9652
0.8250	0.0168	93.2871	2	93.2871	53.0871
0.8300	0.0168	93.4090	2	93.4090	53.2090
0.8350	0.0169	93.5309	2	93.5309	53.3309
0.8400	0.0169	93.6498	2	93.6498	53.4498
0.8450	0.0169	93.7717	2	93.7717	53.5717
0.8500	0.0170	93.8906	2	93.8906	53.6906
0.8550	0.0170	94.0095	2	94.0095	53.8095
0.8600	0.0170	94.1283	2	94.1283	53.9283
0.8650	0.0171	94.2472	2	94.2472	54.0472
0.8700	0.0171	94.3661	2	94.3661	54.1661
0.8750	0.0171	94.4819	2	94.4819	54.2819
0.8800	0.0172	94.6008	2	94.6008	54.4008
0.8850	0.0172	94.7166	2	94.7166	54.5166
0.8900	0.0172	94.8324	2	94.8324	54.6324
0.8950	0.0173	94.9483	2	94.9483	54.7483
0.9000	0.0173	95.0641	2	95.0641	54.8641
0.9050	0.0173	95.1799	2	95.1799	54.9799
0.9100	0.0174	95.2927	2	95.2927	55.0927
0.9150	0.0174	95.4085	2	95.4085	55.2085
0.9200	0.0174	95.5213	2	95.5213	55.3213
0.9250	0.0175	95.6341	2	95.6341	55.4340
0.9300	0.0175	95.7499	2	95.7499	55.5499
0.9350	0.0175	95.8596	2	95.8596	55.6596
0.9400	0.0175	95.9724	2	95.9724	55.7724
0.9450	0.0176	96.0851	2	96.0851	55.8852
0.9500	0.0176	96.1979	2	96.1979	55.9979
0.9550	0.0176	96.3077	2	96.3077	56.1077
0.9600	0.0177	96.4174	2	96.4174	56.2174
0.9650	0.0177	96.5302	2	96.5302	56.3302
0.9700	0.0177	96.6399	2	96.6399	56.4399
0.9750	0.0178	96.7496	2	96.7496	56.5496
0.9800	0.0178	96.8593	2	96.8593	56.6593

Q		Inlet		Gutter	
Total	Captured	Depth	Efficiency	Depth	Spread
(cms)	(cms)	(mm)	(%)	(mm)	(m)
0.9850	0.0178	96.9691	2	96.9691	56.7691
0.9900	0.0179	97.0757	2	97.0757	56.8758
0.9950	0.0179	97.1855	2	97.1855	56.9855
1.0000	0.0179	97.2922	2	97.2922	57.0922
1.0050	0.0179	97.4019	2	97.4019	57.2019

Gutter	Bypass		
Velocity	Q	Spread	Depth
(m/s)	(cms)	(m)	(mm)
0.2860	0.0008	0.1815	24.4968
0.2460	0.0045	4.1453	44.3454
0.2497	0.0088	7.7085	47.9085
0.2578	0.0134	9.8085	50.0085
0.2662	0.0181	11.3996	51.5996
0.2744	0.0228	12.7102	52.9102
0.2820	0.0275	13.8441	54.0441
0.2892	0.0323	14.8499	55.0499
0.2959	0.0371	15.7613	55.9613
0.3023	0.0420	16.5964	56.7964
0.3084	0.0468	17.3676	57.5676
0.3141	0.0516	18.0900	58.2900
0.3194	0.0565	18.7697	58.9697
0.3246	0.0613	19.4097	59.6097
0.3296	0.0662	20.0193	60.2193
0.3343	0.0711	20.6015	60.8015
0.3387	0.0760	21.1593	61.3593
0.3432	0.0808	21.6927	61.8927
0.3474	0.0857	22.2048	62.4048
0.3514	0.0906	22.7016	62.9016
0.3553	0.0955	23.1771	63.3771
0.3591	0.1004	23.6404	63.8404
0.3628	0.1053	24.0884	64.2884
0.3663	0.1102	24.5243	64.7243
0.3698	0.1151	24.9480	65.1480
0.3732	0.1200	25.3594	65.5594
0.3765	0.1249	25.7618	65.9618
0.3797	0.1298	26.1519	66.3519
0.3828	0.1348	26.5360	66.7360
0.3858	0.1397	26.9078	67.1078
0.3889	0.1446	27.2736	67.4736
0.3918	0.1495	27.6302	67.8302
0.3946	0.1544	27.9807	68.1807
0.3974	0.1593	28.3221	68.5221
0.4001	0.1643	28.6604	68.8604
0.4028	0.1692	28.9896	69.1896
0.4054	0.1741	29.3127	69.5127
0.4080	0.1790	29.6327	69.8327
0.4105	0.1840	29.9436	70.1436
0.4130	0.1889	30.2515	70.4515
0.4154	0.1938	30.5532	70.7532
0.4178	0.1987	30.8519	71.0519
0.4201	0.2037	31.1445	71.3445
0.4225	0.2086	31.4341	71.6341
0.4247	0.2135	31.7176	71.9176
0.4270	0.2185	31.9980	72.1980
0.4292	0.2234	32.2753	72.4754
0.4313	0.2283	32.5466	72.7466
0.4335	0.2333	32.8148	73.0148

Gutter	Bypass		
Velocity	Q	Spread	Depth
(m/s)	(cms)	(m)	(mm)
0.4356	0.2382	33.0800	73.2800
0.4377	0.2432	33.3421	73.5421
0.4398	0.2481	33.6012	73.8012
0.4417	0.2530	33.8573	74.0573
0.4438	0.2580	34.1102	74.3102
0.4457	0.2629	34.3571	74.5571
0.4476	0.2678	34.6040	74.8040
0.4496	0.2728	34.8479	75.0479
0.4515	0.2777	35.0886	75.2886
0.4533	0.2827	35.3264	75.5264
0.4552	0.2876	35.5611	75.7611
0.4570	0.2926	35.7927	75.9927
0.4588	0.2975	36.0244	76.2244
0.4606	0.3024	36.2530	76.4530
0.4624	0.3074	36.4785	76.6785
0.4641	0.3123	36.7010	76.9010
0.4658	0.3173	36.9235	77.1235
0.4675	0.3222	37.1400	77.3400
0.4692	0.3272	37.3594	77.5594
0.4709	0.3321	37.5728	77.7728
0.4725	0.3371	37.7861	77.9861
0.4741	0.3420	37.9964	78.1964
0.4758	0.3470	38.2068	78.4068
0.4774	0.3519	38.4140	78.6140
0.4789	0.3569	38.6182	78.8182
0.4805	0.3618	38.8224	79.0225
0.4821	0.3668	39.0236	79.2236
0.4836	0.3717	39.2248	79.4248
0.4851	0.3767	39.4229	79.6229
0.4866	0.3816	39.6180	79.8180
0.4881	0.3866	39.8131	80.0131
0.4896	0.3915	40.0081	80.2081
0.4911	0.3965	40.2001	80.4001
0.4925	0.4014	40.3891	80.5891
0.4939	0.4064	40.5781	80.7781
0.4954	0.4113	40.7671	80.9671
0.4968	0.4163	40.9530	81.1530
0.4982	0.4212	41.1389	81.3389
0.4996	0.4262	41.3218	81.5218
0.5009	0.4311	41.5047	81.7047
0.5023	0.4361	41.6845	81.8845
0.5037	0.4410	41.8644	82.0644
0.5051	0.4460	42.0411	82.2411
0.5064	0.4510	42.2179	82.4179
0.5077	0.4559	42.3947	82.5947
0.5090	0.4609	42.5684	82.7684
0.5103	0.4658	42.7422	82.9422
0.5116	0.4708	42.9159	83.1159
0.5129	0.4757	43.0866	83.2866

Gutter	Bypass		
Velocity	Q	Spread	Depth
(m/s)	(cms)	(m)	(mm)
0.5142	0.4807	43.2573	83.4573
0.5154	0.4856	43.4249	83.6249
0.5167	0.4906	43.5926	83.7926
0.5179	0.4956	43.7602	83.9602
0.5192	0.5005	43.9279	84.1279
0.5204	0.5055	44.0924	84.2924
0.5217	0.5104	44.2540	84.4540
0.5229	0.5154	44.4186	84.6186
0.5240	0.5203	44.5801	84.7801
0.5253	0.5253	44.7417	84.9417
0.5265	0.5303	44.9002	85.1002
0.5276	0.5352	45.0587	85.2587
0.5288	0.5402	45.2172	85.4172
0.5300	0.5451	45.3756	85.5757
0.5311	0.5501	45.5311	85.7311
0.5322	0.5551	45.6865	85.8865
0.5334	0.5600	45.8420	86.0420
0.5345	0.5650	45.9944	86.1944
0.5356	0.5699	46.1468	86.3468
0.5368	0.5749	46.2992	86.4992
0.5379	0.5799	46.4516	86.6516
0.5390	0.5848	46.6009	86.8009
0.5401	0.5898	46.7503	86.9503
0.5412	0.5947	46.8997	87.0996
0.5422	0.5997	47.0460	87.2460
0.5434	0.6047	47.1953	87.3953
0.5444	0.6096	47.3416	87.5416
0.5455	0.6146	47.4879	87.6879
0.5465	0.6196	47.6312	87.8312
0.5476	0.6245	47.7744	87.9744
0.5487	0.6295	47.9207	88.1207
0.5497	0.6344	48.0609	88.2609
0.5508	0.6394	48.2042	88.4042
0.5518	0.6444	48.3475	88.5475
0.5528	0.6493	48.4877	88.6877
0.5538	0.6543	48.6279	88.8279
0.5548	0.6592	48.7650	88.9650
0.5559	0.6642	48.9052	89.1052
0.5569	0.6692	49.0424	89.2424
0.5579	0.6741	49.1796	89.3796
0.5588	0.6791	49.3167	89.5167
0.5598	0.6841	49.4539	89.6539
0.5608	0.6890	49.5910	89.7910
0.5618	0.6940	49.7251	89.9251
0.5628	0.6990	49.8593	90.0593
0.5637	0.7039	49.9934	90.1934
0.5647	0.7089	50.1275	90.3275
0.5657	0.7139	50.2585	90.4585
0.5666	0.7188	50.3896	90.5896

Gutter	Bypass		
Velocity	Q	Spread	Depth
(m/s)	(cms)	(m)	(mm)
0.5675	0.7238	50.5237	90.7237
0.5685	0.7287	50.6517	90.8517
0.5694	0.7337	50.7828	90.9828
0.5703	0.7387	50.9139	91.1139
0.5713	0.7436	51.0419	91.2419
0.5722	0.7486	51.1729	91.3730
0.5731	0.7536	51.3010	91.5010
0.5740	0.7585	51.4259	91.6259
0.5749	0.7635	51.5539	91.7539
0.5758	0.7685	51.6820	91.8820
0.5768	0.7734	51.8069	92.0069
0.5776	0.7784	51.9319	92.1319
0.5785	0.7834	52.0569	92.2569
0.5795	0.7883	52.1818	92.3818
0.5803	0.7933	52.3068	92.5068
0.5812	0.7983	52.4318	92.6318
0.5821	0.8032	52.5537	92.7537
0.5830	0.8082	52.6756	92.8756
0.5838	0.8132	52.7975	92.9975
0.5847	0.8181	52.9195	93.1195
0.5856	0.8231	53.0414	93.2414
0.5864	0.8281	53.1633	93.3633
0.5873	0.8330	53.2822	93.4822
0.5881	0.8380	53.4041	93.6041
0.5890	0.8430	53.5230	93.7230
0.5898	0.8479	53.6418	93.8418
0.5906	0.8529	53.7607	93.9607
0.5915	0.8579	53.8796	94.0796
0.5923	0.8628	53.9954	94.1954
0.5931	0.8678	54.1143	94.3143
0.5940	0.8728	54.2301	94.4301
0.5948	0.8777	54.3459	94.5459
0.5956	0.8827	54.4617	94.6617
0.5964	0.8877	54.5776	94.7776
0.5973	0.8926	54.6934	94.8934
0.5980	0.8976	54.8092	95.0092
0.5989	0.9026	54.9220	95.1220
0.5997	0.9075	55.0378	95.2378
0.6004	0.9125	55.1506	95.3506
0.6013	0.9175	55.2634	95.4634
0.6021	0.9225	55.3761	95.5761
0.6028	0.9274	55.4889	95.6889
0.6036	0.9324	55.6017	95.8017
0.6044	0.9374	55.7145	95.9145
0.6052	0.9423	55.8242	96.0242
0.6059	0.9473	55.9370	96.1370
0.6067	0.9523	56.0467	96.2467
0.6075	0.9572	56.1564	96.3564
0.6083	0.9622	56.2692	96.4692

Gutter	Bypass		
Velocity	Q	Spread	Depth
(m/s)	(cms)	(m)	(mm)
0.6090	0.9672	56.3759	96.5759
0.6098	0.9721	56.4856	96.6856
0.6105	0.9771	56.5953	96.7953
0.6113	0.9821	56.7051	96.9051
0.6120	0.9871	56.8117	97.0118

Inlet Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Thursday, Oct 21 2021

Double Side Inlet

Curb Inlet

Location	= On grade
Curb Length (m)	= 1.2200
Throat Height (mm)	= 87.0000
Grate Area (sqm)	= -0-
Grate Width (m)	= -0-
Grate Length (m)	= -0-

Gutter

Slope, Sw (m/m)	= 0.135
Slope, Sx (m/m)	= 0.001
Local Depr (mm)	= -0-
Gutter Width (m)	= 0.3000
Gutter Slope (%)	= 2.0000
Gutter n-value	= 0.016

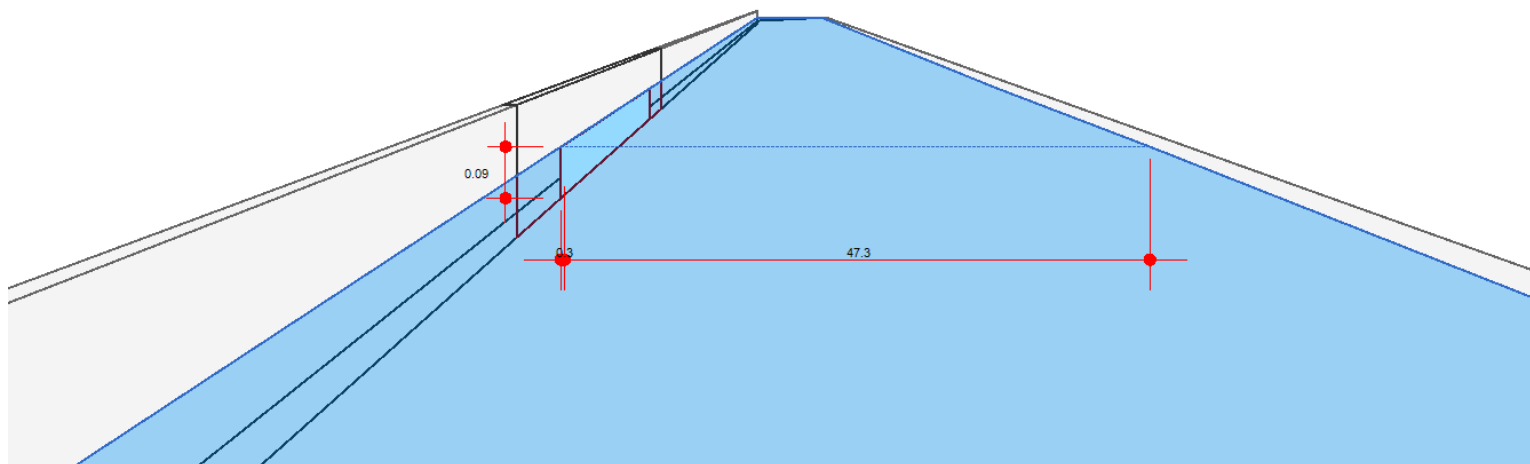
Calculations

Compute by:	Q vs Depth
Max Depth (mm)	= 127

Highlighted

Q Total (cms)	= 1.0050
Q Capt (cms)	= 0.0303
Q Bypass (cms)	= 0.9747
Depth at Inlet (mm)	= 87.8007
Efficiency (%)	= 3
Gutter Spread (m)	= 47.6007
Gutter Vel (m/s)	= 0.8824
Bypass Spread (m)	= 47.0490
Bypass Depth (mm)	= 87.2490

All dimensions in meters



Q		Inlet		Gutter	
Total	Captured	Depth	Efficiency	Depth	Spread
(cms)	(cms)	(mm)	(%)	(mm)	(m)
0.0050	0.0050	41.1785	100	41.1785	0.9785
0.0100	0.0086	46.0949	86	46.0949	5.8949
0.0150	0.0102	48.1249	68	48.1249	7.9249
0.0200	0.0112	49.5696	56	49.5696	9.3696
0.0250	0.0120	50.7309	48	50.7309	10.5309
0.0300	0.0126	51.7185	42	51.7185	11.5185
0.0350	0.0130	52.5841	37	52.5841	12.3841
0.0400	0.0135	53.3644	34	53.3644	13.1644
0.0450	0.0138	54.0776	31	54.0776	13.8776
0.0500	0.0142	54.7360	28	54.7360	14.5360
0.0550	0.0145	55.3486	26	55.3486	15.1486
0.0600	0.0148	55.9217	25	55.9217	15.7217
0.0650	0.0150	56.4642	23	56.4642	16.2642
0.0700	0.0153	56.9793	22	56.9793	16.7793
0.0750	0.0155	57.4700	21	57.4700	17.2700
0.0800	0.0157	57.9394	20	57.9394	17.7394
0.0850	0.0160	58.3875	19	58.3875	18.1875
0.0900	0.0162	58.8203	18	58.8203	18.6203
0.0950	0.0164	59.2348	17	59.2348	19.0348
0.1000	0.0166	59.6372	17	59.6372	19.4372
0.1050	0.0167	60.0243	16	60.0243	19.8243
0.1100	0.0169	60.3992	15	60.3992	20.1992
0.1150	0.0171	60.7649	15	60.7649	20.5649
0.1200	0.0172	61.1215	14	61.1215	20.9215
0.1250	0.0174	61.4660	14	61.4660	21.2660
0.1300	0.0176	61.8013	14	61.8013	21.6012
0.1350	0.0177	62.1304	13	62.1304	21.9304
0.1400	0.0179	62.4505	13	62.4505	22.2505
0.1450	0.0180	62.7614	12	62.7614	22.5614
0.1500	0.0182	63.0662	12	63.0662	22.8662
0.1550	0.0183	63.3649	12	63.3649	23.1649
0.1600	0.0184	63.6605	12	63.6605	23.4605
0.1650	0.0186	63.9470	11	63.9470	23.7470
0.1700	0.0187	64.2275	11	64.2275	24.0275
0.1750	0.0188	64.5018	11	64.5018	24.3018
0.1800	0.0189	64.7731	11	64.7731	24.5730
0.1850	0.0191	65.0413	10	65.0413	24.8413
0.1900	0.0192	65.3004	10	65.3004	25.1004
0.1950	0.0193	65.5594	10	65.5594	25.3594
0.2000	0.0194	65.8124	10	65.8124	25.6124
0.2050	0.0196	66.0593	10	66.0593	25.8593
0.2100	0.0197	66.3062	9	66.3062	26.1062
0.2150	0.0198	66.5470	9	66.5470	26.3470
0.2200	0.0199	66.7847	9	66.7847	26.5847
0.2250	0.0200	67.0164	9	67.0164	26.8164
0.2300	0.0201	67.2480	9	67.2480	27.0480
0.2350	0.0202	67.4766	9	67.4766	27.2766
0.2400	0.0203	67.6991	8	67.6991	27.4991
0.2450	0.0204	67.9216	8	67.9216	27.7216

Q		Inlet		Gutter	
Total	Captured	Depth	Efficiency	Depth	Spread
(cms)	(cms)	(mm)	(%)	(mm)	(m)
0.2500	0.0205	68.1411	8	68.1411	27.9411
0.2550	0.0206	68.3545	8	68.3545	28.1544
0.2600	0.0207	68.5678	8	68.5678	28.3678
0.2650	0.0208	68.7781	8	68.7781	28.5781
0.2700	0.0209	68.9884	8	68.9884	28.7884
0.2750	0.0210	69.1926	8	69.1926	28.9927
0.2800	0.0211	69.3969	8	69.3969	29.1969
0.2850	0.0212	69.5980	7	69.5980	29.3980
0.2900	0.0213	69.7962	7	69.7962	29.5962
0.2950	0.0214	69.9912	7	69.9912	29.7912
0.3000	0.0215	70.1863	7	70.1863	29.9863
0.3050	0.0216	70.3783	7	70.3783	30.1783
0.3100	0.0217	70.5673	7	70.5673	30.3673
0.3150	0.0218	70.7563	7	70.7563	30.5563
0.3200	0.0219	70.9422	7	70.9422	30.7422
0.3250	0.0219	71.1281	7	71.1281	30.9281
0.3300	0.0220	71.3110	7	71.3110	31.1110
0.3350	0.0221	71.4908	7	71.4908	31.2908
0.3400	0.0222	71.6707	7	71.6707	31.4707
0.3450	0.0223	71.8475	6	71.8475	31.6475
0.3500	0.0224	72.0243	6	72.0243	31.8242
0.3550	0.0225	72.1980	6	72.1980	31.9980
0.3600	0.0225	72.3717	6	72.3717	32.1717
0.3650	0.0226	72.5424	6	72.5424	32.3424
0.3700	0.0227	72.7131	6	72.7131	32.5131
0.3750	0.0228	72.8807	6	72.8807	32.6807
0.3800	0.0229	73.0453	6	73.0453	32.8453
0.3850	0.0230	73.2130	6	73.2130	33.0130
0.3900	0.0230	73.3776	6	73.3776	33.1776
0.3950	0.0231	73.5391	6	73.5391	33.3391
0.4000	0.0232	73.7006	6	73.7006	33.5006
0.4050	0.0233	73.8622	6	73.8622	33.6622
0.4100	0.0233	74.0207	6	74.0207	33.8207
0.4150	0.0234	74.1761	6	74.1761	33.9761
0.4200	0.0235	74.3346	6	74.3346	34.1346
0.4250	0.0236	74.4901	6	74.4901	34.2901
0.4300	0.0236	74.6425	5	74.6425	34.4425
0.4350	0.0237	74.7979	5	74.7979	34.5979
0.4400	0.0238	74.9473	5	74.9473	34.7473
0.4450	0.0239	75.0997	5	75.0997	34.8997
0.4500	0.0239	75.2490	5	75.2490	35.0490
0.4550	0.0240	75.3984	5	75.3984	35.1984
0.4600	0.0241	75.5447	5	75.5447	35.3447
0.4650	0.0242	75.6910	5	75.6910	35.4910
0.4700	0.0242	75.8373	5	75.8373	35.6373
0.4750	0.0243	75.9836	5	75.9836	35.7836
0.4800	0.0244	76.1269	5	76.1269	35.9268
0.4850	0.0244	76.2701	5	76.2701	36.0701
0.4900	0.0245	76.4103	5	76.4103	36.2103

Q		Inlet		Gutter	
Total	Captured	Depth	Efficiency	Depth	Spread
(cms)	(cms)	(mm)	(%)	(mm)	(m)
0.4950	0.0246	76.5505	5	76.5505	36.3505
0.5000	0.0246	76.6907	5	76.6907	36.4907
0.5050	0.0247	76.8309	5	76.8309	36.6309
0.5100	0.0248	76.9681	5	76.9681	36.7681
0.5150	0.0249	77.1053	5	77.1053	36.9053
0.5200	0.0249	77.2424	5	77.2424	37.0424
0.5250	0.0250	77.3796	5	77.3796	37.1796
0.5300	0.0251	77.5137	5	77.5137	37.3137
0.5350	0.0251	77.6478	5	77.6478	37.4478
0.5400	0.0252	77.7819	5	77.7819	37.5819
0.5450	0.0253	77.9130	5	77.9130	37.7130
0.5500	0.0253	78.0440	5	78.0440	37.8440
0.5550	0.0254	78.1751	5	78.1751	37.9751
0.5600	0.0255	78.3062	5	78.3062	38.1062
0.5650	0.0255	78.4372	5	78.4372	38.2372
0.5700	0.0256	78.5653	4	78.5653	38.3652
0.5750	0.0256	78.6933	4	78.6933	38.4933
0.5800	0.0257	78.8213	4	78.8213	38.6213
0.5850	0.0258	78.9462	4	78.9462	38.7462
0.5900	0.0258	79.0743	4	79.0743	38.8743
0.5950	0.0259	79.1992	4	79.1992	38.9992
0.6000	0.0260	79.3242	4	79.3242	39.1242
0.6050	0.0260	79.4461	4	79.4461	39.2461
0.6100	0.0261	79.5711	4	79.5711	39.3711
0.6150	0.0261	79.6930	4	79.6930	39.4930
0.6200	0.0262	79.8149	4	79.8149	39.6149
0.6250	0.0263	79.9368	4	79.9368	39.7368
0.6300	0.0263	80.0588	4	80.0588	39.8588
0.6350	0.0264	80.1776	4	80.1776	39.9776
0.6400	0.0264	80.2965	4	80.2965	40.0965
0.6450	0.0265	80.4154	4	80.4154	40.2154
0.6500	0.0266	80.5343	4	80.5343	40.3343
0.6550	0.0266	80.6531	4	80.6531	40.4531
0.6600	0.0267	80.7720	4	80.7720	40.5720
0.6650	0.0267	80.8878	4	80.8878	40.6878
0.6700	0.0268	81.0037	4	81.0037	40.8037
0.6750	0.0269	81.1195	4	81.1195	40.9195
0.6800	0.0269	81.2353	4	81.2353	41.0353
0.6850	0.0270	81.3481	4	81.3481	41.1481
0.6900	0.0270	81.4639	4	81.4639	41.2639
0.6950	0.0271	81.5767	4	81.5767	41.3767
0.7000	0.0272	81.6894	4	81.6894	41.4894
0.7050	0.0272	81.8022	4	81.8022	41.6022
0.7100	0.0273	81.9150	4	81.9150	41.7150
0.7150	0.0273	82.0247	4	82.0247	41.8247
0.7200	0.0274	82.1375	4	82.1375	41.9375
0.7250	0.0274	82.2472	4	82.2472	42.0472
0.7300	0.0275	82.3570	4	82.3570	42.1570
0.7350	0.0275	82.4667	4	82.4667	42.2667

Q		Inlet		Gutter	
Total	Captured	Depth	Efficiency	Depth	Spread
(cms)	(cms)	(mm)	(%)	(mm)	(m)
0.7400	0.0276	82.5764	4	82.5764	42.3764
0.7450	0.0277	82.6861	4	82.6861	42.4861
0.7500	0.0277	82.7928	4	82.7928	42.5928
0.7550	0.0278	82.9026	4	82.9026	42.7026
0.7600	0.0278	83.0092	4	83.0092	42.8092
0.7650	0.0279	83.1159	4	83.1159	42.9159
0.7700	0.0279	83.2226	4	83.2226	43.0226
0.7750	0.0280	83.3293	4	83.3293	43.1293
0.7800	0.0280	83.4329	4	83.4329	43.2329
0.7850	0.0281	83.5396	4	83.5396	43.3396
0.7900	0.0282	83.6432	4	83.6432	43.4432
0.7950	0.0282	83.7469	4	83.7469	43.5468
0.8000	0.0283	83.8505	4	83.8505	43.6505
0.8050	0.0283	83.9541	4	83.9541	43.7541
0.8100	0.0284	84.0578	4	84.0578	43.8577
0.8150	0.0284	84.1614	3	84.1614	43.9614
0.8200	0.0285	84.2620	3	84.2620	44.0620
0.8250	0.0285	84.3656	3	84.3656	44.1656
0.8300	0.0286	84.4662	3	84.4662	44.2662
0.8350	0.0286	84.5668	3	84.5668	44.3668
0.8400	0.0287	84.6673	3	84.6673	44.4673
0.8450	0.0287	84.7679	3	84.7679	44.5679
0.8500	0.0288	84.8685	3	84.8685	44.6685
0.8550	0.0288	84.9691	3	84.9691	44.7691
0.8600	0.0289	85.0666	3	85.0666	44.8666
0.8650	0.0289	85.1672	3	85.1672	44.9672
0.8700	0.0290	85.2648	3	85.2648	45.0648
0.8750	0.0290	85.3623	3	85.3623	45.1623
0.8800	0.0291	85.4598	3	85.4598	45.2598
0.8850	0.0291	85.5574	3	85.5574	45.3574
0.8900	0.0292	85.6549	3	85.6549	45.4549
0.8950	0.0292	85.7524	3	85.7524	45.5524
0.9000	0.0293	85.8469	3	85.8469	45.6469
0.9050	0.0293	85.9445	3	85.9445	45.7445
0.9100	0.0294	86.0390	3	86.0390	45.8389
0.9150	0.0294	86.1365	3	86.1365	45.9365
0.9200	0.0295	86.2310	3	86.2310	46.0310
0.9250	0.0295	86.3255	3	86.3255	46.1255
0.9300	0.0296	86.4199	3	86.4199	46.2199
0.9350	0.0296	86.5144	3	86.5144	46.3144
0.9400	0.0297	86.6089	3	86.6089	46.4089
0.9450	0.0297	86.7004	3	86.7004	46.5004
0.9500	0.0298	86.7949	3	86.7949	46.5948
0.9550	0.0298	86.8863	3	86.8863	46.6863
0.9600	0.0299	86.9808	3	86.9808	46.7808
0.9650	0.0299	87.0722	3	87.0722	46.8722
0.9700	0.0300	87.1637	3	87.1637	46.9637
0.9750	0.0300	87.2551	3	87.2551	47.0551
0.9800	0.0301	87.3465	3	87.3465	47.1465

Q		Inlet		Gutter	
Total	Captured	Depth	Efficiency	Depth	Spread
(cms)	(cms)	(mm)	(%)	(mm)	(m)
0.9850	0.0301	87.4380	3	87.4380	47.2380
0.9900	0.0302	87.5294	3	87.5294	47.3294
0.9950	0.0302	87.6209	3	87.6209	47.4209
1.0000	0.0303	87.7092	3	87.7092	47.5092
1.0050	0.0303	87.8007	3	87.8007	47.6007

Gutter	Bypass		
Velocity	Q	Spread	Depth
(m/s)	(cms)	(m)	(mm)
0.7682	0.0000	0.0000	0.0000
0.4273	0.0014	0.1899	25.6428
0.4007	0.0048	0.3445	40.5445
0.4006	0.0088	5.2091	45.4091
0.4066	0.0130	7.2269	47.4269
0.4145	0.0174	8.6777	48.8777
0.4231	0.0220	9.8482	50.0482
0.4316	0.0265	10.8479	51.0479
0.4398	0.0312	11.7288	51.9288
0.4477	0.0358	12.5182	52.7182
0.4554	0.0405	13.2406	53.4406
0.4629	0.0452	13.9081	54.1081
0.4700	0.0500	14.5299	54.7299
0.4768	0.0547	15.1151	55.3151
0.4834	0.0595	15.6637	55.8638
0.4897	0.0643	16.1850	56.3850
0.4958	0.0690	16.6818	56.8818
0.5017	0.0738	17.1573	57.3573
0.5075	0.0786	17.6114	57.8114
0.5130	0.0834	18.0503	58.2503
0.5184	0.0883	18.4710	58.6710
0.5237	0.0931	18.8763	59.0763
0.5288	0.0979	19.2695	59.4695
0.5336	0.1028	19.6505	59.8505
0.5384	0.1076	20.0224	60.2224
0.5432	0.1124	20.3790	60.5790
0.5477	0.1173	20.7295	60.9295
0.5521	0.1221	21.0678	61.2679
0.5565	0.1270	21.4001	61.6001
0.5608	0.1318	21.7232	61.9232
0.5650	0.1367	22.0402	62.2402
0.5689	0.1416	22.3480	62.5480
0.5729	0.1464	22.6498	62.8498
0.5769	0.1513	22.9454	63.1454
0.5808	0.1562	23.2350	63.4350
0.5845	0.1611	23.5184	63.7184
0.5881	0.1659	23.7989	63.9989
0.5918	0.1708	24.0732	64.2732
0.5953	0.1757	24.3414	64.5414
0.5987	0.1806	24.6035	64.8035
0.6023	0.1854	24.8626	65.0626
0.6055	0.1903	25.1186	65.3186
0.6089	0.1952	25.3686	65.5686
0.6121	0.2001	25.6155	65.8155
0.6154	0.2050	25.8593	66.0593
0.6186	0.2099	26.1001	66.3001
0.6216	0.2148	26.3348	66.5348
0.6248	0.2197	26.5695	66.7695
0.6278	0.2246	26.7981	66.9981

Gutter	Bypass		
Velocity	Q	Spread	Depth
(m/s)	(cms)	(m)	(mm)
0.6307	0.2295	27.0236	67.2236
0.6337	0.2344	27.2461	67.4461
0.6366	0.2393	27.4687	67.6687
0.6395	0.2442	27.6851	67.8851
0.6422	0.2491	27.8984	68.0984
0.6451	0.2540	28.1118	68.3118
0.6478	0.2589	28.3221	68.5221
0.6505	0.2638	28.5294	68.7294
0.6532	0.2687	28.7336	68.9336
0.6559	0.2736	28.9347	69.1347
0.6584	0.2785	29.1359	69.3359
0.6610	0.2834	29.3340	69.5340
0.6636	0.2883	29.5291	69.7291
0.6661	0.2932	29.7211	69.9211
0.6687	0.2981	29.9131	70.1131
0.6711	0.3031	30.1021	70.3021
0.6735	0.3080	30.2911	70.4911
0.6760	0.3129	30.4770	70.6770
0.6783	0.3178	30.6599	70.8599
0.6807	0.3227	30.8428	71.0428
0.6830	0.3276	31.0226	71.2226
0.6854	0.3325	31.2024	71.4025
0.6876	0.3375	31.3792	71.5792
0.6899	0.3424	31.5560	71.7560
0.6921	0.3473	31.7298	71.9298
0.6944	0.3522	31.9004	72.1004
0.6967	0.3571	32.0711	72.2711
0.6988	0.3621	32.2418	72.4418
0.7009	0.3670	32.4095	72.6095
0.7031	0.3719	32.5740	72.7741
0.7052	0.3768	32.7417	72.9417
0.7073	0.3817	32.9032	73.1032
0.7094	0.3867	33.0678	73.2678
0.7116	0.3916	33.2294	73.4294
0.7135	0.3965	33.3879	73.5879
0.7156	0.4014	33.5464	73.7464
0.7177	0.4064	33.7049	73.9049
0.7196	0.4113	33.8603	74.0603
0.7216	0.4162	34.0158	74.2158
0.7235	0.4211	34.1682	74.3682
0.7255	0.4261	34.3206	74.5206
0.7274	0.4310	34.4730	74.6730
0.7294	0.4359	34.6254	74.8254
0.7313	0.4408	34.7747	74.9747
0.7332	0.4458	34.9210	75.1210
0.7350	0.4507	35.0704	75.2704
0.7369	0.4556	35.2167	75.4167
0.7387	0.4606	35.3630	75.5630
0.7406	0.4655	35.5062	75.7062

Gutter	Bypass		
Velocity	Q	Spread	Depth
(m/s)	(cms)	(m)	(mm)
0.7424	0.4704	35.6495	75.8495
0.7442	0.4754	35.7927	75.9927
0.7460	0.4803	35.9329	76.1329
0.7478	0.4852	36.0762	76.2762
0.7496	0.4901	36.2134	76.4134
0.7513	0.4951	36.3536	76.5536
0.7530	0.5000	36.4907	76.6907
0.7548	0.5049	36.6279	76.8279
0.7565	0.5099	36.7650	76.9651
0.7582	0.5148	36.9022	77.1022
0.7599	0.5197	37.0363	77.2363
0.7616	0.5247	37.1704	77.3704
0.7633	0.5296	37.3045	77.5046
0.7650	0.5346	37.4356	77.6356
0.7665	0.5395	37.5667	77.7667
0.7682	0.5444	37.6977	77.8977
0.7699	0.5494	37.8288	78.0288
0.7714	0.5543	37.9568	78.1568
0.7731	0.5592	38.0879	78.2879
0.7746	0.5642	38.2159	78.4159
0.7763	0.5691	38.3409	78.5409
0.7778	0.5740	38.4689	78.6689
0.7795	0.5790	38.5938	78.7939
0.7810	0.5839	38.7188	78.9188
0.7826	0.5889	38.8438	79.0438
0.7841	0.5938	38.9688	79.1688
0.7856	0.5987	39.0907	79.2907
0.7871	0.6037	39.2156	79.4156
0.7887	0.6086	39.3376	79.5376
0.7902	0.6136	39.4564	79.6564
0.7917	0.6185	39.5784	79.7784
0.7932	0.6234	39.7003	79.9003
0.7947	0.6284	39.8191	80.0191
0.7961	0.6333	39.9380	80.1380
0.7976	0.6383	40.0569	80.2569
0.7990	0.6432	40.1727	80.3727
0.8005	0.6481	40.2916	80.4916
0.8019	0.6531	40.4074	80.6074
0.8034	0.6580	40.5232	80.7232
0.8048	0.6630	40.6391	80.8391
0.8062	0.6679	40.7549	80.9549
0.8076	0.6728	40.8707	81.0707
0.8090	0.6778	40.9835	81.1835
0.8104	0.6827	41.0963	81.2963
0.8119	0.6877	41.2090	81.4090
0.8132	0.6926	41.3218	81.5218
0.8146	0.6976	41.4346	81.6346
0.8160	0.7025	41.5474	81.7474
0.8173	0.7075	41.6571	81.8571

Gutter	Bypass		
Velocity	Q	Spread	Depth
(m/s)	(cms)	(m)	(mm)
0.8187	0.7124	41.7668	81.9668
0.8200	0.7173	41.8796	82.0796
0.8214	0.7223	41.9863	82.1863
0.8226	0.7272	42.0960	82.2960
0.8240	0.7322	42.2057	82.4057
0.8253	0.7371	42.3124	82.5124
0.8266	0.7421	42.4221	82.6221
0.8279	0.7470	42.5288	82.7288
0.8293	0.7520	42.6355	82.8355
0.8305	0.7569	42.7422	82.9422
0.8319	0.7619	42.8489	83.0489
0.8332	0.7668	42.9525	83.1525
0.8344	0.7717	43.0592	83.2592
0.8357	0.7767	43.1628	83.3628
0.8370	0.7816	43.2664	83.4664
0.8382	0.7866	43.3731	83.5731
0.8395	0.7915	43.4737	83.6737
0.8407	0.7965	43.5773	83.7773
0.8420	0.8014	43.6810	83.8810
0.8432	0.8064	43.7846	83.9846
0.8445	0.8113	43.8852	84.0852
0.8457	0.8163	43.9858	84.1858
0.8469	0.8212	44.0863	84.2863
0.8481	0.8262	44.1900	84.3900
0.8493	0.8311	44.2875	84.4875
0.8505	0.8361	44.3881	84.5881
0.8517	0.8410	44.4887	84.6887
0.8530	0.8460	44.5862	84.7862
0.8542	0.8509	44.6868	84.8868
0.8553	0.8559	44.7843	84.9843
0.8565	0.8608	44.8819	85.0819
0.8577	0.8658	44.9825	85.1825
0.8589	0.8707	45.0800	85.2800
0.8600	0.8757	45.1745	85.3745
0.8612	0.8806	45.2720	85.4720
0.8623	0.8856	45.3696	85.5695
0.8635	0.8905	45.4640	85.6640
0.8646	0.8955	45.5616	85.7616
0.8658	0.9004	45.6561	85.8561
0.8669	0.9054	45.7506	85.9506
0.8680	0.9103	45.8450	86.0450
0.8692	0.9153	45.9395	86.1395
0.8703	0.9202	46.0340	86.2340
0.8715	0.9252	46.1285	86.3285
0.8725	0.9301	46.2230	86.4230
0.8737	0.9351	46.3144	86.5144
0.8748	0.9400	46.4089	86.6089
0.8759	0.9450	46.5004	86.7004
0.8770	0.9499	46.5918	86.7918

Gutter	Bypass		
Velocity	Q	Spread	Depth
(m/s)	(cms)	(m)	(mm)
0.8781	0.9549	46.6863	86.8863
0.8792	0.9598	46.7777	86.9777
0.8802	0.9648	46.8692	87.0692
0.8814	0.9697	46.9606	87.1606
0.8824	0.9747	47.0490	87.2490

APPENDIX D

Wastewater Servicing

SANITARY SEWER DESIGN SHEET

BRLP

TOWN OF OAKVILLE

REGIONAL MUNICIPALITY OF HALTON

PROJECT DETAILS

Project No: 20-657

Date: 20-Dec-21

Designed by: E.L.

Checked by: S.H.

DESIGN CRITERIA

Min Diameter = 200 mm

Avg. Domestic Flow = 275.0 l/c/d

Mannings 'n'= 0.013

Infiltration = 0.286 l/s/ha

Min. Velocity = 0.60 m/s

Max. Peaking Factor = 4.50

Max. Velocity = 3.00 m/s

Min. Peaking Factor= 2.00

NOMINAL PIPE SIZE USED

STREET	FROM MH	TO MH	LENGTH (m)	RESIDENTIAL							COMMERCIAL/INDUSTRIAL/INSTITUTIONAL							FLOW CALCULATIONS								PIPE DATA					
				AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENSITY (P/ha)	DENSITY (P/Unit)	POP	ACCUM. RES. POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (P/ha)	FLOW RATE (l/s/ha)	EQUIV. POP.	ACCUM. EQUIV. POP.	INFILTRATION (l/s)	TOTAL ACCUM. POP.	PEAKING FACTOR	RES. FLOW (l/s)	COMM. FLOW (l/s)	ACCUM. COMM. FLOW (l/s)	TOTAL FLOW (l/s)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)		
STREET B	1	2	17.8	0.19	0.19		55		11	11							0.1	11	4.50	0.2			0.2	1.00	200	32.8	1.04	0.27	1%		
STREET B	2	3	57.4	0.33	0.52		55		19	30							0.1	30	4.50	0.4			0.6	1.00	200	32.8	1.04	0.37	2%		
STREET B	3	4	32.0	0.19	0.71		55		11	41							0.2	41	4.50	0.6			0.8	0.50	200	23.2	0.74	0.33	3%		
STREET B	4	11	47.0	0.31	1.02		55		18	59							0.3	59	4.50	0.8			1.1	0.50	200	23.2	0.74	0.38	5%		
STREET B	1	5	20.6	0.13	0.13		55		8	8							0.0	8	4.50	0.1			0.2	1.00	200	32.8	1.04	0.27	0%		
STREET B	5	6	37.1	0.17	0.30		55		10	18							0.1	18	4.50	0.3			0.3	1.00	200	32.8	1.04	0.27	1%		
STREET B	6	7	18.1	0.20	0.50		55		11	29							0.1	29	4.50	0.4			0.6	1.00	200	32.8	1.04	0.32	2%		
STREET B	7	8	27.6	0.18	0.68		55		10	39							0.2	39	4.50	0.6			0.8	1.00	200	32.8	1.04	0.41	2%		
STREET B	8	9	48.2	0.33	1.01		55		19	58							0.3	58	4.50	0.8			1.1	0.50	200	23.2	0.74	0.38	5%		
STREET B	9	10	11.8	0.07	1.08		55		4	62							0.3	62	4.50	0.9			1.2	0.50	200	23.2	0.74	0.38	5%		
STREET B	10	11	68.5	0.25	1.33		135		34	96							0.4	96	4.50	1.4			1.8	0.50	200	23.2	0.74	0.44	8%		
STREET A	11	12	36.9	0.26	2.61		95		25	180							0.7	180	4.50	2.6			3.3	0.50	200	23.2	0.74	0.52	14%		
STREET A	12	13	13.7	0.11	2.72					180							0.8	180	4.50	2.6			3.4	0.50	200	23.2	0.74	0.52	14%		
STREET A	13	17	54.4		2.72					180							0.8	180	4.50	2.6			3.4	0.50	200	23.2	0.74	0.52	14%		
LANE B	14	15	47.2	0.16	0.16		135		22	22							0.0	22	4.50	0.3			0.4	1.00	200	32.8	1.04	0.27	1%		
LANE C	15	16	114.9	0.52	0.68		135		71	93							0.2	93	4.50	1.3			1.5	0.50	200	23.2	0.74	0.42	7%		
LANE C	16	17	12.7		0.68					93							0.2	93	4.50	1.3			1.5	0.50	200	23.2	0.74	0.42	7%		
STREET A	17	23	35.7	0.06	3.46					273							1.0	273	4.50	3.9			4.9	0.50	200	23.2	0.74	0.57	21%		
LANE B	15	19	35.8	0.13	0.29		135		18	40							0.1	40	4.50	0.6			0.7	1.00	200	32.8	1.04	0.37	2%		
LANE D	18	19	29.4	0.09	0.09		135		13	13							0.0	13	4.50	0.2			0.2	1.00	200	32.8	1.04	0.27	1%		
LANE A	19	21	91.2	0.21	0.59		135		29	82							0.2	82	4.50	1.2			1.3	0.50	200	23.2	0.74	0.40	6%		
LANE D	18	20	90.5	0.45	0.45		135		61	61							0.1	61	4.50	0.9			1.0	1.00	200	32.8	1.04	0.44	3%		
LANE D	20	21	29.4	0.06	0.51		135		9	70							0.1	70	4.50	1.0			1.1	0.50	200	23.2	0.74	0.38	5%		
LANE A	21	22	33.7	0.07	1.17		135		10	162							0.3	162	4.50	2.3			2.7	0.50	200	23.2	0.74	0.49	11%		
STREET A	22	23	51.9	0.12	1.29					162							0.4	162	4.50	2.3			2.7	0.50	200	23.2	0.74	0.49	12%		
BRONTE RD	23	24	52.3		4.75					435							1.4	435	4.50	6.2			7.6	0.50	200	23.2	0.74	0.64	33%		
Eaglewood	PLUG1	24	4.0	0.45	0.45				196	196							0.1	196	4.50	2.8			2.9	1.00	200	32.8	1.04	0.65	9%		
BRONTE RD	24	25	52.3		5.20					631							1.5	631	4.50	9.0			10.5	0.50	200	23.2	0.74	0.71	45%		
FUTURE		25		0.36	0.36		285		103	103							0.1	103	4.50	1.5			1.6								
BRONTE RD	25	26	30.8		5.56					734							1.6	734	4.50	10.5			12.1	0.50	200	23.2	0.74	0.73	52%		
YELLOW ROSE CIR.	26	EX.PLUG1	9.6		5.56					734							1.6	734	4.50	10.5			12.1	0.32	200	18.6	0.59	0.62	65%		
YELLOW ROSE CIR.	EX.PLUG1	EX.MH3A	14.6		5.56					734							1.6	734	4.50	10.5			12.1	0.32	200	18.6	0.59	0.62	65%		

APPENDIX E

Water Servicing

HYDRANT INSPECTION & FLOW REPORT



Prepared By: The Ontario Clean Water Agency
 Prepared For: Urbantech Consulting
 Residual Hyd Andrew Cruickshank
 Flow Hyd(s) Kurt Kahler, Brandon Williams

SUGGESTED NFPA RATING	
BLUE	CLASS AA
1580 gpm @ 20 psi (138 kPa)	

Date: 16-Nov-21 Time: 8:22 AM

HYDRANT DESCRIPTION

Hydrant ID:	3210	Side of Street:	East	Make:	McAvity	Open Dir:	Left
Address:	Across from 1354 Bronte Road			Model:	Brigadier M-67	Latitude:	
Location:	Oakville, Ontario			Year:	2007	Longitude:	

GENERAL INSPECTION

OK - Good Condition

FR - Future Repair Required

N/A - Not Applicable

CF - Component Failure

Upper Section	OK	FR	N/A	CF	Mid Section	OK	FR	N/A	CF	General	OK	FR	N/A	CF
Bonnet	☐	☐	☒	☐	Port Height	☐	☐	☒	☐	Accessibility	☐	☐	☒	☐
Operating Nut	☐	☐	☒	☐	Caps / Nozzles	☐	☐	☒	☐	Position / Height	☐	☐	☒	☐
Gaskets / Bolts	☐	☐	☒	☐	Chains	☐	☐	☒	☐	Paint Cond	☐	☐	☒	☐
O-Ring(s)	☐	☐	☒	☐	Traffic Flange	☐	☐	☒	☐	Drain Ports	☐	☐	☒	☐

Hydrostatic Leak Testing

Hydrant Closed	Above Grade Leak	N/A
	Subsurface Leak	N/A
Hydrant Open	Above Grade Leak	N/A
	Subsurface Leak	N/A

Maintenance

Lubricate Operating Nut	N/A
Lubricate & Clean Nozzle Threads	N/A
Lubricate & Clean Cap Threads	N/A
Water Removed (if non-draining)	N/A

Auxiliary / Secondary Valve

Located / Accessible	N/A
Operated/Exercised	N/A
Number of Turns	N/A
Open Direction	

Comments:

Auxiliary Valve Location:

FLUSHING *If hydrants are being flow tested, inspections and flushing are completed prior to testing

Hydrant Operated	Clear Flow Obtained	Cl2 Residual	Time Flushed	Flow	Total Flow	Dechlorinated
Yes - Easily Operated	Yes	N/A	5 minutes	1531 gal	7655 gal	Yes

Comments:

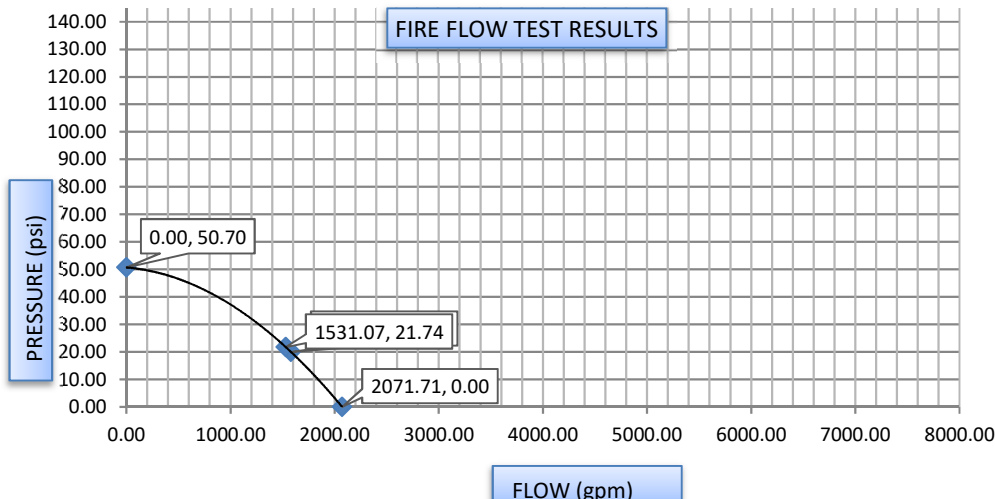
STATIC AFTER FLOW TEST WAS PERFORMED 49.12 PSI

City of Toronto water department will drain the water in the hydrant if required

FLOW TESTING *Flow testing results may be from previous year(s). Note date & time

Date: 16-Nov-21 Time: 8:21 AM

Flow Hydrant								Test Hydrant		
ID	Flow Device Used	Size	Coefficient	Time Flushed	Flow	Total Flow	Pitot	ID	Static	Residual
41289	Pollard Diffuser	2.5"	0.832	5.0 minutes	491 gal	2453 gal	10 psi	3210	50.70	21.74
41289	Pollard Diffuser	2.5"	0.832	5.0 minutes	347 gal	1734 gal	5 psi			
2781	Pollard Diffuser	2.5"	0.832	3.0 minutes	347 gal	1041 gal	5 psi			
2781	Pollard Diffuser	2.5"	0.832	3.0 minutes	347 gal	1041 gal	5 psi			



Calculated Results

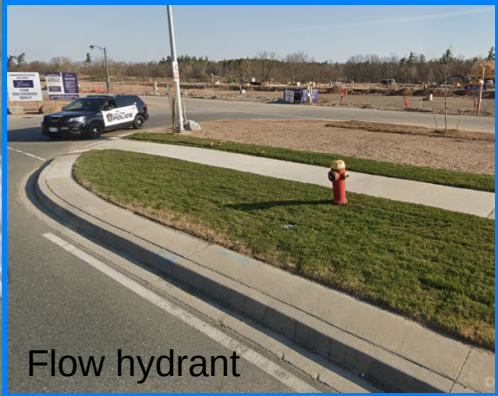
Calculated Flow @ 20 psi	1580 gpm
Calculated Flow @ 0 psi	2072 gpm
Pressure Drop	57.12%

Comments:

HOSE USED ON HYD 2781 TO AVOID DAMAGE TO SOD

1354 Bronte Road

TEST HYD PSI	Flow Hyd 1 Pitot	Flow Hyd 2 Pitot	RESULTS
50.7			
35.69	25		29.61%
29.82	10 and 05		41.18%
23.79		10	53.08%
21.74	10 and 05	5 and 5	57.12%
NFPA is 25% Drop			
AWWA is no less than 10 PSI drop			



Flow hydrant



Hose used to avoid damage to area sod



Google

APPENDIX F

Geotechnical Study

REPORT ON
Preliminary Geotechnical Investigation
Proposed residential Development
1326 - 1342 Bronte Road
Oakville, Ontario

PREPARED FOR:
ARGO Development

Project No: 20-186-100
Date: September 15, 2020



DS CONSULTANTS LTD.
6221 Highway 7, Unit 16
Vaughan, Ontario, L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

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APPENDIX A- ENGINEERED FILL GUIDELINES

1. INTRODUCTION

DS Consultants Ltd. (DS) was retained by ARGO Development to undertake a preliminary geotechnical investigation for the proposed residential subdivision located at 1326-1342 Bronte Road, Oakville, Ontario.

It is understood that the proposed development will consist of single-family houses, serviced by a network of roads and sewers. A storm water management pond will also be constructed as a part of this development.

The purpose of this geotechnical investigation was to obtain information about the subsurface conditions at boreholes locations and from the findings in the boreholes to make recommendations pertaining to the geotechnical design of underground utilities, roads and to comment on the foundation conditions for the building construction.

DS has carried out environmental investigations at the subject site and the reports will be documented under separate covers. This report deals only with the geotechnical aspects of the site.

The design drawings are not available to us at the time of writing this report. Additional boreholes will be required before the final design of the development.

This report is provided on the basis of the terms of reference presented above and on the assumption that the design will be in accordance with the applicable codes and standards. If there are any changes in the design features relevant to the geotechnical analyses, or if any questions arise concerning the geotechnical aspects of the codes and standards, this office should be contacted to review the design. It may then be necessary to carry out additional borings and reporting before the recommendations of this office can be relied upon.

The site investigation and recommendations follow generally accepted practice for geotechnical consultants in Ontario. The format and contents are guided by client specific needs and economics and do not conform to generalized standards for services. Laboratory testing for most part follows ASTM or CSA Standards or modifications of these standards that have become standard practice.

This report has been prepared for ARGO Development and its architect and designers. Third party use of this report without DS consent is prohibited.

2. FIELD AND LABORATORY WORK

Fourteen (14) boreholes (BH20-1 through BH20-14, see **Drawing 1** for borehole locations) were drilled at the subject site to depths ranging from 6.7 to 8.2m below ground surface.

Boreholes were drilled with hollow stem continuous flight augers equipment by a drilling sub-contractor under the direction and supervision of DS personnel. Samples were retrieved at regular intervals with a 50 mm O.D. split-barrel sampler driven with a hammer weighing 624 N and dropping 760 mm in accordance with the Standard Penetration Test (SPT) method. The samples were logged in the field and

returned to the DS laboratory for detailed examination by the project engineer and for laboratory testing.

As well as visual examination in the laboratory, all soil samples from geotechnical boreholes were tested for moisture contents. Selected soil samples were subjected to grain size analyses and Atterberg Limits testing. Gradation curves for the grain size analyses are presented on Drawing 16.

Water level observations were made during and upon completion of drilling. Eight (8) boreholes were equipped with 50mm dia. monitoring wells for the long-term groundwater monitoring and environmental testing.

The ground surface elevations at the borehole locations were measured by DS personnel using a differential GPS unit leased from Sokkia Canada.

3. SITE AND SUBSURFACE CONDITIONS

The borehole location plans are shown on **Drawing 1**. General notes on sample description are provided on **Drawing 1A**. The subsurface conditions in the boreholes are presented in the individual borehole logs presented on **Drawings 2 and 15**.

3.1 Soil Conditions

Topsoil and Fill Materials

A surficial layer of topsoil ranging in thickness from 75mm to 150mm was found in the boreholes. It should be noted that the thickness of the topsoil explored at the borehole locations may not be representative for the site and should not be relied on to calculate the amount of topsoil at the site. Shallow hand-dug test-pits should be carried out to measure the topsoil thickness at site.

Fill material consisting of sandy silt to silty sand, sand and gravel and clayey silt was found in boreholes, extending to depths varying from 0.8 to 3.0m below the ground surface. The fill was present in a very loose to compact state, with measured SPT 'N' values ranging from 2 to 22 blows per 300 mm penetration. Inclusion of topsoil/organics were found in fill material in varying proportions.

Cohesionless Deposits (Silt, Sandy Silt/Silty Sand/Sand and Gravel/Gravelly Sand):

Below the fill, silt, silty sand to sandy silt, and gravelly sand to sand and gravel were encountered in all boreholes except BH20-5 to BH20-7 and BH20-11, extending to depths ranging from 2.3m to 6.0m. A lower layer of sand and gravel was found in boreholes BH20-8 and BH20-14 below the sandy silt till deposits, extending to the termination depths of boreholes. These deposits were water bearing and found in a very loose to compact state, with occasional very dense layers. The measured SPT 'N' values in cohesionless deposits ranged from 6 to more than 50 blows per 300 mm of penetration.

Cohesive Deposits (Silty Clay/Clayey Silt Till):

Cohesive deposits of silty clay and clayey silt till were encountered in all boreholes below the upper cohesionless deposits, extending to maximum drilled depths of BH20-1 to BH20-3 and underlain by sandy silt till deposits in other boreholes. These deposits were found to generally have a firm to stiff consistency with occasional very stiff to hard layers, with measured SPT 'N' values ranging from 7 to more than 50 blows per 300 mm penetration.

Sandy Silt Till:

Sandy silt till deposits were encountered below the cohesive deposits in Boreholes BH20-4 through BH20-14, extending to depths ranging from 6.0m to 8.2m below ground surface. Boreholes BH20-4 to BH20-7, BH20-9 to BH20-11 and BH20-13 were terminated in sandy silt till deposit. The sandy silt till deposits were found in a dense to very dense state, with measured SPT 'N' values ranging from 34 to more than 50 blows per 300 mm penetration.

3.2 Groundwater Conditions

All boreholes were found wet to saturated during and upon completion of drilling and the short-term (unstabilized) groundwater was found at depths of 0.8 to 2.3m below the ground surface. Eight (8) boreholes BH20-1, BH20-2, BH20-3, BH20-5, BH20-8, BH20-10, BH20-11 and BH20-13 were equipped with 50mm dia. monitoring wells. The groundwater levels measured in wells on August 18, 2020 ranged from 1.2m to 4.6m below the existing grade, corresponding to Elev. 129.4 to 125.3m, as summarized on **Table 1**. BH20-11 was found dry on August 18, 2020.

Table 1: Groundwater Levels Observed in Monitoring Wells

Borehole	Borehole Elevation (m)	Date of Observation	Water Level Depth (mbgs)	Water Level Elev. (m)
BH20-1	129.0	August 18, 2020	2.0	127.0
BH20-2	131.9	August 18, 2020	3.1	128.8
BH20-3	130.2	August 18, 2020	2.5	127.7
BH20-5	129.9	August 18, 2020	1.6	128.3
BH20-8	129.9	During drilling August 18, 2020	0.8 4.6	129.1 125.3
BH20-10	130.4	August 18, 2020	1.2	129.2
BH20-11	129.7	During drilling August 18, 2020	0.8 Dry	128.9 -
BH20-13	131.0	August 18, 2020	1.6	129.4

It should be noted that the groundwater levels can vary and are subject to seasonal fluctuations in response to major weather events. Further monitoring of groundwater levels in the wells is recommended.

4. DISCUSSION AND RECOMMENDATIONS

It is proposed to develop the site as a residential subdivision. The lots will therefore be serviced by a network of roads, storm and sanitary sewers and watermains.

4.1 SITE GRADING & ENGINEERED FILL

The site will be developed as residential subdivision with residential lots, roads and driveways, it is recommended that all fill to be placed for grading purposes be constructed as engineered fill to provide competent subgrade below house foundations, roads, boulevards, etc.

Prior to placement of engineered fill, the topsoil and existing fill materials should be removed to expose the inorganic competent native subgrade. The exposed subgrade should then be proof rolled with a heavy sheepsfoot roller to identify weak areas. Any weak or excessively wet zones identified during proof-rolling should be sub-excavated and replaced with compacted competent material to establish stable and uniform conditions. Prior to placement of engineered fill, the subgrade should be inspected and approved by a geotechnical engineer. Dewatering will be required prior to any excavation below the groundwater table.

The competent subgrade after the removal of existing fill materials is expected to be very wet, therefore, we recommend use of inorganic granular soils as the engineered fill material. Consideration can be given to the use of Granular B layer (600mm thick) engineered fill to cover the subgrade and on top of it, engineered fill consisting of inorganic soil can be used.

General guidelines for the placement and preparation of engineered fill are presented on **Appendix A**. Bearing capacity values of 150 kPa at SLS and 225 kPa at ULS can be used on engineered fill, provided that all requirements on **Appendix A** are adhered to. To reduce the risk of improperly placed engineered compacted fill, full-time supervision of the contractor is essential.

The existing fill materials free from topsoil and organics to be excavated from cut-areas are considered suitable for re-use as engineered fill, provided that their moisture contents at the time of construction are at or near optimum. Significant aeration of the excavated soils will be required, prior to their re-use as engineered fill.

4.2 ROADS

The investigation has shown that the predominant subgrade soil, after stripping the topsoil and existing fill materials will generally consist of cohesionless sandy soils or glacial tills.

Based on the above and assuming that traffic usage will be residential local road, the following minimum pavement thickness is recommended for roads to be constructed within the development:

40 mm HL3 Asphaltic Concrete

60 mm HL8 Asphaltic Concrete

150 mm Granular 'A'

350 mm Granular 'B'

These values may need to be adjusted according to the Town of Oakville Standards. The site subgrade and weather conditions (i.e. if wet) at the time of construction may necessitate the placement of thicker granular sub-base layer in order to facilitate the construction. Furthermore, heavy construction equipment may have to be kept off the newly constructed roads before the placement of asphalt and/or immediately thereafter, to avoid damaging the weak subgrade by heavy truck traffic.

4.2.1 STRIPPING, SUB-EXCAVATION AND GRADING

The site should be stripped of all topsoil, existing fill material and weathered or otherwise unsuitable soils to the full depth of the roads, both in cut and fill areas. Following stripping, the site should be graded to the subgrade level and approved. The subgrade should then be proof-rolled, in the presence of the Geotechnical Engineer, by at least several passes of a heavy compactor having a rated capacity of at least 8 tonnes. Any soft spots thus exposed should be removed and replaced by select fill material, similar to the existing subgrade soil and approved by the Geotechnical Engineer. The subgrade should then be re-compacted from the surface to at least 98% of its Standard Proctor Maximum Dry Density (SPMDD). The final subgrade should be cambered or otherwise shaped properly to facilitate rapid drainage and to prevent the formation of local depressions in which water could accumulate.

Proper cambering and allowing the water to escape towards the sides (where it can be removed by means of subdrains) is considered to be beneficial for this project. Otherwise, any water collected in the granular sub-base materials could be trapped thus causing problems due to softened subgrade, differential frost heave, etc. For the same reason damaging the subgrade during and after placement of the granular materials by heavy construction traffic should be avoided. If the moisture content of the local material cannot be maintained at $\pm 2\%$ of the optimum moisture content, imported granular material may need to be used.

Any fill required for re-grading the site or backfill should be select, clean material, free of topsoil, organic or other foreign and unsuitable matter. The fill should be placed in thin layers and compacted to at least 95% of its SPMDD. The degree of compaction should be increased to 98% within the top 1.0 m of the subgrade, or as per Township Standards. The compaction of the new fill should be checked by frequent field density tests.

4.2.2 CONSTRUCTION

Once the subgrade has been inspected and approved, the granular base and sub-base course materials should be placed in layers not exceeding 200 mm (uncompacted thickness) and should be compacted to at least 100% of their respective SPMDD. The grading of the material should conform to current OPS Specifications.

The placing, spreading and rolling of the asphalt should be in accordance with OPS Specifications or, as required by the local authorities.

Frequent field density tests should be carried out on both the asphalt and granular base and sub-base materials to ensure that the required degree of compaction is achieved.

4.2.3 DRAINAGE

The Town of Oakville will require the installation of full-length subdrains on all roads. The subdrains should be properly filtered to prevent the loss of (and clogging by) soil fines.

All paved surfaces should be sloped to provide satisfactory drainage towards catch-basins. As discussed in Section 4.2.1, by means of good planning any water trapped in the granular sub-base materials should be drained rapidly towards subdrains or other interceptors.

4.3 SEWERS

As a part of the site development, a network of new storm and sanitary sewers is to be constructed. It is assumed that the trenches are generally within 4 to 5 m below the existing grade.

4.3.1 TRENCHING

Based on the boreholes, the trenches in most of the boreholes will be dug mainly through the water bearing cohesionless sandy soils and till deposits. The groundwater levels in the boreholes generally ranged from 0.8 to 3.1m below the existing grade, corresponding to Elev. 127.0 to 129.4m. Any excavation in cohesionless sandy soils below the groundwater table will require positive dewatering, otherwise, it will result in an unstable base and flowing sides. Groundwater table must be lowered to 1m below the lowest excavation level.

The sides of excavations in the natural strata, when dewatered, can be expected to be temporarily stable at relatively steep side slopes for short periods of time but they should be cut back at slopes no steeper than 1:1 in order to comply with the safety regulations. Otherwise, excavation slopes of 3:1V or flatter inclination in wet soils will be required.

All excavations must be carried out in accordance with the most recent Occupational Health and Safety Act (OHSA). In accordance with OHSA, the fill and cohesionless sandy soils (sandy silt, silty sand and sand and gravel can be classified as Type 3 Soil above the groundwater and Type 4 Soil below the groundwater table. The very stiff to hard clayey soils can be classified as Type 2 soil above groundwater and Type 3 Soil below water table.

4.3.2 BEDDING

The boreholes show that the sewer pipes will predominantly be laid within the native soils, which when dewatered, will provide adequate support for the sewer pipes and allow the use of normal Class B type

bedding. The bedding should conform to the current Ontario Provincial Standard specifications (OPSS 401/OPSD 802) and/or standards set by the local municipality.

The recommended minimum thickness of granular bedding below the invert of the pipes is 150 mm. The thickness of the bedding may, however, have to be increased depending on the pipe diameter or in accordance with local standards or if wet or weak subgrade conditions are encountered, especially when the soil at the trench base level consists of wet, dilatant silt. The bedding material should consist of well graded granular material such as Granular 'A' or equivalent. After installing the pipe on the bedding, a granular surround of approved bedding material, which extends at least 300 mm above the obvert of the pipe, or as set out by the local Authority, should be placed.

To avoid the loss of soil fines from the subgrade, uniformly graded clear stone should not be used unless, below the granular bedding material, a suitable, approved filter fabric (geotextile) is placed. The geotextile should extend along the sides of the trench and should be wrapped all around the poorly graded bedding material.

4.3.3 BACKFILLING OF TRENCHES

Based on visual and tactile examination, the on-site excavated inorganic native soils are considered to be suitable for re-use as backfill in the service trenches provided their moisture contents at the time of construction are within 2 percent of their optimum moisture content. Significant aeration of the wet sandy and silty soils will be required prior to their re-use as backfill material.

The clayey soils especially when its consistency is hard is likely to be excavated in cohesive chunks or blocks and will be difficult to compact in confined areas. For use as backfill, the clayey material will have to be pulverized and placed in thin layers. The clayey soils will have to be compacted using heavy equipment suitable for these soils which may be difficult to operate in the narrow confines of the trenches. Unless the clayey materials are properly pulverized and compacted in sufficiently thin lifts post-construction settlements could occur. Their use in narrow trenches such as laterals (where heavy compaction equipment cannot be operated) may not be feasible.

Selected inorganic fill and the native soils free from topsoil and organics can be used as general construction backfill where it can be compacted with sheep's foot type compactors. Loose lifts of soil, which are to be compacted, should not exceed 200 mm. Depending on the time of construction and weather, some excavated material may be too wet to compact and will require aeration prior to its use.

Imported granular fill, which can be compacted with hand held equipment, should be used in confined areas. The excavated soils are not considered to be free draining. Where free draining backfill is required, imported granular fill such as OPSS Granular B should be used.

The backfill should be placed in maximum 200 mm thick layers at or near ($\pm 2\%$) their optimum moisture content and each layer should be compacted to at least 95% SPMDD. In the upper 1.0 m, underneath

the road base, the compaction should be increased to 98% SPMDD. Unsuitable materials such as organic soils, boulders, cobbles, frozen soils, etc. should not be used for backfilling.

The on-site excavated soils and especially the clayey soils should not be used in confined areas (e.g. around catch-basins and laterals under roadways) where heavy compaction equipment cannot be operated. The use of imported granular fill together with an appropriate frost taper would be preferable in confined areas and around structures, such as catch-basins.

It should be noted that the excavated soils are subject to moisture content increase during wet weather which would make these materials too wet for adequate compaction. Stockpiles should be compacted at the surface or be covered with tarpaulins to minimize moisture uptake.

The topsoil encountered at the site can be used for landscaping fill to raise the grades. Topsoil cannot be reused as foundation and trench backfill material.

4.4 FOUNDATION CONDITIONS

It is understood that the proposed subdivision will consist of single-family homes with one level basement. The finish floor elevations of these proposed houses are not known to us at the time of writing this report.

The native soils encountered in the boreholes are competent to support the proposed houses on conventional footings. The spread and strip footings founded on the undisturbed native soils can be designed for a bearing capacity of 75 to 150 kPa at SLS (Serviceability Limit State), and for a factored geotechnical resistance of 112 to 225 kPa at ULS (Ultimate Limit State).

Alternatively, the proposed houses can also be supported by spread and strip footings founded on engineered fill for a bearing capacity of 150 kPa at the serviceability limit states (SLS) and for a factored geotechnical resistance of 225 kPa at the ultimate limit states (ULS), provided all requirements on Appendix C are adhered to.

Foundations designed to the specified bearing capacities at the serviceability limit states (SLS) are expected to settle less than 25 mm total and 19 mm differential.

All footings exposed to seasonal freezing conditions must have at least 1.2 metres of soil cover for frost protection.

Where it is necessary to place footings at different levels, the upper footing must be founded below an imaginary 10 horizontal to 7 vertical line drawn up from the base of the lower footing. The lower footing must be installed first to help minimize the risk of undermining the upper footing.

It should be noted that the recommended bearing capacities have been calculated by DS from the borehole information for the design stage only. The investigation and comments are necessarily on-going as new information of the underground conditions becomes available. For example, more specific information is available with respect to conditions between boreholes when foundation construction is

underway. The interpretation between boreholes and the recommendations of this report must therefore be checked through field inspections provided by DS to validate the information for use during the construction stage..

5. EARTH PRESSURES

The lateral earth pressures acting on foundation and basement walls may be calculated from the following expression:

$$p = k(\gamma h + q)$$

where, p = Lateral earth pressure in kPa acting at depth h

K = Earth pressure coefficient, assumed to be 0.40 for vertical walls
and horizontal backfill for permanent construction

γ = Unit weight of backfill, a value of 21 kN/m³ may be assumed

h = Depth to point of interest in metres

q = Equivalent value of surcharge on the ground surface in kPa

The above expression assumes that the perimeter drainage system prevents the build up of any hydrostatic pressure behind the wall.

6. STORMWATER MANAGEMENT POND

It is understood that a stormwater management pond will also be constructed at the subject site as part of the proposed residential development. The bottom of the proposed pond will be at about 4.0m below the existing grade.

Three (3) boreholes BH20-5, BH20-8 and BH20-9 were drilled in the area of the proposed pond. Based on the borehole information, the pond will mainly be excavated through the existing cohesionless sandy fill to silty clay/clayey silt till and silt deposits. Groundwater levels in BH20-5 and BH20-8 were recorded at depths of 0.8 to 1.6m below the existing grade. The existing fill material was found to be wet below a depth of 0.8m.

As the site is characterized by a high-water table as typically indicated in BH20-5, we recommend that the elevation of the bottom of the pond be kept as high as possible for the ease of construction and for uplift stability considerations. We recommend that the side slopes be no steeper than 4H:1V and should be adequately protected against erosion.

Considering the cohesionless nature of the existing soils, a clay liner on the bottom and sides of the will be required, extending to the high-water level in the pond. The clay liner should consist of inorganic silty clay with minimum clay content of 20 percent, plasticity Index of 8 and compacted to 100% SPMDD with maximum loose lift thickness of 200 mm. The thickness of liner will depend upon the design pond

bottom elevation and long-term groundwater table in this area. Under liner drainage may be required depending upon the pond depth.

The prepared foundation for the berms (if any) should be inspected by the geotechnical engineer prior to the placement of berm fill. The berm fill (engineered) should consist of inorganic silty clay with minimum clay content of 20 percent, plasticity Index of 8 and compacted to 100% SPMDD with maximum loose lift thickness of 200 mm. The existing onsite silty clay till is considered suitable for reuse as berm engineered fill, provided its moisture content is within 2 percent of its optimum moisture content. Any cobbles or boulders greater than 100 mm in size should be excluded from the earth berm fill. The fill must be placed and compacted under the full-time supervision of a qualified geotechnical personnel from DS.

Excavation can be carried out with heavy hydraulic backhoe. Any excavation in fill materials with perched water condition and cohesionless sandy soils below the groundwater table will require positive dewatering, otherwise, it will result in an unstable base and flowing sides. Groundwater table must be lowered to 1m below the lowest excavation level.

It should be noted that the till is a non-sorted sediment and therefore may contain boulders. Possible large obstructions such as buried concrete pieces are also anticipated in the fill material. Provisions must be made in the excavation contract for the removal of possible boulders in the till or obstructions in the fill material.

It is understood that the design of pond is still at a preliminary stage. The design drawings including the depth of the pond, side slopes and permanent pool level is not available to us at the time of writing this report. A slope stability analyses of the pond excavation and/or berm slopes should be carried out once the final design is available.

7. GENERAL COMMENTS AND LIMITATIONS OF REPORT

DS Consultants Ltd. (DS) should be retained for a general review of the final design and specifications to verify that this report has been properly interpreted and implemented. If not accorded the privilege of making this review, DS will assume no responsibility for interpretation of the recommendations in the report.

This report is intended solely for the Client named. The material in it reflects our best judgment in light of the information available to DS at the time of preparation. Unless otherwise agreed in writing by DS, it shall not be used to express or imply warranty as to the fitness of the property for a particular purpose. No portion of this report may be used as a separate entity, it is written to be read in its entirety.

The conclusions and recommendations given in this report are based on information determined at the test hole locations. The information contained herein in no way reflects on the environment aspects of the project, unless otherwise stated. Subsurface and groundwater conditions between and beyond the

test holes may differ from those encountered at the test hole locations, and conditions may become apparent during construction, which could not be detected or anticipated at the time of the site investigation. The benchmark and elevations used in this report are primarily to establish relative elevation differences between the test hole locations and should not be used for other purposes, such as grading, excavating, planning, development, etc.

The design recommendations given in this report are applicable only to the project described in the text and then only if constructed substantially in accordance with the details stated in this report.

The comments made in this report on potential construction problems and possible methods are intended only for the guidance of the designer. The number of test holes may not be sufficient to determine all the factors that may affect construction methods and costs. For example, the thickness of surficial topsoil or fill layers may vary markedly and unpredictably. The contractors bidding on this project or undertaking the construction should, therefore, make their own interpretation of the factual information presented and draw their own conclusions as to how the subsurface conditions may affect their work. This work has been undertaken in accordance with normally accepted geotechnical engineering practices.

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. DS accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. We accept no responsibility for any decisions made or actions taken as a result of this report unless we are specifically advised of and participate in such action, in which case our responsibility will be as agreed to at that time.

We trust that the information contained in this report is satisfactory. Should you have any questions, please do not hesitate to contact this office.

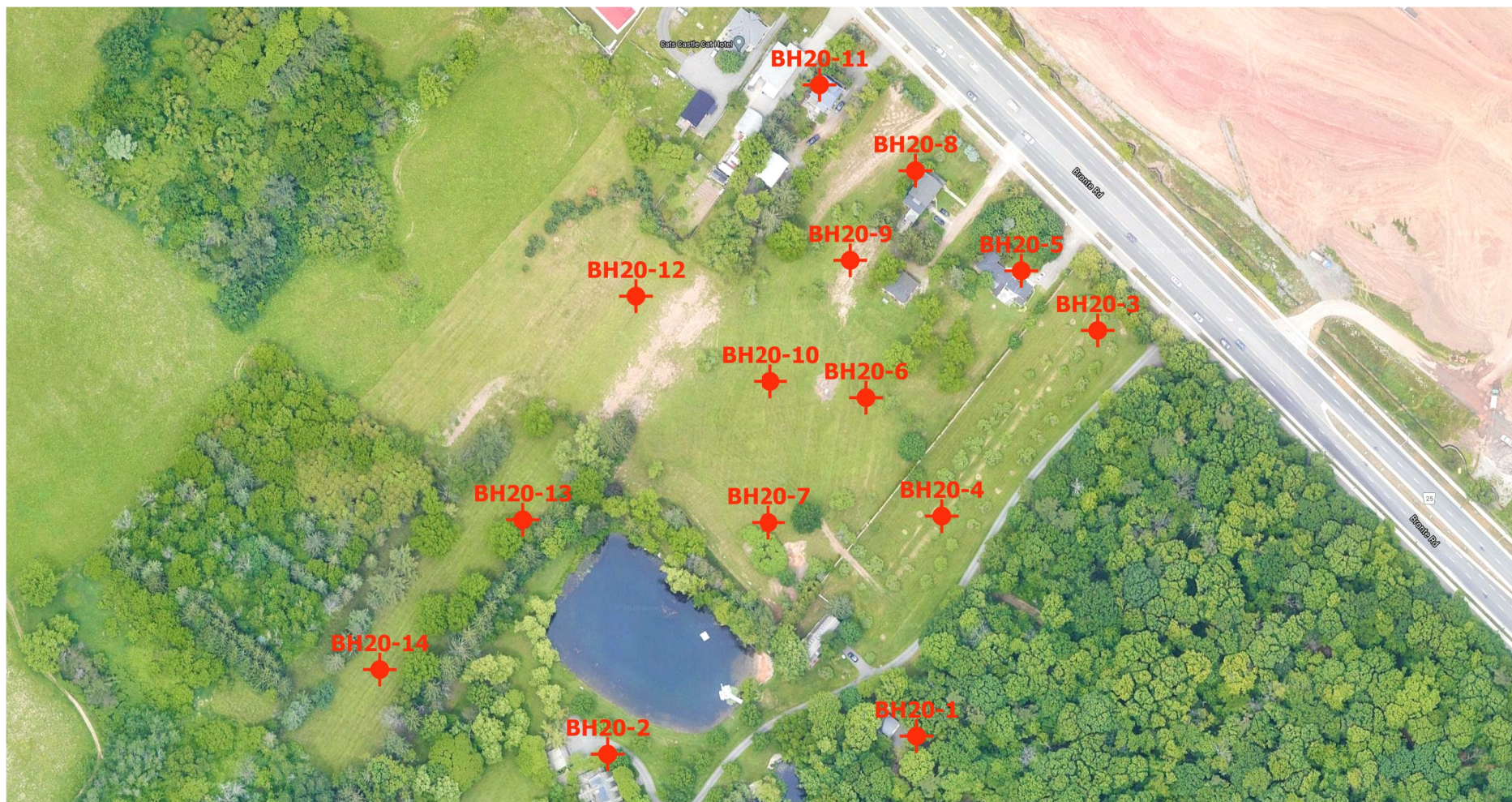
DS CONSULTANTS LTD.

Naeem Ehsan, M.Eng., P.Eng.

Alka Sangar, M.Eng., P.Eng.

Fanyu Zhu, Ph.D., P.Eng.

Drawings



Legend

 Borehole Location



DS CONSULTANTS LTD.

6221 Highway 7, UNIT 16
Vaughan, Ontario L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

Client:

Argo Development

Project:

Geotechnical Investigation - 1326 Bronte Road, Oakville, ON

Title:

Borehole Location Plan



Size:
8.5 x 11

Approved By: NE

Drawn By: MM

Date: August, 2020

Rev:
0

Scale: As Shown

Project No.: 20-186-100

Figure No.: **1**

Image/Map Source: Google Satellite Image

PROJECT: Preliminary Geotechnical Investigation - proposed Subdivision
CLIENT: Argo Development
PROJECT LOCATION: 1326 Bronte Road, Oakville, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4807732.72 E 601031.73

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/13/2020
REF. NO.: 20-186-100
ENCL NO.: 2

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT			POCKET PEN (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				WATER CONTENT (%)					
								20	40	60	80	100	W _P	W			
129.0																	
128.9	0.2	TOPSOIL: 150mm	1	SS	4												
128.2	0.8	FILL: sandy silt, trace organics, brown, moist, loose	2	SS	7												
127.5	1.5	FILL: silty sand, trace clay, trace gravel, brown, moist, loose	3	SS	3												
126.7	2.3	FILL: sand, trace gravel, brown, wet, very loose	4	SS	31												
126.4	2.6	SANDY SILT: trace clay, brown, wet, dense	5	SS	12												
126.0	3.0	SILTY CLAY: trace sand, brown, moist, hard	6	SS	14												
125.3	5.3	SILT TO SANDY SILT: trace clay, brown, wet, compact	7	SS	16												
123.7	6.7	CLAYEY SILT TILL: sandy, trace gravel, occasional cobble, reddish brown to grey, moist, stiff to very stiff	8	SS	18												
122.3		END OF BOREHOLE:	9	SS	13												
Notes: 1) Water depth at 1.5m below grade during drilling. 2) 50mm dia. monitoring well installed upon completion. 3) Water level Reading: Date: Water Level (mbgl): Aug 18, 2020 2.0																	

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-186-100 1326 BRONTE ROAD, ARGO DEVELOPMENT, GPJ DS GDT 9/15/20

PROJECT: Preliminary Geotechnical Investigation - proposed Subdivision
CLIENT: Argo Development
PROJECT LOCATION: 1326 Bronte Road, Oakville, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4807723.7 E 600908.24

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/13/2020
REF. NO.: 20-186-100
ENCL NO.: 3

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL			
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)										WATER CONTENT (%)		
								20 40 60 80 100		FIELD VANE & Sensitivity + LAB VANE x								W _p W W _L		
131.9																				
130.9	TOPSOIL: 75mm		1	SS	14		Concrete													
131.1	FILL: sand and gravel, trace organics, brown, moist, compact																			
131.1			2	SS	14		Bentonite													
131.1	FILL: sandy silt, trace clay, trace gravel, brown, moist, compact																			
131.1																				
129.6			3	SS	13															
129.6																				
129.6	FILL: silty sand, trace organics, trace wood pieces, brown, wet, loose		4	SS	5															
129.6																				
128.9																				
128.9	SAND: trace silt, trace clay, reddish brown, wet, loose		5	SS	6		Filter Pack W. L. 128.8 m Aug 18, 2020													
128.9																				
128.9																				
128.9			6	SS	8															
128.9																				
128.9																				
125.9																				
125.9	CLAYEY SILT TILL: sandy, trace gravel, occasional cobble/ boulder, reddish brown to grey, moist, stiff		7	SS	11		Bentonite: Bottom of hole													
125.9																				
125.2	END OF BOREHOLE:																			
125.2	Notes: 1) Water depth at 2.3m below grade during drilling. 2) 50mm dia. monitoring well installed upon completion. 3) Water level Reading: Date: Water Level (mbgl): Aug 18, 2020 3.1																			

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-186-100 1326 BRONTE ROAD, ARGON DEVELOPMENT GPJ DS GDT 9/15/20

PROJECT: Preliminary Geotechnical Investigation - proposed Subdivision
CLIENT: Argo Development
PROJECT LOCATION: 1326 Bronte Road, Oakville, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4807894.84 E 601101.6

DRILLING DATA

Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/13/2020

REF. NO.: 20-186-100
ENCL NO.: 4

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT W _P	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL		
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)										WATER CONTENT (%)	
								20 40 60 80 100										10 20 30	
130.2								20 40 60 80 100				10 20 30							
130.0	TOPSOIL: 75mm		1	SS	3		130												
129.4	FILL: sand and gravel, trace organics, brown, moist, very loose						Bentonite												
129.4			2	SS	10		129												
129.4	FILL: sandy silt, trace clay, trace to some gravel, brown, moist, compact																		
129.4			3	SS	22		129												
129.4																			
129.4																			
127.9	SILTY SAND: trace clay, brown, wet, compact		4	SS	10		128												
127.9							W. L. 127.7 m Aug 18, 2020												
127.9																			
127.2	SILT: some sand, some clay, trace gravel, brown, wet, disturbed		5	SS	disturbed		127												
127.2																			
127.2																			
126.4	SAND: trace silt, brown, wet, compact		6	SS	16		126												
126.4																			
126.4																			
126.4			7	SS	26		125												
126.4																			
126.4			8	SS	50/ 140mm		125												
126.4	very dense below 5.4m						Bentonite: Bottom of hole												
126.4																			
124.2	CLAYEY SILT TILL: sandy, trace gravel, occasional cobble/ boulder, reddish brown to grey, moist, hard		9	SS	50/ 140mm		124												
124.2																			
123.5	END OF BOREHOLE: Notes: 1) Water depth at 2.3m below grade during drilling. 2) 50mm dia. monitoring well installed upon completion. 3) Water level Reading: Date: Water Level (mbgl): Aug 18, 2020 2.5																		

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

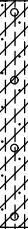
+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-186-100 1326 BRONTE ROAD, ARGON DEVELOPMENT GPJ DS GDT 9/15/20

PROJECT: Preliminary Geotechnical Investigation - proposed Subdivision
CLIENT: Argo Development
PROJECT LOCATION: 1326 Bronte Road, Oakville, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4807820.2 E 601040.5

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/13/2020
REF. NO.: 20-186-100
ENCL NO.: 5

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				POCKET PEN (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)						
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)							WATER CONTENT (%)					
								20	40	60	80				100	W _P	W	W _L		
130.9	TOPSOIL: 100mm FILL: sandy silt, trace gravel, brown, moist, loose		1	SS	4		130													
130.1			FILL: silty sand, some gravel, brown, moist, compact	2	SS			10												
129.6				SILTY SAND: trace clay, trace gravel, brown, wet, compact to dense	3			SS	19											
					4			SS	31											
					5			SS	29											
126.4	SILTY CLAY TILL: sandy, trace gravel, occasional cobble/ boulder, grey, very moist, very stiff		6	SS	15				126											
124.9	SANDY SILT TILL: trace clay, trace gravel, occasional cobble/ boulder, grey, moist, very dense		7	SS	52		125													
124.2	END OF BOREHOLE: Notes: 1) Water depth at 1.3m below grade during drilling.																			

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-186-100 1326 BRONTE ROAD, ARGO DEVELOPMENT GPJ DS GDT 9/15/20

PROJECT: Preliminary Geotechnical Investigation - proposed Subdivision
CLIENT: Argo Development
PROJECT LOCATION: 1326 Bronte Road, Oakville, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4807918.06 E 601070.76

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/14/2020
REF. NO.: 20-186-100
ENCL NO.: 6

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)				
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)							WATER CONTENT (%)			
129.9								20	40	60	80	100	PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L			
129.9	TOPSOIL: 100mm		1	SS	4													
129.1	FILL: sandy silt, trace gravel, brown, moist, loose																	
129.1			2	SS	3													
128.4	FILL: clayey silt, sand seams, trace to some organics, brown to grey, wet, very loose																	
128.4			3	SS	8													
127.6	FILL: sandy silt, trace gravel, brown, wet, loose																	
127.6			4	SS	7													
126.9	SILTY CLAY TILL: sandy, trace gravel, occasional cobble/ boulder, brown to grey, moist, firm (weathered/ disturbed)																	
126.9			5	SS	20													
126.9	CLAYEY SILT TILL: sandy, trace gravel, occasional cobble/ boulder, grey, moist, very stiff to hard																	
126.9			6	SS	20													
126.9			7	SS	37													
124.6			8	SS	92/ 280mm													
124.6	SANDY SILT TILL: trace clay, trace gravel, occasional cobble/ boulder, reddish brown, moist, very dense																	
124.6			9	SS	87													
123.2	END OF BOREHOLE: Notes: 1) Water depth at 1.5m below grade during drilling. 2) 50mm dia. monitoring well installed upon completion. 3) Water level Reading: Date: Water Level (mbgl): Aug 18, 2020 1.6																	

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-186-100 1326 BRONTE ROAD, ARGO DEVELOPMENT.GPJ DS.GDT 9/15/20

PROJECT: Preliminary Geotechnical Investigation - proposed Subdivision
CLIENT: Argo Development
PROJECT LOCATION: 1326 Bronte Road, Oakville, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4807866.75 E 601009.6

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/14/2020
REF. NO.: 20-186-100
ENCL NO.: 7

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)		WATER CONTENT (%)					
130.5							20 40 60 80 100	20 40 60 80 100	10 20 30						GR SA SI CL
130.0	TOPSOIL: 100mm		1	SS	5										
129.7	FILL: sandy silt, some clay, trace gravel, trace organics, brown, moist, loose														
129.0	FILL: silty sand, trace gravel, brown, wet, compact to loose		2	SS	10										
128.2			3	SS	6										
127.5	FILL: silt to sandy silt, trace gravel, occasional cobble/ boulder, brown to grey, wet, loose		4	SS	5										
127.0	CLAYEY SILT TILL: sandy, trace gravel, occasional cobble/ boulder, brown, moist, stiff to hard		5	SS	11										
126.0	grey to reddish brown below 4.5m		6	SS	30										
124.5	SANDY SILT TILL: trace clay, trace gravel, occasional cobble/ boulder, brown, moist, very dense		7	SS	50/150mm										
123.8	END OF BOREHOLE: Notes: 1) Water depth at 0.8m below grade during drilling.														

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-186-100 1326 BRONTE ROAD, ARGO DEVELOPMENT GPJ DS GDT 9/15/20

PROJECT: Preliminary Geotechnical Investigation - proposed Subdivision
CLIENT: Argo Development
PROJECT LOCATION: 1326 Bronte Road, Oakville, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4807816.61 E 600971.29

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/12/2020
REF. NO.: 20-186-100
ENCL NO.: 8

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL			
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)							WATER CONTENT (%)		
								20 40 60 80 100							PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT		
								○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE							W _P W W _L		
130.6																	
130.4	TOPSOIL: 100mm		1	SS	5												
0.2	FILL: sandy silt, some clay, trace gravel, trace organics, brown, moist, loose																
129.8																	
0.8	FILL: sand and gravel, trace silt, trace clay, reddish brown, wet, loose		2	SS	7												
129.8																	
128.8																	
1.8	FILL: silt, some clay, brown, wet, loose		3	SS	8												
128.3																	
2.3	CLAYEY SILT TILL: sandy, trace gravel, occasional cobble/ boulder, brown, moist, stiff to very stiff		4	SS	18												
127.9																	
127.4			5	SS	12												
126.9																	
126.1																	
4.5	SANDY SILT TILL: trace clay, trace gravel, occasional cobble/ boulder, brown to grey, moist, dense to very dense		6	SS	34												
125.6																	
125.1																	
124.6																	
123.9	END OF BOREHOLE: Notes: 1) Water depth at 0.8m below grade during drilling.		7	SS	66												
6.7																	

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-186-100 1326 BRONTE ROAD, ARGON DEVELOPMENT GPJ DS GDT 9/15/20

PROJECT: Preliminary Geotechnical Investigation - proposed Subdivision
CLIENT: Argo Development
PROJECT LOCATION: 1326 Bronte Road, Oakville, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4807957.17 E 601027.93

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/12/2020
REF. NO.: 20-186-100
ENCL NO.: 9

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC NATURAL LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)		W _p	W	W _L			
129.9								20	40	60	80	100			GR SA SI CL
0.0	FILL: sandy silt, mixed with topsoil, brown, moist, loose		1	SS	4										
129.1															
0.8	FILL: silty sand, clay seams, brown, wet, loose to compact		2	SS	4										
			3	SS	9										
127.6															
2.3	CLAYEY SILT TILL: sandy, trace gravel, occasional cobble/ boulder, brown, moist, stiff to hard		4	SS	10										
			5	SS	12										
			6	SS	47										
125.4															
4.5	SANDY SILT TILL: trace clay, trace gravel, occasional cobble/ boulder, brown, moist, very dense		7	SS	50/140mm										
			8	SS	99/290mm										
			9	SS	58										
122.4															
7.5	GRAVELLY SAND: some silt, trace clay, brown, wet, very dense		10	SS	90										
121.7															
8.2	END OF BOREHOLE: Notes: 1) Water depth at 0.8m below grade during drilling. 2) 50mm dia. monitoring well installed upon completion. 3) Water level Reading: Date: Water Level (mbgl): Aug 18, 2020 4.6														

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

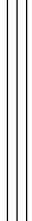
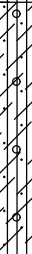
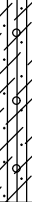
+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-186-100 1326 BRONTE ROAD, ARGON DEVELOPMENT GPJ DS GDT 9/15/20

PROJECT: Preliminary Geotechnical Investigation - proposed Subdivision
CLIENT: Argo Development
PROJECT LOCATION: 1326 Bronte Road, Oakville, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4807921.2 E 601002.49

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/12/2020
REF. NO.: 20-186-100
ENCL NO.: 10

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)				
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)		W _p W W _L					WATER CONTENT (%)	GR	SA	SI	CL
								○ UNCONFINED ● QUICK TRIAXIAL	+ FIELD VANE & Sensitivity × LAB VANE										
130.6																			
130.0	0.1	TOPSOIL: 100mm FILL: silty sand, trace topsoil, trace rootlets, brown, moist, loose		1	SS	5													
129.8																			
129.1	0.8	FILL: sand, trace silt, trace clay, reddish brown, wet, loose		2	SS	5													
129.1																			
127.6	1.5	SILT: trace clay, trace sand, brown, wet, loose to compact		3	SS	8													
127.6																			
127.6		grey below 2.3m		4	SS	12													
127.6																			
127.6	3.0	CLAYEY SILT TILL: sandy, trace gravel, occasional cobble/ boulder, brown, moist, stiff to hard		5	SS	12													
127.6																			
127.6																			
127.6																			
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GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-186-100 1326 BRONTE ROAD, ARGON DEVELOPMENT GPJ DS GDT 9/15/20

PROJECT: Preliminary Geotechnical Investigation - proposed Subdivision
CLIENT: Argo Development
PROJECT LOCATION: 1326 Bronte Road, Oakville, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4807872.68 E 600971.17

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/12/2020
REF. NO.: 20-186-100
ENCL NO.: 11

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL × LAB VANE									
130.4								20	40	60	80	100					
0.0	TOPSOIL: 300mm																
130.1			1	SS	5		Bentonite										
0.3	FILL: silty sand, trace topsoil, brown, moist, loose																
129.6																	
0.8	SAND: trace silt, trace clay, grey, wet, compact		2	SS	13												
1																	
128.9							W. L. 129.2 m Aug 18, 2020										
1.5	SILTY SAND: trace clay, brown, wet, compact		3	SS	10												
2																	
128.1																	
2.3	SILT TO SANDY SILT: trace clay, brown, wet, compact		4	SS	17		Filter Pack										
3							Slotted Pipe										
127.0																	
3.4	SILTY CLAY: grey, moist, very stiff		5	SS	15												
126.6																	
3.8	CLAYEY SILT TILL: sandy, trace gravel, occasional cobble/ boulder, brown, moist, very stiff to hard		6	SS	17												
4																	
125.1																	
5.3	SANDY SILT TILL: trace clay, trace gravel, occasional cobble/ boulder, brown, moist, very dense		8	SS	50/ 125mm		Bentonite: Bottom of hole										
6																	
123.7																	
6.7	END OF BOREHOLE: Notes: 1) Water depth at 0.8m below grade during drilling. 2) 50mm dia. monitoring well installed upon completion. 3) Water level Reading: Date: Water Level (mbgl): Aug 18, 2020 1.2																

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-186-100 1326 BRONTE ROAD, ARGO DEVELOPMENT.GPJ DS.GDT 9/15/20

PROJECT: Preliminary Geotechnical Investigation - proposed Subdivision
CLIENT: Argo Development
PROJECT LOCATION: 1326 Bronte Road, Oakville, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4807990.65 E 600989.21

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/19/2020
REF. NO.: 20-186-100
ENCL NO.: 12

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL	
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)								WATER CONTENT (%)
								○ UNCONFINED ● QUICK TRIAXIAL	+ FIELD VANE & Sensitivity × LAB VANE							
129.7								20 40 60 80 100								
129.6	0.1	TOPSOIL: 125mm														
		FILL: silty sand, mixed with topsoil, brown, moist, loose	1	SS	7											
128.9																
128.8	0.8	SILTY SAND: sandy silt, brown, wet, loose	2	SS	7											
128.2																
128.2	1.5	FILL: clayey silt to silty clay, brown, wet, firm	3	SS	6											
127.2																
127.2	2.5	CLAYEY SILT TILL: trace sand, trace gravel, grey, very moist, firm to stiff	4	SS	7											
		occasional cobble/ boulder below 3m	5	SS	11											
125.2																
125.2	4.5	SANDY SILT TILL: trace clay, trace gravel, occasional cobble/ boulder, brown, moist, very dense	6	SS	50/ 25mm											

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-186-100 1326 BRONTE ROAD, ARGO DEVELOPMENT.GPJ DS.GDT 9/15/20

PROJECT: Preliminary Geotechnical Investigation - proposed Subdivision
CLIENT: Argo Development
PROJECT LOCATION: 1326 Bronte Road, Oakville, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4807905.67 E 600916.81

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/14/2020
REF. NO.: 20-186-100
ENCL NO.: 13

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				POCKET PEN (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL			
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)							WATER CONTENT (%)		
								20 40 60 80 100							10 20 30		
131.5																	
0.0	TOPSOIL: 300mm																
131.2																	
0.3	FILL: sandy silt, some gravel/ cobble, trace rootlets, brown, moist, loose		1	SS	7												
130.7																	
0.8	FILL: sand and gravel, some silt, trace clay, brown, moist, loose		2	SS	7												
130.0																	
1.5	SAND: sand, trace silt, trace gravel, brown, wet, compact		3	SS	10												
129.2																	
2.3	SAND AND GRAGEL: silt seams, brown, wet, loose		4	SS	8												
128.5																	
3.0	CLAYEY SILT TILL: sandy, trace gravel, occasional cobble/ boulder, brown, moist, stiff to hard		5	SS	9												
			7	SS	35												
125.5																	
6.0	SANDY SILT TILL: trace clay, trace gravel, occasional cobble/ boulder, brown, wet, very dense		9	SS	50/ 90mm												
124.8																	
6.7	END OF BOREHOLE: Notes: 1) Water depth at 1.5m below grade during drilling.																

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-186-100 1326 BRONTE ROAD, ARGO DEVELOPMENT.GPJ DS GDT 9/15/20

PROJECT: Preliminary Geotechnical Investigation - proposed Subdivision
CLIENT: Argo Development
PROJECT LOCATION: 1326 Bronte Road, Oakville, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4807816.25 E 600872.96

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/14/2020
REF. NO.: 20-186-100
ENCL NO.: 14

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)				
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)									WATER CONTENT (%)				GR
131.0								20	40	60	80	100									
130.8	TOPSOIL: 200mm																				
0.2	FILL: silty sand, trace gravel, trace organics, brown, moist, very loose		1	SS	3																
130.2																					
0.8	FILL: sand and gravel, silty, brown, moist, loose		2	SS	6																
129.5																					
1.5	FILL: sand and gravel, trace silt, trace clay, wet, loose		3	SS	7																
128.7																					
2.3	FILL: clayey silt, brown, very moist, loose		4	SS	8																
128.4	FILL: sandy silt, brown, wet, loose																				
2.6																					
128.0	SILT: trace sand, trace clay, brown, wet, compact		5	SS	15																
3.0																					
127.2	CLAYEY SILT TILL: sandy, trace gravel, occasional cobble/ boulder, brown, moist, very stiff		6	SS	18																
3.8																					
126.5	SANDY SILT TILL: trace clay, trace gravel, occasional cobble/ boulder, brown, moist to very moist, very dense		7	SS	50/ 140mm																
4.5																					
			8	SS	50/ 125mm																
			9	SS	50/ 140mm																
124.4	END OF BOREHOLE: Notes: 1) Water depth at 1.5m below grade during drilling. 2) 50mm dia. monitoring well installed upon completion. 3) Water level Reading: Date: Water Level (mbgl): Aug 18, 2020 1.6																				
6.6																					

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-186-100 1326 BRONTE ROAD, ARGO DEVELOPMENT.GPJ DS.GDT 9/15/20



PROJECT: Preliminary Geotechnical Investigation - proposed Subdivision
CLIENT: Argo Development
PROJECT LOCATION: 1326 Bronte Road, Oakville, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4807755.92 E 600816.81

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/13/2020
REF. NO.: 20-186-100
ENCL NO.: 15

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT W _P	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN. (C _p) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)							
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)									WATER CONTENT (%)				GR	SA	SI	CL
ELEV DEPTH								○ UNCONFINED + FIELD VANE & Sensitivity									● QUICK TRIAXIAL × LAB VANE							
130.6							20	40	60	80	100													
130.4	0.2	TOPSOIL: 200mm		1	SS	5																		
129.8	0.8	FILL: sandy silt, brown, moist, loose																						
129.8	0.8	FILL: silty sand, brown, wet, loose to very loose		2	SS	2																		
129.8		silt seams at 1.7m																						
128.3	2.3	SANDY SILT: some clay, brown, wet, compact		4	SS	10																		
127.6	3.0	SILTY CLAY: trace gravel, grey, very moist, firm		5	SS	7																		
126.1	4.5	SANDY SILT TILL: trace clay, trace gravel, occasional cobble/ boulder, brown, moist, very dense		6	SS	75																		
124.6	6.0	SAND AND GRAVEL: brown, moist, very dense		7	SS	66																		
123.9	6.7	END OF BOREHOLE: Notes: 1) Water depth at 0.8m below grade during drilling.																						

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

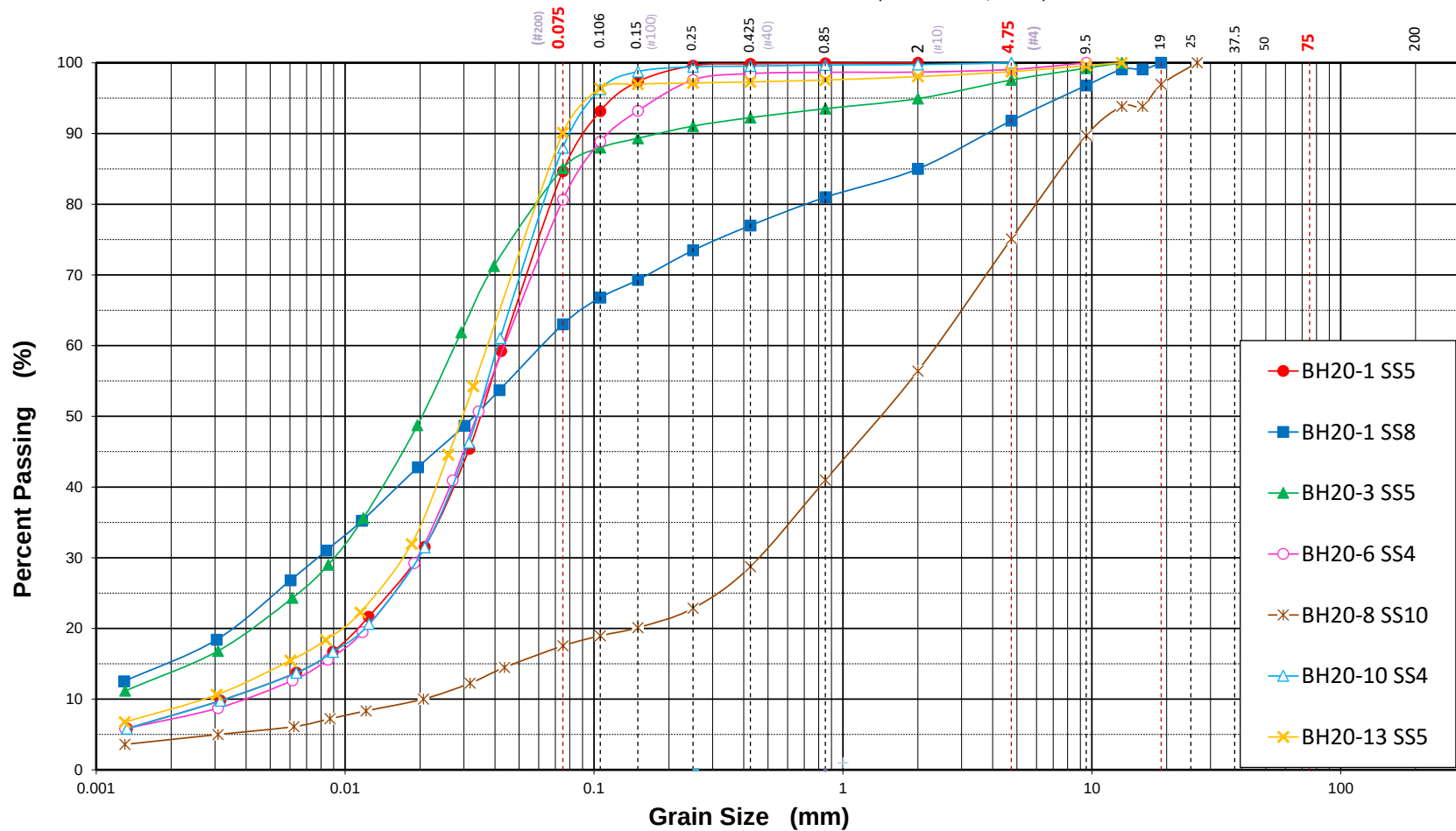
GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-186-100 1326 BRONTE ROAD, ARGO DEVELOPMENT GPJ DS GDT 9/15/20

Particle Size Distribution (ASTM-D421/D422)



Silt and Clay		Sand			Gravel		Cobble +
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse	
 DS CONSULTANTS LTD. 6221 Highway 7, Unit 16 Vaughan, Ontario, L4H 0K8 Telephone: (905) 264-9393 www.dsconsultants.ca		Project	Preliminary Geotechnical Investigation			Project No	20-186-100
		Location	1326 Bronte Rd, Oakville, ON			Date	Aug/31/2020
		Client	Argo Development			Figure No	16

Appendix A

Engineered Fill Guidelines

GENERAL REQUIREMENTS FOR ENGINEERED FILL

Compacted imported soil that meets specific engineering requirements and is free of organics and debris and that has been continually monitored on a full-time basis by a qualified geotechnical representative is classified as engineered fill. Engineered fill that meets these requirements and is bearing on suitable native subsoil can be used for the support of foundations.

Imported soil used as engineered fill can be removed from other portions of a site or can be brought in from other sites. In general, most of Ontario soils are too wet to achieve the 100% Standard Proctor Maximum Dry Density (SPMDD) and will require drying and careful site management if they are to be considered for engineered fill. Imported non-cohesive granular soil is preferred for all engineered fill. For engineered fill, we recommend use of OPSS Granular 'B' sand and gravel fill material.

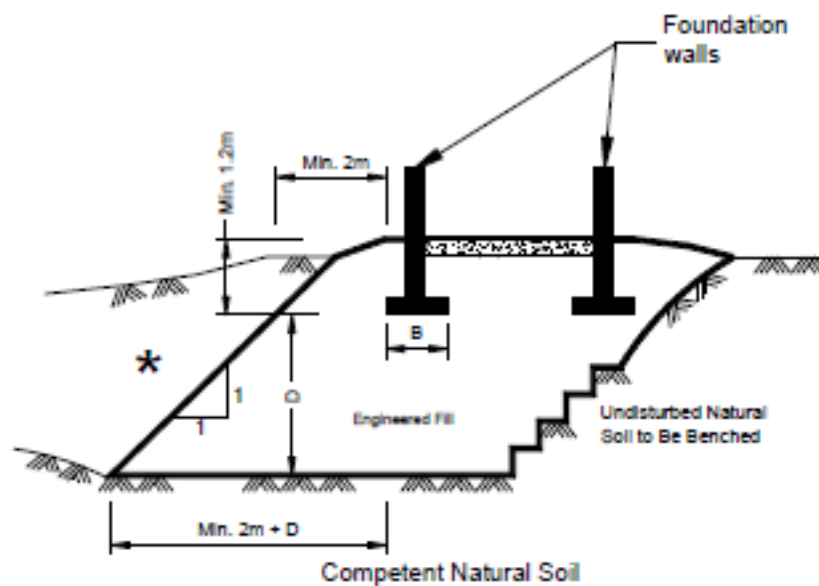
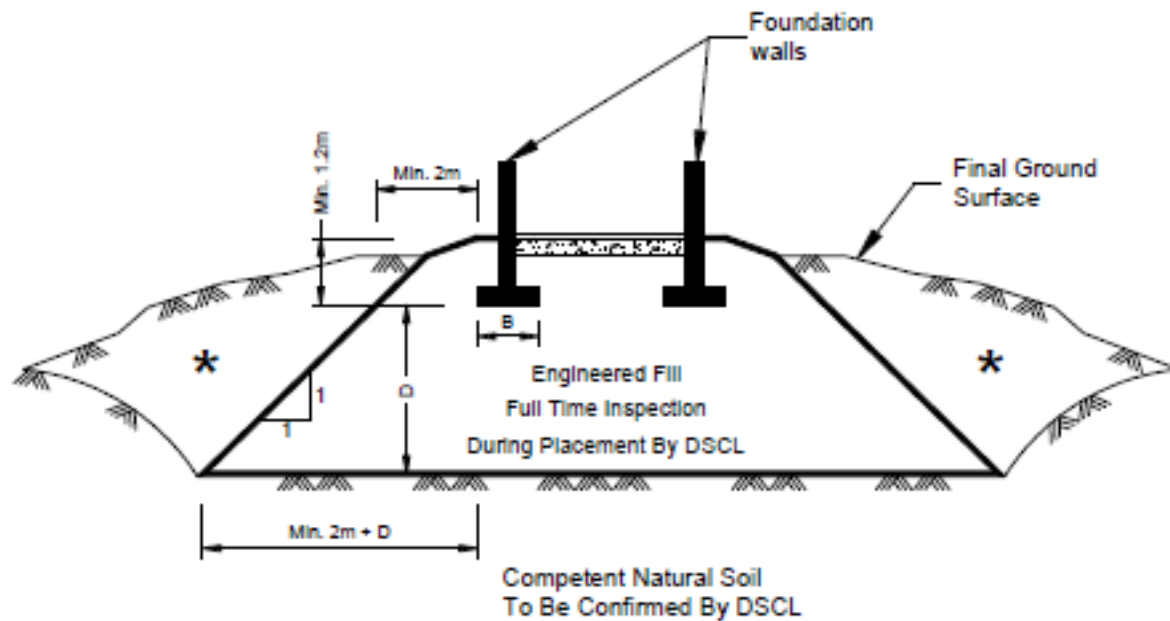
Adverse weather conditions such as rain make the placement of engineered fill to the required degree of density difficult or impossible; engineered fill cannot be placed during freezing conditions, i.e. normally not between December 15 and April 1 of each year.

The location of the foundations on the engineered fill pad is critical and certification by a qualified surveyor that the foundations are within the stipulated boundaries is mandatory. Since layout stakes are often damaged or removed during fill placement, offset stakes must be installed and maintained by the surveyors during the course of fill placement so that the contractor and engineering staff are continually aware of where the engineered fill limits lie. Excavations within the engineered fill pad must be backfilled with the same conditions and quality control as the original pad.

To perform satisfactorily, engineered fill requires the cooperation of the designers, engineers, contractors and all parties must be aware of the requirements. The minimum requirements are as follows; however, the geotechnical report must be reviewed for specific information and requirements.

1. Prior to site work involving engineered fill, a site meeting to discuss all aspects must be convened. The surveyor, contractor, design engineer and geotechnical engineer must attend the meeting. At this meeting, the limits of the engineered fill will be defined. The contractor must make known where all fill material will be obtained from and samples must be provided to the geotechnical engineer for review, and approval before filling begins.
2. Detailed drawings indicating the lower boundaries as well as the upper boundaries of the engineered fill must be available at the site meeting and be approved by the geotechnical engineer.
3. The building footprint and base of the pad, including basements, garages, etc. must be defined by offset stakes that remain in place until the footings and service connections are all constructed. Confirmation that the footings are within the pad, service lines are in place, and that the grade conforms to drawings, must be obtained by the owner in writing from the surveyor and DS Consultants Ltd (DSCL). Without this confirmation no responsibility for the performance of the structure can be accepted by DSCL. Survey drawing of the pre and post fill location and elevations will also be required.
4. The area must be stripped of all topsoil and fill materials. Subgrade must be proof-rolled. Soft spots must be dug out. The stripped native subgrade must be examined and approved by a DSCL engineer prior to placement of fill.

5. The approved engineered fill material must be compacted to 100% Standard Proctor Maximum Dry Density throughout. Engineered fill should not be placed during the winter months. Engineered fill compacted to 100% SPMDD will settle under its own weight approximately 0.5% of the fill height and the structural engineer must be aware of this settlement. In addition to the settlement of the fill, additional settlement due to consolidation of the underlying soils from the structural and fill loads will occur and should be evaluated prior to placing the fill.
6. Full-time geotechnical inspection by DSCL during placement of engineered fill is required. Work cannot commence or continue without the presence of the DSCL representative.
7. The fill must be placed such that the specified geometry is achieved. Refer to the attached sketches for minimum requirements. Take careful note that the projection of the compacted pad beyond the footing at footing level is a minimum of 2 m. The base of the compacted pad extends 2 m plus the depth of excavation beyond the edge of the footing.
8. A bearing capacity of 150 kPa at SLS (225 kPa at ULS) can be used provided that all conditions outlined above are adhered to. A minimum footing width of 500 mm (20 inches) is suggested and footings must be provided with nominal steel reinforcement.
9. All excavations must be done in accordance with the Occupational Health and Safety Regulations of Ontario.
10. After completion of the engineered fill pad a second contractor may be selected to install footings. The prepared footing bases must be evaluated by engineering staff from DSCL prior to footing concrete placements. All excavations must be backfilled under full time supervision by DSCL to the same degree as the engineered fill pad. Surface water cannot be allowed to pond in excavations or to be trapped in clear stone backfill. Clear stone backfill can only be used with the approval of DSCL.
11. After completion of compaction, the surface of the engineered fill pad must be protected from disturbance from traffic, rain and frost. During the course of fill placement, the engineered fill must be smooth-graded, proof-rolled and sloped/crowned at the end of each day, prior to weekends and any stoppage in work in order to promote rapid runoff of rainwater and to avoid any ponding surface water. Any stockpiles of fill intended for use as engineered fill must also be smooth-bladed to promote runoff and/or protected from excessive moisture take up.
12. If there is a delay in construction, the engineered fill pad must be inspected and accepted by the geotechnical engineer. The location of the structure must be reconfirmed that it remains within the pad.
13. The geometry of the engineered fill as illustrated in these General Requirements is general in nature. Each project will have its own unique requirements. For example, if perimeter sidewalks are to be constructed around the building, then the projection of the engineered fill beyond the foundation wall may need to be greater.
14. These guidelines are to be read in conjunction with DS Consultants Ltd report attached.



* Backfill in this area to be as per the DSCL report.

REPORT ON
Preliminary Geotechnical Investigation
Proposed Residential Development
1350 Bronte Road
Oakville, Ontario

PREPARED FOR:
Bronte River Limited Partnership

Project No: 20-186-101
Date: November 17, 2021



DS CONSULTANTS LTD.
6221 Highway 7, Unit 16
Vaughan, Ontario, L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

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APPENDIX A- GENERAL REQUIREMENTS FOR ENGINEERED FILL

1. INTRODUCTION

DS Consultants Ltd. (DS) was retained by Bronte River Limited Partnership to undertake a preliminary geotechnical investigation for the proposed residential subdivision located at 1350 Bronte Road, Oakville, Ontario.

It is understood that the proposed development will consist of single-family houses, serviced by a network of roads and sewers.

The purpose of this geotechnical investigation was to obtain information about the subsurface conditions at boreholes locations and from the findings in the boreholes to make recommendations pertaining to the geotechnical design of underground utilities, roads and to comment on the foundation conditions for the building construction.

DS has carried out environmental investigations at the subject site and the reports will be documented under separate covers. This report deals only with the geotechnical aspects of the site.

The design drawings are not available to us at the time of writing this report. Additional boreholes will be required before the final design of the development.

This report is provided on the basis of the terms of reference presented above and on the assumption that the design will be in accordance with the applicable codes and standards. If there are any changes in the design features relevant to the geotechnical analyses, or if any questions arise concerning the geotechnical aspects of the codes and standards, this office should be contacted to review the design. It may then be necessary to carry out additional borings and reporting before the recommendations of this office can be relied upon.

The site investigation and recommendations follow generally accepted practice for geotechnical consultants in Ontario. The format and contents are guided by client specific needs and economics and do not conform to generalized standards for services. Laboratory testing for most part follows ASTM or CSA Standards or modifications of these standards that have become standard practice.

This report has been prepared for Bronte River Limited Partnership and its architect and designers. Third party use of this report without DS consent is prohibited.

2. FIELD AND LABORATORY WORK

Two (2) boreholes (MW21-1 and BH21-2, see **Drawing 1** for borehole locations) were drilled at the subject site to depths ranging from 8.2 to 8.9m below ground surface.

Boreholes were drilled with hollow stem continuous flight augers equipment by a drilling sub-contractor under the direction and supervision of DS personnel. Samples were retrieved at regular intervals with a 50 mm O.D. split-barrel sampler driven with a hammer weighing 624 N and dropping 760 mm in accordance with the Standard Penetration Test (SPT) method. The samples were logged in the field and

returned to the DS laboratory for detailed examination by the project engineer and for laboratory testing.

As well as visual examination in the laboratory, all soil samples from geotechnical boreholes were tested for moisture contents. Selected soil samples were subjected to grain size analyses and Atterberg Limits testing. Gradation curves for the grain size analyses are presented on Drawing 5.

Water level observations were made during and upon completion of drilling. One (1) borehole BH21-1/MW21-1 was equipped with 50mm dia. monitoring well for the long-term groundwater monitoring and environmental testing.

The ground surface elevations at the borehole locations were measured by DS personnel using a differential GPS unit leased from Sokkia Canada.

3. SITE AND SUBSURFACE CONDITIONS

The Property is a 0.080 hectares (0.20 acres) rectangular parcel of land which is currently developed with one (1) rectangular shaped residential building that includes one level of basement, a detached single car garage, a work/storage shed and a greenhouse. The property is currently utilized for residential purposes only.

The borehole location plans are shown on **Drawing 1**. General notes on sample description are provided on **Drawing 1A**. The subsurface conditions in the boreholes are presented in the individual borehole logs presented on **Drawings 2 and 3**. A generalized sub-surface profile is presented on **Drawing 4**.

3.1 Soil Conditions

Topsoil/Concrete pavement and Fill /Weathered/disturbed Soils:

One borehole (BH21-1/MW21-1) was drilled on the paved area and encountered 100 mm of thick concrete at surface overlying 100 mm of granular base. A layer of topsoil, about 180 mm in thickness, was present at the surface of boreholes BH21-2.

It should be noted that the thickness of the topsoil explored at the borehole locations may not be representative for the site and should not be relied on to calculate the amount of topsoil at the site. Shallow hand-dug test-pits should be carried out to measure the topsoil thickness at site.

Fill material and weathered/disturbed soils consisting of silty clay, silty sand, sand and clayey silt were found in boreholes, extending to depths of 1.5 m below the ground surface. The fill was present in a very loose to loose state, with measured SPT 'N' values ranging from 3 to 8 blows per 300 mm penetration. Inclusion of topsoil/organics were found in fill material in varying proportions.

Silty Clay Till:

Below the weathered disturbed soils and silt to sandy silt, native soils consisting of silty clay till were encountered in all the boreholes extending to depth of 4.6 m below the existing grade. These deposits

were found in a stiff to hard consistency, with measured SPT 'N' values ranging from 13 to more than 50 blows per 300 mm penetration.

Grain size analysis of one (1) silty clay till sample (MW21-1/SS4) was conducted and the results are presented in Drawing 5, with the following fractions:

Clay:	21%
Silt:	48%
Sand:	25%
Gravel:	6%

Atterberg Limits test was conducted on the same silty clay till sample (MW21-1/SS4) and the results are presented on the respective borehole logs, with the following values:

Liquid Limit:	24%
Plastic Limit:	14%
Plasticity Index:	10

Silty Sand to Sandy Silt Till:

Silty sand to sandy silt till deposits were encountered below the cohesive deposits in all the boreholes, extending to depth of 7.6 m below ground surface. The silty sand to sandy silt till deposits were found in a very dense state, with measured SPT 'N' values more than 50 blows per 300 mm penetration.

Grain size analysis of one (1) silty sand till sample (MW21-1/SS7) was conducted and the results are presented in Drawing 5, with the following fractions:

Clay:	7%
Silt:	31%
Sand:	51%
Gravel:	11%

Cohesionless Deposits (Silt to Sandy Silt/Sand and Gravel/Gravelly Sand):

Below the fill and silty sand to sandy silt till deposits, silt to sandy silt, and gravelly sand to sand and gravel were encountered in all boreholes, extending to maximum explored depth of boreholes. These deposits were water bearing and found in a compact to very dense state. The measured SPT 'N' values in cohesionless deposits ranged from 13 to more than 50 blows per 300 mm of penetration.

3.2 Groundwater Conditions

During drilling, short-term (unstabilized) water was found in boreholes at depths of 7.6 m below the existing grade. One (1) borehole MW21-1 was equipped with 50 mm dia. monitoring well. The groundwater level measured in well on October 12, 2021, was 7.7m below the existing grade, corresponding of Elev. 122.4 m.

It should be noted that the groundwater levels can vary and are subject to seasonal fluctuations in response to major weather events. Further monitoring of groundwater levels in the wells is recommended.

4. DISCUSSION AND RECOMMENDATIONS

It is proposed to develop the site as a residential subdivision. The lots will therefore be serviced by a network of roads, storm and sanitary sewers and watermain.

4.1 SITE GRADING & ENGINEERED FILL

The site will be developed as residential subdivision with residential lots, roads and driveways, it is recommended that all fill to be placed for grading purposes be constructed as engineered fill to provide competent subgrade below house foundations, roads, boulevards, etc.

Prior to placement of engineered fill, all topsoil, existing fill/weathered disturbed materials and other unsuitable materials must be removed to expose the inorganic competent native subgrade. The exposed subgrade should then be proof rolled with a heavy sheepfoot roller to identify weak areas. Any weak or excessively wet zones identified during proof-rolling should be sub-excavated and replaced with compacted competent material to establish stable and uniform conditions. Prior to placement of engineered fill, the subgrade should be inspected and approved by a geotechnical engineer.

General guidelines for the placement and preparation of engineered fill are presented on **Appendix A**. Bearing capacity values of 150 kPa at SLS and 225 kPa at ULS can be used on engineered fill, provided that all requirements on **Appendix A** are adhered to. To reduce the risk of improperly placed engineered compacted fill, full-time supervision of the contractor is essential.

The existing fill materials free from topsoil and organics to be excavated from cut-areas are considered suitable for re-use as engineered fill, provided that their moisture contents at the time of construction are at or near optimum. Significant aeration of the excavated soils will be required, prior to their re-use as engineered fill.

4.2 ROADS

The investigation has shown that the predominant subgrade soil, after stripping the topsoil and existing fill materials will generally consist of cohesionless silt to sandy silt and glacial tills.

Based on the above and assuming that traffic usage will be residential local road, the following minimum pavement thickness is recommended for roads to be constructed within the development:

40 mm HL3 Asphaltic Concrete

70 mm HL8 Asphaltic Concrete

150 mm Granular 'A'

350 mm Granular 'B'

These values may need to be adjusted according to the Town of Oakville Standards. The site subgrade and weather conditions (i.e. if wet) at the time of construction may necessitate the placement of thicker granular sub-base layer in order to facilitate the construction. Furthermore, heavy construction equipment may have to be kept off the newly constructed roads before the placement of asphalt and/or immediately thereafter, to avoid damaging the weak subgrade by heavy truck traffic.

4.2.1 STRIPPING, SUB-EXCAVATION AND GRADING

The site should be stripped of all topsoil, existing fill material and weathered or otherwise unsuitable soils to the full depth of the roads, both in cut and fill areas. Following stripping, the site should be graded to the subgrade level and approved. The subgrade should then be proof-rolled, in the presence of the Geotechnical Engineer, by at least several passes of a heavy compactor having a rated capacity of at least 8 tonnes. Any soft spots thus exposed should be removed and replaced by select fill material, similar to the existing subgrade soil and approved by the Geotechnical Engineer. The subgrade should then be re-compacted from the surface to at least 98% of its Standard Proctor Maximum Dry Density (SPMDD). The final subgrade should be cambered or otherwise shaped properly to facilitate rapid drainage and to prevent the formation of local depressions in which water could accumulate.

Proper cambering and allowing the water to escape towards the sides (where it can be removed by means of subdrains) is considered to be beneficial for this project. Otherwise, any water collected in the granular sub-base materials could be trapped thus causing problems due to softened subgrade, differential frost heave, etc. For the same reason damaging the subgrade during and after placement of the granular materials by heavy construction traffic should be avoided. If the moisture content of the local material cannot be maintained at $\pm 2\%$ of the optimum moisture content, imported granular material may need to be used.

Any fill required for re-grading the site or backfill should be select, clean material, free of topsoil, organic or other foreign and unsuitable matter. The fill should be placed in thin layers and compacted to at least 98% of its SPMDD or as per Township Standards. The compaction of the new fill should be checked by frequent field density tests.

4.2.2 CONSTRUCTION

Once the subgrade has been inspected and approved, the granular base and sub-base course materials should be placed in layers not exceeding 200 mm (uncompacted thickness) and should be compacted to at least 100% of their respective SPMDD. The grading of the material should conform to current OPS Specifications.

The placing, spreading and rolling of the asphalt should be in accordance with OPS Specifications or, as required by the local authorities.

Frequent field density tests should be carried out on both the asphalt and granular base and sub-base materials to ensure that the required degree of compaction is achieved.

4.2.3 DRAINAGE

The Town of Oakville will require the installation of full-length subdrains on all roads. The subdrains should be properly filtered to prevent the loss of (and clogging by) soil fines.

All paved surfaces should be sloped to provide satisfactory drainage towards catch-basins. As discussed in Section 4.2.1, by means of good planning any water trapped in the granular sub-base materials should be drained rapidly towards subdrains or other interceptors.

4.3 SEWERS

As a part of the site development, a network of new storm and sanitary sewers is to be constructed. It is assumed that the trenches are generally within 4 to 5 m below the existing grade.

4.3.1 TRENCHING

Excavations can be carried out with heavy hydraulic backhoe. Due to the low permeability of the glacial till deposits, it is expected that the water seepage through the silty clay till deposits can be controlled by conventional pumping methods. Groundwater table in the monitoring well was recorded at depths of 7.7m below the existing grade. Any excavation in cohesionless sandy soils below the groundwater table will require positive dewatering, otherwise, it will result in an unstable base and flowing sides. Groundwater table must be lowered to 1m below the lowest excavation level.

The sides of excavations in the natural strata, when dewatered, can be expected to be temporarily stable at relatively steep side slopes for short periods of time but they should be cut back at slopes no steeper than 1:1 in order to comply with the safety regulations. Otherwise, excavation slopes of 3:1V or flatter inclination in wet soils will be required.

All excavations must be carried out in accordance with the most recent Occupational Health and Safety Act (OHSA). In accordance with OHSA, the fill and cohesionless sandy soils (silt to sandy silt and sand and gravel) can be classified as Type 3 Soil above the groundwater and Type 4 Soil below the groundwater table. The very stiff to hard clayey soils can be classified as Type 2 soil above groundwater and Type 3 Soil below water table.

4.3.2 BEDDING

The boreholes show that the sewer pipes will predominantly be laid within the native soils, which when dewatered, will provide adequate support for the sewer pipes and allow the use of normal Class B type bedding. The bedding should conform to the current Ontario Provincial Standard specifications (OPSS 401/OPSD 802) and/or standards set by the local municipality.

The recommended minimum thickness of granular bedding below the invert of the pipes is 150 mm. The thickness of the bedding may, however, have to be increased depending on the pipe diameter or in accordance with local standards or if wet or weak subgrade conditions are encountered, especially when the soil at the trench base level consists of wet, dilatant silt. The bedding material should consist of well graded granular material such as Granular 'A' or equivalent. After installing the pipe on the bedding, a granular surround of approved bedding material, which extends at least 300 mm above the obvert of the pipe, or as set out by the local Authority, should be placed.

To avoid the loss of soil fines from the subgrade, uniformly graded clear stone should not be used unless, below the granular bedding material, a suitable, approved filter fabric (geotextile) is placed. The geotextile should extend along the sides of the trench and should be wrapped all around the poorly graded bedding material.

4.3.3 BACKFILLING OF TRENCHES

Based on visual and tactile examination, the on-site excavated inorganic native soils are considered to be suitable for re-use as backfill in the service trenches provided their moisture contents at the time of construction are within 2 percent of their optimum moisture content. Significant aeration of the wet sandy and silty soils will be required prior to their re-use as backfill material.

The clayey soils especially when its consistency is hard is likely to be excavated in cohesive chunks or blocks and will be difficult to compact in confined areas. For use as backfill, the clayey material will have to be pulverized and placed in thin layers. The clayey soils will have to be compacted using heavy equipment suitable for these soils which may be difficult to operate in the narrow confines of the trenches. Unless the clayey materials are properly pulverized and compacted in sufficiently thin lifts post-construction settlements could occur. Their use in narrow trenches such as laterals (where heavy compaction equipment cannot be operated) may not be feasible.

Selected inorganic fill and the native soils free from topsoil and organics can be used as general construction backfill where it can be compacted with sheep's foot type compactors. Loose lifts of soil, which are to be compacted, should not exceed 200 mm. Depending on the time of construction and weather, some excavated material may be too wet to compact and will require aeration prior to its use.

Imported granular fill, which can be compacted with hand held equipment, should be used in confined areas. The excavated soils are not considered to be free draining. Where free draining backfill is required, imported granular fill such as OPSS Granular B should be used.

The backfill should be placed in maximum 200 mm thick layers at or near ($\pm 2\%$) their optimum moisture content and each layer should be compacted to at least 95% SPMDD. In the upper 1.0 m, underneath the road base, the compaction should be increased to 98% SPMDD. Unsuitable materials such as organic soils, boulders, cobbles, frozen soils, etc. should not be used for backfilling.

The on-site excavated soils and especially the clayey soils should not be used in confined areas (e.g. around catch-basins and laterals under roadways) where heavy compaction equipment cannot be operated. The use of imported granular fill together with an appropriate frost taper would be preferable in confined areas and around structures, such as catch-basins.

It should be noted that the excavated soils are subject to moisture content increase during wet weather which would make these materials too wet for adequate compaction. Stockpiles should be compacted at the surface or be covered with tarpaulins to minimize moisture uptake.

The topsoil encountered at the site can be used for landscaping fill to raise the grades. Topsoil cannot be reused as foundation and trench backfill material.

4.4 FOUNDATION CONDITIONS

It is understood that the proposed subdivision will consist of single-family homes with one level basement. The finish floor elevations of these proposed houses are not known to us at the time of writing this report.

The native soils encountered in the boreholes are competent to support the proposed houses on conventional footings. The spread and strip footings founded on the undisturbed native soils can be designed for a bearing capacity of 150 kPa at SLS (Serviceability Limit State), and for a factored geotechnical resistance of 225 kPa at ULS (Ultimate Limit State), at least 300 mm below the bottom of fill.

Alternatively, the proposed houses can also be supported by spread and strip footings founded on engineered fill for a bearing capacity of 150 kPa at the serviceability limit states (SLS) and for a factored geotechnical resistance of 225 kPa at the ultimate limit states (ULS), provided all requirements on Appendix A are adhered to.

Foundations designed to the specified bearing capacities at the serviceability limit states (SLS) are expected to settle less than 25 mm total and 19 mm differential.

All footings exposed to seasonal freezing conditions must have at least 1.2 metres of soil cover for frost protection.

Where it is necessary to place footings at different levels, the upper footing must be founded below an imaginary 10 horizontal to 7 vertical line drawn up from the base of the lower footing. The lower footing must be installed first to help minimize the risk of undermining the upper footing.

It should be noted that the recommended bearing capacities have been calculated by DS from the borehole information for the design stage only. The investigation and comments are necessarily on-going as new information of the underground conditions becomes available. For example, more specific information is available with respect to conditions between boreholes when foundation construction is underway. The interpretation between boreholes and the recommendations of this report must

therefore be checked through field inspections provided by DS to validate the information for use during the construction stage.

5. EARTH PRESSURES

The lateral earth pressures acting on foundation and basement walls may be calculated from the following expression:

$$p = k(\gamma h + q)$$

where, p = Lateral earth pressure in kPa acting at depth h

K = Earth pressure coefficient, assumed to be 0.40 for vertical walls
and horizontal backfill for permanent construction

γ = Unit weight of backfill, a value of 21 kN/m³ may be assumed

h = Depth to point of interest in metres

q = Equivalent value of surcharge on the ground surface in kPa

The above expression assumes that the perimeter drainage system prevents the build up of any hydrostatic pressure behind the wall.

7. GENERAL COMMENTS AND LIMITATIONS OF REPORT

DS Consultants Ltd. (DS) should be retained for a general review of the final design and specifications to verify that this report has been properly interpreted and implemented. If not accorded the privilege of making this review, DS will assume no responsibility for interpretation of the recommendations in the report.

This report is intended solely for the Client named. The material in it reflects our best judgment in light of the information available to DS at the time of preparation. Unless otherwise agreed in writing by DS, it shall not be used to express or imply warranty as to the fitness of the property for a particular purpose. No portion of this report may be used as a separate entity, it is written to be read in its entirety.

The conclusions and recommendations given in this report are based on information determined at the test hole locations. The information contained herein in no way reflects on the environment aspects of the project, unless otherwise stated. Subsurface and groundwater conditions between and beyond the test holes may differ from those encountered at the test hole locations, and conditions may become apparent during construction, which could not be detected or anticipated at the time of the site investigation. The benchmark and elevations used in this report are primarily to establish relative elevation differences between the test hole locations and should not be used for other purposes, such as grading, excavating, planning, development, etc.

The design recommendations given in this report are applicable only to the project described in the text and then only if constructed substantially in accordance with the details stated in this report.

The comments made in this report on potential construction problems and possible methods are intended only for the guidance of the designer. The number of test holes may not be sufficient to determine all the factors that may affect construction methods and costs. For example, the thickness of surficial topsoil or fill layers may vary markedly and unpredictably. The contractors bidding on this project or undertaking the construction should, therefore, make their own interpretation of the factual information presented and draw their own conclusions as to how the subsurface conditions may affect their work. This work has been undertaken in accordance with normally accepted geotechnical engineering practices.

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. DS accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. We accept no responsibility for any decisions made or actions taken as a result of this report unless we are specifically advised of and participate in such action, in which case our responsibility will be as agreed to at that time.

We trust that the information contained in this report is satisfactory. Should you have any questions, please do not hesitate to contact this office.

DS CONSULTANTS LTD.

Simerjeet Singh

Simerjeet Singh Gill, M.Eng., P.Eng.

S.Bandukwala



Shabbir Bandukwala, M. Eng., P.Eng.

Fanyu Zhu



Fanyu Zhu, Ph.D., P.Eng.

Drawings



Legend



Borehole Location



DS CONSULTANTS LTD.

6221 Highway 7, UNIT 16
Vaughan, Ontario L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

Project:

Geotechnical Investigation -1350 Bronte Road, Oakville, ON

Title:

Borehole Location Plan



Client:

Bronte River Limited Partnership

Size:
8.5 x 11

Approved By:

FZ

Drawn By:

SG

Date:

November, 2021

Rev:
0

Scale: As Shown

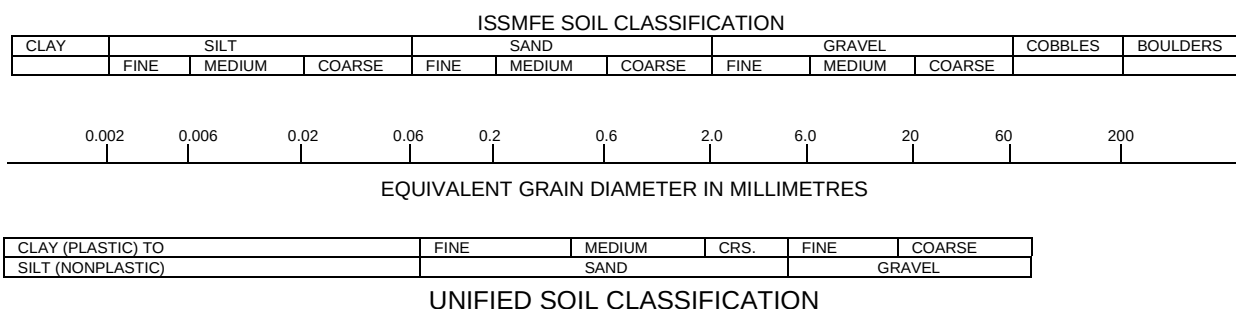
Project No.: 20-186-101

Drawing No.: **1**

Image/Map Source: Google Satellite Image

Drawing 1A: Notes On Sample Descriptions

1. All sample descriptions included in this report generally follow the Unified Soil Classification. Laboratory grain size analyses provided by DSCL also follow the same system. Different classification systems may be used by others, such as the system by the International Society for Soil Mechanics and Foundation Engineering (ISSMFE). Please note that, with the exception of those samples where a grain size analysis and/or Atterberg Limits testing have been made, all samples are classified visually. Visual classification is not sufficiently accurate to provide exact grain sizing or precise differentiation between size classification systems.



2. Fill: Where fill is designated on the borehole log it is defined as indicated by the sample recovered during the boring process. The reader is cautioned that fills are heterogeneous in nature and variable in density or degree of compaction. The borehole description may therefore not be applicable as a general description of site fill materials. All fills should be expected to contain obstruction such as wood, large concrete pieces or subsurface basements, floors, tanks, etc., none of these may have been encountered in the boreholes. Since boreholes cannot accurately define the contents of the fill, test pits are recommended to provide supplementary information. Despite the use of test pits, the heterogeneous nature of fill will leave some ambiguity as to the exact composition of the fill. Most fills contain pockets, seams, or layers of organically contaminated soil. This organic material can result in the generation of methane gas and/or significant ongoing and future settlements. Fill at this site may have been monitored for the presence of methane gas and, if so, the results are given on the borehole logs. The monitoring process does not indicate the volume of gas that can be potentially generated nor does it pinpoint the source of the gas. These readings are to advise of the presence of gas only, and a detailed study is recommended for sites where any explosive gas/methane is detected. Some fill material may be contaminated by toxic/hazardous waste that renders it unacceptable for deposition in any but designated land fill sites; unless specifically stated the fill on this site has not been tested for contaminants that may be considered toxic or hazardous. This testing and a potential hazard study can be undertaken if requested. In most residential/commercial areas undergoing reconstruction, buried oil tanks are common and are generally not detected in a conventional preliminary geotechnical site investigation.
3. Till: The term till on the borehole logs indicates that the material originates from a geological process associated with glaciation. Because of this geological process the till must be considered heterogeneous in composition and as such may contain pockets and/or seams of material such as sand, gravel, silt or clay. Till often contains cobbles (60 to 200 mm) or boulders (over 200 mm). Contractors may therefore encounter cobbles and boulders during excavation, even if they are not indicated by the borings. It should be appreciated that normal sampling equipment cannot differentiate the size or type of any obstruction. Because of the horizontal and vertical variability of till, the sample description may be applicable to a very limited zone; caution is therefore essential when dealing with sensitive excavations or dewatering programs in till materials.

PROJECT: Geotechnical Investigation-Proposed Residential Development

CLIENT: Bronte River Limited Partnership

PROJECT LOCATION: 1350 Bronte Road, Oakville, ON

DATUM: Geodetic

BOREHOLE LOCATION: See Drawing 1 N 4807988.96 E 600965.02

DRILLING DATA

Method: Hollow Stem Auger

Diameter: 200mm

Date: Oct-07-2021

REF. NO.: 20-186-101

ENCL NO.: 2

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT W _P	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)									
								20	40	60	80	100					
								20	40	60	80	100					
								20	40	60	80	100					
								20	40	60	80	100					
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								20	40	60	80	100					
								20	40	60							

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation-Proposed Residential Development

CLIENT: Bronte River Limited Partnership

PROJECT LOCATION: 1350 Bronte Road, Oakville, ON

DATUM: Geodetic

BOREHOLE LOCATION: See Drawing 1 N 4807965.68 E 600948.56

DRILLING DATA

Method: Hollow Stem Auger

Diameter: 200mm

Date: Oct-07-2021

REF. NO.: 20-186-101

ENCL NO.: 3

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC NATURAL LIQUID		POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)	
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)		WATER CONTENT (%)					
ELEV								○ UNCONFINED	+ FIELD VANE	W _P	W				W _L
DEPTH								● QUICK TRIAXIAL	× LAB VANE						
130.6						20	40	60	80	100	10	20	30		GR SA SI CL
130.4	TOPSOIL: 180mm														
0.2	FILL: silty sand, trace clay, trace rootlets, trace gravel, brown, wet, loose		1	SS	4										
129.8															
0.8	FILL: sand, trace silt, brown, wet, very loose		2	SS	3										
129.1															
1.5	SILT TO SANDY SILT: some clay, brown, wet, compact		3	SS	13										
1.8	SILTY CLAY TILL: sandy, trace gravel, occasional cobble, greyish brown, moist, stiff to hard														
			4	SS	19										
	grey below 3.1m		5	SS	64										
4.6	SILTY SAND TO SANDY SILT TILL: trace clay, trace gravel/cobble, brown, moist, very dense		6	SS	50/ 50mm										
	reddish brown below 6.1m		7	SS	50/ 50mm										
7.6	GRAVELLY SAND: trace silt, reddish brown, wet, very dense		8	SS	56										
8.2	END OF BOREHOLE: Notes: 1) Water at depth of 7.6m during drilling.														

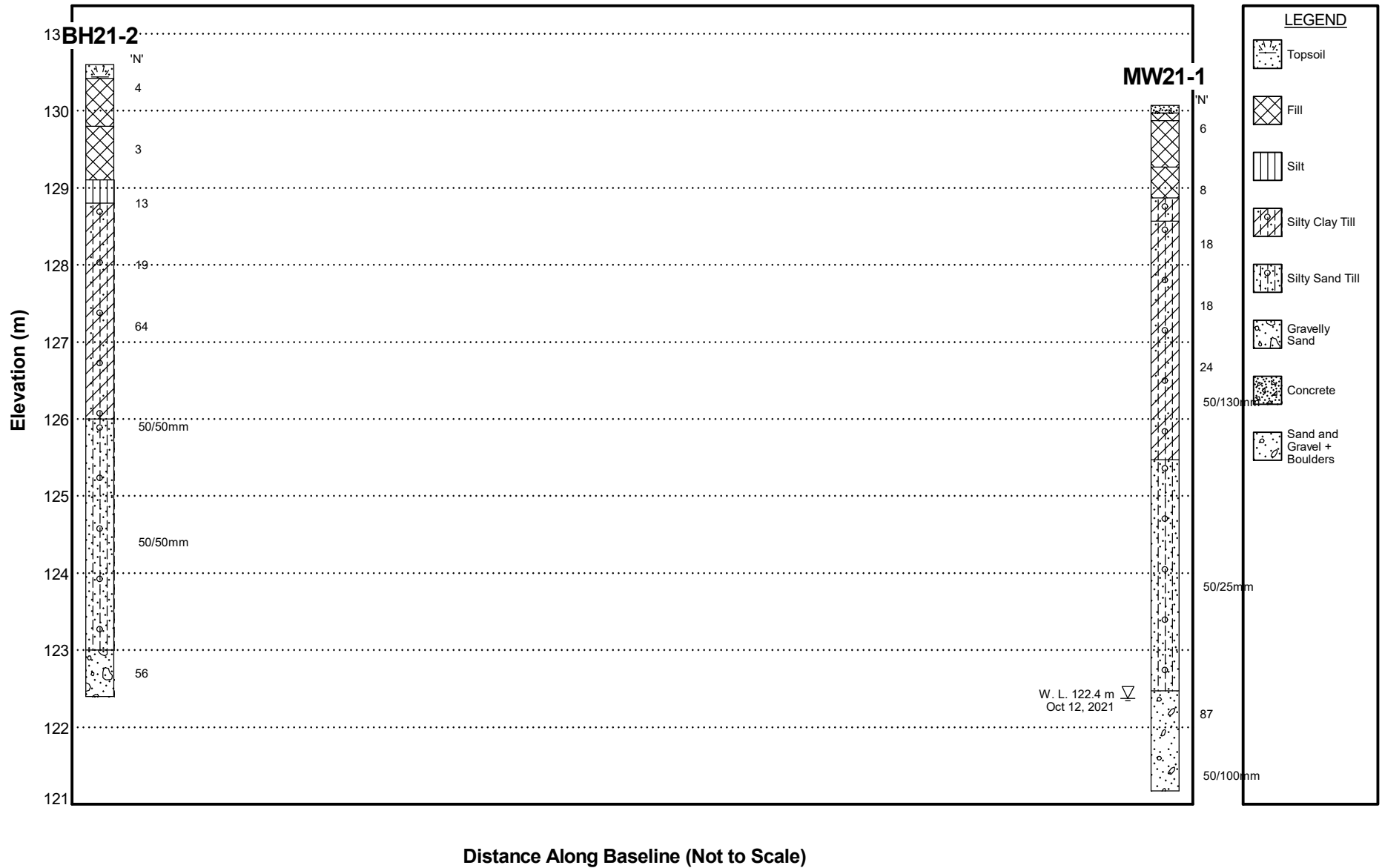
GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

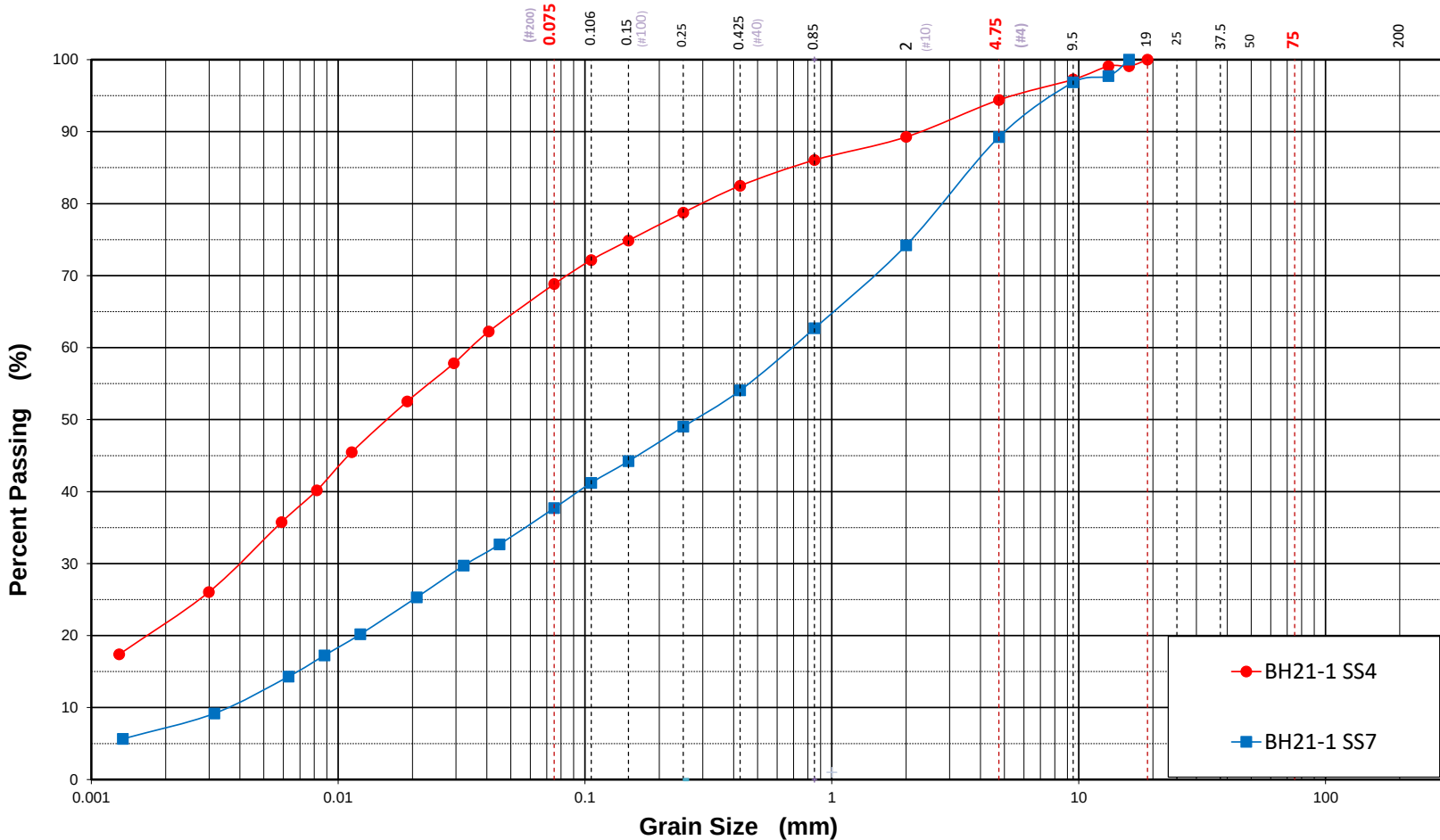


DS CONSULTANTS LTD.
Geotechnical ♦ Environmental ♦ Materials ♦ Hydrogeology

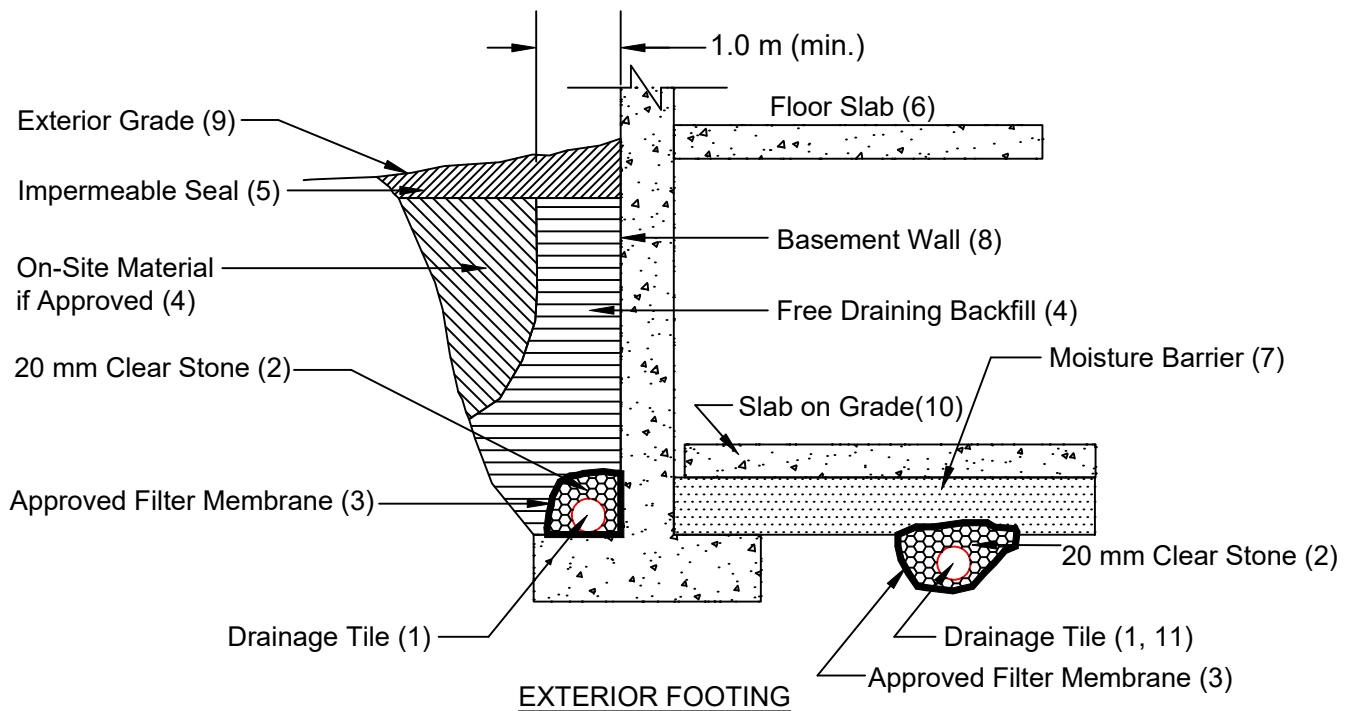
Generalized Sub-surface Profile

DRAWING NO.	4
JOB NO.	20-186-101
DATE	November, 2021

Particle Size Distribution (ASTM-D421/D422)



Silt and Clay		Sand			Gravel		Cobble +
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse	
 DS CONSULTANTS LTD. 6221 Highway 7, Unit 16 Vaughan, Ontario, L4H 0K8 Telephone: (905) 264-9393 www.dsconsultants.ca		Project	Preliminary Geo. Investigation			Project No	20-186-101
		Location	1350 Bronte Road, Oakville			Date	Nov-10-2021
		Client	Bronte River Limited Partnership			Figure No	5



Notes

1. Drainage tile to consist of 100 mm (4") diameter weeping tile or equivalent perforated pipe leading to a positive sump or outlet.
2. 20 mm (3/4") clear stone - 150 mm (6") top and side of drain. If drain is not on footing, place 100 mm (4 inches) of stone below drain.
3. Wrap the clear stone with an approved filter membrane (Terrafix 270R or equivalent).
4. Free Draining backfill - OPSS Granular B or equivalent compacted to the specified density. Do not use heavy compaction equipment within 450 mm (18") of the wall. Use hand controlled light compaction equipment within 1.8 m (6') of wall. The minimum width of the Granular 'B' backfill must be 1.0 m.
5. Impermeable backfill seal - compacted clay, clayey silt or equivalent. If original soil is free-draining, seal may be omitted. Maximum thickness of seal to be 0.5 m.
6. Do not backfill until wall is supported by basement and floor slabs or adequate bracing.
7. Moisture barrier to be at least 200 mm (8") of compacted clear 20 mm (3/4") stone or equivalent free draining material. A vapour barrier may be required for specialty floors.
8. Basement wall to be damp proofed /water proofed.
9. Exterior grade to slope away from building.
10. Slab on grade should not be structurally connected to the wall or footing.
11. Underfloor drain invert to be at least 300 mm (12") below underside of floor slab.
12. Drainage tile placed in parallel rows 6 to 8 m (20 to 25') centers one way. Place drain on 100 mm (4") clear stone with 150 mm (6") of clear stone on top and sides. Enclose stone with filter fabric as noted in (3).
13. The entire subgrade to be sealed with approved filter fabric (Terrafix 270R or equivalent) if non-cohesive (sandy) soils below ground water table encountered.
14. Do not connect the underfloor drains to perimeter drains.
15. Review the geotechnical report for specific details.

DRAINAGE AND BACKFILL RECOMMENDATIONS

Basement with Underfloor Drainage

(not to scale)

Appendix A

General Requirements For Engineered Fill

GENERAL REQUIREMENTS FOR ENGINEERED FILL

Compacted imported soil that meets specific engineering requirements and is free of organics and debris and that has been continually monitored on a full-time basis by a qualified geotechnical representative is classified as engineered fill. Engineered fill that meets these requirements and is bearing on suitable native subsoil can be used for the support of foundations.

Imported soil used as engineered fill can be removed from other portions of a site or can be brought in from other sites. In general, most of Ontario soils are too wet to achieve the 100% Standard Proctor Maximum Dry Density (SPMDD) and will require drying and careful site management if they are to be considered for engineered fill. Imported non-cohesive granular soil is preferred for all engineered fill. For engineered fill, we recommend use of OPSS Granular 'B' sand and gravel fill material.

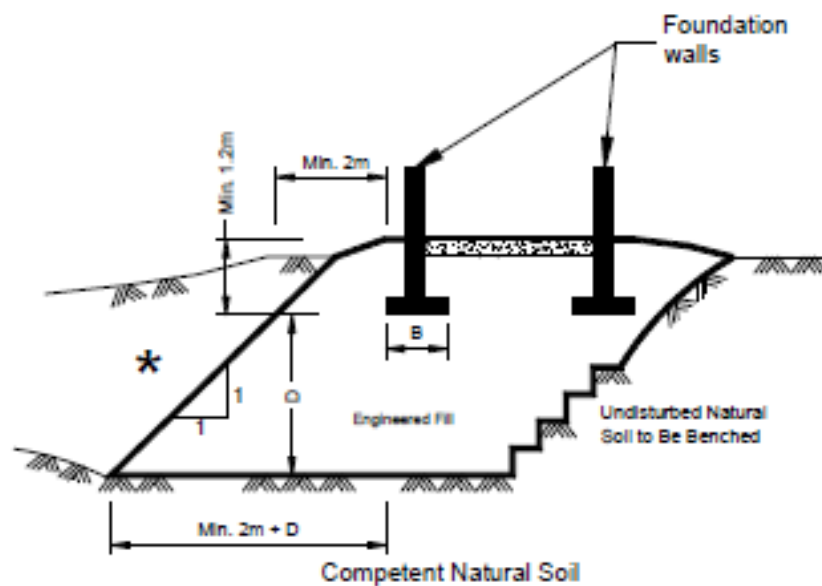
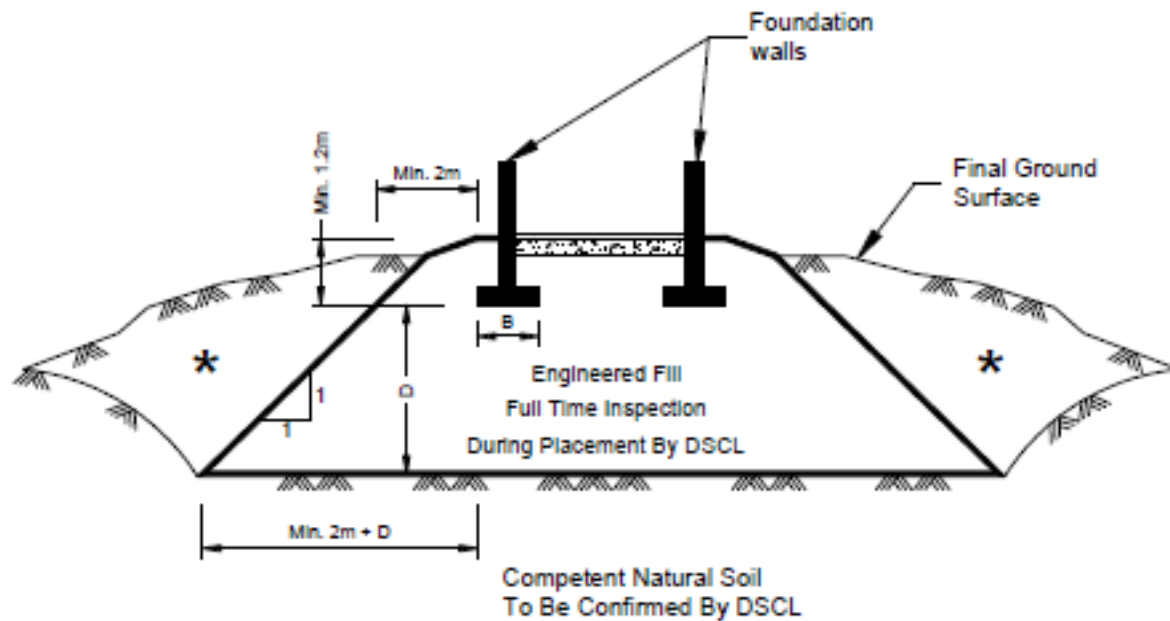
Adverse weather conditions such as rain make the placement of engineered fill to the required degree of density difficult or impossible; engineered fill cannot be placed during freezing conditions, i.e. normally not between December 15 and April 1 of each year.

The location of the foundations on the engineered fill pad is critical and certification by a qualified surveyor that the foundations are within the stipulated boundaries is mandatory. Since layout stakes are often damaged or removed during fill placement, offset stakes must be installed and maintained by the surveyors during the course of fill placement so that the contractor and engineering staff are continually aware of where the engineered fill limits lie. Excavations within the engineered fill pad must be backfilled with the same conditions and quality control as the original pad.

To perform satisfactorily, engineered fill requires the cooperation of the designers, engineers, contractors and all parties must be aware of the requirements. The minimum requirements are as follows; however, the geotechnical report must be reviewed for specific information and requirements.

1. Prior to site work involving engineered fill, a site meeting to discuss all aspects must be convened. The surveyor, contractor, design engineer and geotechnical engineer must attend the meeting. At this meeting, the limits of the engineered fill will be defined. The contractor must make known where all fill material will be obtained from and samples must be provided to the geotechnical engineer for review, and approval before filling begins.
2. Detailed drawings indicating the lower boundaries as well as the upper boundaries of the engineered fill must be available at the site meeting and be approved by the geotechnical engineer.
3. The building footprint and base of the pad, including basements, garages, etc. must be defined by offset stakes that remain in place until the footings and service connections are all constructed. Confirmation that the footings are within the pad, service lines are in place, and that the grade conforms to drawings, must be obtained by the owner in writing from the surveyor and DS Consultants Ltd (DSCL). Without this confirmation no responsibility for the performance of the structure can be accepted by DSCL. Survey drawing of the pre and post fill location and elevations will also be required.
4. The area must be stripped of all topsoil and fill materials. Subgrade must be proof-rolled. Soft spots must be dug out. The stripped native subgrade must be examined and approved by a DSCL engineer prior to placement of fill.

5. The approved engineered fill material must be compacted to 100% Standard Proctor Maximum Dry Density throughout. Engineered fill should not be placed during the winter months. Engineered fill compacted to 100% SPMDD will settle under its own weight approximately 0.5% of the fill height and the structural engineer must be aware of this settlement. In addition to the settlement of the fill, additional settlement due to consolidation of the underlying soils from the structural and fill loads will occur and should be evaluated prior to placing the fill.
6. Full-time geotechnical inspection by DSCL during placement of engineered fill is required. Work cannot commence or continue without the presence of the DSCL representative.
7. The fill must be placed such that the specified geometry is achieved. Refer to the attached sketches for minimum requirements. Take careful note that the projection of the compacted pad beyond the footing at footing level is a minimum of 2 m. The base of the compacted pad extends 2 m plus the depth of excavation beyond the edge of the footing.
8. A bearing capacity of 150 kPa at SLS (225 kPa at ULS) can be used provided that all conditions outlined above are adhered to. A minimum footing width of 500 mm (20 inches) is suggested and footings must be provided with nominal steel reinforcement.
9. All excavations must be done in accordance with the Occupational Health and Safety Regulations of Ontario.
10. After completion of the engineered fill pad a second contractor may be selected to install footings. The prepared footing bases must be evaluated by engineering staff from DSCL prior to footing concrete placements. All excavations must be backfilled under full time supervision by DSCL to the same degree as the engineered fill pad. Surface water cannot be allowed to pond in excavations or to be trapped in clear stone backfill. Clear stone backfill can only be used with the approval of DSCL.
11. After completion of compaction, the surface of the engineered fill pad must be protected from disturbance from traffic, rain and frost. During the course of fill placement, the engineered fill must be smooth-graded, proof-rolled and sloped/crowned at the end of each day, prior to weekends and any stoppage in work in order to promote rapid runoff of rainwater and to avoid any ponding surface water. Any stockpiles of fill intended for use as engineered fill must also be smooth-bladed to promote runoff and/or protected from excessive moisture take up.
12. If there is a delay in construction, the engineered fill pad must be inspected and accepted by the geotechnical engineer. The location of the structure must be reconfirmed that it remains within the pad.
13. The geometry of the engineered fill as illustrated in these General Requirements is general in nature. Each project will have its own unique requirements. For example, if perimeter sidewalks are to be constructed around the building, then the projection of the engineered fill beyond the foundation wall may need to be greater.
14. These guidelines are to be read in conjunction with DS Consultants Ltd report attached.



* Backfill in this area to be as per the DSCL report.

APPENDIX G
EIR/FSS Terms of Reference

APPENDIX A

Town of Oakville EIR/FSS Terms of Reference, 2013

TOWN OF OAKVILLE

NORTH OAKVILLE

**ENVIRONMENTAL IMPLEMENTATION REPORT and
FUNCTIONAL SERVICING STUDY**

TERMS OF REFERENCE

REVISED – MAY 2013

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NORTH OAKVILLE ENVIRONMENTAL IMPLEMENTATION REPORT AND FUNCTIONAL SERVICING STUDY TERMS OF REFERENCE

1.0 INTRODUCTION

1.1 Background

The North Oakville Creeks Subwatershed Study, including addenda (NOCSS) provides the Management Strategy for the North Oakville Secondary Plan area. The limits of this area are illustrated in Figure 1.1.1, and include the lands north of Dundas Street to the Highway 407 corridor and from Tremaine Road east to Ninth Line. The Management Strategy and associated North Oakville Secondary Plan provide direction for land development within the North Oakville lands.

Integral to these documents is the goal of preserving a sustainable Natural Heritage System (NHS) for maintaining landscape diversity within an urban context. In accordance with this goal, the NOCSS was completed, providing recommendations with respect to the management approach for natural heritage/open space and stream systems. There are certain lands, including watercourses, that are restricted from development and others that have specified limitations or constraints. The Management Strategy and associated North Oakville Secondary Plan also outline requirements with regard to stormwater management, land use policies and servicing.

The NOCSS is divided into four sections, which follow the four phases of a subwatershed management approach:

- i) Characterization
- ii) Analysis
- iii) Management Strategy
- iv) Implementation

The Management Strategy for North Oakville is outlined in the last two NOCSS sections: Management Report and Implementation. In the Implementation Report, the processes to be followed as well as implementation details are outlined including the need for an Environmental Implementation Report (EIR) and a Functional Servicing Study (FSS) in support of future Draft Plans of subdivision (Draft Plans). A general overview of the planning/implementation framework is illustrated in Figure 1.1.2, which indicates how the EIR/FSS fits within this process.

1.2 Purpose

The purpose of the EIR is to characterize and analyse the natural heritage features and functions and to determine and address the potential impacts of a proposed development application, including servicing requirements, on the NHS. The purpose of the FSS is to identify servicing requirements related to sanitary, water, stormwater, roads and site grading.

Further, the purpose of both the EIR and FSS is to provide a link between the Management Report, Implementation Report, the Secondary Plan, and the Draft Plan submissions for future development applications.

It is recognized that the approach to servicing will, in large part, be guided by conditions within the NHS, including cores, linkages and stream corridors. In addition, the characteristics of these areas may require

the use of measures to protect the function of the NHS from impacts (i.e., prevention of changes to the surface water and groundwater systems to maintain flows to the NHS). As a result, the EIR and FSS must be integrated and may be produced as a joint document.

It is intended that this document provides the Terms of Reference for completion of an EIR and FSS. The EIR/FSS document sets out the study requirements and obligations, including monitoring, for works installed in the secondary plan area, including the NHS. These are the obligation of the landowner proponent who proposes the development or proposes to install the works. In some cases, the Town or the Region may be the proponent of certain works in the secondary plan area or in the NHS. In this latter instance, the study requirements and obligations, including monitoring, are the proponent Town's or the proponent Region's as the case may be and the obligations are not the landowner's obligation.

The preparation of an EIR/FSS is to assist in the development of a Draft Plan. It is to ensure that the requirements of the Subwatershed Strategy and Secondary Plan are met and that the site characteristics are understood in sufficient detail to provide the information necessary for processing of the Draft Plan and to provide conditions of approval. These studies also will support agencies' approvals.

If the Draft Plan does not conform to the Secondary Plan, other planning approvals may be required

The objectives to be fulfilled by the EIR and FSS are to:

- Demonstrate how the subwatershed requirements set out in the NOCSS Management Report (including targets), the Implementation Report, and Secondary Plan are being fulfilled in all proposed Draft Plans;

- Provide sufficient level of conceptual design to ensure that the various components of NHS and infrastructure can be implemented as envisaged in the NOCSS and Secondary Plan and to ensure that the Draft Plans are consistent with this conceptual design;

- Ensure servicing requirements as determined in the FSS for the areas external to the Draft Plan are adequate;

- Identify details regarding any potential development constraints or conflicts and how they are to be resolved;

- Provide any further implementation details as needed;

- Streamline the Draft Plan approval process; and,

- Facilitate the development of Draft Plan conditions.

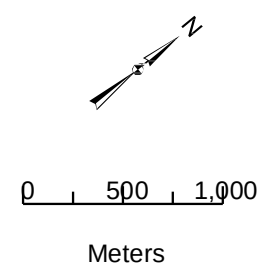
The EIR/FSS Terms of Reference are broken down into sections to discuss the overall approach, and details of the studies needed, including monitoring.



NORTH OAKVILLE CREEKS SUBWATERSHED STUDY



August 2006



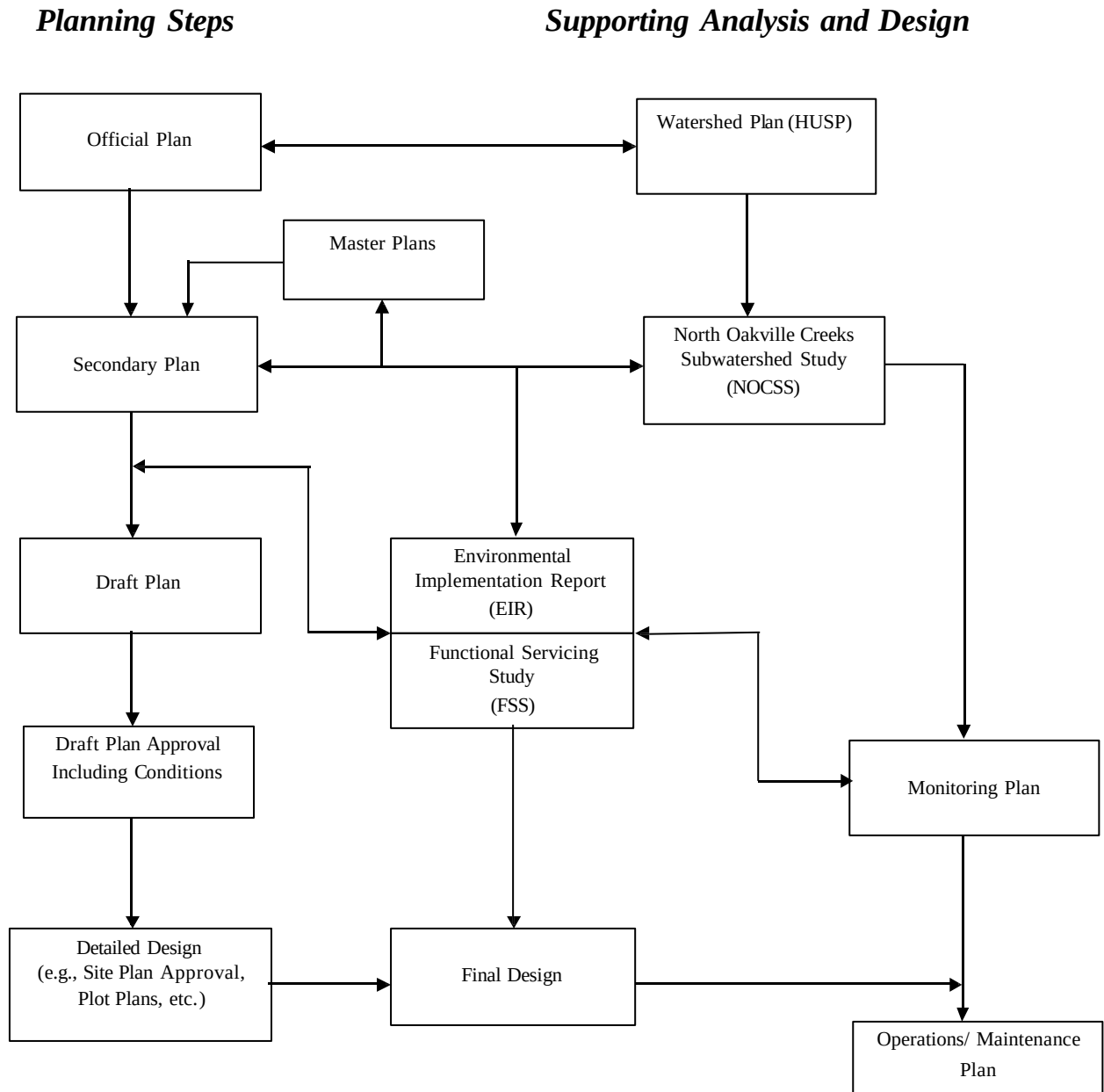
- Legend**
- Road
 - Watercourse
 - Secondary Plan Boundary
 - EIR Nodes
 - EIR Subcatchments

EIR Subcatchment Plan

Figure 1.1.1

Figure 1.1.2

OVERVIEW OF SUBWATERSHED PLANNING IMPLEMENTATION FRAMEWORK



2.0 APPROACH

2.1 Overview

The EIR/FSS is to demonstrate how the proposed development will meet the requirements set out in the Management Strategy and Secondary Plan. To do this, comprehensive technical analyses and design concepts will be necessary as part of the EIR/FSS. It is the intention of these Terms of Reference to indicate how the analyses, design concepts and related reports are to be prepared.

2.2 Agencies

It is intended that the EIR/FSS, and subsequent Draft Plans, will be reviewed by the following agencies as related to their respective jurisdictions:

- Town of Oakville
- Region of Halton
- Conservation Halton

The above noted agencies will be the primary contact groups for the EIR/FSS submissions. Depending upon the conditions related to the EIR subcatchment area, it may be decided by one or more of the agencies, primarily Conservation Halton and the Town of Oakville, that input and approval will be needed from the Ministry of Natural Resources (MNR) and/or Department of Fisheries and Oceans (DFO). This input will be coordinated by the Town and Conservation Halton. It is understood that proponents can liaise with the agencies as necessary as part of this process. Input from DFO is anticipated in the review of conceptual and final design on any sections of streams where fish habitat compensation is required.

2.3 Study Areas

It is intended that the EIR be carried out on a subcatchment basis, which forms the study area for the EIR. The EIR subcatchments are illustrated on Figure 1.1.1. The study area for the FSS will focus on the proposed development area for the intended Draft Plans (referred to as “proposed development area” in subsequent sections of this document). It is recognized that consideration will likely be required beyond the FSS study area to ensure that servicing can be provided for neighbouring areas.

Each EIR/FSS will be evaluated to ensure that the flows outletting from each area are managed in a manner that will properly protect the receiving stream(s), in accordance with the NOCSS Management Strategy. Carrying out the EIR based on the specified subcatchments will address the following:

- Preservation of drainage areas to the various stream branches within the subwatersheds; and,
- Provide for meeting target flows, water quality and erosion targets for the various receiving points along the streams.

In some cases, the study area for the NHS system (cores and linkages, and streams) may extend beyond the subcatchment, as discussed in Sections 3.2 and 3.3.

It is recognized that the EIR subcatchment areas do not correspond to land ownership boundaries and that it may be difficult to ensure the cooperation of landowners to carry out an EIR/FSS within the specific

study subcatchment. Every effort should be made to facilitate cooperation between landowners to carry out the EIR/FSS within the EIR subcatchment. If more than one landowner within an EIR subcatchment is active in the EIR/FSS process, only one EIR study will be permitted (i.e., no concurrent EIR studies for the same area). Subsequent development in the EIR subcatchment area will require the preparation of a separate FSS and an update of the EIR, to conform to the findings and recommendations of all previous EIR/FSS studies. In the event that this concurrent joint report cannot be accomplished, it is recognized that consideration will be given to permitting a modified approach. In that event, certain conditions will need to be met to ensure that the requirements of the Management Strategy and Secondary Plan are met and that any proposed development does not place any undue restrictions on other lands within the EIR subcatchment area not included in the study.

Various scenarios could arise where the proposed development (Draft Plan areas of participating owners) does not correspond to the EIR subcatchment area boundary. Anticipated scenarios and the approach that should be used for each are outlined in the following items. These are presented as examples and do not include all potential scenarios:

i) The proposed development is in the upstream portion of the EIR subcatchment.

EIR/FSS will need to indicate how land will be serviced on an interim and final basis;

If the existing receiving watercourse is used as an outlet, assumptions as to the final outlet conditions are to be indicated. The submission must demonstrate how drainage from upstream lands including stormwater management systems, will be conveyed to a suitable outlet without placing undue restrictions on the serviceability of adjacent lands;

If a proposed stormwater management (SWM) facility is downstream of the proposed development, an interim facility may be provided, with a long-term approach indicated, in the event that a permanent facility is not constructed;

If stream modifications extend beyond the limits of the proposed development area (e.g., lowering or relocations), they also must be addressed conceptually;

Conceptual design of trunk services within the EIR subcatchment must be prepared, including appropriate allowances for connections to areas external to the Draft Plan and/or EIR subcatchment, demonstrating servicing viability without placing undue restrictions on external areas (e.g., considering sewer depths and grading); and,

Street and land use patterns outside of the proposed Draft Plan are to be provided as per the Secondary Plan with input from the Town of Oakville.

ii) The proposed development is in the downstream portion of the EIR subcatchment.

EIR/FSS will need to indicate how land will be serviced/graded on an interim and final basis;

If SWM facility is located in the proposed development area and is to service the upstream portion of the subcatchment, the facility is to be sized for the entire upper subcatchment, based on the land use from the Secondary Plan with input from the Town of Oakville;

If stream modifications extend beyond the limits of the proposed development area (e.g., lowering or relocations), they also must be addressed conceptually;

Conceptual design of trunk services within the EIR subcatchment are to be prepared, including appropriate allowances for connections to areas external to the Draft Plan and/or EIR subcatchment, demonstrating servicing viability without placing undue restrictions on external areas (e.g., considering sewer depths and grading); and,

Street and land use patterns outside of the proposed Draft Plan are to be provided as per the Secondary Plan, with input from the Town of Oakville.

- iii) The proposed development is within the majority of the EIR subcatchment with minor portions outside.

Consideration will be given to minor adjustments in subcatchment boundaries with the conditions that the adjustments would not put undue restrictions on the servicing of adjacent subcatchments and demonstrate no negative impacts to flooding, erosion and the NHS; and,

If no change in subcatchment boundary is proposed, consideration is to be given to how development in the adjacent subcatchment is to be serviced. Conceptual drainage patterns are to be developed and profiles generated to ensure that the area can be serviced.

3.0 STUDY REQUIREMENTS

Studies are required for the EIR/FSS in the areas of:

Land Use
Cores and Linkages
Stream Systems, Fish, and Fish Habitat
Grading, Drainage and SWM
Hydrogeology
Sanitary, Water, Roads
Trails

The specific study requirements are outlined in the following sections.

3.1 Land Use

The proposed land use, road patterns and servicing layout are to be provided through the EIR/FSS submission. The EIR/FSS submission should reflect the Secondary Plan land uses. Further land use details will be provided in the corresponding Draft Plans. If the EIR subcatchment extends beyond a particular Draft Plan, land use details in those areas must reflect the Secondary Plan, with input from the Town of Oakville.

The land use map for the portions of the EIR subcatchment area that are outside the limits of the Draft Plan will include details for the following to demonstrate the Draft Plan context with regard to the rest of the subcatchment:

Land use designations
Natural heritage system (cores, linkage s and stream corridors)
Major roads
Major services
SWM Blocks
Trails

Planning input to the EIR/FSS is needed to demonstrate the logical coordination of land uses, road connections and open space linkages and features for the Draft Plan(s), lands extending beyond the limits of the Draft Plan(s), and potentially beyond the limits of EIR subcatchment area.

3.2 Cores and Linkages

3.2.1 Introduction

The following section summarizes the study requirements for cores and linkages in the EIR/FSS. The NOCSS and current approaches to natural heritage planning strongly recommend that certain study components be completed at a larger ecologically based study area than the proposed development area (i.e. the EIR subcatchment boundaries or beyond). On the other hand, certain impact assessments require details that are only available at the Draft Plan level of detail. As such, the following discussion of the Terms of Reference is divided into two components.

Study components that must be completed at the EIR subcatchment area level or beyond: This level of study is required since many ecological processes and features extend beyond the limits of a single Draft Plan and require analysis based on ecological study boundaries in order to understand the factors that drive the sustainability of the ecosystem; and

Study components that require Draft Plan level of detail in order to be completed: This level of study focuses on detailing the potential impacts of proposed land use changes on the natural features and functions. As such, details regarding the proposed undertaking must be available in order to understand the sources of, and potential mitigation of, potential impacts.

In cases where an entire EIR subcatchment area is covered by participating landowners, the two levels of detail can be integrated. In cases where a Draft Plan(s) for only a portion of the lands within a particular EIR subcatchment area is being advanced, it is critical that proponents have regard for the varying levels of detail at each level.

3.2.2 Cores

EIR Subcatchment Area Level of Detail:

Confirm limits of EIR subcatchment and FSS study area based on overlap of Draft Plan(s) with subcatchments, extent of cores, especially those that extend beyond subcatchment boundary (for linkages see below);

Delineate core boundaries based on NOCSS and present the boundaries on recent aerial photographs;

Assemble background information on natural environment features and functions within the core(s) from the NOCSS and other secondary sources, including features, functions and management recommendations;

Conduct preliminary field review of features to confirm limits and character of vegetation communities (e.g. using recent aerial photographs); and,

Identify any effect of other works (i.e. road crossings, servicing, SWM, trails, etc.) and associated requirements related to cores and linkages.

Draft Plan Level of Detail:

Complete appropriate seasonal field surveys of the limits of woodlands, wetlands and other habitats associated with the core(s), generally within 50m of vegetation community boundaries that define the limit of the core;

Apply the buffers to the natural features based on the NOCSS recommendations, to define the boundaries of the core;

Stake and survey the boundaries of core areas including limit of buffers based on guidance provided in NOCSS;

These staked core boundaries are to be confirmed in the field by staff of Conservation Halton, Town of Oakville and Ministry of Natural Resources (at the discretion of Conservation Halton);

Identify limits of grading adjacent to a core, and assess the impacts of any grading adjacent to the core(s), and detail mitigative measures and/or management recommendations, where needed;

Detail the proposed drainage characteristics of lands adjacent to core and assess any impacts associated with drainage to the natural features, functions and management recommendations;

Detail stormwater management facilities proposed adjacent to the core(s) and assess the impacts of construction and operation of the stormwater management facility on core features, functions and management recommendations;

Where a SWM pond is permitted* within a core, stake and survey the limit of stormwater management pond block overlap with the core boundary (as per NOCSS). This is to be reviewed in the field by agencies as noted above, and the impacts of construction and operation of the stormwater management facility on core features, functions and management recommendations assessed;

Identify all services, utilities etc. proposed to be located adjacent to or within cores and assess the potential impacts* of these facilities on core features and functions;

In cases where a core is crossed by a road installed by a proponent, provide information respecting the road characteristics and identify potential impacts to features and functions within the core, (including delineation of features) and protective measures;

Detail location, type and size of crossing structures from a wildlife movement (ecopassage) perspective;

Detail any restoration measures within the core that may be triggered by proponent proposals to encroach into cores (road crossings, SWM);

Detail mitigative measures and assess potential residual impacts of proponent works within the cores and any proponent grading or works adjacent to the cores. Provide evidence that alternative methods and measures for minimizing impacts have been considered; and,

Develop a plan for monitoring the mitigative measures noted above, based on liaison with agency staff (Conservation Halton, Town of Oakville).

** See 'Field Survey Requirements' detailed within 'Trails' section of this document.*

3.2.3 Linkages

EIR Subcatchment Area Level of Detail:

Confirm limits of EIR subcatchment and FSS study area based on the overlap of Draft Plan(s) with subcatchments, and extent of linkages (i.e. identify cases in which linkages extend beyond limits of subcatchment and include these areas within study);

Delineate linkage areas based on NOCSS and present the boundaries on recent aerial photographs;

Assemble background information on natural environment features within linkages from NOCSS and other secondary sources;

Conduct a preliminary field review of features to confirm limits and character of vegetation communities within linkages (e.g. using recent aerial photographs);

Review stream corridor assessment to ensure that any proposed proponent modifications to stream corridors (locations, widths, etc.) that may influence linkages are identified;
Show linkage limits in conjunction with conceptual subcatchment-level stream corridor on plans.

Draft Plan Level of Detail:

Delineate and describe any natural features (e.g., hedgerows, wetlands, etc.) that are to be incorporated into the linkage, and stake and survey as necessary;
Identify means by which these features will be protected during development/construction process;
Identify the boundaries of linkage areas, and confirm them in the field with staff of Conservation Halton, Town of Oakville and Ministry of Natural Resources (at the discretion of Conservation Halton);
Identify limits of grading, and assess any impacts of re-grading within linkage and adjacent to the protected features within linkage;
Detail the drainage characteristics of lands adjacent to natural features within linkages to be retained (if any), and assess any impacts associated with drainage to the natural features;
In cases where a linkage is crossed by a road(s) installed by a proponent, detail the road characteristics and identify potential impacts to features within the linkage (if any) including delineation of features and protective measures, detail location, type and size of crossing structures from a wildlife movement (ecopassage) perspective;
Identify the limit to which a stormwater management pond overlaps with linkage boundary (as per NOCSS), to be reviewed in the field by agencies as noted above;
In linkages which include stream corridors, it may be necessary to stake and survey the linkage (and the SWM pond overlap) at this time;
Detail any restoration/naturalization measures within the linkage when proponent intrusion has occurred.
Detail mitigative measures and assess potential residual impacts of proponent works/intrusions; and,
Develop a monitoring plan of the mitigative measures noted above, based on liaison with agency staff (Conservation Halton, Town of Oakville).

3.3 Stream Systems, Fish Habitat and Fish Communities

3.3.1 Introduction

The Natural Heritage System for North Oakville includes protection and enhancement of high and medium constraint streams, which are identified as red and blue streams respectively in the Secondary Plan. This approach identified the “provision of a corridor system for streams that have been identified as having environmental characteristics or watershed functions that require protection and/or enhancement to meet the watershed goals and objectives” (NOCSS, Management Report Section 6.3.2).

The stream corridors identified in the NOCSS and Secondary Plan were developed using the concept of riparian corridor identification. The classification was based upon the stream characteristics and related processes considering the role of adjacent lands. This approach then identified the streams to be protected as well as the width of neighbouring lands, or corridor widths that need to be protected. This classification was developed in conjunction with the Department of Fisheries and Oceans and

Conservation Halton, who conducted field surveys with representatives of the Town of Oakville subwatershed team.

The corridors have been identified in the Management Strategy and Secondary Plan as well as the conceptual width requirements. It is the intent that the corridor widths of the red and blue streams, and the end points of the reach delineations are to be refined as part of the EIR/FSS study. The factors to be considered in the refinement of the stream systems and corridor widths include:

- Regulatory floodplain;
- Fluvial geomorphologic requirements;
- Stable slope top of bank;
- Fish and fish habitat protection requirements;
- Preservation of hydrogeologic functions;
- Edge of any identified terrestrial features;
- Hydrologic Features “A”; and
- Setback and buffer requirements.

The following sections present a summary of the EIR/FSS study requirements for the development of North Oakville with respect to the streams component of the NHS.

3.3.2 Existing Conditions and Constraint Mapping

The following tasks must be undertaken by the proponent in order to fulfill the requirements of the EIR/FSS:

- Describe the proposed land use change and associated servicing issues;
- Confirm limits of EIR subcatchment area based on the NOCSS;
- Assemble and review all relevant materials pertaining to the stream system of the NHS including the Secondary Plan and NOCSS and other studies;
- Compile existing conditions and constraints (from existing data) and display on recent aerial photographs to delineate the stream system of the NHS; and,
- Review and summarize factors leading to the identification of the corridor constraint level from a natural heritage perspective.

3.3.3 Detailed Studies

The following sections summarize the detailed study requirements for:

- Corridor Width Delineation
- Fish and Fish Habitat
- Stream Modification and Rehabilitation

3.3.3.1 Corridor Width Delineation

Through the NOCSS, stream corridor widths were developed on a broad scale and, as such, are subject to refinement during the EIR/FSS stage. **Figures 6.3.15a, 6.3.15b and 6.3.15c** in the Management Report of

NOCSS and an Appendix of the Secondary Plan provide illustrations clarifying the stream corridor delineation process. The corridor is defined considering the factors outlined in Section 3.3.1.

Specifically, the following tasks must be completed by the proponent in order to fulfill the EIR/FSS requirements:

a) Geomorphology:

Confirm delineation and potential refinement of stream reaches as outlined in the NOCSS;
On a reach basis, conduct an historic evaluation of changes in land use and channel configuration over time utilizing a series of historic aerial photographs or mapping that extend from the earliest (i.e., 1930's to 1950's) to most recent coverage available;
Based on the results of the historic evaluation, quantify the 100-year erosion rate on a reach basis;
Delineate meander belt width on a reach basis, following *Belt Width Delineation Procedures* (PARISH Geomorphic Ltd., 2004). It should be noted that factors affecting the ultimate stream corridor width include degree of channel confinement, type of valley system (i.e., major or minor valley), channel position relative to the valley wall and proposed servicing modifications;
As per **Figures 6.3.15a** and **6.3.15b**, apply the 100-year erosion rate to each side of the belt width as a factor of safety (in lieu of an historic evaluation, a factor of safety represents 10% of the meander belt width on each side (total of 20%) or as determined through a 100-year erosion rate of channel bends that define the belt width); and,
Perform field investigations, including rapid geomorphic assessment, to confirm desktop analysis, with respect to the 100-year erosion rate and meander belt width on a reach-by-reach basis.

b) Regulatory Floodplain

The floodplain will be defined for all medium and high constraints streams, which are identified as red and blue streams respectively in the Secondary Plan;
The floodplain calculations shall be based on the applicable Provincial Technical Guidelines (i.e., *Technical Guide – River & Stream Systems: Erosion Hazard Limit*, Ministry of Natural Resources & Watershed Science Centre, 2002). It is intended that the Regulatory Floodplain would be determined through this process. Further the calculations should include consideration of:

- Flow rates based on Regional Storm (existing or future land use, as appropriate (see Section 3.4.4)) or 100-year flood event, whichever is greater;
- Stream corridor hydraulic properties (i.e. roughness), based on existing and planned ultimate conditions;
- Where alteration of any existing floodplains is proposed, demonstrate the preservation of floodplain stage-storage-discharge in accordance with directions in the NOCSS; and
- Field surveys to provide cross-sections and an invert profile to provide for updated regulatory flood lines to Conservation Halton specifications.

A full range of return period flood levels will be calculated for the purpose of maintenance of riparian storage calculations, SWM facility and outlet design, etc.

c) Geotechnical

As per **Figure 6.3.15a** and in fulfillment of Conservation Halton's *Policies, Procedures and Guidelines for the Administration of Ontario Regulation 162/06 and Land Use Planning Policy Document* (2006), a site specific study must be completed to determine the toe erosion allowance on a reach basis for confined river systems;

As per **Figure 6.3.15a** and in fulfillment of Conservation Halton's *Policies, Procedures and Guidelines for the Administration of Ontario Regulation 162/06 and Land Use Planning Policy Document* (2006), a geotechnical stable slope assessment must be completed to determine the 'stable slope top of bank' in a confined setting. The stable slope line is to be drawn from the limit of the toe allowance;

As per **Figure 6.3.15b**, if a stream within an unconfined corridor will be lowered for servicing such that the valley depth becomes greater than or equal to 2 metres, then geotechnical stable slope design must be incorporated (refer to **Figure 6.3.15a**);

The physical (or geographical) 'top of bank' of valley features greater than or equal to 2 metres in height, will be established in the field in conjunction with Conservation Halton and Town of Oakville staff, and the applicant. The top of bank, as staked in the field, will represent the limit of the physical top of bank. When staking the limit of the physical top of bank, staff of Conservation Halton will require that the applicant's surveyor be in attendance during the site walk; and,

Based on the results of the geotechnical stable slope assessment, identify the greater of the 'stable slope top of bank' and the 'physical top of bank'.

d) Fish Habitat Setback

Identify any relevant fish habitat setbacks, on a reach basis. These setbacks are to be based on the fisheries buffers recommended in the NOCSS Management Report, and as confirmed through the studies outlined in Section 3.3.3.2;

With respect to Species at Risk, fish habitat setbacks will be identified on a reach basis with reference to NOCSS, and through discussions with relevant agencies; and,

As per **Figures 6.3.15a** and **6.3.15b**, these fish habitat setbacks are to be applied to the bankfull channel, or unless otherwise specified in the NOCSS Management Report.

e) Valleylands Setback

Determine the nature of the valley setting (major or minor) on a reach basis. Major valley system refers to the Sixteen Mile Creek valley system, and the balance of the valley systems in North Oakville are minor systems;

In confined river systems, a 15 metre setback must be applied to the stable slope top of bank for major valley systems and a 7.5 metre setback must be applied to the stable slope top of bank for minor valley systems;

In unconfined river systems, a 15 metre setback must be applied on both sides of the meander belt allowance for major valley systems and a 7.5 metre setback must be applied on both sides of the meander belt allowance for minor valley systems; and

In some cases, the Regulatory Floodline may define the corridor width. Floodplain modifications (subject to the approval of Conservation Halton) may alter the location of the floodline in which case the setback would be applied to the altered floodline.

It should be noted that, as per **Figure 6.3.15c**, the final corridor width determined on a reach basis for confined river systems represents the greater of the meander belt width plus factor of safety plus major/minor valley system setback OR the stable slope top of bank plus toe erosion allowance plus major/minor valley system setback. If servicing modifications are proposed within the identified land use change, the proponent must be cognizant of the implications of channel deepening which may result in a reclassification of degree of stream confinement.

f) Forested Stands within Stream Corridors

The presence of forested stands within stream corridors was not used as a factor directly affecting stream corridor widths in the NOCSS. However, preservation of forested stands within stream corridors is generally preferred, and recommendations were provided in the NOCSS for forest preservation within stream corridors. For the purposes of an EIR/FSS, the following tasks must be completed:

Use a combination of aerial photographs, ground-truthing, and ELC mapping to determine the extent of forested cover within potential stream corridor(s) (as defined by other factors discussed in this section of the Terms of Reference);
Identify the characteristics of forested stands and their relationship to the stream corridor (including potential implications, if any, on stream corridor width/location); and,
Identify forested stands within the stream corridor(s) and measures to be used to protect and/or manage them as appropriate.

3.3.3.2 Fish and Fish Habitats

Introduction:

The following section summarizes the study requirements for fish and fish habitats in the EIR/FSS. An assessment of fish habitat throughout the EIR subcatchment area will be required. This will provide the context and ensure that connectivity to fish habitats throughout the subcatchment are understood and addressed as required by DFO. On the other hand, certain impact assessments require details that are only available at the Draft Plan level of detail, especially those associated with proposed stream modifications. As such, the following discussion of the Terms of Reference is divided into three components.

Study components that must be completed at the EIR subcatchment area level or beyond: This level of study is required to assess fish habitats that extend beyond the limits of a single Draft Plan and require analyses based on subcatchment boundaries in order to understand the factors that drive the sustainability of the aquatic ecosystem;
Study components that require Draft Plan level of detail in order to be completed: This level of study focuses on detailing the potential impacts of proposed land use changes on the fish habitats. As such, details regarding the proposed undertaking must be available in order to understand the sources of, and potential mitigation of, potential impacts; and,
Study components that focus on cases of proposed modifications to streams.

EIR Subcatchment Area Level of Detail:

Carry out the work necessary to refine, map and describe stream reaches on an EIR subcatchment area basis to compare this mapping to mapping done for the NOCSS Characterization Report, and present findings on recent aerial photographs to determine any changes to channel alignment or location relative to the NOCSS;

Assemble background information on fish and fish habitats from the NOCSS and other secondary sources;

Conduct a preliminary field review (e.g. using recent aerial photographs) of aquatic habitat factors leading to the classification of aquatic habitat (i.e., critical, important, marginal) as defined in the NOCSS and confirm the aquatic habitat designation of each stream on a reach basis;

Identify reaches with critical, important or marginal aquatic habitat targeted for rehabilitation measures (to identify compensation opportunities); and,

Compile aquatic habitat management recommendations on a reach basis as identified in the Management Strategy.

Draft Plan Level of Detail:

Prepare detailed habitat mapping for all streams that contain fish habitat, which potentially may be impacted by the proposed development (e.g., road crossings, SWM outfalls, compensation reaches, trails, etc.). Confirm location and map important habitat structure including in-stream vegetation, boulders, undercut banks, riffles, pools, runs, and woody debris;

Identify any habitat features supporting critical life stages of fish or other aquatic biota and describe potential impacts to this habitat. Indicate how impacts to these critical habitats will be mitigated so as not to affect the form or function of these habitats;

Additional fish sampling may be necessary to fill information gaps, as determined in consultation with Conservation Halton;

Detail the proposed drainage characteristics of lands adjacent to fish habitats and assess any impacts associated with drainage ;

Detail proposed works (e.g., stormwater management facilities, road crossings, grading, trails, etc.) adjacent to the fish habitats and assess/predict the impacts of construction and operation of the works, considering channel length and form, riparian buffers, flow volume and duration, water quality and water temperature;

Detail mitigative measures and assess potential residual impacts of any works in or adjacent to fish habitats. Provide evidence that alternative methods and measures for minimizing impacts have been considered; and,

Identify buffers from stream reaches for use in identifying stream corridor widths (see Section 3.3.3.1 d).

Modified Stream Reaches:

Complete fish and fish habitat studies required for proposed stream modifications (see Section 3.3.3.3 below).

3.3.3.3 Stream Modification/Rehabilitation Measures

Stream rehabilitation opportunities have been identified in the Management Strategy and are illustrated in **Figure 6.3.13 (NOCSS)**. **Section 6.3.4.2 (Table 6.3.4)** of the Management Report identifies enhancement recommendations for stream rehabilitation and **Section 6.3.4.6 (NOCSS)** outlines considerations for stream relocation.

Stream modification may occur under circumstances such as the following:

Stream reach rehabilitation

Stream reach relocation and/or lowering

Road, trail and infrastructure crossings

Construction of SWM outfalls

It should be noted that authorization by the DFO will be required for any watercourse alteration resulting in a Harmful Alteration, Disruption or Destruction (HADD) of fish habitat and may be required for rehabilitation and for elimination of some low constraint streams. Consultation with DFO, in conjunction with Conservation Halton is required.

Where modifications are proposed by a proponent for medium constraint streams, it will be necessary to demonstrate that the newly constructed stream will maintain and where possible enhance existing channel form, function and aquatic habitat. The established riparian corridor width must also be maintained on a reach basis. Reconstructed channels should incorporate “natural channel design” elements and should transition effectively with downstream receiving waters. Specifically, the following requirements must be fulfilled as part of the EIR/FSS:

Perform ‘rapid’ field assessments to determine channel sensitivity and identify dominant processes (e.g., aggradation, widening, planform adjustment). During this assessment any existing erosion sites or infrastructure will be mapped and evaluated for rehabilitation or removal;

Conduct a detailed field investigation of the reach requiring modification or an appropriate reference reach (channel relocation) in order to determine existing aquatic habitat features, stream geometry and channel morphology;

Confirm the extent of all fish habitat with DFO during preparation of the EIR/FSS;

Prepare a fish habitat compensation plan that clearly demonstrates how modified reaches will achieve a net gain in fish habitat and meet the ‘no net loss in fish habitat productivity’ as required by Section 35(2) of the Fisheries Act;

Illustrate the extent of any features supporting critical life stages of fish or other aquatic biota and clearly demonstrate how the proposed compensation will replace the form and function of this habitat;

Quantify existing aquatic habitat features (e.g., number and linear extent of pools, riffles, runs) for use in ensuring that the proposed compensation plan adequately replaces the type and extent of existing habitats;

Use a combination of aerial photographs, ground-truthing, and ELC mapping to determine the extent of wetland cover for each Hydrologic Feature ‘A’;

Identify the form and function of each Hydrologic Feature ‘A’ and document its ecological and hydrologic relationship to the watercourse (e.g., does the feature represent an online pond or wetland);

Identify how the ecological and hydrological relationships of the Hydrologic Feature ‘A’ is considered in the proposed stream modification;

Develop preliminary design concepts based on the principles of “natural channel design”;

Review hydraulic modeling to confirm 2-year flow conditions, regulatory flood levels and any potential impacts of modifications on regulatory floodlines;
Based on the foregoing, identify the recommended modification to the watercourse in the form of conceptual drawings;
Clearly demonstrate how the proposed modification measures meet the management recommendations identified in the Management Strategy;
Consider construction approach and timing of conceptual design; and
Identify and detail mitigation requirements related to road crossings.

Design submission requirements will be specified by the review agencies and generally will include the following:

Plans and elevations;
Restoration details including conceptual landscape plans, plan form, profile, cross-sections and typical treatments;
Erosion and sediment control requirements;
Design brief; and
Monitoring Plan for proponent modifications, including any DFO requirements.

3.4 Grading, Drainage, Stormwater Management

3.4.1 Introduction

A major element of the EIR/FSS involves the development of a preliminary grading, stormwater servicing and stormwater management plans. This is to address the overall serviceability of the lands, to determine the grading required to service the lands, and to ensure integration with neighbouring lands, cores, linkages and receiving watercourses.

3.4.2 Topography and Grading

The following additional work will be needed to upgrade existing information and provide the additional details required to develop grading and servicing plans:

Topographic mapping that meets Town of Oakville and Conservation Halton requirements, if any;
Detailed survey information is to be obtained for any proposed watercourse crossings, core or linkage crossings for services, including roadways; and
Collection of field information to further delineate and quantify topographic depressions as identified in the NOCSS study.

3.4.3 Preliminary Grading and Drainage Plan

Use updated topographic mapping and survey work to refine the EIR subcatchment boundaries; Prepare a preliminary grading plan for the proposed development area, and a conceptual grading plan for the EIR subcatchment as necessary, to ensure servicing functionality. It is recognized that the level of detail for the EIR subcatchment will be more conceptual than within the proposed development area;

A drainage and servicing plan for the EIR subcatchment area is to be developed identifying the storm drainage network, including conceptual designs of storm trunk sizes and profiles, SWM facilities (see Section 3.4.5) and the major and minor system; Potential conflicts with the ability to protect the NHS are to be identified and mitigation proposed. Examples include:

- Any increase or decrease in drainage area to a NHS feature. It is intended that existing drainage characteristics (e.g., flow volumes, form and location) are maintained. Some minor flexibility in this may be possible provided that the feature and its functions are protected;
- Change in grades adjacent to a NHS feature that could impact surface drainage or groundwater conditions;
- Location of underground services adjacent to a NHS feature that would influence groundwater levels and impact the feature (i.e., wetland).
- Details on proposed drainage features with NHS areas designed with the purpose of protecting, maintaining and augmenting the natural hydrological regime of the NHS. All proposed (or required) drainage features must also be shown on the plan(s), including the extent of grading associated with the drainage feature. The location of these works should be considered during the staking process. If this drainage feature is associated with a proposed trail system refer to Section 3.7 for further requirements.

Grading and servicing details in support of stream lowering and/or relocation to be undertaken by a proponent are to be provided.

Lowering of existing culverts at Dundas Street may need to be considered. The lowering of red streams is not permitted; however, this may apply to blue streams and any other crossings. If proposed by a proponent, details of any lowering are to be provided, as detailed in Section 3.3.3.3; and,

A conceptual approach to erosion and sediment control is to be provided to the satisfaction of the Town.

3.4.4 Water Resources-Related Analyses

Analysis and/or modeling are required for the following components:

Hydrology and SWM facility analyses:

- Water quantity
- Water quality and water balance
- Erosion control
- Topographic depressions

Development or refinement of floodline mapping (see Section 3.3.3.1 b)

Flow analysis for drainage system design (sewer sizing in accordance with municipal standards)

Guidance to the analysis required to address the hydrology and SWM facility analyses is presented in the following subsections.

a) Water Quantity

Hydrology Modeling

The approach to modeling for hydrology related to SWM sizing for flood and erosion control is to be determined in consultation with the Town of Oakville and Conservation Halton, as an initial step in the EIR/FSS. Consideration of impacts to existing downstream online facilities will need to be addressed in the EIR/FSS. It is intended that flexibility be provided in the selection of a modeling approach; however, the approach is to follow commonly accepted practices.

The modeling of predevelopment conditions to establish unit flow rate targets for quantity (flood) control (2-year through Regional Storm flows) purposes has been completed as part of NOCSS. Further modeling of predevelopment conditions is not required for this purpose. SWM ponds are to be sized to meet unit flow rate targets.

Regional Storm Control

The NOCSS recommends that stormwater management targets include control of the peak flow to predevelopment levels for the 2-year to 100-year return period events and the Regional Storm. With the exception of Joshua's Creek, where control of the Regional Storm event is required, future land use development applicants may carry out an investigation of the potential increase to flood risk to confirm if Regional Storm controls are necessary. Existing stream crossings and online control structures should be field verified by the proponent and reflected in the modeling as part of the Regional storm control analysis. This analysis is to include the increase in risk to life as well as the potential for flood risk to private, Municipal, Regional, Provincial and Federal property under Regional Storm conditions. If the study finds, and the Town and Conservation Halton concur in that finding, that no increase in risk occurs to downstream landowners or public uses, the Town in conjunction with Conservation Halton will conclude, subject to consideration of any other relevant factor within their respective mandates, that control at the Regional Storm level is not required. Evaluation of risk may include, but is not limited to:

All development within North Oakville for the watershed under consideration;

The potential increase in flood risk for the entire downstream watercourse to its outlet at Sixteen Mile Creek;

The examination of potential increase to flood risk related to the:

- Potential increase in flood elevations;
- Potential increase in flood velocities;
- Potential for the foregoing increases to adversely affect all landowners including individuals, municipal agencies, provincial agencies (MTO, MOE, etc.) and federal agencies;
- Potential for the foregoing increases to adversely affect all land uses including road crossings, private access road, parks, storm sewer outlets, etc.; and,
- Potential for the implementation of mitigation measures to address any increase in risk as an alternative to the requirements to control Regional Storm flows.

It is understood that not all increases in flood velocity or flood elevation will necessarily lead to an increase in risk.

The final approach with respect to this issue may have a significant impact on the SWM quantity related results for the EIR/FSS.

If it is determined, by the Town of Oakville, in conjunction with Conservation Halton, that it is not necessary to control peak flow rates, under Regional Storm conditions, to pre-development levels, then post development flow rates for the Regional Storm will need to be calculated through modeling as part of this study. These flow rates will then be used to determine flood elevations and associated flood lines for regulatory purposes. The modeling will be carried out to the satisfaction of the Town of Oakville and Conservation Halton.

b) Water Quality and Water Balance

The NOCSS recommends meeting MOE's Enhanced Level of protection (Level 1) for phosphorus control and fishery protection in sizing stormwater management facilities for water quality control. It is an objective of the Town that there be no-net increase in phosphorus loadings as a result of development. This objective will be met with the use of enhanced Level SWM ponds and as a result, there is no requirement to further analyze phosphorus loadings during development approvals.

The NOCSS also recommends the use of a hierarchy of stormwater controls with preference for source control (site level), then conveyance system control, followed by end-of-pipe control. In addition, where feasible, the use of infiltration measures, including the diversion of drainage to pervious surfaces as well as designed infiltration facilities, surface retention, and storage is encouraged, to help maintain pre-development water balance conditions (see also Section 3.5 Hydrogeology). The implementation of the foregoing would be subject to best efforts to meet water balance objectives, including reduced runoff volumes and maintenance of groundwater levels, and the hierarchy of SWM controls. The examples presented in NOCSS Appendix AA – Test Catchment Design Case and Appendix LL – Analysis of Treatment-Train Design for Water Quality Control reflect both the hierarchy of measures (treatment-train approach) and the use of infiltration measures in the design.

Should the proponent wish to further analyze SWM pond sizing to account for the use of a variety of SWM measures (i.e., potential to reduce pond sizes), the above noted appendices present procedures for the following cases:

In the case where Enhanced Level water quality ponds are to be used, calculations to support a reduced level of imperviousness will be acceptable as a basis for sizing the water quality pond where source or conveyance controls also are used to provide surface storage/retention or infiltration in permanent locations;

In the case where an Enhanced Level water quality SWM pond is not proposed but rather a combination of source, conveyance system, and/or end-of-pipe facilities are proposed, then calculations of the combined efficiencies of the facilities should be carried out to support the design, with a view to achieve a combined performance of 80% TSS removal and/or 65% TP removal, as required by an Enhanced Level of protection; and,

For serviced lands with a drainage area of less than 5ha, where the size of drainage area limits the feasibility of end-of-pipe facilities for SWM, the use of lot and/or conveyance type of SWM measures will be needed to meet SWM requirements. It is recognized that it may be difficult to meet the enhanced level of SWM needed to provide for the water quality control target. In that event, it must be demonstrated that every reasonable effort has been made to provide an approach that would meet the water quality target. If it is agreed by the Town of Oakville and Conservation Halton that enhanced level of control cannot be provided for in the serviced area, it must be demonstrated that the enhanced level of control, as well as other SWM targets are being met within the overall EIR subcatchment area that contains this particular serviced area.

c) Erosion Control SWM Facility Sizing

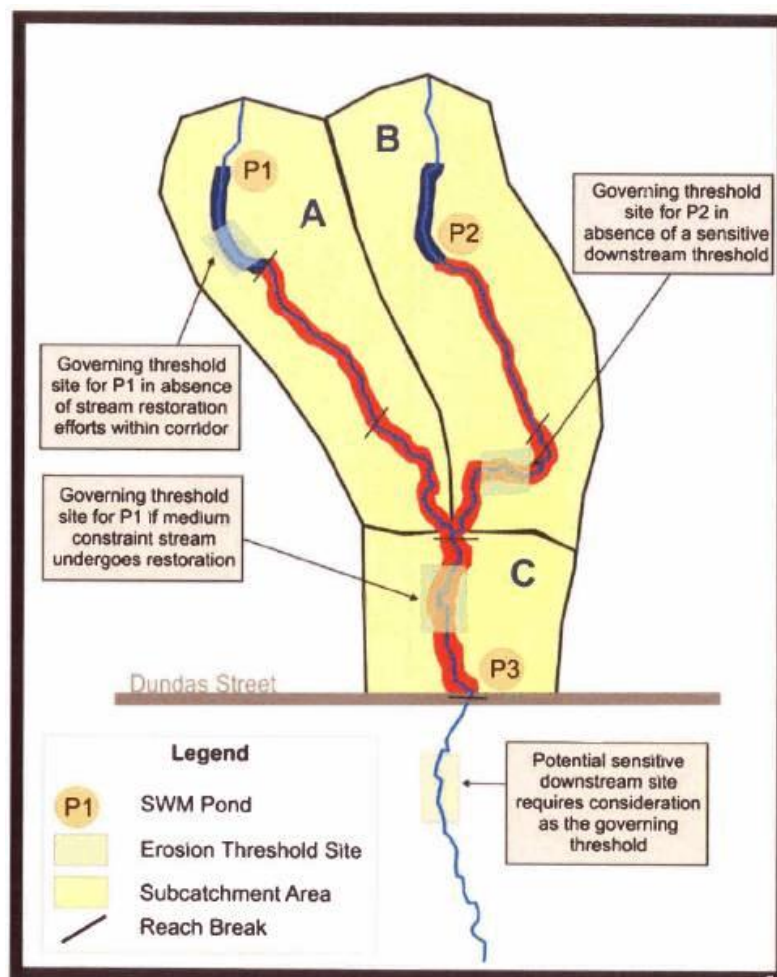
In order to ensure that the receiving channels will not experience higher than normal rates of erosion, a threshold flow needs to be incorporated into the design of each SWM facility. Analysis in support of SWM facility sizing must include erosion threshold analysis and continuous hydrologic modeling to ensure that appropriate extended detention storage is provided.

Erosion thresholds were broadly characterized in **Section 5.8 (Table 5.8.5)** of the NOCSS Analysis Report. A more detailed determination of erosion thresholds is required at the EIR/FSS stage. These thresholds are meant to be integrated into a stormwater management system design in such a manner that existing channel erosion or aggradation is not exacerbated. Specifically, the following requirements must be fulfilled as part of the EIR/FSS:

- Confirm reach delineation work completed for the NOCSS using best available mapping and aerial photography;
- Determine if erosion thresholds previously identified in the NOCSS apply to the EIR subcatchment area;
- Confirm the location of SWM ponds within and downstream of the identified EIR subcatchment area;
- Conduct rapid geomorphic assessments on a reach basis to verify desktop analyses and identify areas most susceptible to erosion;
- Perform detailed field investigation(s) along the most geomorphologically sensitive reach(es) to quantify channel geometry and identify active geomorphic processes;
- Apply multiple analytical methods (e.g. critical shear, stream power and permissible velocity models) to the field data in order to calculate an erosion threshold in terms of the point at which sustained flows will tend to entrain and transport sediment using data collected during the detailed field investigation(s);
- Select an appropriate defining threshold based on model convergence and compatibility with indicators of active processes (e.g., widening and entrenchment) as identified through the field investigation;
- Perform an analysis of pre and post development conditions using a continuous hydrologic model on a subcatchment area basis to identify erosion control sizing for SWM facilities. Specifically, the frequency and duration of time (expressed as hours) that the erosive threshold flow is exceeded, in the pre-development condition, is to be matched in the post-development condition (i.e., results are within approximately 5% of the pre-development conditions. Before a 5% increase is accepted, work needs to be completed as to the likely effects and implications of this nominal increase to determine whether further mitigation, modeling refinement or monitoring is warranted); and,
- Clearly illustrate how the proposed development scenario meets erosion control criteria as established in the NOCSS.

It should be noted that, while the erosion threshold assessment is conducted on a single subcatchment area basis, the proponent must be aware that areas downstream need to be considered when selecting the most sensitive reach, as depicted in Figure 3.4.1.

Figure 3.4.1: A Hypothetical Example Illustrating Relevant Erosion Threshold Procedures in the Context of Subcatchment Areas



Note: The most sensitive reach for SWM P1 is highlighted in the shaded area downstream of the pond. However, an assessment of downstream reaches beyond the subcatchment boundary is required in order to ensure that no additional impacts are created. Moreover, if restoration of the medium constraint stream is anticipated, then an analysis of downstream reaches would be required to determine the governing threshold for SWM P1. As discussed in the previous text, the governing threshold could be located downstream of Dundas Street (beyond the boundary of the EIR Subcatchments), depending on the relative sensitivity of stream conditions. In this example, the shaded area in Subcatchment A would govern as the most sensitive reach for SWM P1. Also, in the event that the shaded area downstream of SWM P1 was so unstable that erosion threshold targets could not be met, this reach could be restored and enhanced and the threshold for Subcatchment C then would apply.

d) Topographic Depressions

In North Oakville, there are a number of topographic depression areas that are poorly drained. The characteristics of this topography have an impact on the response characteristics of the area during precipitation and runoff events. Consequently, NOCSS requires, as part of the EIR/FSS, that the storage within the topographic depressions be refined and checked against the storage within proposed SWM ponds in the EIR subcatchment area to verify that the SWM pond storage accounts for the depression storage. Thus, the SWM ponds volume must be equal to or greater than the original depression storage volume.

In general, the NOCSS hydrologic model incorporates depression storage to establish unit area target flow rates. The calculation and comparison of depression storage to SWM storage is intended as a check to ensure that the existing condition peak flow rates do not increase as a result of land development. The principle behind this approach is to ensure that the hydrologic analysis and SWM approach reflects the existing site conditions that include a number of topographic depressions, and the natural depression storage is maintained in the SWM system.

This approach is not to include artificially created storage such as that created by embankments or dug facilities. Although the topographic depressions are illustrated in NOCSS, referred to as pits, ponds and depressions, the existing mapping does not provide for accurate delineation of these depressions.

The more detailed mapping and other relevant investigations of the EIR/FSS are to be used to confirm the existence, nature (natural or artificial), and storage volume of these depressions.

To ensure that the storage volume of the depression storage areas is maintained, the calculated depression volume is to be compared to the SWM pond volume of the proposed SWM facility within the same subcatchment drainage area. If the depression storage volume is less than or equal to the SWM facility volume, no additional analysis or change to the SWM facility design is required. In the event that depression storage is greater than the SWM facility volumes, the SWM facility volume (as noted in the following points) is to be adjusted to be equal to the depression storage volume.

Calculations and volume comparisons shall be done as follows:

- 2-year event: Calculate the 2-year depression storage volume and compare this volume to the water quality (extended detention and permanent pool) volume in the SWM facility.

- 100-year event or Regional Storm (whichever is applicable): Calculate the 100-year or Regional Storm depression storage volume and compare it to the total storage volume (permanent and active storage) in the SWM facility (up to 100-year or Regional Storm event).

3.4.5 SWM Plan

A SWM plan is to be developed as part of the EIR/FSS to demonstrate how the targets as specified in the Management Strategy are to be met. It is intended that SWM is to be provided through a combination of “Best Management Practices” (BMP), which may range from at-source controls to end-of-pipe solutions. The preliminary location of SWM ponds is illustrated in the Management Strategy; however, flexibility on the final location is anticipated.

In developing the overall SWM Plan, a treatment train approach is to be applied in evaluating the effectiveness of BMPs. Consultation with the Town of Oakville and Conservation Halton will be required in the selection of measures and their effectiveness.

The use of BMPs for stormwater management (in addition to SWM ponds) can reduce the size of the ponds. The measures are to be evaluated in their ability to retain water on-site and thereby maintain existing condition water balance where feasible based on site soil conditions, and protect water quality in relation to the NOCSS recommendations (i.e. phosphorus control, temperature control, suspended solids reduction).

Preliminary design details for the SWM ponds will be required as part of the EIR/FSS including:

- SWM pond block sizing, including preliminary grades, design water levels (pond and receiving body outlet), storage volumes and maintenance access provisions;

- Cross-section details;

- Pond profile including inlet and outlet;

- Landscaping provisions as per Conservation Halton guidelines; and

- Monitoring plan to the satisfaction of the Town.

3.5 Hydrogeology

3.5.1 Introduction

The NOCSS prepared in support of the Secondary Plan for the North Oakville area included recommendations for more detailed hydrogeological investigations as part of the EIR/FSS in support of proposed Draft Plans.

The purpose of the detailed hydrogeological study is to characterize existing hydrogeological conditions, quantify potential groundwater-related impacts and determine the need for, and nature of, any mitigation measures required to protect the hydrogeological features and functions within the EIR subcatchment area.

3.5.2 Technical Requirements

The EIR must address the entire EIR subcatchment area within which the proposed development area is located. Therefore, in addition to site investigations specific to the proposed development area, it may be necessary to secure access to adjacent properties or road allowances to investigate areas of the EIR subcatchment area outside the proposed development area.

The level of detail must be sufficient to support submission of Draft Plans of subdivision. The methodology to complete the study requirements is at the discretion of the consultant, but must conform to generally accepted groundwater engineering and hydrogeologic practices.

Boreholes and groundwater observation wells must be distributed such that the groundwater conditions are defined for the proposed development area and the EIR subcatchment area. Any specific on-site features are to be investigated.

a) Geology and Hydrogeology

Provide an overview of the regional geological setting;

Drill boreholes to determine the site-specific geology (stratigraphy and depth to bedrock). The number of boreholes will depend upon the sizes of the EIR subcatchment area and the proposed development area, the background data available, and the geological complexity of the area;

Collect soil samples from each borehole and test for grain-size to characterize the soil types and to assist in determining soil hydraulic conductivity;

Relate the local geological data to the regional geological setting;

Establish a network of groundwater observation wells to determine the depth to the water table and vertical and horizontal groundwater gradients;

The number of monitoring wells to be installed will depend upon the EIR subcatchment area and the proposed development area sizes, the complexity of drainage, the number of environmental features, the locations of groundwater divides, and the background data available. Where available, existing observation wells may be used;

Survey all monitoring locations for coordinates and geodetic elevation;

Map the groundwater flow conditions (including vertical and horizontal flow components);

Conduct bail-down, slug, or other appropriate field tests to confirm well function and assess the hydrogeological characteristics of stratigraphic units (e.g. *in situ* hydraulic conductivity);

Provide estimates of groundwater flux;

Monitor groundwater levels in all observation wells (data included in the EIR/FSS should be related to the regional groundwater elevation data and be sufficient to document the response of the shallow groundwater to climatic conditions throughout the year). A minimum of one water table observation well should be equipped with a data-logger to continuously record water levels. The data must be corrected for barometric response;

Monitor surface water baseflows (non-storm event flows; minimum of 3 days post precipitation event) upstream and downstream in all identified watercourses. These data will be used to assist in establishing the groundwater contribution to stream flow and infiltration as part of the water balance assessment;

Collect a sufficient number of groundwater and surface water samples for laboratory analysis of major ion chemistry to establish the background water quality across the area. These data will be used to assist in the assessment of groundwater/surface water interactions and to establish baseline pre-development conditions;

Map groundwater discharge areas and identify any areas along stream corridors for recharge/discharge function protection; and,

Complete a water balance analysis to determine the pre-development (based on existing conditions) and post-development (based on the proposed land use plan) interflow and deep recharge volumes. The water balance should utilize the longest and most continuous local daily climate data and a soil-moisture balance approach (e.g., Thornthwaite and Mather) with daily or monthly calculations reported on an average annual basis. Surface water flow data should be used to validate the existing conditions water balance where possible.

b) Requirements for Proposed Development Plan

Determine the infiltration deficit (pre to post development) for the proposed development area and the EIR subcatchment area;

Identify hydrogeological opportunities and constraints to maintaining the water balance (i.e., to reduce the infiltration deficit);

Identify the type, location and size of infiltration or storage measures that may be feasible for use based on the site specific geological and hydrogeological conditions;

Evaluate opportunities for augmenting groundwater infiltration through appropriate and practical Best Management Practices (e.g., as outlined in the MOE Stormwater Management Planning and Design Manual 2003) to balance, or at least in part, make up the post-development infiltration deficit;

If pre-development infiltration cannot be maintained, predict the impact of this change on the flows in local streams and on the local water table and recommend mitigation measures as required;

Identify areas where hydrogeological conditions may affect construction (e.g., high water table, requirements for dewatering, etc.), and recommend control and mitigation measures, if warranted and,

Evaluate the potential for impacts from proposed underground services on shallow groundwater conditions adjacent to cores, linkages and stream corridors. If the potential for negative impact exists, mitigative measures are to be recommended.

3.6 Sanitary, Water, Roads

Analyses and details must be provided for the servicing of a specific development application. In addition, it will be necessary to provide conceptual designs of trunk services within the EIR subcatchment (conceptually only in areas not part of the proposed development area; FSS level of detail in the proposed development area) including appropriate connections to external areas, demonstrating servicing viability without placing undue restrictions on external areas (e.g., considering sewer depths and grading). Sufficient analysis is necessary to ensure that external lands can be serviced to meet Town and Region standards.

The FSS will build upon and implement, as applicable, recommendations of the Master Servicing Plan for the North Oakville East area, prepared as background to the Secondary Plan, and any applicable Master Servicing Plans prepared by the Region of Halton. The following tasks are to be undertaken.

Compile information from the NOCSS and the Secondary Plan specific to the proposed development area including design criteria, environmental designations, road locations and design levels, etc. and undertake an information gap analysis to determine additional information needs, if any;

Review detailed information on the proposed land uses of the development application, with respect to population, housing form, road pattern, open space components, and hard surfaces to provide input to engineering analysis;

Complete a sanitary servicing assessment to:

- determine the servicing requirements based on future system wastewater flows;
- recommend a preferred sanitary servicing option considering external and internal Infrastructure, and potential phasing;
- provide interim servicing solutions where feasible;
- assess site specific infrastructure locations and designs for crossings of streams, linkages and cores;
- make recommendations on preferred crossing locations, construction practices, and mitigative measures to minimize impacts to the NHS; and,
- determine consistency with Region of Halton Master Servicing Plan and explain differences;

Complete a water servicing assessment to:

- determine the servicing requirements based on future system demands;
- identify a preferred water servicing option considering external and internal infrastructure, pressure districts and potential phasing;
- assess site specific infrastructure locations and designs for crossings of streams, linkages and cores;
- make recommendations on preferred crossing locations, construction practices, and mitigative measures to minimize impacts to the NHS; and,
- determine consistency with Region of Halton Master Servicing Plan and explain differences.

Complete a road design assessment to:

- compile the road design requirements and road locations as identified in the Master Servicing Plan and the Secondary Plan;
- identify local road system within the proposed development area;
- assess site specific road locations and designs for crossings of streams, linkages and cores; and,
- make recommendations on preferred crossing locations and configurations, road design standards, and mitigative measures to minimize impacts to the NHS (e.g., ecopassages).

3.7 Trails

The following section summarizes the study requirements for Trails in the EIR/FSS. The purpose of these studies is to identify the potential impacts to the NHS and proposed associated mitigation. In general, the level of detail required at the EIR stage will result in a plan that includes the approximate centerline of trail with options in areas where issues have been identified.

Trail types and locations have been generally described in the Master Trails Plan for North Oakville. Through this plan 3 types of trails have been recognized: multi-use, major and minor. Multi-use trails are all located within road right-of-ways (r.o.w.'s). Major trails are 2.4m wide seasonal trails that are generally located in the NHS along the periphery or buffers of core areas, linkages, or are within stream corridors. Minor trails are 1 – 2m wide seasonal trails that are generally found within the core areas. Preference should be given to using existing and proposed road crossings for trails. Where trails will have any footprint impact within the NHS, the following is required.

3.7.1 Trails *exclusively* in buffer areas that are active agricultural areas at the time of study

Trail sections that are exclusively located within buffers that are active agricultural lands (row crops) must undertake Species at Risk (SAR) screening and complete appropriate seasonal field surveys. This would include the review of all associated species lists from NOCSS, as the status of some species has changed since NOCSS such that they are now species of conservation concern.

For example, Eastern Meadowlark and Bobolink are both listed as Threatened species and Redside Dace as an Endangered species, all of which are regulated including their habitat by the Endangered Species Act (2007).

All hazard trees within striking distance of the proposed trail must be identified and felled as a part of trail construction. These trees should be dropped so that they fall out of the natural area and into the buffer where they can create unique micro-habitats for plants and wildlife while minimizing damage to vegetation within the core natural area. A plan identifying hazard trees will be a condition of draft approval for review and approval prior to any tree removals occurring.

3.7.2 Trails in natural areas or crossing streams

Trail sections in natural areas including cultural thicket and meadow communities or crossing stream corridors must have appropriate field surveys done including the following as applicable:

- Review of all associated species lists from NOCSS, as the status of some species has changed since NOCSS such that they are now species of conservation concern.
- Ecological Land Classification (ELC) – All vegetation communities that are traversed need to be mapped and described according to the ELC. This includes generating a complete vegetation species list for each polygon. In this way appropriate mitigations such as avoidance can be made for any species of conservation concern including regionally significant species.
- SAR risk screening (NHIC database, Aurora District MNR and Conservation Halton data requests)- this screening will identify the need for any species specific field surveys and associated design requirements. Significant Wildlife Habitat (SWH) screening using the Ecoregion 7E Criterion Schedule (OMNR 2012) - this screening will identify the need for any specific field surveys.
- Complete Appropriate seasonal field surveys using approved protocols.
-
- The Draft Guidance for Development Activities in Redside Dace Habitat (OMNR 2011) should be referred to where trail development is to occur within the buffer area of Redside Dace habitat (watercourse meander plus 30 m).
-
- Prior to site walk, a certified arborist will have walked the proposed trail alignment and flagged any significant trees greater than 10 cm diameter-at-breast height (DBH) within 5 m of either side. Each of these trees will be assessed by a Certified Arborist to document species, size, health and general hazard rating. Trees recommended for preservation will then be surveyed and mapped during time of formal site walk (preliminary trail stake-out).
- Significant flora, wildlife habitat or desirable vegetation to be retained and avoided during trail construction should be surveyed and shown on the plan.

Detailed design submission requirements will be specified by the review agencies and Conditions of Draft Plan approval will generally include the following:

- Hydraulic impacts to the flood plain of any culvert crossings must be assessed and shall have no negative impacts to the lot lines.
- Where trails cross red streams only span structures are to be considered.
- Where feasible, crossings of watercourses are generally recommended to span three times the bankfull channel width of the watercourse.
- Blue streams can be crossed using either a span or a culvert (preferably open bottom) in combination with terrestrial eco-passages.

3.7.3 Trail Siting

The final trail location is to be determined in the field with Conservation Halton and Town of Oakville staff. The trail should generally be in the location identified by the Trails Master Plan unless an alternate location is identified as an outcome of site level surveys. For example, a stream crossing could be moved to take advantage of an existing agricultural crossing, or to an alternate location which provides for installation on a straight section of stream.

The field fitting of the final location completed with Town and agency staff must be informed by the ELC and required field surveys for wildlife as described above. This will ensure that any new constraints that are

identified through these surveys are considered in the final trail location and or that appropriate mitigations are identified. As such, the supporting materials should be received and reviewed by Town and Agency staff prior to completing the site visit. Trail siting field visits will be booked between May 1st and October 31st.

During the site walk with Town and agency staff, all natural features that factor into the final location will be identified for pick-up by surveyors to be shown on the plan. This will include all trees, and other vegetation or habitat features that are to be retained and protected during trail construction as per above. During this site walk, the trail centerline will be staked for survey to be shown on the plan.

If new drainage features are proposed within NHS areas, they should be designed with the purpose of protecting, maintaining, and augmenting the natural hydrological regime of the NHS. All proposed (or required) drainage features must also be shown on the plan(s), including the extent of grading associated with the drainage feature. The location of these works should be considered during the site walk and factor into the siting of the trail in terms of minimizing overall impacts to natural area. All trails should be sited as far as possible from the Natural Heritage Feature.

Detailed design submission requirements will be specified by the review agencies and Conditions of Draft Plan approval will generally include the following:

- Plans and elevations;
- Restoration details including proposed landscape plans, plan-form, profile, cross-sections and typical treatments;
- Tree Preservation Plan details for all surveyed trees including existing health and protection measures, including hazard trees proposed for removal
- Requirement to adhere to the Town's Trail Construction guidelines and/or
- Best management practices for trails installations;
- Specific construction timing criteria to minimize impact to natural environment;
- Erosion and sediment control requirements;
- Design brief;
- Monitoring Plan for planting establishment, and
- Permits and associated technical studies as required by Conservation Halton for work within regulated areas

4.0 MONITORING

It will be necessary to detail environmental monitoring requirements as part of the EIR/FSS, in support of Draft Plans of subdivision, in accordance with applicable directions in NOCSS. As prescribed through NOCSS, the landowners are required to undertake operation, maintenance and monitoring in accordance with the Town of Oakville standards and North Oakville Monitoring Guidelines. Baseline monitoring is required prior to any development activity and as such consideration of this component of the monitoring program will coincide with EIR timing.

5.0 REPORTING REQUIREMENTS

A detailed report is to be prepared integrating the analysis, findings and recommendations covered in the study Terms of Reference.

Section Number	Content	Consultant	Where in studies?
1	INTRODUCTION	-	-
1.1	Background	-	-
1	Purpose	-	-
2	APPROACH	-	-
1.1	Overview	-	-
2	Agencies	-	-
2.1	Study Areas	UT	Refer to December 2021 Urbantech Functional Servicing and Stormwater Management Report for Argo Enns, for how the the land will be serviced.
3	STUDY REQUIREMENTS	-	-
3.1	Land Use	Korsiak	Refer to Draft Plan by Korsiak.
3.2	Cores and Linkages	Beacon	Refer to Section 5 and 6 of the Scoped Environemttal Assessment by Beacon Environmental.
3.2.1	Introductions	Beacon	Refer to Section 5 and 6 of the Scoped Environemttal Assessment by Beacon Environmental.
3.2.2	Cores	Becaon	Refer to Section 5 and 6 of the Scoped Environemttal Assessment by Beacon Environmental.
3.2.2.1	EIR Subcatchment Area Level of Detail:	Beacon	Refer to Section 5 and 6 of the Scoped Environemttal Assessment by Beacon Environmental.
3.2.2.2	Draft Plan Level of Detail:	Beacon	Refer to Section 5 and 6 of the Scoped Environemttal Assessment by Beacon Environmental.
3.2.3	Linkages	Beacon	Refer to Section 5 and 6 of the Scoped Environemttal Assessment by Beacon Environmental.
3.2.3.1	EIR Subcatchment Area Level of Detail:	Beacon	Refer to Section 5 and 6 of the Scoped Environemttal Assessment by Beacon Environmental.
3.2.3.2	Draft Plan Level of Detail:	Beacon	Refer to Section 5 and 6 of the Scoped Environemttal Assessment by Beacon Environmental.
3.3	Stream Systems, Fish Habitat and Fish Communities	Beacon	Refer to Section 4.2 of the Scoped Environemttal Assessment by Beacon Environmental.
3.3.1	Introduction	Beacon	Refer to Section 4.2 of the Scoped Environemttal Assessment by Beacon Environmental.
3.3.2	Existing Conditions and Constraint Mapping	Beacon	Refer to Section 4.2 of the Scoped Environemttal Assessment by Beacon Environmental.
3.3.2.1	Describe the proposed land use change and associated servicing issues;	UT	Refer to December 2021 Urbantech Functional Servicing and Stormwater Management Report for Argo Enns, for how the the land will be serviced.
3.3.2.2	Confirm limits of EIR study area;	Beacon	Refer to Section 1.2 of the Scoped Environemttal Assessment by Beacon Environmental.
3.3.2.3	Assemble and review all relevant materials pertaining to the stream system of the NHS including	N/A	N/A
3.3.2.4	Compile existing conditions and constraints (from existing data) and display on recent aerial	Beacon	Refer to Section 4 of the Scoped Environemttal Assessment by Beacon Environmental.
3.3.2.5	Review and summarize factors leading to the identification of the corridor constraint level from a	Beacon	Refer to Section 5 of the Scoped Environemttal Assessment by Beacon Environmental.
3.3.3	Detailed Studies	-	-
3.3.3.1	Corridor Width Delineation	-	-
3.3.3.1.1	Geomorphology:	GEO Morphix	Refer to Erosion Assessment by GEO Morphix.
3.3.3.1.2	Regulatory Floodplain	UT	N/A No floodplain located within subject property.
3.3.3.1.3	Geotechnical	Terraprobe	Stable top of bank assessment previously completed by Terraprobe (2016) that is currently being updated with CH's minor top of bank revisions and confirming that previous conclusions remain valid
3.3.3.1.4	Fish Habitat Setback	Beacon	Refer to Section 5 and 6 of the Scoped Environemttal Assessment by Beacon Environmental.
3.3.3.1.5	Valleylands Setback	Beacon	Refer to Section 5 and 6 of the Scoped Environemttal Assessment by Beacon Environmental.
3.3.3.1.6	Forested Stands within Stream Corridors	Beacon	Refer to Section 5 and 6 of the Scoped Environemttal Assessment by Beacon Environmental.
3.3.3.2	Fish and Fish Habitats	Beacon	Refer to Section 5 and 6 of the Scoped Environemttal Assessment by Beacon Environmental.
3.3.3.2.1	Introduction:	Beacon	Refer to Section 5 and 6 of the Scoped Environemttal Assessment by Beacon Environmental.
3.3.3.2.2	Subcatchment Area Level of Detail	Beacon	Refer to the Scoped Environemttal Assessment by Beacon Environmental.
3.3.3.2.3	Draft Plan Level of Detail	Beacon	Refer to the Scoped Environemttal Assessment by Beacon Environmental.
3.3.3.2.4	Modified Stream Reaches	N/A	N/A
3.3.3.2.5	Modified Stream Reaches:	N/A	N/A
3.3.3.3	Stream Modification/Rehabilitation Measures	N/A	N/A
3.3.3.3.1	Stream reach rehabilitation	N/A	N/A
3.3.3.3.2	Stream reach relocation and/or lowering	N/A	N/A
3.3.3.3.3	Road, trail and infrastructure crossings	N/A	N/A
3.3.3.3.4	Construction of SWM outfalls	UT	Refer to December 2021 Urbantech Functional Servicing and Stormwater Management Report for Argo Enns, Section 4.3.5 and Drawings GR-1, SD-1 and PP-3.

3.4	Grading, Drainage, Stormwater Management	-	-
3.4.1	Introduction	-	-
3.4.2	Topography and Grading	-	-
3.4.2.1	Topographic mapping t h a t meets Town of Oakville and Conservation Halton requirements, if any	J.D. Barnes	Refer to survey sheets 1-3 by J.D. Barnes dated October 7, 2021.
3.4.2.2	Detailed survey information is to be obtained for any proposed watercourse crossings, core or linkage crossings for services, including roadways		Reference to Cores and Linkages not applicable since outside of North Oakville however, no crossings of the RNHS are proposed.
3.4.2.3	Collection of field information to further delineate and quantify topographic depressions as identified in NOCSS study		N/A site is not located within NOCSS area, no topographic depressions are on site.
3.4.3	Preliminary Grading and Drainage Plan	UT	Refer to December 2021 Urbantech Functional Servicing and Stormwater Management Report for Argo Enns, Sections 3 and 4 and Drawings GR-1, SD-1, STM-1 and STM-2.
3.4.4	Water Resources-Related Analyses	-	-
3.4.4.1	Water Quantity	UT	Refer to December 2021 Urbantech Functional Servicing and Stormwater Management Report for Argo Enns, Sections 4.2 and 4.5 and Appendix B.
3.4.4.2	Water Quality and Water Balance	UT	Refer to December 2021 Urbantech Functional Servicing and Stormwater Management Report for Argo Enns, Section 4.4 and 4.6.
3.4.4.3	Erosion Control SWM Facility Sizing	GEO Morphix	Refer to Erosion Assessment by GEO Morphix.
3.4.4.4	Topographic Depressions	Beacon	N/A No topographic depressions are on site.
3.4.4.5	SWM Plan	UT	Refer to December 2021 Urbantech Functional Servicing and Stormwater Management Report for Argo Enns, Section 4 , drawings STM-2, STM-2 , PP-3 and Appendixes B and C.
3.5	Hydrogeology	-	-
3.5.1	Introduction	-	-
3.5.2	Technical Requirements	DS Consultants	Refer to Geotechnical and Hydrogeological Report by DS Consultants.
3.5.2.1	Geology and Hydrogeology	DS Consultants	Refer to Geotechnical and Hydrogeological Report by DS Consultants.
3.5.2.2	Requirements for Proposed Development Plan	DS Consultants	Refer to Geotechnical and Hydrogeological Report by DS Consultants.
3.6	Sanitary, Water Roads	-	-
3.6.1	Complete a sanitary servicing assessment to:	UT	Refer to December 2021 Urbantech Functional Servicing and Stormwater Management Report for Argo Enns, Section 5 , drawing SAN-1 and Appendix D.
3.6.2	Complete a water servicing assessment to:	UT	Refer to December 2021 Urbantech Functional Servicing and Stormwater Management Report for Argo Enns, Section 6 , drawing WM-1 and Appendix E.
3.6.3	Complete a road design assessment to:	UT and CGH Transportation	Refer to December 2021 Urbantech Functional Servicing and Stormwater Management Report for Argo Enns, Section 3.3.
3.7	Trails	-	
3.7.1	Trails exclusively in buffer areas that are active agricultural areas at the time of study	NAK	Refer to November 2021 Urban Design Brief, Section 6.1 Open Spaces and Connections.
3.7.2	Trails in natural areas or crossing streams	NAK	Refer to November 2021 Urban Design Brief, Section 6.1 Open Spaces and Connections.
3.7.3	Trail Siting	NAK	Refer to November 2021 Urban Design Brief, Section 6.1 Open Spaces and Connections.
4	Monitoring	Beacon	Refer to Section 10 of the Scoped Environemttal Assessment by Beacon Environmental.
5	Reporting Requirements	All	Refer to December 2021 Urbantech Functional Servicing and Stormwater Management Report, EIA by Beacon Environmental and Erosion Assessmnet by GEO Morphix.