URBANTECH®

FUNCTIONAL SERVICING REPORT & STORMWATER MANAGEMENT STUDY

130 Mountainview Road North

Town of Halton Hills

REGION OF HALTON

PREPARED FOR
Whitestone Georgetown Developments General Partnership

Urbantech File No.: 23-763

1st Submission - November 2024

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1. INTRODUCTION

This report provides functional servicing design and stormwater management information in support of Official Plan Amendment (OPA), Zoning Bylaw Amendment (ZBA) and Draft Plan of Subdivision (DPOS) for the 130 Mountainview Road North property in the Town of Halton Hills (Town), Region of Halton (Region). When approved, the OPA/ZBA will establish a planning framework for the property, including a multi-block mixed use development, new public road and privately owned public park space.

The servicing and development concepts presented in this report are based on the site plan prepared by Arcadis Architects (Canada) Inc. (architectural plan and site statistics are available in **Appendix A)**, with input from the following reference reports:

- Preliminary Geotechnical Assessment (BlueFrog Environmental Consulting Inc., November 2022)
- Town of Halton Hills Pre-Consultation / Development Review Committee Meeting Notes (Town of Halton Hills, March 2022)
- Town of Halton Hills GO Station Secondary Plan and Land Use Schedule (Town of Halton Hills, 2024 Consolidation)
- Sustainable Halton Water and Wastewater Master Plan (AECOM, 2011)
- Region of Halton 2022 Development Charges Update Water/Wastewater Technical Report (GM BluePlan, September 2021)
- Province of Ontario Provincial Planning Statement (October 2024)
- Municipal Class Environmental Assessment Addendum John Street Wastewater Pumping Station Upgrades (Associated Engineering, March 2024)
- Functional Servicing and Stormwater Management Report 1 Rosetta Street (Arcadis Professional Services (Canada) Inc., 2023)

Design information considers the following:

- Regional Municipality of Halton Water and Wastewater Linear Design Manual (2019)
- Town, Conservation and MECP design criteria for municipal services and stormwater management (SWM) measures

This report is intended to demonstrate the feasibility of site servicing for the proposed development, including water, sanitary and stormwater management. Site grading, and preliminary erosion / sediment control information is also included. The functional servicing design has been prepared in accordance with design criteria and requirements of the Town of Halton Hills and Credit Valley Conservation Authority.

Supporting drawings are available in **Appendix B.** Drawings do not provide design information pertaining to the internal servicing of the proposed buildings. As part of the civil engineering design, a set of storm, sanitary and water connections will be provided for the proposed residential development, beyond which it will be the responsibility of the building mechanical engineer to design the internal servicing concept, in conformance with the servicing and grading design.

1.1 Subject Site

The 130 Mountainview Road North property is located in the Town of Halton Hills (Georgetown) within the Region of Halton. The site is bounded by River Drive to the north, the CN Railway Line to the south, Mountainview Road to the east, and existing residential and employment uses to the west. The site is adjacent to a designated heritage building, located to the west of the site at 2 Rosetta Street.

The site is approximately 3.75 ha. The land has been vacant for many years, save for one existing structure in the southeast corner of the property, but was previously used for industrial purposes. The majority of the area is naturalized (tree cover). The site lies within the limits of the Credit River sub-watershed, under the Credit Valley Conservation Authority (CVC) jurisdiction. It is noted that there are no CVC regulated areas or areas identified as Natural Heritage on the property.

The proposed development includes three (3) blocks of mixed residential and commercial towers (identified as Parcel A, Parcel B, and Parcel C in the Architectural Plans attached in **Appendix A**), all with multiple buildings, podiums and underground parking. Parcel C includes a privately owned park (POP) space. A new, 20 m right-of-way public road bisects the property, connecting the area to both Mountainview Road North and River Drive.

1.2 Georgetown GO Station Area Background

The 130 Mountainview Road site is within the Town of Halton Hills' Georgetown GO Station Area Secondary Plan as outlined in the Town's Official Plan. The property is designated as High Density Residential / Mixed Use Area 1. Apartment buildings and mixed-use buildings are permitted under the current land use policies.

The property is also within an identified Strategic Growth Area, being a Major Transit Station Area (MTSA). In accordance with the Provincial Planning Statement (2024), redevelopment and intensification will be focused in these important area designations to maximize the number of potential transit users that are within walking distance of transit.

The development application for 130 Mountainview Road North is intended amend the current Secondary Plan policies to allow for an additional height and density.

Urbantech also acknowledges the following on-going work in this area by the Town and Region:

- The Town is currently undertaking a Secondary Plan review of the Georgetown GO Station Area / Mill Street Corridor, led by Sajecki Planning. A draft preferred land use option was presented to the public in October 2023. Draft technical studies (i.e., Traffic Impact Study and Area Servicing Plan) are on-going. At the time of writing, no technical work has been made available for review. Approval of an updated Secondary Plan is currently planned for Q1, 2025.
- The Region of Halton is currently updating their Water and Wastewater Master Plan. The current Master Plan was completed in 2011 with a planning horizon to 2031. The new Master Plan will review infrastructure needs to 2051. The Region is working with the Town of Halton Hills to ensure growth projections for the GO Station area are property identified and considered. Future infrastructure improvements and phasing will be determined through the Master Plan process. To-date, there has been no specific information shared regarding future servicing plans or infrastructure projects associated with the GO Station area.
- The Region of Halton is currently constructing new, large-scale water and sanitary infrastructure on Trafalgar Road and Eighth Line that will transition a portion of Georgetown (generally south of Silver Creek) from groundwater service to lake-water service. The transfer of service impacts the GO Station area as follows:
    - The transfer of south Georgetown from groundwater to lake-based water will free up groundwater capacity for growth in north Georgetown (including the GO Station area).

- The transfer of south Georgetown from the Georgetown Wastewater Treatment Plant (WWTP) to the Mid-Halton WWTP (Oakville) will free up wastewater treatment capacity for areas in north Georgetown (including the GO Station area).

The transfer of water service is complete (the transfer occurred in November 2024). The transfer of wastewater service is planned for the end of 2025.

2. EXISTING CONDITIONS & SITE GRADING

2.1 Existing Soil Conditions

A preliminary geotechnical and hydrogeological investigation was conducted by BlueFrog Environmental Consulting Inc. (available under separate cover). Eleven (11) boreholes were drilled to provide geotechnical parameters and recommendations for design. These were drilled at depths ranging from 3.1 mbgs (meters below ground surface) to 7.9 mbgs.

The findings of the geotechnical investigation conclude that soil stratigraphy of the site consists of an upper layer of topsoil, black coal, brown sand and gravel fill. In some areas, either exposed or just below ground cover, were silty fine sand to silt fill interlayered with white kaolinite fill and fine sand. Fill at increased depths included trace gravel, rootlets, coal and topsoil. Weathered grey shale bedrock was inferred at a depth of approximately 3.6 mbgs.

An earthworks and soil management program will be defined at detailed design for removals, soil handing and kaolinite management.

2.2 Existing Groundwater Conditions

Six (6) groundwater monitoring wells were installed on the site and an additional eight (8) monitoring wells were existing. Groundwater depths (measured two weeks after drilling and then one month later), range from 1.4 mbgs to 7.2 mbgs (with one dry well). It is noted in the report that groundwater levels are seasonal and may vary from these measurements at other times of the year and in response to weather events.

Excavation for development may require temporary and/or permanent dewatering. Details on the ultimate proposed excavation and a refined hydrogeological investigation, including groundwater quality, will be required to estimate dewatering volumes and identify discharge requirements. Further consultation with a de-watering contractor, hydrogeologist and environmental consultant at detailed design is required to better understand post-construction de-watering options.

Management options will be further evaluated at the detailed design stage, including overcontrol of stormwater storage tank discharge, waterproofing, etc., depending on the environmental and water quality results.

2.3 Site Grading Design

Under existing conditions, site grades range from approximately 260 m to 248 m, with highest grades at the CN Railway Line and lowest grades at the intersection of Mountainview Road and River Drive. The proposed grading design for the site takes into consideration the following requirements and constraints:

- Conforms to the Town of Halton Hills' design criteria.
- Minimizes cut to fill operations and work towards a balanced site.
- Matches existing lot boundary and road grading conditions (ensure no impact to abutting properties).
- Provides emergency overland flow conveyance for major storm conditions.
- Provides minimum cover on proposed servicing.
- Ensures compatibility of access to surrounding public streets and adjacent private property.

Grading along the new public road conforms with all Town of Halton Hills' design guidelines and matches existing grades at Mountainview Road North and River Drive intersections.

It is anticipated that Parcel A may require either exposed foundations or retaining walls to accommodate grade changes along the Street Line. Further grading coordination will be required as design proceeds.

Preliminary grading is shown on **Drawing GRD-1** in **Appendix B**. Detailed block grading will be completed at the site plan stage.

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3. STORM DRAINAGE & STORMWATER MANAGEMENT

3.1 Stormwater Management Design Criteria

The Town and CVC outline the following design criteria for the site as follows:

- **Quantity Control**: maintain post development peak runoff at pre-development levels for all events up to the 100-year events.
- **Quality Control**: Ensure minimum 80% TSS removal on site.
- **Infiltration / Retention:** Per CVC SWM Criteria (Section 4.2), the first 5 mm of runoff is to be retained on-site.
- Provide safe overland flow conveyance of the 100-year event.

3.2 Existing Stormwater Infrastructure

The existing stormwater sewer network in the vicinity of the site includes:

- 300 mm storm sewer on Mountainview Drive
- 525 mm storm sewer on River Drive, and
- 525 mm storm sewer connection from the Subject Lands to River Drive.

The locations of these sewers are shown on **Drawing STM-1**.

Under existing conditions, drainage from the site does not flow to any existing infrastructure. Runoff from surrounding public roads flows to catchbasins located within Mountainview Road and River Drive.

Two external drainage catchments (0.27 ha) located to the south of the subject lands are conveyed though the subject lands under existing conditions:

- 15 River Drive – existing detached residential building
- 11 River Drive – existing detached residential building

3.3 Proposed Stormwater Management Strategy / Storm Sewer Design

The storm drainage concept for the site is designed to maintain flows and contributing drainage areas to the existing outlet, in accordance with the targets established in **Section 3.5** below. The full-coverage buildings will convey flow via area drains to proposed storage tanks (one (1) tank per parcel, three (3) total) located within the underground parking structures. These storage tanks will discharge controlled flows to the proposed storm sewer within the new public ROW.

The storm sewer is sized to accommodate a 100-year storm event on-site, ensuring target flow rates are not exceeded. Refer to **Drawing STM-2** in **Appendix B** for drainage areas and pipe networks, and **Appendix C** for storm design sheets.

To achieve the target flows, a super pipe is proposed between MH 3 and MH 7 to retain the 100-year event and mitigate overland flow to surrounding roads. The super pipe will consist of a 1500 x 2400 mm concrete box storm sewer, approximately 114 m in length. An orifice plate will be installed in MH 7 to create storage in the super pipe, with the orifice size to be confirmed at detailed design.

The controlled flows for the site will outlet through the existing 525 mm sewer connection to River Drive. Due to grading constraints, a portion of the site adjacent to the existing ROWs (~0.59 ha) will drain uncontrolled to the road, similar to current conditions. This uncontrolled flow has been considered in the design of the site's quantity controls.

3.4 Proposed Quality Control

As identified in **Section 3.1**, the site is required to meet a minimum of 80% TSS removal on site for quality control. In order to achieve the required TSS removal, a combination of catchbasin shields, and ETV certified Oil Grit Separators (OGS) will be used to accomplish TSS removal for the proposed buildings and the road. OGS devices will be used for the building blocks and a combination of CB shields and OGS will be used for the road portion of the development. The final sizing of the OGS devices will be determined as the design advances further. Preliminary sizing calculations are included in **Appendix C**.

The proposed treatment train is as follows:

Subject lands (Parcels A, B, C):

- Proposed OGS within tanks (60% TSS removal, EFO-6 for Parcels, A, B, & C)
- Proposed OGS within the downstream ROW (60% TSS removal, EFO-12)
- Total TSS Removal = 0.6 + (1 - 0.6) x 0.6 = 84%

Subject Lands (Proposed ROW):

- Proposed CB Shields within ROW (50% TSS removal)
- Proposed OGS within ROW (60% TSS removal, EFO-12)
- Total TSS Removal = 0.5 + (1 - 0.5) x 0.6 = 80%

3.5 Quantity Control

A Visual OTTHYMO model was created to model the drainage from the site to determine the pre-development flows. A 24-hour Chicago storm was used to simulate the rainfall on the site using the Town of Halton hills IDF parameters. In accordance with the existing drainage plan, the site was modelled as 1 catchment area with runoff coefficient of 0.25. See drainage map in **Appendix C** for existing catchments. Table 3-1 outlines the pre-development flows.

Table 3-1: Pre-Development Targets

Area (ha)	Runoff Coefficient	5-year Target (m^3/s)
3.75	0.25	0.249

The site will discharge to the existing storm sewer system, and the existing downstream infrastructure to the site has been designed for the 5-year flows. Given this information, the flow targets for the site are limited to the 5-year existing flow.

Refer to **Drawing STM-2** in **Appendix B** for the existing storm drainage plan.

Under post-development conditions, flows will be retained onsite in storage tanks within the proposed parcel blocks, as well as within the proposed super pipe within the road that will ultimately outlet to River Drive. Due to grading constraints along the property boundary, 0.59 ha of site will be uncontrolled, with the remainder of the site being overcontrolled to ensure that the target flow rate of 0.249 m^3/s is not exceeded.

The tank flows are controlled to ensure that the 5-year pre-development target is not exceeded during the 100-year event. **Table 3-2** summarizes the flow, storage values, and orifice sizes required based on the VO6 calculations.

Table 3-2: Flow and Required Storage Volume Results

Outlet	Area (ha)	Runoff Coefficient	Post Development 100-year Flows (m^3/s)	Required Volume (m^3)
Buildings A, B, C	0.72	0.9	0.026	455
Buildings D, E	0.77	0.9	0.026	498
Buildings F, G	0.80	0.83	0.026	499
Super Pipe	3.19	0.82	0.144	413

Quantity control will be provided through the use of orifice tubes. The sizes of the orifice tubes will be confirmed as the design advances.

Table 3-3 summarizes the pre-to post flows for 2-year to 100-year storm events.

Table 3-3: Pre to Post Flows for the 2-year to 100-year Storm Events

Outlet	Storm Event	Existing Flows (m^3/s)	Post-Development Flows (m^3/s)
Overall Site	2-year	0.141	0.102
	5-year	0.249	0.148
	10-year	0.329	0.172
	25-year	0.433	0.203
	50-year	0.513	0.226
	100-year	0.593	0.249

Based on the above, the proposed quantity control measures have been shown to ensure that the 100-year target flow rate of 0.249 m^3/s is not exceeded.

Refer to SWM Calculations in **Appendix C** for supporting calculations and Drawing **STM-2** in **Appendix B** for the post development storm drainage plan.

3.6 Water Balance / Site Retention

As noted in **Section 3.1**, 5 mm of retention is targeted over the entire area of the subject site. Based on the total development area of 2.59 ha, which includes the three (3) building parcels and new public road ROW, a total retention volume of 129.5 m^3 is required for the proposed development.

Water balance retention volume can be achieved for high density urbanized areas by a combination of Low Impact Development (LID) measures including, but not limited to:

- Storage for irrigation purposes;
- Rainwater harvesting;
- Green roofs;
- Infiltration trenches and soakaway pits (for example, within park space);

- Bioretention;
- Permeable pavement; and
- Perforated pipe systems.

The use of LIDs within the 130 Mountainview Road North site is somewhat limited due to the urban / high-density nature of the development. For example, opportunities for infiltration-based LID measures are not practical in areas occupied by buildings due to the underground parking structures. A detailed LID and water balance mitigation plan will be provided through detailed design and the site plan approval stage as more details become available. Site constraints such as clearance to the seasonally high groundwater level will be considered in the selection, implementation and location of the proposed LID measures.

For the purposes of this initial work, stormwater storage tanks within the parking structures have been sized with sumps for retention storage. This storage can be used for irrigation purposes or other mechanical re-use measures. The sumps are sized to contain the 5 mm event across the three (3) tanks.

It is noted that a site-specific water balance assessment is underway by a hydrogeologist. The required site retention will be reviewed and adjusted accordingly (as necessary) as design progresses.

4. WASTEWATER (SANITARY) SERVICING

4.1 Existing Conditions – Wastewater

4.1.1 Existing Wastewater Infrastructure

Existing wastewater infrastructure immediately adjacent to the 130 Mountainview Road North property includes:

- 300 mm sanitary sewer on River Drive (immediately north of the site), draining east towards Mountainview Road.
- 300 mm sanitary sewer on Mountainview Road, draining north towards John Street.
- 300 mm to 375 mm sanitary sewer on John Street, draining west towards the John Street Wastewater Pump Station (WWPS)

The proposed development is within the John Street WWPS drainage catchment. The pump station, located within John Street Park, is owned and operated by the Region of Halton. John Street WWPS is an older station, originally constructed in 1970. The Region completed a Schedule B Municipal Class Environmental Assessment (MCEA) Study in 2018 to identify upgrades required. Recommendations in 2018 included the construction of a new station (within John Street Park), a second forcemain, and emergency overflow pipe. An Addendum to the 2018 MCEA Study was filed in March 2024 by the Region and Associated Engineering, which concludes that a new station is not required. Instead, the John Street WWPS will undergo mechanical, electrical and instrumentation upgrades to bring the station up to current design standards. A one-hour emergency storage tank, back-up generator, emergency overflow pipe, and second forcemain will be added to the station for redundancy and safety. Detailed design work is on-going. The work planned is not intended to change the overall capacity of the pump station.

The wastewater collected at John Street WWPS is discharged to a large downstream sewer network that includes the Silver Creek Trunk sewer, terminating at the Georgetown Wastewater Treatment Plant (WWTP).

Refer to **Drawing SAN-1** in **Appendix B** for additional information.

4.1.2 Existing Wastewater Demands

There is no current wastewater generation associated with the 130 Mountainview Road North site.

4.2 Proposed Conditions – Wastewater

4.2.1 Proposed Wastewater Servicing Strategy

The sanitary servicing strategy for the 130 Mountainview Road North property includes a new proposed 250 mm sewer to be located within the planned public ROW. The new sewer will connect to the existing 300 mm wastewater main on River Drive at existing MH5A.

Wastewater from Parcel B and Parcel C will discharge to the new 250 mm sanitary sewer on the public ROW via 250 mm sewer laterals. Wastewater from Parcel A is planned to connect directly to the existing 300 mm pipe on River Drive via existing sewer connections at MH3A and MH4A. All wastewater flow from the 130 Mountainview Road North development will be conveyed in the existing sewer system north on Mountainview Road and west to the John Street WWPS.

Per Region of Halton guidelines, a 250 mm sanitary service connection with property line inspection manhole will ultimately be provided for Parcel A, B and C. The ultimate elevation of the connection will be confirmed at detailed design with the mechanical engineer. The mechanical consultant will also be responsible for the design of all internal sanitary services.

Refer to **Drawing SAN-1** in **Appendix B** for additional information.

4.2.2 Wastewater Generation Rates

Wastewater generation rates associated with the 130 Mountainview Road North property have been calculated from Site Statistics as shown in **Appendix A,** and in accordance with Halton Region Design Criteria as follows:

- Region of Halton Water and Wastewater Linear Design Criteria (per capita generation rate, average day demand, peaking factor and inflow / infiltration rate).
- Region of Halton Built Boundary Housing Occupancy Rates (per the 2022 DC Background Study, Table A-4).

Projected wastewater generation for the site under build-out conditions is shown below, with supporting calculations available in **Appendix C**. Wastewater from all parcels ultimately discharges to the same existing 300 mm pipe on River Drive.

Total Wastewater Generation (Parcel A, B and C):

- Population: 2,409 people, 14 jobs
- Avg. Day Usage: 275 L/person/day
- Avg. Dry Weather Flow: 7.71 L/s
- Peaking Factor (Modified Harmon): 3.52
- Inflow / Infiltration: 1.07 L/s (3.75 ha area)
- Peak Wet Weather Flow: 28.22 L/s

4.2.3 Wastewater System Capacity Analysis - Linear

The Region of Halton provided their InfoWorks ICM 2024.4.0 base hydraulic model for Milton / Mid-Halton / Georgetown in November 2023 for use on this project. The model was run in accordance with instructions provided by the Region, using the 10-yr storm event and DWF wastewater profile simulations.

The model was run under both existing conditions and with the following modifications to simulate post-development conditions in the linear wastewater system:

- 130 Mountainview Road North population and jobs (2,409 people, 14 jobs), added to SMH786
- 1 Rosetta population (905 people), added to SMH52120

The 1 Rosetta development was added to the model run as a conservative estimate of long-term downstream flow conditions. Given the status of the 1 Rosetta application, the intent was to ensure that the wastewater system would be able to accommodate both developments going forward without any reduction in level of service.

Results from the modeling run are shown in **Table 4-1**. Information (i.e., max flow and pipe full capacity) has been extracted from the model (on a segment-by-segment basis) for all pipes from the proposed development to the John Street WWPS. Tabulated values include results from both the existing conditions

model and the post-development conditions model, for comparison purposes. Pipe segment numbers referenced in the table are shown graphically in **Figure 4-1**, which is taken from the Region's model output and modified to show the development locations.

Table 4-1: Wastewater Hydraulic Modeling Results

	Peak Flow (Model) (m^3 s)		Pipe Full Capacity (m^3/s)	Pipe % Full (Peak Conditions)	
Pipe Segment	Existing Conditions	Future Conditions	All Conditions	Existing Conditions	Future Conditions
SMH55328.1	0.020	0.022	0.231	9%	10%
SMH786.1	0.035	0.042	0.198	17%	21%
SMH785.1	0.036	0.043	0.198	18%	22%
SMH14466.1	0.038	0.045	0.077	49%	58%
SMH14477.1	0.077	0.084	0.112	69%	75%
SMH55329.1	0.077	0.084	0.112	69%	75%
SMH14480.1	0.084	0.091	0.110	77%	83%
SMH14483.1	0.115	0.121	0.287	40%	42%
SMH14482.1	0.121	0.128	0.259	47%	49%

Results from the model show a relatively minor increase in future flow conditions with the addition of both 130 Mountainview Road North and 1 Rosetta developments. There is significant capacity remaining in all pipes under post-development conditions.

Wastewater flow and pipe capacity downstream of the John Street WWPS is set by pumping rate and is not anticipated to change, regardless of the flow rate into the station. The downstream wastewater network will already be sized for the pump station peak discharge rate. As such, the wastewater capacity analysis does not extend beyond the pump station.

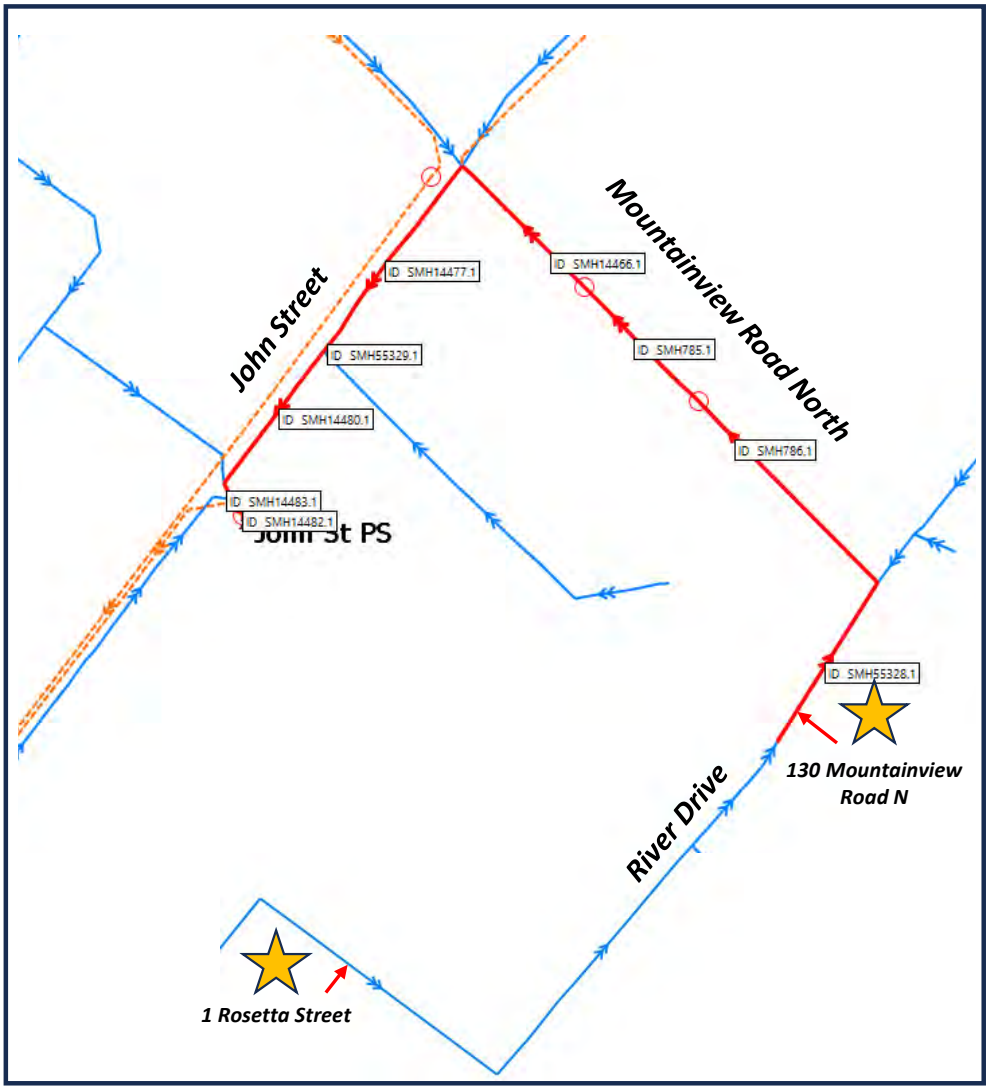

Figure 4-1: Wastewater Hydraulic Model Output

4.2.4 Wastewater System Capacity Analysis – John Street Pump Station

As outlined in the John Street Wastewater Pumping Station MCEA Study Addendum (March 2024), John Street WWPS currently operates as follows:

- Daily Average Flow Rate = 5 L/s
- Peak Hour Flow Rate = 67 L/s

The station includes a below grade wet well with one (1) submersible pump (62 L/s) and a dry well with two (2) dry pit pumps (each rated at 63 L/s). The Region calculates pump station capacity (firm capacity) with the largest pump out of service (i.e., 2 operating, 1 standby). As such, firm capacity of the John Street station is 125 L/s.

Given the current peak hour flow rate of 67 L/s, there is 58 L/s of available capacity at the John Street WWPS, which is sufficient to accommodate peak wastewater flow from the 130 Mountainview Road North development (estimated at 28.1 L/s) and the 1 Rosetta property (11.5 L/s, per Arcadis FSR).

4.2.5 Wastewater Treatment Capacity Analysis

As outlined in **Section 1.2**, The Region of Halton is currently constructing new, large-scale sanitary trunk infrastructure on Eighth Line (from Milton to Georgetown) that will transition a portion of Georgetown (generally south of Silver Creek) from groundwater service to lake-water service. When complete (in 2025) the Eighth Line trunk sewer will transfer wastewater generated in south Georgetown from the Georgetown Wastewater Treatment Plant to the Mid-Halton Wastewater Treatment Plant (Oakville).

Wastewater generated from the 130 Mountainview Road North development will continue to be treated in the Georgetown Wastewater Treatment Plant long-term. The transfer of service will free up significant capacity at the Georgetown Wastewater Treatment Plant for growth areas in north Georgetown, including the GO Station area. As such, wastewater treatment capacity is not anticipated to be a limiting factor for this development.

5. WATER SERVICING

5.1 Existing Conditions – Water

5.1.1 Existing Water Infrastructure

The existing water network, per the region's record information, in the vicinity of the site includes:

- 250 mm watermain within River Drive
- 250 mm watermain within Mountainview Road North
- Hydrant at the southwest corner of Mountainview Road North and River Drive, within the subject lands.

The 130 Mountainview Road North property is within the G6G water pressure zone, which is serviced directly by the Town's three municipal groundwater wellfields (Princess Anne, Lindsey Court and Cedarvale). The distribution network is highly integrated; water supply is not specific to an area but is provided throughout the network by all wellfields. Floating storage for zone G6G is provided by the No. 22 Sideroad Reservoir and the Todd Road Elevated Tank.

5.1.2 Existing Water Demands

There is no current water demand associated with the 130 Mountainview Road North site.

5.2 Proposed Conditions - Water

5.2.1 Proposed Water Servicing Strategy

The water servicing strategy for the 130 Mountainview Road North property includes a new proposed 250 mm watermain to be located within the planned public ROW. The watermain will connect at either end of the public road to existing infrastructure on River Drive and Mountainview Road North. Each parcel will have a water service connection to the new watermain for both domestic and fire.

In addition to the above, please note that:

- Watermains will provide all domestic flow and fire protection to the 130 Mountainview Road North development.
- Per Region of Halton guidelines, a 200 mm diameter fire service and 150 mm diameter domestic (residential) service will be required for each parcel. A second 200 mm fire service may be required but will be confirmed at site plan with the mechanical engineer. The mechanical consultant will also be responsible for the design of all the internal water services.
- The final location of the fire department connection (siamese connection) for the buildings will need to be located within 80 m of a municipal fire hydrant. Fire hydrant location will be determined at detailed design but will meet Region of Halton criteria for location and spacing.

Refer to **Drawing SERV-1** in **Appendix B** for additional information.

5.2.2 Water System Demand

Municipal Engineering Solutions (MES) was retained to complete water hydraulic modeling for the 130 Mountainview Road North development. The full MES report is available in **Appendix D**. As part of the

work, MES estimated the future water demand for the development as follows, in accordance with Halton Region and the Fire Underwriters Survey (FUS) design standards:

- Average Day Demand 7.60 L/s
- Maximum Day Demand 17.10 L/s
- Peak Hour Demand 30.36 L/s

- Fire Flow Range from 167 L/s to 200 L/s (FUS calculation)
- Fire Flow Pressure 20 psi (minimum)

5.2.3 Water System Capacity Analysis – Linear

The MES report in **Appendix D** summarizes the modeling methodology used to assess water system capacity under post-development conditions. The proposed development layout and projected populations were incorporated into the Region's existing InfoWater model (dated August 2022). The model was run under future conditions (i.e., post the south Georgetown water transfer) to assess available system capacity and pressure.

Key results are as follows:

- The site is adequately supplied from Zone G6G.
- All service flows, fire flows and delivery pressures are within the Region's required ranges under all operating conditions (average day, max day, peak hour, max day + fire) and for both 2026 and 2031 modeling scenarios.

Refer to the full report in **Appendix D** for additional information.

It is also important to note that:

- Water modeling suggests that a 200 mm pipe may be sufficient for service. A 250 mm watermain has been shown on the servicing drawings as a conservative preliminary size. Sizing will be refined at detailed design.
- Similar to the wastewater analysis, MES water modeling accounts for future development at the 1 Rosetta property, to ensure no long-term impacts.
- Hydrant tests at the two (2) closest hydrants to the subject property were tested by Watermark in September 2024. Results confirm that flow and pressure available under fire conditions are suitable for high-rise development (i.e., 360 L/s to 445 L/s at 20 psi). The Watermark report is available as **Appendix E**.

5.2.4 Water Treatment Capacity Analysis

With the completion of the Georgetown lake-based transfer of water service in November 2024, north Georgetown (including the GO Station area) remains serviced by three (3) municipal groundwater wellfields and associated treatment facilities. South Georgetown (generally south of Silver Creek) is serviced by the south Halton lake-based system. The transfer of service frees up groundwater capacity for new growth in areas of north Georgetown like the GO Station MTSA. With the transfer now complete, it is not anticipated that municipal groundwater capacity will be a limiting factor for development of the 130 Mountainview Road North site.

6. EROSION AND SEDIMENT CONTROL

Erosion and sediment controls for the subject lands will be designed in conformance with the Town and CVC guidelines. Erosion and sediment controls will be implemented during all site construction works including but not limited to topsoil stripping, bulk earthworks, foundation excavation, site servicing and stockpiling of materials and will conform to ESC guidelines (2019). The following erosion and sediment control measures are proposed to be implemented during construction:

- Installing heavy duty silt control fencing along the perimeter of the site at strategic locations.
- Installing a temporary mud mat at the construction site entrance.
- Wrapping the tops of all inlet structures with filter fabric and using install silt sacks.
- Tree preservation fencing in accordance with the tree preservation plan, if required.
- Gravel mud mat at the construction vehicle access point to minimize off-site tracking of sediments.
- Inspecting all sediment and erosion control controls to maintain them in good repair until such time as the Engineer or the Town approves their removal.

If required, site-specific measures will be determined during the detailed design / site alteration application stage. A detailed Erosion & Sediment Control Plan will be provided in the future through the detailed design stage.

7. CONCLUSIONS

This report has demonstrated that:

- Stormwater management for the site is designed to maintain flows and contributing drainage areas to the existing outlet, in accordance with quality and quantity control targets:
  - Maintain post development peak runoff at pre-development levels for all events up to the 100-year events.
  - Ensure minimum 80% TSS removal on site.
- Stormwater quantity control storage for the site plan blocks (Parcel A, B and C) will be provided by storage tanks located in the underground parking structures. Quantity control storage for the road ROW catchment and park block will be provided by superpipe, integrated with the proposed storm servicing plan. Runoff from the road ROW catchments is to be captured by proposed catchbasins to the storm sewer system, where the proposed superpipe will provide the required storage attenuation.
- Enhanced Level 1 quality control will be provided by a treatment train approach combining treatment via oil/grit separator (OGS) units and LIDs.
- Per CVC SWM Criteria, the first 5 mm of runoff will be retained on-site. Based on the total development area including the site plan blocks and proposed ROWs, a total retention volume of 129.5 m^3 is required. Retention will ultimately be achieved by a combination of Low Impact Development (LID) measures, to be defined at the site plan approval stage. Retention volumes will be checked and refined (as required) when site water balance information is available.
- Sanitary servicing will be provided by a new 250 mm diameter sewer within the proposed public ROW. Wastewater generated from the property will be conveyed to the John Street WWPS via existing sanitary sewers on River Drive and Mountainview Road.
- Sanitary hydraulic modelling shows that capacity is available in the existing system to accommodate build-out of the proposed 130 Mountainview Road North development. Downstream pump station and wastewater treatment capacity is also available.
- Water servicing for the site will be provided by a new 250 mm diameter watermain within the proposed public ROW. The new watermain will connect at both ends to existing 250 mm watermains on River Drive and Mountainview Road North.
- Water modelling carried out by MES shows that adequate flow and pressure can be delivered to the proposed development under both domestic use and fire flow conditions. Water treatment capacity and municipal groundwater supply is available with the recent completion of the Region's lake-based service transfer (November 2024).
- Erosion and sediment controls will be implemented during construction in accordance with Erosion and Sediment Control Guidelines.

Report Prepared by:

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APPENDIX A

Site Statistics and Site Plan (Arcadis Architects (Canada) Inc.)

PROJECT OVERALL STATISTICS

m - Denotes Meters *min - Denotes Minimum*
sm - Denotes Square Meters *max - Denotes Maximum*

PROJECT DATA

Municipal Address of Subject Lands:	130Mountainview Rd N. Halton Hills, Ontario	
Zoning:	Halton Hills Zoning By-Law No. 2010-0057	
Proposed Use:	Mixed Used Residential	
OBC Building Classification	New Construction - Part 3 - Group C - Residential Use - Sprinklered	
Number of Parcels	3 Developable Parcels + 1 Public Right Of Way	
Number of Buildings	6 High-Rise Towers + 1 Mid-Rise Building	
Overall F.S.I. *	4.55	* (GFA ÷ Project Site)
Net F.S.I. **	5.27	** (GFA ÷ Net Project Site)
Total Site Area ***	28,467.00 sm	*** Project Site
Public R.O.W *****	3,902.00 sm	**** 20m R.O.W Connecting Mountainview Rd. to River St.
Net Site Area *****	24,565.00	***** Net Project Site = Total Site - R.O.W
P.O.P Area ******	2,721.00	****** Included in Net Project Site
Established Grades:		
Parcel A	254.70 m	*CDG (Canadian Geodetic Datum)*
Parcel B	257.05 m	*CDG (Canadian Geodetic Datum)*
Parcel C	256.15 m	*CDG (Canadian Geodetic Datum)*

Survey Benchmark: Elevations shown hereon are geodetic and are derived from the control station 00820178040 having an elevation of 272.174m (cgvd-1928:1978). Refer to Survey for clarification.

BUILDING HEIGHT

Tower A			
Height to Top of Residential Roof	59.30 m	Height to Top of MPH Roof	65.30 m
No. of Storeys Proposed:	17.00		
Tower B			
Height to Top of Residential Roof	74.75 m	Height to Top of MPH Roof	80.75 m
No. of Storeys Proposed:	22.00		
Tower C			
Height to Top of Residential Roof	59.30 m	Height to Top of MPH Roof	65.30 m
No. of Storeys Proposed:	17.00		
Tower D			
Height to Top of Residential Roof	59.90 m	Height to Top of MPH Roof	65.90 m
No. of Storeys Proposed:	17.00		
Tower E			
Height to Top of Residential Roof	69.25 m	Height to Top of MPH Roof	75.25 m
No. of Storeys Proposed:	20.00		
Tower F			
Height to Top of Residential Roof	75.30 m	Height to Top of MPH Roof	81.30 m
No. of Storeys Proposed:	22.00		
Building G			
Height to Top of Residential Roof	43.35 m	Height to Top of MPH Roof	49.35 m
No. of Storeys Proposed:	12.00		

Note:
Building height excludes mechanical penthouses up to 6.0m, chimney vents, skylights, antennae, elevator machine rooms and parapet walls, and is measured from the established grade.

PROPOSED AREAS

Residential GFA*	128,978.00 sm	** GFA as defined by Halton Hills Zoning By-Law No. 2010-0057*
Non Res GFA	525.00 sm	
Total GFA	129,503.00 sm	
At Grade Condition:		
Ground Floor Area**	16,271.40 sm	*** Building Footprint including cantilevered areas*
Landscaped Open Space***	6,639.60 sm	**** Project Site Soft Landscaping + Hard Landscaping areas*
Paved Surface Area*****	1,654.00 sm	***** Driveway + Parking lots*

RESIDENTIAL UNIT MIX

Unit Type	Unit Count:	Typical Unit Size	Percent	
Studio	53	*As per Arch. Drawings*	3.6%	S
1 Bedroom	737	*As per Arch. Drawings*	49.8%	1B
2 Bedroom	629	*As per Arch. Drawings*	42.5%	2B
3 Bedroom	62	*As per Arch. Drawings*	4.2%	3B
TOTAL:	**1,481**	Units		

AMENITY

	Area	
Indoor Amenity Provided:	2,962.00	2.0 m^2 per unit
Outdoor Amenity Provided:	2,962.00	2.0 m^2 per unit
Total Indoor & Outdoor Provided Amenity	5,924.00	4.0 m^2 per unit

PARKING SPACE

REQUIRED (as per Bill 185)	Parking Spaces	*PROVIDED*	Parking Spaces
Total Parking Spaces Required:	0	Total Parking Spaces Provided:	1,481
Breakdown of parking space by use allocation:		Breakdown of parking space by use allocation:	
Residential (0.0 per Unit)	0	Residential (0.9 per Unit)	1,333
Visitors (0.0 Per Unit)	0	Visitors (0.1 Per Unit)	148
No.of parking Spaces to be Accessible	0	Total Accessible Spaces 4 vis.+33 Res.	37
		Breakdown of Provided parking space by location:	
		Above Grade Parking	829
		Below Grade Parking	652

BICYCLE PARKING SPACE

REQUIRED Bicycle Parking Space	Spaces	*PROVIDED Bicycle Parking Space*	Spaces
Long-term Resi. Spaces (0.7/Unit)	1,037	Long-term Spaces @ Mezz Level	639
Short-term Vis. Spaces @ Grade	32	Long-term Spaces @ L1	398
Non-Res Spaces @ Grade	2	Short-term Spaces @ Grade	34
TOTAL REQUIRED:	1,071	TOTAL PROVIDED:	1,071
		1,037 indoor long-term spaces (Bike Room @ L1 & Mezz) + 34 outdoor spaces (32 short-term Resi+2 Non-Res) located next to Entrances @ grade. Refer to A200 & A201	

LOADING SPACE

5 Type G Loading Space Provided. Size: 13(L) X 4(W) X 7.5(H)	
1 type B Loading Space: Size: 11(L) X 3.5(W) X 4.0(H)	200mm reinforced concrete pad with 7.5m Ceiling Height for entire loading area. Refer to A200 & A201 & A202 Drawings.

PROJECT STATISTICS PARCEL B

m - Denotes Meters *min - Denotes Minimum*
sm - Denotes Square Meters *max - Denotes Maximum*

PROJECT DATA

Municipal Address of Subject Lands:	Parcel B - 130Mountainview Rd N, Halton Hills, Ontario	
Zoning:	Halton Hills Zoning By-Law No. 2010-0057	
Proposed Use:	Residential	
OBC Building Classification	New Construction - Part 3 - Group C - Residential Use - Sprinklered	
Number of Buildings	2 Towers on shared podium	
Proposed F.S.I. *	4.42	* (GFA ÷ Project Site)
Parcel Area **	7865.00 sm	** Project Site
Established Grade:	257.05 m	*CDG (Canadian Geodetic Datum)*

Survey Benchmark: Elevations shown hereon are geodetic and are derived from the control station 00820178040 having an elevation of 272.174m (cgvd-1928:1978). Refer to Survey for clarification.

BUILDING HEIGHT

Tower D			
Height to Top of Residential Roof	59.90 m	Height to Top of MPH Roof	65.90 m
No. of Storeys Proposed:	17.00		
Tower E			
Height to Top of Residential Roof	69.25 m	Height to Top of MPH Roof	75.25 m
No. of Storeys Proposed:	20.00		

Note:
Building height excludes mechanical penthouses up to 6.0m, chimney vents, skylights, antennae, elevator machine rooms and parapet walls, and is measured from the established grade.

PROPOSED AREAS

Residential GFA*	34750.00 sm	** GFA as defined by Halton Hills Zoning By-Law No. 2010-0057*
At Grade Condition:		
Ground Floor Area**	5415.00 sm	*** Building Footprint including cantilevered areas*
Landscaped Open Space***	1749.00 sm	**** Project Site Soft Landscaping + Hard Landscaping areas*
Paved Surface Area*****	701.00 sm	***** Driveway + Parking lots*

RESIDENTIAL UNIT MIX

Unit Type	Unit Count:	Typical Unit Size	Percent	
Studio	11	*As per Arch. Drawings*	2.7%	S
1 Bedroom	259	*As per Arch. Drawings*	62.7%	1B
2 Bedroom	123	*As per Arch. Drawings*	29.8%	2B
3 Bedroom	20	*As per Arch. Drawings*	4.8%	3B
TOTAL:	**413**	Units		

AMENITY

	Area	
Indoor Amenity Provided:	826.00	2.0 m^2 per unit
Outdoor Amenity Provided:	826.00	2.0 m^2 per unit
Total Indoor & Outdoor Provided Amenity	1652.00	4.0 m^2 per unit

PARKING SPACE

REQUIRED (as per Bill 185)	Parking Spaces	*PROVIDED*	Parking Spaces
Total Parking Spaces Required:	0	Total Parking Spaces Provided:	413
Breakdown of parking space by use allocation:		Breakdown of parking space by use allocation:	
Residential (0.0 per Unit)	0	Residential (0.9 per Unit)	372
Visitors (0.0 Per Unit)	0	Visitors (0.1 Per Unit)	41
No.of parking Spaces to be Accessible	0	Total Accessible Spaces 1 vis.+10 Res.	11
		Breakdown of Provided parking space by location:	
		Above Grade Parking	338
		Below Grade Parking	75

BICYCLE PARKING SPACE

REQUIRED Bicycle Parking Space	Spaces	*PROVIDED Bicycle Parking Space*	Spaces
Long-term Resi. Spaces (0.7/Unit)	289	Long-term Spaces @ Mezz Level	210
Short-term Vis. Spaces @ Grade	12	Long-term Spaces @ L1	79
		Short-term Spaces @ Grade	12
TOTAL REQUIRED:	301	TOTAL PROVIDED:	301
		289 indoor long-term spaces (Bike Room @ L1 & Mezz) + 12 short-term outdoor spaces located next to Entrance @ grade. Refer to A200, A201	

LOADING SPACE

1 type G Loading Space: Size: 13(L) X 4(W) X 7.5(H)		
Staging area for Type G loading space	36 sm	200mm reinforced concrete pad with 7.5m Ceiling Height for entire loading area. Refer to A200 & A201 & A202 Drawings.
1 type B Loading Space: Size: 11(L) X 3.5(W) X 4.0(H)		

Both towers will share the type G for garbage pick up. All bins will be moved to type G area for pick up.
Tower E will use Type B for moving Purposes. Tower D will use the Type G for moving purposes

GARBAGE ROOM

Breakdown of main garbage room area:		
Bulk Storage	10 sm	
Residential Garbage Room & Storage	120.00 sm	Refer to A200 drawing.
TOTAL:	130.00 sm	

Waste Management Bins	Bin Type	Total Bins for all parcel B (413 units)
Garbage	3cy-bin	9
Recycle	3cy-bin	12
Organics	3cy-bin	5

Breakdown of temporary garbage room area for Tower E :		
Bulk Storage	10 sm	Refer to A200 drawing. The garbage bins will be temporarily stored in this area and will be moved to main garbage room Type G loading area prior to pick up day
Residential Garbage Room & Storage	65.00 sm	
TOTAL:	75.00 sm	

PROJECT STATISTICS PARCEL A

m - Denotes Meters *min - Denotes Minimum*
sm - Denotes Square Meters *max - Denotes Maximum*

PROJECT DATA

Municipal Address of Subject Lands:	Parcel A - 130Mountainview Rd N. Halton Hills, Ontario	
Zoning:	Halton Hills Zoning By-Law No. 2010-0057	
Proposed Use:	Mixed Used Residential	
OBC Building Classification	New Construction - Part 3 - Group C - Residential Use - Sprinklered	
Number of Buildings	3 Towers on shared podium	
Proposed F.S.I. *	7.62	* (GFA ÷ Project Site)
Parcel Area **	7820.00 sm	** Project Site
Established Grade:	254.70 m	*CDG (Canadian Geodetic Datum)*

Survey Benchmark: Elevations shown hereon are geodetic and are derived from the control station 00820178040 having an elevation of 272.174m (cgvd-1928:1978). Refer to Survey for clarification.

BUILDING HEIGHT

Tower A			
Height to Top of Residential Roof	59.30 m	Height to Top of MPH Roof	65.30 m
No. of Storeys Proposed:	17.00		
Tower B			
Height to Top of Residential Roof	74.75 m	Height to Top of MPH Roof	80.75 m
No. of Storeys Proposed:	22.00		
Tower C			
Height to Top of Residential Roof	59.30 m	Height to Top of MPH Roof	65.30 m
No. of Storeys Proposed:	17.00		

Note:
Building height excludes mechanical penthouses up to 6.0m, chimney vents, skylights, antennae, elevator machine rooms and parapet walls, and is measured from the established grade.

PROPOSED AREAS

Residential GFA*	59094.00 sm	** GFA as defined by Halton Hills Zoning By-Law No. 2010-0057*
Non Res GFA	525.00 sm	
Total GFA	59619.00 sm	
At Grade Condition:		
Ground Floor Area**	6068.40 sm	*** Building Footprint including cantilevered areas*
Landscaped Open Space***	1480.60 sm	**** Project Site Soft Landscaping + Hard Landscaping areas*
Paved Surface Area*****	271.00 sm	****** Driveway + Parking lots*

RESIDENTIAL UNIT MIX

Unit Type	Unit Count:	Typical Unit Size	Percent	
Studio	22	*As per Arch. Drawings*	3.3%	S
1 Bedroom	325	*As per Arch. Drawings*	48.5%	1B
2 Bedroom	307	*As per Arch. Drawings*	45.8%	2B
3 Bedroom	16	*As per Arch. Drawings*	2.4%	3B
TOTAL:	**670**	Units		

AMENITY

	Area	
Indoor Amenity Provided:	1340.00	2.0 m^2 per unit
Outdoor Amenity Provided:	1340.00	2.0 m^2 per unit
Total Indoor & Outdoor Provided Amenity	2680.00	4.0 m^2 per unit

PARKING SPACE

REQUIRED (as per Bill 185)	Parking Spaces	*PROVIDED*	Parking Spaces
Total Parking Spaces Required:	0	Total Parking Spaces Provided:	670
Breakdown of parking space by use allocation:		Breakdown of parking space by use allocation:	
Residential (0.0 per Unit)	0	Residential (0.9 per Unit)	603
Visitors (0.0 Per Unit)	0	Visitors (0.1 Per Unit)	67
No.of parking Spaces to be Accessible	0	Total Accessible Spaces 2 vis.+14 Res.	16
		Breakdown of Provided parking space by location:	
		Above Grade Parking	173
		Below Grade Parking	497

BICYCLE PARKING SPACE

REQUIRED Bicycle Parking Space	Spaces	*PROVIDED Bicycle Parking Space*	Spaces
Long-term Resi. Spaces (0.7/Unit)	469	Long-term Spaces @ Mezz Level	150
Short-term Vis. Spaces @ Grade	10	Long-term Spaces @ L1	319
Non-Res Spaces @ Grade	2	Short-term Spaces @ Grade	12
TOTAL REQUIRED:	481	TOTAL PROVIDED:	481
		469 indoor long-term spaces (Bike Room @ L1 & Mezz) + 12 outdoor spaces (10 short-term Resi+2 Non-Res) located next to Entrance @ grade. Refer to A200, A201	

LOADING SPACE

3 Type G Loading Space Provided (1 per Tower). Size: 13(L) X 4(W) X 7.5(H)		
Staging Area (17 sm per Tower)	51 sm	200mm reinforced concrete pad with 7.5m Ceiling Height for entire loading area. Refer to A200 & A201 & A202 Drawings.

GARBAGE ROOM

Tower A Breakdown of garbage room area:		
Bulk Storage	10 sm	
Residential Garbage Room & Storage	70.00 sm	Refer to A200 drawing.
TOTAL:	80.00 sm	

Waste Management Bins	Bin Type	Total Bins
Garbage	3cy-bin	5
Recycle	3cy-bin	6
Organics	3cy-bin	3

Tower B Breakdown of garbage room area:		
Bulk Storage	10 sm	
Residential Garbage Room & Storage	80.00 sm	Refer to A200 drawing.
TOTAL:	90.00 sm	

Waste Management Bins	Bin Type	Total Bins
Garbage	3cy-bin	6
Recycle	3cy-bin	7
Organics	3cy-bin	3

Tower C Breakdown of garbage room area:		
Bulk Storage	10 sm	
Residential Garbage Room & Storage	70.00 sm	Refer to A200 drawing.
TOTAL:	80.00 sm	

Waste Management Bins	Bin Type	Total Bins
Garbage	3cy-bin	5
Recycle	3cy-bin	6
Organics	3cy-bin	3

PROJECT STATISTICS PARCEL C

m - Denotes Meters *min - Denotes Minimum*
sm - Denotes Square Meters *max - Denotes Maximum*

PROJECT DATA

Municipal Address of Subject Lands:	Parcel C - 130Mountainview Rd N, Halton Hills, Ontario	
Zoning:	Halton Hills Zoning By-Law No. 2010-0057	
Proposed Use:	Residential	
OBC Building Classification	New Construction - Part 3 - Group C - Residential Use - Sprinklered	
Number of Buildings	1 Tower and 1 Mid-Rise building on shared podium	
Proposed F.S.I. *	3.96	* (GFA ÷ Project Site)
Parcel Area **	8880.00 sm	** Project Site
P.O.P Area ***	2721.00 sm	*** Included in Project Site area
Established Grade:	256.15 m	*CDG (Canadian Geodetic Datum)*

Survey Benchmark: Elevations shown hereon are geodetic and are derived from the control station 00820178040 having an elevation of 272.174m (cgvd-1928:1978). Refer to Survey for clarification.

BUILDING HEIGHT

Tower F			
Height to Top of Residential Roof	75.30 m	Height to Top of MPH Roof	81.30 m
No. of Storeys Proposed:	22.00		
Building G			
Height to Top of Residential Roof	43.35 m	Height to Top of MPH Roof	49.35 m
No. of Storeys Proposed:	12.00		

Note:
Building height excludes mechanical penthouses up to 6.0m, chimney vents, skylights, antennae, elevator machine rooms and parapet walls, and is measured from the established grade.

PROPOSED AREAS

Residential GFA*	35134.00 sm	** GFA as defined by Halton Hills Zoning By-Law No. 2010-0057*
At Grade Condition:		
Ground Floor Area**	4788.00 sm	*** Building Footprint including cantilevered areas*
Landscaped Open Space***	3410.00 sm	**** Project Site Soft & Hard Landscaping + P.O.P*
Paved Surface Area*****	682.00 sm	****** Driveway + Parking lots*

RESIDENTIAL UNIT MIX

Unit Type	Unit Count:	Typical Unit Size	Percent	
Studio	20	*As per Arch. Drawings*	5.0%	S
1 Bedroom	153	*As per Arch. Drawings*	38.4%	1B
2 Bedroom	199	*As per Arch. Drawings*	50.0%	2B
3 Bedroom	26	*As per Arch. Drawings*	6.5%	3B
TOTAL:	**398**	Units		

AMENITY

	Area	
Indoor Amenity Provided:	796.00	2.0 m^2 per unit
Outdoor Amenity Provided:	796.00	2.0 m^2 per unit
Total Indoor & Outdoor Provided Amenity	1592.00	4.0 m^2 per unit

PARKING SPACE

REQUIRED (as per Bill 185)	Parking Spaces	*PROVIDED*	Parking Spaces
Total Parking Spaces Required:	0	Total Parking Spaces Provided:	398
Breakdown of parking space by use allocation:		Breakdown of parking space by use allocation:	
Residential (0.0 per Unit)	0	Residential (0.9 per Unit)	358
Visitors (0.0 Per Unit)	0	Visitors (0.1 Per Unit)	40
No.of parking Spaces to be Accessible	0	Total Accessible Spaces 1 vis.+ 9 Res.	10
		Breakdown of Provided parking space by location:	
		Above Grade Parking	318
		Below Grade Parking	80

BICYCLE PARKING SPACE

REQUIRED Bicycle Parking Space	Spaces	*PROVIDED Bicycle Parking Space*	Spaces
Long-term Resi. Spaces (0.7/Unit)	279	Long-term Spaces @ Mezz Level	279
Short-term Vis. Spaces @ Grade	10	Long-term Spaces @ L1	0
		Short-term Spaces @ Grade	10
TOTAL REQUIRED:	289	TOTAL PROVIDED:	289
		279 indoor long-term spaces (Bike Room @ Mezz) + 10 short-term outdoor spaces located next to Entrance @ grade. Refer to A200, A201	

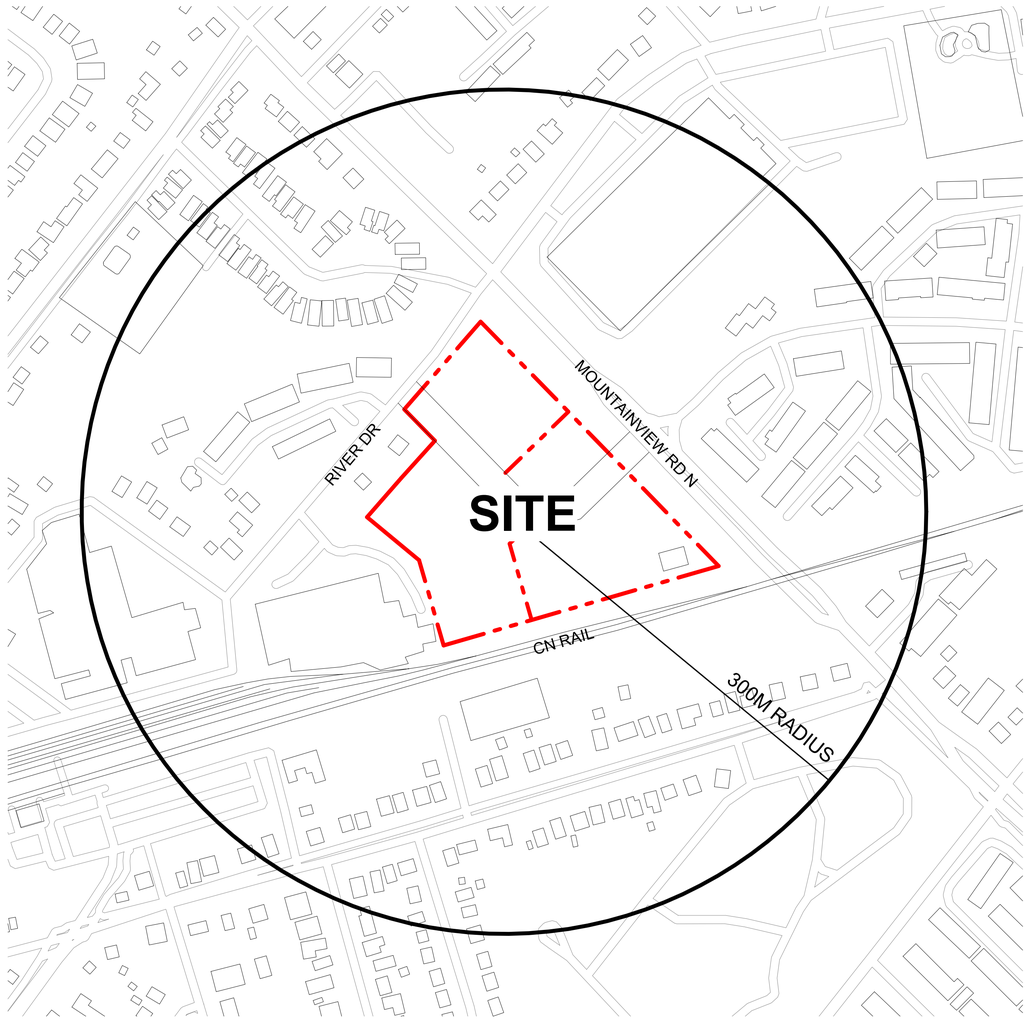
LOADING SPACE

1 type G Loading Space: Size: 13(L) X 4(W) X 7.5(H)		
Staging area for Type G loading space	35 sm	200mm reinforced concrete pad with 7.5m Ceiling Height for entire loading. Refer to A200 & A201 & A202 Drawings.

GARBAGE ROOM

Breakdown of main garbage room area:		
Bulk Storage	10 sm	
Residential Garbage Room & Storage	120.00 sm	Refer to A200 drawing.
TOTAL:	130.00 sm	

Waste Management Bins	Bin Type	Total Bins for all parcel C (398 units)
Garbage	3cy-bin	9
Recycle	3cy-bin	12
Organics	3cy-bin	5



1 / A001 CONTEXT PLAN
Scale: 1 : 2000

PARCEL A

PROVIDED PARKING SPACES BREAKDOWN

PARKING SPACE COUNT BY LEVEL

LEVEL	REG		ACCESSIBLE		
	Res	Vis	Res	Vis	TOTAL
P3	152	0	2	0	154
P2	188	0	2	0	190
P1	84	65	2	2	153
Ground level	0	0	0	0	0
Mezzanine	0	0	0	0	0
L2 Parking	49	0	2	0	51
L3 Parking	57	0	3	0	60
L4 Parking	59	0	3	0	62
TOTAL	589	65	14	2	670

PARKING SPACE COUNT BY ASSIGNMENT

Parking Space	Assignment	REG	ACCESSIBLE	TOTAL
VISITOR	V	65	2	67
RESIDENTIAL	R	589	14	603
TOTAL		654	16	670

ACCESSIBLE PARKING SPACE COUNT/LOCATION

Level	Type	Assignment	TOTAL
P3,P2,P1,L2,L3,L4	BF 3900x5500	R	8
P1	BF 3900x5500	V	1
P1,L2,L3,L4	BF 4900x5500	R	6
P1	BF 4900x5500	V	1
TOTAL ACCESSIBLE PARKING SPACES:			16

PARCEL B

PROVIDED PARKING SPACES BREAKDOWN

PARKING SPACE COUNT BY LEVEL

LEVEL	REG		ACCESSIBLE		
	Res	Vis	Res	Vis	TOTAL
P1	73	0	2	0	75
Ground level	0	40	0	1	41
Mezzanine	0	0	0	0	0
L2 Parking	98	0	3	0	101
L3 Parking	102	0	3	0	105
L4 Parking	89	0	2	0	91
TOTAL	362	40	10	1	413

PARKING SPACE COUNT BY ASSIGNMENT

Parking Space	Assignment	REG	ACCESSIBLE	TOTAL
VISITOR	V	40	1	41
RESIDENTIAL	R	362	10	372
TOTAL		402	11	413

ACCESSIBLE PARKING SPACE COUNT/LOCATION

Level	Type	Assignment	TOTAL
L2,L3,L4	BF 3900x5500	R	5
GF	BF 3900x5500	V	1
L2,L3,L4	BF 4900x5500	R	5
	BF 4900x5500	V	0
TOTAL ACCESSIBLE PARKING SPACES:			11

PARCEL C

PROVIDED PARKING SPACES BREAKDOWN

PARKING SPACE COUNT BY LEVEL

LEVEL	REG		ACCESSIBLE		
	Res	Vis	Res	Vis	TOTAL
P1	78	0	2	0	80
Ground level	37	39	0	1	77
Mezzanine	0	0	0	0	0
L2 Parking	75	0	2	0	77
L3 Parking	77	0	3	0	80
L4 Parking	82	0	2	0	84
TOTAL	349	39	9	1	398

PARKING SPACE COUNT BY ASSIGNMENT

Parking Space	Assignment	REG	ACCESSIBLE	TOTAL
VISITOR	V	39	1	40
RESIDENTIAL	R	349	9	358
TOTAL		388	10	398

ACCESSIBLE PARKING SPACE COUNT/LOCATION

Level	Type	Assignment	TOTAL
P1,L2,L3	BF 3900x5500	R	3
GF	BF 3900x5500	V	1
P1,L2,L3,L4	BF 4900x5500	R	6
	BF 4900x5500	V	0
TOTAL ACCESSIBLE PARKING SPACES:			10

CLIENT

GILBACH REAL ESTATE DEVELOPMENT

151 Yonge Street, Suite 1100
Toronto, ON, M5C 2W7

KEY PLAN

ISSUES

No.	DESCRIPTION	DATE
1	Issued for OPA/ZBA	2024-11-22

Notes:

1. For landscape Information - Refer to Drawings Prepared by Adesso Design inc.
2. For grading and Servicing Information - Refer to Drawings prepared by Urbantech Consulting..
3. For TIS, autoturns, curb radii and fire access route, refer to drawings prepared by GHD.
4. The building will be sprinklered.
5. 10 m2 bulk storage & Garbage room lis provided for each parcel, H: min 2.5m clear and equipped with Hose bib, floor drain and climate control.
6. Bi-sorter chutes (garbage, recyclable and organic) with compactor & waste containers under each chute at garbage room are provided for each Tower.
7. The loading bay is equipped with a type G loading bay for resi. moving, delivery & garbage pick up.
8. Loading area has a minimum length of 13m, width of 4m and with a vertical clearance of at least 7.5m. The entire area and staging area are constructed of 200mm reinforced concrete and have a grade of no more than 2%.
9. Flashing warning light to be activated when trucks enter and exit the site. the system to remain activated during the city garbage collection activity and until the truck exits the site. A trained on-site staff member will be available to maneuver bins for the collection driver and also act as a flagman when the truck is reversing. in the event the on-site staff is unavailable at the time the city collection vehicle arrives at the site, the collection vehicle will leave the site and not return until the next scheduled collection day.
10. The portion of the proposed fire route located over the parking garage will be designed to support the 500 KPA loading requirement identified in NFPA 1901.
11. Fire access route has minimum 5 m overhead clearance.
12. For survey credit, refer to survey drawing prepared by Cunningham McConnell.
13. Survey Benchmark: Elevations shown hereon are geodetic and are derived from the control station 00820178040 having an elevation of 272.174m (cgvd-1928:1978).

ARCADIS

ARCADIS ARCHITECTS (CANADA) INC.
55 St. Clair Avenue West | 7th Floor
Toronto | ON | M4V 2Y7 | Canada
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www.arcadis.com

PROJECT

130 MOUNTAINVIEW RD N
GEORGETOWN, ON
L7G 3P8

SEAL

Project North

True North

DRAWN BY: **RT**	CHECKED BY: **KE**
PROJECT MGR: **KE**	APPROVED BY: **GR**

SHEET TITLE

CONTEXT PLAN & STATISTICS

SCALE

DATE 2024-11-22

SHEET NUMBER

A001

PROJ. NO: 147388

SCALE CHECK 10cm / 1 in

2024-11-22 3:45:46 PM

PARCEL A

Floor	Building GCA (m²)	Parking GCA (m²)	GFA (m²)	Unit Mix: S	1B	2B	TH / Duplex 2B	3B	Total	Unit Mix Breakdown: S (< 450 ft²)	1B (450-530 ft²)	1B+D (18a) (530-590 ft²)	1B+D (28a) (590-705 ft²)	2B (705-725 ft²)	2B+D (28a) (725-1030 ft²)	TH / Duplex 2B	3B (> 850 ft²)
MPH	634	0	634														
LEVEL 22	750	0	750	0	3	7	0	0	10	0	1	1	1	4	3	0	0
LEVEL 21	750	0	750	0	3	7	0	0	10	0	1	1	1	4	3	0	0
LEVEL 20	750	0	750	0	3	7	0	0	10	0	1	1	1	4	3	0	0
LEVEL 19	750	0	750	0	3	7	0	0	10	0	1	1	1	4	3	0	0
LEVEL 18	750	0	750	0	3	7	0	0	10	0	1	1	1	4	3	0	0
LEVEL 17	2,350	0	2,350	2	15	17	0	0	34	2	5	3	7	6	11	0	0
LEVEL 16	2,350	0	2,350	2	15	17	0	0	34	2	5	3	7	6	11	0	0
LEVEL 15	2,350	0	2,350	2	15	17	0	0	34	2	5	3	7	6	11	0	0
LEVEL 14	2,350	0	2,350	2	15	17	0	0	34	2	5	3	7	6	11	0	0
LEVEL 13	2,350	0	2,350	2	15	17	0	0	34	2	5	3	7	6	11	0	0
LEVEL 12	2,350	0	2,350	2	15	17	0	0	34	2	5	3	7	6	11	0	0
LEVEL 11	2,350	0	2,350	2	15	17	0	0	34	2	5	3	7	6	11	0	0
LEVEL 10	2,350	0	2,350	2	15	17	0	0	34	2	5	3	7	6	11	0	0
LEVEL 9	2,350	0	2,350	2	15	17	0	0	34	2	5	3	7	6	11	0	0
LEVEL 8	2,350	0	2,350	2	15	17	0	0	34	2	5	3	7	6	11	0	0
LEVEL 7	2,350	0	2,350	2	15	17	0	0	34	2	5	3	7	6	11	0	0
LEVEL 6	3,978	0	4,058	0	28	17	0	7	52	0	4	2	21	4	13	0	7
LEVEL 5	3,978	0	4,058	0	24	5	0	5	34	0	4	0	19	2	3	0	5
LEVEL 4	6,158	2,535	3,702	0	32	10	0	1	43	0	6	24	2	1	9	0	1
LEVEL 3	6,158	2,535	3,702	0	32	10	0	1	43	0	6	24	2	1	9	0	1
LEVEL 2	6,159	2,502	3,737	0	24	9	9	1	43	0	5	18	1	1	8	0	1
MEZZANINE	1,809	0	1,809	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 1	5,887	287	5,680	0	5	0	19	1	25	0	0	5	0	0	0	0	1
P1	7,575	5,856	1,799	0	0	0	6	0	6	0	0	0	0	0	0	0	0
P2	7,896	7,351	545														
P3	6,510	6,222	289														
Subtotal						273	34										
Total	**86,348**	**27,289**	**59,619**	**22**	**325**	**307**		**16**	**670**	**22**	**85**	**111**	**127**	**95**	**178**	**0**	**16**
				3.3%	48.5%	45.8%		2.4%		3.3%	12.7%	16.6%	19.0%	14.2%	26.6%	0.0%	2.4%

PARCEL B

Floor	Building GCA (m²)	Parking GCA (m²)	GFA (m²)	Unit Mix: S	1B	2B	TH / Duplex 2B	3B	Total	Unit Mix Breakdown: S (< 450 ft²)	1B (450-530 ft²)	1B+D (18a) (530-590 ft²)	1B+D (28a) (590-705 ft²)	2B (705-725 ft²)	2B+D (28a) (725-1030 ft²)	TH / Duplex 2B	3B (> 850 ft²)
MPH	383	0	383														
LEVEL 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 20	800	0	800	0	11	2	0	0	13	0	6	2	3	0	2	0	0
LEVEL 19	800	0	800	0	11	2	0	0	13	0	6	2	3	0	2	0	0
LEVEL 18	800	0	800	0	11	2	0	0	13	0	6	2	3	0	2	0	0
LEVEL 17	1,549	0	1,549	1	17	5	0	1	24	1	8	2	7	2	3	0	1
LEVEL 16	1,549	0	1,549	1	17	5	0	1	24	1	8	2	7	2	3	0	1
LEVEL 15	1,549	0	1,549	1	17	5	0	1	24	1	8	2	7	2	3	0	1
LEVEL 14	1,549	0	1,549	1	17	5	0	1	24	1	8	2	7	2	3	0	1
LEVEL 13	1,549	0	1,549	1	17	5	0	1	24	1	8	2	7	2	3	0	1
LEVEL 12	1,549	0	1,549	1	17	5	0	1	24	1	8	2	7	2	3	0	1
LEVEL 11	1,549	0	1,549	1	17	5	0	1	24	1	8	2	7	2	3	0	1
LEVEL 10	1,549	0	1,549	1	17	5	0	1	24	1	8	2	7	2	3	0	1
LEVEL 9	1,549	0	1,549	1	17	5	0	1	24	1	8	2	7	2	3	0	1
LEVEL 8	1,549	0	1,549	1	17	5	0	1	24	1	8	2	7	2	3	0	1
LEVEL 7	1,549	0	1,549	1	17	5	0	1	24	1	8	2	7	2	3	0	1
LEVEL 6	2,649	0	2,729	0	9	19	0	4	32	0	0	0	8	2	17	0	4
LEVEL 5	2,661	0	2,741	0	6	15	0	2	23	0	0	0	6	1	14	0	2
LEVEL 4	5,013	3,385	1,708	0	8	6	0	1	15	0	2	5	1	0	6	0	1
LEVEL 3	5,396	3,768	1,708	0	8	6	0	1	15	0	2	5	1	0	6	0	1
LEVEL 2	5,473	3,771	1,782	0	8	6	0	1	15	0	2	5	1	0	6	0	1
MEZZANINE	1,030	0	1,030	0	0	5	0	0	5	0	0	0	0	0	0	0	0
LEVEL 1	5,305	2,824	2,561	0	0	5	0	0	5	0	0	0	0	0	5	0	0
P1	3,501	2,917	665	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P2	0	0	0														
P3	0	0	0														
Subtotal						123	0										
Total	**50,855**	**16,664**	**34,750**	**11**	**259**	**123**		**20**	**413**	**11**	**112**	**43**	**103**	**25**	**93**	**0**	**20**
				2.7%	62.7%	29.8%		4.8%		2.7%	27.1%	10.4%	24.9%	6.1%	22.5%	0.0%	4.8%

PARCEL C

Floor	Building GCA (m²)	Parking GCA (m²)	GFA (m²)	Unit Mix: S	1B	2B	TH / Duplex 2B	3B	Total	Unit Mix Breakdown: S (< 450 ft²)	1B (450-530 ft²)	1B+D (18a) (530-590 ft²)	1B+D (28a) (590-705 ft²)	2B (705-725 ft²)	2B+D (28a) (725-1030 ft²)	TH / Duplex 2B	3B (> 850 ft²)
MPH	196	0	196														
LEVEL 22	749	0	749	1	6	3	0	1	11	1	2	0	4	2	1	0	1
LEVEL 21	749	0	749	1	6	3	0	1	11	1	2	0	4	2	1	0	1
LEVEL 20	749	0	749	1	6	3	0	1	11	1	2	0	4	2	1	0	1
LEVEL 19	749	0	749	1	6	3	0	1	11	1	2	0	4	2	1	0	1
LEVEL 18	749	0	749	1	6	3	0	1	11	1	2	0	4	2	1	0	1
LEVEL 17	749	0	749	1	6	3	0	1	11	1	2	0	4	2	1	0	1
LEVEL 16	749	0	749	1	6	3	0	1	11	1	2	0	4	2	1	0	1
LEVEL 15	749	0	749	1	6	3	0	1	11	1	2	0	4	2	1	0	1
LEVEL 14	749	0	749	1	6	3	0	1	11	1	2	0	4	2	1	0	1
LEVEL 13	749	0	749	1	6	3	0	1	11	1	2	0	4	2	1	0	1
LEVEL 12	2,044	0	2,044	1	8	17	0	1	27	1	2	2	4	3	14	0	1
LEVEL 11	2,059	0	2,059	1	8	17	0	1	27	1	2	2	4	3	14	0	1
LEVEL 10	2,188	0	2,188	1	8	19	0	1	29	1	2	1	5	3	16	0	1
LEVEL 9	2,188	0	2,188	1	8	19	0	1	29	1	2	1	5	3	16	0	1
LEVEL 8	2,333	0	2,333	1	8	21	0	1	31	1	2	1	4	4	17	0	1
LEVEL 7	2,333	0	2,333	1	8	21	0	1	31	1	2	1	5	3	18	0	1
LEVEL 6	3,029	0	3,109	1	7	23	0	4	35	1	2	1	4	1	22	0	4
LEVEL 5	3,029	0	3,109	0	2	21	0	3	26	0	0	0	2	1	20	0	3
LEVEL 4	4,790	3,455	1,414	1	12	0	0	1	14	1	0	11	1	0	0	0	1
LEVEL 3	4,790	3,455	1,414	1	12	0	0	1	14	1	0	11	1	0	0	0	1
LEVEL 2	4,826	3,405	1,501	1	12	0	0	1	14	1	0	11	1	0	0	0	1
MEZZANINE	1,541	0	1,541	0	3	0	0	0	3	0	0	0	0	0	0	0	0
LEVEL 1	4,786	3,101	1,765	0	0	0	8	0	8	0	0	0	0	0	0	0	0
P1	3,898	3,296	682	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P2	0	0	0														
P3	0	0	0														
Subtotal						188	8										
Total	**51,524**	**16,714**	**35,370**	**20**	**156**	**196**		**26**	**398**	**20**	**34**	**42**	**76**	**41**	**147**	**0**	**26**
				5.0%	39.2%	49.2%		6.5%		5.0%	8.5%	10.6%	19.1%	10.3%	36.9%	0.0%	6.5%

2024-11-22 3:45:47 PM

O.B.C.MATRIX

Preliminary for Rezoning Purposes

ARCADIS ARCHITECTS (CANADA) INC.
7th floor - 55 St. Clair Avenue West
Toronto, Ontario
M4V 2Y7

Certificate of Practice Number: 3833

Name of Project:
Location: Parcel A of 130 Mountainview Rd N, Halton Hills, Ontario

This Ontario Building Code Matrix applies to drawings listed on the cover sheet.

Title	Ontario Building Code Data Matrix Part 3	O.B.C. Reference
	Project Description: New Construction of a 3 Residential Building on shared podium 17 (BLDG A), 22 (BLDG B), 17 (BLDG C) Storey Buildings with Mechanical Penthouse Comprising of: 3 Below Grade + 4+2 Podium (Resi + Parking) + 11 (BLDG A), 16 (BLDG B), 11 (BLDG C) Residential Levels	☒ New ☐ Addition ☐ Alteration ☐ Change Of Use
2	Major Occupancy(s): Residential	3.1.2.1.
3	Building Area (sm) = 6,068.4 sm	3.2.2.
4	Zoning Gross Floor Area (sq.m.) = 59,619 sm Overall = 59,094 sm Resi + 525 sm Non-Res.	
5	Number of Storeys: Above Grade: 17 (BLDG A), 22 (BLDG B), 17 (BLDG C) Below Grade: 3	
6	Height of Building: (m) A : 59.30 m + 6m MPH = 65.30 m B : 74.75 m + 6m MPH = 80.75 m C : 59.30 m + 6m MPH = 65.30 m	
7	Number of Streets/Access Routes: 1	
8	Building Classification: Group C Group F-Division 3	3.2.2.42. Group C, Any Height, Any Area, Sprinklered
9	Sprinkler System Proposed: ☒ Entire Building ☐ Basement ☐ In Lieu of Roof Rating ☐ Not Required	
10	Standpipe Required: ☒ Yes ☐ No	3.2.9.
11	Fire Alarm Required: ☒ Yes ☐ No	3.2.4.
12	Water Service/Supply is Adequate: ☒ Yes ☐ No	3.2.5.7.
13	High Building: ☒ Yes ☐ No	3.2.6
14	Construction: ☐ Combustible ☒ Non-Combustible	3.2.2.42., 57.,73.
15	Mezzanine(s) Area (s.m.) 1,809 (s.m)	3.2.1.1. (3)-(8)
16	Occupant Load ☒ sq.m./person ☒ design of building Report to be provided by Code Consultant at SPA stage	3.1.17.
17	Barrier Free Design: ☐ Yes ☐ No(explain)	3.8.2.1.
18	Hazardous Substances: ☐ Yes ☒ No	
19	Required Fire Resistance Ratings (FRR): Horizontal Assemblies FRR (Hours) — Floors: 2 Hr; Roof: 2 Hr; Mezzanine: 1 Hr	O.B.C. Supp. Standard SB-2: Concrete Slab; Concrete Slab; Concrete Slab
20	Spatial Separation - Construction Of Exterior Walls	3.2.3.

O.B.C.MATRIX

Preliminary for Rezoning Purposes

ARCADIS ARCHITECTS (CANADA) INC.
7th floor - 55 St. Clair Avenue West
Toronto, Ontario
M4V 2Y7

Certificate of Practice Number: 3833

Name of Project:
Location: Parcel B of 130 Mountainview Rd N, Halton Hills, Ontario

This Ontario Building Code Matrix applies to drawings listed on the cover sheet.

Title	Ontario Building Code Data Matrix Part 3	O.B.C. Reference
	Project Description: New Construction of a 2 Residential Building on shared podium 17 (BLDG D), 20 (BLDG E) Storey Buildings with Mechanical Penthouse Comprising of: 1 Below Grade + 4+2 Podium (Resi + Parking) + 11 (BLDG D), 14 (BLDG E) Residential Levels	☒ New ☐ Addition ☐ Alteration ☐ Change Of Use
2	Major Occupancy(s): Residential	3.1.2.1.
3	Building Area (sm) = 5,415 sm	3.2.2.
4	Zoning Gross Floor Area (sq.m.) = 34,750 sm	
5	Number of Storeys: Above Grade: 17 (BLDG D), 20 (BLDG E) Below Grade: 1	
6	Height of Building: (m) D : 59.30 m + 6m MPH = 65.30 m E : 69.25 m + 6m MPH = 75.25 m	
7	Number of Streets/Access Routes: 1	
8	Building Classification: Group C Group F-Division 3	3.2.2.42. Group C, Any Height, Any Area, Sprinklered
9	Sprinkler System Proposed: ☒ Entire Building ☐ Basement ☐ In Lieu of Roof Rating ☐ Not Required	
10	Standpipe Required: ☒ Yes ☐ No	3.2.9.
11	Fire Alarm Required: ☒ Yes ☐ No	3.2.4.
12	Water Service/Supply is Adequate: ☒ Yes ☐ No	3.2.5.7.
13	High Building: ☐ Yes ☒ No	3.2.6
14	Construction: ☐ Combustible ☒ Non-Combustible	3.2.2.42., 57.,73.
15	Mezzanine(s) Area (s.m.) 1,541 (s.m)	3.2.1.1. (3)-(8)
16	Occupant Load ☒ sq.m./person ☒ design of building Report to be provided by Code Consultant at SPA stage	3.1.17.
17	Barrier Free Design: ☒ Yes ☐ No(explain)	3.8.2.1.
18	Hazardous Substances: ☐ Yes ☒ No	
19	Required Fire Resistance Ratings (FRR): Horizontal Assemblies FRR (Hours) — Floors: 2 Hr; Roof: 2 Hr; Mezzanine: 1 Hr	O.B.C. Supp. Standard SB-2: Concrete Slab; Concrete Slab; Concrete Slab
20	Spatial Separation - Construction Of Exterior Walls	3.2.3.

O.B.C.MATRIX

Preliminary for Rezoning Purposes

ARCADIS ARCHITECTS (CANADA) INC.
7th floor - 55 St. Clair Avenue West
Toronto, Ontario
M4V 2Y7

Certificate of Practice Number: 3833

Name of Project:
Location: Parcel C of 130 Mountainview Rd N, Halton Hills, Ontario

This Ontario Building Code Matrix applies to drawings listed on the cover sheet.

Title	Ontario Building Code Data Matrix Part 3	O.B.C. Reference
	Project Description: New Construction of a 2 Residential Building on shared podium 22 (BLDG F), 12 (BLDG G) Storey Buildings with Mechanical Penthouse Comprising of: 1 Below Grade + 4+2 shared Podium (Resi + Parking) + 16 (BLDG D), 6 (BLDG E) Residential Levels	☒ New ☐ Addition ☐ Alteration ☐ Change Of Use
2	Major Occupancy(s): Residential	3.1.2.1.
3	Building Area (sm) = 4,788 sm	3.2.2.
4	Zoning Gross Floor Area (sq.m.) = 35,134 sm	
5	Number of Storeys: Above Grade: 22 (BLDG F), 12 (BLDG G) Below Grade: 1	
6	Height of Building: (m) F : 75.30 m + 6m MPH = 81.30 m G : 43.35 m + 6m MPH = 49.35 m	
7	Number of Streets/Access Routes: 1	
8	Building Classification: Group C Group F-Division 3	3.2.2.42. Group C, Any Height, Any Area, Sprinklered
9	Sprinkler System Proposed: ☒ Entire Building ☐ Basement ☐ In Lieu of Roof Rating ☐ Not Required	
10	Standpipe Required: ☒ Yes ☐ No	3.2.9.
11	Fire Alarm Required: ☒ Yes ☐ No	3.2.4.
12	Water Service/Supply is Adequate: ☒ Yes ☐ No	3.2.5.7.
13	High Building: ☐ Yes ☒ No	3.2.6
14	Construction: ☐ Combustible ☒ Non-Combustible	3.2.2.42., 57.,73.
15	Mezzanine(s) Area (s.m.) 1,541 (s.m)	3.2.1.1. (3)-(8)
16	Occupant Load ☒ sq.m./person ☒ design of building Report to be provided by Code Consultant at SPA stage	3.1.17.
17	Barrier Free Design: ☒ Yes ☐ No(explain)	3.8.2.1.
18	Hazardous Substances: ☐ Yes ☒ No	
19	Required Fire Resistance Ratings (FRR): Horizontal Assemblies FRR (Hours) — Floors: 2 Hr; Roof: 2 Hr; Mezzanine: 1 Hr	O.B.C. Supp. Standard SB-2: Concrete Slab; Concrete Slab; Concrete Slab
20	Spatial Separation - Construction Of Exterior Walls	3.2.3.

Town of Halton Hills Green Development Standards Summary Checklist

Project Address / Name: 130 Mountainview Rd N, Georgetown App. #: TBD

Contact Name & Email: Dana Anderson danderson@mhbcplan.com Date: November 2024

	Submission Requirements	Threshold & Potential Points		Targeted Points
Energy & Water				
✓ 1.1: Energy Use Reduction Demonstrate reduction in energy use over code minimum with an energy model reflecting the proposed design. Low-rise residential (i.e. OBC's Part 9) minimum is 10%. Minimum for everything else is 15%.	☐ Energy report ☐ Energy model file ☐ Envelope design brief ☐ Mech. & elec. design brief	Part 3 / Part 9 / Pts 15% / 10% / 5 25% / 20% / 8 40% / 11 Net-Zero / 14		8
1.2: Low Carbon Energy Utilize low emission mechanical systems, and/or install onsite renewables, to achieve an incremental percent CO2e reduction beyond the percent energy use reduction demonstrated for measure 1.1.	☐ All above items ☐ Supporting CO2e calculations ☐ Renewable energy calculations (if applicable)	+ 5% / 1 + 10% / 2 + 15% / 3 + 20% / 4		0
✓ 1.3: Water Use Reduction Specify maximum water fixture flow rates that achieve potable water consumption reductions over OBC maximum rates.	☐ Completed water reduction calculator	30% / 1 40% / 2		1
1.4: Energy & Water Reporting Report key performance characteristics for development. Declare that this data can be made publically accessible.	☐ Signed declaration letter listing all performance metrics	If provided / 1		0
Ecology				
✓ 2.1: Minimum Soil Depth Preserve or re-instate a minimum depth of at least 30cm of high quality topsoil across the site.	☐ Signed narrative describing strategy	30cm / 1		1
✓ 2.2: Minimum Planter Soil Volume Provide a minimum of 30m3 of soil volume per tree.	☐ Landscaping drawings noting strategy	30m3 / 1		1

	Submission Requirements	Threshold & Potential Points		Targeted Points
✓ 2.3: Native & Drought Resistant Vegetation Demonstrate that there is no need for site irrigation, or that at least 75% of vegetation will be native and/or drought-tolerant.	☒ Landscaping drawings noting strategy	75% / 1		1
Resiliency				
✓ 3.1: Stormwater Quantity Retain run-off from a minimum of 10-mm depth of rainfall from all site surfaces through infiltration, evapotranspiration, and reuse	☐ Stormwater management plan and supporting calculations	10mm / 2 27mm / 3		2
✓ 3.2: Stormwater Quality Remove at least 85% of total suspended solids from run-off leaving the site.	☐ Stormwater management plan and supporting calculations	85% / 1		1
✓ 3.3: Resiliency Checklist Complete resiliency checklist to demonstrate awareness of site climate change risks.	☐ Completed climate change resiliency checklist	If provided / 1		1
Transportation				
✓ 4.1: TDM Plan & Electric Vehicles Demonstrate a percent reduction in fossil fuel single occupancy vehicle trips for the site through: cycling, walking, transit, and/or electric vehicle infrastructure.	☐ Transportation demand management plan with supporting calculations	30% / 4 50% / 5 70% / 6 90% / 7		4
Innovation				
5.1: Innovation Quantitively demonstrate that another strategy achieves environmental benefits equal or greater than other GDS measures.	☐ Narrative and calculations supporting the case	Case for number of eligible points to be made by applicant	1 2 3 4 5	0

Total Targeted Points: (minimum of 20 required) 20

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KEY PLAN

ISSUES

No.	DESCRIPTION	DATE
1	Issued for OPA/ZBA	2024-11-22

Notes:

1. For landscape Information - Refer to Drawings Prepared by Adesso Design inc.
2. For grading and Servicing Information - Refer to Drawings prepared by Urbantech Consulting..
3. For TIS, autoturns, curb radii and fire access route, refer to drawings prepared by GHD.
4. The building will be sprinklered.
5. 10 m2 bulk storage & Garbage room lis provided for each parcel, H: min 2.5m clear and equipped with Hose bib, floor drain and climate control.
6. Bi-sorter chutes (garbage, recyclable and organic) with compactor & waste containers under each chute at garbage room are provided for each Tower.
7. The loading bay is equipped with a type G loading bay for resi. moving, delivery & garbage pick up.
8. Loading area has a minimum length of 13m, width of 4m and with a vertical clearance of at least 7.5m. The entire area and staging area are constructed of 200mm reinforced concrete and have a grade of no more than 2%.
9. Flashing warning light to be activated when trucks enter and exit the site. the system to remain activated during the city garbage collection activity and until the truck exits the site. A trained on-site staff member will be available to maneuver bins for the collection driver and also act as a flagman when the truck is reversing in the event the on-site staff is unavailable at the time the city collection vehicle arrives at the site, the collection vehicle will leave the site and not return until the next scheduled collection day.
10. The portion of the proposed fire route located over the parking garage will be designed to support the 500 KPA loading requirement identified in NFPA 1901.
11. Fire access route has minimum 5 m overhead clearance.
12. For survey credit, refer to survey drawing prepared by Cunningham McConnell.
13. Survey Benchmark: Elevations shown hereon are geodetic and are derived from the control station 00820178040 having an elevation of 272.174m (cgvd-1928:1978).

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PROJECT
130 MOUNTAINVIEW RD N
GEORGETOWN, ON
L7G 3P8

SEAL

Project North
True North

DRAWN BY: **RT**	CHECKED BY: **KE**
PROJECT MGR: **KE**	APPROVED BY: **GR**

SHEET TITLE: UNIT MIX

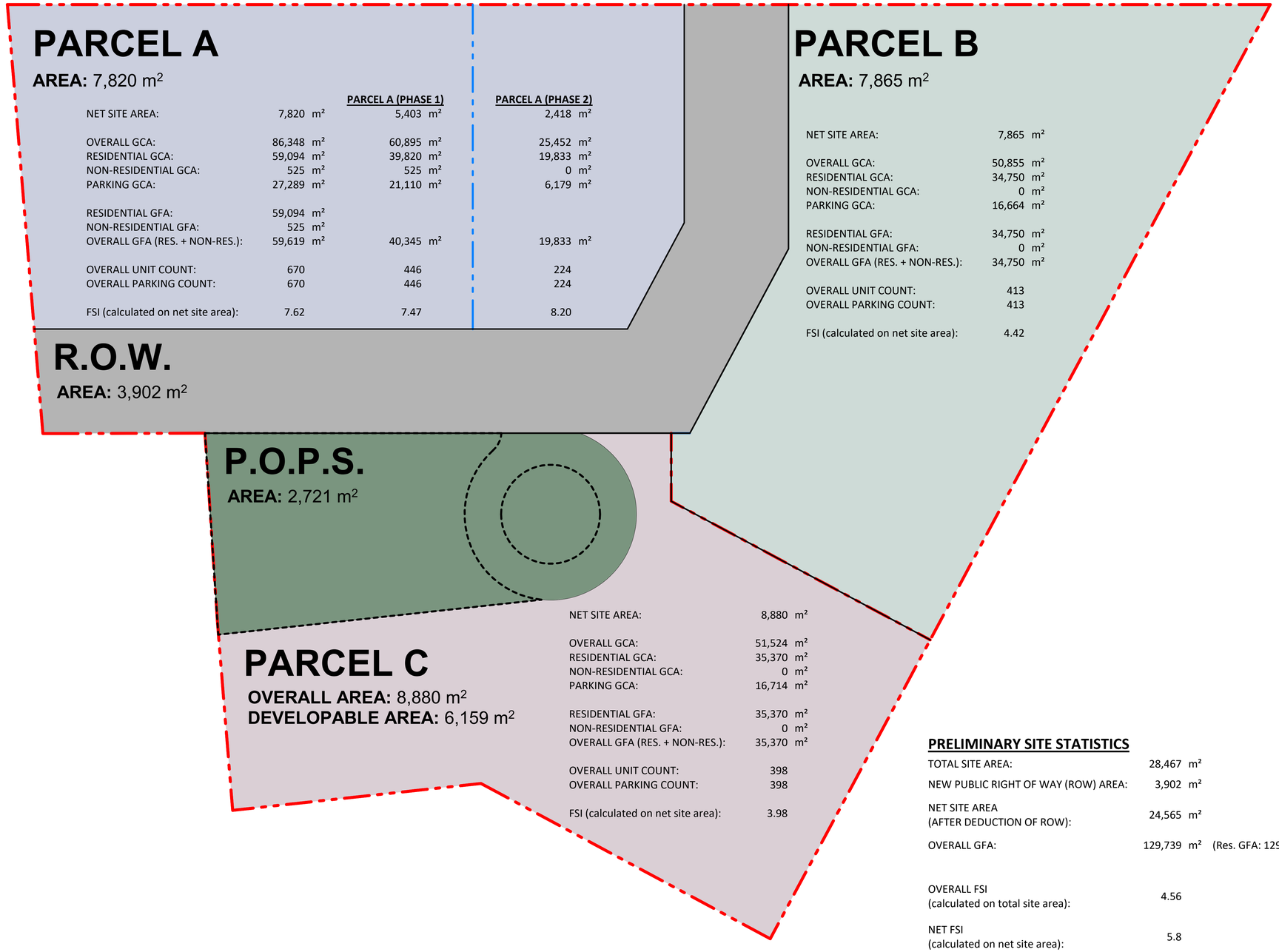
SCALE

DATE: 2024-11-22

SHEET NUMBER: A002

PROJ. NO: 147388

SCALE CHECK: 10mm / 1 in



		PARCEL A (PHASE 1)	PARCEL A (PHASE 2)
NET SITE AREA:	7,820 m²	5,403 m²	2,418 m²
OVERALL GCA:	86,348 m²	60,895 m²	25,452 m²
RESIDENTIAL GCA:	59,094 m²	39,820 m²	19,833 m²
NON-RESIDENTIAL GCA:	525 m²	525 m²	0 m²
PARKING GCA:	27,289 m²	21,110 m²	6,179 m²
RESIDENTIAL GFA:	59,094 m²		
NON-RESIDENTIAL GFA:	525 m²		
OVERALL GFA (RES. + NON-RES.):	59,619 m²	40,345 m²	19,833 m²
OVERALL UNIT COUNT:	670	446	224
OVERALL PARKING COUNT:	670	446	224
FSI (calculated on net site area):	7.62	7.47	8.20

NET SITE AREA:	7,865 m²
OVERALL GCA:	50,855 m²
RESIDENTIAL GCA:	34,750 m²
NON-RESIDENTIAL GCA:	0 m²
PARKING GCA:	16,664 m²
RESIDENTIAL GFA:	34,750 m²
NON-RESIDENTIAL GFA:	0 m²
OVERALL GFA (RES. + NON-RES.):	34,750 m²
OVERALL UNIT COUNT:	413
OVERALL PARKING COUNT:	413
FSI (calculated on net site area):	4.42

NET SITE AREA:	8,880 m²
OVERALL GCA:	51,524 m²
RESIDENTIAL GCA:	35,370 m²
NON-RESIDENTIAL GCA:	0 m²
PARKING GCA:	16,714 m²
RESIDENTIAL GFA:	35,370 m²
NON-RESIDENTIAL GFA:	0 m²
OVERALL GFA (RES. + NON-RES.):	35,370 m²
OVERALL UNIT COUNT:	398
OVERALL PARKING COUNT:	398
FSI (calculated on net site area):	3.98

PRELIMINARY SITE STATISTICS

TOTAL SITE AREA:	28,467 m²	
NEW PUBLIC RIGHT OF WAY (ROW) AREA:	3,902 m²	
NET SITE AREA (AFTER DEDUCTION OF ROW):	24,565 m²	
OVERALL GFA:	129,739 m²	(Res. GFA: 129,214 m² + Non-Res GFA: 525 m²)
OVERALL FSI (calculated on total site area):	4.56	
NET FSI (calculated on net site area):	5.8	
TOTAL NUMBER OF UNITS:	1,481	(A: 670 + B: 413 + C: 398)
TOTAL NUMBER OF PARKING:	1,481	(A: 670 + B: 413 + C: 398)

2024-11-22 3:45:48 PM

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KEY PLAN

ISSUES

No.	DESCRIPTION	DATE
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4. The building will be sprinklered.
5. 10 m2 bulk storage & Garbage room lis provided for each parcel, H: min 2.5m clear and equipped with Hose bib, floor drain and climate control.
6. Bi-sorter chutes (garbage, recyclable and organic) with compactor & waste containers under each chute at garbage room are provided for each Tower.
7. The loading bay is equipped with a type G loading bay for resi. moving, delivery & garbage pick up.
8. Loading area has a minimum length of 13m, width of 4m and with a vertical clearance of at least 7.5m. The entire area and staging area are constructed of 200mm reinforced concrete and have a grade of no more than 2%.
9. Flashing warning light to be activated when trucks enter and exit the site. the system to remain activated during the city garbage collection activity and until the truck exits the site. A trained on-site staff member will be available to maneuver bins for the collection driver and also act as a flagman when the truck is reversing. in the event the on-site staff is unavailable at the time the city collection vehicle arrives at the site, the collection vehicle will leave the site and not return until the next scheduled collection day.
10. The portion of the proposed fire route located over the parking garage will be designed to support the 500 KPA loading requirement identified in NFPA 1901.
11. Fire access route has minimum 5 m overhead clearance.
12. For survey credit, refer to survey drawing prepared by Cunningham McConnell.
13. Survey Benchmark: Elevations shown hereon are geodetic and are derived from the control station 00820178040 having an elevation of 272.174m (cgvd-1928:1978).

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PROJECT
130 MOUNTAINVIEW RD N
GEORGETOWN, ON
L7G 3P8

SEAL

Project North
True North

DRAWN BY: RT	CHECKED BY: KE
PROJECT MGR: KE	APPROVED BY: GR

SHEET TITLE
PROPOSED PROPERTY OWNERSHIP PLAN

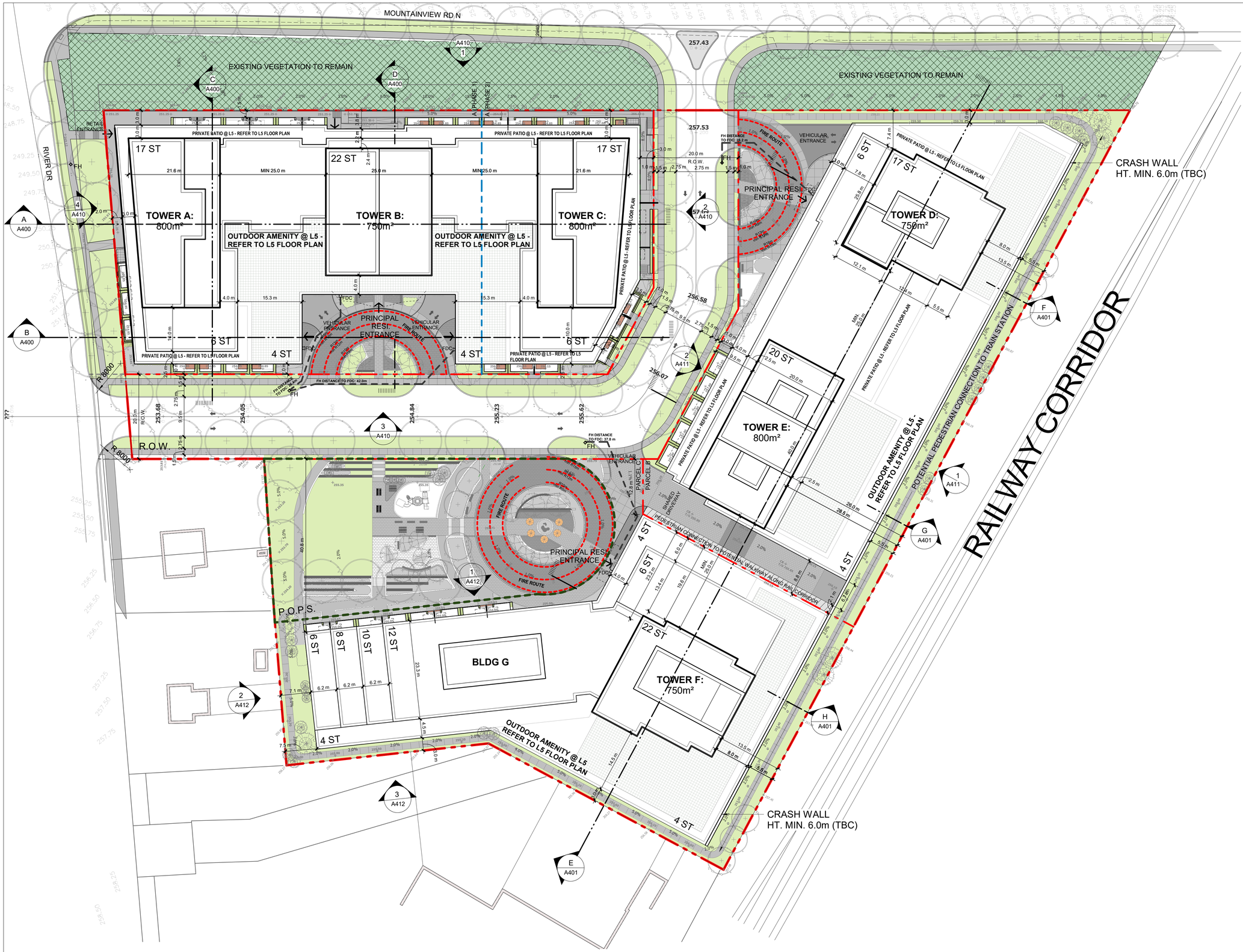
SCALE 1:400

DATE 2024-11-22

SCALE CHECK 10mm 1 in

SHEET NUMBER
A003

PROJ. NO: 147388



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KEY PLAN

ISSUES

No.	DESCRIPTION	DATE
1	Issued for OPA/ZBA	2024-11-22

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3. For TIS, autoturns, curb radii and fire access route, refer to drawings prepared by GHD.
4. The building will be sprinklered.
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7. The loading bay is equipped with a type G loading bay for resi. moving, delivery & garbage pick up.
8. Loading area has a minimum length of 13m, width of 4m and with a vertical clearance of at least 7.5m. The entire area and staging area are constructed of 200mm reinforced concrete and have a grade of no more than 2%.
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PROJECT

130 MOUNTAINVIEW RD N
GEORGETOWN, ON
L7G 3P8

SEAL

Project North

True North

DRAWN BY:	CHECKED BY:
RT	**KE**
PROJECT MGR:	APPROVED BY:
KE	**GR**

SHEET TITLE

SITE PLAN

SCALE

DATE

2024-11-22

SHEET NUMBER

A100

PROJ. NO:

147388

SCALE CHECK

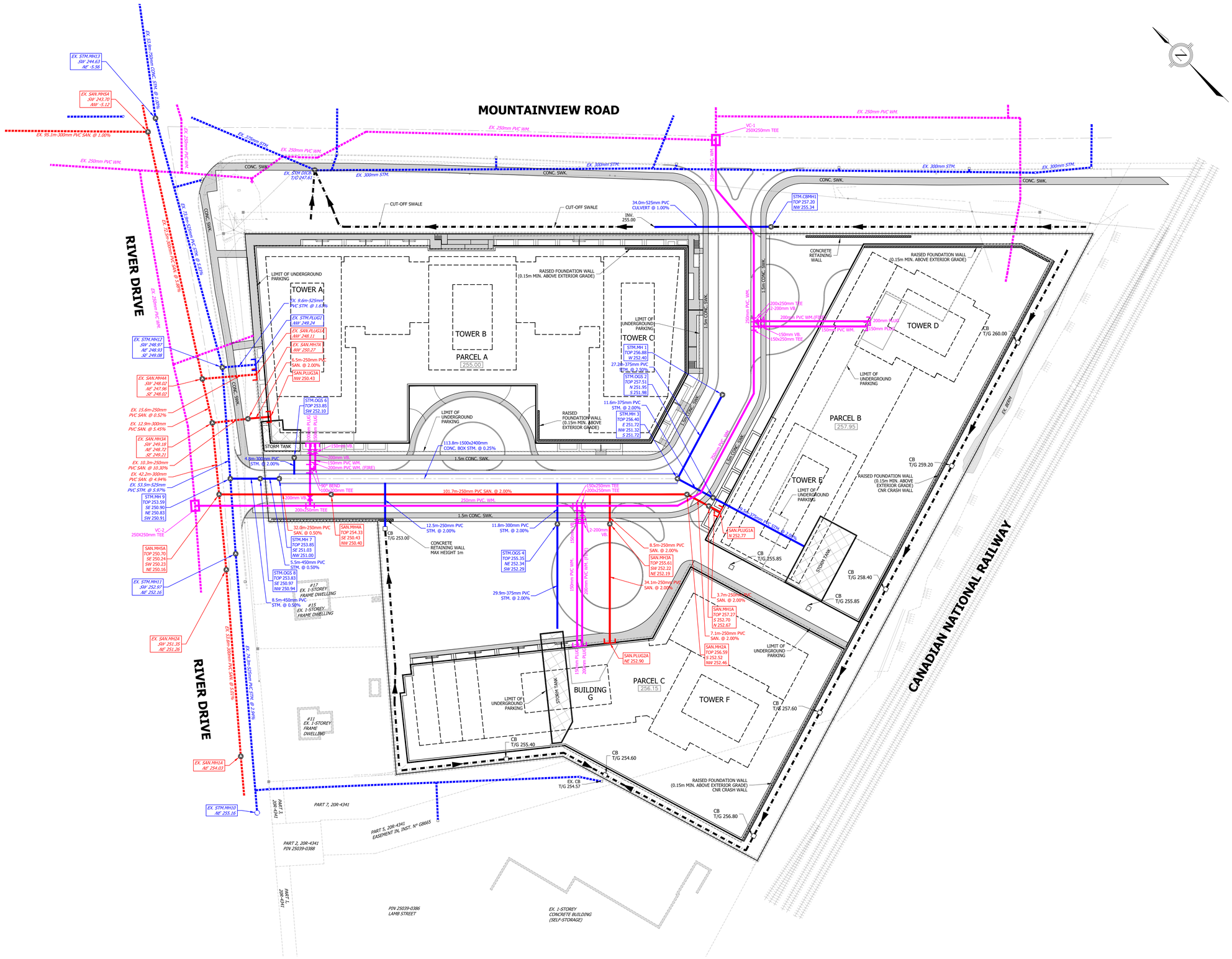
1 in

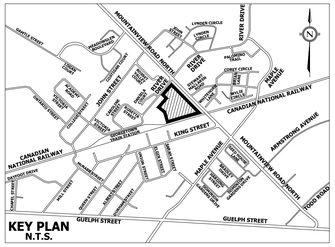
10mm

2024-11-22 3:45:54 PM

APPENDIX B

Urbantech Drawings and Figures





LEGEND

- LIMIT OF PROPERTY
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- PROPOSED STORM SEWER
- EXISTING STORM SEWER
- PROPOSED WATERMAIN SEWER
- EXISTING WATERMAIN SEWER
- PROPOSED SWALE

BENCHMARK NOTE

ALL ELEVATIONS SHOWN HEREON ARE GEODETIC AND WERE DERIVED FROM THE CONTROL STATION 00820178040
ELEV.=272.174m

TOPOGRAPHIC SURVEY PREPARED BY CUNNINGHAM McCONNELL LIMITED, NOVEMBER 15, 2023.

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A Division of Leighton-Zac West Ltd.
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Oakville, ON. L6H 0H2

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130 MOUNTAINVIEW ROAD NORTH
TOWN OF HALTON HILLS

SERVICING PLAN

PROJECT No.	DATE	SCALE	DWG No.
23-763	NOV, 2024	1:500	SERV-1

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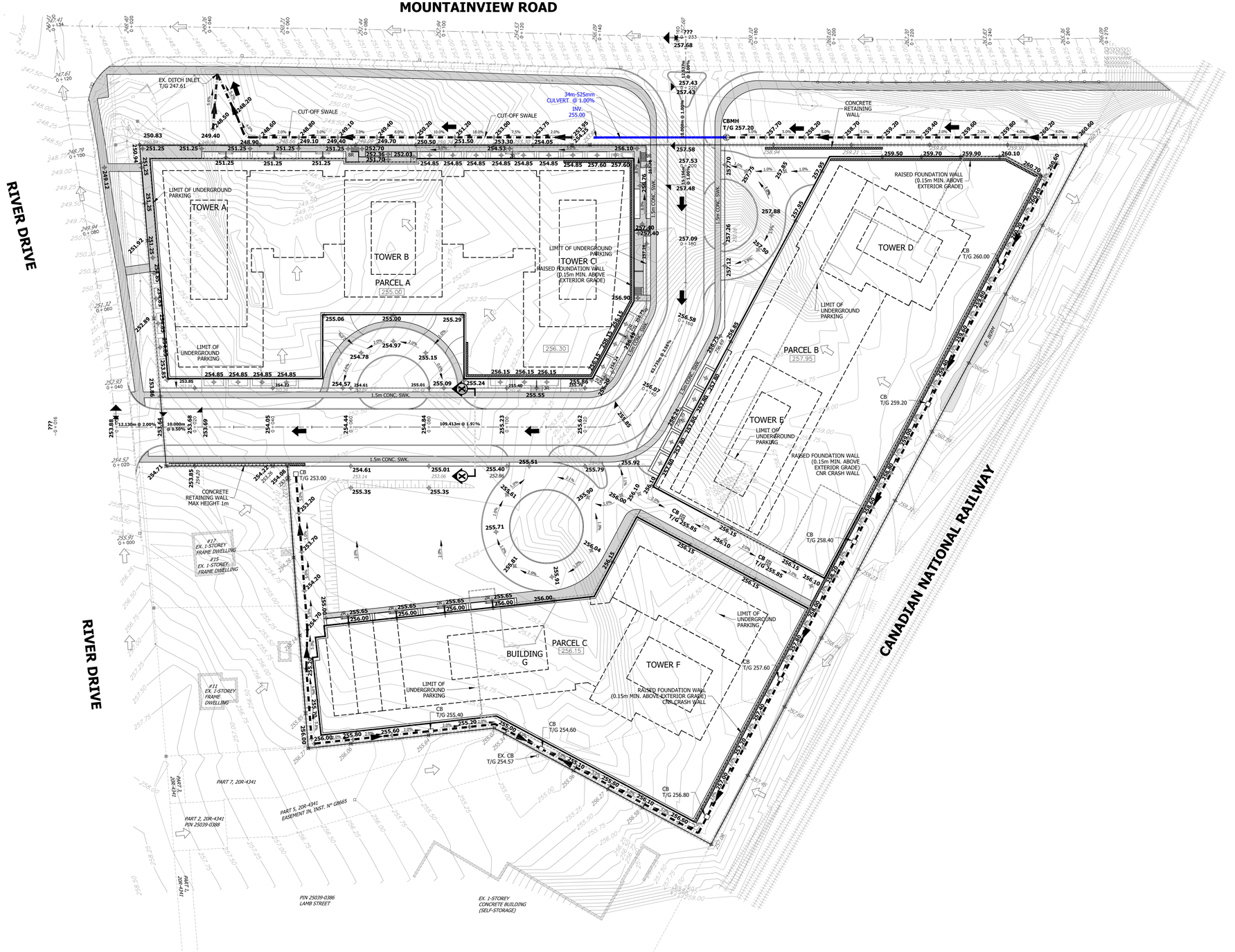

LEGEND

- LIMIT OF PROPERTY
- 130.50 PROPOSED ELEVATION
- 130.50 EXISTING ELEVATION
- 130.50 / 130.50 PROPOSED & EXISTING ELEVATION
- 132.81 FINISH FLOOR ELEVATION
- MAXIMUM 3:1 (UNLESS OTHERWISE NOTED)
- PROPOSED OVERLAND FLOW ROUTE
- EXISTING OVERLAND FLOW ROUTE
- EXISTING CONTOUR & ELEVATION
- PROPOSED SWALE
- SECTION MARKER (REFER TO DWG.DET-1 FOR DETAILS)

BENCHMARK NOTE

ALL ELEVATIONS SHOWN HEREON ARE GEODETIC AND WERE DERIVED FROM THE CONTROL STATION 00820178040
ELEV.=272.174m

TOPOGRAPHIC SURVEY PREPARED BY CUNNINGHAM McCONNELL LIMITED, NOVEMBER 15, 2023.

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130 MOUNTAINVIEW ROAD NORTH
TOWN OF HALTON HILLS

GRADING PLAN

PROJECT No.	DATE	SCALE	DWG No.
23-763	NOV, 2024	1:500	GRD-1

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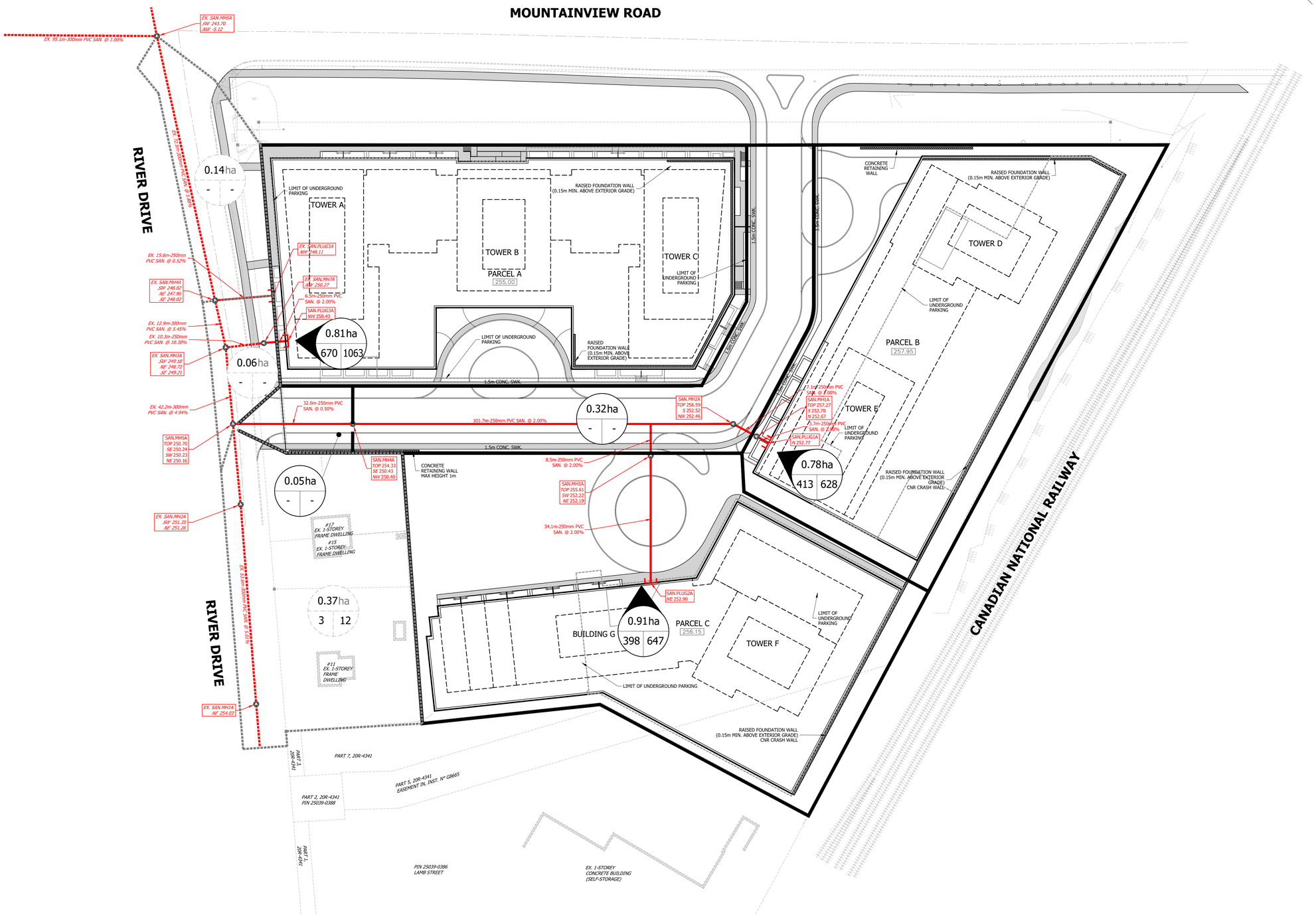

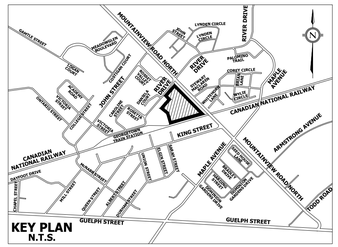

LEGEND

- LIMIT OF PROPERTY
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- SAN.MH1A — SANITARY MANHOLE ID
  TOP 131.30m — PROPOSED GROUND ELEVATION
  NW 127.82m — PROPOSED SEWER INVERTS
  NE 108.12m
- EX. SAN.MH3A — EXISTING SANITARY MANHOLE ID
  TOP 125.34m — EXISTING GROUND ELEVATION
  INF. 105.04m — EXISTING SEWER INVERTS
  INF. 105.07m
- 0.32ha / 55 / 18 — PROPOSED DRAINAGE AREA; PROPOSED POPULATION; PROPOSED # OF UNITS
- 0.32ha / 55 / 18 — EXISTING DRAINAGE AREA; EXISTING POPULATION; EXISTING # OF UNITS
- PROPOSED SANITARY DRAINAGE BOUNDARY
- EXISTING SANITARY DRAINAGE BOUNDARY

BENCHMARK NOTE

ALL ELEVATIONS SHOWN HEREON ARE GEODETIC AND WERE DERIVED FROM THE CONTROL STATION 00820178040
ELEV.=272.174m

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130 MOUNTAINVIEW ROAD NORTH
TOWN OF HALTON HILLS

SANITARY DRAINAGE PLAN

PROJECT No.	DATE	SCALE	DWG No.
23-763	NOV, 2024	1:500	SAN-1

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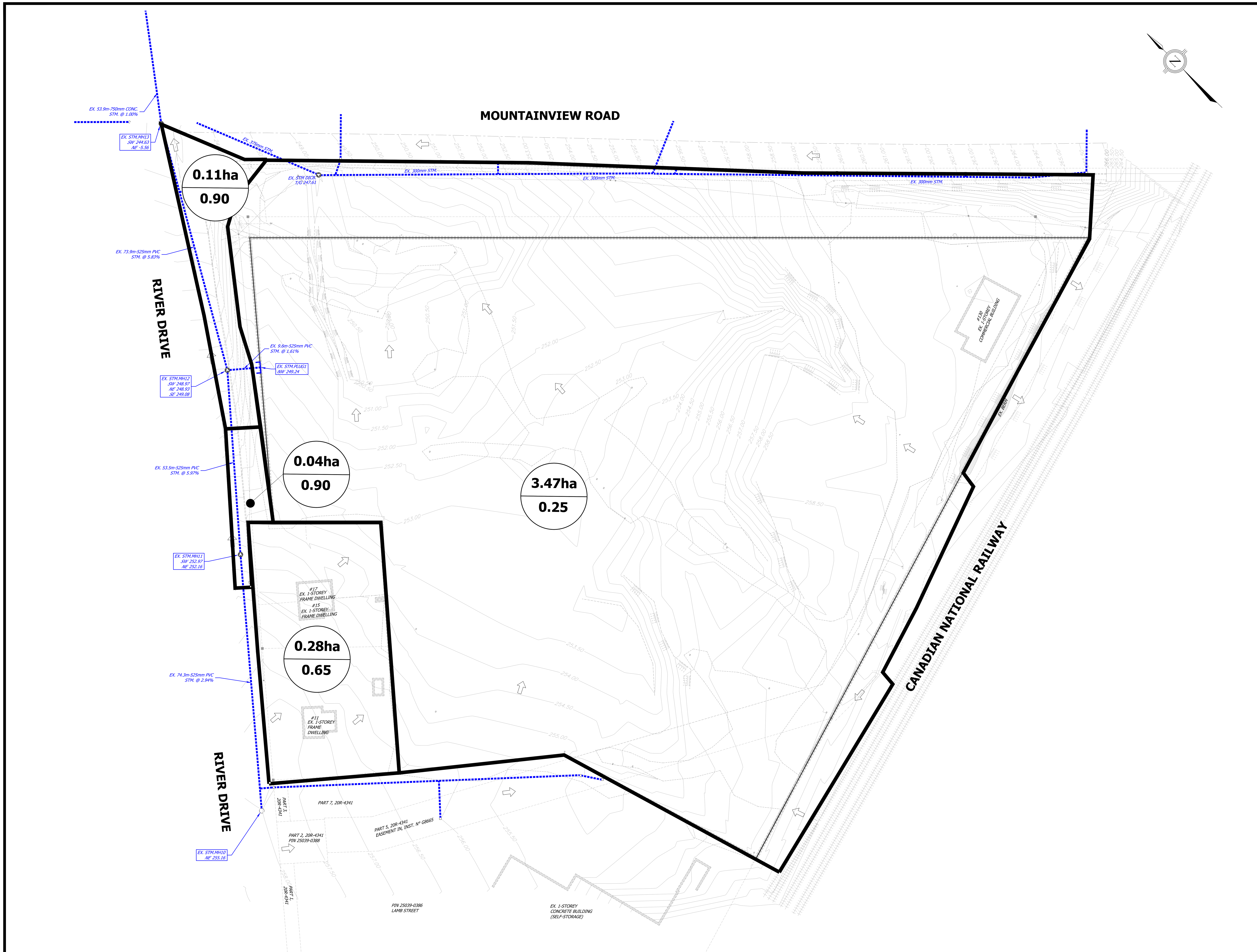

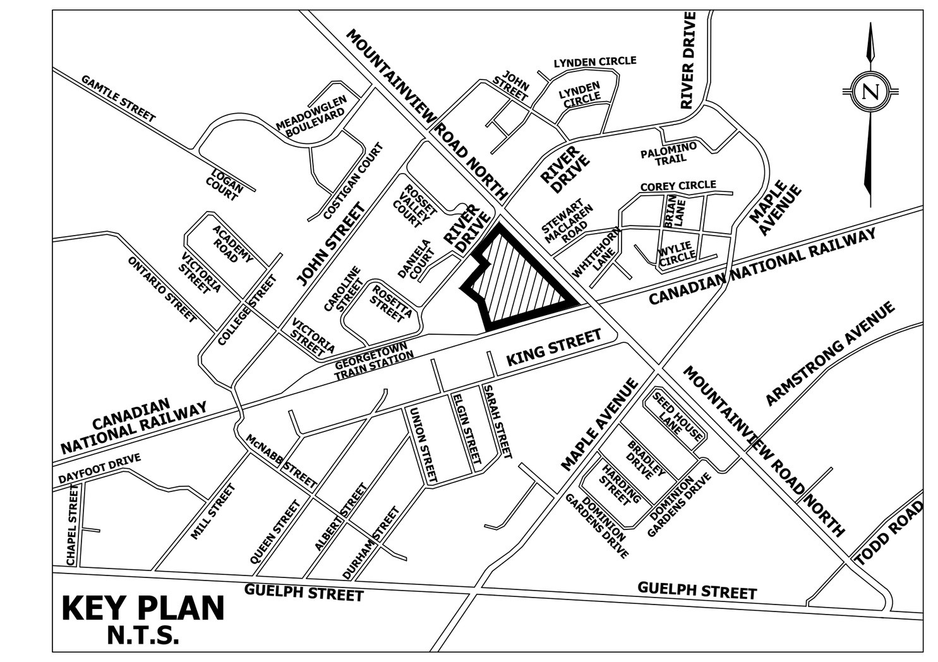

LEGEND

- LIMIT OF PROPERTY
- EXISTING STORM SEWER
- EXISTING STORM MANHOLE ID
- EXISTING GROUND ELEVATION
- EXISTING SEWER INVERTS
- EXISTING DRAINAGE AREA (0.80ha)
- EXISTING RUNOFF COEFFICIENT (0.00)
- EXISTING STORM DRAINAGE BOUNDARY
- EXISTING OVERLAND FLOW ROUTE
- EXISTING CONTOUR & ELEVATION

BENCHMARK NOTE

ALL ELEVATIONS SHOWN HEREON ARE GEODETIC AND WERE DERIVED FROM THE CONTROL STATION 00820178040
ELEV.=272.174m

TOPOGRAPHIC SURVEY PREPARED BY CUNNINGHAM McCONNELL LIMITED, NOVEMBER 15, 2023.

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130 MOUNTAINVIEW ROAD NORTH
TOWN OF HALTON HILLS

PRE-DEVELOPMENT STORM DRAINAGE PLAN

PROJECT No.	DATE	SCALE	DWG No.
23-763	NOV, 2024	1:500	STM-1

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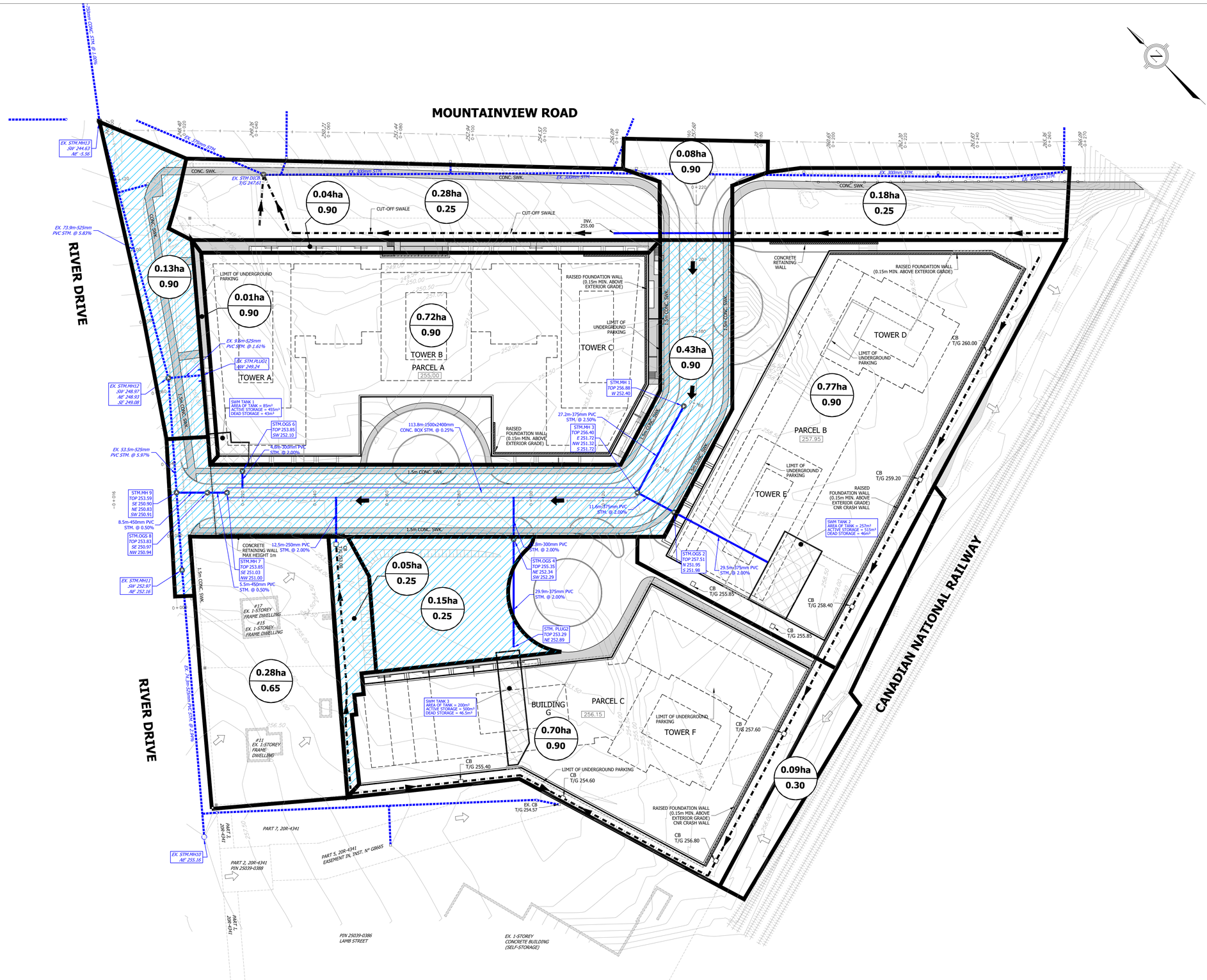

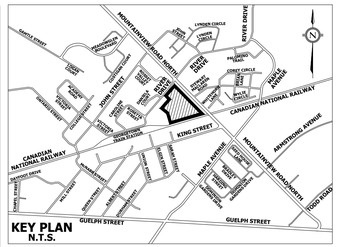

LEGEND

- LIMIT OF PROPERTY
- PROPOSED STORM SEWER
- EXISTING STORM SEWER
- STM.MH37A — STORM MANHOLE ID; PROPOSED GROUND ELEVATION; PROPOSED SEWER INVERTS
- EX. STM.MH35 — EXISTING STORM MANHOLE ID; EXISTING GROUND ELEVATION; EXISTING SEWER INVERTS
- 0.80ha / 0.00 — PROPOSED DRAINAGE AREA; PROPOSED RUNOFF COEFFICIENT
- PROPOSED STORM DRAINAGE BOUNDARY
- EXISTING OVERLAND FLOW ROUTE
- PROPOSED OVERLAND FLOW ROUTE
- EXISTING CONTOUR & ELEVATION
- PROPOSED SWALE
- MAXIMUM 3:1 (UNLESS OTHERWISE NOTED)

BENCHMARK NOTE

ALL ELEVATIONS SHOWN HEREON ARE GEODETIC AND WERE DERIVED FROM THE CONTROL STATION 00820178040 ELEV.=272.174m

TOPOGRAPHIC SURVEY PREPARED BY CUNNINGHAM McCONNELL LIMITED, NOVEMBER 15, 2023.

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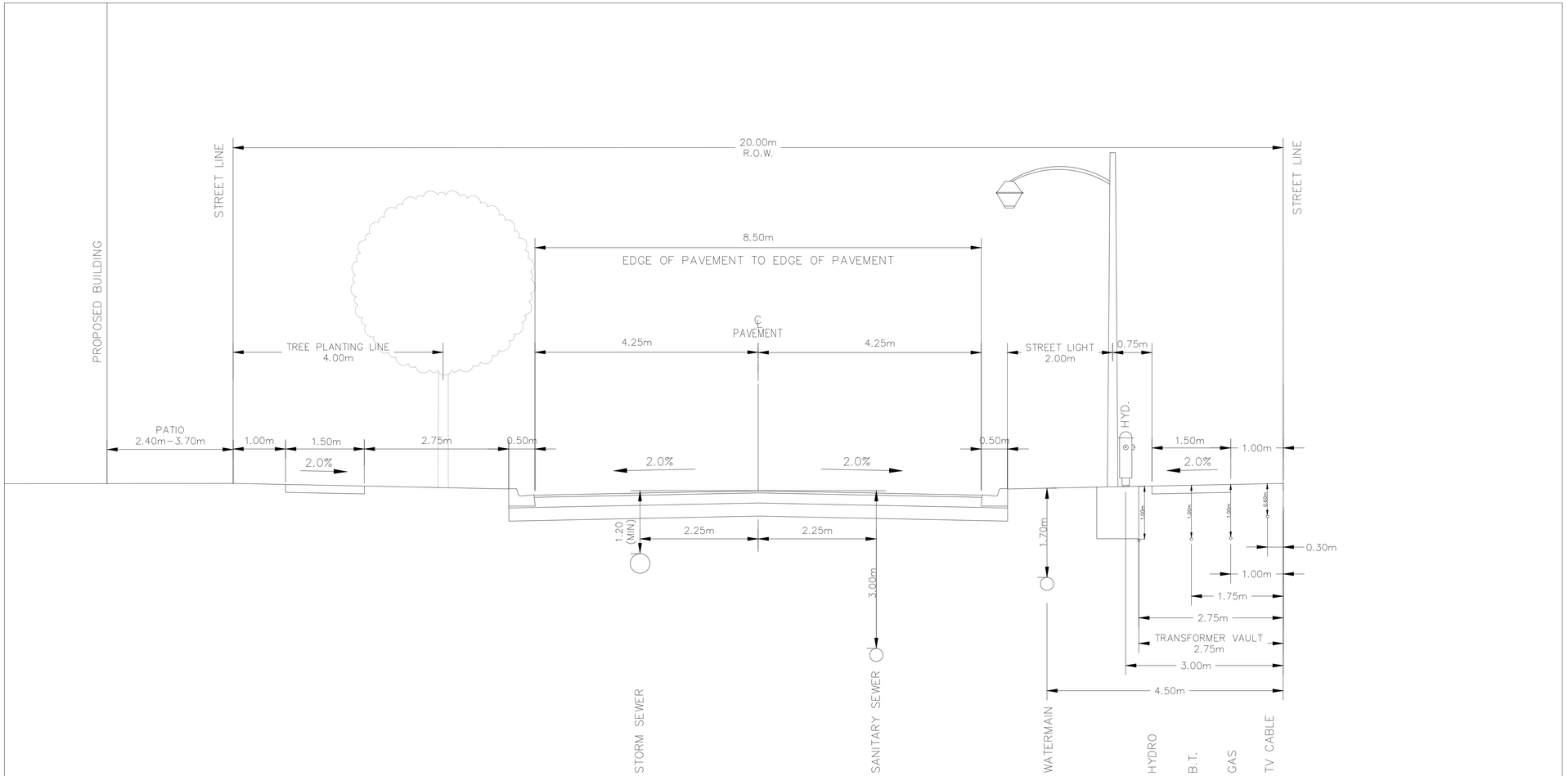
130 MOUNTAINVIEW ROAD NORTH
TOWN OF HALTON HILLS

POST-DEVELOPMENT STORM DRAINAGE PLAN

PROJECT No.	DATE	SCALE	DWG No.
23-763	NOV, 2024	1:500	STM-2

P:\PROJECTS\23-763-130 MOUNTAINVIEW RD (GILBACH-GEORGETOWN)\DRAWINGS\300 - DRAINAGE\STM-2-PRELIMINARY PROPOSED STORM DRAINAGE PLAN.DWG



CONDOMINUM ROAD
20.00m R.O.W
2 THRU LANES / 8.50m PAVEMENT
SCALE: N.T.S.

BENCHMARK NOTE

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TOPOGRAPHIC SURVEY PREPARED BY CUNNINGHAM McCONNELL LIMITED, NOVEMBER 15, 2023.

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130 MOUNTAINVIEW ROAD NORTH
TOWN OF HALTON HILLS

R.O.W. DETAILS

PROJECT No.	DATE	SCALE	DWG No.
23-763	NOV, 2024	N.T.S.	DET-1

P:\PROJECTS\23-763-130 MOUNTAINVIEW RD (GLBACH-GEORGETOWN)\DRAWINGS\700 - DETAILS\DET-1-STANDARD DETAILS.DWG

APPENDIX C

C1 Stormwater Management Calculations
C2 Sanitary Demand Calculations

APPENDIX C1 - STORMWATER (SWM) CALCULATIONS

URBANTECH®

Time to Peak Calculations

Project Name: 130 Mountainview Rd N
Municipality: Town of Halton Hills
Project No.: 23-763

Prepared by: S.C.
Checked by: J.P.O
Date: 2024-10-16

Sub-Catchment Name	Area (Ha)	Runoff Coefficient (C)	Length (m)	Upstream Elevation (m)	Downstream Elevation (m)	Slope Sw (%)	Tc (min)	Tp (min)	Tp (hr)	Total length (m)	Average slope (%)	Total Tp (hr)
Open Space	0.09	0.3	81.5	260	257	3.68	15	10	0.17	81.5	3.68	0.17
Park	0.14	0.25	53	254.25	252.75	2.83	14	10	0.16	53	2.83	0.16
Uncontrolled	0.18	0.25	94	261.5	256.5	5.32	15	10	0.17	94	5.32	0.17
Uncontrolled	0.28	0.25	129	256	250.5	4.26	20	13	0.22	129	4.26	0.22
Additional Area beside Park	0.05	0.25	68	256	253	4.41	14	9	0.16	68	4.41	0.16
Existing	3.75	0.25	242	258.5	248.5	4.13	27	18	0.30	242	4.13	0.30

Note: Calculation is based on the Airport Method.

1.3.3 Airport Method

For catchments where the runoff coefficient, C, is less than 0.40, the Airport formula may provide a better estimate of the time of concentration. This method was developed for airfields and calculates time of concentration as a function of runoff coefficient, length, and slope as follows:

$$t_c = \frac{3.26 * (1.1 - C) * L^{0.5}}{S_w^{0.33}} \quad (2)$$

where:
t_c = time of concentration (min)
C= runoff coefficient
L = catchment length, (m)
S_w = catchment slope (%)

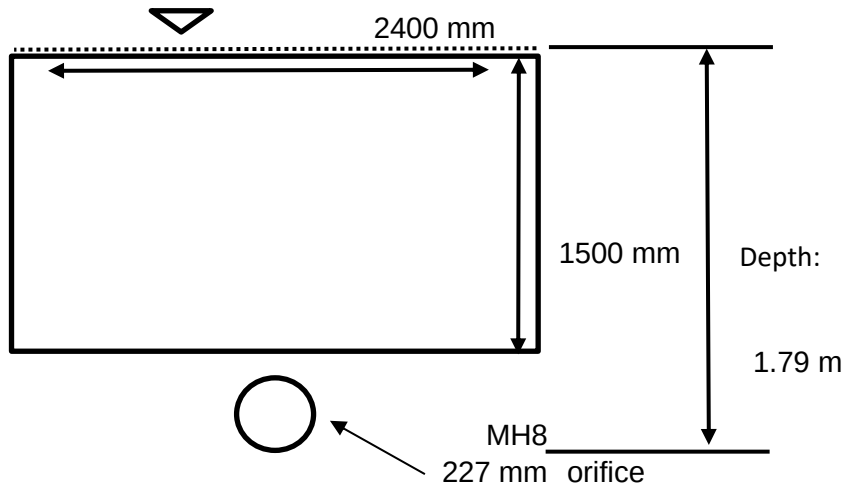
CALCULATION OF STORAGE SIZE AND RATING CURVE BASED ON ORIFICE SIZE
Super Pipe

URBANTECH

Project Name: 130 Mountainview Rd N
Municipality: Town of Halton Hills
Project No.: 23-763
Date: 15-Oct-24

Prepared by: J.P.O
Checked by: S.H
Submission #: 1

Elevation (m)	Height (m)	Volume (m³)	Flow rate (m³/s)
100.00	0.00	0.00	0.000
100.89	0.89	206.46	0.098
101.79	1.79	412.92	0.144



Calculation of Orifice

$A = \pi D^2 \div 4$	0.040	m²
$h = Depth\ of\ Tank\ - (\frac{D}{2})$	1.67	m
C	0.6	
$2g = 2 \times 9.81$	19.62	m/s²
$Q = CA\sqrt{2gh}$	0.144	m³/s
Q target (from VH model)	**0.143**	m³/s

Q and Q target are matched
Therefore, orifice is 227 mm

Invert: **100.00** m
Orifice size: **227** mm

Name	Description		Result
SUPER PIPE	Depth		**1.79** m
	Provided Volume	413 m³	
	Required Volume from VO6	413 m³	

CALCULATION OF STORAGE SIZE AND RATING CURVE BASED ON ORIFICE SIZE
TANK 1

URBANTECH

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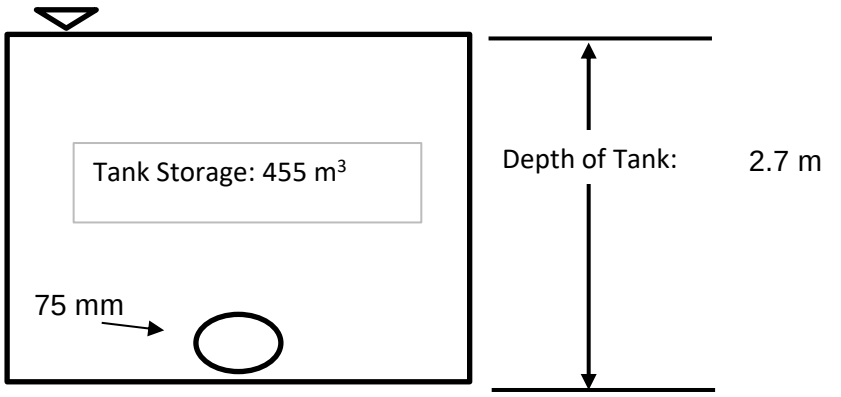
Elevation (m)	Height (m)	Volume (m³)	Flow rate (m³/s)
84.10	0.00	0.00	0.000
84.25	0.15	25.47	0.000
84.40	0.30	50.93	0.008
84.55	0.45	76.40	0.010
84.70	0.60	101.87	0.012
84.85	0.75	127.33	0.014
85.00	0.90	152.80	0.015
85.15	1.05	178.26	0.016
85.30	1.20	203.73	0.017
85.45	1.35	229.20	0.018
85.60	1.50	254.66	0.019
85.75	1.65	280.13	0.020
85.90	1.80	305.60	0.021
86.05	1.95	331.06	0.022
86.20	2.10	356.53	0.023
86.35	2.25	382.00	0.024
86.50	2.40	407.46	0.025
86.65	2.55	432.93	0.025
86.78	2.68	455.00	0.026



Calculation of Orifice

$A = \pi D^2 \div 4$	0.004 m²
$h = Depth\ of\ Tank\ - (\frac{D}{2})$	
$(1000mm) - (\frac{123}{2})$=	2.643 m
C	0.6
2g = 2 × 9.81	19.62 m/s²
$Q = CA\sqrt{2gh}$	0.026 m³/s
Q target (from VH model)	**0.026** m³/s

Q and Q target are matched
Therefore, orifice is 75 mm

Invert: **100.00** m*
Orifice size: **75** mm

Name	Description		Result
TANK 1	Quantity control only		
	Storage tank footprint		**170** m²
	Depth of Storage Tank		**2.70** m
	Required Volume from VO6	455 m³	
	*Actual invert elevation currently undetermined		

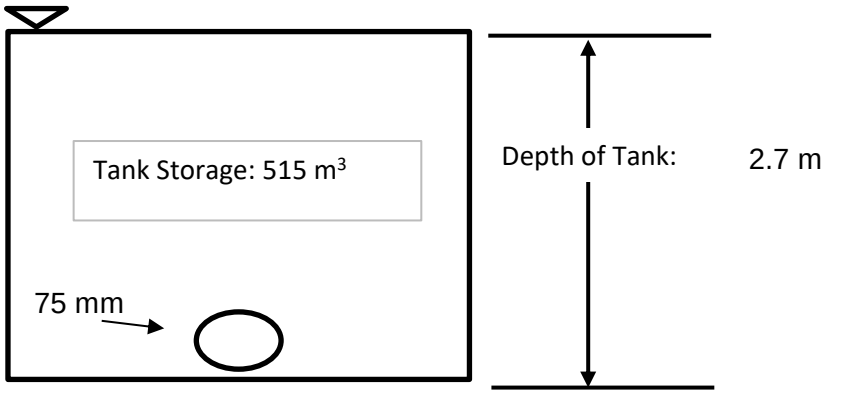
CALCULATION OF STORAGE SIZE AND RATING CURVE BASED ON ORIFICE SIZE
TANK 2

URBANTECH

Project Name: 130 Mountainview Rd N
Municipality: Town of Halton Hills
Project No.: 23-763
Date: 15-Oct-24

Prepared by: J.P.O
Checked by: S.H.
Submission #: 1

Elevation (m)	Height (m)	Volume (m³)	Flow rate (m³/s)
84.10	0.00	0.00	0.000
84.25	0.15	27.87	0.000
84.40	0.30	55.75	0.008
84.55	0.45	83.62	0.010
84.70	0.60	111.49	0.012
84.85	0.75	139.37	0.014
85.00	0.90	167.24	0.015
85.15	1.05	195.11	0.016
85.30	1.20	222.99	0.017
85.45	1.35	250.86	0.018
85.60	1.50	278.73	0.019
85.75	1.65	306.60	0.020
85.90	1.80	334.48	0.021
86.05	1.95	362.35	0.022
86.20	2.10	390.22	0.023
86.35	2.25	418.10	0.024
86.50	2.40	445.97	0.025
86.65	2.55	473.84	0.025
86.78	2.68	498.00	0.026



Calculation of Orifice

$A = \pi D^2 \div 4$	0.004	m²
$h = Depth\ of\ Tank\ - (\frac{D}{2})$		
$(1000mm) - (\frac{123}{2})$=	2.643	m
C	0.82	
2g = 2 × 9.81	19.62	m/s²
$Q = CA\sqrt{2gh}$	0.026	m³/s
Q target (from VH model)	**0.026**	m³/s

Q and Q target are matched
Therefore, orifice is 75 mm

Invert: **100.00** m*
Orifice size: **75** mm

Name	Description		Result
TANK 2	Quantity control only		
	Storage tank footprint		**186** m²
	Depth of Storage Tank		**2.70** m
	Required Volume from VO6	498 m³	
	*Actual invert elevation currently undetermined		

CALCULATION OF STORAGE SIZE AND RATING CURVE BASED ON ORIFICE SIZE
TANK 3

URBANTECH

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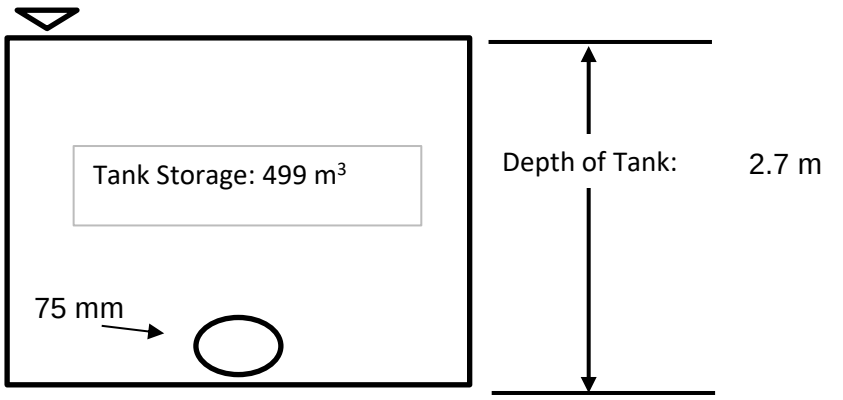
Municipality: Town of Halton Hills
Project No.: 23-763
Date: 15-Oct-24

Prepared by: J.P.O
Checked by: S.H.
Submission #: 1

Elevation (m)	Height (m)	Volume (m³)	Flow rate (m³/s)
84.10	0.00	0.00	0.000
84.25	0.15	27.93	0.000
84.40	0.30	55.86	0.008
84.55	0.45	83.79	0.010
84.70	0.60	111.72	0.012
84.85	0.75	139.65	0.014
85.00	0.90	167.57	0.015
85.15	1.05	195.50	0.016
85.30	1.20	223.43	0.017
85.45	1.35	251.36	0.018
85.60	1.50	279.29	0.019
85.75	1.65	307.22	0.020
85.90	1.80	335.15	0.021
86.05	1.95	363.08	0.022
86.20	2.10	391.01	0.023
86.35	2.25	418.94	0.024
86.50	2.40	446.87	0.025
86.65	2.55	474.79	0.025
86.78	2.68	499.00	0.026



Calculation of Orifice

$A = \pi D^2 \div 4$	0.004	m²
$h = Depth\ of\ Tank\ - (\frac{D}{2})$		
$(1000mm) - (\frac{123}{2})$=	2.643	m
C	0.82	
2g = 2 × 9.81	19.62	m/s²
$Q = CA\sqrt{2gh}$	0.026	m³/s
Q target (from VH model)	**0.026**	m³/s

Q and Q target are matched
Therefore, orifice is 75 mm

Invert: **100.00** m*
Orifice size: **75** mm

Name	Description		Result
TANK 3	Quantity control only		
	Storage tank footprint		**186** m²
	Depth of Storage Tank		**2.70** m
	Required Volume from VO6	499 m³	
	*Actual invert elevation currently undetermined		

Stormceptor®

Rinker MATERIALS™

Stormceptor® EF Sizing Report

Imbrium® Systems
ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION

10/17/2024

Province:	Ontario
City:	Halton Hills
Nearest Rainfall Station:	TORONTO INTL AP
Climate Station Id:	6158731
Years of Rainfall Data:	20

Site Name:	Tank 1

Drainage Area (ha):	0.72
% Imperviousness:	99.00

Runoff Coefficient 'c': 0.89

Particle Size Distribution:	CA ETV
Target TSS Removal (%):	60.0

Required Water Quality Runoff Volume Capture (%):	90.00
Estimated Water Quality Flow Rate (L/s):	20.02
Oil / Fuel Spill Risk Site?	Yes
Upstream Flow Control?	Yes
Upstream Orifice Control Flow Rate to Stormceptor (L/s):	26.00
Peak Conveyance (maximum) Flow Rate (L/s):	
Influent TSS Concentration (mg/L):	200
Estimated Average Annual Sediment Load (kg/yr):	525
Estimated Average Annual Sediment Volume (L/yr):	427

Project Name:	130 Mountainview Rd N
Project Number:	65993
Designer Name:	Shania Chhom
Designer Company:	Urbantech
Designer Email:	schhom@urbantech.com
Designer Phone:	905-829-6911
EOR Name:	
EOR Company:	
EOR Email:	
EOR Phone:	

Net Annual Sediment (TSS) Load Reduction Sizing Summary

Stormceptor Model	TSS Removal Provided (%)
EFO4	53
EFO6	60
EFO8	64
EFO10	67
EFO12	69

Recommended Stormceptor EFO Model: EFO6

Estimated Net Annual Sediment (TSS) Load Reduction (%): 60

Water Quality Runoff Volume Capture (%): > 90

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THIRD-PARTY TESTING AND VERIFICATION

►**Stormceptor® EF and Stormceptor® EFO** are the latest evolutions in the Stormceptor® oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators** and performance has been third-party verified in accordance with the **ISO 14034 Environmental Technology Verification (ETV)** protocol.

PERFORMANCE

►**Stormceptor® EF and EFO** remove stormwater pollutants through gravity separation and floatation, and feature a patent-pending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including high-intensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterwavs.

PARTICLE SIZE DISTRIBUTION (PSD)

►The **Canadian ETV PSD** shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV ***Procedure for Laboratory Testing of Oil-Grit Separators*** for both sediment removal testing and scour testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff.

Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5

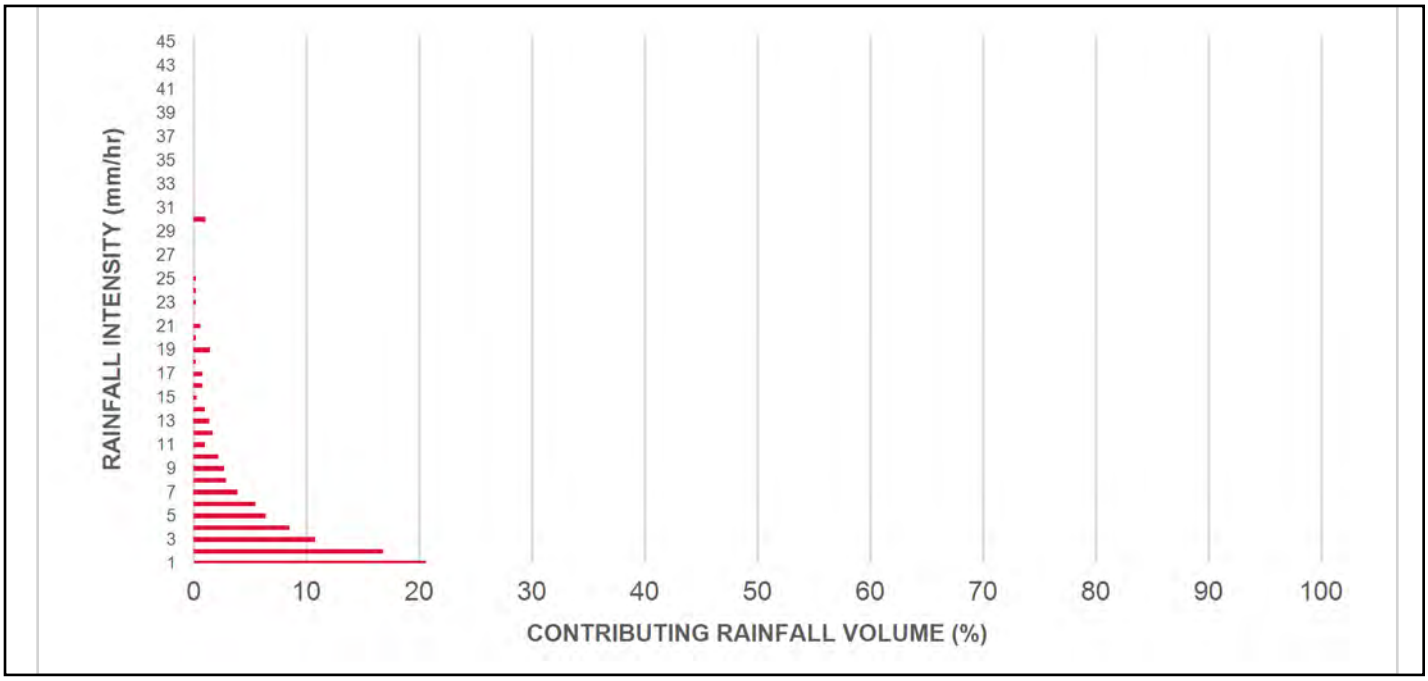
imbrium

Upstream Flow Controlled Results

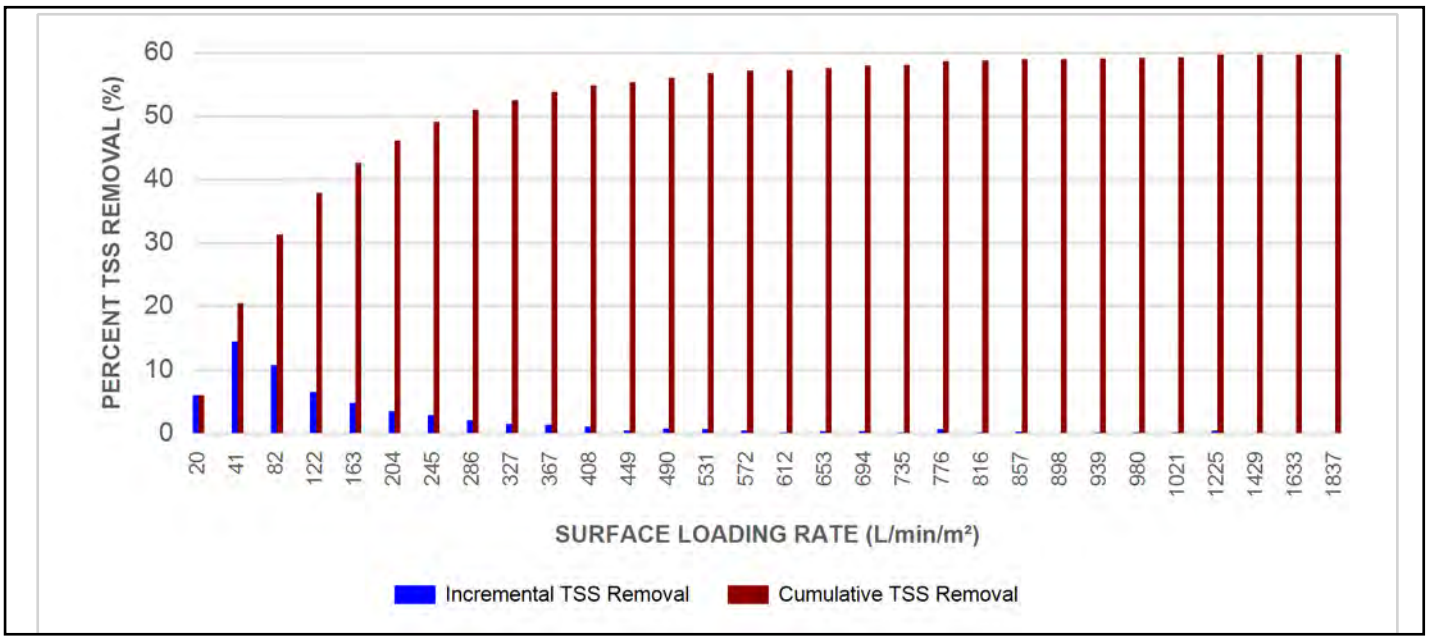
Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.50	8.5	8.5	0.89	54.0	20.0	70	6.0	6.0
1.00	20.6	29.1	1.79	107.0	41.0	70	14.5	20.5
2.00	16.8	45.9	3.58	215.0	82.0	64	10.8	31.3
3.00	10.8	56.7	5.37	322.0	122.0	61	6.5	37.8
4.00	8.5	65.2	7.16	429.0	163.0	57	4.8	42.6
5.00	6.4	71.6	8.95	537.0	204.0	54	3.5	46.1
6.00	5.5	77.0	10.74	644.0	245.0	53	2.9	49.0
7.00	3.9	81.0	12.53	752.0	286.0	52	2.0	51.0
8.00	2.9	83.9	14.32	859.0	327.0	50	1.5	52.5
9.00	2.7	86.5	16.10	966.0	367.0	49	1.3	53.8
10.00	2.2	88.7	17.89	1074.0	408.0	48	1.0	54.8
11.00	1.0	89.7	19.68	1181.0	449.0	47	0.5	55.3
12.00	1.7	91.3	21.47	1288.0	490.0	45	0.8	56.0
13.00	1.4	92.8	23.26	1396.0	531.0	44	0.6	56.7
14.00	7.2	100.0	25.05	1503.0	572.0	43	3.1	59.8
15.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.8
16.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.8
17.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.8
18.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.8
19.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.8
20.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.8
21.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.8
22.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.8
23.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.8
24.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.8
25.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.8
30.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.8
35.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.8
40.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.8
45.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.8
Estimated Net Annual Sediment (TSS) Load Reduction =								**60 %**

Climate Station ID: 6158731 *Years of Rainfall Data*: 20

RAINFALL DATA FROM TORONTO INTL AP RAINFALL STATION



INCREMENTAL AND CUMULATIVE TSS REMOVAL FOR THE RECOMMENDED STORMCEPTOR® MODEL



Maximum Pipe Diameter / Peak Conveyance

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

SCOUR PREVENTION AND ONLINE CONFIGURATION

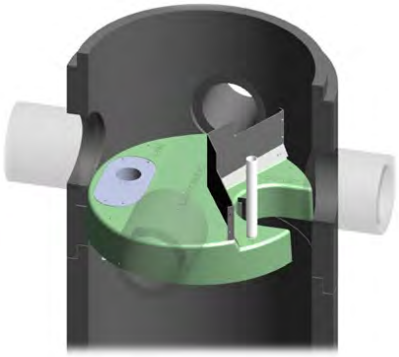
►**Stormceptor® EF and EFO** feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

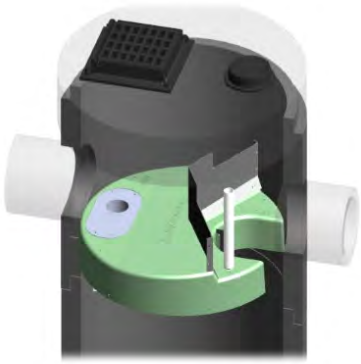
DESIGN FLEXIBILITY

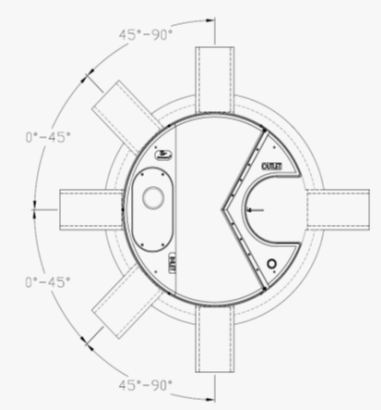
►**Stormceptor® EF** and **EFO** offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

OIL CAPTURE AND RETENTION

►While Stormceptor® EF will capture and retain oil from dry weather spills and low intensity runoff, **Stormceptor® EFO** has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid re-entrainment testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.







INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.
0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.
45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

Pollutant Capacity

Stormceptor EF / EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft^3)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

*Increased sump depth may be added to increase sediment storage capacity
** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft^3)

Feature	Benefit	Feature Appeals To
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer
Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer
Minimal drop between inlet and outlet	Site installation ease	Contractor
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner

STANDARD STORMCEPTOR EF/EFO DRAWINGS

For standard details, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

STANDARD STORMCEPTOR EF/EFO SPECIFICATION

For specifications, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

Table of TSS Removal vs Surface Loading Rate Based on Third-Party Test Results
Stormceptor® EFO

SLR (L/min/m²)	TSS % REMOVAL	SLR (L/min/m²)	TSS % REMOVAL	SLR (L/min/m²)	TSS % REMOVAL	SLR (L/min/m²)	TSS % REMOVAL
1	70	660	42	1320	35	1980	24
30	70	690	42	1350	35	2010	24
60	67	720	41	1380	34	2040	23
90	63	750	41	1410	34	2070	23
120	61	780	41	1440	33	2100	23
150	58	810	41	1470	32	2130	22
180	56	840	41	1500	32	2160	22
210	54	870	41	1530	31	2190	22
240	53	900	41	1560	31	2220	21
270	52	930	40	1590	30	2250	21
300	51	960	40	1620	29	2280	21
330	50	990	40	1650	29	2310	21
360	49	1020	40	1680	28	2340	20
390	48	1050	39	1710	28	2370	20
420	47	1080	39	1740	27	2400	20
450	47	1110	38	1770	27	2430	20
480	46	1140	38	1800	26	2460	19
510	45	1170	37	1830	26	2490	19
540	44	1200	37	1860	26	2520	19
570	43	1230	37	1890	25	2550	19
600	42	1260	36	1920	25	2580	18
630	42	1290	36	1950	24	2600	26

STANDARD PERFORMANCE SPECIFICATION FOR "OIL GRIT SEPARATOR" (OGS) STORMWATER QUALITY TREATMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program's **Procedure for Laboratory Testing of Oil-Grit** S**eparators**

1.3 SUBMITTALS

1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.

1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.

1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The minimum sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1	4 ft (1219 mm) Diameter OGS Units:	1.19 m^3 sediment / 265 L oil
	6 ft (1829 mm) Diameter OGS Units:	3.48 m^3 sediment / 609 L oil
	8 ft (2438 mm) Diameter OGS Units:	8.78 m^3 sediment / 1,071 L oil
	10 ft (3048 mm) Diameter OGS Units:	17.78 m^3 sediment / 1,673 L oil
	12 ft (3657 mm) Diameter OGS Units:	31.23 m^3 sediment / 2,476 L oil

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall

remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol Procedure for Laboratory Testing of Oil-Grit Separators, as follows:

3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m^2 to 1400 L/min/m^2, and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m^2 and 1400 L/min/m^2 shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m^2 shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m^2. No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m^2.

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m^2 shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m^2, and shall be calculated using a simple proportioning formula, with 1400 L/min/m^2 in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m^2.

The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.**

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m^2.

3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of completed third-party Light Liquid Re-entrainment Simulation Testing in accordance with the Canadian ETV **Program's Procedure for Laboratory Testing of Oil-Grit Separators,** with results reported within the Canadian ETV or ISO 14034 ETV verification. This re-entrainment testing is conducted with the device pre-loaded with low density polyethylene (LDPE) plastic beads as a surrogate for light liquids such as oil and fuel. Testing is conducted on the same OGS unit tested for sediment removal to

assess whether light liquids captured after a spill are effectively retained at high flow rates.

3.4.1 For an OGS device to be an acceptable stormwater treatment device on a site where vehicular traffic occurs and the potential for an oil or fuel spill exists, the OGS device must have reported verified performance results of greater than 99% cumulative retention of LDPE plastic beads for the five specified surface loading rates (ranging 200 L/min/m^2 to 2600 L/min/m^2) in accordance with the Light Liquid Re-entrainment Simulation Testing within the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.** However, an OGS device shall not be allowed if the Light Liquid Re-entrainment Simulation Testing was performed with screening components within the OGS device that are effective at retaining the LDPE plastic beads, but would not be expected to retain light liquids such as oil and fuel.

Stormceptor®

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Stormceptor® EF Sizing Report

Imbrium® Systems
ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION

10/17/2024

Province:	Ontario
City:	Halton Hills
Nearest Rainfall Station:	TORONTO INTL AP
Climate Station Id:	6158731
Years of Rainfall Data:	20

Site Name:	Tank 2

Drainage Area (ha):	0.77
% Imperviousness:	99.00

Runoff Coefficient 'c': 0.89

Particle Size Distribution:	CA ETV
Target TSS Removal (%):	60.0

Required Water Quality Runoff Volume Capture (%):	90.00
Estimated Water Quality Flow Rate (L/s):	21.41
Oil / Fuel Spill Risk Site?	Yes
Upstream Flow Control?	Yes
Upstream Orifice Control Flow Rate to Stormceptor (L/s):	26.00
Peak Conveyance (maximum) Flow Rate (L/s):	
Influent TSS Concentration (mg/L):	200
Estimated Average Annual Sediment Load (kg/yr):	561
Estimated Average Annual Sediment Volume (L/yr):	456

Project Name:	130 Mountainview Rd N
Project Number:	65993
Designer Name:	Shania Chhom
Designer Company:	Urbantech
Designer Email:	schhom@urbantech.com
Designer Phone:	905-829-6911
EOR Name:	
EOR Company:	
EOR Email:	
EOR Phone:	

Net Annual Sediment (TSS) Load Reduction Sizing Summary

Stormceptor Model	TSS Removal Provided (%)
EFO4	52
EFO6	60
EFO8	64
EFO10	66
EFO12	69

Recommended Stormceptor EFO Model: EFO6

Estimated Net Annual Sediment (TSS) Load Reduction (%): 60

Water Quality Runoff Volume Capture (%): > 90

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THIRD-PARTY TESTING AND VERIFICATION

►**Stormceptor® EF and Stormceptor® EFO** are the latest evolutions in the Stormceptor® oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators** and performance has been third-party verified in accordance with the **ISO 14034 Environmental Technology Verification (ETV)** protocol.

PERFORMANCE

►**Stormceptor® EF and EFO** remove stormwater pollutants through gravity separation and floatation, and feature a patent-pending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including high-intensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterwavs.

PARTICLE SIZE DISTRIBUTION (PSD)

►The **Canadian ETV PSD** shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV ***Procedure for Laboratory Testing of Oil-Grit Separators*** for both sediment removal testing and scour testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff.

Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5

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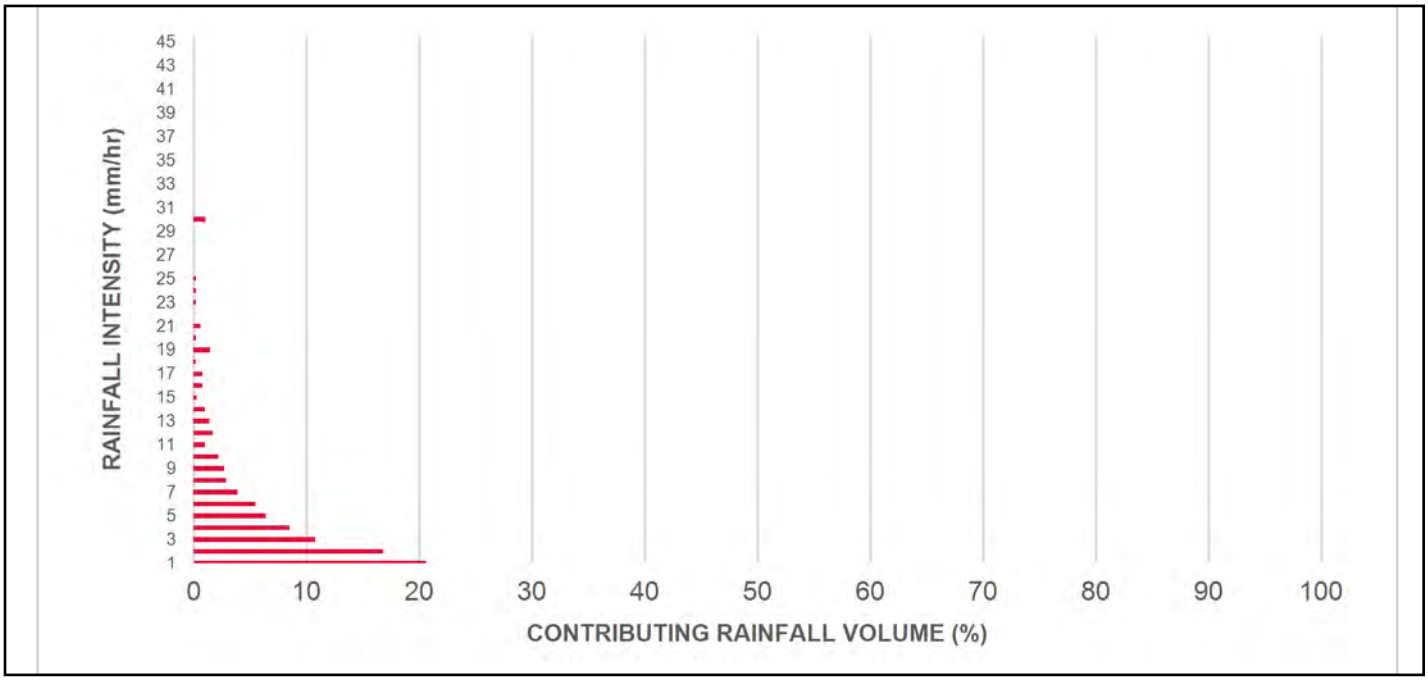
Upstream Flow Controlled Results

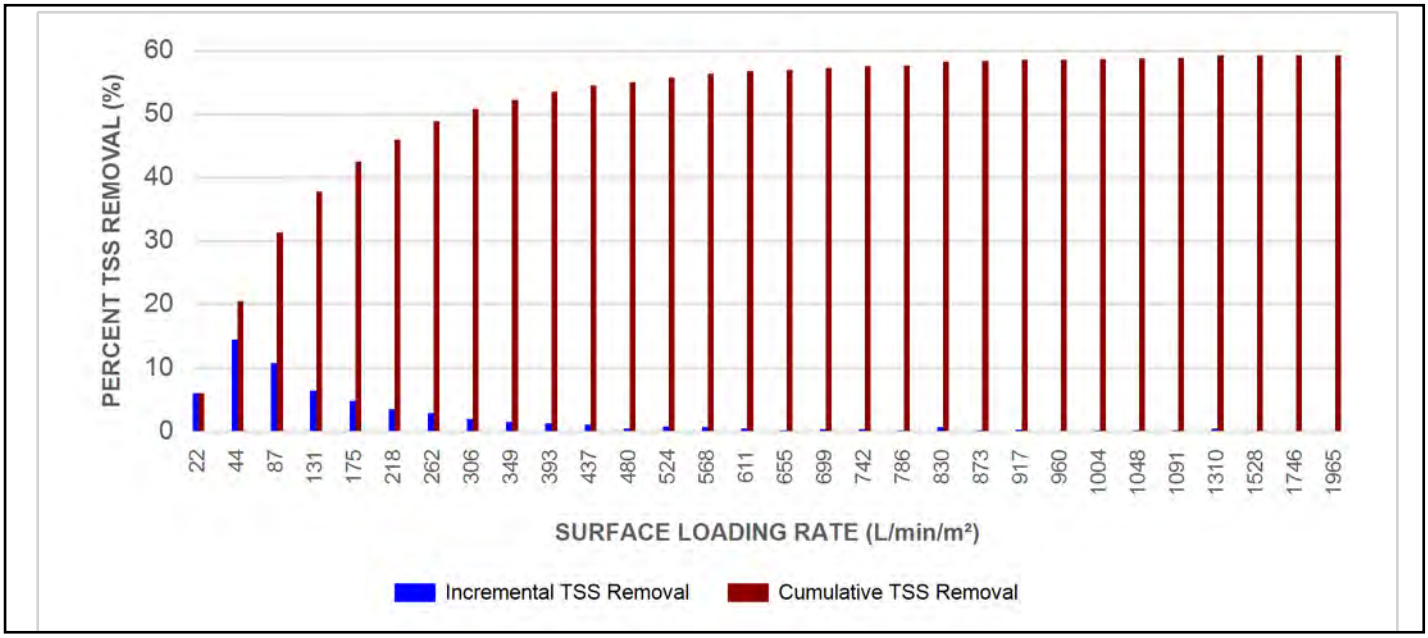
Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.50	8.5	8.5	0.96	57.0	22.0	70	6.0	6.0
1.00	20.6	29.1	1.91	115.0	44.0	70	14.5	20.5
2.00	16.8	45.9	3.83	230.0	87.0	64	10.8	31.3
3.00	10.8	56.7	5.74	344.0	131.0	60	6.4	37.7
4.00	8.5	65.2	7.65	459.0	175.0	57	4.8	42.5
5.00	6.4	71.6	9.57	574.0	218.0	54	3.4	45.9
6.00	5.5	77.0	11.48	689.0	262.0	52	2.8	48.8
7.00	3.9	81.0	13.40	804.0	306.0	51	2.0	50.8
8.00	2.9	83.9	15.31	919.0	349.0	50	1.4	52.2
9.00	2.7	86.5	17.22	1033.0	393.0	48	1.3	53.5
10.00	2.2	88.7	19.14	1148.0	437.0	47	1.0	54.5
11.00	1.0	89.7	21.05	1263.0	480.0	46	0.4	55.0
12.00	1.7	91.3	22.96	1378.0	524.0	44	0.7	55.7
13.00	8.7	100.0	24.88	1493.0	568.0	43	3.7	59.5
14.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.5
15.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.5
16.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.5
17.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.5
18.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.5
19.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.5
20.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.5
21.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.5
22.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.5
23.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.5
24.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.5
25.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.5
30.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.5
35.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.5
40.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.5
45.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.5
Estimated Net Annual Sediment (TSS) Load Reduction =								**59 %**

Climate Station ID: 6158731 *Years of Rainfall Data*: 20

RAINFALL DATA FROM TORONTO INTL AP RAINFALL STATION



INCREMENTAL AND CUMULATIVE TSS REMOVAL FOR THE RECOMMENDED STORMCEPTOR® MODEL



Maximum Pipe Diameter / Peak Conveyance

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

SCOUR PREVENTION AND ONLINE CONFIGURATION

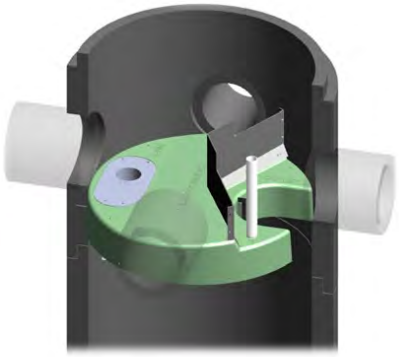
►**Stormceptor® EF and EFO** feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

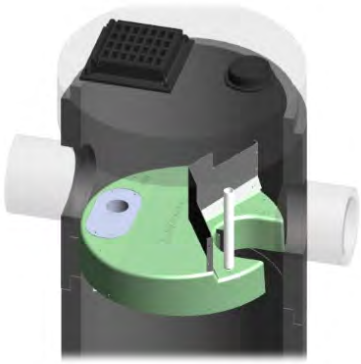
DESIGN FLEXIBILITY

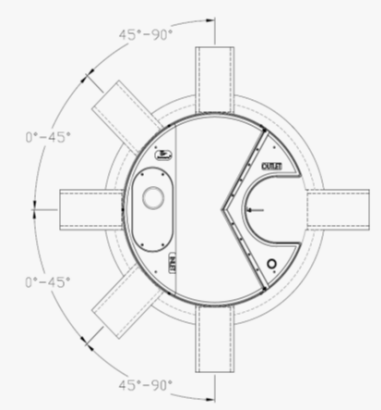
►**Stormceptor® EF** and **EFO** offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

OIL CAPTURE AND RETENTION

►While Stormceptor® EF will capture and retain oil from dry weather spills and low intensity runoff, **Stormceptor® EFO** has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid re-entrainment testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.







INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.
0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.
45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

Pollutant Capacity

Stormceptor EF / EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft^3)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

*Increased sump depth may be added to increase sediment storage capacity
** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft^3)

Feature	Benefit	Feature Appeals To
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer
Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer
Minimal drop between inlet and outlet	Site installation ease	Contractor
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner

STANDARD STORMCEPTOR EF/EFO DRAWINGS

For standard details, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

STANDARD STORMCEPTOR EF/EFO SPECIFICATION

For specifications, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

Table of TSS Removal vs Surface Loading Rate Based on Third-Party Test Results
Stormceptor® EFO

SLR (L/min/m²)	TSS % REMOVAL	SLR (L/min/m²)	TSS % REMOVAL	SLR (L/min/m²)	TSS % REMOVAL	SLR (L/min/m²)	TSS % REMOVAL
1	70	660	42	1320	35	1980	24
30	70	690	42	1350	35	2010	24
60	67	720	41	1380	34	2040	23
90	63	750	41	1410	34	2070	23
120	61	780	41	1440	33	2100	23
150	58	810	41	1470	32	2130	22
180	56	840	41	1500	32	2160	22
210	54	870	41	1530	31	2190	22
240	53	900	41	1560	31	2220	21
270	52	930	40	1590	30	2250	21
300	51	960	40	1620	29	2280	21
330	50	990	40	1650	29	2310	21
360	49	1020	40	1680	28	2340	20
390	48	1050	39	1710	28	2370	20
420	47	1080	39	1740	27	2400	20
450	47	1110	38	1770	27	2430	20
480	46	1140	38	1800	26	2460	19
510	45	1170	37	1830	26	2490	19
540	44	1200	37	1860	26	2520	19
570	43	1230	37	1890	25	2550	19
600	42	1260	36	1920	25	2580	18
630	42	1290	36	1950	24	2600	26

STANDARD PERFORMANCE SPECIFICATION FOR "OIL GRIT SEPARATOR" (OGS) STORMWATER QUALITY TREATMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program's **Procedure for Laboratory Testing of Oil-Grit** S**eparators**

1.3 SUBMITTALS

1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.

1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.

1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The minimum sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1	4 ft (1219 mm) Diameter OGS Units:	1.19 m^3 sediment / 265 L oil
	6 ft (1829 mm) Diameter OGS Units:	3.48 m^3 sediment / 609 L oil
	8 ft (2438 mm) Diameter OGS Units:	8.78 m^3 sediment / 1,071 L oil
	10 ft (3048 mm) Diameter OGS Units:	17.78 m^3 sediment / 1,673 L oil
	12 ft (3657 mm) Diameter OGS Units:	31.23 m^3 sediment / 2,476 L oil

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall

remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol Procedure for Laboratory Testing of Oil-Grit Separators, as follows:

3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m^2 to 1400 L/min/m^2, and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m^2 and 1400 L/min/m^2 shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m^2 shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m^2. No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m^2.

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m^2 shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m^2, and shall be calculated using a simple proportioning formula, with 1400 L/min/m^2 in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m^2.

The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.**

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m^2.

3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of completed third-party Light Liquid Re-entrainment Simulation Testing in accordance with the Canadian ETV **Program's Procedure for Laboratory Testing of Oil-Grit Separators,** with results reported within the Canadian ETV or ISO 14034 ETV verification. This re-entrainment testing is conducted with the device pre-loaded with low density polyethylene (LDPE) plastic beads as a surrogate for light liquids such as oil and fuel. Testing is conducted on the same OGS unit tested for sediment removal to

assess whether light liquids captured after a spill are effectively retained at high flow rates.

3.4.1 For an OGS device to be an acceptable stormwater treatment device on a site where vehicular traffic occurs and the potential for an oil or fuel spill exists, the OGS device must have reported verified performance results of greater than 99% cumulative retention of LDPE plastic beads for the five specified surface loading rates (ranging 200 L/min/m^2 to 2600 L/min/m^2) in accordance with the Light Liquid Re-entrainment Simulation Testing within the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.** However, an OGS device shall not be allowed if the Light Liquid Re-entrainment Simulation Testing was performed with screening components within the OGS device that are effective at retaining the LDPE plastic beads, but would not be expected to retain light liquids such as oil and fuel.

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Stormceptor® EF Sizing Report

Imbrium® Systems
ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION

10/17/2024

Province:	Ontario
City:	Halton Hills
Nearest Rainfall Station:	TORONTO INTL AP
Climate Station Id:	6158731
Years of Rainfall Data:	20

Site Name:	Tank 3

Drainage Area (ha):	0.80
Runoff Coefficient 'c':	0.83

Particle Size Distribution:	CA ETV
Target TSS Removal (%):	60.0

Required Water Quality Runoff Volume Capture (%):	90.00
Estimated Water Quality Flow Rate (L/s):	20.65
Oil / Fuel Spill Risk Site?	Yes
Upstream Flow Control?	Yes
Upstream Orifice Control Flow Rate to Stormceptor (L/s):	26.00
Peak Conveyance (maximum) Flow Rate (L/s):	
Influent TSS Concentration (mg/L):	200
Estimated Average Annual Sediment Load (kg/yr):	520
Estimated Average Annual Sediment Volume (L/yr):	423

Project Name:	130 Mountainview Rd N
Project Number:	65993
Designer Name:	Shania Chhom
Designer Company:	Urbantech
Designer Email:	schhom@urbantech.com
Designer Phone:	905-829-6911
EOR Name:	
EOR Company:	
EOR Email:	
EOR Phone:	

Net Annual Sediment (TSS) Load Reduction Sizing Summary

Stormceptor Model	TSS Removal Provided (%)
EFO4	52
EFO6	60
EFO8	64
EFO10	67
EFO12	69

Recommended Stormceptor EFO Model: EFO6

Estimated Net Annual Sediment (TSS) Load Reduction (%): 60

Water Quality Runoff Volume Capture (%): > 90

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THIRD-PARTY TESTING AND VERIFICATION

►**Stormceptor® EF and Stormceptor® EFO** are the latest evolutions in the Stormceptor® oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators** and performance has been third-party verified in accordance with the **ISO 14034 Environmental Technology Verification (ETV)** protocol.

PERFORMANCE

►**Stormceptor® EF and EFO** remove stormwater pollutants through gravity separation and floatation, and feature a patent-pending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including high-intensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterwavs.

PARTICLE SIZE DISTRIBUTION (PSD)

►The **Canadian ETV PSD** shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV ***Procedure for Laboratory Testing of Oil-Grit Separators*** for both sediment removal testing and scour testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff.

Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5

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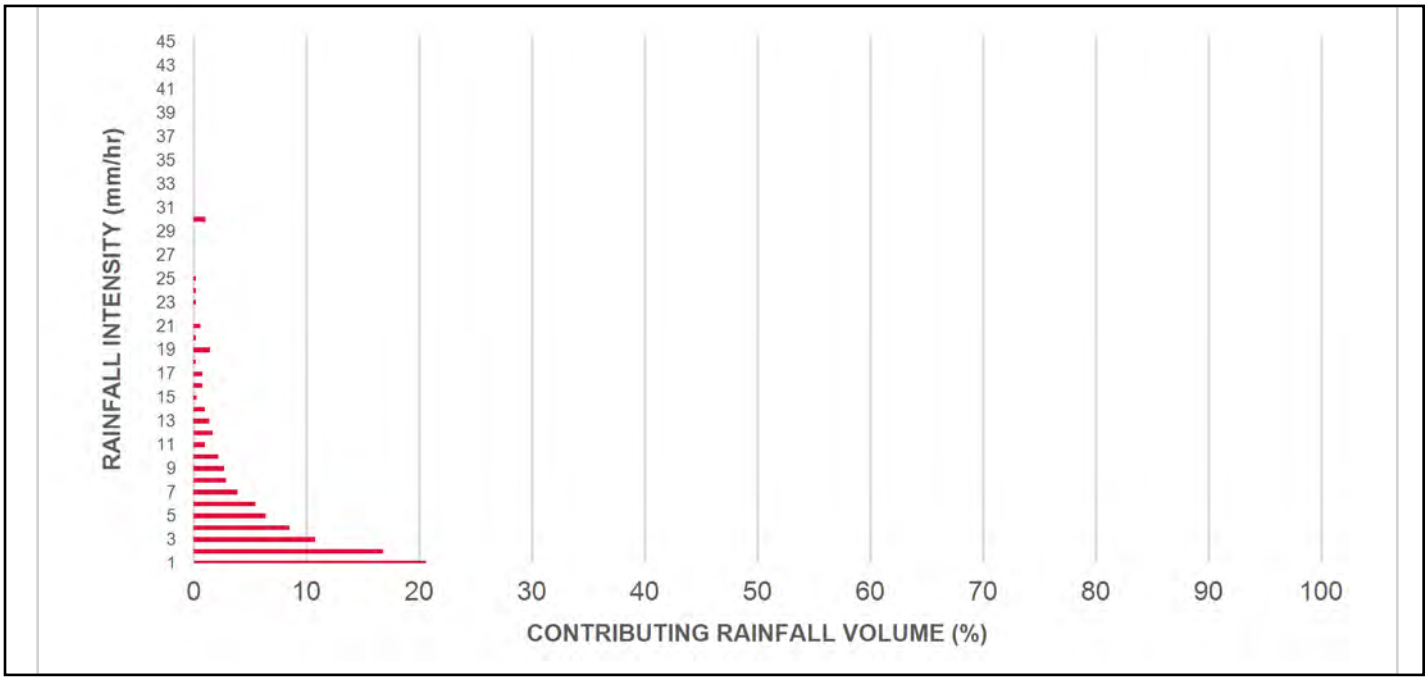
Upstream Flow Controlled Results

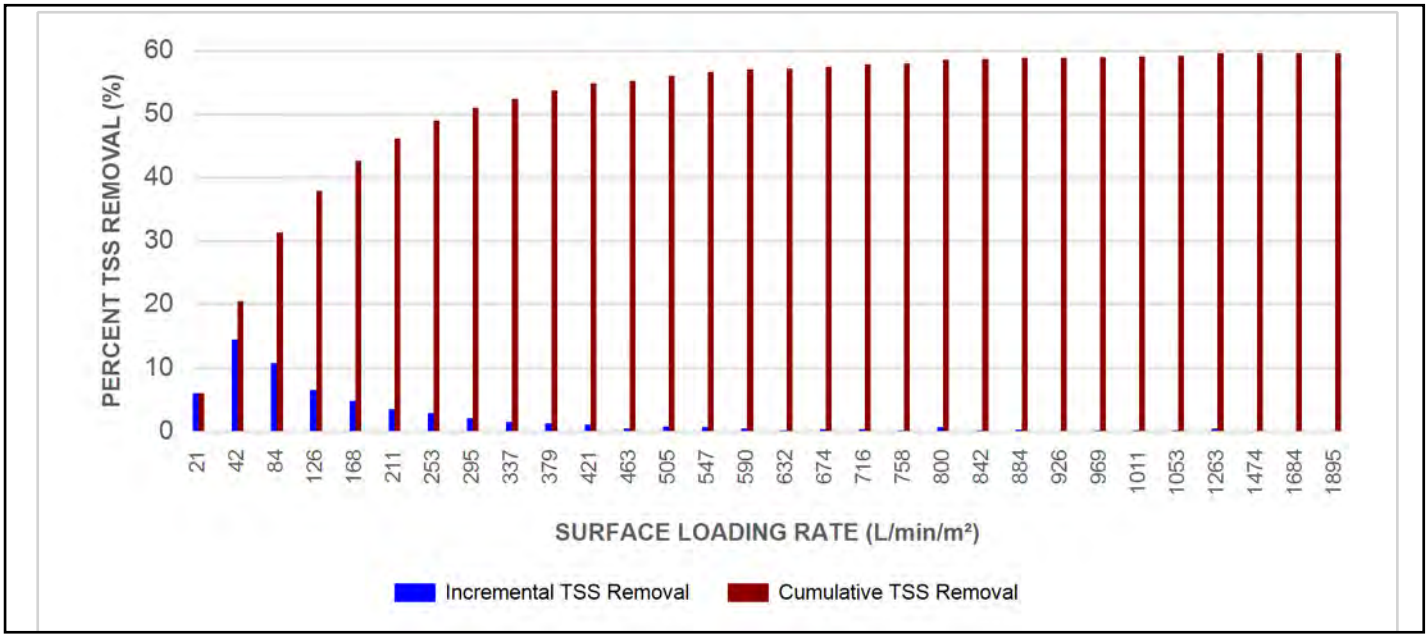
Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.50	8.5	8.5	0.92	55.0	21.0	70	6.0	6.0
1.00	20.6	29.1	1.85	111.0	42.0	70	14.5	20.5
2.00	16.8	45.9	3.69	222.0	84.0	64	10.8	31.3
3.00	10.8	56.7	5.54	332.0	126.0	61	6.5	37.8
4.00	8.5	65.2	7.38	443.0	168.0	57	4.8	42.6
5.00	6.4	71.6	9.23	554.0	211.0	54	3.4	46.1
6.00	5.5	77.0	11.08	665.0	253.0	53	2.9	48.9
7.00	3.9	81.0	12.92	775.0	295.0	51	2.0	51.0
8.00	2.9	83.9	14.77	886.0	337.0	50	1.5	52.4
9.00	2.7	86.5	16.61	997.0	379.0	49	1.3	53.7
10.00	2.2	88.7	18.46	1108.0	421.0	47	1.0	54.8
11.00	1.0	89.7	20.31	1218.0	463.0	46	0.5	55.2
12.00	1.7	91.3	22.15	1329.0	505.0	45	0.7	56.0
13.00	1.4	92.8	24.00	1440.0	547.0	44	0.6	56.6
14.00	7.2	100.0	25.84	1551.0	590.0	42	3.1	59.6
15.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.6
16.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.6
17.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.6
18.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.6
19.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.6
20.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.6
21.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.6
22.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.6
23.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.6
24.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.6
25.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.6
30.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.6
35.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.6
40.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.6
45.00	0.0	100.0	26.00	1560.0	593.0	42	0.0	59.6
Estimated Net Annual Sediment (TSS) Load Reduction =								**60 %**

Climate Station ID: 6158731 *Years of Rainfall Data*: 20

RAINFALL DATA FROM TORONTO INTL AP RAINFALL STATION



INCREMENTAL AND CUMULATIVE TSS REMOVAL FOR THE RECOMMENDED STORMCEPTOR® MODEL



Maximum Pipe Diameter / Peak Conveyance

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

SCOUR PREVENTION AND ONLINE CONFIGURATION

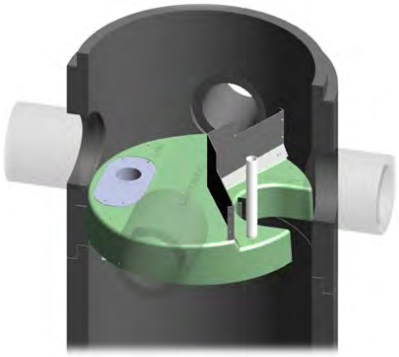
►**Stormceptor® EF and EFO** feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

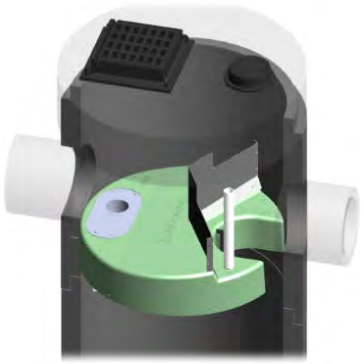
DESIGN FLEXIBILITY

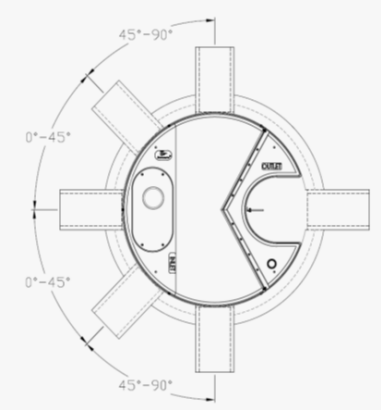
►**Stormceptor® EF** and **EFO** offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

OIL CAPTURE AND RETENTION

►While Stormceptor® EF will capture and retain oil from dry weather spills and low intensity runoff, **Stormceptor® EFO** has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid re-entrainment testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.







INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.
0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.
45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

Pollutant Capacity

Stormceptor EF / EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft^3)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

*Increased sump depth may be added to increase sediment storage capacity
** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft^3)

Feature	Benefit	Feature Appeals To
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer
Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer
Minimal drop between inlet and outlet	Site installation ease	Contractor
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner

STANDARD STORMCEPTOR EF/EFO DRAWINGS

For standard details, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

STANDARD STORMCEPTOR EF/EFO SPECIFICATION

For specifications, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

Table of TSS Removal vs Surface Loading Rate Based on Third-Party Test Results
Stormceptor® EFO

SLR (L/min/m²)	TSS % REMOVAL	SLR (L/min/m²)	TSS % REMOVAL	SLR (L/min/m²)	TSS % REMOVAL	SLR (L/min/m²)	TSS % REMOVAL
1	70	660	42	1320	35	1980	24
30	70	690	42	1350	35	2010	24
60	67	720	41	1380	34	2040	23
90	63	750	41	1410	34	2070	23
120	61	780	41	1440	33	2100	23
150	58	810	41	1470	32	2130	22
180	56	840	41	1500	32	2160	22
210	54	870	41	1530	31	2190	22
240	53	900	41	1560	31	2220	21
270	52	930	40	1590	30	2250	21
300	51	960	40	1620	29	2280	21
330	50	990	40	1650	29	2310	21
360	49	1020	40	1680	28	2340	20
390	48	1050	39	1710	28	2370	20
420	47	1080	39	1740	27	2400	20
450	47	1110	38	1770	27	2430	20
480	46	1140	38	1800	26	2460	19
510	45	1170	37	1830	26	2490	19
540	44	1200	37	1860	26	2520	19
570	43	1230	37	1890	25	2550	19
600	42	1260	36	1920	25	2580	18
630	42	1290	36	1950	24	2600	26

STANDARD PERFORMANCE SPECIFICATION FOR "OIL GRIT SEPARATOR" (OGS) STORMWATER QUALITY TREATMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program's **Procedure for Laboratory Testing of Oil-Grit** S**eparators**

1.3 SUBMITTALS

1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.

1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.

1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The minimum sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1	4 ft (1219 mm) Diameter OGS Units:	1.19 m^3 sediment / 265 L oil
	6 ft (1829 mm) Diameter OGS Units:	3.48 m^3 sediment / 609 L oil
	8 ft (2438 mm) Diameter OGS Units:	8.78 m^3 sediment / 1,071 L oil
	10 ft (3048 mm) Diameter OGS Units:	17.78 m^3 sediment / 1,673 L oil
	12 ft (3657 mm) Diameter OGS Units:	31.23 m^3 sediment / 2,476 L oil

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall

remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol Procedure for Laboratory Testing of Oil-Grit Separators, as follows:

3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m^2 to 1400 L/min/m^2, and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m^2 and 1400 L/min/m^2 shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m^2 shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m^2. No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m^2.

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m^2 shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m^2, and shall be calculated using a simple proportioning formula, with 1400 L/min/m^2 in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m^2.

The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.**

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m^2.

3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of completed third-party Light Liquid Re-entrainment Simulation Testing in accordance with the Canadian ETV **Program's Procedure for Laboratory Testing of Oil-Grit Separators,** with results reported within the Canadian ETV or ISO 14034 ETV verification. This re-entrainment testing is conducted with the device pre-loaded with low density polyethylene (LDPE) plastic beads as a surrogate for light liquids such as oil and fuel. Testing is conducted on the same OGS unit tested for sediment removal to

assess whether light liquids captured after a spill are effectively retained at high flow rates.

3.4.1 For an OGS device to be an acceptable stormwater treatment device on a site where vehicular traffic occurs and the potential for an oil or fuel spill exists, the OGS device must have reported verified performance results of greater than 99% cumulative retention of LDPE plastic beads for the five specified surface loading rates (ranging 200 L/min/m^2 to 2600 L/min/m^2) in accordance with the Light Liquid Re-entrainment Simulation Testing within the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.** However, an OGS device shall not be allowed if the Light Liquid Re-entrainment Simulation Testing was performed with screening components within the OGS device that are effective at retaining the LDPE plastic beads, but would not be expected to retain light liquids such as oil and fuel.

Stormceptor®

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Stormceptor® EF Sizing Report

Imbrium® Systems
ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION

10/17/2024

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Nearest Rainfall Station:	TORONTO INTL AP
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Site Name:	Tank 4

Drainage Area (ha):	3.19
Runoff Coefficient 'c':	0.82

Particle Size Distribution:	CA ETV
Target TSS Removal (%):	60.0

Required Water Quality Runoff Volume Capture (%):	90.00
Estimated Water Quality Flow Rate (L/s):	81.34
Oil / Fuel Spill Risk Site?	Yes
Upstream Flow Control?	Yes
Upstream Orifice Control Flow Rate to Stormceptor (L/s):	144.00
Peak Conveyance (maximum) Flow Rate (L/s):	
Influent TSS Concentration (mg/L):	200
Estimated Average Annual Sediment Load (kg/yr):	2070
Estimated Average Annual Sediment Volume (L/yr):	1683

Project Name:	130 Mountainview Rd N
Project Number:	65993
Designer Name:	Shania Chhom
Designer Company:	Urbantech
Designer Email:	schhom@urbantech.com
Designer Phone:	905-829-6911
EOR Name:	
EOR Company:	
EOR Email:	
EOR Phone:	

Net Annual Sediment (TSS) Load Reduction Sizing Summary

Stormceptor Model	TSS Removal Provided (%)
EFO4	35
EFO6	45
EFO8	52
EFO10	56
EFO12	61

Recommended Stormceptor EFO Model: EFO12

Estimated Net Annual Sediment (TSS) Load Reduction (%): 61

Water Quality Runoff Volume Capture (%): > 90

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THIRD-PARTY TESTING AND VERIFICATION

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Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5

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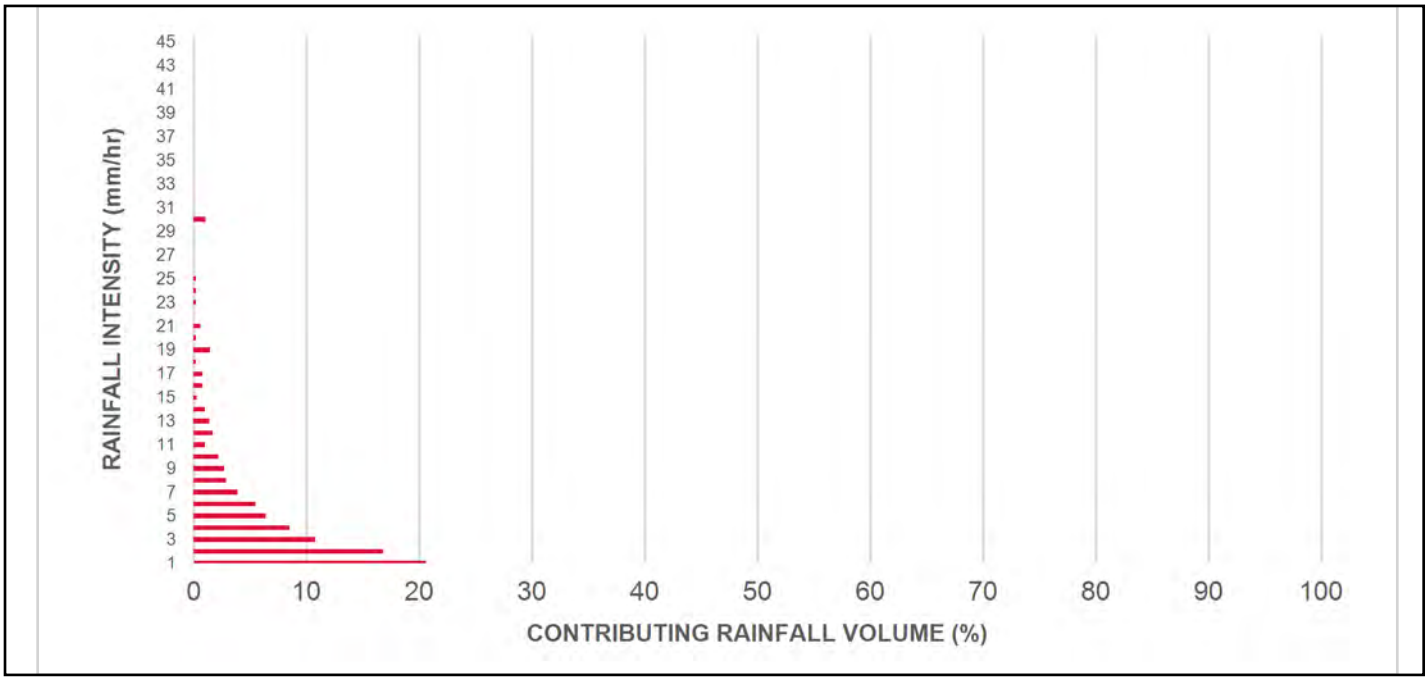
Upstream Flow Controlled Results

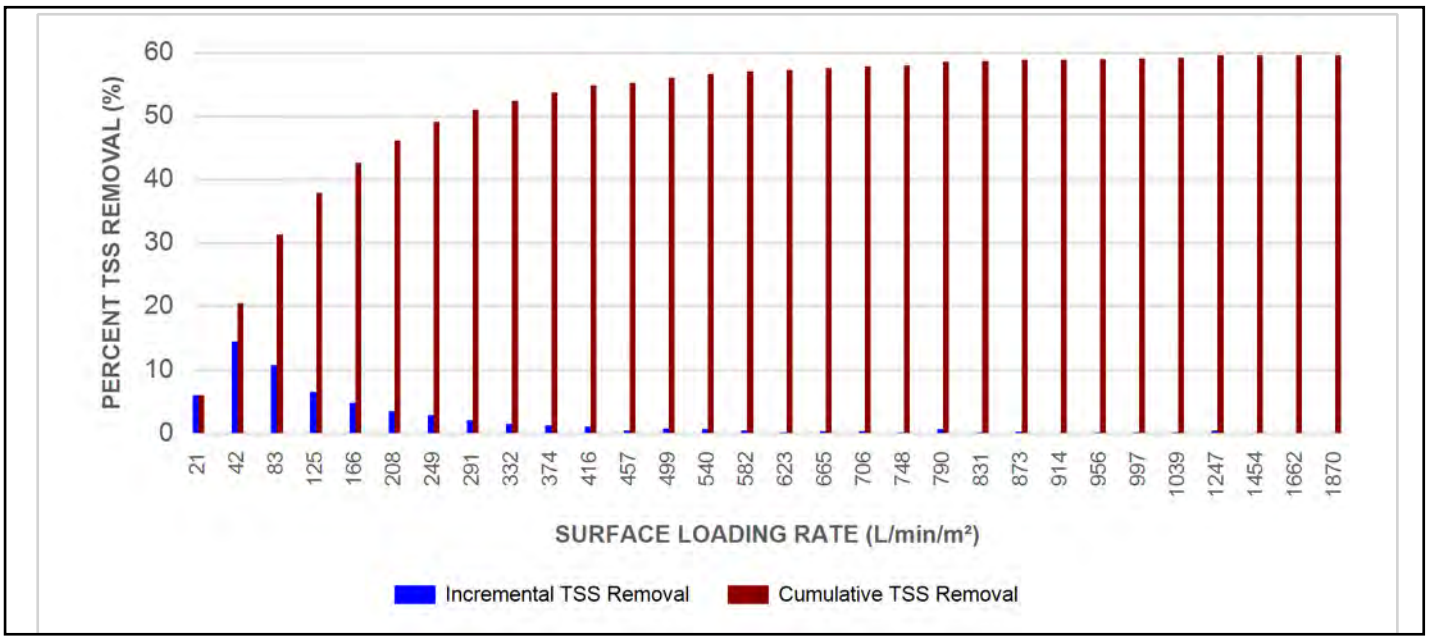
Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.50	8.5	8.5	3.64	218.0	17.0	70	6.0	6.0
1.00	20.6	29.1	7.27	436.0	35.0	70	14.5	20.5
2.00	16.8	45.9	14.54	873.0	70.0	66	11.0	31.5
3.00	10.8	56.7	21.82	1309.0	105.0	62	6.7	38.2
4.00	8.5	65.2	29.09	1745.0	140.0	59	5.0	43.2
5.00	6.4	71.6	36.36	2182.0	175.0	57	3.6	46.9
6.00	5.5	77.0	43.63	2618.0	209.0	54	2.9	49.8
7.00	3.9	81.0	50.90	3054.0	244.0	53	2.1	51.9
8.00	2.9	83.9	58.18	3491.0	279.0	52	1.5	53.4
9.00	2.7	86.5	65.45	3927.0	314.0	51	1.4	54.7
10.00	2.2	88.7	72.72	4363.0	349.0	50	1.1	55.8
11.00	1.0	89.7	79.99	4799.0	384.0	49	0.5	56.3
12.00	1.7	91.3	87.26	5236.0	419.0	48	0.8	57.1
13.00	1.4	92.8	94.54	5672.0	454.0	47	0.7	57.7
14.00	1.0	93.7	101.81	6108.0	489.0	46	0.4	58.2
15.00	0.3	94.0	109.08	6545.0	524.0	44	0.1	58.3
16.00	0.8	94.8	116.35	6981.0	558.0	44	0.3	58.6
17.00	0.8	95.7	123.62	7417.0	593.0	42	0.4	59.0
18.00	0.2	95.8	130.89	7854.0	628.0	42	0.1	59.1
19.00	4.2	100.0	138.17	8290.0	663.0	42	1.7	60.8
20.00	0.0	100.0	144.00	8640.0	691.0	42	0.0	60.8
21.00	0.0	100.0	144.00	8640.0	691.0	42	0.0	60.8
22.00	0.0	100.0	144.00	8640.0	691.0	42	0.0	60.8
23.00	0.0	100.0	144.00	8640.0	691.0	42	0.0	60.8
24.00	0.0	100.0	144.00	8640.0	691.0	42	0.0	60.8
25.00	0.0	100.0	144.00	8640.0	691.0	42	0.0	60.8
30.00	0.0	100.0	144.00	8640.0	691.0	42	0.0	60.8
35.00	0.0	100.0	144.00	8640.0	691.0	42	0.0	60.8
40.00	0.0	100.0	144.00	8640.0	691.0	42	0.0	60.8
45.00	0.0	100.0	144.00	8640.0	691.0	42	0.0	60.8
Estimated Net Annual Sediment (TSS) Load Reduction =								**61 %**

Climate Station ID: 6158731 *Years of Rainfall Data*: 20

RAINFALL DATA FROM TORONTO INTL AP RAINFALL STATION



INCREMENTAL AND CUMULATIVE TSS REMOVAL
FOR THE RECOMMENDED STORMCEPTOR® MODEL



Maximum Pipe Diameter / Peak Conveyance

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

SCOUR PREVENTION AND ONLINE CONFIGURATION

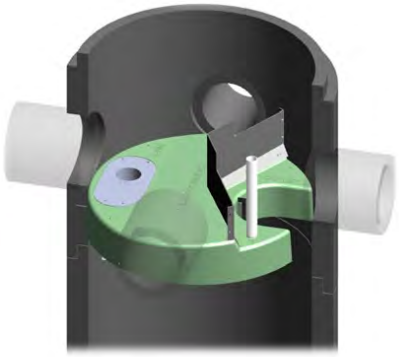
►**Stormceptor® EF and EFO** feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

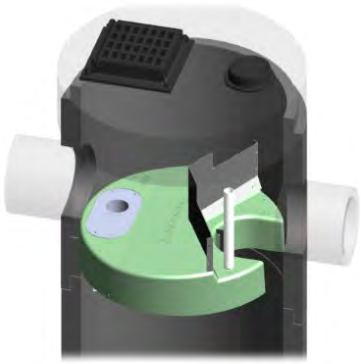
DESIGN FLEXIBILITY

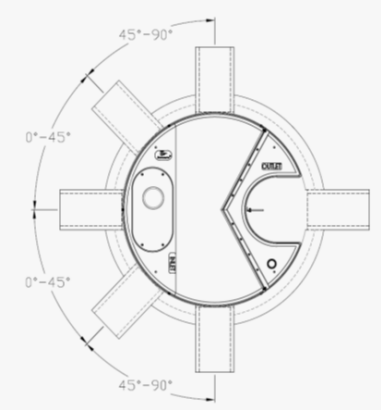
►**Stormceptor® EF** and **EFO** offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

OIL CAPTURE AND RETENTION

►While Stormceptor® EF will capture and retain oil from dry weather spills and low intensity runoff, **Stormceptor® EFO** has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid re-entrainment testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.







INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.
0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.
45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

Pollutant Capacity

Stormceptor EF / EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft^3)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

*Increased sump depth may be added to increase sediment storage capacity
** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft^3)

Feature	Benefit	Feature Appeals To
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer
Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer
Minimal drop between inlet and outlet	Site installation ease	Contractor
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner

STANDARD STORMCEPTOR EF/EFO DRAWINGS

For standard details, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

STANDARD STORMCEPTOR EF/EFO SPECIFICATION

For specifications, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

Table of TSS Removal vs Surface Loading Rate Based on Third-Party Test Results
Stormceptor® EFO

SLR (L/min/m²)	TSS % REMOVAL	SLR (L/min/m²)	TSS % REMOVAL	SLR (L/min/m²)	TSS % REMOVAL	SLR (L/min/m²)	TSS % REMOVAL
1	70	660	42	1320	35	1980	24
30	70	690	42	1350	35	2010	24
60	67	720	41	1380	34	2040	23
90	63	750	41	1410	34	2070	23
120	61	780	41	1440	33	2100	23
150	58	810	41	1470	32	2130	22
180	56	840	41	1500	32	2160	22
210	54	870	41	1530	31	2190	22
240	53	900	41	1560	31	2220	21
270	52	930	40	1590	30	2250	21
300	51	960	40	1620	29	2280	21
330	50	990	40	1650	29	2310	21
360	49	1020	40	1680	28	2340	20
390	48	1050	39	1710	28	2370	20
420	47	1080	39	1740	27	2400	20
450	47	1110	38	1770	27	2430	20
480	46	1140	38	1800	26	2460	19
510	45	1170	37	1830	26	2490	19
540	44	1200	37	1860	26	2520	19
570	43	1230	37	1890	25	2550	19
600	42	1260	36	1920	25	2580	18
630	42	1290	36	1950	24	2600	26

STANDARD PERFORMANCE SPECIFICATION FOR "OIL GRIT SEPARATOR" (OGS) STORMWATER QUALITY TREATMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program's **Procedure for Laboratory Testing of Oil-Grit** S**eparators**

1.3 SUBMITTALS

1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.

1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.

1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The minimum sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1	4 ft (1219 mm) Diameter OGS Units:	1.19 m^3 sediment / 265 L oil
	6 ft (1829 mm) Diameter OGS Units:	3.48 m^3 sediment / 609 L oil
	8 ft (2438 mm) Diameter OGS Units:	8.78 m^3 sediment / 1,071 L oil
	10 ft (3048 mm) Diameter OGS Units:	17.78 m^3 sediment / 1,673 L oil
	12 ft (3657 mm) Diameter OGS Units:	31.23 m^3 sediment / 2,476 L oil

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall

remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol Procedure for Laboratory Testing of Oil-Grit Separators, as follows:

3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m^2 to 1400 L/min/m^2, and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m^2 and 1400 L/min/m^2 shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m^2 shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m^2. No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m^2.

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m^2 shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m^2, and shall be calculated using a simple proportioning formula, with 1400 L/min/m^2 in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m^2.

The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.**

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m^2.

3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of completed third-party Light Liquid Re-entrainment Simulation Testing in accordance with the Canadian ETV **Program's Procedure for Laboratory Testing of Oil-Grit Separators,** with results reported within the Canadian ETV or ISO 14034 ETV verification. This re-entrainment testing is conducted with the device pre-loaded with low density polyethylene (LDPE) plastic beads as a surrogate for light liquids such as oil and fuel. Testing is conducted on the same OGS unit tested for sediment removal to

assess whether light liquids captured after a spill are effectively retained at high flow rates.

3.4.1 For an OGS device to be an acceptable stormwater treatment device on a site where vehicular traffic occurs and the potential for an oil or fuel spill exists, the OGS device must have reported verified performance results of greater than 99% cumulative retention of LDPE plastic beads for the five specified surface loading rates (ranging 200 L/min/m^2 to 2600 L/min/m^2) in accordance with the Light Liquid Re-entrainment Simulation Testing within the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.** However, an OGS device shall not be allowed if the Light Liquid Re-entrainment Simulation Testing was performed with screening components within the OGS device that are effective at retaining the LDPE plastic beads, but would not be expected to retain light liquids such as oil and fuel.

Proposed Scenario

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================================================================================
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2016)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


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DATE: 10-15-2024                          TIME: 11:03:48

USER:



COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------
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  ************************************************
  ** SIMULATION : 100yr_24hr Chicago            **
  ************************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1777.200
| Ptotal=130.89 mm |                          B=   9.000
--------------------                          C=   0.795
```

```
                    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
  0.00    1.17 |  6.00    3.96 | 12.00    3.49 | 18.00    1.66
  0.17    1.19 |  6.17    4.31 | 12.17    3.37 | 18.17    1.63
  0.33    1.21 |  6.33    4.74 | 12.33    3.27 | 18.33    1.61
  0.50    1.23 |  6.50    5.27 | 12.50    3.17 | 18.50    1.59
  0.67    1.26 |  6.67    5.95 | 12.67    3.07 | 18.67    1.57
  0.83    1.28 |  6.83    6.87 | 12.83    2.99 | 18.83    1.55
  1.00    1.31 |  7.00    8.17 | 13.00    2.91 | 19.00    1.53
  1.17    1.33 |  7.17   10.16 | 13.17    2.83 | 19.17    1.52
  1.33    1.36 |  7.33   13.62 | 13.33    2.76 | 19.33    1.50
  1.50    1.39 |  7.50   21.15 | 13.50    2.69 | 19.50    1.48
  1.67    1.42 |  7.67   50.35 | 13.67    2.62 | 19.67    1.46
  1.83    1.45 |  7.83  171.05 | 13.83    2.56 | 19.83    1.45
  2.00    1.49 |  8.00   65.47 | 14.00    2.51 | 20.00    1.43
  2.17    1.52 |  8.17   35.30 | 14.17    2.45 | 20.17    1.41
  2.33    1.56 |  8.33   24.06 | 14.33    2.40 | 20.33    1.40
  2.50    1.60 |  8.50   18.29 | 14.50    2.35 | 20.50    1.38
  2.67    1.64 |  8.67   14.80 | 14.67    2.30 | 20.67    1.37
  2.83    1.69 |  8.83   12.47 | 14.83    2.25 | 20.83    1.35
  3.00    1.74 |  9.00   10.80 | 15.00    2.21 | 21.00    1.34
  3.17    1.79 |  9.17    9.55 | 15.17    2.17 | 21.17    1.33
  3.33    1.84 |  9.33    8.57 | 15.33    2.13 | 21.33    1.31
  3.50    1.90 |  9.50    7.79 | 15.50    2.09 | 21.50    1.30
  3.67    1.96 |  9.67    7.15 | 15.67    2.05 | 21.67    1.29
  3.83    2.03 |  9.83    6.61 | 15.83    2.02 | 21.83    1.27
  4.00    2.11 | 10.00    6.16 | 16.00    1.98 | 22.00    1.26
  4.17    2.19 | 10.17    5.77 | 16.17    1.95 | 22.17    1.25
  4.33    2.27 | 10.33    5.42 | 16.33    1.92 | 22.33    1.24
  4.50    2.37 | 10.50    5.13 | 16.50    1.89 | 22.50    1.23
  4.67    2.47 | 10.67    4.86 | 16.67    1.86 | 22.67    1.22
  4.83    2.59 | 10.83    4.63 | 16.83    1.83 | 22.83    1.21
  5.00    2.72 | 11.00    4.41 | 17.00    1.80 | 23.00    1.19
  5.17    2.86 | 11.17    4.22 | 17.17    1.78 | 23.17    1.18
  5.33    3.03 | 11.33    4.05 | 17.33    1.75 | 23.33    1.17
  5.50    3.21 | 11.50    3.89 | 17.50    1.73 | 23.50    1.16
  5.67    3.43 | 11.67    3.74 | 17.67    1.70 | 23.67    1.15
  5.83    3.67 | 11.83    3.61 | 17.83    1.68 | 23.83    1.14

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0026)|   Area    (ha)=   0.28   Curve Number   (CN)= 84.0
```

```
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.22

        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    1.17 | 6.083    3.96 |12.083    3.49 | 18.08    1.66
 0.167    1.17 | 6.167    3.96 |12.167    3.49 | 18.17    1.66
 0.250    1.19 | 6.250    4.31 |12.250    3.37 | 18.25    1.63
 0.333    1.19 | 6.333    4.31 |12.333    3.37 | 18.33    1.63
 0.417    1.21 | 6.417    4.74 |12.417    3.27 | 18.42    1.61
 0.500    1.21 | 6.500    4.74 |12.500    3.27 | 18.50    1.61
 0.583    1.23 | 6.583    5.27 |12.583    3.17 | 18.58    1.59
 0.667    1.23 | 6.667    5.27 |12.667    3.17 | 18.67    1.59
 0.750    1.26 | 6.750    5.95 |12.750    3.07 | 18.75    1.57
 0.833    1.26 | 6.833    5.95 |12.833    3.07 | 18.83    1.57
 0.917    1.28 | 6.917    6.87 |12.917    2.99 | 18.92    1.55
 1.000    1.28 | 7.000    6.87 |13.000    2.99 | 19.00    1.55
 1.083    1.31 | 7.083    8.17 |13.083    2.91 | 19.08    1.53
 1.167    1.31 | 7.167    8.17 |13.167    2.91 | 19.17    1.53
 1.250    1.33 | 7.250   10.16 |13.250    2.83 | 19.25    1.52
 1.333    1.33 | 7.333   10.16 |13.333    2.83 | 19.33    1.52
 1.417    1.36 | 7.417   13.62 |13.417    2.76 | 19.42    1.50
 1.500    1.36 | 7.500   13.62 |13.500    2.76 | 19.50    1.50
 1.583    1.39 | 7.583   21.15 |13.583    2.69 | 19.58    1.48
 1.667    1.39 | 7.667   21.15 |13.667    2.69 | 19.67    1.48
 1.750    1.42 | 7.750   50.35 |13.750    2.62 | 19.75    1.46
 1.833    1.42 | 7.833   50.36 |13.833    2.62 | 19.83    1.46
 1.917    1.45 | 7.917  171.05 |13.917    2.56 | 19.92    1.45
 2.000    1.45 | 8.000  171.04 |14.000    2.56 | 20.00    1.45
 2.083    1.49 | 8.083   65.47 |14.083    2.51 | 20.08    1.43
 2.167    1.49 | 8.167   65.47 |14.167    2.51 | 20.17    1.43
 2.250    1.52 | 8.250   35.30 |14.250    2.45 | 20.25    1.41
 2.333    1.52 | 8.333   35.30 |14.333    2.45 | 20.33    1.41
 2.417    1.56 | 8.417   24.06 |14.417    2.40 | 20.42    1.40
 2.500    1.56 | 8.500   24.06 |14.500    2.40 | 20.50    1.40
 2.583    1.60 | 8.583   18.29 |14.583    2.35 | 20.58    1.38
 2.667    1.60 | 8.667   18.29 |14.667    2.35 | 20.67    1.38
 2.750    1.64 | 8.750   14.80 |14.750    2.30 | 20.75    1.37
 2.833    1.64 | 8.833   14.80 |14.833    2.30 | 20.83    1.37
 2.917    1.69 | 8.917   12.47 |14.917    2.25 | 20.92    1.35
 3.000    1.69 | 9.000   12.47 |15.000    2.25 | 21.00    1.35
 3.083    1.74 | 9.083   10.80 |15.083    2.21 | 21.08    1.34
 3.167    1.74 | 9.167   10.80 |15.167    2.21 | 21.17    1.34
 3.250    1.79 | 9.250    9.55 |15.250    2.17 | 21.25    1.33
 3.333    1.79 | 9.333    9.55 |15.333    2.17 | 21.33    1.33
 3.417    1.84 | 9.417    8.57 |15.417    2.13 | 21.42    1.31
 3.500    1.84 | 9.500    8.57 |15.500    2.13 | 21.50    1.31
 3.583    1.90 | 9.583    7.79 |15.583    2.09 | 21.58    1.30
 3.667    1.90 | 9.667    7.79 |15.667    2.09 | 21.67    1.30
 3.750    1.96 | 9.750    7.15 |15.750    2.05 | 21.75    1.29
 3.833    1.96 | 9.833    7.15 |15.833    2.05 | 21.83    1.29
 3.917    2.03 | 9.917    6.61 |15.917    2.02 | 21.92    1.27
 4.000    2.03 |10.000    6.61 |16.000    2.02 | 22.00    1.27
 4.083    2.11 |10.083    6.16 |16.083    1.98 | 22.08    1.26
 4.167    2.11 |10.167    6.16 |16.167    1.98 | 22.17    1.26
 4.250    2.19 |10.250    5.77 |16.250    1.95 | 22.25    1.25
 4.333    2.19 |10.333    5.77 |16.333    1.95 | 22.33    1.25
 4.417    2.27 |10.417    5.42 |16.417    1.92 | 22.42    1.24
 4.500    2.27 |10.500    5.42 |16.500    1.92 | 22.50    1.24
 4.583    2.37 |10.583    5.13 |16.583    1.89 | 22.58    1.23
 4.667    2.37 |10.667    5.13 |16.667    1.89 | 22.67    1.23
 4.750    2.47 |10.750    4.86 |16.750    1.86 | 22.75    1.22
 4.833    2.47 |10.833    4.86 |16.833    1.86 | 22.83    1.22
 4.917    2.59 |10.917    4.63 |16.917    1.83 | 22.92    1.21
 5.000    2.59 |11.000    4.63 |17.000    1.83 | 23.00    1.21
 5.083    2.72 |11.083    4.41 |17.083    1.80 | 23.08    1.19
 5.167    2.72 |11.167    4.41 |17.167    1.80 | 23.17    1.19
 5.250    2.86 |11.250    4.22 |17.250    1.78 | 23.25    1.18
 5.333    2.86 |11.333    4.22 |17.333    1.78 | 23.33    1.18
 5.417    3.03 |11.417    4.05 |17.417    1.75 | 23.42    1.17
 5.500    3.03 |11.500    4.05 |17.500    1.75 | 23.50    1.17
 5.583    3.21 |11.583    3.89 |17.583    1.73 | 23.58    1.16
 5.667    3.21 |11.667    3.89 |17.667    1.73 | 23.67    1.16
 5.750    3.43 |11.750    3.74 |17.750    1.70 | 23.75    1.15
 5.833    3.43 |11.833    3.74 |17.833    1.70 | 23.83    1.15
 5.917    3.67 |11.917    3.61 |17.917    1.68 | 23.92    1.14
 6.000    3.67 |12.000    3.61 |18.000    1.68 | 24.00    1.14

     Unit Hyd Qpeak  (cms)=   0.049

     PEAK FLOW       (cms)=   0.053 (i)
     TIME TO PEAK    (hrs)=   8.167
     RUNOFF VOLUME    (mm)=  90.816
     TOTAL RAINFALL   (mm)= 130.887
     RUNOFF COEFFICIENT   =   0.694

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

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| CALIB            |
| NASHYD   (  0029)|   Area    (ha)=   0.18   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.17

         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	1.17	6.083	3.96	12.083	3.49	18.08	1.66
0.167	1.17	6.167	3.96	12.167	3.49	18.17	1.66
0.250	1.19	6.250	4.31	12.250	3.37	18.25	1.63
0.333	1.19	6.333	4.31	12.333	3.37	18.33	1.63
0.417	1.21	6.417	4.74	12.417	3.27	18.42	1.61
0.500	1.21	6.500	4.74	12.500	3.27	18.50	1.61
0.583	1.23	6.583	5.27	12.583	3.17	18.58	1.59
0.667	1.23	6.667	5.27	12.667	3.17	18.67	1.59
0.750	1.26	6.750	5.95	12.750	3.07	18.75	1.57
0.833	1.26	6.833	5.95	12.833	3.07	18.83	1.57
0.917	1.28	6.917	6.87	12.917	2.99	18.92	1.55
1.000	1.28	7.000	6.87	13.000	2.99	19.00	1.55
1.083	1.31	7.083	8.17	13.083	2.91	19.08	1.53
1.167	1.31	7.167	8.17	13.167	2.91	19.17	1.53
1.250	1.33	7.250	10.16	13.250	2.83	19.25	1.52
1.333	1.33	7.333	10.16	13.333	2.83	19.33	1.52
1.417	1.36	7.417	13.62	13.417	2.76	19.42	1.50
1.500	1.36	7.500	13.62	13.500	2.76	19.50	1.50
1.583	1.39	7.583	21.15	13.583	2.69	19.58	1.48
1.667	1.39	7.667	21.15	13.667	2.69	19.67	1.48
1.750	1.42	7.750	50.35	13.750	2.62	19.75	1.46
1.833	1.42	7.833	50.36	13.833	2.62	19.83	1.46
1.917	1.45	7.917	171.05	13.917	2.56	19.92	1.45
2.000	1.45	8.000	171.04	14.000	2.56	20.00	1.45
2.083	1.49	8.083	65.47	14.083	2.51	20.08	1.43
2.167	1.49	8.167	65.47	14.167	2.51	20.17	1.43
2.250	1.52	8.250	35.30	14.250	2.45	20.25	1.41
2.333	1.52	8.333	35.30	14.333	2.45	20.33	1.41
2.417	1.56	8.417	24.06	14.417	2.40	20.42	1.40
2.500	1.56	8.500	24.06	14.500	2.40	20.50	1.40
2.583	1.60	8.583	18.29	14.583	2.35	20.58	1.38
2.667	1.60	8.667	18.29	14.667	2.35	20.67	1.38
2.750	1.64	8.750	14.80	14.750	2.30	20.75	1.37
2.833	1.64	8.833	14.80	14.833	2.30	20.83	1.37
2.917	1.69	8.917	12.47	14.917	2.25	20.92	1.35
3.000	1.69	9.000	12.47	15.000	2.25	21.00	1.35
3.083	1.74	9.083	10.80	15.083	2.21	21.08	1.34
3.167	1.74	9.167	10.80	15.167	2.21	21.17	1.34
3.250	1.79	9.250	9.55	15.250	2.17	21.25	1.33
3.333	1.79	9.333	9.55	15.333	2.17	21.33	1.33
3.417	1.84	9.417	8.57	15.417	2.13	21.42	1.31
3.500	1.84	9.500	8.57	15.500	2.13	21.50	1.31
3.583	1.90	9.583	7.79	15.583	2.09	21.58	1.30
3.667	1.90	9.667	7.79	15.667	2.09	21.67	1.30
3.750	1.96	9.750	7.15	15.750	2.05	21.75	1.29
3.833	1.96	9.833	7.15	15.833	2.05	21.83	1.29
3.917	2.03	9.917	6.61	15.917	2.02	21.92	1.27
4.000	2.03	10.000	6.61	16.000	2.02	22.00	1.27
4.083	2.11	10.083	6.16	16.083	1.98	22.08	1.26
4.167	2.11	10.167	6.16	16.167	1.98	22.17	1.26
4.250	2.19	10.250	5.77	16.250	1.95	22.25	1.25
4.333	2.19	10.333	5.77	16.333	1.95	22.33	1.25
4.417	2.27	10.417	5.42	16.417	1.92	22.42	1.24
4.500	2.27	10.500	5.42	16.500	1.92	22.50	1.24
4.583	2.37	10.583	5.13	16.583	1.89	22.58	1.23
4.667	2.37	10.667	5.13	16.667	1.89	22.67	1.23
4.750	2.47	10.750	4.86	16.750	1.86	22.75	1.22
4.833	2.47	10.833	4.86	16.833	1.86	22.83	1.22
4.917	2.59	10.917	4.63	16.917	1.83	22.92	1.21
5.000	2.59	11.000	4.63	17.000	1.83	23.00	1.21
5.083	2.72	11.083	4.41	17.083	1.80	23.08	1.19
5.167	2.72	11.167	4.41	17.167	1.80	23.17	1.19
5.250	2.86	11.250	4.22	17.250	1.78	23.25	1.18
5.333	2.86	11.333	4.22	17.333	1.78	23.33	1.18
5.417	3.03	11.417	4.05	17.417	1.75	23.42	1.17
5.500	3.03	11.500	4.05	17.500	1.75	23.50	1.17
5.583	3.21	11.583	3.89	17.583	1.73	23.58	1.16
5.667	3.21	11.667	3.89	17.667	1.73	23.67	1.16
5.750	3.43	11.750	3.74	17.750	1.70	23.75	1.15
5.833	3.43	11.833	3.74	17.833	1.70	23.83	1.15
5.917	3.67	11.917	3.61	17.917	1.68	23.92	1.14
6.000	3.67	12.000	3.61	18.000	1.68	24.00	1.14

Unit Hyd Qpeak (cms)= 0.040

PEAK FLOW (cms)= 0.038 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 90.611
TOTAL RAINFALL (mm)= 130.887
RUNOFF COEFFICIENT = 0.692

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

CALIB	
STANDHYD (0028)	Area (ha)= 0.08
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.00
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	23.09	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	1.17	6.083	3.96	12.083	3.49	18.08	1.66
0.167	1.17	6.167	3.96	12.167	3.49	18.17	1.66
0.250	1.19	6.250	4.31	12.250	3.37	18.25	1.63
0.333	1.19	6.333	4.31	12.333	3.37	18.33	1.63
0.417	1.21	6.417	4.74	12.417	3.27	18.42	1.61
0.500	1.21	6.500	4.74	12.500	3.27	18.50	1.61
0.583	1.23	6.583	5.27	12.583	3.17	18.58	1.59
0.667	1.23	6.667	5.27	12.667	3.17	18.67	1.59
0.750	1.26	6.750	5.95	12.750	3.07	18.75	1.57
0.833	1.26	6.833	5.95	12.833	3.07	18.83	1.57
0.917	1.28	6.917	6.87	12.917	2.99	18.92	1.55
1.000	1.28	7.000	6.87	13.000	2.99	19.00	1.55
1.083	1.31	7.083	8.17	13.083	2.91	19.08	1.53
1.167	1.31	7.167	8.17	13.167	2.91	19.17	1.53
1.250	1.33	7.250	10.16	13.250	2.83	19.25	1.52
1.333	1.33	7.333	10.16	13.333	2.83	19.33	1.52
1.417	1.36	7.417	13.62	13.417	2.76	19.42	1.50
1.500	1.36	7.500	13.62	13.500	2.76	19.50	1.50
1.583	1.39	7.583	21.15	13.583	2.69	19.58	1.48
1.667	1.39	7.667	21.15	13.667	2.69	19.67	1.48
1.750	1.42	7.750	50.35	13.750	2.62	19.75	1.46
1.833	1.42	7.833	50.36	13.833	2.62	19.83	1.46
1.917	1.45	7.917	171.05	13.917	2.56	19.92	1.45
2.000	1.45	8.000	171.04	14.000	2.56	20.00	1.45
2.083	1.49	8.083	65.47	14.083	2.51	20.08	1.43
2.167	1.49	8.167	65.47	14.167	2.51	20.17	1.43
2.250	1.52	8.250	35.30	14.250	2.45	20.25	1.41
2.333	1.52	8.333	35.30	14.333	2.45	20.33	1.41
2.417	1.56	8.417	24.06	14.417	2.40	20.42	1.40
2.500	1.56	8.500	24.06	14.500	2.40	20.50	1.40
2.583	1.60	8.583	18.29	14.583	2.35	20.58	1.38
2.667	1.60	8.667	18.29	14.667	2.35	20.67	1.38
2.750	1.64	8.750	14.80	14.750	2.30	20.75	1.37
2.833	1.64	8.833	14.80	14.833	2.30	20.83	1.37
2.917	1.69	8.917	12.47	14.917	2.25	20.92	1.35
3.000	1.69	9.000	12.47	15.000	2.25	21.00	1.35
3.083	1.74	9.083	10.80	15.083	2.21	21.08	1.34
3.167	1.74	9.167	10.80	15.167	2.21	21.17	1.34
3.250	1.79	9.250	9.55	15.250	2.17	21.25	1.33
3.333	1.79	9.333	9.55	15.333	2.17	21.33	1.33
3.417	1.84	9.417	8.57	15.417	2.13	21.42	1.31
3.500	1.84	9.500	8.57	15.500	2.13	21.50	1.31
3.583	1.90	9.583	7.79	15.583	2.09	21.58	1.30
3.667	1.90	9.667	7.79	15.667	2.09	21.67	1.30
3.750	1.96	9.750	7.15	15.750	2.05	21.75	1.29
3.833	1.96	9.833	7.15	15.833	2.05	21.83	1.29
3.917	2.03	9.917	6.61	15.917	2.02	21.92	1.27
4.000	2.03	10.000	6.61	16.000	2.02	22.00	1.27
4.083	2.11	10.083	6.16	16.083	1.98	22.08	1.26
4.167	2.11	10.167	6.16	16.167	1.98	22.17	1.26
4.250	2.19	10.250	5.77	16.250	1.95	22.25	1.25
4.333	2.19	10.333	5.77	16.333	1.95	22.33	1.25
4.417	2.27	10.417	5.42	16.417	1.92	22.42	1.24
4.500	2.27	10.500	5.42	16.500	1.92	22.50	1.24
4.583	2.37	10.583	5.13	16.583	1.89	22.58	1.23
4.667	2.37	10.667	5.13	16.667	1.89	22.67	1.23
4.750	2.47	10.750	4.86	16.750	1.86	22.75	1.22
4.833	2.47	10.833	4.86	16.833	1.86	22.83	1.22
4.917	2.59	10.917	4.63	16.917	1.83	22.92	1.21
5.000	2.59	11.000	4.63	17.000	1.83	23.00	1.21
5.083	2.72	11.083	4.41	17.083	1.80	23.08	1.19
5.167	2.72	11.167	4.41	17.167	1.80	23.17	1.19
5.250	2.86	11.250	4.22	17.250	1.78	23.25	1.18
5.333	2.86	11.333	4.22	17.333	1.78	23.33	1.18
5.417	3.03	11.417	4.05	17.417	1.75	23.42	1.17
5.500	3.03	11.500	4.05	17.500	1.75	23.50	1.17
5.583	3.21	11.583	3.89	17.583	1.73	23.58	1.16
5.667	3.21	11.667	3.89	17.667	1.73	23.67	1.16
5.750	3.43	11.750	3.74	17.750	1.70	23.75	1.15
5.833	3.43	11.833	3.74	17.833	1.70	23.83	1.15
5.917	3.67	11.917	3.61	17.917	1.68	23.92	1.14
6.000	3.67	12.000	3.61	18.000	1.68	24.00	1.14

Max.Eff.Inten.(mm/hr)=		171.05	122.16
	over (min)	5.00	5.00
Storage Coeff. (min)=		0.86 (ii)	1.76 (ii)
Unit Hyd. Tpeak (min)=		5.00	5.00
Unit Hyd. peak (cms)=		0.34	0.32

		TOTALS
PEAK FLOW	(cms)=	0.04	0.00	0.038 (iii)
TIME TO PEAK	(hrs)=	8.00	8.00	8.00
RUNOFF VOLUME	(mm)=	129.89	90.94	129.50
TOTAL RAINFALL	(mm)=	130.89	130.89	130.89
RUNOFF COEFFICIENT	=	0.99	0.69	0.99

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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 (  0037)|   Area    (ha)=   0.04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
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                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.04         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      16.33        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    1.17 | 6.083    3.96 |12.083    3.49 | 18.08    1.66
 0.167    1.17 | 6.167    3.96 |12.167    3.49 | 18.17    1.66
 0.250    1.19 | 6.250    4.31 |12.250    3.37 | 18.25    1.63
 0.333    1.19 | 6.333    4.31 |12.333    3.37 | 18.33    1.63
 0.417    1.21 | 6.417    4.74 |12.417    3.27 | 18.42    1.61
 0.500    1.21 | 6.500    4.74 |12.500    3.27 | 18.50    1.61
 0.583    1.23 | 6.583    5.27 |12.583    3.17 | 18.58    1.59
 0.667    1.23 | 6.667    5.27 |12.667    3.17 | 18.67    1.59
 0.750    1.26 | 6.750    5.95 |12.750    3.07 | 18.75    1.57
 0.833    1.26 | 6.833    5.95 |12.833    3.07 | 18.83    1.57
 0.917    1.28 | 6.917    6.87 |12.917    2.99 | 18.92    1.55
 1.000    1.28 | 7.000    6.87 |13.000    2.99 | 19.00    1.55
 1.083    1.31 | 7.083    8.17 |13.083    2.91 | 19.08    1.53
 1.167    1.31 | 7.167    8.17 |13.167    2.91 | 19.17    1.53
 1.250    1.33 | 7.250   10.16 |13.250    2.83 | 19.25    1.52
 1.333    1.33 | 7.333   10.16 |13.333    2.83 | 19.33    1.52
 1.417    1.36 | 7.417   13.62 |13.417    2.76 | 19.42    1.50
 1.500    1.36 | 7.500   13.62 |13.500    2.76 | 19.50    1.50
 1.583    1.39 | 7.583   21.15 |13.583    2.69 | 19.58    1.48
 1.667    1.39 | 7.667   21.15 |13.667    2.69 | 19.67    1.48
 1.750    1.42 | 7.750   50.35 |13.750    2.62 | 19.75    1.46
 1.833    1.42 | 7.833   50.36 |13.833    2.62 | 19.83    1.46
 1.917    1.45 | 7.917  171.05 |13.917    2.56 | 19.92    1.45
 2.000    1.45 | 8.000  171.04 |14.000    2.56 | 20.00    1.45
 2.083    1.49 | 8.083   65.47 |14.083    2.51 | 20.08    1.43
 2.167    1.49 | 8.167   65.47 |14.167    2.51 | 20.17    1.43
 2.250    1.52 | 8.250   35.30 |14.250    2.45 | 20.25    1.41
 2.333    1.52 | 8.333   35.30 |14.333    2.45 | 20.33    1.41
 2.417    1.56 | 8.417   24.06 |14.417    2.40 | 20.42    1.40
 2.500    1.56 | 8.500   24.06 |14.500    2.40 | 20.50    1.40
 2.583    1.60 | 8.583   18.29 |14.583    2.35 | 20.58    1.38
 2.667    1.60 | 8.667   18.29 |14.667    2.35 | 20.67    1.38
 2.750    1.64 | 8.750   14.80 |14.750    2.30 | 20.75    1.37
 2.833    1.64 | 8.833   14.80 |14.833    2.30 | 20.83    1.37
 2.917    1.69 | 8.917   12.47 |14.917    2.25 | 20.92    1.35
 3.000    1.69 | 9.000   12.47 |15.000    2.25 | 21.00    1.35
 3.083    1.74 | 9.083   10.80 |15.083    2.21 | 21.08    1.34
 3.167    1.74 | 9.167   10.80 |15.167    2.21 | 21.17    1.34
 3.250    1.79 | 9.250    9.55 |15.250    2.17 | 21.25    1.33
 3.333    1.79 | 9.333    9.55 |15.333    2.17 | 21.33    1.33
 3.417    1.84 | 9.417    8.57 |15.417    2.13 | 21.42    1.31
 3.500    1.84 | 9.500    8.57 |15.500    2.13 | 21.50    1.31
 3.583    1.90 | 9.583    7.79 |15.583    2.09 | 21.58    1.30
 3.667    1.90 | 9.667    7.79 |15.667    2.09 | 21.67    1.30
 3.750    1.96 | 9.750    7.15 |15.750    2.05 | 21.75    1.29
 3.833    1.96 | 9.833    7.15 |15.833    2.05 | 21.83    1.29
 3.917    2.03 | 9.917    6.61 |15.917    2.02 | 21.92    1.27
 4.000    2.03 |10.000    6.61 |16.000    2.02 | 22.00    1.27
 4.083    2.11 |10.083    6.16 |16.083    1.98 | 22.08    1.26
 4.167    2.11 |10.167    6.16 |16.167    1.98 | 22.17    1.26
 4.250    2.19 |10.250    5.77 |16.250    1.95 | 22.25    1.25
 4.333    2.19 |10.333    5.77 |16.333    1.95 | 22.33    1.25
 4.417    2.27 |10.417    5.42 |16.417    1.92 | 22.42    1.24
 4.500    2.27 |10.500    5.42 |16.500    1.92 | 22.50    1.24
 4.583    2.37 |10.583    5.13 |16.583    1.89 | 22.58    1.23
 4.667    2.37 |10.667    5.13 |16.667    1.89 | 22.67    1.23
 4.750    2.47 |10.750    4.86 |16.750    1.86 | 22.75    1.22
 4.833    2.47 |10.833    4.86 |16.833    1.86 | 22.83    1.22
 4.917    2.59 |10.917    4.63 |16.917    1.83 | 22.92    1.21
 5.000    2.59 |11.000    4.63 |17.000    1.83 | 23.00    1.21
 5.083    2.72 |11.083    4.41 |17.083    1.80 | 23.08    1.19
 5.167    2.72 |11.167    4.41 |17.167    1.80 | 23.17    1.19
 5.250    2.86 |11.250    4.22 |17.250    1.78 | 23.25    1.18
 5.333    2.86 |11.333    4.22 |17.333    1.78 | 23.33    1.18
 5.417    3.03 |11.417    4.05 |17.417    1.75 | 23.42    1.17
 5.500    3.03 |11.500    4.05 |17.500    1.75 | 23.50    1.17
 5.583    3.21 |11.583    3.89 |17.583    1.73 | 23.58    1.16
 5.667    3.21 |11.667    3.89 |17.667    1.73 | 23.67    1.16
 5.750    3.43 |11.750    3.74 |17.750    1.70 | 23.75    1.15
 5.833    3.43 |11.833    3.74 |17.833    1.70 | 23.83    1.15
 5.917    3.67 |11.917    3.61 |17.917    1.68 | 23.92    1.14
 6.000    3.67 |12.000    3.61 |18.000    1.68 | 24.00    1.14

Max.Eff.Inten.(mm/hr)=     171.05       129.03
          over (min)          5.00         5.00
Storage Coeff.  (min)=       0.69 (ii)    1.60 (ii)
Unit Hyd. Tpeak (min)=       5.00         5.00
Unit Hyd. peak  (cms)=       0.34         0.32
                                                 *TOTALS*
PEAK FLOW       (cms)=       0.02         0.00          0.019 (iii)
TIME TO PEAK    (hrs)=       8.00         8.00          8.00

     RUNOFF VOLUME    (mm)=     129.89        96.10         129.55
     TOTAL RAINFALL   (mm)=     130.89       130.89         130.89
     RUNOFF COEFFICIENT   =       0.99         0.73           0.99

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    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 (  0038)|   Area    (ha)=   0.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       8.16        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    1.17 | 6.083    3.96 |12.083    3.49 | 18.08    1.66
 0.167    1.17 | 6.167    3.96 |12.167    3.49 | 18.17    1.66
 0.250    1.19 | 6.250    4.31 |12.250    3.37 | 18.25    1.63
 0.333    1.19 | 6.333    4.31 |12.333    3.37 | 18.33    1.63
 0.417    1.21 | 6.417    4.74 |12.417    3.27 | 18.42    1.61
 0.500    1.21 | 6.500    4.74 |12.500    3.27 | 18.50    1.61
 0.583    1.23 | 6.583    5.27 |12.583    3.17 | 18.58    1.59
 0.667    1.23 | 6.667    5.27 |12.667    3.17 | 18.67    1.59
 0.750    1.26 | 6.750    5.95 |12.750    3.07 | 18.75    1.57
 0.833    1.26 | 6.833    5.95 |12.833    3.07 | 18.83    1.57
 0.917    1.28 | 6.917    6.87 |12.917    2.99 | 18.92    1.55
 1.000    1.28 | 7.000    6.87 |13.000    2.99 | 19.00    1.55
 1.083    1.31 | 7.083    8.17 |13.083    2.91 | 19.08    1.53
 1.167    1.31 | 7.167    8.17 |13.167    2.91 | 19.17    1.53
 1.250    1.33 | 7.250   10.16 |13.250    2.83 | 19.25    1.52
 1.333    1.33 | 7.333   10.16 |13.333    2.83 | 19.33    1.52
 1.417    1.36 | 7.417   13.62 |13.417    2.76 | 19.42    1.50
 1.500    1.36 | 7.500   13.62 |13.500    2.76 | 19.50    1.50
 1.583    1.39 | 7.583   21.15 |13.583    2.69 | 19.58    1.48
 1.667    1.39 | 7.667   21.15 |13.667    2.69 | 19.67    1.48
 1.750    1.42 | 7.750   50.35 |13.750    2.62 | 19.75    1.46
 1.833    1.42 | 7.833   50.36 |13.833    2.62 | 19.83    1.46
 1.917    1.45 | 7.917  171.05 |13.917    2.56 | 19.92    1.45
 2.000    1.45 | 8.000  171.04 |14.000    2.56 | 20.00    1.45
 2.083    1.49 | 8.083   65.47 |14.083    2.51 | 20.08    1.43
 2.167    1.49 | 8.167   65.47 |14.167    2.51 | 20.17    1.43
 2.250    1.52 | 8.250   35.30 |14.250    2.45 | 20.25    1.41
 2.333    1.52 | 8.333   35.30 |14.333    2.45 | 20.33    1.41
 2.417    1.56 | 8.417   24.06 |14.417    2.40 | 20.42    1.40
 2.500    1.56 | 8.500   24.06 |14.500    2.40 | 20.50    1.40
 2.583    1.60 | 8.583   18.29 |14.583    2.35 | 20.58    1.38
 2.667    1.60 | 8.667   18.29 |14.667    2.35 | 20.67    1.38
 2.750    1.64 | 8.750   14.80 |14.750    2.30 | 20.75    1.37
 2.833    1.64 | 8.833   14.80 |14.833    2.30 | 20.83    1.37
 2.917    1.69 | 8.917   12.47 |14.917    2.25 | 20.92    1.35
 3.000    1.69 | 9.000   12.47 |15.000    2.25 | 21.00    1.35
 3.083    1.74 | 9.083   10.80 |15.083    2.21 | 21.08    1.34
 3.167    1.74 | 9.167   10.80 |15.167    2.21 | 21.17    1.34
 3.250    1.79 | 9.250    9.55 |15.250    2.17 | 21.25    1.33
 3.333    1.79 | 9.333    9.55 |15.333    2.17 | 21.33    1.33
 3.417    1.84 | 9.417    8.57 |15.417    2.13 | 21.42    1.31
 3.500    1.84 | 9.500    8.57 |15.500    2.13 | 21.50    1.31
 3.583    1.90 | 9.583    7.79 |15.583    2.09 | 21.58    1.30
 3.667    1.90 | 9.667    7.79 |15.667    2.09 | 21.67    1.30
 3.750    1.96 | 9.750    7.15 |15.750    2.05 | 21.75    1.29
 3.833    1.96 | 9.833    7.15 |15.833    2.05 | 21.83    1.29
 3.917    2.03 | 9.917    6.61 |15.917    2.02 | 21.92    1.27
 4.000    2.03 |10.000    6.61 |16.000    2.02 | 22.00    1.27
 4.083    2.11 |10.083    6.16 |16.083    1.98 | 22.08    1.26
 4.167    2.11 |10.167    6.16 |16.167    1.98 | 22.17    1.26
 4.250    2.19 |10.250    5.77 |16.250    1.95 | 22.25    1.25
 4.333    2.19 |10.333    5.77 |16.333    1.95 | 22.33    1.25
 4.417    2.27 |10.417    5.42 |16.417    1.92 | 22.42    1.24
 4.500    2.27 |10.500    5.42 |16.500    1.92 | 22.50    1.24
 4.583    2.37 |10.583    5.13 |16.583    1.89 | 22.58    1.23
 4.667    2.37 |10.667    5.13 |16.667    1.89 | 22.67    1.23
 4.750    2.47 |10.750    4.86 |16.750    1.86 | 22.75    1.22
 4.833    2.47 |10.833    4.86 |16.833    1.86 | 22.83    1.22
 4.917    2.59 |10.917    4.63 |16.917    1.83 | 22.92    1.21
 5.000    2.59 |11.000    4.63 |17.000    1.83 | 23.00    1.21
 5.083    2.72 |11.083    4.41 |17.083    1.80 | 23.08    1.19
 5.167    2.72 |11.167    4.41 |17.167    1.80 | 23.17    1.19
 5.250    2.86 |11.250    4.22 |17.250    1.78 | 23.25    1.18
 5.333    2.86 |11.333    4.22 |17.333    1.78 | 23.33    1.18
 5.417    3.03 |11.417    4.05 |17.417    1.75 | 23.42    1.17
 5.500    3.03 |11.500    4.05 |17.500    1.75 | 23.50    1.17
 5.583    3.21 |11.583    3.89 |17.583    1.73 | 23.58    1.16
 5.667    3.21 |11.667    3.89 |17.667    1.73 | 23.67    1.16
 5.750    3.43 |11.750    3.74 |17.750    1.70 | 23.75    1.15
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5.833	3.43	11.833	3.74	17.833	1.70	23.83	1.15
5.917	3.67	11.917	3.61	17.917	1.68	23.92	1.14
6.000	3.67	12.000	3.61	18.000	1.68	24.00	1.14

Max.Eff.Inten.(mm/hr)=	171.05	129.03	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.46 (ii)	1.36 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.33	
			TOTALS
PEAK FLOW (cms)=	0.00	0.00	0.005 (iii)
TIME TO PEAK (hrs)=	7.92	8.00	8.00
RUNOFF VOLUME (mm)=	129.89	96.10	107.29
TOTAL RAINFALL (mm)=	130.89	130.89	130.89
RUNOFF COEFFICIENT =	0.99	0.73	0.82

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 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 (0030)			
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0026):	0.28	0.053	8.17	90.82
+ ID2= 2 (0028):	0.08	0.038	8.00	129.50
ID = 3 (0030):	0.36	0.076	8.00	99.41

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)			
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	0.36	0.076	8.00	99.41
+ ID2= 2 (0029):	0.18	0.038	8.08	90.61
ID = 1 (0030):	0.54	0.108	8.00	96.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)			
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	0.54	0.108	8.00	96.48
+ ID2= 2 (0037):	0.04	0.019	8.00	129.55
ID = 3 (0030):	0.58	0.127	8.00	98.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)			
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	0.58	0.127	8.00	98.76
+ ID2= 2 (0038):	0.01	0.005	8.00	107.29
ID = 1 (0030):	0.59	0.132	8.00	98.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0031)	Area (ha)=	0.09	Curve Number (CN)= 84.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.17	

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	1.17	6.083	3.96	12.083	3.49	18.08	1.66
0.167	1.17	6.167	3.96	12.167	3.49	18.17	1.66
0.250	1.19	6.250	4.31	12.250	3.37	18.25	1.63
0.333	1.19	6.333	4.31	12.333	3.37	18.33	1.63
0.417	1.21	6.417	4.74	12.417	3.27	18.42	1.61
0.500	1.21	6.500	4.74	12.500	3.27	18.50	1.61
0.583	1.23	6.583	5.27	12.583	3.17	18.58	1.59
0.667	1.23	6.667	5.27	12.667	3.17	18.67	1.59
0.750	1.26	6.750	5.95	12.750	3.07	18.75	1.57
0.833	1.26	6.833	5.95	12.833	3.07	18.83	1.57
0.917	1.28	6.917	6.87	12.917	2.99	18.92	1.55
1.000	1.28	7.000	6.87	13.000	2.99	19.00	1.55
1.083	1.31	7.083	8.17	13.083	2.91	19.08	1.53
1.167	1.31	7.167	8.17	13.167	2.91	19.17	1.53
1.250	1.33	7.250	10.16	13.250	2.83	19.25	1.52

1.333	1.33	7.333	10.16	13.333	2.83	19.33	1.52
1.417	1.36	7.417	13.62	13.417	2.76	19.42	1.50
1.500	1.36	7.500	13.62	13.500	2.76	19.50	1.50
1.583	1.39	7.583	21.15	13.583	2.69	19.58	1.48
1.667	1.39	7.667	21.15	13.667	2.69	19.67	1.48
1.750	1.42	7.750	50.35	13.750	2.62	19.75	1.46
1.833	1.42	7.833	50.36	13.833	2.62	19.83	1.46
1.917	1.45	7.917	171.05	13.917	2.56	19.92	1.45
2.000	1.45	8.000	171.04	14.000	2.56	20.00	1.45
2.083	1.49	8.083	65.47	14.083	2.51	20.08	1.43
2.167	1.49	8.167	65.47	14.167	2.51	20.17	1.43
2.250	1.52	8.250	35.30	14.250	2.45	20.25	1.41
2.333	1.52	8.333	35.30	14.333	2.45	20.33	1.41
2.417	1.56	8.417	24.06	14.417	2.40	20.42	1.40
2.500	1.56	8.500	24.06	14.500	2.40	20.50	1.40
2.583	1.60	8.583	18.29	14.583	2.35	20.58	1.38
2.667	1.60	8.667	18.29	14.667	2.35	20.67	1.38
2.750	1.64	8.750	14.80	14.750	2.30	20.75	1.37
2.833	1.64	8.833	14.80	14.833	2.30	20.83	1.37
2.917	1.69	8.917	12.47	14.917	2.25	20.92	1.35
3.000	1.69	9.000	12.47	15.000	2.25	21.00	1.35
3.083	1.74	9.083	10.80	15.083	2.21	21.08	1.34
3.167	1.74	9.167	10.80	15.167	2.21	21.17	1.34
3.250	1.79	9.250	9.55	15.250	2.17	21.25	1.33
3.333	1.79	9.333	9.55	15.333	2.17	21.33	1.33
3.417	1.84	9.417	8.57	15.417	2.13	21.42	1.31
3.500	1.84	9.500	8.57	15.500	2.13	21.50	1.31
3.583	1.90	9.583	7.79	15.583	2.09	21.58	1.30
3.667	1.90	9.667	7.79	15.667	2.09	21.67	1.30
3.750	1.96	9.750	7.15	15.750	2.05	21.75	1.29
3.833	1.96	9.833	7.15	15.833	2.05	21.83	1.29
3.917	2.03	9.917	6.61	15.917	2.02	21.92	1.27
4.000	2.03	10.000	6.61	16.000	2.02	22.00	1.27
4.083	2.11	10.083	6.16	16.083	1.98	22.08	1.26
4.167	2.11	10.167	6.16	16.167	1.98	22.17	1.26
4.250	2.19	10.250	5.77	16.250	1.95	22.25	1.25
4.333	2.19	10.333	5.77	16.333	1.95	22.33	1.25
4.417	2.27	10.417	5.42	16.417	1.92	22.42	1.24
4.500	2.27	10.500	5.42	16.500	1.92	22.50	1.24
4.583	2.37	10.583	5.13	16.583	1.89	22.58	1.23
4.667	2.37	10.667	5.13	16.667	1.89	22.67	1.23
4.750	2.47	10.750	4.86	16.750	1.86	22.75	1.22
4.833	2.47	10.833	4.86	16.833	1.86	22.83	1.22
4.917	2.59	10.917	4.63	16.917	1.83	22.92	1.21
5.000	2.59	11.000	4.63	17.000	1.83	23.00	1.21
5.083	2.72	11.083	4.41	17.083	1.80	23.08	1.19
5.167	2.72	11.167	4.41	17.167	1.80	23.17	1.19
5.250	2.86	11.250	4.22	17.250	1.78	23.25	1.18
5.333	2.86	11.333	4.22	17.333	1.78	23.33	1.18
5.417	3.03	11.417	4.05	17.417	1.75	23.42	1.17
5.500	3.03	11.500	4.05	17.500	1.75	23.50	1.17
5.583	3.21	11.583	3.89	17.583	1.73	23.58	1.16
5.667	3.21	11.667	3.89	17.667	1.73	23.67	1.16
5.750	3.43	11.750	3.74	17.750	1.70	23.75	1.15
5.833	3.43	11.833	3.74	17.833	1.70	23.83	1.15
5.917	3.67	11.917	3.61	17.917	1.68	23.92	1.14
6.000	3.67	12.000	3.61	18.000	1.68	24.00	1.14

Unit Hyd Qpeak (cms)=	0.020	
PEAK FLOW (cms)=	0.019 (i)	
TIME TO PEAK (hrs)=	8.083	
RUNOFF VOLUME (mm)=	90.609	
TOTAL RAINFALL (mm)=	130.887	
RUNOFF COEFFICIENT =	0.692	

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

CALIB			
STANDHYD (0018)	Area (ha)=	0.71	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.70	0.01
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	68.80	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	1.17	6.083	3.96	12.083	3.49	18.08	1.66
0.167	1.17	6.167	3.96	12.167	3.49	18.17	1.66
0.250	1.19	6.250	4.31	12.250	3.37	18.25	1.63
0.333	1.19	6.333	4.31	12.333	3.37	18.33	1.63
0.417	1.21	6.417	4.74	12.417	3.27	18.42	1.61
0.500	1.21	6.500	4.74	12.500	3.27	18.50	1.61
0.583	1.23	6.583	5.27	12.583	3.17	18.58	1.59
0.667	1.23	6.667	5.27	12.667	3.17	18.67	1.59
0.750	1.26	6.750	5.95	12.750	3.07	18.75	1.57
0.833	1.26	6.833	5.95	12.833	3.07	18.83	1.57
0.917	1.28	6.917	6.87	12.917	2.99	18.92	1.55
1.000	1.28	7.000	6.87	13.000	2.99	19.00	1.55
1.083	1.31	7.083	8.17	13.083	2.91	19.08	1.53

1.167	1.31	7.167	8.17	13.167	2.91	19.17	1.53
1.250	1.33	7.250	10.16	13.250	2.83	19.25	1.52
1.333	1.33	7.333	10.16	13.333	2.83	19.33	1.52
1.417	1.36	7.417	13.62	13.417	2.76	19.42	1.50
1.500	1.36	7.500	13.62	13.500	2.76	19.50	1.50
1.583	1.39	7.583	21.15	13.583	2.69	19.58	1.48
1.667	1.39	7.667	21.15	13.667	2.69	19.67	1.48
1.750	1.42	7.750	50.35	13.750	2.62	19.75	1.46
1.833	1.42	7.833	50.36	13.833	2.62	19.83	1.46
1.917	1.45	7.917	171.05	13.917	2.56	19.92	1.45
2.000	1.45	8.000	171.04	14.000	2.56	20.00	1.45
2.083	1.49	8.083	65.47	14.083	2.51	20.08	1.43
2.167	1.49	8.167	65.47	14.167	2.51	20.17	1.43
2.250	1.52	8.250	35.30	14.250	2.45	20.25	1.41
2.333	1.52	8.333	35.30	14.333	2.45	20.33	1.41
2.417	1.56	8.417	24.06	14.417	2.40	20.42	1.40
2.500	1.56	8.500	24.06	14.500	2.40	20.50	1.40
2.583	1.60	8.583	18.29	14.583	2.35	20.58	1.38
2.667	1.60	8.667	18.29	14.667	2.35	20.67	1.38
2.750	1.64	8.750	14.80	14.750	2.30	20.75	1.37
2.833	1.64	8.833	14.80	14.833	2.30	20.83	1.37
2.917	1.69	8.917	12.47	14.917	2.25	20.92	1.35
3.000	1.69	9.000	12.47	15.000	2.25	21.00	1.35
3.083	1.74	9.083	10.80	15.083	2.21	21.08	1.34
3.167	1.74	9.167	10.80	15.167	2.21	21.17	1.34
3.250	1.79	9.250	9.55	15.250	2.17	21.25	1.33
3.333	1.79	9.333	9.55	15.333	2.17	21.33	1.33
3.417	1.84	9.417	8.57	15.417	2.13	21.42	1.31
3.500	1.84	9.500	8.57	15.500	2.13	21.50	1.31
3.583	1.90	9.583	7.79	15.583	2.09	21.58	1.30
3.667	1.90	9.667	7.79	15.667	2.09	21.67	1.30
3.750	1.96	9.750	7.15	15.750	2.05	21.75	1.29
3.833	1.96	9.833	7.15	15.833	2.05	21.83	1.29
3.917	2.03	9.917	6.61	15.917	2.02	21.92	1.27
4.000	2.03	10.000	6.61	16.000	2.02	22.00	1.27
4.083	2.11	10.083	6.16	16.083	1.98	22.08	1.26
4.167	2.11	10.167	6.16	16.167	1.98	22.17	1.26
4.250	2.19	10.250	5.77	16.250	1.95	22.25	1.25
4.333	2.19	10.333	5.77	16.333	1.95	22.33	1.25
4.417	2.27	10.417	5.42	16.417	1.92	22.42	1.24
4.500	2.27	10.500	5.42	16.500	1.92	22.50	1.24
4.583	2.37	10.583	5.13	16.583	1.89	22.58	1.23
4.667	2.37	10.667	5.13	16.667	1.89	22.67	1.23
4.750	2.47	10.750	4.86	16.750	1.86	22.75	1.22
4.833	2.47	10.833	4.86	16.833	1.86	22.83	1.22
4.917	2.59	10.917	4.63	16.917	1.83	22.92	1.21
5.000	2.59	11.000	4.63	17.000	1.83	23.00	1.21
5.083	2.72	11.083	4.41	17.083	1.80	23.08	1.19
5.167	2.72	11.167	4.41	17.167	1.80	23.17	1.19
5.250	2.86	11.250	4.22	17.250	1.78	23.25	1.18
5.333	2.86	11.333	4.22	17.333	1.78	23.33	1.18
5.417	3.03	11.417	4.05	17.417	1.75	23.42	1.17
5.500	3.03	11.500	4.05	17.500	1.75	23.50	1.17
5.583	3.21	11.583	3.89	17.583	1.73	23.58	1.16
5.667	3.21	11.667	3.89	17.667	1.73	23.67	1.16
5.750	3.43	11.750	3.74	17.750	1.70	23.75	1.15
5.833	3.43	11.833	3.74	17.833	1.70	23.83	1.15
5.917	3.67	11.917	3.61	17.917	1.68	23.92	1.14
6.000	3.67	12.000	3.61	18.000	1.68	24.00	1.14

```
     Max.Eff.Inten.(mm/hr)=     171.05       122.16
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.65 (ii)    2.55 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.29
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.33         0.00          0.336 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.00          8.00
     RUNOFF VOLUME    (mm)=     129.89        90.94        129.50
     TOTAL RAINFALL   (mm)=     130.89       130.89        130.89
     RUNOFF COEFFICIENT   =       0.99         0.69          0.99

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  84.0    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  (  0032)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0018):     0.71   0.336     8.00   129.50
     + ID2= 2 (  0031):     0.09   0.019     8.08    90.61
       ================================================
       ID = 3 (  0032):     0.80   0.352     8.00   125.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0019)|     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   |    0.0190      0.0279
                          0.0000      0.0028   |    0.0200      0.0307
```

0.0080	0.0056	0.0210	0.0335
0.0100	0.0084	0.0220	0.0363
0.0120	0.0112	0.0230	0.0391
0.0140	0.0140	0.0240	0.0419
0.0150	0.0168	0.0250	0.0447
0.0160	0.0196	0.0250	0.0475
0.0170	0.0223	0.0260	0.0499
0.0180	0.0251	0.0000	0.0000

```
                      AREA     QPEAK     TPEAK       R.V.
                      (ha)     (cms)     (hrs)       (mm)
  INFLOW : ID= 2 (  0032)     0.800     0.352      8.00     125.12
  OUTFLOW: ID= 1 (  0019)     0.800     0.026      9.08     121.53

               PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.38
               TIME SHIFT OF PEAK FLOW         (min)= 65.00
               MAXIMUM  STORAGE   USED       (ha.m.)=  0.0499

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0036)|   Area    (ha)=   0.14   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.16

       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	1.17	6.083	3.96	12.083	3.49	18.08	1.66
0.167	1.17	6.167	3.96	12.167	3.49	18.17	1.66
0.250	1.19	6.250	4.31	12.250	3.37	18.25	1.63
0.333	1.19	6.333	4.31	12.333	3.37	18.33	1.63
0.417	1.21	6.417	4.74	12.417	3.27	18.42	1.61
0.500	1.21	6.500	4.74	12.500	3.27	18.50	1.61
0.583	1.23	6.583	5.27	12.583	3.17	18.58	1.59
0.667	1.23	6.667	5.27	12.667	3.17	18.67	1.59
0.750	1.26	6.750	5.95	12.750	3.07	18.75	1.57
0.833	1.26	6.833	5.95	12.833	3.07	18.83	1.57
0.917	1.28	6.917	6.87	12.917	2.99	18.92	1.55
1.000	1.28	7.000	6.87	13.000	2.99	19.00	1.55
1.083	1.31	7.083	8.17	13.083	2.91	19.08	1.53
1.167	1.31	7.167	8.17	13.167	2.91	19.17	1.53
1.250	1.33	7.250	10.16	13.250	2.83	19.25	1.52
1.333	1.33	7.333	10.16	13.333	2.83	19.33	1.52
1.417	1.36	7.417	13.62	13.417	2.76	19.42	1.50
1.500	1.36	7.500	13.62	13.500	2.76	19.50	1.50
1.583	1.39	7.583	21.15	13.583	2.69	19.58	1.48
1.667	1.39	7.667	21.15	13.667	2.69	19.67	1.48
1.750	1.42	7.750	50.35	13.750	2.62	19.75	1.46
1.833	1.42	7.833	50.36	13.833	2.62	19.83	1.46
1.917	1.45	7.917	171.05	13.917	2.56	19.92	1.45
2.000	1.45	8.000	171.04	14.000	2.56	20.00	1.45
2.083	1.49	8.083	65.47	14.083	2.51	20.08	1.43
2.167	1.49	8.167	65.47	14.167	2.51	20.17	1.43
2.250	1.52	8.250	35.30	14.250	2.45	20.25	1.41
2.333	1.52	8.333	35.30	14.333	2.45	20.33	1.41
2.417	1.56	8.417	24.06	14.417	2.40	20.42	1.40
2.500	1.56	8.500	24.06	14.500	2.40	20.50	1.40
2.583	1.60	8.583	18.29	14.583	2.35	20.58	1.38
2.667	1.60	8.667	18.29	14.667	2.35	20.67	1.38
2.750	1.64	8.750	14.80	14.750	2.30	20.75	1.37
2.833	1.64	8.833	14.80	14.833	2.30	20.83	1.37
2.917	1.69	8.917	12.47	14.917	2.25	20.92	1.35
3.000	1.69	9.000	12.47	15.000	2.25	21.00	1.35
3.083	1.74	9.083	10.80	15.083	2.21	21.08	1.34
3.167	1.74	9.167	10.80	15.167	2.21	21.17	1.34
3.250	1.79	9.250	9.55	15.250	2.17	21.25	1.33
3.333	1.79	9.333	9.55	15.333	2.17	21.33	1.33
3.417	1.84	9.417	8.57	15.417	2.13	21.42	1.31
3.500	1.84	9.500	8.57	15.500	2.13	21.50	1.31
3.583	1.90	9.583	7.79	15.583	2.09	21.58	1.30
3.667	1.90	9.667	7.79	15.667	2.09	21.67	1.30
3.750	1.96	9.750	7.15	15.750	2.05	21.75	1.29
3.833	1.96	9.833	7.15	15.833	2.05	21.83	1.29
3.917	2.03	9.917	6.61	15.917	2.02	21.92	1.27
4.000	2.03	10.000	6.61	16.000	2.02	22.00	1.27
4.083	2.11	10.083	6.16	16.083	1.98	22.08	1.26
4.167	2.11	10.167	6.16	16.167	1.98	22.17	1.26
4.250	2.19	10.250	5.77	16.250	1.95	22.25	1.25
4.333	2.19	10.333	5.77	16.333	1.95	22.33	1.25
4.417	2.27	10.417	5.42	16.417	1.92	22.42	1.24
4.500	2.27	10.500	5.42	16.500	1.92	22.50	1.24
4.583	2.37	10.583	5.13	16.583	1.89	22.58	1.23
4.667	2.37	10.667	5.13	16.667	1.89	22.67	1.23
4.750	2.47	10.750	4.86	16.750	1.86	22.75	1.22
4.833	2.47	10.833	4.86	16.833	1.86	22.83	1.22
4.917	2.59	10.917	4.63	16.917	1.83	22.92	1.21
5.000	2.59	11.000	4.63	17.000	1.83	23.00	1.21
5.083	2.72	11.083	4.41	17.083	1.80	23.08	1.19
5.167	2.72	11.167	4.41	17.167	1.80	23.17	1.19
5.250	2.86	11.250	4.22	17.250	1.78	23.25	1.18
5.333	2.86	11.333	4.22	17.333	1.78	23.33	1.18
5.417	3.03	11.417	4.05	17.417	1.75	23.42	1.17
5.500	3.03	11.500	4.05	17.500	1.75	23.50	1.17
5.583	3.21	11.583	3.89	17.583	1.73	23.58	1.16
5.667	3.21	11.667	3.89	17.667	1.73	23.67	1.16
5.750	3.43	11.750	3.74	17.750	1.70	23.75	1.15

5.833	3.43	11.833	3.74	17.833	1.70	23.83	1.15
5.917	3.67	11.917	3.61	17.917	1.68	23.92	1.14
6.000	3.67	12.000	3.61	18.000	1.68	24.00	1.14

Unit Hyd Qpeak (cms)= 0.033

PEAK FLOW (cms)= 0.031 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 90.525
TOTAL RAINFALL (mm)= 130.887
RUNOFF COEFFICIENT = 0.692

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

CALIB					
NASHYD (0039)	Area (ha)=	0.05	Curve Number (CN)=	84.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.16			

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	1.17	6.083	3.96	12.083	3.49	18.08	1.66
0.167	1.17	6.167	3.96	12.167	3.49	18.17	1.66
0.250	1.19	6.250	4.31	12.250	3.37	18.25	1.63
0.333	1.19	6.333	4.31	12.333	3.37	18.33	1.63
0.417	1.21	6.417	4.74	12.417	3.27	18.42	1.61
0.500	1.21	6.500	4.74	12.500	3.27	18.50	1.61
0.583	1.23	6.583	5.27	12.583	3.17	18.58	1.59
0.667	1.23	6.667	5.27	12.667	3.17	18.67	1.59
0.750	1.26	6.750	5.95	12.750	3.07	18.75	1.57
0.833	1.26	6.833	5.95	12.833	3.07	18.83	1.57
0.917	1.28	6.917	6.87	12.917	2.99	18.92	1.55
1.000	1.28	7.000	6.87	13.000	2.99	19.00	1.55
1.083	1.31	7.083	8.17	13.083	2.91	19.08	1.53
1.167	1.31	7.167	8.17	13.167	2.91	19.17	1.53
1.250	1.33	7.250	10.16	13.250	2.83	19.25	1.52
1.333	1.33	7.333	10.16	13.333	2.83	19.33	1.52
1.417	1.36	7.417	13.62	13.417	2.76	19.42	1.50
1.500	1.36	7.500	13.62	13.500	2.76	19.50	1.50
1.583	1.39	7.583	21.15	13.583	2.69	19.58	1.48
1.667	1.39	7.667	21.15	13.667	2.69	19.67	1.48
1.750	1.42	7.750	50.35	13.750	2.62	19.75	1.46
1.833	1.42	7.833	50.36	13.833	2.62	19.83	1.46
1.917	1.45	7.917	171.05	13.917	2.56	19.92	1.45
2.000	1.45	8.000	171.04	14.000	2.56	20.00	1.45
2.083	1.49	8.083	65.47	14.083	2.51	20.08	1.43
2.167	1.49	8.167	65.47	14.167	2.51	20.17	1.43
2.250	1.52	8.250	35.30	14.250	2.45	20.25	1.41
2.333	1.52	8.333	35.30	14.333	2.45	20.33	1.41
2.417	1.56	8.417	24.06	14.417	2.40	20.42	1.40
2.500	1.56	8.500	24.06	14.500	2.40	20.50	1.40
2.583	1.60	8.583	18.29	14.583	2.35	20.58	1.38
2.667	1.60	8.667	18.29	14.667	2.35	20.67	1.38
2.750	1.64	8.750	14.80	14.750	2.30	20.75	1.37
2.833	1.64	8.833	14.80	14.833	2.30	20.83	1.37
2.917	1.69	8.917	12.47	14.917	2.25	20.92	1.35
3.000	1.69	9.000	12.47	15.000	2.25	21.00	1.35
3.083	1.74	9.083	10.80	15.083	2.21	21.08	1.34
3.167	1.74	9.167	10.80	15.167	2.21	21.17	1.34
3.250	1.79	9.250	9.55	15.250	2.17	21.25	1.33
3.333	1.79	9.333	9.55	15.333	2.17	21.33	1.33
3.417	1.84	9.417	8.57	15.417	2.13	21.42	1.31
3.500	1.84	9.500	8.57	15.500	2.13	21.50	1.31
3.583	1.90	9.583	7.79	15.583	2.09	21.58	1.30
3.667	1.90	9.667	7.79	15.667	2.09	21.67	1.30
3.750	1.96	9.750	7.15	15.750	2.05	21.75	1.29
3.833	1.96	9.833	7.15	15.833	2.05	21.83	1.29
3.917	2.03	9.917	6.61	15.917	2.02	21.92	1.27
4.000	2.03	10.000	6.61	16.000	2.02	22.00	1.27
4.083	2.11	10.083	6.16	16.083	1.98	22.08	1.26
4.167	2.11	10.167	6.16	16.167	1.98	22.17	1.26
4.250	2.19	10.250	5.77	16.250	1.95	22.25	1.25
4.333	2.19	10.333	5.77	16.333	1.95	22.33	1.25
4.417	2.27	10.417	5.42	16.417	1.92	22.42	1.24
4.500	2.27	10.500	5.42	16.500	1.92	22.50	1.24
4.583	2.37	10.583	5.13	16.583	1.89	22.58	1.23
4.667	2.37	10.667	5.13	16.667	1.89	22.67	1.23
4.750	2.47	10.750	4.86	16.750	1.86	22.75	1.22
4.833	2.47	10.833	4.86	16.833	1.86	22.83	1.22
4.917	2.59	10.917	4.63	16.917	1.83	22.92	1.21
5.000	2.59	11.000	4.63	17.000	1.83	23.00	1.21
5.083	2.72	11.083	4.41	17.083	1.80	23.08	1.19
5.167	2.72	11.167	4.41	17.167	1.80	23.17	1.19
5.250	2.86	11.250	4.22	17.250	1.78	23.25	1.18
5.333	2.86	11.333	4.22	17.333	1.78	23.33	1.18
5.417	3.03	11.417	4.05	17.417	1.75	23.42	1.17
5.500	3.03	11.500	4.05	17.500	1.75	23.50	1.17
5.583	3.21	11.583	3.89	17.583	1.73	23.58	1.16
5.667	3.21	11.667	3.89	17.667	1.73	23.67	1.16
5.750	3.43	11.750	3.74	17.750	1.70	23.75	1.15
5.833	3.43	11.833	3.74	17.833	1.70	23.83	1.15
5.917	3.67	11.917	3.61	17.917	1.68	23.92	1.14
6.000	3.67	12.000	3.61	18.000	1.68	24.00	1.14

Unit Hyd Qpeak (cms)= 0.012

PEAK FLOW (cms)= 0.011 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 90.522
TOTAL RAINFALL (mm)= 130.887
RUNOFF COEFFICIENT = 0.692

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

CALIB					
STANDHYD (0001)	Area (ha)=	0.27			
ID= 1 DT= 5.0 min	Total Imp(%)=	64.00	Dir. Conn.(%)=	64.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.17	0.10
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	42.43	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	1.17	6.083	3.96	12.083	3.49	18.08	1.66
0.167	1.17	6.167	3.96	12.167	3.49	18.17	1.66
0.250	1.19	6.250	4.31	12.250	3.37	18.25	1.63
0.333	1.19	6.333	4.31	12.333	3.37	18.33	1.63
0.417	1.21	6.417	4.74	12.417	3.27	18.42	1.61
0.500	1.21	6.500	4.74	12.500	3.27	18.50	1.61
0.583	1.23	6.583	5.27	12.583	3.17	18.58	1.59
0.667	1.23	6.667	5.27	12.667	3.17	18.67	1.59
0.750	1.26	6.750	5.95	12.750	3.07	18.75	1.57
0.833	1.26	6.833	5.95	12.833	3.07	18.83	1.57
0.917	1.28	6.917	6.87	12.917	2.99	18.92	1.55
1.000	1.28	7.000	6.87	13.000	2.99	19.00	1.55
1.083	1.31	7.083	8.17	13.083	2.91	19.08	1.53
1.167	1.31	7.167	8.17	13.167	2.91	19.17	1.53
1.250	1.33	7.250	10.16	13.250	2.83	19.25	1.52
1.333	1.33	7.333	10.16	13.333	2.83	19.33	1.52
1.417	1.36	7.417	13.62	13.417	2.76	19.42	1.50
1.500	1.36	7.500	13.62	13.500	2.76	19.50	1.50
1.583	1.39	7.583	21.15	13.583	2.69	19.58	1.48
1.667	1.39	7.667	21.15	13.667	2.69	19.67	1.48
1.750	1.42	7.750	50.35	13.750	2.62	19.75	1.46
1.833	1.42	7.833	50.36	13.833	2.62	19.83	1.46
1.917	1.45	7.917	171.05	13.917	2.56	19.92	1.45
2.000	1.45	8.000	171.04	14.000	2.56	20.00	1.45
2.083	1.49	8.083	65.47	14.083	2.51	20.08	1.43
2.167	1.49	8.167	65.47	14.167	2.51	20.17	1.43
2.250	1.52	8.250	35.30	14.250	2.45	20.25	1.41
2.333	1.52	8.333	35.30	14.333	2.45	20.33	1.41
2.417	1.56	8.417	24.06	14.417	2.40	20.42	1.40
2.500	1.56	8.500	24.06	14.500	2.40	20.50	1.40
2.583	1.60	8.583	18.29	14.583	2.35	20.58	1.38
2.667	1.60	8.667	18.29	14.667	2.35	20.67	1.38
2.750	1.64	8.750	14.80	14.750	2.30	20.75	1.37
2.833	1.64	8.833	14.80	14.833	2.30	20.83	1.37
2.917	1.69	8.917	12.47	14.917	2.25	20.92	1.35
3.000	1.69	9.000	12.47	15.000	2.25	21.00	1.35
3.083	1.74	9.083	10.80	15.083	2.21	21.08	1.34
3.167	1.74	9.167	10.80	15.167	2.21	21.17	1.34
3.250	1.79	9.250	9.55	15.250	2.17	21.25	1.33
3.333	1.79	9.333	9.55	15.333	2.17	21.33	1.33
3.417	1.84	9.417	8.57	15.417	2.13	21.42	1.31
3.500	1.84	9.500	8.57	15.500	2.13	21.50	1.31
3.583	1.90	9.583	7.79	15.583	2.09	21.58	1.30
3.667	1.90	9.667	7.79	15.667	2.09	21.67	1.30
3.750	1.96	9.750	7.15	15.750	2.05	21.75	1.29
3.833	1.96	9.833	7.15	15.833	2.05	21.83	1.29
3.917	2.03	9.917	6.61	15.917	2.02	21.92	1.27
4.000	2.03	10.000	6.61	16.000	2.02	22.00	1.27
4.083	2.11	10.083	6.16	16.083	1.98	22.08	1.26
4.167	2.11	10.167	6.16	16.167	1.98	22.17	1.26
4.250	2.19	10.250	5.77	16.250	1.95	22.25	1.25
4.333	2.19	10.333	5.77	16.333	1.95	22.33	1.25
4.417	2.27	10.417	5.42	16.417	1.92	22.42	1.24
4.500	2.27	10.500	5.42	16.500	1.92	22.50	1.24
4.583	2.37	10.583	5.13	16.583	1.89	22.58	1.23
4.667	2.37	10.667	5.13	16.667	1.89	22.67	1.23
4.750	2.47	10.750	4.86	16.750	1.86	22.75	1.22
4.833	2.47	10.833	4.86	16.833	1.86	22.83	1.22
4.917	2.59	10.917	4.63	16.917	1.83	22.92	1.21
5.000	2.59	11.000	4.63	17.000	1.83	23.00	1.21
5.083	2.72	11.083	4.41	17.083	1.80	23.08	1.19
5.167	2.72	11.167	4.41	17.167	1.80	23.17	1.19
5.250	2.86	11.250	4.22	17.250	1.78	23.25	1.18
5.333	2.86	11.333	4.22	17.333	1.78	23.33	1.18
5.417	3.03	11.417	4.05	17.417	1.75	23.42	1.17
5.500	3.03	11.500	4.05	17.500	1.75	23.50	1.17
5.583	3.21	11.583	3.89	17.583	1.73	23.58	1.16
5.667	3.21	11.667	3.89	17.667	1.73	23.67	1.16
5.750	3.43	11.750	3.74	17.750	1.70	23.75	1.15
5.833	3.43	11.833	3.74	17.833	1.70	23.83	1.15
5.917	3.67	11.917	3.61	17.917	1.68	23.92	1.14

6.000	3.67	12.000	3.61	18.000	1.68	24.00	1.14

Max.Eff.Inten.(mm/hr)=	171.05	122.16	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.23 (ii)	5.76 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.33	0.15	
			TOTALS
PEAK FLOW (cms)=	0.08	0.03	0.106 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	129.89	90.94	115.85
TOTAL RAINFALL (mm)=	130.89	130.89	130.89
RUNOFF COEFFICIENT =	0.99	0.69	0.89

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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 (0014)	Area (ha)=	0.72	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.71	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	69.28	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	1.17	6.083	3.96	12.083	3.49	18.08	1.66
0.167	1.17	6.167	3.96	12.167	3.49	18.17	1.66
0.250	1.19	6.250	4.31	12.250	3.37	18.25	1.63
0.333	1.19	6.333	4.31	12.333	3.37	18.33	1.63
0.417	1.21	6.417	4.74	12.417	3.27	18.42	1.61
0.500	1.21	6.500	4.74	12.500	3.27	18.50	1.61
0.583	1.23	6.583	5.27	12.583	3.17	18.58	1.59
0.667	1.23	6.667	5.27	12.667	3.17	18.67	1.59
0.750	1.26	6.750	5.95	12.750	3.07	18.75	1.57
0.833	1.26	6.833	5.95	12.833	3.07	18.83	1.57
0.917	1.28	6.917	6.87	12.917	2.99	18.92	1.55
1.000	1.28	7.000	6.87	13.000	2.99	19.00	1.55
1.083	1.31	7.083	8.17	13.083	2.91	19.08	1.53
1.167	1.31	7.167	8.17	13.167	2.91	19.17	1.53
1.250	1.33	7.250	10.16	13.250	2.83	19.25	1.52
1.333	1.33	7.333	10.16	13.333	2.83	19.33	1.52
1.417	1.36	7.417	13.62	13.417	2.76	19.42	1.50
1.500	1.36	7.500	13.62	13.500	2.76	19.50	1.50
1.583	1.39	7.583	21.15	13.583	2.69	19.58	1.48
1.667	1.39	7.667	21.15	13.667	2.69	19.67	1.48
1.750	1.42	7.750	50.35	13.750	2.62	19.75	1.46
1.833	1.42	7.833	50.36	13.833	2.62	19.83	1.46
1.917	1.45	7.917	171.05	13.917	2.56	19.92	1.45
2.000	1.45	8.000	171.04	14.000	2.56	20.00	1.45
2.083	1.49	8.083	65.47	14.083	2.51	20.08	1.43
2.167	1.49	8.167	65.47	14.167	2.51	20.17	1.43
2.250	1.52	8.250	35.30	14.250	2.45	20.25	1.41
2.333	1.52	8.333	35.30	14.333	2.45	20.33	1.41
2.417	1.56	8.417	24.06	14.417	2.40	20.42	1.40
2.500	1.56	8.500	24.06	14.500	2.40	20.50	1.40
2.583	1.60	8.583	18.29	14.583	2.35	20.58	1.38
2.667	1.60	8.667	18.29	14.667	2.35	20.67	1.38
2.750	1.64	8.750	14.80	14.750	2.30	20.75	1.37
2.833	1.64	8.833	14.80	14.833	2.30	20.83	1.37
2.917	1.69	8.917	12.47	14.917	2.25	20.92	1.35
3.000	1.69	9.000	12.47	15.000	2.25	21.00	1.35
3.083	1.74	9.083	10.80	15.083	2.21	21.08	1.34
3.167	1.74	9.167	10.80	15.167	2.21	21.17	1.34
3.250	1.79	9.250	9.55	15.250	2.17	21.25	1.33
3.333	1.79	9.333	9.55	15.333	2.17	21.33	1.33
3.417	1.84	9.417	8.57	15.417	2.13	21.42	1.31
3.500	1.84	9.500	8.57	15.500	2.13	21.50	1.31
3.583	1.90	9.583	7.79	15.583	2.09	21.58	1.30
3.667	1.90	9.667	7.79	15.667	2.09	21.67	1.30
3.750	1.96	9.750	7.15	15.750	2.05	21.75	1.29
3.833	1.96	9.833	7.15	15.833	2.05	21.83	1.29
3.917	2.03	9.917	6.61	15.917	2.02	21.92	1.27
4.000	2.03	10.000	6.61	16.000	2.02	22.00	1.27
4.083	2.11	10.083	6.16	16.083	1.98	22.08	1.26
4.167	2.11	10.167	6.16	16.167	1.98	22.17	1.26
4.250	2.19	10.250	5.77	16.250	1.95	22.25	1.25
4.333	2.19	10.333	5.77	16.333	1.95	22.33	1.25
4.417	2.27	10.417	5.42	16.417	1.92	22.42	1.24
4.500	2.27	10.500	5.42	16.500	1.92	22.50	1.24
4.583	2.37	10.583	5.13	16.583	1.89	22.58	1.23
4.667	2.37	10.667	5.13	16.667	1.89	22.67	1.23
4.750	2.47	10.750	4.86	16.750	1.86	22.75	1.22
4.833	2.47	10.833	4.86	16.833	1.86	22.83	1.22
4.917	2.59	10.917	4.63	16.917	1.83	22.92	1.21
5.000	2.59	11.000	4.63	17.000	1.83	23.00	1.21
5.083	2.72	11.083	4.41	17.083	1.80	23.08	1.19
5.167	2.72	11.167	4.41	17.167	1.80	23.17	1.19
5.250	2.86	11.250	4.22	17.250	1.78	23.25	1.18
5.333	2.86	11.333	4.22	17.333	1.78	23.33	1.18
5.417	3.03	11.417	4.05	17.417	1.75	23.42	1.17
5.500	3.03	11.500	4.05	17.500	1.75	23.50	1.17
5.583	3.21	11.583	3.89	17.583	1.73	23.58	1.16
5.667	3.21	11.667	3.89	17.667	1.73	23.67	1.16
5.750	3.43	11.750	3.74	17.750	1.70	23.75	1.15
5.833	3.43	11.833	3.74	17.833	1.70	23.83	1.15
5.917	3.67	11.917	3.61	17.917	1.68	23.92	1.14
6.000	3.67	12.000	3.61	18.000	1.68	24.00	1.14

Max.Eff.Inten.(mm/hr)=	171.05	122.16	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.65 (ii)	2.56 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.32	0.29	
			TOTALS
PEAK FLOW (cms)=	0.34	0.00	0.341 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	129.89	90.94	129.50
TOTAL RAINFALL (mm)=	130.89	130.89	130.89
RUNOFF COEFFICIENT =	0.99	0.69	0.99

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0020)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0190	0.0255
	0.0000	0.0025	0.0200	0.0280
	0.0080	0.0051	0.0210	0.0306
	0.0100	0.0076	0.0220	0.0331
	0.0120	0.0102	0.0230	0.0357
	0.0140	0.0127	0.0240	0.0382
	0.0150	0.0153	0.0250	0.0407
	0.0160	0.0178	0.0250	0.0433
	0.0170	0.0204	0.0260	0.0455
	0.0180	0.0229	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0014)	0.720	0.341	8.00	129.50
OUTFLOW: ID= 1 (0020)	0.720	0.026	8.92	125.86

PEAK FLOW REDUCTION [Qout/Qin](%)= 7.63
TIME SHIFT OF PEAK FLOW (min)= 55.00
MAXIMUM STORAGE USED (ha.m.)= 0.0455

CALIB			
STANDHYD (0016)	Area (ha)=	0.77	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.76	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	71.65	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	1.17	6.083	3.96	12.083	3.49	18.08	1.66
0.167	1.17	6.167	3.96	12.167	3.49	18.17	1.66
0.250	1.19	6.250	4.31	12.250	3.37	18.25	1.63
0.333	1.19	6.333	4.31	12.333	3.37	18.33	1.63
0.417	1.21	6.417	4.74	12.417	3.27	18.42	1.61
0.500	1.21	6.500	4.74	12.500	3.27	18.50	1.61
0.583	1.23	6.583	5.27	12.583	3.17	18.58	1.59
0.667	1.23	6.667	5.27	12.667	3.17	18.67	1.59
0.750	1.26	6.750	5.95	12.750	3.07	18.75	1.57
0.833	1.26	6.833	5.95	12.833	3.07	18.83	1.57
0.917	1.28	6.917	6.87	12.917	2.99	18.92	1.55
1.000	1.28	7.000	6.87	13.000	2.99	19.00	1.55
1.083	1.31	7.083	8.17	13.083	2.91	19.08	1.53
1.167	1.31	7.167	8.17	13.167	2.91	19.17	1.53
1.250	1.33	7.250	10.16	13.250	2.83	19.25	1.52
1.333	1.33	7.333	10.16	13.333	2.83	19.33	1.52
1.417	1.36	7.417	13.62	13.417	2.76	19.42	1.50
1.500	1.36	7.500	13.62	13.500	2.76	19.50	1.50
1.583	1.39	7.583	21.15	13.583	2.69	19.58	1.48
1.667	1.39	7.667	21.15	13.667	2.69	19.67	1.48
1.750	1.42	7.750	50.35	13.750	2.62	19.75	1.46

1.833	1.42	7.833	50.36	13.833	2.62	19.83	1.46
1.917	1.45	7.917	171.05	13.917	2.56	19.92	1.45
2.000	1.45	8.000	171.04	14.000	2.56	20.00	1.45
2.083	1.49	8.083	65.47	14.083	2.51	20.08	1.43
2.167	1.49	8.167	65.47	14.167	2.51	20.17	1.43
2.250	1.52	8.250	35.30	14.250	2.45	20.25	1.41
2.333	1.52	8.333	35.30	14.333	2.45	20.33	1.41
2.417	1.56	8.417	24.06	14.417	2.40	20.42	1.40
2.500	1.56	8.500	24.06	14.500	2.40	20.50	1.40
2.583	1.60	8.583	18.29	14.583	2.35	20.58	1.38
2.667	1.60	8.667	18.29	14.667	2.35	20.67	1.38
2.750	1.64	8.750	14.80	14.750	2.30	20.75	1.37
2.833	1.64	8.833	14.80	14.833	2.30	20.83	1.37
2.917	1.69	8.917	12.47	14.917	2.25	20.92	1.35
3.000	1.69	9.000	12.47	15.000	2.25	21.00	1.35
3.083	1.74	9.083	10.80	15.083	2.21	21.08	1.34
3.167	1.74	9.167	10.80	15.167	2.21	21.17	1.34
3.250	1.79	9.250	9.55	15.250	2.17	21.25	1.33
3.333	1.79	9.333	9.55	15.333	2.17	21.33	1.33
3.417	1.84	9.417	8.57	15.417	2.13	21.42	1.31
3.500	1.84	9.500	8.57	15.500	2.13	21.50	1.31
3.583	1.90	9.583	7.79	15.583	2.09	21.58	1.30
3.667	1.90	9.667	7.79	15.667	2.09	21.67	1.30
3.750	1.96	9.750	7.15	15.750	2.05	21.75	1.29
3.833	1.96	9.833	7.15	15.833	2.05	21.83	1.29
3.917	2.03	9.917	6.61	15.917	2.02	21.92	1.27
4.000	2.03	10.000	6.61	16.000	2.02	22.00	1.27
4.083	2.11	10.083	6.16	16.083	1.98	22.08	1.26
4.167	2.11	10.167	6.16	16.167	1.98	22.17	1.26
4.250	2.19	10.250	5.77	16.250	1.95	22.25	1.25
4.333	2.19	10.333	5.77	16.333	1.95	22.33	1.25
4.417	2.27	10.417	5.42	16.417	1.92	22.42	1.24
4.500	2.27	10.500	5.42	16.500	1.92	22.50	1.24
4.583	2.37	10.583	5.13	16.583	1.89	22.58	1.23
4.667	2.37	10.667	5.13	16.667	1.89	22.67	1.23
4.750	2.47	10.750	4.86	16.750	1.86	22.75	1.22
4.833	2.47	10.833	4.86	16.833	1.86	22.83	1.22
4.917	2.59	10.917	4.63	16.917	1.83	22.92	1.21
5.000	2.59	11.000	4.63	17.000	1.83	23.00	1.21
5.083	2.72	11.083	4.41	17.083	1.80	23.08	1.19
5.167	2.72	11.167	4.41	17.167	1.80	23.17	1.19
5.250	2.86	11.250	4.22	17.250	1.78	23.25	1.18
5.333	2.86	11.333	4.22	17.333	1.78	23.33	1.18
5.417	3.03	11.417	4.05	17.417	1.75	23.42	1.17
5.500	3.03	11.500	4.05	17.500	1.75	23.50	1.17
5.583	3.21	11.583	3.89	17.583	1.73	23.58	1.16
5.667	3.21	11.667	3.89	17.667	1.73	23.67	1.16
5.750	3.43	11.750	3.74	17.750	1.70	23.75	1.15
5.833	3.43	11.833	3.74	17.833	1.70	23.83	1.15
5.917	3.67	11.917	3.61	17.917	1.68	23.92	1.14
6.000	3.67	12.000	3.61	18.000	1.68	24.00	1.14

Max.Eff.Inten.(mm/hr)= 171.05 122.16
over (min) 5.00 5.00
Storage Coeff. (min)= 1.69 (ii) 2.59 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.32 0.29

			TOTALS
PEAK FLOW	(cms)=	0.36	0.00	0.364 (iii)
TIME TO PEAK	(hrs)=	8.00	8.00	8.00
RUNOFF VOLUME	(mm)=	129.89	90.94	129.50
TOTAL RAINFALL	(mm)=	130.89	130.89	130.89
RUNOFF COEFFICIENT	=	0.99	0.69	0.99

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0017)	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	0.0190	0.0279
0.0000	0.0028	0.0200	0.0307
0.0080	0.0056	0.0210	0.0334
0.0100	0.0084	0.0220	0.0362
0.0120	0.0111	0.0230	0.0390
0.0140	0.0139	0.0240	0.0418
0.0150	0.0167	0.0250	0.0446
0.0160	0.0195	0.0250	0.0474
0.0170	0.0223	0.0260	0.0498
0.0180	0.0251	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0016)	0.770	0.364	8.00	129.50
OUTFLOW: ID= 1 (0017)	0.770	0.026	9.00	125.77

PEAK FLOW REDUCTION [Qout/Qin](%)= 7.14
TIME SHIFT OF PEAK FLOW (min)= 60.00
MAXIMUM STORAGE USED (ha.m.)= 0.0498

CALIB	
STANDHYD (0021)	Area (ha)= 0.44
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.44	0.00
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	54.16	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	1.17	6.083	3.96	12.083	3.49	18.08	1.66
0.167	1.17	6.167	3.96	12.167	3.49	18.17	1.66
0.250	1.19	6.250	4.31	12.250	3.37	18.25	1.63
0.333	1.19	6.333	4.31	12.333	3.37	18.33	1.63
0.417	1.21	6.417	4.74	12.417	3.27	18.42	1.61
0.500	1.21	6.500	4.74	12.500	3.27	18.50	1.61
0.583	1.23	6.583	5.27	12.583	3.17	18.58	1.59
0.667	1.23	6.667	5.27	12.667	3.17	18.67	1.59
0.750	1.26	6.750	5.95	12.750	3.07	18.75	1.57
0.833	1.26	6.833	5.95	12.833	3.07	18.83	1.57
0.917	1.28	6.917	6.87	12.917	2.99	18.92	1.55
1.000	1.28	7.000	6.87	13.000	2.99	19.00	1.55
1.083	1.31	7.083	8.17	13.083	2.91	19.08	1.53
1.167	1.31	7.167	8.17	13.167	2.91	19.17	1.53
1.250	1.33	7.250	10.16	13.250	2.83	19.25	1.52
1.333	1.33	7.333	10.16	13.333	2.83	19.33	1.52
1.417	1.36	7.417	13.62	13.417	2.76	19.42	1.50
1.500	1.36	7.500	13.62	13.500	2.76	19.50	1.50
1.583	1.39	7.583	21.15	13.583	2.69	19.58	1.48
1.667	1.39	7.667	21.15	13.667	2.69	19.67	1.48
1.750	1.42	7.750	50.35	13.750	2.62	19.75	1.46
1.833	1.42	7.833	50.36	13.833	2.62	19.83	1.46
1.917	1.45	7.917	171.05	13.917	2.56	19.92	1.45
2.000	1.45	8.000	171.04	14.000	2.56	20.00	1.45
2.083	1.49	8.083	65.47	14.083	2.51	20.08	1.43
2.167	1.49	8.167	65.47	14.167	2.51	20.17	1.43
2.250	1.52	8.250	35.30	14.250	2.45	20.25	1.41
2.333	1.52	8.333	35.30	14.333	2.45	20.33	1.41
2.417	1.56	8.417	24.06	14.417	2.40	20.42	1.40
2.500	1.56	8.500	24.06	14.500	2.40	20.50	1.40
2.583	1.60	8.583	18.29	14.583	2.35	20.58	1.38
2.667	1.60	8.667	18.29	14.667	2.35	20.67	1.38
2.750	1.64	8.750	14.80	14.750	2.30	20.75	1.37
2.833	1.64	8.833	14.80	14.833	2.30	20.83	1.37
2.917	1.69	8.917	12.47	14.917	2.25	20.92	1.35
3.000	1.69	9.000	12.47	15.000	2.25	21.00	1.35
3.083	1.74	9.083	10.80	15.083	2.21	21.08	1.34
3.167	1.74	9.167	10.80	15.167	2.21	21.17	1.34
3.250	1.79	9.250	9.55	15.250	2.17	21.25	1.33
3.333	1.79	9.333	9.55	15.333	2.17	21.33	1.33
3.417	1.84	9.417	8.57	15.417	2.13	21.42	1.31
3.500	1.84	9.500	8.57	15.500	2.13	21.50	1.31
3.583	1.90	9.583	7.79	15.583	2.09	21.58	1.30
3.667	1.90	9.667	7.79	15.667	2.09	21.67	1.30
3.750	1.96	9.750	7.15	15.750	2.05	21.75	1.29
3.833	1.96	9.833	7.15	15.833	2.05	21.83	1.29
3.917	2.03	9.917	6.61	15.917	2.02	21.92	1.27
4.000	2.03	10.000	6.61	16.000	2.02	22.00	1.27
4.083	2.11	10.083	6.16	16.083	1.98	22.08	1.26
4.167	2.11	10.167	6.16	16.167	1.98	22.17	1.26
4.250	2.19	10.250	5.77	16.250	1.95	22.25	1.25
4.333	2.19	10.333	5.77	16.333	1.95	22.33	1.25
4.417	2.27	10.417	5.42	16.417	1.92	22.42	1.24
4.500	2.27	10.500	5.42	16.500	1.92	22.50	1.24
4.583	2.37	10.583	5.13	16.583	1.89	22.58	1.23
4.667	2.37	10.667	5.13	16.667	1.89	22.67	1.23
4.750	2.47	10.750	4.86	16.750	1.86	22.75	1.22
4.833	2.47	10.833	4.86	16.833	1.86	22.83	1.22
4.917	2.59	10.917	4.63	16.917	1.83	22.92	1.21
5.000	2.59	11.000	4.63	17.000	1.83	23.00	1.21
5.083	2.72	11.083	4.41	17.083	1.80	23.08	1.19
5.167	2.72	11.167	4.41	17.167	1.80	23.17	1.19
5.250	2.86	11.250	4.22	17.250	1.78	23.25	1.18
5.333	2.86	11.333	4.22	17.333	1.78	23.33	1.18
5.417	3.03	11.417	4.05	17.417	1.75	23.42	1.17
5.500	3.03	11.500	4.05	17.500	1.75	23.50	1.17
5.583	3.21	11.583	3.89	17.583	1.73	23.58	1.16
5.667	3.21	11.667	3.89	17.667	1.73	23.67	1.16
5.750	3.43	11.750	3.74	17.750	1.70	23.75	1.15
5.833	3.43	11.833	3.74	17.833	1.70	23.83	1.15
5.917	3.67	11.917	3.61	17.917	1.68	23.92	1.14
6.000	3.67	12.000	3.61	18.000	1.68	24.00	1.14

Max.Eff.Inten.(mm/hr)= 171.05 122.16
over (min) 5.00 5.00
Storage Coeff. (min)= 1.43 (ii) 2.33 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.33 0.30

			TOTALS
PEAK FLOW	(cms)=	0.21	0.00	0.208 (iii)
TIME TO PEAK	(hrs)=	8.00	8.00	8.00
RUNOFF VOLUME	(mm)=	129.89	90.94	129.49
TOTAL RAINFALL	(mm)=	130.89	130.89	130.89

```
     RUNOFF COEFFICIENT   =       0.99         0.69          0.99

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  84.0    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  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):     0.27   0.106     8.00   115.85
     + ID2= 2 (  0017):     0.77   0.026     9.00   125.77
       ==================================================
       ID = 3 (  0022):     1.04   0.126     8.00   123.19

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):     1.04   0.126     8.00   123.19
     + ID2= 2 (  0019):     0.80   0.026     9.08   121.53
       ==================================================
       ID = 1 (  0022):     1.84   0.146     8.00   122.47

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0022):     1.84   0.146     8.00   122.47
     + ID2= 2 (  0020):     0.72   0.026     8.92   125.86
       ==================================================
       ID = 3 (  0022):     2.56   0.166     8.00   123.42

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0022)|
```

```
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):     2.56   0.166     8.00   123.42
     + ID2= 2 (  0021):     0.44   0.208     8.00   129.49
       ==================================================
       ID = 1 (  0022):     3.00   0.375     8.00   124.31

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0022):     3.00   0.375     8.00   124.31
     + ID2= 2 (  0036):     0.14   0.031     8.08    90.52
       ==================================================
       ID = 3 (  0022):     3.14   0.402     8.00   122.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):     3.14   0.402     8.00   122.81
     + ID2= 2 (  0039):     0.05   0.011     8.08    90.52
       ==================================================
       ID = 1 (  0022):     3.19   0.412     8.00   122.30

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0002)|     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   |    0.1440      0.0413
                          0.0980      0.0206   |    0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0022)      3.190     0.412      8.00     122.30
   OUTFLOW: ID= 1 (  0002)      3.190     0.144      8.42     122.29

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 34.99
                TIME SHIFT OF PEAK FLOW         (min)= 25.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.0413
```

```
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0035)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0002):     3.19   0.144     8.42   122.29
     + ID2= 2 (  0030):     0.59   0.132     8.00    98.90
       ==================================================
       ID = 3 (  0035):     3.78   0.249     8.17   118.64

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
================================================================================
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2016)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\schhom\AppData\Local\Civica\VH5\c4784722-8666-4e89-8a43-7d10dc9357ef\434c
8103-5252-4bb3-a1a7-7c443e321e0c\scena
  Summary filename:
C:\Users\schhom\AppData\Local\Civica\VH5\c4784722-8666-4e89-8a43-7d10dc9357ef\434c
8103-5252-4bb3-a1a7-7c443e321e0c\scena


DATE: 10-15-2024                          TIME: 11:03:47

USER:
```

```
COMMENTS: _____

--------------------------------------------------------------------------------
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  ***********************************************
  ** SIMULATION : 10yr_24hr Chicago            **
  ***********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1173.480
| Ptotal= 87.10 mm |                          B=   8.000
--------------------                          C=   0.794
                        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
     0.00    0.78 |  6.00    2.62 | 12.00    2.31 | 18.00    1.10
     0.17    0.79 |  6.17    2.85 | 12.17    2.24 | 18.17    1.09
     0.33    0.81 |  6.33    3.13 | 12.33    2.17 | 18.33    1.07
     0.50    0.82 |  6.50    3.48 | 12.50    2.10 | 18.50    1.06
     0.67    0.84 |  6.67    3.92 | 12.67    2.04 | 18.67    1.05
     0.83    0.85 |  6.83    4.52 | 12.83    1.98 | 18.83    1.03
     1.00    0.87 |  7.00    5.36 | 13.00    1.93 | 19.00    1.02
     1.17    0.89 |  7.17    6.65 | 13.17    1.88 | 19.17    1.01
     1.33    0.91 |  7.33    8.89 | 13.33    1.83 | 19.33    1.00
     1.50    0.93 |  7.50   13.75 | 13.50    1.79 | 19.50    0.99
     1.67    0.95 |  7.67   32.93 | 13.67    1.74 | 19.67    0.97
     1.83    0.97 |  7.83  118.25 | 13.83    1.70 | 19.83    0.96
     2.00    0.99 |  8.00   42.97 | 14.00    1.66 | 20.00    0.95
     2.17    1.01 |  8.17   22.94 | 14.17    1.63 | 20.17    0.94
     2.33    1.04 |  8.33   15.63 | 14.33    1.59 | 20.33    0.93
     2.50    1.07 |  8.50   11.90 | 14.50    1.56 | 20.50    0.92
     2.67    1.09 |  8.67    9.65 | 14.67    1.53 | 20.67    0.91
     2.83    1.12 |  8.83    8.15 | 14.83    1.50 | 20.83    0.90
     3.00    1.16 |  9.00    7.07 | 15.00    1.47 | 21.00    0.89
     3.17    1.19 |  9.17    6.26 | 15.17    1.44 | 21.17    0.88
     3.33    1.23 |  9.33    5.62 | 15.33    1.42 | 21.33    0.88
     3.50    1.27 |  9.50    5.12 | 15.50    1.39 | 21.50    0.87
     3.67    1.31 |  9.67    4.70 | 15.67    1.37 | 21.67    0.86
     3.83    1.35 |  9.83    4.35 | 15.83    1.34 | 21.83    0.85
     4.00    1.40 | 10.00    4.06 | 16.00    1.32 | 22.00    0.84
     4.17    1.45 | 10.17    3.80 | 16.17    1.30 | 22.17    0.83
     4.33    1.51 | 10.33    3.58 | 16.33    1.28 | 22.33    0.83
     4.50    1.57 | 10.50    3.38 | 16.50    1.26 | 22.50    0.82
     4.67    1.64 | 10.67    3.21 | 16.67    1.24 | 22.67    0.81
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4.83	1.72	10.83	3.06	16.83	1.22	22.83	0.80
5.00	1.81	11.00	2.92	17.00	1.20	23.00	0.80
5.17	1.90	11.17	2.79	17.17	1.18	23.17	0.79
5.33	2.01	11.33	2.68	17.33	1.17	23.33	0.78
5.50	2.13	11.50	2.57	17.50	1.15	23.50	0.78
5.67	2.27	11.67	2.48	17.67	1.13	23.67	0.77
5.83	2.43	11.83	2.39	17.83	1.12	23.83	0.76

CALIB			
NASHYD (0026)	Area (ha)=	0.28	Curve Number (CN)= 84.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.22	

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	0.78	6.083	2.62	12.083	2.31	18.08	1.10
0.167	0.78	6.167	2.62	12.167	2.31	18.17	1.10
0.250	0.79	6.250	2.85	12.250	2.24	18.25	1.09
0.333	0.79	6.333	2.85	12.333	2.24	18.33	1.09
0.417	0.81	6.417	3.13	12.417	2.17	18.42	1.07
0.500	0.81	6.500	3.13	12.500	2.17	18.50	1.07
0.583	0.82	6.583	3.48	12.583	2.10	18.58	1.06
0.667	0.82	6.667	3.48	12.667	2.10	18.67	1.06
0.750	0.84	6.750	3.92	12.750	2.04	18.75	1.05
0.833	0.84	6.833	3.92	12.833	2.04	18.83	1.05
0.917	0.85	6.917	4.52	12.917	1.98	18.92	1.03
1.000	0.85	7.000	4.52	13.000	1.98	19.00	1.03
1.083	0.87	7.083	5.36	13.083	1.93	19.08	1.02
1.167	0.87	7.167	5.36	13.167	1.93	19.17	1.02
1.250	0.89	7.250	6.65	13.250	1.88	19.25	1.01
1.333	0.89	7.333	6.65	13.333	1.88	19.33	1.01
1.417	0.91	7.417	8.89	13.417	1.83	19.42	1.00
1.500	0.91	7.500	8.89	13.500	1.83	19.50	1.00
1.583	0.93	7.583	13.75	13.583	1.79	19.58	0.99
1.667	0.93	7.667	13.75	13.667	1.79	19.67	0.99
1.750	0.95	7.750	32.93	13.750	1.74	19.75	0.97
1.833	0.95	7.833	32.94	13.833	1.74	19.83	0.97
1.917	0.97	7.917	118.25	13.917	1.70	19.92	0.96
2.000	0.97	8.000	118.24	14.000	1.70	20.00	0.96
2.083	0.99	8.083	42.97	14.083	1.66	20.08	0.95
2.167	0.99	8.167	42.97	14.167	1.66	20.17	0.95
2.250	1.01	8.250	22.94	14.250	1.63	20.25	0.94
2.333	1.01	8.333	22.94	14.333	1.63	20.33	0.94
2.417	1.04	8.417	15.63	14.417	1.59	20.42	0.93
2.500	1.04	8.500	15.63	14.500	1.59	20.50	0.93
2.583	1.07	8.583	11.90	14.583	1.56	20.58	0.92
2.667	1.07	8.667	11.90	14.667	1.56	20.67	0.92
2.750	1.09	8.750	9.65	14.750	1.53	20.75	0.91
2.833	1.09	8.833	9.65	14.833	1.53	20.83	0.91
2.917	1.12	8.917	8.15	14.917	1.50	20.92	0.90
3.000	1.12	9.000	8.15	15.000	1.50	21.00	0.90
3.083	1.16	9.083	7.07	15.083	1.47	21.08	0.89
3.167	1.16	9.167	7.07	15.167	1.47	21.17	0.89
3.250	1.19	9.250	6.26	15.250	1.44	21.25	0.88
3.333	1.19	9.333	6.26	15.333	1.44	21.33	0.88
3.417	1.23	9.417	5.62	15.417	1.42	21.42	0.88
3.500	1.23	9.500	5.62	15.500	1.42	21.50	0.88
3.583	1.27	9.583	5.12	15.583	1.39	21.58	0.87
3.667	1.27	9.667	5.12	15.667	1.39	21.67	0.87
3.750	1.31	9.750	4.70	15.750	1.37	21.75	0.86
3.833	1.31	9.833	4.70	15.833	1.37	21.83	0.86
3.917	1.35	9.917	4.35	15.917	1.34	21.92	0.85
4.000	1.35	10.000	4.35	16.000	1.34	22.00	0.85
4.083	1.40	10.083	4.06	16.083	1.32	22.08	0.84
4.167	1.40	10.167	4.06	16.167	1.32	22.17	0.84
4.250	1.45	10.250	3.80	16.250	1.30	22.25	0.83
4.333	1.45	10.333	3.80	16.333	1.30	22.33	0.83
4.417	1.51	10.417	3.58	16.417	1.28	22.42	0.83
4.500	1.51	10.500	3.58	16.500	1.28	22.50	0.83
4.583	1.57	10.583	3.38	16.583	1.26	22.58	0.82
4.667	1.57	10.667	3.38	16.667	1.26	22.67	0.82
4.750	1.64	10.750	3.21	16.750	1.24	22.75	0.81
4.833	1.64	10.833	3.21	16.833	1.24	22.83	0.81
4.917	1.72	10.917	3.06	16.917	1.22	22.92	0.80
5.000	1.72	11.000	3.06	17.000	1.22	23.00	0.80
5.083	1.81	11.083	2.92	17.083	1.20	23.08	0.80
5.167	1.81	11.167	2.92	17.167	1.20	23.17	0.80
5.250	1.90	11.250	2.79	17.250	1.18	23.25	0.79
5.333	1.90	11.333	2.79	17.333	1.18	23.33	0.79
5.417	2.01	11.417	2.68	17.417	1.17	23.42	0.78
5.500	2.01	11.500	2.68	17.500	1.17	23.50	0.78
5.583	2.13	11.583	2.57	17.583	1.15	23.58	0.78
5.667	2.13	11.667	2.57	17.667	1.15	23.67	0.78
5.750	2.27	11.750	2.48	17.750	1.13	23.75	0.77
5.833	2.27	11.833	2.48	17.833	1.13	23.83	0.77
5.917	2.43	11.917	2.39	17.917	1.12	23.92	0.76
6.000	2.43	12.000	2.39	18.000	1.12	24.00	0.76

Unit Hyd Qpeak (cms)= 0.049

PEAK FLOW (cms)= 0.029 (i)
TIME TO PEAK (hrs)= 8.167
RUNOFF VOLUME (mm)= 51.591

TOTAL RAINFALL (mm)= 87.103
RUNOFF COEFFICIENT = 0.592

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

CALIB			
NASHYD (0029)	Area (ha)=	0.18	Curve Number (CN)= 84.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.17	

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	0.78	6.083	2.62	12.083	2.31	18.08	1.10
0.167	0.78	6.167	2.62	12.167	2.31	18.17	1.10
0.250	0.79	6.250	2.85	12.250	2.24	18.25	1.09
0.333	0.79	6.333	2.85	12.333	2.24	18.33	1.09
0.417	0.81	6.417	3.13	12.417	2.17	18.42	1.07
0.500	0.81	6.500	3.13	12.500	2.17	18.50	1.07
0.583	0.82	6.583	3.48	12.583	2.10	18.58	1.06
0.667	0.82	6.667	3.48	12.667	2.10	18.67	1.06
0.750	0.84	6.750	3.92	12.750	2.04	18.75	1.05
0.833	0.84	6.833	3.92	12.833	2.04	18.83	1.05
0.917	0.85	6.917	4.52	12.917	1.98	18.92	1.03
1.000	0.85	7.000	4.52	13.000	1.98	19.00	1.03
1.083	0.87	7.083	5.36	13.083	1.93	19.08	1.02
1.167	0.87	7.167	5.36	13.167	1.93	19.17	1.02
1.250	0.89	7.250	6.65	13.250	1.88	19.25	1.01
1.333	0.89	7.333	6.65	13.333	1.88	19.33	1.01
1.417	0.91	7.417	8.89	13.417	1.83	19.42	1.00
1.500	0.91	7.500	8.89	13.500	1.83	19.50	1.00
1.583	0.93	7.583	13.75	13.583	1.79	19.58	0.99
1.667	0.93	7.667	13.75	13.667	1.79	19.67	0.99
1.750	0.95	7.750	32.93	13.750	1.74	19.75	0.97
1.833	0.95	7.833	32.94	13.833	1.74	19.83	0.97
1.917	0.97	7.917	118.25	13.917	1.70	19.92	0.96
2.000	0.97	8.000	118.24	14.000	1.70	20.00	0.96
2.083	0.99	8.083	42.97	14.083	1.66	20.08	0.95
2.167	0.99	8.167	42.97	14.167	1.66	20.17	0.95
2.250	1.01	8.250	22.94	14.250	1.63	20.25	0.94
2.333	1.01	8.333	22.94	14.333	1.63	20.33	0.94
2.417	1.04	8.417	15.63	14.417	1.59	20.42	0.93
2.500	1.04	8.500	15.63	14.500	1.59	20.50	0.93
2.583	1.07	8.583	11.90	14.583	1.56	20.58	0.92
2.667	1.07	8.667	11.90	14.667	1.56	20.67	0.92
2.750	1.09	8.750	9.65	14.750	1.53	20.75	0.91
2.833	1.09	8.833	9.65	14.833	1.53	20.83	0.91
2.917	1.12	8.917	8.15	14.917	1.50	20.92	0.90
3.000	1.12	9.000	8.15	15.000	1.50	21.00	0.90
3.083	1.16	9.083	7.07	15.083	1.47	21.08	0.89
3.167	1.16	9.167	7.07	15.167	1.47	21.17	0.89
3.250	1.19	9.250	6.26	15.250	1.44	21.25	0.88
3.333	1.19	9.333	6.26	15.333	1.44	21.33	0.88
3.417	1.23	9.417	5.62	15.417	1.42	21.42	0.88
3.500	1.23	9.500	5.62	15.500	1.42	21.50	0.88
3.583	1.27	9.583	5.12	15.583	1.39	21.58	0.87
3.667	1.27	9.667	5.12	15.667	1.39	21.67	0.87
3.750	1.31	9.750	4.70	15.750	1.37	21.75	0.86
3.833	1.31	9.833	4.70	15.833	1.37	21.83	0.86
3.917	1.35	9.917	4.35	15.917	1.34	21.92	0.85
4.000	1.35	10.000	4.35	16.000	1.34	22.00	0.85
4.083	1.40	10.083	4.06	16.083	1.32	22.08	0.84
4.167	1.40	10.167	4.06	16.167	1.32	22.17	0.84
4.250	1.45	10.250	3.80	16.250	1.30	22.25	0.83
4.333	1.45	10.333	3.80	16.333	1.30	22.33	0.83
4.417	1.51	10.417	3.58	16.417	1.28	22.42	0.83
4.500	1.51	10.500	3.58	16.500	1.28	22.50	0.83
4.583	1.57	10.583	3.38	16.583	1.26	22.58	0.82
4.667	1.57	10.667	3.38	16.667	1.26	22.67	0.82
4.750	1.64	10.750	3.21	16.750	1.24	22.75	0.81
4.833	1.64	10.833	3.21	16.833	1.24	22.83	0.81
4.917	1.72	10.917	3.06	16.917	1.22	22.92	0.80
5.000	1.72	11.000	3.06	17.000	1.22	23.00	0.80
5.083	1.81	11.083	2.92	17.083	1.20	23.08	0.80
5.167	1.81	11.167	2.92	17.167	1.20	23.17	0.80
5.250	1.90	11.250	2.79	17.250	1.18	23.25	0.79
5.333	1.90	11.333	2.79	17.333	1.18	23.33	0.79
5.417	2.01	11.417	2.68	17.417	1.17	23.42	0.78
5.500	2.01	11.500	2.68	17.500	1.17	23.50	0.78
5.583	2.13	11.583	2.57	17.583	1.15	23.58	0.78
5.667	2.13	11.667	2.57	17.667	1.15	23.67	0.78
5.750	2.27	11.750	2.48	17.750	1.13	23.75	0.77
5.833	2.27	11.833	2.48	17.833	1.13	23.83	0.77
5.917	2.43	11.917	2.39	17.917	1.12	23.92	0.76
6.000	2.43	12.000	2.39	18.000	1.12	24.00	0.76

Unit Hyd Qpeak (cms)= 0.040

PEAK FLOW (cms)= 0.021 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 51.474
TOTAL RAINFALL (mm)= 87.103
RUNOFF COEFFICIENT = 0.591

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

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| CALIB              |
| STANDHYD (  0028)|   Area    (ha)=   0.08
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
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                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.08         0.00
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      23.09        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    0.78 | 6.083    2.62 |12.083    2.31 | 18.08    1.10
              0.167    0.78 | 6.167    2.62 |12.167    2.31 | 18.17    1.10
              0.250    0.79 | 6.250    2.85 |12.250    2.24 | 18.25    1.09
              0.333    0.79 | 6.333    2.85 |12.333    2.24 | 18.33    1.09
              0.417    0.81 | 6.417    3.13 |12.417    2.17 | 18.42    1.07
              0.500    0.81 | 6.500    3.13 |12.500    2.17 | 18.50    1.07
              0.583    0.82 | 6.583    3.48 |12.583    2.10 | 18.58    1.06
              0.667    0.82 | 6.667    3.48 |12.667    2.10 | 18.67    1.06
              0.750    0.84 | 6.750    3.92 |12.750    2.04 | 18.75    1.05
              0.833    0.84 | 6.833    3.92 |12.833    2.04 | 18.83    1.05
              0.917    0.85 | 6.917    4.52 |12.917    1.98 | 18.92    1.03
              1.000    0.85 | 7.000    4.52 |13.000    1.98 | 19.00    1.03
              1.083    0.87 | 7.083    5.36 |13.083    1.93 | 19.08    1.02
              1.167    0.87 | 7.167    5.36 |13.167    1.93 | 19.17    1.02
              1.250    0.89 | 7.250    6.65 |13.250    1.88 | 19.25    1.01
              1.333    0.89 | 7.333    6.65 |13.333    1.88 | 19.33    1.01
              1.417    0.91 | 7.417    8.89 |13.417    1.83 | 19.42    1.00
              1.500    0.91 | 7.500    8.89 |13.500    1.83 | 19.50    1.00
              1.583    0.93 | 7.583   13.75 |13.583    1.79 | 19.58    0.99
              1.667    0.93 | 7.667   13.75 |13.667    1.79 | 19.67    0.99
              1.750    0.95 | 7.750   32.93 |13.750    1.74 | 19.75    0.97
              1.833    0.95 | 7.833   32.94 |13.833    1.74 | 19.83    0.97
              1.917    0.97 | 7.917  118.25 |13.917    1.70 | 19.92    0.96
              2.000    0.97 | 8.000  118.24 |14.000    1.70 | 20.00    0.96
              2.083    0.99 | 8.083   42.97 |14.083    1.66 | 20.08    0.95
              2.167    0.99 | 8.167   42.97 |14.167    1.66 | 20.17    0.95
              2.250    1.01 | 8.250   22.94 |14.250    1.63 | 20.25    0.94
              2.333    1.01 | 8.333   22.94 |14.333    1.63 | 20.33    0.94
              2.417    1.04 | 8.417   15.63 |14.417    1.59 | 20.42    0.93
              2.500    1.04 | 8.500   15.63 |14.500    1.59 | 20.50    0.93
              2.583    1.07 | 8.583   11.90 |14.583    1.56 | 20.58    0.92
              2.667    1.07 | 8.667   11.90 |14.667    1.56 | 20.67    0.92
              2.750    1.09 | 8.750    9.65 |14.750    1.53 | 20.75    0.91
              2.833    1.09 | 8.833    9.65 |14.833    1.53 | 20.83    0.91
              2.917    1.12 | 8.917    8.15 |14.917    1.50 | 20.92    0.90
              3.000    1.12 | 9.000    8.15 |15.000    1.50 | 21.00    0.90
              3.083    1.16 | 9.083    7.07 |15.083    1.47 | 21.08    0.89
              3.167    1.16 | 9.167    7.07 |15.167    1.47 | 21.17    0.89
              3.250    1.19 | 9.250    6.26 |15.250    1.44 | 21.25    0.88
              3.333    1.19 | 9.333    6.26 |15.333    1.44 | 21.33    0.88
              3.417    1.23 | 9.417    5.62 |15.417    1.42 | 21.42    0.88
              3.500    1.23 | 9.500    5.62 |15.500    1.42 | 21.50    0.88
              3.583    1.27 | 9.583    5.12 |15.583    1.39 | 21.58    0.87
              3.667    1.27 | 9.667    5.12 |15.667    1.39 | 21.67    0.87
              3.750    1.31 | 9.750    4.70 |15.750    1.37 | 21.75    0.86
              3.833    1.31 | 9.833    4.70 |15.833    1.37 | 21.83    0.86
              3.917    1.35 | 9.917    4.35 |15.917    1.34 | 21.92    0.85
              4.000    1.35 |10.000    4.35 |16.000    1.34 | 22.00    0.85
              4.083    1.40 |10.083    4.06 |16.083    1.32 | 22.08    0.84
              4.167    1.40 |10.167    4.06 |16.167    1.32 | 22.17    0.84
              4.250    1.45 |10.250    3.80 |16.250    1.30 | 22.25    0.83
              4.333    1.45 |10.333    3.80 |16.333    1.30 | 22.33    0.83
              4.417    1.51 |10.417    3.58 |16.417    1.28 | 22.42    0.83
              4.500    1.51 |10.500    3.58 |16.500    1.28 | 22.50    0.83
              4.583    1.57 |10.583    3.38 |16.583    1.26 | 22.58    0.82
              4.667    1.57 |10.667    3.38 |16.667    1.26 | 22.67    0.82
              4.750    1.64 |10.750    3.21 |16.750    1.24 | 22.75    0.81
              4.833    1.64 |10.833    3.21 |16.833    1.24 | 22.83    0.81
              4.917    1.72 |10.917    3.06 |16.917    1.22 | 22.92    0.80
              5.000    1.72 |11.000    3.06 |17.000    1.22 | 23.00    0.80
              5.083    1.81 |11.083    2.92 |17.083    1.20 | 23.08    0.80
              5.167    1.81 |11.167    2.92 |17.167    1.20 | 23.17    0.80
              5.250    1.90 |11.250    2.79 |17.250    1.18 | 23.25    0.79
              5.333    1.90 |11.333    2.79 |17.333    1.18 | 23.33    0.79
              5.417    2.01 |11.417    2.68 |17.417    1.17 | 23.42    0.78
              5.500    2.01 |11.500    2.68 |17.500    1.17 | 23.50    0.78
              5.583    2.13 |11.583    2.57 |17.583    1.15 | 23.58    0.78
              5.667    2.13 |11.667    2.57 |17.667    1.15 | 23.67    0.78
              5.750    2.27 |11.750    2.48 |17.750    1.13 | 23.75    0.77
              5.833    2.27 |11.833    2.48 |17.833    1.13 | 23.83    0.77
              5.917    2.43 |11.917    2.39 |17.917    1.12 | 23.92    0.76
              6.000    2.43 |12.000    2.39 |18.000    1.12 | 24.00    0.76

Max.Eff.Inten.(mm/hr)=     118.25        68.98
          over (min)         5.00         5.00
Storage Coeff.  (min)=       0.99 (ii)    2.04 (ii)
Unit Hyd. Tpeak (min)=       5.00         5.00
Unit Hyd. peak  (cms)=       0.34         0.31
                                                  *TOTALS*
PEAK FLOW       (cms)=       0.03         0.00          0.026 (iii)

     TIME TO PEAK    (hrs)=       8.00         8.00          8.00
     RUNOFF VOLUME    (mm)=      86.10        51.66         85.76
     TOTAL RAINFALL   (mm)=      87.10        87.10         87.10
     RUNOFF COEFFICIENT   =       0.99         0.59          0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  84.0    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 (  0037)|   Area    (ha)=   0.04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.04         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      16.33        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    0.78 | 6.083    2.62 |12.083    2.31 | 18.08    1.10
              0.167    0.78 | 6.167    2.62 |12.167    2.31 | 18.17    1.10
              0.250    0.79 | 6.250    2.85 |12.250    2.24 | 18.25    1.09
              0.333    0.79 | 6.333    2.85 |12.333    2.24 | 18.33    1.09
              0.417    0.81 | 6.417    3.13 |12.417    2.17 | 18.42    1.07
              0.500    0.81 | 6.500    3.13 |12.500    2.17 | 18.50    1.07
              0.583    0.82 | 6.583    3.48 |12.583    2.10 | 18.58    1.06
              0.667    0.82 | 6.667    3.48 |12.667    2.10 | 18.67    1.06
              0.750    0.84 | 6.750    3.92 |12.750    2.04 | 18.75    1.05
              0.833    0.84 | 6.833    3.92 |12.833    2.04 | 18.83    1.05
              0.917    0.85 | 6.917    4.52 |12.917    1.98 | 18.92    1.03
              1.000    0.85 | 7.000    4.52 |13.000    1.98 | 19.00    1.03
              1.083    0.87 | 7.083    5.36 |13.083    1.93 | 19.08    1.02
              1.167    0.87 | 7.167    5.36 |13.167    1.93 | 19.17    1.02
              1.250    0.89 | 7.250    6.65 |13.250    1.88 | 19.25    1.01
              1.333    0.89 | 7.333    6.65 |13.333    1.88 | 19.33    1.01
              1.417    0.91 | 7.417    8.89 |13.417    1.83 | 19.42    1.00
              1.500    0.91 | 7.500    8.89 |13.500    1.83 | 19.50    1.00
              1.583    0.93 | 7.583   13.75 |13.583    1.79 | 19.58    0.99
              1.667    0.93 | 7.667   13.75 |13.667    1.79 | 19.67    0.99
              1.750    0.95 | 7.750   32.93 |13.750    1.74 | 19.75    0.97
              1.833    0.95 | 7.833   32.94 |13.833    1.74 | 19.83    0.97
              1.917    0.97 | 7.917  118.25 |13.917    1.70 | 19.92    0.96
              2.000    0.97 | 8.000  118.24 |14.000    1.70 | 20.00    0.96
              2.083    0.99 | 8.083   42.97 |14.083    1.66 | 20.08    0.95
              2.167    0.99 | 8.167   42.97 |14.167    1.66 | 20.17    0.95
              2.250    1.01 | 8.250   22.94 |14.250    1.63 | 20.25    0.94
              2.333    1.01 | 8.333   22.94 |14.333    1.63 | 20.33    0.94
              2.417    1.04 | 8.417   15.63 |14.417    1.59 | 20.42    0.93
              2.500    1.04 | 8.500   15.63 |14.500    1.59 | 20.50    0.93
              2.583    1.07 | 8.583   11.90 |14.583    1.56 | 20.58    0.92
              2.667    1.07 | 8.667   11.90 |14.667    1.56 | 20.67    0.92
              2.750    1.09 | 8.750    9.65 |14.750    1.53 | 20.75    0.91
              2.833    1.09 | 8.833    9.65 |14.833    1.53 | 20.83    0.91
              2.917    1.12 | 8.917    8.15 |14.917    1.50 | 20.92    0.90
              3.000    1.12 | 9.000    8.15 |15.000    1.50 | 21.00    0.90
              3.083    1.16 | 9.083    7.07 |15.083    1.47 | 21.08    0.89
              3.167    1.16 | 9.167    7.07 |15.167    1.47 | 21.17    0.89
              3.250    1.19 | 9.250    6.26 |15.250    1.44 | 21.25    0.88
              3.333    1.19 | 9.333    6.26 |15.333    1.44 | 21.33    0.88
              3.417    1.23 | 9.417    5.62 |15.417    1.42 | 21.42    0.88
              3.500    1.23 | 9.500    5.62 |15.500    1.42 | 21.50    0.88
              3.583    1.27 | 9.583    5.12 |15.583    1.39 | 21.58    0.87
              3.667    1.27 | 9.667    5.12 |15.667    1.39 | 21.67    0.87
              3.750    1.31 | 9.750    4.70 |15.750    1.37 | 21.75    0.86
              3.833    1.31 | 9.833    4.70 |15.833    1.37 | 21.83    0.86
              3.917    1.35 | 9.917    4.35 |15.917    1.34 | 21.92    0.85
              4.000    1.35 |10.000    4.35 |16.000    1.34 | 22.00    0.85
              4.083    1.40 |10.083    4.06 |16.083    1.32 | 22.08    0.84
              4.167    1.40 |10.167    4.06 |16.167    1.32 | 22.17    0.84
              4.250    1.45 |10.250    3.80 |16.250    1.30 | 22.25    0.83
              4.333    1.45 |10.333    3.80 |16.333    1.30 | 22.33    0.83
              4.417    1.51 |10.417    3.58 |16.417    1.28 | 22.42    0.83
              4.500    1.51 |10.500    3.58 |16.500    1.28 | 22.50    0.83
              4.583    1.57 |10.583    3.38 |16.583    1.26 | 22.58    0.82
              4.667    1.57 |10.667    3.38 |16.667    1.26 | 22.67    0.82
              4.750    1.64 |10.750    3.21 |16.750    1.24 | 22.75    0.81
              4.833    1.64 |10.833    3.21 |16.833    1.24 | 22.83    0.81
              4.917    1.72 |10.917    3.06 |16.917    1.22 | 22.92    0.80
              5.000    1.72 |11.000    3.06 |17.000    1.22 | 23.00    0.80
              5.083    1.81 |11.083    2.92 |17.083    1.20 | 23.08    0.80
              5.167    1.81 |11.167    2.92 |17.167    1.20 | 23.17    0.80
              5.250    1.90 |11.250    2.79 |17.250    1.18 | 23.25    0.79
              5.333    1.90 |11.333    2.79 |17.333    1.18 | 23.33    0.79
              5.417    2.01 |11.417    2.68 |17.417    1.17 | 23.42    0.78
              5.500    2.01 |11.500    2.68 |17.500    1.17 | 23.50    0.78
              5.583    2.13 |11.583    2.57 |17.583    1.15 | 23.58    0.78
              5.667    2.13 |11.667    2.57 |17.667    1.15 | 23.67    0.78
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5.750	2.27	11.750	2.48	17.750	1.13	23.75	0.77
5.833	2.27	11.833	2.48	17.833	1.13	23.83	0.77
5.917	2.43	11.917	2.39	17.917	1.12	23.92	0.76
6.000	2.43	12.000	2.39	18.000	1.12	24.00	0.76

Max.Eff.Inten.(mm/hr)=	118.25	75.89	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.81 (ii)	1.86 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.32	
			TOTALS
PEAK FLOW (cms)=	0.01	0.00	0.013 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	86.10	56.18	83.33
TOTAL RAINFALL (mm)=	87.10	87.10	87.10
RUNOFF COEFFICIENT =	0.99	0.65	0.96

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 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 (0038)	Area (ha)=	0.01	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.01	0.00
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	8.16	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	0.78	6.083	2.62	12.083	2.31	18.08	1.10
0.167	0.78	6.167	2.62	12.167	2.31	18.17	1.10
0.250	0.79	6.250	2.85	12.250	2.24	18.25	1.09
0.333	0.79	6.333	2.85	12.333	2.24	18.33	1.09
0.417	0.81	6.417	3.13	12.417	2.17	18.42	1.07
0.500	0.81	6.500	3.13	12.500	2.17	18.50	1.07
0.583	0.82	6.583	3.48	12.583	2.10	18.58	1.06
0.667	0.82	6.667	3.48	12.667	2.10	18.67	1.06
0.750	0.84	6.750	3.92	12.750	2.04	18.75	1.05
0.833	0.84	6.833	3.92	12.833	2.04	18.83	1.05
0.917	0.85	6.917	4.52	12.917	1.98	18.92	1.03
1.000	0.85	7.000	4.52	13.000	1.98	19.00	1.03
1.083	0.87	7.083	5.36	13.083	1.93	19.08	1.02
1.167	0.87	7.167	5.36	13.167	1.93	19.17	1.02
1.250	0.89	7.250	6.65	13.250	1.88	19.25	1.01
1.333	0.89	7.333	6.65	13.333	1.88	19.33	1.01
1.417	0.91	7.417	8.89	13.417	1.83	19.42	1.00
1.500	0.91	7.500	8.89	13.500	1.83	19.50	1.00
1.583	0.93	7.583	13.75	13.583	1.79	19.58	0.99
1.667	0.93	7.667	13.75	13.667	1.79	19.67	0.99
1.750	0.95	7.750	32.93	13.750	1.74	19.75	0.97
1.833	0.95	7.833	32.94	13.833	1.74	19.83	0.97
1.917	0.97	7.917	118.25	13.917	1.70	19.92	0.96
2.000	0.97	8.000	118.24	14.000	1.70	20.00	0.96
2.083	0.99	8.083	42.97	14.083	1.66	20.08	0.95
2.167	0.99	8.167	42.97	14.167	1.66	20.17	0.95
2.250	1.01	8.250	22.94	14.250	1.63	20.25	0.94
2.333	1.01	8.333	22.94	14.333	1.63	20.33	0.94
2.417	1.04	8.417	15.63	14.417	1.59	20.42	0.93
2.500	1.04	8.500	15.63	14.500	1.59	20.50	0.93
2.583	1.07	8.583	11.90	14.583	1.56	20.58	0.92
2.667	1.07	8.667	11.90	14.667	1.56	20.67	0.92
2.750	1.09	8.750	9.65	14.750	1.53	20.75	0.91
2.833	1.09	8.833	9.65	14.833	1.53	20.83	0.91
2.917	1.12	8.917	8.15	14.917	1.50	20.92	0.90
3.000	1.12	9.000	8.15	15.000	1.50	21.00	0.90
3.083	1.16	9.083	7.07	15.083	1.47	21.08	0.89
3.167	1.16	9.167	7.07	15.167	1.47	21.17	0.89
3.250	1.19	9.250	6.26	15.250	1.44	21.25	0.88
3.333	1.19	9.333	6.26	15.333	1.44	21.33	0.88
3.417	1.23	9.417	5.62	15.417	1.42	21.42	0.88
3.500	1.23	9.500	5.62	15.500	1.42	21.50	0.88
3.583	1.27	9.583	5.12	15.583	1.39	21.58	0.87
3.667	1.27	9.667	5.12	15.667	1.39	21.67	0.87
3.750	1.31	9.750	4.70	15.750	1.37	21.75	0.86
3.833	1.31	9.833	4.70	15.833	1.37	21.83	0.86
3.917	1.35	9.917	4.35	15.917	1.34	21.92	0.85
4.000	1.35	10.000	4.35	16.000	1.34	22.00	0.85
4.083	1.40	10.083	4.06	16.083	1.32	22.08	0.84
4.167	1.40	10.167	4.06	16.167	1.32	22.17	0.84
4.250	1.45	10.250	3.80	16.250	1.30	22.25	0.83
4.333	1.45	10.333	3.80	16.333	1.30	22.33	0.83
4.417	1.51	10.417	3.58	16.417	1.28	22.42	0.83
4.500	1.51	10.500	3.58	16.500	1.28	22.50	0.83
4.583	1.57	10.583	3.38	16.583	1.26	22.58	0.82
4.667	1.57	10.667	3.38	16.667	1.26	22.67	0.82
4.750	1.64	10.750	3.21	16.750	1.24	22.75	0.81
4.833	1.64	10.833	3.21	16.833	1.24	22.83	0.81
4.917	1.72	10.917	3.06	16.917	1.22	22.92	0.80
5.000	1.72	11.000	3.06	17.000	1.22	23.00	0.80
5.083	1.81	11.083	2.92	17.083	1.20	23.08	0.80
5.167	1.81	11.167	2.92	17.167	1.20	23.17	0.80
5.250	1.90	11.250	2.79	17.250	1.18	23.25	0.79
5.333	1.90	11.333	2.79	17.333	1.18	23.33	0.79
5.417	2.01	11.417	2.68	17.417	1.17	23.42	0.78
5.500	2.01	11.500	2.68	17.500	1.17	23.50	0.78
5.583	2.13	11.583	2.57	17.583	1.15	23.58	0.78
5.667	2.13	11.667	2.57	17.667	1.15	23.67	0.78
5.750	2.27	11.750	2.48	17.750	1.13	23.75	0.77
5.833	2.27	11.833	2.48	17.833	1.13	23.83	0.77
5.917	2.43	11.917	2.39	17.917	1.12	23.92	0.76
6.000	2.43	12.000	2.39	18.000	1.12	24.00	0.76

Max.Eff.Inten.(mm/hr)=	118.25	75.89	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.53 (ii)	1.58 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.33	
			TOTALS
PEAK FLOW (cms)=	0.00	0.00	0.003 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	86.10	56.18	66.17
TOTAL RAINFALL (mm)=	87.10	87.10	87.10
RUNOFF COEFFICIENT =	0.99	0.65	0.76

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 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 (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0026):	0.28	0.029	8.17	51.59
+ ID2= 2 (0028):	0.08	0.026	8.00	85.76
ID = 3 (0030):	0.36	0.046	8.00	59.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	0.36	0.046	8.00	59.18
+ ID2= 2 (0029):	0.18	0.021	8.08	51.47
ID = 1 (0030):	0.54	0.064	8.00	56.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	0.54	0.064	8.00	56.61
+ ID2= 2 (0037):	0.04	0.013	8.00	83.33
ID = 3 (0030):	0.58	0.077	8.00	58.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	0.58	0.077	8.00	58.46
+ ID2= 2 (0038):	0.01	0.003	8.00	66.17
ID = 1 (0030):	0.59	0.081	8.00	58.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0031)	Area (ha)=	0.09	Curve Number (CN)=	84.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.17		

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	0.78	6.083	2.62	12.083	2.31	18.08	1.10
0.167	0.78	6.167	2.62	12.167	2.31	18.17	1.10

0.250	0.79	6.250	2.85	12.250	2.24	18.25	1.09
0.333	0.79	6.333	2.85	12.333	2.24	18.33	1.09
0.417	0.81	6.417	3.13	12.417	2.17	18.42	1.07
0.500	0.81	6.500	3.13	12.500	2.17	18.50	1.07
0.583	0.82	6.583	3.48	12.583	2.10	18.58	1.06
0.667	0.82	6.667	3.48	12.667	2.10	18.67	1.06
0.750	0.84	6.750	3.92	12.750	2.04	18.75	1.05
0.833	0.84	6.833	3.92	12.833	2.04	18.83	1.05
0.917	0.85	6.917	4.52	12.917	1.98	18.92	1.03
1.000	0.85	7.000	4.52	13.000	1.98	19.00	1.03
1.083	0.87	7.083	5.36	13.083	1.93	19.08	1.02
1.167	0.87	7.167	5.36	13.167	1.93	19.17	1.02
1.250	0.89	7.250	6.65	13.250	1.88	19.25	1.01
1.333	0.89	7.333	6.65	13.333	1.88	19.33	1.01
1.417	0.91	7.417	8.89	13.417	1.83	19.42	1.00
1.500	0.91	7.500	8.89	13.500	1.83	19.50	1.00
1.583	0.93	7.583	13.75	13.583	1.79	19.58	0.99
1.667	0.93	7.667	13.75	13.667	1.79	19.67	0.99
1.750	0.95	7.750	32.93	13.750	1.74	19.75	0.97
1.833	0.95	7.833	32.94	13.833	1.74	19.83	0.97
1.917	0.97	7.917	118.25	13.917	1.70	19.92	0.96
2.000	0.97	8.000	118.24	14.000	1.70	20.00	0.96
2.083	0.99	8.083	42.97	14.083	1.66	20.08	0.95
2.167	0.99	8.167	42.97	14.167	1.66	20.17	0.95
2.250	1.01	8.250	22.94	14.250	1.63	20.25	0.94
2.333	1.01	8.333	22.94	14.333	1.63	20.33	0.94
2.417	1.04	8.417	15.63	14.417	1.59	20.42	0.93
2.500	1.04	8.500	15.63	14.500	1.59	20.50	0.93
2.583	1.07	8.583	11.90	14.583	1.56	20.58	0.92
2.667	1.07	8.667	11.90	14.667	1.56	20.67	0.92
2.750	1.09	8.750	9.65	14.750	1.53	20.75	0.91
2.833	1.09	8.833	9.65	14.833	1.53	20.83	0.91
2.917	1.12	8.917	8.15	14.917	1.50	20.92	0.90
3.000	1.12	9.000	8.15	15.000	1.50	21.00	0.90
3.083	1.16	9.083	7.07	15.083	1.47	21.08	0.89
3.167	1.16	9.167	7.07	15.167	1.47	21.17	0.89
3.250	1.19	9.250	6.26	15.250	1.44	21.25	0.88
3.333	1.19	9.333	6.26	15.333	1.44	21.33	0.88
3.417	1.23	9.417	5.62	15.417	1.42	21.42	0.88
3.500	1.23	9.500	5.62	15.500	1.42	21.50	0.88
3.583	1.27	9.583	5.12	15.583	1.39	21.58	0.87
3.667	1.27	9.667	5.12	15.667	1.39	21.67	0.87
3.750	1.31	9.750	4.70	15.750	1.37	21.75	0.86
3.833	1.31	9.833	4.70	15.833	1.37	21.83	0.86
3.917	1.35	9.917	4.35	15.917	1.34	21.92	0.85
4.000	1.35	10.000	4.35	16.000	1.34	22.00	0.85
4.083	1.40	10.083	4.06	16.083	1.32	22.08	0.84
4.167	1.40	10.167	4.06	16.167	1.32	22.17	0.84
4.250	1.45	10.250	3.80	16.250	1.30	22.25	0.83
4.333	1.45	10.333	3.80	16.333	1.30	22.33	0.83
4.417	1.51	10.417	3.58	16.417	1.28	22.42	0.83
4.500	1.51	10.500	3.58	16.500	1.28	22.50	0.83
4.583	1.57	10.583	3.38	16.583	1.26	22.58	0.82
4.667	1.57	10.667	3.38	16.667	1.26	22.67	0.82
4.750	1.64	10.750	3.21	16.750	1.24	22.75	0.81
4.833	1.64	10.833	3.21	16.833	1.24	22.83	0.81
4.917	1.72	10.917	3.06	16.917	1.22	22.92	0.80
5.000	1.72	11.000	3.06	17.000	1.22	23.00	0.80
5.083	1.81	11.083	2.92	17.083	1.20	23.08	0.80
5.167	1.81	11.167	2.92	17.167	1.20	23.17	0.80
5.250	1.90	11.250	2.79	17.250	1.18	23.25	0.79
5.333	1.90	11.333	2.79	17.333	1.18	23.33	0.79
5.417	2.01	11.417	2.68	17.417	1.17	23.42	0.78
5.500	2.01	11.500	2.68	17.500	1.17	23.50	0.78
5.583	2.13	11.583	2.57	17.583	1.15	23.58	0.78
5.667	2.13	11.667	2.57	17.667	1.15	23.67	0.78
5.750	2.27	11.750	2.48	17.750	1.13	23.75	0.77
5.833	2.27	11.833	2.48	17.833	1.13	23.83	0.77
5.917	2.43	11.917	2.39	17.917	1.12	23.92	0.76
6.000	2.43	12.000	2.39	18.000	1.12	24.00	0.76

Unit Hyd Qpeak (cms)= 0.020

PEAK FLOW (cms)= 0.011 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 51.471
TOTAL RAINFALL (mm)= 87.103
RUNOFF COEFFICIENT = 0.591

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

CALIB	
STANDHYD (0018)	Area (ha)= 0.71
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.70	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	68.80	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	0.78	6.083	2.62	12.083	2.31	18.08	1.10
0.167	0.78	6.167	2.62	12.167	2.31	18.17	1.10
0.250	0.79	6.250	2.85	12.250	2.24	18.25	1.09
0.333	0.79	6.333	2.85	12.333	2.24	18.33	1.09
0.417	0.81	6.417	3.13	12.417	2.17	18.42	1.07
0.500	0.81	6.500	3.13	12.500	2.17	18.50	1.07
0.583	0.82	6.583	3.48	12.583	2.10	18.58	1.06
0.667	0.82	6.667	3.48	12.667	2.10	18.67	1.06
0.750	0.84	6.750	3.92	12.750	2.04	18.75	1.05
0.833	0.84	6.833	3.92	12.833	2.04	18.83	1.05
0.917	0.85	6.917	4.52	12.917	1.98	18.92	1.03
1.000	0.85	7.000	4.52	13.000	1.98	19.00	1.03
1.083	0.87	7.083	5.36	13.083	1.93	19.08	1.02
1.167	0.87	7.167	5.36	13.167	1.93	19.17	1.02
1.250	0.89	7.250	6.65	13.250	1.88	19.25	1.01
1.333	0.89	7.333	6.65	13.333	1.88	19.33	1.01
1.417	0.91	7.417	8.89	13.417	1.83	19.42	1.00
1.500	0.91	7.500	8.89	13.500	1.83	19.50	1.00
1.583	0.93	7.583	13.75	13.583	1.79	19.58	0.99
1.667	0.93	7.667	13.75	13.667	1.79	19.67	0.99
1.750	0.95	7.750	32.93	13.750	1.74	19.75	0.97
1.833	0.95	7.833	32.94	13.833	1.74	19.83	0.97
1.917	0.97	7.917	118.25	13.917	1.70	19.92	0.96
2.000	0.97	8.000	118.24	14.000	1.70	20.00	0.96
2.083	0.99	8.083	42.97	14.083	1.66	20.08	0.95
2.167	0.99	8.167	42.97	14.167	1.66	20.17	0.95
2.250	1.01	8.250	22.94	14.250	1.63	20.25	0.94
2.333	1.01	8.333	22.94	14.333	1.63	20.33	0.94
2.417	1.04	8.417	15.63	14.417	1.59	20.42	0.93
2.500	1.04	8.500	15.63	14.500	1.59	20.50	0.93
2.583	1.07	8.583	11.90	14.583	1.56	20.58	0.92
2.667	1.07	8.667	11.90	14.667	1.56	20.67	0.92
2.750	1.09	8.750	9.65	14.750	1.53	20.75	0.91
2.833	1.09	8.833	9.65	14.833	1.53	20.83	0.91
2.917	1.12	8.917	8.15	14.917	1.50	20.92	0.90
3.000	1.12	9.000	8.15	15.000	1.50	21.00	0.90
3.083	1.16	9.083	7.07	15.083	1.47	21.08	0.89
3.167	1.16	9.167	7.07	15.167	1.47	21.17	0.89
3.250	1.19	9.250	6.26	15.250	1.44	21.25	0.88
3.333	1.19	9.333	6.26	15.333	1.44	21.33	0.88
3.417	1.23	9.417	5.62	15.417	1.42	21.42	0.88
3.500	1.23	9.500	5.62	15.500	1.42	21.50	0.88
3.583	1.27	9.583	5.12	15.583	1.39	21.58	0.87
3.667	1.27	9.667	5.12	15.667	1.39	21.67	0.87
3.750	1.31	9.750	4.70	15.750	1.37	21.75	0.86
3.833	1.31	9.833	4.70	15.833	1.37	21.83	0.86
3.917	1.35	9.917	4.35	15.917	1.34	21.92	0.85
4.000	1.35	10.000	4.35	16.000	1.34	22.00	0.85
4.083	1.40	10.083	4.06	16.083	1.32	22.08	0.84
4.167	1.40	10.167	4.06	16.167	1.32	22.17	0.84
4.250	1.45	10.250	3.80	16.250	1.30	22.25	0.83
4.333	1.45	10.333	3.80	16.333	1.30	22.33	0.83
4.417	1.51	10.417	3.58	16.417	1.28	22.42	0.83
4.500	1.51	10.500	3.58	16.500	1.28	22.50	0.83
4.583	1.57	10.583	3.38	16.583	1.26	22.58	0.82
4.667	1.57	10.667	3.38	16.667	1.26	22.67	0.82
4.750	1.64	10.750	3.21	16.750	1.24	22.75	0.81
4.833	1.64	10.833	3.21	16.833	1.24	22.83	0.81
4.917	1.72	10.917	3.06	16.917	1.22	22.92	0.80
5.000	1.72	11.000	3.06	17.000	1.22	23.00	0.80
5.083	1.81	11.083	2.92	17.083	1.20	23.08	0.80
5.167	1.81	11.167	2.92	17.167	1.20	23.17	0.80
5.250	1.90	11.250	2.79	17.250	1.18	23.25	0.79
5.333	1.90	11.333	2.79	17.333	1.18	23.33	0.79
5.417	2.01	11.417	2.68	17.417	1.17	23.42	0.78
5.500	2.01	11.500	2.68	17.500	1.17	23.50	0.78
5.583	2.13	11.583	2.57	17.583	1.15	23.58	0.78
5.667	2.13	11.667	2.57	17.667	1.15	23.67	0.78
5.750	2.27	11.750	2.48	17.750	1.13	23.75	0.77
5.833	2.27	11.833	2.48	17.833	1.13	23.83	0.77
5.917	2.43	11.917	2.39	17.917	1.12	23.92	0.76
6.000	2.43	12.000	2.39	18.000	1.12	24.00	0.76

			TOTALS
Max.Eff.Inten.(mm/hr)=	118.25	68.98	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.91 (ii)	2.96 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.32	0.28	
PEAK FLOW (cms)=	0.23	0.00	0.231 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	86.10	51.66	85.76
TOTAL RAINFALL (mm)=	87.10	87.10	87.10
RUNOFF COEFFICIENT =	0.99	0.59	0.98

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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 (0032)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0018):	0.71	0.231	8.00	85.76

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     + ID2= 2 (  0031):     0.09   0.011     8.08    51.47
       ================================================
       ID = 3 (  0032):     0.80   0.240     8.00    81.90

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0019)|     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   |    0.0190      0.0279
                          0.0000      0.0028   |    0.0200      0.0307
                          0.0080      0.0056   |    0.0210      0.0335
                          0.0100      0.0084   |    0.0220      0.0363
                          0.0120      0.0112   |    0.0230      0.0391
                          0.0140      0.0140   |    0.0240      0.0419
                          0.0150      0.0168   |    0.0250      0.0447
                          0.0160      0.0196   |    0.0250      0.0475
                          0.0170      0.0223   |    0.0260      0.0499
                          0.0180      0.0251   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0032)     0.800      0.240      8.00      81.90
   OUTFLOW: ID= 1 (  0019)     0.800      0.020      8.83      78.31

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  8.51
                  TIME SHIFT OF PEAK FLOW         (min)= 50.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0320

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--------------------
| CALIB            |
| NASHYD   (  0036)|   Area    (ha)=   0.14   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.16

        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    0.78 | 6.083    2.62 |12.083    2.31 | 18.08    1.10
               0.167    0.78 | 6.167    2.62 |12.167    2.31 | 18.17    1.10
               0.250    0.79 | 6.250    2.85 |12.250    2.24 | 18.25    1.09
               0.333    0.79 | 6.333    2.85 |12.333    2.24 | 18.33    1.09
               0.417    0.81 | 6.417    3.13 |12.417    2.17 | 18.42    1.07
               0.500    0.81 | 6.500    3.13 |12.500    2.17 | 18.50    1.07
               0.583    0.82 | 6.583    3.48 |12.583    2.10 | 18.58    1.06
               0.667    0.82 | 6.667    3.48 |12.667    2.10 | 18.67    1.06
               0.750    0.84 | 6.750    3.92 |12.750    2.04 | 18.75    1.05
               0.833    0.84 | 6.833    3.92 |12.833    2.04 | 18.83    1.05
               0.917    0.85 | 6.917    4.52 |12.917    1.98 | 18.92    1.03
               1.000    0.85 | 7.000    4.52 |13.000    1.98 | 19.00    1.03
               1.083    0.87 | 7.083    5.36 |13.083    1.93 | 19.08    1.02
               1.167    0.87 | 7.167    5.36 |13.167    1.93 | 19.17    1.02
               1.250    0.89 | 7.250    6.65 |13.250    1.88 | 19.25    1.01
               1.333    0.89 | 7.333    6.65 |13.333    1.88 | 19.33    1.01
               1.417    0.91 | 7.417    8.89 |13.417    1.83 | 19.42    1.00
               1.500    0.91 | 7.500    8.89 |13.500    1.83 | 19.50    1.00
               1.583    0.93 | 7.583   13.75 |13.583    1.79 | 19.58    0.99
               1.667    0.93 | 7.667   13.75 |13.667    1.79 | 19.67    0.99
               1.750    0.95 | 7.750   32.93 |13.750    1.74 | 19.75    0.97
               1.833    0.95 | 7.833   32.94 |13.833    1.74 | 19.83    0.97
               1.917    0.97 | 7.917  118.25 |13.917    1.70 | 19.92    0.96
               2.000    0.97 | 8.000  118.24 |14.000    1.70 | 20.00    0.96
               2.083    0.99 | 8.083   42.97 |14.083    1.66 | 20.08    0.95
               2.167    0.99 | 8.167   42.97 |14.167    1.66 | 20.17    0.95
               2.250    1.01 | 8.250   22.94 |14.250    1.63 | 20.25    0.94
               2.333    1.01 | 8.333   22.94 |14.333    1.63 | 20.33    0.94
               2.417    1.04 | 8.417   15.63 |14.417    1.59 | 20.42    0.93
               2.500    1.04 | 8.500   15.63 |14.500    1.59 | 20.50    0.93
               2.583    1.07 | 8.583   11.90 |14.583    1.56 | 20.58    0.92
               2.667    1.07 | 8.667   11.90 |14.667    1.56 | 20.67    0.92
               2.750    1.09 | 8.750    9.65 |14.750    1.53 | 20.75    0.91
               2.833    1.09 | 8.833    9.65 |14.833    1.53 | 20.83    0.91
               2.917    1.12 | 8.917    8.15 |14.917    1.50 | 20.92    0.90
               3.000    1.12 | 9.000    8.15 |15.000    1.50 | 21.00    0.90
               3.083    1.16 | 9.083    7.07 |15.083    1.47 | 21.08    0.89
               3.167    1.16 | 9.167    7.07 |15.167    1.47 | 21.17    0.89
               3.250    1.19 | 9.250    6.26 |15.250    1.44 | 21.25    0.88
               3.333    1.19 | 9.333    6.26 |15.333    1.44 | 21.33    0.88
               3.417    1.23 | 9.417    5.62 |15.417    1.42 | 21.42    0.88
               3.500    1.23 | 9.500    5.62 |15.500    1.42 | 21.50    0.88
               3.583    1.27 | 9.583    5.12 |15.583    1.39 | 21.58    0.87
               3.667    1.27 | 9.667    5.12 |15.667    1.39 | 21.67    0.87
               3.750    1.31 | 9.750    4.70 |15.750    1.37 | 21.75    0.86
               3.833    1.31 | 9.833    4.70 |15.833    1.37 | 21.83    0.86
               3.917    1.35 | 9.917    4.35 |15.917    1.34 | 21.92    0.85
               4.000    1.35 |10.000    4.35 |16.000    1.34 | 22.00    0.85
               4.083    1.40 |10.083    4.06 |16.083    1.32 | 22.08    0.84
               4.167    1.40 |10.167    4.06 |16.167    1.32 | 22.17    0.84
               4.250    1.45 |10.250    3.80 |16.250    1.30 | 22.25    0.83
               4.333    1.45 |10.333    3.80 |16.333    1.30 | 22.33    0.83
               4.417    1.51 |10.417    3.58 |16.417    1.28 | 22.42    0.83
               4.500    1.51 |10.500    3.58 |16.500    1.28 | 22.50    0.83
               4.583    1.57 |10.583    3.38 |16.583    1.26 | 22.58    0.82
               4.667    1.57 |10.667    3.38 |16.667    1.26 | 22.67    0.82
               4.750    1.64 |10.750    3.21 |16.750    1.24 | 22.75    0.81
               4.833    1.64 |10.833    3.21 |16.833    1.24 | 22.83    0.81
               4.917    1.72 |10.917    3.06 |16.917    1.22 | 22.92    0.80
               5.000    1.72 |11.000    3.06 |17.000    1.22 | 23.00    0.80
               5.083    1.81 |11.083    2.92 |17.083    1.20 | 23.08    0.80
               5.167    1.81 |11.167    2.92 |17.167    1.20 | 23.17    0.80
               5.250    1.90 |11.250    2.79 |17.250    1.18 | 23.25    0.79
               5.333    1.90 |11.333    2.79 |17.333    1.18 | 23.33    0.79
               5.417    2.01 |11.417    2.68 |17.417    1.17 | 23.42    0.78
               5.500    2.01 |11.500    2.68 |17.500    1.17 | 23.50    0.78
               5.583    2.13 |11.583    2.57 |17.583    1.15 | 23.58    0.78
               5.667    2.13 |11.667    2.57 |17.667    1.15 | 23.67    0.78
               5.750    2.27 |11.750    2.48 |17.750    1.13 | 23.75    0.77
               5.833    2.27 |11.833    2.48 |17.833    1.13 | 23.83    0.77
               5.917    2.43 |11.917    2.39 |17.917    1.12 | 23.92    0.76
               6.000    2.43 |12.000    2.39 |18.000    1.12 | 24.00    0.76

    Unit Hyd Qpeak  (cms)=   0.033

    PEAK FLOW       (cms)=   0.017 (i)
    TIME TO PEAK    (hrs)=   8.083
    RUNOFF VOLUME    (mm)=  51.425
    TOTAL RAINFALL   (mm)=  87.103
    RUNOFF COEFFICIENT   =   0.590

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

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--------------------
| CALIB            |
| NASHYD   (  0039)|   Area    (ha)=   0.05   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.16

        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    0.78 | 6.083    2.62 |12.083    2.31 | 18.08    1.10
               0.167    0.78 | 6.167    2.62 |12.167    2.31 | 18.17    1.10
               0.250    0.79 | 6.250    2.85 |12.250    2.24 | 18.25    1.09
               0.333    0.79 | 6.333    2.85 |12.333    2.24 | 18.33    1.09
               0.417    0.81 | 6.417    3.13 |12.417    2.17 | 18.42    1.07
               0.500    0.81 | 6.500    3.13 |12.500    2.17 | 18.50    1.07
               0.583    0.82 | 6.583    3.48 |12.583    2.10 | 18.58    1.06
               0.667    0.82 | 6.667    3.48 |12.667    2.10 | 18.67    1.06
               0.750    0.84 | 6.750    3.92 |12.750    2.04 | 18.75    1.05
               0.833    0.84 | 6.833    3.92 |12.833    2.04 | 18.83    1.05
               0.917    0.85 | 6.917    4.52 |12.917    1.98 | 18.92    1.03
               1.000    0.85 | 7.000    4.52 |13.000    1.98 | 19.00    1.03
               1.083    0.87 | 7.083    5.36 |13.083    1.93 | 19.08    1.02
               1.167    0.87 | 7.167    5.36 |13.167    1.93 | 19.17    1.02
               1.250    0.89 | 7.250    6.65 |13.250    1.88 | 19.25    1.01
               1.333    0.89 | 7.333    6.65 |13.333    1.88 | 19.33    1.01
               1.417    0.91 | 7.417    8.89 |13.417    1.83 | 19.42    1.00
               1.500    0.91 | 7.500    8.89 |13.500    1.83 | 19.50    1.00
               1.583    0.93 | 7.583   13.75 |13.583    1.79 | 19.58    0.99
               1.667    0.93 | 7.667   13.75 |13.667    1.79 | 19.67    0.99
               1.750    0.95 | 7.750   32.93 |13.750    1.74 | 19.75    0.97
               1.833    0.95 | 7.833   32.94 |13.833    1.74 | 19.83    0.97
               1.917    0.97 | 7.917  118.25 |13.917    1.70 | 19.92    0.96
               2.000    0.97 | 8.000  118.24 |14.000    1.70 | 20.00    0.96
               2.083    0.99 | 8.083   42.97 |14.083    1.66 | 20.08    0.95
               2.167    0.99 | 8.167   42.97 |14.167    1.66 | 20.17    0.95
               2.250    1.01 | 8.250   22.94 |14.250    1.63 | 20.25    0.94
               2.333    1.01 | 8.333   22.94 |14.333    1.63 | 20.33    0.94
               2.417    1.04 | 8.417   15.63 |14.417    1.59 | 20.42    0.93
               2.500    1.04 | 8.500   15.63 |14.500    1.59 | 20.50    0.93
               2.583    1.07 | 8.583   11.90 |14.583    1.56 | 20.58    0.92
               2.667    1.07 | 8.667   11.90 |14.667    1.56 | 20.67    0.92
               2.750    1.09 | 8.750    9.65 |14.750    1.53 | 20.75    0.91
               2.833    1.09 | 8.833    9.65 |14.833    1.53 | 20.83    0.91
               2.917    1.12 | 8.917    8.15 |14.917    1.50 | 20.92    0.90
               3.000    1.12 | 9.000    8.15 |15.000    1.50 | 21.00    0.90
               3.083    1.16 | 9.083    7.07 |15.083    1.47 | 21.08    0.89
               3.167    1.16 | 9.167    7.07 |15.167    1.47 | 21.17    0.89
               3.250    1.19 | 9.250    6.26 |15.250    1.44 | 21.25    0.88
               3.333    1.19 | 9.333    6.26 |15.333    1.44 | 21.33    0.88
               3.417    1.23 | 9.417    5.62 |15.417    1.42 | 21.42    0.88
               3.500    1.23 | 9.500    5.62 |15.500    1.42 | 21.50    0.88
               3.583    1.27 | 9.583    5.12 |15.583    1.39 | 21.58    0.87
               3.667    1.27 | 9.667    5.12 |15.667    1.39 | 21.67    0.87
               3.750    1.31 | 9.750    4.70 |15.750    1.37 | 21.75    0.86
               3.833    1.31 | 9.833    4.70 |15.833    1.37 | 21.83    0.86
               3.917    1.35 | 9.917    4.35 |15.917    1.34 | 21.92    0.85
               4.000    1.35 |10.000    4.35 |16.000    1.34 | 22.00    0.85
               4.083    1.40 |10.083    4.06 |16.083    1.32 | 22.08    0.84
               4.167    1.40 |10.167    4.06 |16.167    1.32 | 22.17    0.84
               4.250    1.45 |10.250    3.80 |16.250    1.30 | 22.25    0.83
               4.333    1.45 |10.333    3.80 |16.333    1.30 | 22.33    0.83
               4.417    1.51 |10.417    3.58 |16.417    1.28 | 22.42    0.83
               4.500    1.51 |10.500    3.58 |16.500    1.28 | 22.50    0.83
               4.583    1.57 |10.583    3.38 |16.583    1.26 | 22.58    0.82
               4.667    1.57 |10.667    3.38 |16.667    1.26 | 22.67    0.82
               4.750    1.64 |10.750    3.21 |16.750    1.24 | 22.75    0.81
               4.833    1.64 |10.833    3.21 |16.833    1.24 | 22.83    0.81
               4.917    1.72 |10.917    3.06 |16.917    1.22 | 22.92    0.80
               5.000    1.72 |11.000    3.06 |17.000    1.22 | 23.00    0.80
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5.083	1.81	11.083	2.92	17.083	1.20	23.08	0.80
5.167	1.81	11.167	2.92	17.167	1.20	23.17	0.80
5.250	1.90	11.250	2.79	17.250	1.18	23.25	0.79
5.333	1.90	11.333	2.79	17.333	1.18	23.33	0.79
5.417	2.01	11.417	2.68	17.417	1.17	23.42	0.78
5.500	2.01	11.500	2.68	17.500	1.17	23.50	0.78
5.583	2.13	11.583	2.57	17.583	1.15	23.58	0.78
5.667	2.13	11.667	2.57	17.667	1.15	23.67	0.78
5.750	2.27	11.750	2.48	17.750	1.13	23.75	0.77
5.833	2.27	11.833	2.48	17.833	1.13	23.83	0.77
5.917	2.43	11.917	2.39	17.917	1.12	23.92	0.76
6.000	2.43	12.000	2.39	18.000	1.12	24.00	0.76

Unit Hyd Qpeak (cms)= 0.012

PEAK FLOW (cms)= 0.006 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 51.420
TOTAL RAINFALL (mm)= 87.103
RUNOFF COEFFICIENT = 0.590

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

CALIB	
STANDHYD (0001)	Area (ha)= 0.27
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.17	0.10
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	42.43	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	0.78	6.083	2.62	12.083	2.31	18.08	1.10
0.167	0.78	6.167	2.62	12.167	2.31	18.17	1.10
0.250	0.79	6.250	2.85	12.250	2.24	18.25	1.09
0.333	0.79	6.333	2.85	12.333	2.24	18.33	1.09
0.417	0.81	6.417	3.13	12.417	2.17	18.42	1.07
0.500	0.81	6.500	3.13	12.500	2.17	18.50	1.07
0.583	0.82	6.583	3.48	12.583	2.10	18.58	1.06
0.667	0.82	6.667	3.48	12.667	2.10	18.67	1.06
0.750	0.84	6.750	3.92	12.750	2.04	18.75	1.05
0.833	0.84	6.833	3.92	12.833	2.04	18.83	1.05
0.917	0.85	6.917	4.52	12.917	1.98	18.92	1.03
1.000	0.85	7.000	4.52	13.000	1.98	19.00	1.03
1.083	0.87	7.083	5.36	13.083	1.93	19.08	1.02
1.167	0.87	7.167	5.36	13.167	1.93	19.17	1.02
1.250	0.89	7.250	6.65	13.250	1.88	19.25	1.01
1.333	0.89	7.333	6.65	13.333	1.88	19.33	1.01
1.417	0.91	7.417	8.89	13.417	1.83	19.42	1.00
1.500	0.91	7.500	8.89	13.500	1.83	19.50	1.00
1.583	0.93	7.583	13.75	13.583	1.79	19.58	0.99
1.667	0.93	7.667	13.75	13.667	1.79	19.67	0.99
1.750	0.95	7.750	32.93	13.750	1.74	19.75	0.97
1.833	0.95	7.833	32.94	13.833	1.74	19.83	0.97
1.917	0.97	7.917	118.25	13.917	1.70	19.92	0.96
2.000	0.97	8.000	118.24	14.000	1.70	20.00	0.96
2.083	0.99	8.083	42.97	14.083	1.66	20.08	0.95
2.167	0.99	8.167	42.97	14.167	1.66	20.17	0.95
2.250	1.01	8.250	22.94	14.250	1.63	20.25	0.94
2.333	1.01	8.333	22.94	14.333	1.63	20.33	0.94
2.417	1.04	8.417	15.63	14.417	1.59	20.42	0.93
2.500	1.04	8.500	15.63	14.500	1.59	20.50	0.93
2.583	1.07	8.583	11.90	14.583	1.56	20.58	0.92
2.667	1.07	8.667	11.90	14.667	1.56	20.67	0.92
2.750	1.09	8.750	9.65	14.750	1.53	20.75	0.91
2.833	1.09	8.833	9.65	14.833	1.53	20.83	0.91
2.917	1.12	8.917	8.15	14.917	1.50	20.92	0.90
3.000	1.12	9.000	8.15	15.000	1.50	21.00	0.90
3.083	1.16	9.083	7.07	15.083	1.47	21.08	0.89
3.167	1.16	9.167	7.07	15.167	1.47	21.17	0.89
3.250	1.19	9.250	6.26	15.250	1.44	21.25	0.88
3.333	1.19	9.333	6.26	15.333	1.44	21.33	0.88
3.417	1.23	9.417	5.62	15.417	1.42	21.42	0.88
3.500	1.23	9.500	5.62	15.500	1.42	21.50	0.88
3.583	1.27	9.583	5.12	15.583	1.39	21.58	0.87
3.667	1.27	9.667	5.12	15.667	1.39	21.67	0.87
3.750	1.31	9.750	4.70	15.750	1.37	21.75	0.86
3.833	1.31	9.833	4.70	15.833	1.37	21.83	0.86
3.917	1.35	9.917	4.35	15.917	1.34	21.92	0.85
4.000	1.35	10.000	4.35	16.000	1.34	22.00	0.85
4.083	1.40	10.083	4.06	16.083	1.32	22.08	0.84
4.167	1.40	10.167	4.06	16.167	1.32	22.17	0.84
4.250	1.45	10.250	3.80	16.250	1.30	22.25	0.83
4.333	1.45	10.333	3.80	16.333	1.30	22.33	0.83
4.417	1.51	10.417	3.58	16.417	1.28	22.42	0.83
4.500	1.51	10.500	3.58	16.500	1.28	22.50	0.83
4.583	1.57	10.583	3.38	16.583	1.26	22.58	0.82
4.667	1.57	10.667	3.38	16.667	1.26	22.67	0.82
4.750	1.64	10.750	3.21	16.750	1.24	22.75	0.81
4.833	1.64	10.833	3.21	16.833	1.24	22.83	0.81
4.917	1.72	10.917	3.06	16.917	1.22	22.92	0.80
5.000	1.72	11.000	3.06	17.000	1.22	23.00	0.80
5.083	1.81	11.083	2.92	17.083	1.20	23.08	0.80
5.167	1.81	11.167	2.92	17.167	1.20	23.17	0.80
5.250	1.90	11.250	2.79	17.250	1.18	23.25	0.79
5.333	1.90	11.333	2.79	17.333	1.18	23.33	0.79
5.417	2.01	11.417	2.68	17.417	1.17	23.42	0.78
5.500	2.01	11.500	2.68	17.500	1.17	23.50	0.78
5.583	2.13	11.583	2.57	17.583	1.15	23.58	0.78
5.667	2.13	11.667	2.57	17.667	1.15	23.67	0.78
5.750	2.27	11.750	2.48	17.750	1.13	23.75	0.77
5.833	2.27	11.833	2.48	17.833	1.13	23.83	0.77
5.917	2.43	11.917	2.39	17.917	1.12	23.92	0.76
6.000	2.43	12.000	2.39	18.000	1.12	24.00	0.76

			TOTALS
Max.Eff.Inten.(mm/hr)=	118.25	68.98	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.43 (ii)	9.62 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.33	0.11	
PEAK FLOW (cms)=	0.06	0.01	0.067 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	86.10	51.66	73.68
TOTAL RAINFALL (mm)=	87.10	87.10	87.10
RUNOFF COEFFICIENT =	0.99	0.59	0.85

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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 (0014)	Area (ha)= 0.72
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.71	0.01
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	69.28	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	0.78	6.083	2.62	12.083	2.31	18.08	1.10
0.167	0.78	6.167	2.62	12.167	2.31	18.17	1.10
0.250	0.79	6.250	2.85	12.250	2.24	18.25	1.09
0.333	0.79	6.333	2.85	12.333	2.24	18.33	1.09
0.417	0.81	6.417	3.13	12.417	2.17	18.42	1.07
0.500	0.81	6.500	3.13	12.500	2.17	18.50	1.07
0.583	0.82	6.583	3.48	12.583	2.10	18.58	1.06
0.667	0.82	6.667	3.48	12.667	2.10	18.67	1.06
0.750	0.84	6.750	3.92	12.750	2.04	18.75	1.05
0.833	0.84	6.833	3.92	12.833	2.04	18.83	1.05
0.917	0.85	6.917	4.52	12.917	1.98	18.92	1.03
1.000	0.85	7.000	4.52	13.000	1.98	19.00	1.03
1.083	0.87	7.083	5.36	13.083	1.93	19.08	1.02
1.167	0.87	7.167	5.36	13.167	1.93	19.17	1.02
1.250	0.89	7.250	6.65	13.250	1.88	19.25	1.01
1.333	0.89	7.333	6.65	13.333	1.88	19.33	1.01
1.417	0.91	7.417	8.89	13.417	1.83	19.42	1.00
1.500	0.91	7.500	8.89	13.500	1.83	19.50	1.00
1.583	0.93	7.583	13.75	13.583	1.79	19.58	0.99
1.667	0.93	7.667	13.75	13.667	1.79	19.67	0.99
1.750	0.95	7.750	32.93	13.750	1.74	19.75	0.97
1.833	0.95	7.833	32.94	13.833	1.74	19.83	0.97
1.917	0.97	7.917	118.25	13.917	1.70	19.92	0.96
2.000	0.97	8.000	118.24	14.000	1.70	20.00	0.96
2.083	0.99	8.083	42.97	14.083	1.66	20.08	0.95
2.167	0.99	8.167	42.97	14.167	1.66	20.17	0.95
2.250	1.01	8.250	22.94	14.250	1.63	20.25	0.94
2.333	1.01	8.333	22.94	14.333	1.63	20.33	0.94
2.417	1.04	8.417	15.63	14.417	1.59	20.42	0.93
2.500	1.04	8.500	15.63	14.500	1.59	20.50	0.93
2.583	1.07	8.583	11.90	14.583	1.56	20.58	0.92
2.667	1.07	8.667	11.90	14.667	1.56	20.67	0.92
2.750	1.09	8.750	9.65	14.750	1.53	20.75	0.91
2.833	1.09	8.833	9.65	14.833	1.53	20.83	0.91
2.917	1.12	8.917	8.15	14.917	1.50	20.92	0.90
3.000	1.12	9.000	8.15	15.000	1.50	21.00	0.90
3.083	1.16	9.083	7.07	15.083	1.47	21.08	0.89
3.167	1.16	9.167	7.07	15.167	1.47	21.17	0.89
3.250	1.19	9.250	6.26	15.250	1.44	21.25	0.88
3.333	1.19	9.333	6.26	15.333	1.44	21.33	0.88
3.417	1.23	9.417	5.62	15.417	1.42	21.42	0.88
3.500	1.23	9.500	5.62	15.500	1.42	21.50	0.88
3.583	1.27	9.583	5.12	15.583	1.39	21.58	0.87
3.667	1.27	9.667	5.12	15.667	1.39	21.67	0.87
3.750	1.31	9.750	4.70	15.750	1.37	21.75	0.86
3.833	1.31	9.833	4.70	15.833	1.37	21.83	0.86

3.917	1.35	9.917	4.35	15.917	1.34	21.92	0.85
4.000	1.35	10.000	4.35	16.000	1.34	22.00	0.85
4.083	1.40	10.083	4.06	16.083	1.32	22.08	0.84
4.167	1.40	10.167	4.06	16.167	1.32	22.17	0.84
4.250	1.45	10.250	3.80	16.250	1.30	22.25	0.83
4.333	1.45	10.333	3.80	16.333	1.30	22.33	0.83
4.417	1.51	10.417	3.58	16.417	1.28	22.42	0.83
4.500	1.51	10.500	3.58	16.500	1.28	22.50	0.83
4.583	1.57	10.583	3.38	16.583	1.26	22.58	0.82
4.667	1.57	10.667	3.38	16.667	1.26	22.67	0.82
4.750	1.64	10.750	3.21	16.750	1.24	22.75	0.81
4.833	1.64	10.833	3.21	16.833	1.24	22.83	0.81
4.917	1.72	10.917	3.06	16.917	1.22	22.92	0.80
5.000	1.72	11.000	3.06	17.000	1.22	23.00	0.80
5.083	1.81	11.083	2.92	17.083	1.20	23.08	0.80
5.167	1.81	11.167	2.92	17.167	1.20	23.17	0.80
5.250	1.90	11.250	2.79	17.250	1.18	23.25	0.79
5.333	1.90	11.333	2.79	17.333	1.18	23.33	0.79
5.417	2.01	11.417	2.68	17.417	1.17	23.42	0.78
5.500	2.01	11.500	2.68	17.500	1.17	23.50	0.78
5.583	2.13	11.583	2.57	17.583	1.15	23.58	0.78
5.667	2.13	11.667	2.57	17.667	1.15	23.67	0.78
5.750	2.27	11.750	2.48	17.750	1.13	23.75	0.77
5.833	2.27	11.833	2.48	17.833	1.13	23.83	0.77
5.917	2.43	11.917	2.39	17.917	1.12	23.92	0.76
6.000	2.43	12.000	2.39	18.000	1.12	24.00	0.76

Max.Eff.Inten.(mm/hr)=	118.25	68.98	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.92 (ii)	2.97 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.31	0.28	
			TOTALS
PEAK FLOW (cms)=	0.23	0.00	0.235 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	86.10	51.66	85.76
TOTAL RAINFALL (mm)=	87.10	87.10	87.10
RUNOFF COEFFICIENT =	0.99	0.59	0.98

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0020)|	OVERFLOW IS OFF

IN= 2---> OUT= 1			
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0190	0.0255
	0.0000	0.0025	0.0200	0.0280
	0.0080	0.0051	0.0210	0.0306
	0.0100	0.0076	0.0220	0.0331
	0.0120	0.0102	0.0230	0.0357
	0.0140	0.0127	0.0240	0.0382
	0.0150	0.0153	0.0250	0.0407
	0.0160	0.0178	0.0250	0.0433
	0.0170	0.0204	0.0260	0.0455
	0.0180	0.0229	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0014)	0.720	0.235	8.00	85.76
OUTFLOW: ID= 1 (0020)	0.720	0.021	8.75	82.12

PEAK FLOW REDUCTION [Qout/Qin](%)= 8.79
TIME SHIFT OF PEAK FLOW (min)= 45.00
MAXIMUM STORAGE USED (ha.m.)= 0.0296

CALIB		
STANDHYD (0016)|	Area (ha)=	0.77
ID= 1 DT= 5.0 min |	Total Imp(%)=	99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.76	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	71.65	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	0.78	6.083	2.62	12.083	2.31	18.08	1.10
0.167	0.78	6.167	2.62	12.167	2.31	18.17	1.10
0.250	0.79	6.250	2.85	12.250	2.24	18.25	1.09
0.333	0.79	6.333	2.85	12.333	2.24	18.33	1.09
0.417	0.81	6.417	3.13	12.417	2.17	18.42	1.07
0.500	0.81	6.500	3.13	12.500	2.17	18.50	1.07
0.583	0.82	6.583	3.48	12.583	2.10	18.58	1.06
0.667	0.82	6.667	3.48	12.667	2.10	18.67	1.06
0.750	0.84	6.750	3.92	12.750	2.04	18.75	1.05
0.833	0.84	6.833	3.92	12.833	2.04	18.83	1.05
0.917	0.85	6.917	4.52	12.917	1.98	18.92	1.03
1.000	0.85	7.000	4.52	13.000	1.98	19.00	1.03
1.083	0.87	7.083	5.36	13.083	1.93	19.08	1.02
1.167	0.87	7.167	5.36	13.167	1.93	19.17	1.02
1.250	0.89	7.250	6.65	13.250	1.88	19.25	1.01
1.333	0.89	7.333	6.65	13.333	1.88	19.33	1.01
1.417	0.91	7.417	8.89	13.417	1.83	19.42	1.00
1.500	0.91	7.500	8.89	13.500	1.83	19.50	1.00
1.583	0.93	7.583	13.75	13.583	1.79	19.58	0.99
1.667	0.93	7.667	13.75	13.667	1.79	19.67	0.99
1.750	0.95	7.750	32.93	13.750	1.74	19.75	0.97
1.833	0.95	7.833	32.94	13.833	1.74	19.83	0.97
1.917	0.97	7.917	118.25	13.917	1.70	19.92	0.96
2.000	0.97	8.000	118.24	14.000	1.70	20.00	0.96
2.083	0.99	8.083	42.97	14.083	1.66	20.08	0.95
2.167	0.99	8.167	42.97	14.167	1.66	20.17	0.95
2.250	1.01	8.250	22.94	14.250	1.63	20.25	0.94
2.333	1.01	8.333	22.94	14.333	1.63	20.33	0.94
2.417	1.04	8.417	15.63	14.417	1.59	20.42	0.93
2.500	1.04	8.500	15.63	14.500	1.59	20.50	0.93
2.583	1.07	8.583	11.90	14.583	1.56	20.58	0.92
2.667	1.07	8.667	11.90	14.667	1.56	20.67	0.92
2.750	1.09	8.750	9.65	14.750	1.53	20.75	0.91
2.833	1.09	8.833	9.65	14.833	1.53	20.83	0.91
2.917	1.12	8.917	8.15	14.917	1.50	20.92	0.90
3.000	1.12	9.000	8.15	15.000	1.50	21.00	0.90
3.083	1.16	9.083	7.07	15.083	1.47	21.08	0.89
3.167	1.16	9.167	7.07	15.167	1.47	21.17	0.89
3.250	1.19	9.250	6.26	15.250	1.44	21.25	0.88
3.333	1.19	9.333	6.26	15.333	1.44	21.33	0.88
3.417	1.23	9.417	5.62	15.417	1.42	21.42	0.88
3.500	1.23	9.500	5.62	15.500	1.42	21.50	0.88
3.583	1.27	9.583	5.12	15.583	1.39	21.58	0.87
3.667	1.27	9.667	5.12	15.667	1.39	21.67	0.87
3.750	1.31	9.750	4.70	15.750	1.37	21.75	0.86
3.833	1.31	9.833	4.70	15.833	1.37	21.83	0.86
3.917	1.35	9.917	4.35	15.917	1.34	21.92	0.85
4.000	1.35	10.000	4.35	16.000	1.34	22.00	0.85
4.083	1.40	10.083	4.06	16.083	1.32	22.08	0.84
4.167	1.40	10.167	4.06	16.167	1.32	22.17	0.84
4.250	1.45	10.250	3.80	16.250	1.30	22.25	0.83
4.333	1.45	10.333	3.80	16.333	1.30	22.33	0.83
4.417	1.51	10.417	3.58	16.417	1.28	22.42	0.83
4.500	1.51	10.500	3.58	16.500	1.28	22.50	0.83
4.583	1.57	10.583	3.38	16.583	1.26	22.58	0.82
4.667	1.57	10.667	3.38	16.667	1.26	22.67	0.82
4.750	1.64	10.750	3.21	16.750	1.24	22.75	0.81
4.833	1.64	10.833	3.21	16.833	1.24	22.83	0.81
4.917	1.72	10.917	3.06	16.917	1.22	22.92	0.80
5.000	1.72	11.000	3.06	17.000	1.22	23.00	0.80
5.083	1.81	11.083	2.92	17.083	1.20	23.08	0.80
5.167	1.81	11.167	2.92	17.167	1.20	23.17	0.80
5.250	1.90	11.250	2.79	17.250	1.18	23.25	0.79
5.333	1.90	11.333	2.79	17.333	1.18	23.33	0.79
5.417	2.01	11.417	2.68	17.417	1.17	23.42	0.78
5.500	2.01	11.500	2.68	17.500	1.17	23.50	0.78
5.583	2.13	11.583	2.57	17.583	1.15	23.58	0.78
5.667	2.13	11.667	2.57	17.667	1.15	23.67	0.78
5.750	2.27	11.750	2.48	17.750	1.13	23.75	0.77
5.833	2.27	11.833	2.48	17.833	1.13	23.83	0.77
5.917	2.43	11.917	2.39	17.917	1.12	23.92	0.76
6.000	2.43	12.000	2.39	18.000	1.12	24.00	0.76

Max.Eff.Inten.(mm/hr)=	118.25	68.98	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.96 (ii)	3.01 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.31	0.28	
			TOTALS
PEAK FLOW (cms)=	0.25	0.00	0.251 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	86.10	51.66	85.76
TOTAL RAINFALL (mm)=	87.10	87.10	87.10
RUNOFF COEFFICIENT =	0.99	0.59	0.98

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0017)|	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	0.0190	0.0279
	0.0000	0.0028	0.0200	0.0307
	0.0080	0.0056	0.0210	0.0334
	0.0100	0.0084	0.0220	0.0362
	0.0120	0.0111	0.0230	0.0390
	0.0140	0.0139	0.0240	0.0418
	0.0150	0.0167	0.0250	0.0446
	0.0160	0.0195	0.0250	0.0474
	0.0170	0.0223	0.0260	0.0498

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                        0.0180      0.0251   |    0.0000      0.0000

                             AREA     QPEAK     TPEAK       R.V.
                             (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0016)      0.770      0.251      8.00      85.76
   OUTFLOW: ID= 1 (  0017)      0.770      0.021      8.83      82.03

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  8.22
                    TIME SHIFT OF PEAK FLOW         (min)= 50.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.0324

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| CALIB            |
| STANDHYD (  0021)|   Area    (ha)=   0.44
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
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                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.44         0.00
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      54.16        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    0.78 | 6.083    2.62 |12.083    2.31 | 18.08    1.10
               0.167    0.78 | 6.167    2.62 |12.167    2.31 | 18.17    1.10
               0.250    0.79 | 6.250    2.85 |12.250    2.24 | 18.25    1.09
               0.333    0.79 | 6.333    2.85 |12.333    2.24 | 18.33    1.09
               0.417    0.81 | 6.417    3.13 |12.417    2.17 | 18.42    1.07
               0.500    0.81 | 6.500    3.13 |12.500    2.17 | 18.50    1.07
               0.583    0.82 | 6.583    3.48 |12.583    2.10 | 18.58    1.06
               0.667    0.82 | 6.667    3.48 |12.667    2.10 | 18.67    1.06
               0.750    0.84 | 6.750    3.92 |12.750    2.04 | 18.75    1.05
               0.833    0.84 | 6.833    3.92 |12.833    2.04 | 18.83    1.05
               0.917    0.85 | 6.917    4.52 |12.917    1.98 | 18.92    1.03
               1.000    0.85 | 7.000    4.52 |13.000    1.98 | 19.00    1.03
               1.083    0.87 | 7.083    5.36 |13.083    1.93 | 19.08    1.02
               1.167    0.87 | 7.167    5.36 |13.167    1.93 | 19.17    1.02
               1.250    0.89 | 7.250    6.65 |13.250    1.88 | 19.25    1.01
               1.333    0.89 | 7.333    6.65 |13.333    1.88 | 19.33    1.01
               1.417    0.91 | 7.417    8.89 |13.417    1.83 | 19.42    1.00
               1.500    0.91 | 7.500    8.89 |13.500    1.83 | 19.50    1.00
               1.583    0.93 | 7.583   13.75 |13.583    1.79 | 19.58    0.99
               1.667    0.93 | 7.667   13.75 |13.667    1.79 | 19.67    0.99
               1.750    0.95 | 7.750   32.93 |13.750    1.74 | 19.75    0.97
               1.833    0.95 | 7.833   32.94 |13.833    1.74 | 19.83    0.97
               1.917    0.97 | 7.917  118.25 |13.917    1.70 | 19.92    0.96
               2.000    0.97 | 8.000  118.24 |14.000    1.70 | 20.00    0.96
               2.083    0.99 | 8.083   42.97 |14.083    1.66 | 20.08    0.95
               2.167    0.99 | 8.167   42.97 |14.167    1.66 | 20.17    0.95
               2.250    1.01 | 8.250   22.94 |14.250    1.63 | 20.25    0.94
               2.333    1.01 | 8.333   22.94 |14.333    1.63 | 20.33    0.94
               2.417    1.04 | 8.417   15.63 |14.417    1.59 | 20.42    0.93
               2.500    1.04 | 8.500   15.63 |14.500    1.59 | 20.50    0.93
               2.583    1.07 | 8.583   11.90 |14.583    1.56 | 20.58    0.92
               2.667    1.07 | 8.667   11.90 |14.667    1.56 | 20.67    0.92
               2.750    1.09 | 8.750    9.65 |14.750    1.53 | 20.75    0.91
               2.833    1.09 | 8.833    9.65 |14.833    1.53 | 20.83    0.91
               2.917    1.12 | 8.917    8.15 |14.917    1.50 | 20.92    0.90
               3.000    1.12 | 9.000    8.15 |15.000    1.50 | 21.00    0.90
               3.083    1.16 | 9.083    7.07 |15.083    1.47 | 21.08    0.89
               3.167    1.16 | 9.167    7.07 |15.167    1.47 | 21.17    0.89
               3.250    1.19 | 9.250    6.26 |15.250    1.44 | 21.25    0.88
               3.333    1.19 | 9.333    6.26 |15.333    1.44 | 21.33    0.88
               3.417    1.23 | 9.417    5.62 |15.417    1.42 | 21.42    0.88
               3.500    1.23 | 9.500    5.62 |15.500    1.42 | 21.50    0.88
               3.583    1.27 | 9.583    5.12 |15.583    1.39 | 21.58    0.87
               3.667    1.27 | 9.667    5.12 |15.667    1.39 | 21.67    0.87
               3.750    1.31 | 9.750    4.70 |15.750    1.37 | 21.75    0.86
               3.833    1.31 | 9.833    4.70 |15.833    1.37 | 21.83    0.86
               3.917    1.35 | 9.917    4.35 |15.917    1.34 | 21.92    0.85
               4.000    1.35 |10.000    4.35 |16.000    1.34 | 22.00    0.85
               4.083    1.40 |10.083    4.06 |16.083    1.32 | 22.08    0.84
               4.167    1.40 |10.167    4.06 |16.167    1.32 | 22.17    0.84
               4.250    1.45 |10.250    3.80 |16.250    1.30 | 22.25    0.83
               4.333    1.45 |10.333    3.80 |16.333    1.30 | 22.33    0.83
               4.417    1.51 |10.417    3.58 |16.417    1.28 | 22.42    0.83
               4.500    1.51 |10.500    3.58 |16.500    1.28 | 22.50    0.83
               4.583    1.57 |10.583    3.38 |16.583    1.26 | 22.58    0.82
               4.667    1.57 |10.667    3.38 |16.667    1.26 | 22.67    0.82
               4.750    1.64 |10.750    3.21 |16.750    1.24 | 22.75    0.81
               4.833    1.64 |10.833    3.21 |16.833    1.24 | 22.83    0.81
               4.917    1.72 |10.917    3.06 |16.917    1.22 | 22.92    0.80
               5.000    1.72 |11.000    3.06 |17.000    1.22 | 23.00    0.80
               5.083    1.81 |11.083    2.92 |17.083    1.20 | 23.08    0.80
               5.167    1.81 |11.167    2.92 |17.167    1.20 | 23.17    0.80
               5.250    1.90 |11.250    2.79 |17.250    1.18 | 23.25    0.79
               5.333    1.90 |11.333    2.79 |17.333    1.18 | 23.33    0.79
               5.417    2.01 |11.417    2.68 |17.417    1.17 | 23.42    0.78
               5.500    2.01 |11.500    2.68 |17.500    1.17 | 23.50    0.78
               5.583    2.13 |11.583    2.57 |17.583    1.15 | 23.58    0.78
               5.667    2.13 |11.667    2.57 |17.667    1.15 | 23.67    0.78
               5.750    2.27 |11.750    2.48 |17.750    1.13 | 23.75    0.77
               5.833    2.27 |11.833    2.48 |17.833    1.13 | 23.83    0.77
               5.917    2.43 |11.917    2.39 |17.917    1.12 | 23.92    0.76
               6.000    2.43 |12.000    2.39 |18.000    1.12 | 24.00    0.76

     Max.Eff.Inten.(mm/hr)=     118.25        68.98
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.65 (ii)    2.70 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.29
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.14         0.00          0.144 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.00          8.00
     RUNOFF VOLUME    (mm)=      86.10        51.66         85.76
     TOTAL RAINFALL   (mm)=      87.10        87.10         87.10
     RUNOFF COEFFICIENT   =       0.99         0.59          0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  84.0    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  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):     0.27   0.067     8.00    73.68
     + ID2= 2 (  0017):     0.77   0.021     8.83    82.03
       ================================================
       ID = 3 (  0022):     1.04   0.084     8.00    79.86

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):     1.04   0.084     8.00    79.86
     + ID2= 2 (  0019):     0.80   0.020     8.83    78.31
       ================================================
       ID = 1 (  0022):     1.84   0.100     8.00    79.19

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0022):     1.84   0.100     8.00    79.19
     + ID2= 2 (  0020):     0.72   0.021     8.75    82.12
       ================================================
       ID = 3 (  0022):     2.56   0.117     8.00    80.01

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):     2.56   0.117     8.00    80.01
     + ID2= 2 (  0021):     0.44   0.144     8.00    85.76
       ================================================
       ID = 1 (  0022):     3.00   0.260     8.00    80.86

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0022):     3.00   0.260     8.00    80.86
     + ID2= 2 (  0036):     0.14   0.017     8.08    51.42
       ================================================
       ID = 3 (  0022):     3.14   0.275     8.00    79.54

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):     3.14   0.275     8.00    79.54
     + ID2= 2 (  0039):     0.05   0.006     8.08    51.42
       ================================================
       ID = 1 (  0022):     3.19   0.280     8.00    79.10

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     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   |    0.1440      0.0413
                          0.0980      0.0206   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0022)      3.190      0.280      8.00      79.10
   OUTFLOW: ID= 1 (  0002)      3.190      0.110      8.42      79.09

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 39.33
                    TIME SHIFT OF PEAK FLOW         (min)= 25.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.0263

------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0035)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0002):     3.19   0.110     8.42    79.09
     + ID2= 2 (  0030):     0.59   0.081     8.00    58.59
       ==================================================
       ID = 3 (  0035):     3.78   0.172     8.17    75.89

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
================================================================================
========================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2016)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
```

```
C:\Users\schhom\AppData\Local\Civica\VH5\c4784722-8666-4e89-8a43-7d10dc9357ef\2e61
f049-4374-4e66-984f-c029384a4582\scena
  Summary filename:
C:\Users\schhom\AppData\Local\Civica\VH5\c4784722-8666-4e89-8a43-7d10dc9357ef\2e61
f049-4374-4e66-984f-c029384a4582\scena


DATE: 10-15-2024                          TIME: 11:03:45

USER:


COMMENTS: _____

--------------------------------------------------------------------------------
------------------------
  ************************************************
  ** SIMULATION : 25mm                          **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\schhom\AppD
|                  |              ata\Local\Temp\
|                  |              e961c6e4-ab79-4906-8111-09011bd8104d\44e9be46
| Ptotal= 25.00 mm |    Comments: 25MM24HRC_60min Edited 2012
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.35 |  6.00    0.95 | 12.00    0.87 | 18.00    0.47
                1.00    0.38 |  7.00    1.80 | 13.00    0.74 | 19.00    0.44
                2.00    0.42 |  8.00    8.37 | 14.00    0.66 | 20.00    0.41
                3.00    0.48 |  9.00    2.23 | 15.00    0.59 | 21.00    0.39
                4.00    0.56 | 10.00    1.38 | 16.00    0.54 | 22.00    0.37
                5.00    0.70 | 11.00    1.05 | 17.00    0.50 | 23.00    0.36

--------------------------------------------------------------------------------

--------------------
| CALIB            |
| NASHYD   (  0026)|   Area    (ha)=   0.28   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.22

        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    0.35 | 6.083    0.95 |12.083    0.87 | 18.08    0.47
                0.167    0.35 | 6.167    0.95 |12.167    0.87 | 18.17    0.47
                0.250    0.35 | 6.250    0.95 |12.250    0.87 | 18.25    0.47
                0.333    0.35 | 6.333    0.95 |12.333    0.87 | 18.33    0.47
                0.417    0.35 | 6.417    0.95 |12.417    0.87 | 18.42    0.47
                0.500    0.35 | 6.500    0.95 |12.500    0.87 | 18.50    0.47
                0.583    0.35 | 6.583    0.95 |12.583    0.87 | 18.58    0.47
                0.667    0.35 | 6.667    0.95 |12.667    0.87 | 18.67    0.47
                0.750    0.35 | 6.750    0.95 |12.750    0.87 | 18.75    0.47
                0.833    0.35 | 6.833    0.95 |12.833    0.87 | 18.83    0.47
                0.917    0.35 | 6.917    0.95 |12.917    0.87 | 18.92    0.47
                1.000    0.35 | 7.000    0.95 |13.000    0.87 | 19.00    0.47
                1.083    0.38 | 7.083    1.80 |13.083    0.74 | 19.08    0.44
                1.167    0.38 | 7.167    1.80 |13.167    0.74 | 19.17    0.44
                1.250    0.38 | 7.250    1.80 |13.250    0.74 | 19.25    0.44
                1.333    0.38 | 7.333    1.80 |13.333    0.74 | 19.33    0.44
                1.417    0.38 | 7.417    1.80 |13.417    0.74 | 19.42    0.44
                1.500    0.38 | 7.500    1.80 |13.500    0.74 | 19.50    0.44
                1.583    0.38 | 7.583    1.80 |13.583    0.74 | 19.58    0.44
                1.667    0.38 | 7.667    1.80 |13.667    0.74 | 19.67    0.44
                1.750    0.38 | 7.750    1.80 |13.750    0.74 | 19.75    0.44
                1.833    0.38 | 7.833    1.80 |13.833    0.74 | 19.83    0.44
                1.917    0.38 | 7.917    1.80 |13.917    0.74 | 19.92    0.44
                2.000    0.38 | 8.000    1.80 |14.000    0.74 | 20.00    0.44
                2.083    0.42 | 8.083    8.37 |14.083    0.66 | 20.08    0.41
                2.167    0.42 | 8.167    8.37 |14.167    0.66 | 20.17    0.41
                2.250    0.42 | 8.250    8.37 |14.250    0.66 | 20.25    0.41
                2.333    0.42 | 8.333    8.37 |14.333    0.66 | 20.33    0.41
                2.417    0.42 | 8.417    8.37 |14.417    0.66 | 20.42    0.41
                2.500    0.42 | 8.500    8.37 |14.500    0.66 | 20.50    0.41
                2.583    0.42 | 8.583    8.37 |14.583    0.66 | 20.58    0.41
                2.667    0.42 | 8.667    8.37 |14.667    0.66 | 20.67    0.41
                2.750    0.42 | 8.750    8.37 |14.750    0.66 | 20.75    0.41
                2.833    0.42 | 8.833    8.37 |14.833    0.66 | 20.83    0.41
                2.917    0.42 | 8.917    8.37 |14.917    0.66 | 20.92    0.41
                3.000    0.42 | 9.000    8.37 |15.000    0.66 | 21.00    0.41
                3.083    0.48 | 9.083    2.23 |15.083    0.59 | 21.08    0.39
                3.167    0.48 | 9.167    2.23 |15.167    0.59 | 21.17    0.39
                3.250    0.48 | 9.250    2.23 |15.250    0.59 | 21.25    0.39
                3.333    0.48 | 9.333    2.23 |15.333    0.59 | 21.33    0.39
                3.417    0.48 | 9.417    2.23 |15.417    0.59 | 21.42    0.39
                3.500    0.48 | 9.500    2.23 |15.500    0.59 | 21.50    0.39
                3.583    0.48 | 9.583    2.23 |15.583    0.59 | 21.58    0.39
                3.667    0.48 | 9.667    2.23 |15.667    0.59 | 21.67    0.39
                3.750    0.48 | 9.750    2.23 |15.750    0.59 | 21.75    0.39
                3.833    0.48 | 9.833    2.23 |15.833    0.59 | 21.83    0.39
                3.917    0.48 | 9.917    2.23 |15.917    0.59 | 21.92    0.39
                4.000    0.48 |10.000    2.23 |16.000    0.59 | 22.00    0.39
                4.083    0.56 |10.083    1.38 |16.083    0.54 | 22.08    0.37
                4.167    0.56 |10.167    1.38 |16.167    0.54 | 22.17    0.37
                4.250    0.56 |10.250    1.38 |16.250    0.54 | 22.25    0.37
                4.333    0.56 |10.333    1.38 |16.333    0.54 | 22.33    0.37
                4.417    0.56 |10.417    1.38 |16.417    0.54 | 22.42    0.37
                4.500    0.56 |10.500    1.38 |16.500    0.54 | 22.50    0.37
                4.583    0.56 |10.583    1.38 |16.583    0.54 | 22.58    0.37
                4.667    0.56 |10.667    1.38 |16.667    0.54 | 22.67    0.37
                4.750    0.56 |10.750    1.38 |16.750    0.54 | 22.75    0.37
                4.833    0.56 |10.833    1.38 |16.833    0.54 | 22.83    0.37
                4.917    0.56 |10.917    1.38 |16.917    0.54 | 22.92    0.37
                5.000    0.56 |11.000    1.38 |17.000    0.54 | 23.00    0.37
                5.083    0.70 |11.083    1.05 |17.083    0.50 | 23.08    0.36
                5.167    0.70 |11.167    1.05 |17.167    0.50 | 23.17    0.36
                5.250    0.70 |11.250    1.05 |17.250    0.50 | 23.25    0.36
                5.333    0.70 |11.333    1.05 |17.333    0.50 | 23.33    0.36
                5.417    0.70 |11.417    1.05 |17.417    0.50 | 23.42    0.36
                5.500    0.70 |11.500    1.05 |17.500    0.50 | 23.50    0.36
                5.583    0.70 |11.583    1.05 |17.583    0.50 | 23.58    0.36
                5.667    0.70 |11.667    1.05 |17.667    0.50 | 23.67    0.36
                5.750    0.70 |11.750    1.05 |17.750    0.50 | 23.75    0.36
                5.833    0.70 |11.833    1.05 |17.833    0.50 | 23.83    0.36
                5.917    0.70 |11.917    1.05 |17.917    0.50 | 23.92    0.36
                6.000    0.70 |12.000    1.05 |18.000    0.50 | 24.00    0.36

     Unit Hyd Qpeak  (cms)=   0.049

     PEAK FLOW       (cms)=   0.001 (i)
     TIME TO PEAK    (hrs)=   9.000
     RUNOFF VOLUME    (mm)=   5.838
     TOTAL RAINFALL   (mm)=  24.996
     RUNOFF COEFFICIENT   =   0.234

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0029)|   Area    (ha)=   0.18   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.17

        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    0.35 | 6.083    0.95 |12.083    0.87 | 18.08    0.47
                0.167    0.35 | 6.167    0.95 |12.167    0.87 | 18.17    0.47
```

0.250	0.35	6.250	0.95	12.250	0.87	18.25	0.47
0.333	0.35	6.333	0.95	12.333	0.87	18.33	0.47
0.417	0.35	6.417	0.95	12.417	0.87	18.42	0.47
0.500	0.35	6.500	0.95	12.500	0.87	18.50	0.47
0.583	0.35	6.583	0.95	12.583	0.87	18.58	0.47
0.667	0.35	6.667	0.95	12.667	0.87	18.67	0.47
0.750	0.35	6.750	0.95	12.750	0.87	18.75	0.47
0.833	0.35	6.833	0.95	12.833	0.87	18.83	0.47
0.917	0.35	6.917	0.95	12.917	0.87	18.92	0.47
1.000	0.35	7.000	0.95	13.000	0.87	19.00	0.47
1.083	0.38	7.083	1.80	13.083	0.74	19.08	0.44
1.167	0.38	7.167	1.80	13.167	0.74	19.17	0.44
1.250	0.38	7.250	1.80	13.250	0.74	19.25	0.44
1.333	0.38	7.333	1.80	13.333	0.74	19.33	0.44
1.417	0.38	7.417	1.80	13.417	0.74	19.42	0.44
1.500	0.38	7.500	1.80	13.500	0.74	19.50	0.44
1.583	0.38	7.583	1.80	13.583	0.74	19.58	0.44
1.667	0.38	7.667	1.80	13.667	0.74	19.67	0.44
1.750	0.38	7.750	1.80	13.750	0.74	19.75	0.44
1.833	0.38	7.833	1.80	13.833	0.74	19.83	0.44
1.917	0.38	7.917	1.80	13.917	0.74	19.92	0.44
2.000	0.38	8.000	1.80	14.000	0.74	20.00	0.44
2.083	0.42	8.083	8.37	14.083	0.66	20.08	0.41
2.167	0.42	8.167	8.37	14.167	0.66	20.17	0.41
2.250	0.42	8.250	8.37	14.250	0.66	20.25	0.41
2.333	0.42	8.333	8.37	14.333	0.66	20.33	0.41
2.417	0.42	8.417	8.37	14.417	0.66	20.42	0.41
2.500	0.42	8.500	8.37	14.500	0.66	20.50	0.41
2.583	0.42	8.583	8.37	14.583	0.66	20.58	0.41
2.667	0.42	8.667	8.37	14.667	0.66	20.67	0.41
2.750	0.42	8.750	8.37	14.750	0.66	20.75	0.41
2.833	0.42	8.833	8.37	14.833	0.66	20.83	0.41
2.917	0.42	8.917	8.37	14.917	0.66	20.92	0.41
3.000	0.42	9.000	8.37	15.000	0.66	21.00	0.41
3.083	0.48	9.083	2.23	15.083	0.59	21.08	0.39
3.167	0.48	9.167	2.23	15.167	0.59	21.17	0.39
3.250	0.48	9.250	2.23	15.250	0.59	21.25	0.39
3.333	0.48	9.333	2.23	15.333	0.59	21.33	0.39
3.417	0.48	9.417	2.23	15.417	0.59	21.42	0.39
3.500	0.48	9.500	2.23	15.500	0.59	21.50	0.39
3.583	0.48	9.583	2.23	15.583	0.59	21.58	0.39
3.667	0.48	9.667	2.23	15.667	0.59	21.67	0.39
3.750	0.48	9.750	2.23	15.750	0.59	21.75	0.39
3.833	0.48	9.833	2.23	15.833	0.59	21.83	0.39
3.917	0.48	9.917	2.23	15.917	0.59	21.92	0.39
4.000	0.48	10.000	2.23	16.000	0.59	22.00	0.39
4.083	0.56	10.083	1.38	16.083	0.54	22.08	0.37
4.167	0.56	10.167	1.38	16.167	0.54	22.17	0.37
4.250	0.56	10.250	1.38	16.250	0.54	22.25	0.37
4.333	0.56	10.333	1.38	16.333	0.54	22.33	0.37
4.417	0.56	10.417	1.38	16.417	0.54	22.42	0.37
4.500	0.56	10.500	1.38	16.500	0.54	22.50	0.37
4.583	0.56	10.583	1.38	16.583	0.54	22.58	0.37
4.667	0.56	10.667	1.38	16.667	0.54	22.67	0.37
4.750	0.56	10.750	1.38	16.750	0.54	22.75	0.37
4.833	0.56	10.833	1.38	16.833	0.54	22.83	0.37
4.917	0.56	10.917	1.38	16.917	0.54	22.92	0.37
5.000	0.56	11.000	1.38	17.000	0.54	23.00	0.37
5.083	0.70	11.083	1.05	17.083	0.50	23.08	0.36
5.167	0.70	11.167	1.05	17.167	0.50	23.17	0.36
5.250	0.70	11.250	1.05	17.250	0.50	23.25	0.36
5.333	0.70	11.333	1.05	17.333	0.50	23.33	0.36
5.417	0.70	11.417	1.05	17.417	0.50	23.42	0.36
5.500	0.70	11.500	1.05	17.500	0.50	23.50	0.36
5.583	0.70	11.583	1.05	17.583	0.50	23.58	0.36
5.667	0.70	11.667	1.05	17.667	0.50	23.67	0.36
5.750	0.70	11.750	1.05	17.750	0.50	23.75	0.36
5.833	0.70	11.833	1.05	17.833	0.50	23.83	0.36
5.917	0.70	11.917	1.05	17.917	0.50	23.92	0.36
6.000	0.70	12.000	1.05	18.000	0.50	24.00	0.36

Unit Hyd Qpeak (cms)= 0.040

PEAK FLOW (cms)= 0.001 (i)
TIME TO PEAK (hrs)= 9.000
RUNOFF VOLUME (mm)= 5.824
TOTAL RAINFALL (mm)= 24.996
RUNOFF COEFFICIENT = 0.233

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

CALIB			
STANDHYD (0028)	Area (ha)=	0.08	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.00
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	23.09	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	0.35	6.083	0.95	12.083	0.87	18.08	0.47
0.167	0.35	6.167	0.95	12.167	0.87	18.17	0.47
0.250	0.35	6.250	0.95	12.250	0.87	18.25	0.47
0.333	0.35	6.333	0.95	12.333	0.87	18.33	0.47
0.417	0.35	6.417	0.95	12.417	0.87	18.42	0.47
0.500	0.35	6.500	0.95	12.500	0.87	18.50	0.47
0.583	0.35	6.583	0.95	12.583	0.87	18.58	0.47
0.667	0.35	6.667	0.95	12.667	0.87	18.67	0.47
0.750	0.35	6.750	0.95	12.750	0.87	18.75	0.47
0.833	0.35	6.833	0.95	12.833	0.87	18.83	0.47
0.917	0.35	6.917	0.95	12.917	0.87	18.92	0.47
1.000	0.35	7.000	0.95	13.000	0.87	19.00	0.47
1.083	0.38	7.083	1.80	13.083	0.74	19.08	0.44
1.167	0.38	7.167	1.80	13.167	0.74	19.17	0.44
1.250	0.38	7.250	1.80	13.250	0.74	19.25	0.44
1.333	0.38	7.333	1.80	13.333	0.74	19.33	0.44
1.417	0.38	7.417	1.80	13.417	0.74	19.42	0.44
1.500	0.38	7.500	1.80	13.500	0.74	19.50	0.44
1.583	0.38	7.583	1.80	13.583	0.74	19.58	0.44
1.667	0.38	7.667	1.80	13.667	0.74	19.67	0.44
1.750	0.38	7.750	1.80	13.750	0.74	19.75	0.44
1.833	0.38	7.833	1.80	13.833	0.74	19.83	0.44
1.917	0.38	7.917	1.80	13.917	0.74	19.92	0.44
2.000	0.38	8.000	1.80	14.000	0.74	20.00	0.44
2.083	0.42	8.083	8.37	14.083	0.66	20.08	0.41
2.167	0.42	8.167	8.37	14.167	0.66	20.17	0.41
2.250	0.42	8.250	8.37	14.250	0.66	20.25	0.41
2.333	0.42	8.333	8.37	14.333	0.66	20.33	0.41
2.417	0.42	8.417	8.37	14.417	0.66	20.42	0.41
2.500	0.42	8.500	8.37	14.500	0.66	20.50	0.41
2.583	0.42	8.583	8.37	14.583	0.66	20.58	0.41
2.667	0.42	8.667	8.37	14.667	0.66	20.67	0.41
2.750	0.42	8.750	8.37	14.750	0.66	20.75	0.41
2.833	0.42	8.833	8.37	14.833	0.66	20.83	0.41
2.917	0.42	8.917	8.37	14.917	0.66	20.92	0.41
3.000	0.42	9.000	8.37	15.000	0.66	21.00	0.41
3.083	0.48	9.083	2.23	15.083	0.59	21.08	0.39
3.167	0.48	9.167	2.23	15.167	0.59	21.17	0.39
3.250	0.48	9.250	2.23	15.250	0.59	21.25	0.39
3.333	0.48	9.333	2.23	15.333	0.59	21.33	0.39
3.417	0.48	9.417	2.23	15.417	0.59	21.42	0.39
3.500	0.48	9.500	2.23	15.500	0.59	21.50	0.39
3.583	0.48	9.583	2.23	15.583	0.59	21.58	0.39
3.667	0.48	9.667	2.23	15.667	0.59	21.67	0.39
3.750	0.48	9.750	2.23	15.750	0.59	21.75	0.39
3.833	0.48	9.833	2.23	15.833	0.59	21.83	0.39
3.917	0.48	9.917	2.23	15.917	0.59	21.92	0.39
4.000	0.48	10.000	2.23	16.000	0.59	22.00	0.39
4.083	0.56	10.083	1.38	16.083	0.54	22.08	0.37
4.167	0.56	10.167	1.38	16.167	0.54	22.17	0.37
4.250	0.56	10.250	1.38	16.250	0.54	22.25	0.37
4.333	0.56	10.333	1.38	16.333	0.54	22.33	0.37
4.417	0.56	10.417	1.38	16.417	0.54	22.42	0.37
4.500	0.56	10.500	1.38	16.500	0.54	22.50	0.37
4.583	0.56	10.583	1.38	16.583	0.54	22.58	0.37
4.667	0.56	10.667	1.38	16.667	0.54	22.67	0.37
4.750	0.56	10.750	1.38	16.750	0.54	22.75	0.37
4.833	0.56	10.833	1.38	16.833	0.54	22.83	0.37
4.917	0.56	10.917	1.38	16.917	0.54	22.92	0.37
5.000	0.56	11.000	1.38	17.000	0.54	23.00	0.37
5.083	0.70	11.083	1.05	17.083	0.50	23.08	0.36
5.167	0.70	11.167	1.05	17.167	0.50	23.17	0.36
5.250	0.70	11.250	1.05	17.250	0.50	23.25	0.36
5.333	0.70	11.333	1.05	17.333	0.50	23.33	0.36
5.417	0.70	11.417	1.05	17.417	0.50	23.42	0.36
5.500	0.70	11.500	1.05	17.500	0.50	23.50	0.36
5.583	0.70	11.583	1.05	17.583	0.50	23.58	0.36
5.667	0.70	11.667	1.05	17.667	0.50	23.67	0.36
5.750	0.70	11.750	1.05	17.750	0.50	23.75	0.36
5.833	0.70	11.833	1.05	17.833	0.50	23.83	0.36
5.917	0.70	11.917	1.05	17.917	0.50	23.92	0.36
6.000	0.70	12.000	1.05	18.000	0.50	24.00	0.36

			TOTALS
Max.Eff.Inten.(mm/hr)=	8.37	2.27	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.86 (ii)	5.89 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.28	0.15	
PEAK FLOW (cms)=	0.00	0.00	0.002 (iii)
TIME TO PEAK (hrs)=	8.50	9.00	9.00
RUNOFF VOLUME (mm)=	24.00	5.85	21.85
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.23	0.87

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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 (0037)	Area (ha)=	0.04	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

	IMPERVIOUS	PERVIOUS (i)

Surface Area	(ha)=	0.04	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	16.33	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	0.35	6.083	0.95	12.083	0.87	18.08	0.47
0.167	0.35	6.167	0.95	12.167	0.87	18.17	0.47
0.250	0.35	6.250	0.95	12.250	0.87	18.25	0.47
0.333	0.35	6.333	0.95	12.333	0.87	18.33	0.47
0.417	0.35	6.417	0.95	12.417	0.87	18.42	0.47
0.500	0.35	6.500	0.95	12.500	0.87	18.50	0.47
0.583	0.35	6.583	0.95	12.583	0.87	18.58	0.47
0.667	0.35	6.667	0.95	12.667	0.87	18.67	0.47
0.750	0.35	6.750	0.95	12.750	0.87	18.75	0.47
0.833	0.35	6.833	0.95	12.833	0.87	18.83	0.47
0.917	0.35	6.917	0.95	12.917	0.87	18.92	0.47
1.000	0.35	7.000	0.95	13.000	0.87	19.00	0.47
1.083	0.38	7.083	1.80	13.083	0.74	19.08	0.44
1.167	0.38	7.167	1.80	13.167	0.74	19.17	0.44
1.250	0.38	7.250	1.80	13.250	0.74	19.25	0.44
1.333	0.38	7.333	1.80	13.333	0.74	19.33	0.44
1.417	0.38	7.417	1.80	13.417	0.74	19.42	0.44
1.500	0.38	7.500	1.80	13.500	0.74	19.50	0.44
1.583	0.38	7.583	1.80	13.583	0.74	19.58	0.44
1.667	0.38	7.667	1.80	13.667	0.74	19.67	0.44
1.750	0.38	7.750	1.80	13.750	0.74	19.75	0.44
1.833	0.38	7.833	1.80	13.833	0.74	19.83	0.44
1.917	0.38	7.917	1.80	13.917	0.74	19.92	0.44
2.000	0.38	8.000	1.80	14.000	0.74	20.00	0.44
2.083	0.42	8.083	8.37	14.083	0.66	20.08	0.41
2.167	0.42	8.167	8.37	14.167	0.66	20.17	0.41
2.250	0.42	8.250	8.37	14.250	0.66	20.25	0.41
2.333	0.42	8.333	8.37	14.333	0.66	20.33	0.41
2.417	0.42	8.417	8.37	14.417	0.66	20.42	0.41
2.500	0.42	8.500	8.37	14.500	0.66	20.50	0.41
2.583	0.42	8.583	8.37	14.583	0.66	20.58	0.41
2.667	0.42	8.667	8.37	14.667	0.66	20.67	0.41
2.750	0.42	8.750	8.37	14.750	0.66	20.75	0.41
2.833	0.42	8.833	8.37	14.833	0.66	20.83	0.41
2.917	0.42	8.917	8.37	14.917	0.66	20.92	0.41
3.000	0.42	9.000	8.37	15.000	0.66	21.00	0.41
3.083	0.48	9.083	2.23	15.083	0.59	21.08	0.39
3.167	0.48	9.167	2.23	15.167	0.59	21.17	0.39
3.250	0.48	9.250	2.23	15.250	0.59	21.25	0.39
3.333	0.48	9.333	2.23	15.333	0.59	21.33	0.39
3.417	0.48	9.417	2.23	15.417	0.59	21.42	0.39
3.500	0.48	9.500	2.23	15.500	0.59	21.50	0.39
3.583	0.48	9.583	2.23	15.583	0.59	21.58	0.39
3.667	0.48	9.667	2.23	15.667	0.59	21.67	0.39
3.750	0.48	9.750	2.23	15.750	0.59	21.75	0.39
3.833	0.48	9.833	2.23	15.833	0.59	21.83	0.39
3.917	0.48	9.917	2.23	15.917	0.59	21.92	0.39
4.000	0.48	10.000	2.23	16.000	0.59	22.00	0.39
4.083	0.56	10.083	1.38	16.083	0.54	22.08	0.37
4.167	0.56	10.167	1.38	16.167	0.54	22.17	0.37
4.250	0.56	10.250	1.38	16.250	0.54	22.25	0.37
4.333	0.56	10.333	1.38	16.333	0.54	22.33	0.37
4.417	0.56	10.417	1.38	16.417	0.54	22.42	0.37
4.500	0.56	10.500	1.38	16.500	0.54	22.50	0.37
4.583	0.56	10.583	1.38	16.583	0.54	22.58	0.37
4.667	0.56	10.667	1.38	16.667	0.54	22.67	0.37
4.750	0.56	10.750	1.38	16.750	0.54	22.75	0.37
4.833	0.56	10.833	1.38	16.833	0.54	22.83	0.37
4.917	0.56	10.917	1.38	16.917	0.54	22.92	0.37
5.000	0.56	11.000	1.38	17.000	0.54	23.00	0.37
5.083	0.70	11.083	1.05	17.083	0.50	23.08	0.36
5.167	0.70	11.167	1.05	17.167	0.50	23.17	0.36
5.250	0.70	11.250	1.05	17.250	0.50	23.25	0.36
5.333	0.70	11.333	1.05	17.333	0.50	23.33	0.36
5.417	0.70	11.417	1.05	17.417	0.50	23.42	0.36
5.500	0.70	11.500	1.05	17.500	0.50	23.50	0.36
5.583	0.70	11.583	1.05	17.583	0.50	23.58	0.36
5.667	0.70	11.667	1.05	17.667	0.50	23.67	0.36
5.750	0.70	11.750	1.05	17.750	0.50	23.75	0.36
5.833	0.70	11.833	1.05	17.833	0.50	23.83	0.36
5.917	0.70	11.917	1.05	17.917	0.50	23.92	0.36
6.000	0.70	12.000	1.05	18.000	0.50	24.00	0.36

Max.Eff.Inten.(mm/hr)=		8.37	3.12	
over (min)		5.00	10.00	
Storage Coeff. (min)=		2.32 (ii)	5.35 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.30	0.16	
				TOTALS
PEAK FLOW	(cms)=	0.00	0.00	0.001 (iii)
TIME TO PEAK	(hrs)=	8.42	9.00	9.00
RUNOFF VOLUME	(mm)=	24.00	8.08	17.51
TOTAL RAINFALL	(mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT	=	0.96	0.32	0.70

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 85.0 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 (0038)	Area (ha)= 0.01
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.01	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	8.16	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	0.35	6.083	0.95	12.083	0.87	18.08	0.47
0.167	0.35	6.167	0.95	12.167	0.87	18.17	0.47
0.250	0.35	6.250	0.95	12.250	0.87	18.25	0.47
0.333	0.35	6.333	0.95	12.333	0.87	18.33	0.47
0.417	0.35	6.417	0.95	12.417	0.87	18.42	0.47
0.500	0.35	6.500	0.95	12.500	0.87	18.50	0.47
0.583	0.35	6.583	0.95	12.583	0.87	18.58	0.47
0.667	0.35	6.667	0.95	12.667	0.87	18.67	0.47
0.750	0.35	6.750	0.95	12.750	0.87	18.75	0.47
0.833	0.35	6.833	0.95	12.833	0.87	18.83	0.47
0.917	0.35	6.917	0.95	12.917	0.87	18.92	0.47
1.000	0.35	7.000	0.95	13.000	0.87	19.00	0.47
1.083	0.38	7.083	1.80	13.083	0.74	19.08	0.44
1.167	0.38	7.167	1.80	13.167	0.74	19.17	0.44
1.250	0.38	7.250	1.80	13.250	0.74	19.25	0.44
1.333	0.38	7.333	1.80	13.333	0.74	19.33	0.44
1.417	0.38	7.417	1.80	13.417	0.74	19.42	0.44
1.500	0.38	7.500	1.80	13.500	0.74	19.50	0.44
1.583	0.38	7.583	1.80	13.583	0.74	19.58	0.44
1.667	0.38	7.667	1.80	13.667	0.74	19.67	0.44
1.750	0.38	7.750	1.80	13.750	0.74	19.75	0.44
1.833	0.38	7.833	1.80	13.833	0.74	19.83	0.44
1.917	0.38	7.917	1.80	13.917	0.74	19.92	0.44
2.000	0.38	8.000	1.80	14.000	0.74	20.00	0.44
2.083	0.42	8.083	8.37	14.083	0.66	20.08	0.41
2.167	0.42	8.167	8.37	14.167	0.66	20.17	0.41
2.250	0.42	8.250	8.37	14.250	0.66	20.25	0.41
2.333	0.42	8.333	8.37	14.333	0.66	20.33	0.41
2.417	0.42	8.417	8.37	14.417	0.66	20.42	0.41
2.500	0.42	8.500	8.37	14.500	0.66	20.50	0.41
2.583	0.42	8.583	8.37	14.583	0.66	20.58	0.41
2.667	0.42	8.667	8.37	14.667	0.66	20.67	0.41
2.750	0.42	8.750	8.37	14.750	0.66	20.75	0.41
2.833	0.42	8.833	8.37	14.833	0.66	20.83	0.41
2.917	0.42	8.917	8.37	14.917	0.66	20.92	0.41
3.000	0.42	9.000	8.37	15.000	0.66	21.00	0.41
3.083	0.48	9.083	2.23	15.083	0.59	21.08	0.39
3.167	0.48	9.167	2.23	15.167	0.59	21.17	0.39
3.250	0.48	9.250	2.23	15.250	0.59	21.25	0.39
3.333	0.48	9.333	2.23	15.333	0.59	21.33	0.39
3.417	0.48	9.417	2.23	15.417	0.59	21.42	0.39
3.500	0.48	9.500	2.23	15.500	0.59	21.50	0.39
3.583	0.48	9.583	2.23	15.583	0.59	21.58	0.39
3.667	0.48	9.667	2.23	15.667	0.59	21.67	0.39
3.750	0.48	9.750	2.23	15.750	0.59	21.75	0.39
3.833	0.48	9.833	2.23	15.833	0.59	21.83	0.39
3.917	0.48	9.917	2.23	15.917	0.59	21.92	0.39
4.000	0.48	10.000	2.23	16.000	0.59	22.00	0.39
4.083	0.56	10.083	1.38	16.083	0.54	22.08	0.37
4.167	0.56	10.167	1.38	16.167	0.54	22.17	0.37
4.250	0.56	10.250	1.38	16.250	0.54	22.25	0.37
4.333	0.56	10.333	1.38	16.333	0.54	22.33	0.37
4.417	0.56	10.417	1.38	16.417	0.54	22.42	0.37
4.500	0.56	10.500	1.38	16.500	0.54	22.50	0.37
4.583	0.56	10.583	1.38	16.583	0.54	22.58	0.37
4.667	0.56	10.667	1.38	16.667	0.54	22.67	0.37
4.750	0.56	10.750	1.38	16.750	0.54	22.75	0.37
4.833	0.56	10.833	1.38	16.833	0.54	22.83	0.37
4.917	0.56	10.917	1.38	16.917	0.54	22.92	0.37
5.000	0.56	11.000	1.38	17.000	0.54	23.00	0.37
5.083	0.70	11.083	1.05	17.083	0.50	23.08	0.36
5.167	0.70	11.167	1.05	17.167	0.50	23.17	0.36
5.250	0.70	11.250	1.05	17.250	0.50	23.25	0.36
5.333	0.70	11.333	1.05	17.333	0.50	23.33	0.36
5.417	0.70	11.417	1.05	17.417	0.50	23.42	0.36
5.500	0.70	11.500	1.05	17.500	0.50	23.50	0.36
5.583	0.70	11.583	1.05	17.583	0.50	23.58	0.36
5.667	0.70	11.667	1.05	17.667	0.50	23.67	0.36
5.750	0.70	11.750	1.05	17.750	0.50	23.75	0.36
5.833	0.70	11.833	1.05	17.833	0.50	23.83	0.36
5.917	0.70	11.917	1.05	17.917	0.50	23.92	0.36
6.000	0.70	12.000	1.05	18.000	0.50	24.00	0.36

Max.Eff.Inten.(mm/hr)=		8.37	3.12
over (min)		5.00	5.00
Storage Coeff. (min)=		1.53 (ii)	4.56 (ii)

```
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.24
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.000 (iii)
     TIME TO PEAK    (hrs)=       8.33         9.00           9.00
     RUNOFF VOLUME    (mm)=      24.00         8.08          12.87
     TOTAL RAINFALL   (mm)=      25.00        25.00          25.00
     RUNOFF COEFFICIENT   =       0.96         0.32           0.51

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    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  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0026):     0.28   0.001     9.00     5.84
     + ID2= 2 (  0028):     0.08   0.002     9.00    21.85
       ====================================================
       ID = 3 (  0030):     0.36   0.003     9.00     9.40

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):     0.36   0.003     9.00     9.40
     + ID2= 2 (  0029):     0.18   0.001     9.00     5.82
       ====================================================
       ID = 1 (  0030):     0.54   0.004     9.00     8.21

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0030):     0.54   0.004     9.00     8.21
     + ID2= 2 (  0037):     0.04   0.001     9.00    17.51
       ====================================================
```

```
       ID = 3 (  0030):     0.58   0.005     9.00     8.85

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):     0.58   0.005     9.00     8.85
     + ID2= 2 (  0038):     0.01   0.000     9.00    12.87
       ====================================================
       ID = 1 (  0030):     0.59   0.005     9.00     8.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0031)|   Area    (ha)=   0.09   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.17

         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    0.35 | 6.083    0.95 |12.083    0.87 | 18.08    0.47
  0.167    0.35 | 6.167    0.95 |12.167    0.87 | 18.17    0.47
  0.250    0.35 | 6.250    0.95 |12.250    0.87 | 18.25    0.47
  0.333    0.35 | 6.333    0.95 |12.333    0.87 | 18.33    0.47
  0.417    0.35 | 6.417    0.95 |12.417    0.87 | 18.42    0.47
  0.500    0.35 | 6.500    0.95 |12.500    0.87 | 18.50    0.47
  0.583    0.35 | 6.583    0.95 |12.583    0.87 | 18.58    0.47
  0.667    0.35 | 6.667    0.95 |12.667    0.87 | 18.67    0.47
  0.750    0.35 | 6.750    0.95 |12.750    0.87 | 18.75    0.47
  0.833    0.35 | 6.833    0.95 |12.833    0.87 | 18.83    0.47
  0.917    0.35 | 6.917    0.95 |12.917    0.87 | 18.92    0.47
  1.000    0.35 | 7.000    0.95 |13.000    0.87 | 19.00    0.47
  1.083    0.38 | 7.083    1.80 |13.083    0.74 | 19.08    0.44
  1.167    0.38 | 7.167    1.80 |13.167    0.74 | 19.17    0.44
  1.250    0.38 | 7.250    1.80 |13.250    0.74 | 19.25    0.44
  1.333    0.38 | 7.333    1.80 |13.333    0.74 | 19.33    0.44
  1.417    0.38 | 7.417    1.80 |13.417    0.74 | 19.42    0.44
  1.500    0.38 | 7.500    1.80 |13.500    0.74 | 19.50    0.44
  1.583    0.38 | 7.583    1.80 |13.583    0.74 | 19.58    0.44
  1.667    0.38 | 7.667    1.80 |13.667    0.74 | 19.67    0.44
  1.750    0.38 | 7.750    1.80 |13.750    0.74 | 19.75    0.44
  1.833    0.38 | 7.833    1.80 |13.833    0.74 | 19.83    0.44
```

```
  1.917    0.38 | 7.917    1.80 |13.917    0.74 | 19.92    0.44
  2.000    0.38 | 8.000    1.80 |14.000    0.74 | 20.00    0.44
  2.083    0.42 | 8.083    8.37 |14.083    0.66 | 20.08    0.41
  2.167    0.42 | 8.167    8.37 |14.167    0.66 | 20.17    0.41
  2.250    0.42 | 8.250    8.37 |14.250    0.66 | 20.25    0.41
  2.333    0.42 | 8.333    8.37 |14.333    0.66 | 20.33    0.41
  2.417    0.42 | 8.417    8.37 |14.417    0.66 | 20.42    0.41
  2.500    0.42 | 8.500    8.37 |14.500    0.66 | 20.50    0.41
  2.583    0.42 | 8.583    8.37 |14.583    0.66 | 20.58    0.41
  2.667    0.42 | 8.667    8.37 |14.667    0.66 | 20.67    0.41
  2.750    0.42 | 8.750    8.37 |14.750    0.66 | 20.75    0.41
  2.833    0.42 | 8.833    8.37 |14.833    0.66 | 20.83    0.41
  2.917    0.42 | 8.917    8.37 |14.917    0.66 | 20.92    0.41
  3.000    0.42 | 9.000    8.37 |15.000    0.66 | 21.00    0.41
  3.083    0.48 | 9.083    2.23 |15.083    0.59 | 21.08    0.39
  3.167    0.48 | 9.167    2.23 |15.167    0.59 | 21.17    0.39
  3.250    0.48 | 9.250    2.23 |15.250    0.59 | 21.25    0.39
  3.333    0.48 | 9.333    2.23 |15.333    0.59 | 21.33    0.39
  3.417    0.48 | 9.417    2.23 |15.417    0.59 | 21.42    0.39
  3.500    0.48 | 9.500    2.23 |15.500    0.59 | 21.50    0.39
  3.583    0.48 | 9.583    2.23 |15.583    0.59 | 21.58    0.39
  3.667    0.48 | 9.667    2.23 |15.667    0.59 | 21.67    0.39
  3.750    0.48 | 9.750    2.23 |15.750    0.59 | 21.75    0.39
  3.833    0.48 | 9.833    2.23 |15.833    0.59 | 21.83    0.39
  3.917    0.48 | 9.917    2.23 |15.917    0.59 | 21.92    0.39
  4.000    0.48 |10.000    2.23 |16.000    0.59 | 22.00    0.39
  4.083    0.56 |10.083    1.38 |16.083    0.54 | 22.08    0.37
  4.167    0.56 |10.167    1.38 |16.167    0.54 | 22.17    0.37
  4.250    0.56 |10.250    1.38 |16.250    0.54 | 22.25    0.37
  4.333    0.56 |10.333    1.38 |16.333    0.54 | 22.33    0.37
  4.417    0.56 |10.417    1.38 |16.417    0.54 | 22.42    0.37
  4.500    0.56 |10.500    1.38 |16.500    0.54 | 22.50    0.37
  4.583    0.56 |10.583    1.38 |16.583    0.54 | 22.58    0.37
  4.667    0.56 |10.667    1.38 |16.667    0.54 | 22.67    0.37
  4.750    0.56 |10.750    1.38 |16.750    0.54 | 22.75    0.37
  4.833    0.56 |10.833    1.38 |16.833    0.54 | 22.83    0.37
  4.917    0.56 |10.917    1.38 |16.917    0.54 | 22.92    0.37
  5.000    0.56 |11.000    1.38 |17.000    0.54 | 23.00    0.37
  5.083    0.70 |11.083    1.05 |17.083    0.50 | 23.08    0.36
  5.167    0.70 |11.167    1.05 |17.167    0.50 | 23.17    0.36
  5.250    0.70 |11.250    1.05 |17.250    0.50 | 23.25    0.36
  5.333    0.70 |11.333    1.05 |17.333    0.50 | 23.33    0.36
  5.417    0.70 |11.417    1.05 |17.417    0.50 | 23.42    0.36
  5.500    0.70 |11.500    1.05 |17.500    0.50 | 23.50    0.36
  5.583    0.70 |11.583    1.05 |17.583    0.50 | 23.58    0.36
  5.667    0.70 |11.667    1.05 |17.667    0.50 | 23.67    0.36
  5.750    0.70 |11.750    1.05 |17.750    0.50 | 23.75    0.36
  5.833    0.70 |11.833    1.05 |17.833    0.50 | 23.83    0.36
  5.917    0.70 |11.917    1.05 |17.917    0.50 | 23.92    0.36
  6.000    0.70 |12.000    1.05 |18.000    0.50 | 24.00    0.36
```

```
     Unit Hyd Qpeak  (cms)=   0.020

     PEAK FLOW       (cms)=   0.001 (i)
     TIME TO PEAK    (hrs)=   9.000
     RUNOFF VOLUME    (mm)=   5.820
     TOTAL RAINFALL   (mm)=  24.996
     RUNOFF COEFFICIENT   =   0.233

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0018)|   Area    (ha)=   0.71
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.70         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      68.80        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    0.35 | 6.083    0.95 |12.083    0.87 | 18.08    0.47
  0.167    0.35 | 6.167    0.95 |12.167    0.87 | 18.17    0.47
  0.250    0.35 | 6.250    0.95 |12.250    0.87 | 18.25    0.47
  0.333    0.35 | 6.333    0.95 |12.333    0.87 | 18.33    0.47
  0.417    0.35 | 6.417    0.95 |12.417    0.87 | 18.42    0.47
  0.500    0.35 | 6.500    0.95 |12.500    0.87 | 18.50    0.47
  0.583    0.35 | 6.583    0.95 |12.583    0.87 | 18.58    0.47
  0.667    0.35 | 6.667    0.95 |12.667    0.87 | 18.67    0.47
  0.750    0.35 | 6.750    0.95 |12.750    0.87 | 18.75    0.47
  0.833    0.35 | 6.833    0.95 |12.833    0.87 | 18.83    0.47
  0.917    0.35 | 6.917    0.95 |12.917    0.87 | 18.92    0.47
  1.000    0.35 | 7.000    0.95 |13.000    0.87 | 19.00    0.47
  1.083    0.38 | 7.083    1.80 |13.083    0.74 | 19.08    0.44
  1.167    0.38 | 7.167    1.80 |13.167    0.74 | 19.17    0.44
  1.250    0.38 | 7.250    1.80 |13.250    0.74 | 19.25    0.44
  1.333    0.38 | 7.333    1.80 |13.333    0.74 | 19.33    0.44
  1.417    0.38 | 7.417    1.80 |13.417    0.74 | 19.42    0.44
  1.500    0.38 | 7.500    1.80 |13.500    0.74 | 19.50    0.44
  1.583    0.38 | 7.583    1.80 |13.583    0.74 | 19.58    0.44
  1.667    0.38 | 7.667    1.80 |13.667    0.74 | 19.67    0.44
```

1.750	0.38	7.750	1.80	13.750	0.74	19.75	0.44
1.833	0.38	7.833	1.80	13.833	0.74	19.83	0.44
1.917	0.38	7.917	1.80	13.917	0.74	19.92	0.44
2.000	0.38	8.000	1.80	14.000	0.74	20.00	0.44
2.083	0.42	8.083	8.37	14.083	0.66	20.08	0.41
2.167	0.42	8.167	8.37	14.167	0.66	20.17	0.41
2.250	0.42	8.250	8.37	14.250	0.66	20.25	0.41
2.333	0.42	8.333	8.37	14.333	0.66	20.33	0.41
2.417	0.42	8.417	8.37	14.417	0.66	20.42	0.41
2.500	0.42	8.500	8.37	14.500	0.66	20.50	0.41
2.583	0.42	8.583	8.37	14.583	0.66	20.58	0.41
2.667	0.42	8.667	8.37	14.667	0.66	20.67	0.41
2.750	0.42	8.750	8.37	14.750	0.66	20.75	0.41
2.833	0.42	8.833	8.37	14.833	0.66	20.83	0.41
2.917	0.42	8.917	8.37	14.917	0.66	20.92	0.41
3.000	0.42	9.000	8.37	15.000	0.66	21.00	0.41
3.083	0.48	9.083	2.23	15.083	0.59	21.08	0.39
3.167	0.48	9.167	2.23	15.167	0.59	21.17	0.39
3.250	0.48	9.250	2.23	15.250	0.59	21.25	0.39
3.333	0.48	9.333	2.23	15.333	0.59	21.33	0.39
3.417	0.48	9.417	2.23	15.417	0.59	21.42	0.39
3.500	0.48	9.500	2.23	15.500	0.59	21.50	0.39
3.583	0.48	9.583	2.23	15.583	0.59	21.58	0.39
3.667	0.48	9.667	2.23	15.667	0.59	21.67	0.39
3.750	0.48	9.750	2.23	15.750	0.59	21.75	0.39
3.833	0.48	9.833	2.23	15.833	0.59	21.83	0.39
3.917	0.48	9.917	2.23	15.917	0.59	21.92	0.39
4.000	0.48	10.000	2.23	16.000	0.59	22.00	0.39
4.083	0.56	10.083	1.38	16.083	0.54	22.08	0.37
4.167	0.56	10.167	1.38	16.167	0.54	22.17	0.37
4.250	0.56	10.250	1.38	16.250	0.54	22.25	0.37
4.333	0.56	10.333	1.38	16.333	0.54	22.33	0.37
4.417	0.56	10.417	1.38	16.417	0.54	22.42	0.37
4.500	0.56	10.500	1.38	16.500	0.54	22.50	0.37
4.583	0.56	10.583	1.38	16.583	0.54	22.58	0.37
4.667	0.56	10.667	1.38	16.667	0.54	22.67	0.37
4.750	0.56	10.750	1.38	16.750	0.54	22.75	0.37
4.833	0.56	10.833	1.38	16.833	0.54	22.83	0.37
4.917	0.56	10.917	1.38	16.917	0.54	22.92	0.37
5.000	0.56	11.000	1.38	17.000	0.54	23.00	0.37
5.083	0.70	11.083	1.05	17.083	0.50	23.08	0.36
5.167	0.70	11.167	1.05	17.167	0.50	23.17	0.36
5.250	0.70	11.250	1.05	17.250	0.50	23.25	0.36
5.333	0.70	11.333	1.05	17.333	0.50	23.33	0.36
5.417	0.70	11.417	1.05	17.417	0.50	23.42	0.36
5.500	0.70	11.500	1.05	17.500	0.50	23.50	0.36
5.583	0.70	11.583	1.05	17.583	0.50	23.58	0.36
5.667	0.70	11.667	1.05	17.667	0.50	23.67	0.36
5.750	0.70	11.750	1.05	17.750	0.50	23.75	0.36
5.833	0.70	11.833	1.05	17.833	0.50	23.83	0.36
5.917	0.70	11.917	1.05	17.917	0.50	23.92	0.36
6.000	0.70	12.000	1.05	18.000	0.50	24.00	0.36

Max.Eff.Inten.(mm/hr)=	8.37	2.27	
over (min)	5.00	10.00	
Storage Coeff. (min)=	5.51 (ii)	8.54 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.20	0.12	
			TOTALS
PEAK FLOW (cms)=	0.02	0.00	0.016 (iii)
TIME TO PEAK (hrs)=	9.00	9.00	9.00
RUNOFF VOLUME (mm)=	24.00	5.85	23.81
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.23	0.95

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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 (0032)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0018):		0.71	0.016	9.00	23.81
+ ID2= 2 (0031):		0.09	0.001	9.00	5.82
ID = 3 (0032):		0.80	0.017	9.00	21.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0019)	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	0.0190	0.0279
	0.0000	0.0028	0.0200	0.0307
	0.0080	0.0056	0.0210	0.0335
	0.0100	0.0084	0.0220	0.0363
	0.0120	0.0112	0.0230	0.0391
	0.0140	0.0140	0.0240	0.0419
	0.0150	0.0168	0.0250	0.0447
	0.0160	0.0196	0.0250	0.0475
	0.0170	0.0223	0.0260	0.0499
	0.0180	0.0251	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0032)	0.800	0.017	9.00	21.79
OUTFLOW: ID= 1 (0019)	0.800	0.009	9.08	18.19

PEAK FLOW REDUCTION [Qout/Qin](%)= 52.14
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0067

CALIB					
NASHYD (0036)	Area	(ha)=	0.14	Curve Number (CN)=	84.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.16		

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	0.35	6.083	0.95	12.083	0.87	18.08	0.47
0.167	0.35	6.167	0.95	12.167	0.87	18.17	0.47
0.250	0.35	6.250	0.95	12.250	0.87	18.25	0.47
0.333	0.35	6.333	0.95	12.333	0.87	18.33	0.47
0.417	0.35	6.417	0.95	12.417	0.87	18.42	0.47
0.500	0.35	6.500	0.95	12.500	0.87	18.50	0.47
0.583	0.35	6.583	0.95	12.583	0.87	18.58	0.47
0.667	0.35	6.667	0.95	12.667	0.87	18.67	0.47
0.750	0.35	6.750	0.95	12.750	0.87	18.75	0.47
0.833	0.35	6.833	0.95	12.833	0.87	18.83	0.47
0.917	0.35	6.917	0.95	12.917	0.87	18.92	0.47
1.000	0.35	7.000	0.95	13.000	0.87	19.00	0.47
1.083	0.38	7.083	1.80	13.083	0.74	19.08	0.44
1.167	0.38	7.167	1.80	13.167	0.74	19.17	0.44
1.250	0.38	7.250	1.80	13.250	0.74	19.25	0.44
1.333	0.38	7.333	1.80	13.333	0.74	19.33	0.44
1.417	0.38	7.417	1.80	13.417	0.74	19.42	0.44
1.500	0.38	7.500	1.80	13.500	0.74	19.50	0.44
1.583	0.38	7.583	1.80	13.583	0.74	19.58	0.44
1.667	0.38	7.667	1.80	13.667	0.74	19.67	0.44
1.750	0.38	7.750	1.80	13.750	0.74	19.75	0.44
1.833	0.38	7.833	1.80	13.833	0.74	19.83	0.44
1.917	0.38	7.917	1.80	13.917	0.74	19.92	0.44
2.000	0.38	8.000	1.80	14.000	0.74	20.00	0.44
2.083	0.42	8.083	8.37	14.083	0.66	20.08	0.41
2.167	0.42	8.167	8.37	14.167	0.66	20.17	0.41
2.250	0.42	8.250	8.37	14.250	0.66	20.25	0.41
2.333	0.42	8.333	8.37	14.333	0.66	20.33	0.41
2.417	0.42	8.417	8.37	14.417	0.66	20.42	0.41
2.500	0.42	8.500	8.37	14.500	0.66	20.50	0.41
2.583	0.42	8.583	8.37	14.583	0.66	20.58	0.41
2.667	0.42	8.667	8.37	14.667	0.66	20.67	0.41
2.750	0.42	8.750	8.37	14.750	0.66	20.75	0.41
2.833	0.42	8.833	8.37	14.833	0.66	20.83	0.41
2.917	0.42	8.917	8.37	14.917	0.66	20.92	0.41
3.000	0.42	9.000	8.37	15.000	0.66	21.00	0.41
3.083	0.48	9.083	2.23	15.083	0.59	21.08	0.39
3.167	0.48	9.167	2.23	15.167	0.59	21.17	0.39
3.250	0.48	9.250	2.23	15.250	0.59	21.25	0.39
3.333	0.48	9.333	2.23	15.333	0.59	21.33	0.39
3.417	0.48	9.417	2.23	15.417	0.59	21.42	0.39
3.500	0.48	9.500	2.23	15.500	0.59	21.50	0.39
3.583	0.48	9.583	2.23	15.583	0.59	21.58	0.39
3.667	0.48	9.667	2.23	15.667	0.59	21.67	0.39
3.750	0.48	9.750	2.23	15.750	0.59	21.75	0.39
3.833	0.48	9.833	2.23	15.833	0.59	21.83	0.39
3.917	0.48	9.917	2.23	15.917	0.59	21.92	0.39
4.000	0.48	10.000	2.23	16.000	0.59	22.00	0.39
4.083	0.56	10.083	1.38	16.083	0.54	22.08	0.37
4.167	0.56	10.167	1.38	16.167	0.54	22.17	0.37
4.250	0.56	10.250	1.38	16.250	0.54	22.25	0.37
4.333	0.56	10.333	1.38	16.333	0.54	22.33	0.37
4.417	0.56	10.417	1.38	16.417	0.54	22.42	0.37
4.500	0.56	10.500	1.38	16.500	0.54	22.50	0.37
4.583	0.56	10.583	1.38	16.583	0.54	22.58	0.37
4.667	0.56	10.667	1.38	16.667	0.54	22.67	0.37
4.750	0.56	10.750	1.38	16.750	0.54	22.75	0.37
4.833	0.56	10.833	1.38	16.833	0.54	22.83	0.37
4.917	0.56	10.917	1.38	16.917	0.54	22.92	0.37
5.000	0.56	11.000	1.38	17.000	0.54	23.00	0.37
5.083	0.70	11.083	1.05	17.083	0.50	23.08	0.36
5.167	0.70	11.167	1.05	17.167	0.50	23.17	0.36
5.250	0.70	11.250	1.05	17.250	0.50	23.25	0.36
5.333	0.70	11.333	1.05	17.333	0.50	23.33	0.36
5.417	0.70	11.417	1.05	17.417	0.50	23.42	0.36
5.500	0.70	11.500	1.05	17.500	0.50	23.50	0.36
5.583	0.70	11.583	1.05	17.583	0.50	23.58	0.36
5.667	0.70	11.667	1.05	17.667	0.50	23.67	0.36
5.750	0.70	11.750	1.05	17.750	0.50	23.75	0.36
5.833	0.70	11.833	1.05	17.833	0.50	23.83	0.36
5.917	0.70	11.917	1.05	17.917	0.50	23.92	0.36
6.000	0.70	12.000	1.05	18.000	0.50	24.00	0.36

Unit Hyd Qpeak (cms)=	0.033	
PEAK FLOW (cms)=	0.001 (i)	
TIME TO PEAK (hrs)=	9.000	

RUNOFF VOLUME (mm)= 5.819
TOTAL RAINFALL (mm)= 24.996
RUNOFF COEFFICIENT = 0.233

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

CALIB							
NASHYD (0039)	Area (ha)= 0.05	Curve Number (CN)= 84.0					
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00					
	U.H. Tp(hrs)= 0.16						

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	0.35	6.083	0.95	12.083	0.87	18.08	0.47
0.167	0.35	6.167	0.95	12.167	0.87	18.17	0.47
0.250	0.35	6.250	0.95	12.250	0.87	18.25	0.47
0.333	0.35	6.333	0.95	12.333	0.87	18.33	0.47
0.417	0.35	6.417	0.95	12.417	0.87	18.42	0.47
0.500	0.35	6.500	0.95	12.500	0.87	18.50	0.47
0.583	0.35	6.583	0.95	12.583	0.87	18.58	0.47
0.667	0.35	6.667	0.95	12.667	0.87	18.67	0.47
0.750	0.35	6.750	0.95	12.750	0.87	18.75	0.47
0.833	0.35	6.833	0.95	12.833	0.87	18.83	0.47
0.917	0.35	6.917	0.95	12.917	0.87	18.92	0.47
1.000	0.35	7.000	0.95	13.000	0.87	19.00	0.47
1.083	0.38	7.083	1.80	13.083	0.74	19.08	0.44
1.167	0.38	7.167	1.80	13.167	0.74	19.17	0.44
1.250	0.38	7.250	1.80	13.250	0.74	19.25	0.44
1.333	0.38	7.333	1.80	13.333	0.74	19.33	0.44
1.417	0.38	7.417	1.80	13.417	0.74	19.42	0.44
1.500	0.38	7.500	1.80	13.500	0.74	19.50	0.44
1.583	0.38	7.583	1.80	13.583	0.74	19.58	0.44
1.667	0.38	7.667	1.80	13.667	0.74	19.67	0.44
1.750	0.38	7.750	1.80	13.750	0.74	19.75	0.44
1.833	0.38	7.833	1.80	13.833	0.74	19.83	0.44
1.917	0.38	7.917	1.80	13.917	0.74	19.92	0.44
2.000	0.38	8.000	1.80	14.000	0.74	20.00	0.44
2.083	0.42	8.083	8.37	14.083	0.66	20.08	0.41
2.167	0.42	8.167	8.37	14.167	0.66	20.17	0.41
2.250	0.42	8.250	8.37	14.250	0.66	20.25	0.41
2.333	0.42	8.333	8.37	14.333	0.66	20.33	0.41
2.417	0.42	8.417	8.37	14.417	0.66	20.42	0.41
2.500	0.42	8.500	8.37	14.500	0.66	20.50	0.41
2.583	0.42	8.583	8.37	14.583	0.66	20.58	0.41
2.667	0.42	8.667	8.37	14.667	0.66	20.67	0.41
2.750	0.42	8.750	8.37	14.750	0.66	20.75	0.41
2.833	0.42	8.833	8.37	14.833	0.66	20.83	0.41
2.917	0.42	8.917	8.37	14.917	0.66	20.92	0.41
3.000	0.42	9.000	8.37	15.000	0.66	21.00	0.41
3.083	0.48	9.083	2.23	15.083	0.59	21.08	0.39
3.167	0.48	9.167	2.23	15.167	0.59	21.17	0.39
3.250	0.48	9.250	2.23	15.250	0.59	21.25	0.39
3.333	0.48	9.333	2.23	15.333	0.59	21.33	0.39
3.417	0.48	9.417	2.23	15.417	0.59	21.42	0.39
3.500	0.48	9.500	2.23	15.500	0.59	21.50	0.39
3.583	0.48	9.583	2.23	15.583	0.59	21.58	0.39
3.667	0.48	9.667	2.23	15.667	0.59	21.67	0.39
3.750	0.48	9.750	2.23	15.750	0.59	21.75	0.39
3.833	0.48	9.833	2.23	15.833	0.59	21.83	0.39
3.917	0.48	9.917	2.23	15.917	0.59	21.92	0.39
4.000	0.48	10.000	2.23	16.000	0.59	22.00	0.39
4.083	0.56	10.083	1.38	16.083	0.54	22.08	0.37
4.167	0.56	10.167	1.38	16.167	0.54	22.17	0.37
4.250	0.56	10.250	1.38	16.250	0.54	22.25	0.37
4.333	0.56	10.333	1.38	16.333	0.54	22.33	0.37
4.417	0.56	10.417	1.38	16.417	0.54	22.42	0.37
4.500	0.56	10.500	1.38	16.500	0.54	22.50	0.37
4.583	0.56	10.583	1.38	16.583	0.54	22.58	0.37
4.667	0.56	10.667	1.38	16.667	0.54	22.67	0.37
4.750	0.56	10.750	1.38	16.750	0.54	22.75	0.37
4.833	0.56	10.833	1.38	16.833	0.54	22.83	0.37
4.917	0.56	10.917	1.38	16.917	0.54	22.92	0.37
5.000	0.56	11.000	1.38	17.000	0.54	23.00	0.37
5.083	0.70	11.083	1.05	17.083	0.50	23.08	0.36
5.167	0.70	11.167	1.05	17.167	0.50	23.17	0.36
5.250	0.70	11.250	1.05	17.250	0.50	23.25	0.36
5.333	0.70	11.333	1.05	17.333	0.50	23.33	0.36
5.417	0.70	11.417	1.05	17.417	0.50	23.42	0.36
5.500	0.70	11.500	1.05	17.500	0.50	23.50	0.36
5.583	0.70	11.583	1.05	17.583	0.50	23.58	0.36
5.667	0.70	11.667	1.05	17.667	0.50	23.67	0.36
5.750	0.70	11.750	1.05	17.750	0.50	23.75	0.36
5.833	0.70	11.833	1.05	17.833	0.50	23.83	0.36
5.917	0.70	11.917	1.05	17.917	0.50	23.92	0.36
6.000	0.70	12.000	1.05	18.000	0.50	24.00	0.36

Unit Hyd Qpeak (cms)= 0.012

PEAK FLOW (cms)= 0.000 (i)
TIME TO PEAK (hrs)= 9.000
RUNOFF VOLUME (mm)= 5.810
TOTAL RAINFALL (mm)= 24.996
RUNOFF COEFFICIENT = 0.232

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

CALIB							
STANDHYD (0001)	Area (ha)= 0.27						
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00	Dir. Conn.(%)= 64.00					

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.17	0.10
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	42.43	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	0.35	6.083	0.95	12.083	0.87	18.08	0.47
0.167	0.35	6.167	0.95	12.167	0.87	18.17	0.47
0.250	0.35	6.250	0.95	12.250	0.87	18.25	0.47
0.333	0.35	6.333	0.95	12.333	0.87	18.33	0.47
0.417	0.35	6.417	0.95	12.417	0.87	18.42	0.47
0.500	0.35	6.500	0.95	12.500	0.87	18.50	0.47
0.583	0.35	6.583	0.95	12.583	0.87	18.58	0.47
0.667	0.35	6.667	0.95	12.667	0.87	18.67	0.47
0.750	0.35	6.750	0.95	12.750	0.87	18.75	0.47
0.833	0.35	6.833	0.95	12.833	0.87	18.83	0.47
0.917	0.35	6.917	0.95	12.917	0.87	18.92	0.47
1.000	0.35	7.000	0.95	13.000	0.87	19.00	0.47
1.083	0.38	7.083	1.80	13.083	0.74	19.08	0.44
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1.417	0.38	7.417	1.80	13.417	0.74	19.42	0.44
1.500	0.38	7.500	1.80	13.500	0.74	19.50	0.44
1.583	0.38	7.583	1.80	13.583	0.74	19.58	0.44
1.667	0.38	7.667	1.80	13.667	0.74	19.67	0.44
1.750	0.38	7.750	1.80	13.750	0.74	19.75	0.44
1.833	0.38	7.833	1.80	13.833	0.74	19.83	0.44
1.917	0.38	7.917	1.80	13.917	0.74	19.92	0.44
2.000	0.38	8.000	1.80	14.000	0.74	20.00	0.44
2.083	0.42	8.083	8.37	14.083	0.66	20.08	0.41
2.167	0.42	8.167	8.37	14.167	0.66	20.17	0.41
2.250	0.42	8.250	8.37	14.250	0.66	20.25	0.41
2.333	0.42	8.333	8.37	14.333	0.66	20.33	0.41
2.417	0.42	8.417	8.37	14.417	0.66	20.42	0.41
2.500	0.42	8.500	8.37	14.500	0.66	20.50	0.41
2.583	0.42	8.583	8.37	14.583	0.66	20.58	0.41
2.667	0.42	8.667	8.37	14.667	0.66	20.67	0.41
2.750	0.42	8.750	8.37	14.750	0.66	20.75	0.41
2.833	0.42	8.833	8.37	14.833	0.66	20.83	0.41
2.917	0.42	8.917	8.37	14.917	0.66	20.92	0.41
3.000	0.42	9.000	8.37	15.000	0.66	21.00	0.41
3.083	0.48	9.083	2.23	15.083	0.59	21.08	0.39
3.167	0.48	9.167	2.23	15.167	0.59	21.17	0.39
3.250	0.48	9.250	2.23	15.250	0.59	21.25	0.39
3.333	0.48	9.333	2.23	15.333	0.59	21.33	0.39
3.417	0.48	9.417	2.23	15.417	0.59	21.42	0.39
3.500	0.48	9.500	2.23	15.500	0.59	21.50	0.39
3.583	0.48	9.583	2.23	15.583	0.59	21.58	0.39
3.667	0.48	9.667	2.23	15.667	0.59	21.67	0.39
3.750	0.48	9.750	2.23	15.750	0.59	21.75	0.39
3.833	0.48	9.833	2.23	15.833	0.59	21.83	0.39
3.917	0.48	9.917	2.23	15.917	0.59	21.92	0.39
4.000	0.48	10.000	2.23	16.000	0.59	22.00	0.39
4.083	0.56	10.083	1.38	16.083	0.54	22.08	0.37
4.167	0.56	10.167	1.38	16.167	0.54	22.17	0.37
4.250	0.56	10.250	1.38	16.250	0.54	22.25	0.37
4.333	0.56	10.333	1.38	16.333	0.54	22.33	0.37
4.417	0.56	10.417	1.38	16.417	0.54	22.42	0.37
4.500	0.56	10.500	1.38	16.500	0.54	22.50	0.37
4.583	0.56	10.583	1.38	16.583	0.54	22.58	0.37
4.667	0.56	10.667	1.38	16.667	0.54	22.67	0.37
4.750	0.56	10.750	1.38	16.750	0.54	22.75	0.37
4.833	0.56	10.833	1.38	16.833	0.54	22.83	0.37
4.917	0.56	10.917	1.38	16.917	0.54	22.92	0.37
5.000	0.56	11.000	1.38	17.000	0.54	23.00	0.37
5.083	0.70	11.083	1.05	17.083	0.50	23.08	0.36
5.167	0.70	11.167	1.05	17.167	0.50	23.17	0.36
5.250	0.70	11.250	1.05	17.250	0.50	23.25	0.36
5.333	0.70	11.333	1.05	17.333	0.50	23.33	0.36
5.417	0.70	11.417	1.05	17.417	0.50	23.42	0.36
5.500	0.70	11.500	1.05	17.500	0.50	23.50	0.36
5.583	0.70	11.583	1.05	17.583	0.50	23.58	0.36
5.667	0.70	11.667	1.05	17.667	0.50	23.67	0.36
5.750	0.70	11.750	1.05	17.750	0.50	23.75	0.36
5.833	0.70	11.833	1.05	17.833	0.50	23.83	0.36
5.917	0.70	11.917	1.05	17.917	0.50	23.92	0.36
6.000	0.70	12.000	1.05	18.000	0.50	24.00	0.36

Max.Eff.Inten.(mm/hr)=		8.37	1.87	
	over (min)	5.00	40.00	
Storage Coeff. (min)=		4.12 (ii)	38.82 (ii)	
Unit Hyd. Tpeak (min)=		5.00	40.00	
Unit Hyd. peak (cms)=		0.24	0.03	
				TOTALS

```
     PEAK FLOW       (cms)=       0.00         0.00          0.004 (iii)
     TIME TO PEAK    (hrs)=       8.75         9.50           9.00
     RUNOFF VOLUME    (mm)=      24.00         5.85          17.39
     TOTAL RAINFALL   (mm)=      25.00        25.00          25.00
     RUNOFF COEFFICIENT   =       0.96         0.23           0.70

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  84.0    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 (  0014)|   Area    (ha)=   0.72
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.71         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      69.28        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    0.35 | 6.083    0.95 |12.083    0.87 | 18.08    0.47
               0.167    0.35 | 6.167    0.95 |12.167    0.87 | 18.17    0.47
               0.250    0.35 | 6.250    0.95 |12.250    0.87 | 18.25    0.47
               0.333    0.35 | 6.333    0.95 |12.333    0.87 | 18.33    0.47
               0.417    0.35 | 6.417    0.95 |12.417    0.87 | 18.42    0.47
               0.500    0.35 | 6.500    0.95 |12.500    0.87 | 18.50    0.47
               0.583    0.35 | 6.583    0.95 |12.583    0.87 | 18.58    0.47
               0.667    0.35 | 6.667    0.95 |12.667    0.87 | 18.67    0.47
               0.750    0.35 | 6.750    0.95 |12.750    0.87 | 18.75    0.47
               0.833    0.35 | 6.833    0.95 |12.833    0.87 | 18.83    0.47
               0.917    0.35 | 6.917    0.95 |12.917    0.87 | 18.92    0.47
               1.000    0.35 | 7.000    0.95 |13.000    0.87 | 19.00    0.47
               1.083    0.38 | 7.083    1.80 |13.083    0.74 | 19.08    0.44
               1.167    0.38 | 7.167    1.80 |13.167    0.74 | 19.17    0.44
               1.250    0.38 | 7.250    1.80 |13.250    0.74 | 19.25    0.44
               1.333    0.38 | 7.333    1.80 |13.333    0.74 | 19.33    0.44
               1.417    0.38 | 7.417    1.80 |13.417    0.74 | 19.42    0.44
               1.500    0.38 | 7.500    1.80 |13.500    0.74 | 19.50    0.44
               1.583    0.38 | 7.583    1.80 |13.583    0.74 | 19.58    0.44
               1.667    0.38 | 7.667    1.80 |13.667    0.74 | 19.67    0.44
               1.750    0.38 | 7.750    1.80 |13.750    0.74 | 19.75    0.44
               1.833    0.38 | 7.833    1.80 |13.833    0.74 | 19.83    0.44
               1.917    0.38 | 7.917    1.80 |13.917    0.74 | 19.92    0.44
               2.000    0.38 | 8.000    1.80 |14.000    0.74 | 20.00    0.44
               2.083    0.42 | 8.083    8.37 |14.083    0.66 | 20.08    0.41
               2.167    0.42 | 8.167    8.37 |14.167    0.66 | 20.17    0.41
               2.250    0.42 | 8.250    8.37 |14.250    0.66 | 20.25    0.41
               2.333    0.42 | 8.333    8.37 |14.333    0.66 | 20.33    0.41
               2.417    0.42 | 8.417    8.37 |14.417    0.66 | 20.42    0.41
               2.500    0.42 | 8.500    8.37 |14.500    0.66 | 20.50    0.41
               2.583    0.42 | 8.583    8.37 |14.583    0.66 | 20.58    0.41
               2.667    0.42 | 8.667    8.37 |14.667    0.66 | 20.67    0.41
               2.750    0.42 | 8.750    8.37 |14.750    0.66 | 20.75    0.41
               2.833    0.42 | 8.833    8.37 |14.833    0.66 | 20.83    0.41
               2.917    0.42 | 8.917    8.37 |14.917    0.66 | 20.92    0.41
               3.000    0.42 | 9.000    8.37 |15.000    0.66 | 21.00    0.41
               3.083    0.48 | 9.083    2.23 |15.083    0.59 | 21.08    0.39
               3.167    0.48 | 9.167    2.23 |15.167    0.59 | 21.17    0.39
               3.250    0.48 | 9.250    2.23 |15.250    0.59 | 21.25    0.39
               3.333    0.48 | 9.333    2.23 |15.333    0.59 | 21.33    0.39
               3.417    0.48 | 9.417    2.23 |15.417    0.59 | 21.42    0.39
               3.500    0.48 | 9.500    2.23 |15.500    0.59 | 21.50    0.39
               3.583    0.48 | 9.583    2.23 |15.583    0.59 | 21.58    0.39
               3.667    0.48 | 9.667    2.23 |15.667    0.59 | 21.67    0.39
               3.750    0.48 | 9.750    2.23 |15.750    0.59 | 21.75    0.39
               3.833    0.48 | 9.833    2.23 |15.833    0.59 | 21.83    0.39
               3.917    0.48 | 9.917    2.23 |15.917    0.59 | 21.92    0.39
               4.000    0.48 |10.000    2.23 |16.000    0.59 | 22.00    0.39
               4.083    0.56 |10.083    1.38 |16.083    0.54 | 22.08    0.37
               4.167    0.56 |10.167    1.38 |16.167    0.54 | 22.17    0.37
               4.250    0.56 |10.250    1.38 |16.250    0.54 | 22.25    0.37
               4.333    0.56 |10.333    1.38 |16.333    0.54 | 22.33    0.37
               4.417    0.56 |10.417    1.38 |16.417    0.54 | 22.42    0.37
               4.500    0.56 |10.500    1.38 |16.500    0.54 | 22.50    0.37
               4.583    0.56 |10.583    1.38 |16.583    0.54 | 22.58    0.37
               4.667    0.56 |10.667    1.38 |16.667    0.54 | 22.67    0.37
               4.750    0.56 |10.750    1.38 |16.750    0.54 | 22.75    0.37
               4.833    0.56 |10.833    1.38 |16.833    0.54 | 22.83    0.37
               4.917    0.56 |10.917    1.38 |16.917    0.54 | 22.92    0.37
               5.000    0.56 |11.000    1.38 |17.000    0.54 | 23.00    0.37
               5.083    0.70 |11.083    1.05 |17.083    0.50 | 23.08    0.36
               5.167    0.70 |11.167    1.05 |17.167    0.50 | 23.17    0.36
               5.250    0.70 |11.250    1.05 |17.250    0.50 | 23.25    0.36
               5.333    0.70 |11.333    1.05 |17.333    0.50 | 23.33    0.36
               5.417    0.70 |11.417    1.05 |17.417    0.50 | 23.42    0.36
               5.500    0.70 |11.500    1.05 |17.500    0.50 | 23.50    0.36
               5.583    0.70 |11.583    1.05 |17.583    0.50 | 23.58    0.36
               5.667    0.70 |11.667    1.05 |17.667    0.50 | 23.67    0.36
               5.750    0.70 |11.750    1.05 |17.750    0.50 | 23.75    0.36
               5.833    0.70 |11.833    1.05 |17.833    0.50 | 23.83    0.36
               5.917    0.70 |11.917    1.05 |17.917    0.50 | 23.92    0.36
               6.000    0.70 |12.000    1.05 |18.000    0.50 | 24.00    0.36

     Max.Eff.Inten.(mm/hr)=       8.37         2.27
                over (min)        5.00        10.00
     Storage Coeff.  (min)=       5.53 (ii)    8.56 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.20         0.12
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.02         0.00          0.017 (iii)
     TIME TO PEAK    (hrs)=       9.00         9.00           9.00
     RUNOFF VOLUME    (mm)=      24.00         5.85          23.81
     TOTAL RAINFALL   (mm)=      25.00        25.00          25.00
     RUNOFF COEFFICIENT   =       0.96         0.23           0.95

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  84.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000      0.0000   |    0.0190      0.0255
                          0.0000      0.0025   |    0.0200      0.0280
                          0.0080      0.0051   |    0.0210      0.0306
                          0.0100      0.0076   |    0.0220      0.0331
                          0.0120      0.0102   |    0.0230      0.0357
                          0.0140      0.0127   |    0.0240      0.0382
                          0.0150      0.0153   |    0.0250      0.0407
                          0.0160      0.0178   |    0.0250      0.0433
                          0.0170      0.0204   |    0.0260      0.0455
                          0.0180      0.0229   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0014)     0.720     0.017      9.00      23.81
   OUTFLOW: ID= 1 (  0020)     0.720     0.009      9.08      20.17

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 54.42
                    TIME SHIFT OF PEAK FLOW         (min)=  5.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.0064

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--------------------
| CALIB            |
| STANDHYD (  0016)|   Area    (ha)=   0.77
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.76         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      71.65        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    0.35 | 6.083    0.95 |12.083    0.87 | 18.08    0.47
               0.167    0.35 | 6.167    0.95 |12.167    0.87 | 18.17    0.47
               0.250    0.35 | 6.250    0.95 |12.250    0.87 | 18.25    0.47
               0.333    0.35 | 6.333    0.95 |12.333    0.87 | 18.33    0.47
               0.417    0.35 | 6.417    0.95 |12.417    0.87 | 18.42    0.47
               0.500    0.35 | 6.500    0.95 |12.500    0.87 | 18.50    0.47
               0.583    0.35 | 6.583    0.95 |12.583    0.87 | 18.58    0.47
               0.667    0.35 | 6.667    0.95 |12.667    0.87 | 18.67    0.47
               0.750    0.35 | 6.750    0.95 |12.750    0.87 | 18.75    0.47
               0.833    0.35 | 6.833    0.95 |12.833    0.87 | 18.83    0.47
               0.917    0.35 | 6.917    0.95 |12.917    0.87 | 18.92    0.47
               1.000    0.35 | 7.000    0.95 |13.000    0.87 | 19.00    0.47
               1.083    0.38 | 7.083    1.80 |13.083    0.74 | 19.08    0.44
               1.167    0.38 | 7.167    1.80 |13.167    0.74 | 19.17    0.44
               1.250    0.38 | 7.250    1.80 |13.250    0.74 | 19.25    0.44
               1.333    0.38 | 7.333    1.80 |13.333    0.74 | 19.33    0.44
               1.417    0.38 | 7.417    1.80 |13.417    0.74 | 19.42    0.44
               1.500    0.38 | 7.500    1.80 |13.500    0.74 | 19.50    0.44
               1.583    0.38 | 7.583    1.80 |13.583    0.74 | 19.58    0.44
               1.667    0.38 | 7.667    1.80 |13.667    0.74 | 19.67    0.44
               1.750    0.38 | 7.750    1.80 |13.750    0.74 | 19.75    0.44
               1.833    0.38 | 7.833    1.80 |13.833    0.74 | 19.83    0.44
               1.917    0.38 | 7.917    1.80 |13.917    0.74 | 19.92    0.44
               2.000    0.38 | 8.000    1.80 |14.000    0.74 | 20.00    0.44
               2.083    0.42 | 8.083    8.37 |14.083    0.66 | 20.08    0.41
               2.167    0.42 | 8.167    8.37 |14.167    0.66 | 20.17    0.41
               2.250    0.42 | 8.250    8.37 |14.250    0.66 | 20.25    0.41
               2.333    0.42 | 8.333    8.37 |14.333    0.66 | 20.33    0.41
               2.417    0.42 | 8.417    8.37 |14.417    0.66 | 20.42    0.41
               2.500    0.42 | 8.500    8.37 |14.500    0.66 | 20.50    0.41
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2.583	0.42	8.583	8.37	14.583	0.66	20.58	0.41
2.667	0.42	8.667	8.37	14.667	0.66	20.67	0.41
2.750	0.42	8.750	8.37	14.750	0.66	20.75	0.41
2.833	0.42	8.833	8.37	14.833	0.66	20.83	0.41
2.917	0.42	8.917	8.37	14.917	0.66	20.92	0.41
3.000	0.42	9.000	8.37	15.000	0.66	21.00	0.41
3.083	0.48	9.083	2.23	15.083	0.59	21.08	0.39
3.167	0.48	9.167	2.23	15.167	0.59	21.17	0.39
3.250	0.48	9.250	2.23	15.250	0.59	21.25	0.39
3.333	0.48	9.333	2.23	15.333	0.59	21.33	0.39
3.417	0.48	9.417	2.23	15.417	0.59	21.42	0.39
3.500	0.48	9.500	2.23	15.500	0.59	21.50	0.39
3.583	0.48	9.583	2.23	15.583	0.59	21.58	0.39
3.667	0.48	9.667	2.23	15.667	0.59	21.67	0.39
3.750	0.48	9.750	2.23	15.750	0.59	21.75	0.39
3.833	0.48	9.833	2.23	15.833	0.59	21.83	0.39
3.917	0.48	9.917	2.23	15.917	0.59	21.92	0.39
4.000	0.48	10.000	2.23	16.000	0.59	22.00	0.39
4.083	0.56	10.083	1.38	16.083	0.54	22.08	0.37
4.167	0.56	10.167	1.38	16.167	0.54	22.17	0.37
4.250	0.56	10.250	1.38	16.250	0.54	22.25	0.37
4.333	0.56	10.333	1.38	16.333	0.54	22.33	0.37
4.417	0.56	10.417	1.38	16.417	0.54	22.42	0.37
4.500	0.56	10.500	1.38	16.500	0.54	22.50	0.37
4.583	0.56	10.583	1.38	16.583	0.54	22.58	0.37
4.667	0.56	10.667	1.38	16.667	0.54	22.67	0.37
4.750	0.56	10.750	1.38	16.750	0.54	22.75	0.37
4.833	0.56	10.833	1.38	16.833	0.54	22.83	0.37
4.917	0.56	10.917	1.38	16.917	0.54	22.92	0.37
5.000	0.56	11.000	1.38	17.000	0.54	23.00	0.37
5.083	0.70	11.083	1.05	17.083	0.50	23.08	0.36
5.167	0.70	11.167	1.05	17.167	0.50	23.17	0.36
5.250	0.70	11.250	1.05	17.250	0.50	23.25	0.36
5.333	0.70	11.333	1.05	17.333	0.50	23.33	0.36
5.417	0.70	11.417	1.05	17.417	0.50	23.42	0.36
5.500	0.70	11.500	1.05	17.500	0.50	23.50	0.36
5.583	0.70	11.583	1.05	17.583	0.50	23.58	0.36
5.667	0.70	11.667	1.05	17.667	0.50	23.67	0.36
5.750	0.70	11.750	1.05	17.750	0.50	23.75	0.36
5.833	0.70	11.833	1.05	17.833	0.50	23.83	0.36
5.917	0.70	11.917	1.05	17.917	0.50	23.92	0.36
6.000	0.70	12.000	1.05	18.000	0.50	24.00	0.36

Max.Eff.Inten.(mm/hr)=	8.37	2.27	
over (min)	5.00	10.00	
Storage Coeff. (min)=	5.64 (ii)	8.67 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.20	0.12	
			TOTALS
PEAK FLOW (cms)=	0.02	0.00	0.018 (iii)
TIME TO PEAK (hrs)=	9.00	9.00	9.00
RUNOFF VOLUME (mm)=	24.00	5.85	23.81
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.23	0.95

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0017)	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	0.0190	0.0279
	0.0000	0.0028	0.0200	0.0307
	0.0080	0.0056	0.0210	0.0334
	0.0100	0.0084	0.0220	0.0362
	0.0120	0.0111	0.0230	0.0390
	0.0140	0.0139	0.0240	0.0418
	0.0150	0.0167	0.0250	0.0446
	0.0160	0.0195	0.0250	0.0474
	0.0170	0.0223	0.0260	0.0498
	0.0180	0.0251	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0016)	0.770	0.018	9.00	23.81
OUTFLOW: ID= 1 (0017)	0.770	0.009	9.08	20.09

PEAK FLOW REDUCTION [Qout/Qin](%)= 51.13
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0071

CALIB			
STANDHYD (0021)	Area (ha)= 0.44		
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00	
	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	0.44	0.00	
Dep. Storage (mm)=	1.00	5.00	
Average Slope (%)=	1.00	2.00	
Length (m)=	54.16	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	0.35	6.083	0.95	12.083	0.87	18.08	0.47
0.167	0.35	6.167	0.95	12.167	0.87	18.17	0.47
0.250	0.35	6.250	0.95	12.250	0.87	18.25	0.47
0.333	0.35	6.333	0.95	12.333	0.87	18.33	0.47
0.417	0.35	6.417	0.95	12.417	0.87	18.42	0.47
0.500	0.35	6.500	0.95	12.500	0.87	18.50	0.47
0.583	0.35	6.583	0.95	12.583	0.87	18.58	0.47
0.667	0.35	6.667	0.95	12.667	0.87	18.67	0.47
0.750	0.35	6.750	0.95	12.750	0.87	18.75	0.47
0.833	0.35	6.833	0.95	12.833	0.87	18.83	0.47
0.917	0.35	6.917	0.95	12.917	0.87	18.92	0.47
1.000	0.35	7.000	0.95	13.000	0.87	19.00	0.47
1.083	0.38	7.083	1.80	13.083	0.74	19.08	0.44
1.167	0.38	7.167	1.80	13.167	0.74	19.17	0.44
1.250	0.38	7.250	1.80	13.250	0.74	19.25	0.44
1.333	0.38	7.333	1.80	13.333	0.74	19.33	0.44
1.417	0.38	7.417	1.80	13.417	0.74	19.42	0.44
1.500	0.38	7.500	1.80	13.500	0.74	19.50	0.44
1.583	0.38	7.583	1.80	13.583	0.74	19.58	0.44
1.667	0.38	7.667	1.80	13.667	0.74	19.67	0.44
1.750	0.38	7.750	1.80	13.750	0.74	19.75	0.44
1.833	0.38	7.833	1.80	13.833	0.74	19.83	0.44
1.917	0.38	7.917	1.80	13.917	0.74	19.92	0.44
2.000	0.38	8.000	1.80	14.000	0.74	20.00	0.44
2.083	0.42	8.083	8.37	14.083	0.66	20.08	0.41
2.167	0.42	8.167	8.37	14.167	0.66	20.17	0.41
2.250	0.42	8.250	8.37	14.250	0.66	20.25	0.41
2.333	0.42	8.333	8.37	14.333	0.66	20.33	0.41
2.417	0.42	8.417	8.37	14.417	0.66	20.42	0.41
2.500	0.42	8.500	8.37	14.500	0.66	20.50	0.41
2.583	0.42	8.583	8.37	14.583	0.66	20.58	0.41
2.667	0.42	8.667	8.37	14.667	0.66	20.67	0.41
2.750	0.42	8.750	8.37	14.750	0.66	20.75	0.41
2.833	0.42	8.833	8.37	14.833	0.66	20.83	0.41
2.917	0.42	8.917	8.37	14.917	0.66	20.92	0.41
3.000	0.42	9.000	8.37	15.000	0.66	21.00	0.41
3.083	0.48	9.083	2.23	15.083	0.59	21.08	0.39
3.167	0.48	9.167	2.23	15.167	0.59	21.17	0.39
3.250	0.48	9.250	2.23	15.250	0.59	21.25	0.39
3.333	0.48	9.333	2.23	15.333	0.59	21.33	0.39
3.417	0.48	9.417	2.23	15.417	0.59	21.42	0.39
3.500	0.48	9.500	2.23	15.500	0.59	21.50	0.39
3.583	0.48	9.583	2.23	15.583	0.59	21.58	0.39
3.667	0.48	9.667	2.23	15.667	0.59	21.67	0.39
3.750	0.48	9.750	2.23	15.750	0.59	21.75	0.39
3.833	0.48	9.833	2.23	15.833	0.59	21.83	0.39
3.917	0.48	9.917	2.23	15.917	0.59	21.92	0.39
4.000	0.48	10.000	2.23	16.000	0.59	22.00	0.39
4.083	0.56	10.083	1.38	16.083	0.54	22.08	0.37
4.167	0.56	10.167	1.38	16.167	0.54	22.17	0.37
4.250	0.56	10.250	1.38	16.250	0.54	22.25	0.37
4.333	0.56	10.333	1.38	16.333	0.54	22.33	0.37
4.417	0.56	10.417	1.38	16.417	0.54	22.42	0.37
4.500	0.56	10.500	1.38	16.500	0.54	22.50	0.37
4.583	0.56	10.583	1.38	16.583	0.54	22.58	0.37
4.667	0.56	10.667	1.38	16.667	0.54	22.67	0.37
4.750	0.56	10.750	1.38	16.750	0.54	22.75	0.37
4.833	0.56	10.833	1.38	16.833	0.54	22.83	0.37
4.917	0.56	10.917	1.38	16.917	0.54	22.92	0.37
5.000	0.56	11.000	1.38	17.000	0.54	23.00	0.37
5.083	0.70	11.083	1.05	17.083	0.50	23.08	0.36
5.167	0.70	11.167	1.05	17.167	0.50	23.17	0.36
5.250	0.70	11.250	1.05	17.250	0.50	23.25	0.36
5.333	0.70	11.333	1.05	17.333	0.50	23.33	0.36
5.417	0.70	11.417	1.05	17.417	0.50	23.42	0.36
5.500	0.70	11.500	1.05	17.500	0.50	23.50	0.36
5.583	0.70	11.583	1.05	17.583	0.50	23.58	0.36
5.667	0.70	11.667	1.05	17.667	0.50	23.67	0.36
5.750	0.70	11.750	1.05	17.750	0.50	23.75	0.36
5.833	0.70	11.833	1.05	17.833	0.50	23.83	0.36
5.917	0.70	11.917	1.05	17.917	0.50	23.92	0.36
6.000	0.70	12.000	1.05	18.000	0.50	24.00	0.36

Max.Eff.Inten.(mm/hr)=	8.37	2.27	
over (min)	5.00	10.00	
Storage Coeff. (min)=	4.77 (ii)	7.80 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.22	0.13	
			TOTALS
PEAK FLOW (cms)=	0.01	0.00	0.010 (iii)
TIME TO PEAK (hrs)=	8.92	9.00	9.00
RUNOFF VOLUME (mm)=	24.00	5.85	23.81
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.23	0.95

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):     0.27   0.004     9.00    17.39
     + ID2= 2 (  0017):     0.77   0.009     9.08    20.09
       ====================================================
       ID = 3 (  0022):     1.04   0.013     9.00    19.39

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):     1.04   0.013     9.00    19.39
     + ID2= 2 (  0019):     0.80   0.009     9.08    18.19
       ====================================================
       ID = 1 (  0022):     1.84   0.022     9.00    18.87

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0022):     1.84   0.022     9.00    18.87
     + ID2= 2 (  0020):     0.72   0.009     9.08    20.17
       ====================================================
       ID = 3 (  0022):     2.56   0.031     9.00    19.24

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):     2.56   0.031     9.00    19.24
     + ID2= 2 (  0021):     0.44   0.010     9.00    23.81
       ====================================================
       ID = 1 (  0022):     3.00   0.041     9.00    19.91

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
```

```
-------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0022):     3.00   0.041     9.00    19.91
     + ID2= 2 (  0036):     0.14   0.001     9.00     5.82
       ====================================================
       ID = 3 (  0022):     3.14   0.042     9.00    19.28

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):     3.14   0.042     9.00    19.28
     + ID2= 2 (  0039):     0.05   0.000     9.00     5.81
       ====================================================
       ID = 1 (  0022):     3.19   0.042     9.00    19.07

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0002)|     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   |    0.1440      0.0413
                          0.0980      0.0206   |    0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0022)      3.190      0.042      9.00      19.07
   OUTFLOW: ID= 1 (  0002)      3.190      0.032      9.25      19.05

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 75.27
                  TIME SHIFT OF PEAK FLOW         (min)= 15.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0067

--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0035)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0002):     3.19   0.032     9.25    19.05
     + ID2= 2 (  0030):     0.59   0.005     9.00     8.92
       ====================================================
       ID = 3 (  0035):     3.78   0.035     9.00    17.47
```

```
    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
================================================================================
========================

       V    V   I    SSSSS  U   U    A    L             (v 6.2.2016)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\schhom\AppData\Local\Civica\VH5\c4784722-8666-4e89-8a43-7d10dc9357ef\2516
076e-9e21-42da-a45e-7ec173794f53\scena
  Summary filename:
C:\Users\schhom\AppData\Local\Civica\VH5\c4784722-8666-4e89-8a43-7d10dc9357ef\2516
076e-9e21-42da-a45e-7ec173794f53\scena


DATE: 10-15-2024                          TIME: 11:03:44

USER:



COMMENTS: _____


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  ***********************************************
  ** SIMULATION : 25yr_24hr Chicago            **
  ***********************************************

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```

```
| CHICAGO STORM    |    IDF curve parameters: A=1368.910
| Ptotal=105.37 mm |                          B=   8.000
--------------------                          C=   0.789
                         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
      0.00    0.96 |  6.00    3.22 | 12.00    2.84 | 18.00    1.36
      0.17    0.98 |  6.17    3.50 | 12.17    2.75 | 18.17    1.34
      0.33    1.00 |  6.33    3.83 | 12.33    2.66 | 18.33    1.33
      0.50    1.02 |  6.50    4.26 | 12.50    2.58 | 18.50    1.31
      0.67    1.04 |  6.67    4.80 | 12.67    2.51 | 18.67    1.29
      0.83    1.06 |  6.83    5.52 | 12.83    2.44 | 18.83    1.28
      1.00    1.08 |  7.00    6.54 | 13.00    2.37 | 19.00    1.26
      1.17    1.10 |  7.17    8.09 | 13.17    2.31 | 19.17    1.25
      1.33    1.12 |  7.33   10.78 | 13.33    2.25 | 19.33    1.23
      1.50    1.14 |  7.50   16.61 | 13.50    2.20 | 19.50    1.22
      1.67    1.17 |  7.67   39.40 | 13.67    2.15 | 19.67    1.20
      1.83    1.20 |  7.83  139.95 | 13.83    2.10 | 19.83    1.19
      2.00    1.22 |  8.00   51.29 | 14.00    2.05 | 20.00    1.18
      2.17    1.25 |  8.17   27.55 | 14.17    2.00 | 20.17    1.16
      2.33    1.28 |  8.33   18.85 | 14.33    1.96 | 20.33    1.15
      2.50    1.32 |  8.50   14.40 | 14.50    1.92 | 20.50    1.14
      2.67    1.35 |  8.67   11.70 | 14.67    1.88 | 20.67    1.13
      2.83    1.39 |  8.83    9.89 | 14.83    1.85 | 20.83    1.12
      3.00    1.43 |  9.00    8.59 | 15.00    1.81 | 21.00    1.11
      3.17    1.47 |  9.17    7.62 | 15.17    1.78 | 21.17    1.09
      3.33    1.51 |  9.33    6.85 | 15.33    1.74 | 21.33    1.08
      3.50    1.56 |  9.50    6.24 | 15.50    1.71 | 21.50    1.07
      3.67    1.61 |  9.67    5.74 | 15.67    1.68 | 21.67    1.06
      3.83    1.67 |  9.83    5.32 | 15.83    1.66 | 21.83    1.05
      4.00    1.73 | 10.00    4.96 | 16.00    1.63 | 22.00    1.04
      4.17    1.79 | 10.17    4.65 | 16.17    1.60 | 22.17    1.03
      4.33    1.86 | 10.33    4.38 | 16.33    1.58 | 22.33    1.02
      4.50    1.94 | 10.50    4.14 | 16.50    1.55 | 22.50    1.01
      4.67    2.02 | 10.67    3.93 | 16.67    1.53 | 22.67    1.00
      4.83    2.12 | 10.83    3.75 | 16.83    1.50 | 22.83    0.99
      5.00    2.22 | 11.00    3.58 | 17.00    1.48 | 23.00    0.99
      5.17    2.34 | 11.17    3.42 | 17.17    1.46 | 23.17    0.98
      5.33    2.47 | 11.33    3.29 | 17.33    1.44 | 23.33    0.97
      5.50    2.62 | 11.50    3.16 | 17.50    1.42 | 23.50    0.96
      5.67    2.79 | 11.67    3.04 | 17.67    1.40 | 23.67    0.95
      5.83    2.99 | 11.83    2.94 | 17.83    1.38 | 23.83    0.94

--------------------------------------------------------------------------------
```

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--------------------
| CALIB            |
| NASHYD   (  0026)|   Area    (ha)=   0.28   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.22

        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    0.96 | 6.083    3.22 |12.083    2.84 | 18.08    1.36
0.167    0.96 | 6.167    3.22 |12.167    2.84 | 18.17    1.36
0.250    0.98 | 6.250    3.50 |12.250    2.75 | 18.25    1.34
0.333    0.98 | 6.333    3.50 |12.333    2.75 | 18.33    1.34
0.417    1.00 | 6.417    3.83 |12.417    2.66 | 18.42    1.33
0.500    1.00 | 6.500    3.83 |12.500    2.66 | 18.50    1.33
0.583    1.02 | 6.583    4.26 |12.583    2.58 | 18.58    1.31
0.667    1.02 | 6.667    4.26 |12.667    2.58 | 18.67    1.31
0.750    1.04 | 6.750    4.80 |12.750    2.51 | 18.75    1.29
0.833    1.04 | 6.833    4.80 |12.833    2.51 | 18.83    1.29
0.917    1.06 | 6.917    5.52 |12.917    2.44 | 18.92    1.28
1.000    1.06 | 7.000    5.52 |13.000    2.44 | 19.00    1.28
1.083    1.08 | 7.083    6.54 |13.083    2.37 | 19.08    1.26
1.167    1.08 | 7.167    6.54 |13.167    2.37 | 19.17    1.26
1.250    1.10 | 7.250    8.09 |13.250    2.31 | 19.25    1.25
1.333    1.10 | 7.333    8.09 |13.333    2.31 | 19.33    1.25
1.417    1.12 | 7.417   10.78 |13.417    2.25 | 19.42    1.23
1.500    1.12 | 7.500   10.78 |13.500    2.25 | 19.50    1.23
1.583    1.14 | 7.583   16.61 |13.583    2.20 | 19.58    1.22
1.667    1.14 | 7.667   16.61 |13.667    2.20 | 19.67    1.22
1.750    1.17 | 7.750   39.40 |13.750    2.15 | 19.75    1.20
1.833    1.17 | 7.833   39.40 |13.833    2.15 | 19.83    1.20
1.917    1.20 | 7.917  139.95 |13.917    2.10 | 19.92    1.19
2.000    1.20 | 8.000  139.94 |14.000    2.10 | 20.00    1.19
2.083    1.22 | 8.083   51.29 |14.083    2.05 | 20.08    1.18
2.167    1.22 | 8.167   51.29 |14.167    2.05 | 20.17    1.18
2.250    1.25 | 8.250   27.55 |14.250    2.00 | 20.25    1.16
2.333    1.25 | 8.333   27.55 |14.333    2.00 | 20.33    1.16
2.417    1.28 | 8.417   18.85 |14.417    1.96 | 20.42    1.15
2.500    1.28 | 8.500   18.85 |14.500    1.96 | 20.50    1.15
2.583    1.32 | 8.583   14.40 |14.583    1.92 | 20.58    1.14
2.667    1.32 | 8.667   14.40 |14.667    1.92 | 20.67    1.14
2.750    1.35 | 8.750   11.70 |14.750    1.88 | 20.75    1.13
2.833    1.35 | 8.833   11.70 |14.833    1.88 | 20.83    1.13
2.917    1.39 | 8.917    9.89 |14.917    1.85 | 20.92    1.12
3.000    1.39 | 9.000    9.89 |15.000    1.85 | 21.00    1.12
3.083    1.43 | 9.083    8.59 |15.083    1.81 | 21.08    1.11
3.167    1.43 | 9.167    8.59 |15.167    1.81 | 21.17    1.11
3.250    1.47 | 9.250    7.62 |15.250    1.78 | 21.25    1.09
3.333    1.47 | 9.333    7.62 |15.333    1.78 | 21.33    1.09
3.417    1.51 | 9.417    6.85 |15.417    1.74 | 21.42    1.08
3.500    1.51 | 9.500    6.85 |15.500    1.74 | 21.50    1.08
3.583    1.56 | 9.583    6.24 |15.583    1.71 | 21.58    1.07
3.667    1.56 | 9.667    6.24 |15.667    1.71 | 21.67    1.07
3.750    1.61 | 9.750    5.74 |15.750    1.68 | 21.75    1.06
3.833    1.61 | 9.833    5.74 |15.833    1.68 | 21.83    1.06
3.917    1.67 | 9.917    5.32 |15.917    1.66 | 21.92    1.05
4.000    1.67 |10.000    5.32 |16.000    1.66 | 22.00    1.05
4.083    1.73 |10.083    4.96 |16.083    1.63 | 22.08    1.04
4.167    1.73 |10.167    4.96 |16.167    1.63 | 22.17    1.04
4.250    1.79 |10.250    4.65 |16.250    1.60 | 22.25    1.03
4.333    1.79 |10.333    4.65 |16.333    1.60 | 22.33    1.03
4.417    1.86 |10.417    4.38 |16.417    1.58 | 22.42    1.02
4.500    1.86 |10.500    4.38 |16.500    1.58 | 22.50    1.02
4.583    1.94 |10.583    4.14 |16.583    1.55 | 22.58    1.01
4.667    1.94 |10.667    4.14 |16.667    1.55 | 22.67    1.01
4.750    2.02 |10.750    3.93 |16.750    1.53 | 22.75    1.00
4.833    2.02 |10.833    3.93 |16.833    1.53 | 22.83    1.00
4.917    2.12 |10.917    3.75 |16.917    1.50 | 22.92    0.99
5.000    2.12 |11.000    3.75 |17.000    1.50 | 23.00    0.99
5.083    2.22 |11.083    3.58 |17.083    1.48 | 23.08    0.99
5.167    2.22 |11.167    3.58 |17.167    1.48 | 23.17    0.99
5.250    2.34 |11.250    3.42 |17.250    1.46 | 23.25    0.98
5.333    2.34 |11.333    3.42 |17.333    1.46 | 23.33    0.98
5.417    2.47 |11.417    3.29 |17.417    1.44 | 23.42    0.97
5.500    2.47 |11.500    3.29 |17.500    1.44 | 23.50    0.97
5.583    2.62 |11.583    3.16 |17.583    1.42 | 23.58    0.96
5.667    2.62 |11.667    3.16 |17.667    1.42 | 23.67    0.96
5.750    2.79 |11.750    3.04 |17.750    1.40 | 23.75    0.95
5.833    2.79 |11.833    3.04 |17.833    1.40 | 23.83    0.95
5.917    2.99 |11.917    2.94 |17.917    1.38 | 23.92    0.94
6.000    2.99 |12.000    2.94 |18.000    1.38 | 24.00    0.94

     Unit Hyd Qpeak  (cms)=   0.049

     PEAK FLOW       (cms)=   0.039 (i)
     TIME TO PEAK    (hrs)=   8.167
     RUNOFF VOLUME    (mm)=  67.638
     TOTAL RAINFALL   (mm)= 105.375
     RUNOFF COEFFICIENT   =   0.642

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

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| CALIB            |
| NASHYD   (  0029)|   Area    (ha)=   0.18   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.17

        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    0.96 | 6.083    3.22 |12.083    2.84 | 18.08    1.36
0.167    0.96 | 6.167    3.22 |12.167    2.84 | 18.17    1.36
0.250    0.98 | 6.250    3.50 |12.250    2.75 | 18.25    1.34
0.333    0.98 | 6.333    3.50 |12.333    2.75 | 18.33    1.34
0.417    1.00 | 6.417    3.83 |12.417    2.66 | 18.42    1.33
0.500    1.00 | 6.500    3.83 |12.500    2.66 | 18.50    1.33
0.583    1.02 | 6.583    4.26 |12.583    2.58 | 18.58    1.31
0.667    1.02 | 6.667    4.26 |12.667    2.58 | 18.67    1.31
0.750    1.04 | 6.750    4.80 |12.750    2.51 | 18.75    1.29
0.833    1.04 | 6.833    4.80 |12.833    2.51 | 18.83    1.29
0.917    1.06 | 6.917    5.52 |12.917    2.44 | 18.92    1.28
1.000    1.06 | 7.000    5.52 |13.000    2.44 | 19.00    1.28
1.083    1.08 | 7.083    6.54 |13.083    2.37 | 19.08    1.26
1.167    1.08 | 7.167    6.54 |13.167    2.37 | 19.17    1.26
1.250    1.10 | 7.250    8.09 |13.250    2.31 | 19.25    1.25
1.333    1.10 | 7.333    8.09 |13.333    2.31 | 19.33    1.25
1.417    1.12 | 7.417   10.78 |13.417    2.25 | 19.42    1.23
1.500    1.12 | 7.500   10.78 |13.500    2.25 | 19.50    1.23
1.583    1.14 | 7.583   16.61 |13.583    2.20 | 19.58    1.22
1.667    1.14 | 7.667   16.61 |13.667    2.20 | 19.67    1.22
1.750    1.17 | 7.750   39.40 |13.750    2.15 | 19.75    1.20
1.833    1.17 | 7.833   39.40 |13.833    2.15 | 19.83    1.20
1.917    1.20 | 7.917  139.95 |13.917    2.10 | 19.92    1.19
2.000    1.20 | 8.000  139.94 |14.000    2.10 | 20.00    1.19
2.083    1.22 | 8.083   51.29 |14.083    2.05 | 20.08    1.18
2.167    1.22 | 8.167   51.29 |14.167    2.05 | 20.17    1.18
2.250    1.25 | 8.250   27.55 |14.250    2.00 | 20.25    1.16
2.333    1.25 | 8.333   27.55 |14.333    2.00 | 20.33    1.16
2.417    1.28 | 8.417   18.85 |14.417    1.96 | 20.42    1.15
2.500    1.28 | 8.500   18.85 |14.500    1.96 | 20.50    1.15
2.583    1.32 | 8.583   14.40 |14.583    1.92 | 20.58    1.14
2.667    1.32 | 8.667   14.40 |14.667    1.92 | 20.67    1.14
2.750    1.35 | 8.750   11.70 |14.750    1.88 | 20.75    1.13
2.833    1.35 | 8.833   11.70 |14.833    1.88 | 20.83    1.13
2.917    1.39 | 8.917    9.89 |14.917    1.85 | 20.92    1.12
3.000    1.39 | 9.000    9.89 |15.000    1.85 | 21.00    1.12
3.083    1.43 | 9.083    8.59 |15.083    1.81 | 21.08    1.11
3.167    1.43 | 9.167    8.59 |15.167    1.81 | 21.17    1.11
3.250    1.47 | 9.250    7.62 |15.250    1.78 | 21.25    1.09
3.333    1.47 | 9.333    7.62 |15.333    1.78 | 21.33    1.09
3.417    1.51 | 9.417    6.85 |15.417    1.74 | 21.42    1.08
3.500    1.51 | 9.500    6.85 |15.500    1.74 | 21.50    1.08
3.583    1.56 | 9.583    6.24 |15.583    1.71 | 21.58    1.07
3.667    1.56 | 9.667    6.24 |15.667    1.71 | 21.67    1.07
3.750    1.61 | 9.750    5.74 |15.750    1.68 | 21.75    1.06
3.833    1.61 | 9.833    5.74 |15.833    1.68 | 21.83    1.06
3.917    1.67 | 9.917    5.32 |15.917    1.66 | 21.92    1.05
4.000    1.67 |10.000    5.32 |16.000    1.66 | 22.00    1.05
4.083    1.73 |10.083    4.96 |16.083    1.63 | 22.08    1.04
4.167    1.73 |10.167    4.96 |16.167    1.63 | 22.17    1.04
4.250    1.79 |10.250    4.65 |16.250    1.60 | 22.25    1.03
4.333    1.79 |10.333    4.65 |16.333    1.60 | 22.33    1.03
4.417    1.86 |10.417    4.38 |16.417    1.58 | 22.42    1.02
4.500    1.86 |10.500    4.38 |16.500    1.58 | 22.50    1.02
4.583    1.94 |10.583    4.14 |16.583    1.55 | 22.58    1.01
4.667    1.94 |10.667    4.14 |16.667    1.55 | 22.67    1.01
4.750    2.02 |10.750    3.93 |16.750    1.53 | 22.75    1.00
4.833    2.02 |10.833    3.93 |16.833    1.53 | 22.83    1.00
4.917    2.12 |10.917    3.75 |16.917    1.50 | 22.92    0.99
5.000    2.12 |11.000    3.75 |17.000    1.50 | 23.00    0.99
5.083    2.22 |11.083    3.58 |17.083    1.48 | 23.08    0.99
5.167    2.22 |11.167    3.58 |17.167    1.48 | 23.17    0.99
5.250    2.34 |11.250    3.42 |17.250    1.46 | 23.25    0.98
5.333    2.34 |11.333    3.42 |17.333    1.46 | 23.33    0.98
5.417    2.47 |11.417    3.29 |17.417    1.44 | 23.42    0.97
5.500    2.47 |11.500    3.29 |17.500    1.44 | 23.50    0.97
5.583    2.62 |11.583    3.16 |17.583    1.42 | 23.58    0.96
5.667    2.62 |11.667    3.16 |17.667    1.42 | 23.67    0.96
5.750    2.79 |11.750    3.04 |17.750    1.40 | 23.75    0.95
5.833    2.79 |11.833    3.04 |17.833    1.40 | 23.83    0.95
5.917    2.99 |11.917    2.94 |17.917    1.38 | 23.92    0.94
6.000    2.99 |12.000    2.94 |18.000    1.38 | 24.00    0.94

     Unit Hyd Qpeak  (cms)=   0.040

     PEAK FLOW       (cms)=   0.028 (i)
     TIME TO PEAK    (hrs)=   8.083
     RUNOFF VOLUME    (mm)=  67.484
     TOTAL RAINFALL   (mm)= 105.375
     RUNOFF COEFFICIENT   =   0.640

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

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| CALIB            |
| STANDHYD (  0028)|   Area    (ha)=   0.08
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
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                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.08         0.00
     Dep. Storage     (mm)=       1.00         5.00
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Average Slope	(%)=	1.00	2.00
Length	(m)=	23.09	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	0.96	6.083	3.22	12.083	2.84	18.08	1.36
0.167	0.96	6.167	3.22	12.167	2.84	18.17	1.36
0.250	0.98	6.250	3.50	12.250	2.75	18.25	1.34
0.333	0.98	6.333	3.50	12.333	2.75	18.33	1.34
0.417	1.00	6.417	3.83	12.417	2.66	18.42	1.33
0.500	1.00	6.500	3.83	12.500	2.66	18.50	1.33
0.583	1.02	6.583	4.26	12.583	2.58	18.58	1.31
0.667	1.02	6.667	4.26	12.667	2.58	18.67	1.31
0.750	1.04	6.750	4.80	12.750	2.51	18.75	1.29
0.833	1.04	6.833	4.80	12.833	2.51	18.83	1.29
0.917	1.06	6.917	5.52	12.917	2.44	18.92	1.28
1.000	1.06	7.000	5.52	13.000	2.44	19.00	1.28
1.083	1.08	7.083	6.54	13.083	2.37	19.08	1.26
1.167	1.08	7.167	6.54	13.167	2.37	19.17	1.26
1.250	1.10	7.250	8.09	13.250	2.31	19.25	1.25
1.333	1.10	7.333	8.09	13.333	2.31	19.33	1.25
1.417	1.12	7.417	10.78	13.417	2.25	19.42	1.23
1.500	1.12	7.500	10.78	13.500	2.25	19.50	1.23
1.583	1.14	7.583	16.61	13.583	2.20	19.58	1.22
1.667	1.14	7.667	16.61	13.667	2.20	19.67	1.22
1.750	1.17	7.750	39.40	13.750	2.15	19.75	1.20
1.833	1.17	7.833	39.40	13.833	2.15	19.83	1.20
1.917	1.20	7.917	139.95	13.917	2.10	19.92	1.19
2.000	1.20	8.000	139.94	14.000	2.10	20.00	1.19
2.083	1.22	8.083	51.29	14.083	2.05	20.08	1.18
2.167	1.22	8.167	51.29	14.167	2.05	20.17	1.18
2.250	1.25	8.250	27.55	14.250	2.00	20.25	1.16
2.333	1.25	8.333	27.55	14.333	2.00	20.33	1.16
2.417	1.28	8.417	18.85	14.417	1.96	20.42	1.15
2.500	1.28	8.500	18.85	14.500	1.96	20.50	1.15
2.583	1.32	8.583	14.40	14.583	1.92	20.58	1.14
2.667	1.32	8.667	14.40	14.667	1.92	20.67	1.14
2.750	1.35	8.750	11.70	14.750	1.88	20.75	1.13
2.833	1.35	8.833	11.70	14.833	1.88	20.83	1.13
2.917	1.39	8.917	9.89	14.917	1.85	20.92	1.12
3.000	1.39	9.000	9.89	15.000	1.85	21.00	1.12
3.083	1.43	9.083	8.59	15.083	1.81	21.08	1.11
3.167	1.43	9.167	8.59	15.167	1.81	21.17	1.11
3.250	1.47	9.250	7.62	15.250	1.78	21.25	1.09
3.333	1.47	9.333	7.62	15.333	1.78	21.33	1.09
3.417	1.51	9.417	6.85	15.417	1.74	21.42	1.08
3.500	1.51	9.500	6.85	15.500	1.74	21.50	1.08
3.583	1.56	9.583	6.24	15.583	1.71	21.58	1.07
3.667	1.56	9.667	6.24	15.667	1.71	21.67	1.07
3.750	1.61	9.750	5.74	15.750	1.68	21.75	1.06
3.833	1.61	9.833	5.74	15.833	1.68	21.83	1.06
3.917	1.67	9.917	5.32	15.917	1.66	21.92	1.05
4.000	1.67	10.000	5.32	16.000	1.66	22.00	1.05
4.083	1.73	10.083	4.96	16.083	1.63	22.08	1.04
4.167	1.73	10.167	4.96	16.167	1.63	22.17	1.04
4.250	1.79	10.250	4.65	16.250	1.60	22.25	1.03
4.333	1.79	10.333	4.65	16.333	1.60	22.33	1.03
4.417	1.86	10.417	4.38	16.417	1.58	22.42	1.02
4.500	1.86	10.500	4.38	16.500	1.58	22.50	1.02
4.583	1.94	10.583	4.14	16.583	1.55	22.58	1.01
4.667	1.94	10.667	4.14	16.667	1.55	22.67	1.01
4.750	2.02	10.750	3.93	16.750	1.53	22.75	1.00
4.833	2.02	10.833	3.93	16.833	1.53	22.83	1.00
4.917	2.12	10.917	3.75	16.917	1.50	22.92	0.99
5.000	2.12	11.000	3.75	17.000	1.50	23.00	0.99
5.083	2.22	11.083	3.58	17.083	1.48	23.08	0.99
5.167	2.22	11.167	3.58	17.167	1.48	23.17	0.99
5.250	2.34	11.250	3.42	17.250	1.46	23.25	0.98
5.333	2.34	11.333	3.42	17.333	1.46	23.33	0.98
5.417	2.47	11.417	3.29	17.417	1.44	23.42	0.97
5.500	2.47	11.500	3.29	17.500	1.44	23.50	0.97
5.583	2.62	11.583	3.16	17.583	1.42	23.58	0.96
5.667	2.62	11.667	3.16	17.667	1.42	23.67	0.96
5.750	2.79	11.750	3.04	17.750	1.40	23.75	0.95
5.833	2.79	11.833	3.04	17.833	1.40	23.83	0.95
5.917	2.99	11.917	2.94	17.917	1.38	23.92	0.94
6.000	2.99	12.000	2.94	18.000	1.38	24.00	0.94

Max.Eff.Inten.(mm/hr)=		139.95	90.55
	over (min)	5.00	5.00
Storage Coeff.	(min)=	0.93 (ii)	1.91 (ii)
Unit Hyd. Tpeak	(min)=	5.00	5.00
Unit Hyd. peak	(cms)=	0.34	0.32

				TOTALS
PEAK FLOW	(cms)=	0.03	0.00	0.031 (iii)
TIME TO PEAK	(hrs)=	8.00	8.00	8.00
RUNOFF VOLUME	(mm)=	104.37	67.73	104.01
TOTAL RAINFALL	(mm)=	105.37	105.37	105.37
RUNOFF COEFFICIENT	=	0.99	0.64	0.99

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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 (0037)
ID= 1 DT= 5.0 min

Area (ha)= 0.04
Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.04	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	16.33	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	0.96	6.083	3.22	12.083	2.84	18.08	1.36
0.167	0.96	6.167	3.22	12.167	2.84	18.17	1.36
0.250	0.98	6.250	3.50	12.250	2.75	18.25	1.34
0.333	0.98	6.333	3.50	12.333	2.75	18.33	1.34
0.417	1.00	6.417	3.83	12.417	2.66	18.42	1.33
0.500	1.00	6.500	3.83	12.500	2.66	18.50	1.33
0.583	1.02	6.583	4.26	12.583	2.58	18.58	1.31
0.667	1.02	6.667	4.26	12.667	2.58	18.67	1.31
0.750	1.04	6.750	4.80	12.750	2.51	18.75	1.29
0.833	1.04	6.833	4.80	12.833	2.51	18.83	1.29
0.917	1.06	6.917	5.52	12.917	2.44	18.92	1.28
1.000	1.06	7.000	5.52	13.000	2.44	19.00	1.28
1.083	1.08	7.083	6.54	13.083	2.37	19.08	1.26
1.167	1.08	7.167	6.54	13.167	2.37	19.17	1.26
1.250	1.10	7.250	8.09	13.250	2.31	19.25	1.25
1.333	1.10	7.333	8.09	13.333	2.31	19.33	1.25
1.417	1.12	7.417	10.78	13.417	2.25	19.42	1.23
1.500	1.12	7.500	10.78	13.500	2.25	19.50	1.23
1.583	1.14	7.583	16.61	13.583	2.20	19.58	1.22
1.667	1.14	7.667	16.61	13.667	2.20	19.67	1.22
1.750	1.17	7.750	39.40	13.750	2.15	19.75	1.20
1.833	1.17	7.833	39.40	13.833	2.15	19.83	1.20
1.917	1.20	7.917	139.95	13.917	2.10	19.92	1.19
2.000	1.20	8.000	139.94	14.000	2.10	20.00	1.19
2.083	1.22	8.083	51.29	14.083	2.05	20.08	1.18
2.167	1.22	8.167	51.29	14.167	2.05	20.17	1.18
2.250	1.25	8.250	27.55	14.250	2.00	20.25	1.16
2.333	1.25	8.333	27.55	14.333	2.00	20.33	1.16
2.417	1.28	8.417	18.85	14.417	1.96	20.42	1.15
2.500	1.28	8.500	18.85	14.500	1.96	20.50	1.15
2.583	1.32	8.583	14.40	14.583	1.92	20.58	1.14
2.667	1.32	8.667	14.40	14.667	1.92	20.67	1.14
2.750	1.35	8.750	11.70	14.750	1.88	20.75	1.13
2.833	1.35	8.833	11.70	14.833	1.88	20.83	1.13
2.917	1.39	8.917	9.89	14.917	1.85	20.92	1.12
3.000	1.39	9.000	9.89	15.000	1.85	21.00	1.12
3.083	1.43	9.083	8.59	15.083	1.81	21.08	1.11
3.167	1.43	9.167	8.59	15.167	1.81	21.17	1.11
3.250	1.47	9.250	7.62	15.250	1.78	21.25	1.09
3.333	1.47	9.333	7.62	15.333	1.78	21.33	1.09
3.417	1.51	9.417	6.85	15.417	1.74	21.42	1.08
3.500	1.51	9.500	6.85	15.500	1.74	21.50	1.08
3.583	1.56	9.583	6.24	15.583	1.71	21.58	1.07
3.667	1.56	9.667	6.24	15.667	1.71	21.67	1.07
3.750	1.61	9.750	5.74	15.750	1.68	21.75	1.06
3.833	1.61	9.833	5.74	15.833	1.68	21.83	1.06
3.917	1.67	9.917	5.32	15.917	1.66	21.92	1.05
4.000	1.67	10.000	5.32	16.000	1.66	22.00	1.05
4.083	1.73	10.083	4.96	16.083	1.63	22.08	1.04
4.167	1.73	10.167	4.96	16.167	1.63	22.17	1.04
4.250	1.79	10.250	4.65	16.250	1.60	22.25	1.03
4.333	1.79	10.333	4.65	16.333	1.60	22.33	1.03
4.417	1.86	10.417	4.38	16.417	1.58	22.42	1.02
4.500	1.86	10.500	4.38	16.500	1.58	22.50	1.02
4.583	1.94	10.583	4.14	16.583	1.55	22.58	1.01
4.667	1.94	10.667	4.14	16.667	1.55	22.67	1.01
4.750	2.02	10.750	3.93	16.750	1.53	22.75	1.00
4.833	2.02	10.833	3.93	16.833	1.53	22.83	1.00
4.917	2.12	10.917	3.75	16.917	1.50	22.92	0.99
5.000	2.12	11.000	3.75	17.000	1.50	23.00	0.99
5.083	2.22	11.083	3.58	17.083	1.48	23.08	0.99
5.167	2.22	11.167	3.58	17.167	1.48	23.17	0.99
5.250	2.34	11.250	3.42	17.250	1.46	23.25	0.98
5.333	2.34	11.333	3.42	17.333	1.46	23.33	0.98
5.417	2.47	11.417	3.29	17.417	1.44	23.42	0.97
5.500	2.47	11.500	3.29	17.500	1.44	23.50	0.97
5.583	2.62	11.583	3.16	17.583	1.42	23.58	0.96
5.667	2.62	11.667	3.16	17.667	1.42	23.67	0.96
5.750	2.79	11.750	3.04	17.750	1.40	23.75	0.95
5.833	2.79	11.833	3.04	17.833	1.40	23.83	0.95
5.917	2.99	11.917	2.94	17.917	1.38	23.92	0.94
6.000	2.99	12.000	2.94	18.000	1.38	24.00	0.94

Max.Eff.Inten.(mm/hr)=		139.95	97.49
	over (min)	5.00	5.00
Storage Coeff.	(min)=	0.75 (ii)	1.73 (ii)
Unit Hyd. Tpeak	(min)=	5.00	5.00
Unit Hyd. peak	(cms)=	0.34	0.32

				TOTALS
PEAK FLOW	(cms)=	0.02	0.00	0.016 (iii)
TIME TO PEAK	(hrs)=	8.00	8.00	8.00
RUNOFF VOLUME	(mm)=	104.37	72.56	104.06
TOTAL RAINFALL	(mm)=	105.37	105.37	105.37
RUNOFF COEFFICIENT	=	0.99	0.69	0.99

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 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 (0038)	Area	(ha)=	0.01
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.01	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	8.16	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	0.96	6.083	3.22	12.083	2.84	18.08	1.36
0.167	0.96	6.167	3.22	12.167	2.84	18.17	1.36
0.250	0.98	6.250	3.50	12.250	2.75	18.25	1.34
0.333	0.98	6.333	3.50	12.333	2.75	18.33	1.34
0.417	1.00	6.417	3.83	12.417	2.66	18.42	1.33
0.500	1.00	6.500	3.83	12.500	2.66	18.50	1.33
0.583	1.02	6.583	4.26	12.583	2.58	18.58	1.31
0.667	1.02	6.667	4.26	12.667	2.58	18.67	1.31
0.750	1.04	6.750	4.80	12.750	2.51	18.75	1.29
0.833	1.04	6.833	4.80	12.833	2.51	18.83	1.29
0.917	1.06	6.917	5.52	12.917	2.44	18.92	1.28
1.000	1.06	7.000	5.52	13.000	2.44	19.00	1.28
1.083	1.08	7.083	6.54	13.083	2.37	19.08	1.26
1.167	1.08	7.167	6.54	13.167	2.37	19.17	1.26
1.250	1.10	7.250	8.09	13.250	2.31	19.25	1.25
1.333	1.10	7.333	8.09	13.333	2.31	19.33	1.25
1.417	1.12	7.417	10.78	13.417	2.25	19.42	1.23
1.500	1.12	7.500	10.78	13.500	2.25	19.50	1.23
1.583	1.14	7.583	16.61	13.583	2.20	19.58	1.22
1.667	1.14	7.667	16.61	13.667	2.20	19.67	1.22
1.750	1.17	7.750	39.40	13.750	2.15	19.75	1.20
1.833	1.17	7.833	39.40	13.833	2.15	19.83	1.20
1.917	1.20	7.917	139.95	13.917	2.10	19.92	1.19
2.000	1.20	8.000	139.94	14.000	2.10	20.00	1.19
2.083	1.22	8.083	51.29	14.083	2.05	20.08	1.18
2.167	1.22	8.167	51.29	14.167	2.05	20.17	1.18
2.250	1.25	8.250	27.55	14.250	2.00	20.25	1.16
2.333	1.25	8.333	27.55	14.333	2.00	20.33	1.16
2.417	1.28	8.417	18.85	14.417	1.96	20.42	1.15
2.500	1.28	8.500	18.85	14.500	1.96	20.50	1.15
2.583	1.32	8.583	14.40	14.583	1.92	20.58	1.14
2.667	1.32	8.667	14.40	14.667	1.92	20.67	1.14
2.750	1.35	8.750	11.70	14.750	1.88	20.75	1.13
2.833	1.35	8.833	11.70	14.833	1.88	20.83	1.13
2.917	1.39	8.917	9.89	14.917	1.85	20.92	1.12
3.000	1.39	9.000	9.89	15.000	1.85	21.00	1.12
3.083	1.43	9.083	8.59	15.083	1.81	21.08	1.11
3.167	1.43	9.167	8.59	15.167	1.81	21.17	1.11
3.250	1.47	9.250	7.62	15.250	1.78	21.25	1.09
3.333	1.47	9.333	7.62	15.333	1.78	21.33	1.09
3.417	1.51	9.417	6.85	15.417	1.74	21.42	1.08
3.500	1.51	9.500	6.85	15.500	1.74	21.50	1.08
3.583	1.56	9.583	6.24	15.583	1.71	21.58	1.07
3.667	1.56	9.667	6.24	15.667	1.71	21.67	1.07
3.750	1.61	9.750	5.74	15.750	1.68	21.75	1.06
3.833	1.61	9.833	5.74	15.833	1.68	21.83	1.06
3.917	1.67	9.917	5.32	15.917	1.66	21.92	1.05
4.000	1.67	10.000	5.32	16.000	1.66	22.00	1.05
4.083	1.73	10.083	4.96	16.083	1.63	22.08	1.04
4.167	1.73	10.167	4.96	16.167	1.63	22.17	1.04
4.250	1.79	10.250	4.65	16.250	1.60	22.25	1.03
4.333	1.79	10.333	4.65	16.333	1.60	22.33	1.03
4.417	1.86	10.417	4.38	16.417	1.58	22.42	1.02
4.500	1.86	10.500	4.38	16.500	1.58	22.50	1.02
4.583	1.94	10.583	4.14	16.583	1.55	22.58	1.01
4.667	1.94	10.667	4.14	16.667	1.55	22.67	1.01
4.750	2.02	10.750	3.93	16.750	1.53	22.75	1.00
4.833	2.02	10.833	3.93	16.833	1.53	22.83	1.00
4.917	2.12	10.917	3.75	16.917	1.50	22.92	0.99
5.000	2.12	11.000	3.75	17.000	1.50	23.00	0.99
5.083	2.22	11.083	3.58	17.083	1.48	23.08	0.99
5.167	2.22	11.167	3.58	17.167	1.48	23.17	0.99
5.250	2.34	11.250	3.42	17.250	1.46	23.25	0.98
5.333	2.34	11.333	3.42	17.333	1.46	23.33	0.98
5.417	2.47	11.417	3.29	17.417	1.44	23.42	0.97
5.500	2.47	11.500	3.29	17.500	1.44	23.50	0.97
5.583	2.62	11.583	3.16	17.583	1.42	23.58	0.96
5.667	2.62	11.667	3.16	17.667	1.42	23.67	0.96
5.750	2.79	11.750	3.04	17.750	1.40	23.75	0.95
5.833	2.79	11.833	3.04	17.833	1.40	23.83	0.95
5.917	2.99	11.917	2.94	17.917	1.38	23.92	0.94
6.000	2.99	12.000	2.94	18.000	1.38	24.00	0.94

				TOTALS
Max.Eff.Inten.(mm/hr)=		139.95	97.49	
over (min)		5.00	5.00	
Storage Coeff. (min)=		0.50 (ii)	1.48 (ii)	
Unit Hyd. Tpeak (min)=		5.00	5.00	
Unit Hyd. peak (cms)=		0.34	0.33	
PEAK FLOW	(cms)=	0.00	0.00	0.004 (iii)
TIME TO PEAK	(hrs)=	7.92	8.00	8.00
RUNOFF VOLUME	(mm)=	104.37	72.56	82.56
TOTAL RAINFALL	(mm)=	105.37	105.37	105.37
RUNOFF COEFFICIENT	=	0.99	0.69	0.78

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 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 (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0026):	0.28	0.039	8.17	67.64
+ ID2= 2 (0028):	0.08	0.031	8.00	104.01
ID = 3 (0030):	0.36	0.058	8.00	75.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	0.36	0.058	8.00	75.72
+ ID2= 2 (0029):	0.18	0.028	8.08	67.48
ID = 1 (0030):	0.54	0.082	8.00	72.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	0.54	0.082	8.00	72.98
+ ID2= 2 (0037):	0.04	0.016	8.00	104.06
ID = 3 (0030):	0.58	0.097	8.00	75.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	0.58	0.097	8.00	75.12
+ ID2= 2 (0038):	0.01	0.004	8.00	82.56
ID = 1 (0030):	0.59	0.101	8.00	75.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0031)	Area (ha)=	0.09	Curve Number (CN)= 84.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.17	

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	0.96	6.083	3.22	12.083	2.84	18.08	1.36
0.167	0.96	6.167	3.22	12.167	2.84	18.17	1.36
0.250	0.98	6.250	3.50	12.250	2.75	18.25	1.34
0.333	0.98	6.333	3.50	12.333	2.75	18.33	1.34
0.417	1.00	6.417	3.83	12.417	2.66	18.42	1.33
0.500	1.00	6.500	3.83	12.500	2.66	18.50	1.33
0.583	1.02	6.583	4.26	12.583	2.58	18.58	1.31
0.667	1.02	6.667	4.26	12.667	2.58	18.67	1.31
0.750	1.04	6.750	4.80	12.750	2.51	18.75	1.29
0.833	1.04	6.833	4.80	12.833	2.51	18.83	1.29
0.917	1.06	6.917	5.52	12.917	2.44	18.92	1.28
1.000	1.06	7.000	5.52	13.000	2.44	19.00	1.28

1.083	1.08	7.083	6.54	13.083	2.37	19.08	1.26
1.167	1.08	7.167	6.54	13.167	2.37	19.17	1.26
1.250	1.10	7.250	8.09	13.250	2.31	19.25	1.25
1.333	1.10	7.333	8.09	13.333	2.31	19.33	1.25
1.417	1.12	7.417	10.78	13.417	2.25	19.42	1.23
1.500	1.12	7.500	10.78	13.500	2.25	19.50	1.23
1.583	1.14	7.583	16.61	13.583	2.20	19.58	1.22
1.667	1.14	7.667	16.61	13.667	2.20	19.67	1.22
1.750	1.17	7.750	39.40	13.750	2.15	19.75	1.20
1.833	1.17	7.833	39.40	13.833	2.15	19.83	1.20
1.917	1.20	7.917	139.95	13.917	2.10	19.92	1.19
2.000	1.20	8.000	139.94	14.000	2.10	20.00	1.19
2.083	1.22	8.083	51.29	14.083	2.05	20.08	1.18
2.167	1.22	8.167	51.29	14.167	2.05	20.17	1.18
2.250	1.25	8.250	27.55	14.250	2.00	20.25	1.16
2.333	1.25	8.333	27.55	14.333	2.00	20.33	1.16
2.417	1.28	8.417	18.85	14.417	1.96	20.42	1.15
2.500	1.28	8.500	18.85	14.500	1.96	20.50	1.15
2.583	1.32	8.583	14.40	14.583	1.92	20.58	1.14
2.667	1.32	8.667	14.40	14.667	1.92	20.67	1.14
2.750	1.35	8.750	11.70	14.750	1.88	20.75	1.13
2.833	1.35	8.833	11.70	14.833	1.88	20.83	1.13
2.917	1.39	8.917	9.89	14.917	1.85	20.92	1.12
3.000	1.39	9.000	9.89	15.000	1.85	21.00	1.12
3.083	1.43	9.083	8.59	15.083	1.81	21.08	1.11
3.167	1.43	9.167	8.59	15.167	1.81	21.17	1.11
3.250	1.47	9.250	7.62	15.250	1.78	21.25	1.09
3.333	1.47	9.333	7.62	15.333	1.78	21.33	1.09
3.417	1.51	9.417	6.85	15.417	1.74	21.42	1.08
3.500	1.51	9.500	6.85	15.500	1.74	21.50	1.08
3.583	1.56	9.583	6.24	15.583	1.71	21.58	1.07
3.667	1.56	9.667	6.24	15.667	1.71	21.67	1.07
3.750	1.61	9.750	5.74	15.750	1.68	21.75	1.06
3.833	1.61	9.833	5.74	15.833	1.68	21.83	1.06
3.917	1.67	9.917	5.32	15.917	1.66	21.92	1.05
4.000	1.67	10.000	5.32	16.000	1.66	22.00	1.05
4.083	1.73	10.083	4.96	16.083	1.63	22.08	1.04
4.167	1.73	10.167	4.96	16.167	1.63	22.17	1.04
4.250	1.79	10.250	4.65	16.250	1.60	22.25	1.03
4.333	1.79	10.333	4.65	16.333	1.60	22.33	1.03
4.417	1.86	10.417	4.38	16.417	1.58	22.42	1.02
4.500	1.86	10.500	4.38	16.500	1.58	22.50	1.02
4.583	1.94	10.583	4.14	16.583	1.55	22.58	1.01
4.667	1.94	10.667	4.14	16.667	1.55	22.67	1.01
4.750	2.02	10.750	3.93	16.750	1.53	22.75	1.00
4.833	2.02	10.833	3.93	16.833	1.53	22.83	1.00
4.917	2.12	10.917	3.75	16.917	1.50	22.92	0.99
5.000	2.12	11.000	3.75	17.000	1.50	23.00	0.99
5.083	2.22	11.083	3.58	17.083	1.48	23.08	0.99
5.167	2.22	11.167	3.58	17.167	1.48	23.17	0.99
5.250	2.34	11.250	3.42	17.250	1.46	23.25	0.98
5.333	2.34	11.333	3.42	17.333	1.46	23.33	0.98
5.417	2.47	11.417	3.29	17.417	1.44	23.42	0.97
5.500	2.47	11.500	3.29	17.500	1.44	23.50	0.97
5.583	2.62	11.583	3.16	17.583	1.42	23.58	0.96
5.667	2.62	11.667	3.16	17.667	1.42	23.67	0.96
5.750	2.79	11.750	3.04	17.750	1.40	23.75	0.95
5.833	2.79	11.833	3.04	17.833	1.40	23.83	0.95
5.917	2.99	11.917	2.94	17.917	1.38	23.92	0.94
6.000	2.99	12.000	2.94	18.000	1.38	24.00	0.94

Unit Hyd Qpeak (cms)= 0.020

PEAK FLOW (cms)= 0.014 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 67.481
TOTAL RAINFALL (mm)= 105.375
RUNOFF COEFFICIENT = 0.640

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

CALIB	
STANDHYD (0018)	Area (ha)= 0.71
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.70	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	68.80	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	0.96	6.083	3.22	12.083	2.84	18.08	1.36
0.167	0.96	6.167	3.22	12.167	2.84	18.17	1.36
0.250	0.98	6.250	3.50	12.250	2.75	18.25	1.34
0.333	0.98	6.333	3.50	12.333	2.75	18.33	1.34
0.417	1.00	6.417	3.83	12.417	2.66	18.42	1.33
0.500	1.00	6.500	3.83	12.500	2.66	18.50	1.33
0.583	1.02	6.583	4.26	12.583	2.58	18.58	1.31
0.667	1.02	6.667	4.26	12.667	2.58	18.67	1.31
0.750	1.04	6.750	4.80	12.750	2.51	18.75	1.29
0.833	1.04	6.833	4.80	12.833	2.51	18.83	1.29
0.917	1.06	6.917	5.52	12.917	2.44	18.92	1.28
1.000	1.06	7.000	5.52	13.000	2.44	19.00	1.28
1.083	1.08	7.083	6.54	13.083	2.37	19.08	1.26
1.167	1.08	7.167	6.54	13.167	2.37	19.17	1.26
1.250	1.10	7.250	8.09	13.250	2.31	19.25	1.25
1.333	1.10	7.333	8.09	13.333	2.31	19.33	1.25
1.417	1.12	7.417	10.78	13.417	2.25	19.42	1.23
1.500	1.12	7.500	10.78	13.500	2.25	19.50	1.23
1.583	1.14	7.583	16.61	13.583	2.20	19.58	1.22
1.667	1.14	7.667	16.61	13.667	2.20	19.67	1.22
1.750	1.17	7.750	39.40	13.750	2.15	19.75	1.20
1.833	1.17	7.833	39.40	13.833	2.15	19.83	1.20
1.917	1.20	7.917	139.95	13.917	2.10	19.92	1.19
2.000	1.20	8.000	139.94	14.000	2.10	20.00	1.19
2.083	1.22	8.083	51.29	14.083	2.05	20.08	1.18
2.167	1.22	8.167	51.29	14.167	2.05	20.17	1.18
2.250	1.25	8.250	27.55	14.250	2.00	20.25	1.16
2.333	1.25	8.333	27.55	14.333	2.00	20.33	1.16
2.417	1.28	8.417	18.85	14.417	1.96	20.42	1.15
2.500	1.28	8.500	18.85	14.500	1.96	20.50	1.15
2.583	1.32	8.583	14.40	14.583	1.92	20.58	1.14
2.667	1.32	8.667	14.40	14.667	1.92	20.67	1.14
2.750	1.35	8.750	11.70	14.750	1.88	20.75	1.13
2.833	1.35	8.833	11.70	14.833	1.88	20.83	1.13
2.917	1.39	8.917	9.89	14.917	1.85	20.92	1.12
3.000	1.39	9.000	9.89	15.000	1.85	21.00	1.12
3.083	1.43	9.083	8.59	15.083	1.81	21.08	1.11
3.167	1.43	9.167	8.59	15.167	1.81	21.17	1.11
3.250	1.47	9.250	7.62	15.250	1.78	21.25	1.09
3.333	1.47	9.333	7.62	15.333	1.78	21.33	1.09
3.417	1.51	9.417	6.85	15.417	1.74	21.42	1.08
3.500	1.51	9.500	6.85	15.500	1.74	21.50	1.08
3.583	1.56	9.583	6.24	15.583	1.71	21.58	1.07
3.667	1.56	9.667	6.24	15.667	1.71	21.67	1.07
3.750	1.61	9.750	5.74	15.750	1.68	21.75	1.06
3.833	1.61	9.833	5.74	15.833	1.68	21.83	1.06
3.917	1.67	9.917	5.32	15.917	1.66	21.92	1.05
4.000	1.67	10.000	5.32	16.000	1.66	22.00	1.05
4.083	1.73	10.083	4.96	16.083	1.63	22.08	1.04
4.167	1.73	10.167	4.96	16.167	1.63	22.17	1.04
4.250	1.79	10.250	4.65	16.250	1.60	22.25	1.03
4.333	1.79	10.333	4.65	16.333	1.60	22.33	1.03
4.417	1.86	10.417	4.38	16.417	1.58	22.42	1.02
4.500	1.86	10.500	4.38	16.500	1.58	22.50	1.02
4.583	1.94	10.583	4.14	16.583	1.55	22.58	1.01
4.667	1.94	10.667	4.14	16.667	1.55	22.67	1.01
4.750	2.02	10.750	3.93	16.750	1.53	22.75	1.00
4.833	2.02	10.833	3.93	16.833	1.53	22.83	1.00
4.917	2.12	10.917	3.75	16.917	1.50	22.92	0.99
5.000	2.12	11.000	3.75	17.000	1.50	23.00	0.99
5.083	2.22	11.083	3.58	17.083	1.48	23.08	0.99
5.167	2.22	11.167	3.58	17.167	1.48	23.17	0.99
5.250	2.34	11.250	3.42	17.250	1.46	23.25	0.98
5.333	2.34	11.333	3.42	17.333	1.46	23.33	0.98
5.417	2.47	11.417	3.29	17.417	1.44	23.42	0.97
5.500	2.47	11.500	3.29	17.500	1.44	23.50	0.97
5.583	2.62	11.583	3.16	17.583	1.42	23.58	0.96
5.667	2.62	11.667	3.16	17.667	1.42	23.67	0.96
5.750	2.79	11.750	3.04	17.750	1.40	23.75	0.95
5.833	2.79	11.833	3.04	17.833	1.40	23.83	0.95
5.917	2.99	11.917	2.94	17.917	1.38	23.92	0.94
6.000	2.99	12.000	2.94	18.000	1.38	24.00	0.94

Max.Eff.Inten.(mm/hr)=	139.95	90.55	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.78 (ii)	2.77 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.32	0.28	
			TOTALS
PEAK FLOW (cms)=	0.27	0.00	0.274 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	104.37	67.73	104.01
TOTAL RAINFALL (mm)=	105.37	105.37	105.37
RUNOFF COEFFICIENT =	0.99	0.64	0.99

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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 (0032)					
1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0018):	0.71	0.274	8.00	104.01
	+ ID2= 2 (0031):	0.09	0.014	8.08	67.48
	ID = 3 (0032):	0.80	0.286	8.00	99.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0019)	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		0.0190	0.0279
	0.0000	0.0028		0.0200	0.0307
	0.0080	0.0056		0.0210	0.0335
	0.0100	0.0084		0.0220	0.0363
	0.0120	0.0112		0.0230	0.0391
	0.0140	0.0140		0.0240	0.0419
	0.0150	0.0168		0.0250	0.0447
	0.0160	0.0196		0.0250	0.0475
	0.0170	0.0223		0.0260	0.0499
	0.0180	0.0251		0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0032)	0.800	0.286	8.00	99.90
OUTFLOW: ID= 1 (0019)	0.800	0.023	8.92	96.30

PEAK FLOW REDUCTION [Qout/Qin](%)= 8.00
TIME SHIFT OF PEAK FLOW (min)= 55.00
MAXIMUM STORAGE USED (ha.m.)= 0.0389

CALIB					
NASHYD (0036)	Area	(ha)=	0.14	Curve Number (CN)=	84.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.16		

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	0.96	6.083	3.22	12.083	2.84	18.08	1.36
0.167	0.96	6.167	3.22	12.167	2.84	18.17	1.36
0.250	0.98	6.250	3.50	12.250	2.75	18.25	1.34
0.333	0.98	6.333	3.50	12.333	2.75	18.33	1.34
0.417	1.00	6.417	3.83	12.417	2.66	18.42	1.33
0.500	1.00	6.500	3.83	12.500	2.66	18.50	1.33
0.583	1.02	6.583	4.26	12.583	2.58	18.58	1.31
0.667	1.02	6.667	4.26	12.667	2.58	18.67	1.31
0.750	1.04	6.750	4.80	12.750	2.51	18.75	1.29
0.833	1.04	6.833	4.80	12.833	2.51	18.83	1.29
0.917	1.06	6.917	5.52	12.917	2.44	18.92	1.28
1.000	1.06	7.000	5.52	13.000	2.44	19.00	1.28
1.083	1.08	7.083	6.54	13.083	2.37	19.08	1.26
1.167	1.08	7.167	6.54	13.167	2.37	19.17	1.26
1.250	1.10	7.250	8.09	13.250	2.31	19.25	1.25
1.333	1.10	7.333	8.09	13.333	2.31	19.33	1.25
1.417	1.12	7.417	10.78	13.417	2.25	19.42	1.23
1.500	1.12	7.500	10.78	13.500	2.25	19.50	1.23
1.583	1.14	7.583	16.61	13.583	2.20	19.58	1.22
1.667	1.14	7.667	16.61	13.667	2.20	19.67	1.22
1.750	1.17	7.750	39.40	13.750	2.15	19.75	1.20
1.833	1.17	7.833	39.40	13.833	2.15	19.83	1.20
1.917	1.20	7.917	139.95	13.917	2.10	19.92	1.19
2.000	1.20	8.000	139.94	14.000	2.10	20.00	1.19
2.083	1.22	8.083	51.29	14.083	2.05	20.08	1.18
2.167	1.22	8.167	51.29	14.167	2.05	20.17	1.18
2.250	1.25	8.250	27.55	14.250	2.00	20.25	1.16
2.333	1.25	8.333	27.55	14.333	2.00	20.33	1.16
2.417	1.28	8.417	18.85	14.417	1.96	20.42	1.15
2.500	1.28	8.500	18.85	14.500	1.96	20.50	1.15
2.583	1.32	8.583	14.40	14.583	1.92	20.58	1.14
2.667	1.32	8.667	14.40	14.667	1.92	20.67	1.14
2.750	1.35	8.750	11.70	14.750	1.88	20.75	1.13
2.833	1.35	8.833	11.70	14.833	1.88	20.83	1.13
2.917	1.39	8.917	9.89	14.917	1.85	20.92	1.12
3.000	1.39	9.000	9.89	15.000	1.85	21.00	1.12
3.083	1.43	9.083	8.59	15.083	1.81	21.08	1.11
3.167	1.43	9.167	8.59	15.167	1.81	21.17	1.11
3.250	1.47	9.250	7.62	15.250	1.78	21.25	1.09
3.333	1.47	9.333	7.62	15.333	1.78	21.33	1.09
3.417	1.51	9.417	6.85	15.417	1.74	21.42	1.08
3.500	1.51	9.500	6.85	15.500	1.74	21.50	1.08
3.583	1.56	9.583	6.24	15.583	1.71	21.58	1.07
3.667	1.56	9.667	6.24	15.667	1.71	21.67	1.07
3.750	1.61	9.750	5.74	15.750	1.68	21.75	1.06
3.833	1.61	9.833	5.74	15.833	1.68	21.83	1.06
3.917	1.67	9.917	5.32	15.917	1.66	21.92	1.05
4.000	1.67	10.000	5.32	16.000	1.66	22.00	1.05
4.083	1.73	10.083	4.96	16.083	1.63	22.08	1.04
4.167	1.73	10.167	4.96	16.167	1.63	22.17	1.04
4.250	1.79	10.250	4.65	16.250	1.60	22.25	1.03
4.333	1.79	10.333	4.65	16.333	1.60	22.33	1.03
4.417	1.86	10.417	4.38	16.417	1.58	22.42	1.02
4.500	1.86	10.500	4.38	16.500	1.58	22.50	1.02
4.583	1.94	10.583	4.14	16.583	1.55	22.58	1.01
4.667	1.94	10.667	4.14	16.667	1.55	22.67	1.01
4.750	2.02	10.750	3.93	16.750	1.53	22.75	1.00
4.833	2.02	10.833	3.93	16.833	1.53	22.83	1.00
4.917	2.12	10.917	3.75	16.917	1.50	22.92	0.99
5.000	2.12	11.000	3.75	17.000	1.50	23.00	0.99
5.083	2.22	11.083	3.58	17.083	1.48	23.08	0.99
5.167	2.22	11.167	3.58	17.167	1.48	23.17	0.99
5.250	2.34	11.250	3.42	17.250	1.46	23.25	0.98
5.333	2.34	11.333	3.42	17.333	1.46	23.33	0.98
5.417	2.47	11.417	3.29	17.417	1.44	23.42	0.97
5.500	2.47	11.500	3.29	17.500	1.44	23.50	0.97
5.583	2.62	11.583	3.16	17.583	1.42	23.58	0.96
5.667	2.62	11.667	3.16	17.667	1.42	23.67	0.96
5.750	2.79	11.750	3.04	17.750	1.40	23.75	0.95
5.833	2.79	11.833	3.04	17.833	1.40	23.83	0.95
5.917	2.99	11.917	2.94	17.917	1.38	23.92	0.94
6.000	2.99	12.000	2.94	18.000	1.38	24.00	0.94

Unit Hyd Qpeak (cms)= 0.033

PEAK FLOW (cms)= 0.023 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 67.422
TOTAL RAINFALL (mm)= 105.375
RUNOFF COEFFICIENT = 0.640

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

CALIB					
NASHYD (0039)	Area	(ha)=	0.05	Curve Number (CN)=	84.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.16		

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	0.96	6.083	3.22	12.083	2.84	18.08	1.36
0.167	0.96	6.167	3.22	12.167	2.84	18.17	1.36
0.250	0.98	6.250	3.50	12.250	2.75	18.25	1.34
0.333	0.98	6.333	3.50	12.333	2.75	18.33	1.34
0.417	1.00	6.417	3.83	12.417	2.66	18.42	1.33
0.500	1.00	6.500	3.83	12.500	2.66	18.50	1.33
0.583	1.02	6.583	4.26	12.583	2.58	18.58	1.31
0.667	1.02	6.667	4.26	12.667	2.58	18.67	1.31
0.750	1.04	6.750	4.80	12.750	2.51	18.75	1.29
0.833	1.04	6.833	4.80	12.833	2.51	18.83	1.29
0.917	1.06	6.917	5.52	12.917	2.44	18.92	1.28
1.000	1.06	7.000	5.52	13.000	2.44	19.00	1.28
1.083	1.08	7.083	6.54	13.083	2.37	19.08	1.26
1.167	1.08	7.167	6.54	13.167	2.37	19.17	1.26
1.250	1.10	7.250	8.09	13.250	2.31	19.25	1.25
1.333	1.10	7.333	8.09	13.333	2.31	19.33	1.25
1.417	1.12	7.417	10.78	13.417	2.25	19.42	1.23
1.500	1.12	7.500	10.78	13.500	2.25	19.50	1.23
1.583	1.14	7.583	16.61	13.583	2.20	19.58	1.22
1.667	1.14	7.667	16.61	13.667	2.20	19.67	1.22
1.750	1.17	7.750	39.40	13.750	2.15	19.75	1.20
1.833	1.17	7.833	39.40	13.833	2.15	19.83	1.20
1.917	1.20	7.917	139.95	13.917	2.10	19.92	1.19
2.000	1.20	8.000	139.94	14.000	2.10	20.00	1.19
2.083	1.22	8.083	51.29	14.083	2.05	20.08	1.18
2.167	1.22	8.167	51.29	14.167	2.05	20.17	1.18
2.250	1.25	8.250	27.55	14.250	2.00	20.25	1.16
2.333	1.25	8.333	27.55	14.333	2.00	20.33	1.16
2.417	1.28	8.417	18.85	14.417	1.96	20.42	1.15
2.500	1.28	8.500	18.85	14.500	1.96	20.50	1.15
2.583	1.32	8.583	14.40	14.583	1.92	20.58	1.14
2.667	1.32	8.667	14.40	14.667	1.92	20.67	1.14
2.750	1.35	8.750	11.70	14.750	1.88	20.75	1.13
2.833	1.35	8.833	11.70	14.833	1.88	20.83	1.13
2.917	1.39	8.917	9.89	14.917	1.85	20.92	1.12
3.000	1.39	9.000	9.89	15.000	1.85	21.00	1.12
3.083	1.43	9.083	8.59	15.083	1.81	21.08	1.11
3.167	1.43	9.167	8.59	15.167	1.81	21.17	1.11
3.250	1.47	9.250	7.62	15.250	1.78	21.25	1.09
3.333	1.47	9.333	7.62	15.333	1.78	21.33	1.09
3.417	1.51	9.417	6.85	15.417	1.74	21.42	1.08
3.500	1.51	9.500	6.85	15.500	1.74	21.50	1.08
3.583	1.56	9.583	6.24	15.583	1.71	21.58	1.07
3.667	1.56	9.667	6.24	15.667	1.71	21.67	1.07
3.750	1.61	9.750	5.74	15.750	1.68	21.75	1.06
3.833	1.61	9.833	5.74	15.833	1.68	21.83	1.06
3.917	1.67	9.917	5.32	15.917	1.66	21.92	1.05
4.000	1.67	10.000	5.32	16.000	1.66	22.00	1.05
4.083	1.73	10.083	4.96	16.083	1.63	22.08	1.04
4.167	1.73	10.167	4.96	16.167	1.63	22.17	1.04
4.250	1.79	10.250	4.65	16.250	1.60	22.25	1.03
4.333	1.79	10.333	4.65	16.333	1.60	22.33	1.03
4.417	1.86	10.417	4.38	16.417	1.58	22.42	1.02
4.500	1.86	10.500	4.38	16.500	1.58	22.50	1.02
4.583	1.94	10.583	4.14	16.583	1.55	22.58	1.01
4.667	1.94	10.667	4.14	16.667	1.55	22.67	1.01
4.750	2.02	10.750	3.93	16.750	1.53	22.75	1.00
4.833	2.02	10.833	3.93	16.833	1.53	22.83	1.00
4.917	2.12	10.917	3.75	16.917	1.50	22.92	0.99
5.000	2.12	11.000	3.75	17.000	1.50	23.00	0.99
5.083	2.22	11.083	3.58	17.083	1.48	23.08	0.99
5.167	2.22	11.167	3.58	17.167	1.48	23.17	0.99
5.250	2.34	11.250	3.42	17.250	1.46	23.25	0.98
5.333	2.34	11.333	3.42	17.333	1.46	23.33	0.98
5.417	2.47	11.417	3.29	17.417	1.44	23.42	0.97
5.500	2.47	11.500	3.29	17.500	1.44	23.50	0.97
5.583	2.62	11.583	3.16	17.583	1.42	23.58	0.96
5.667	2.62	11.667	3.16	17.667	1.42	23.67	0.96
5.750	2.79	11.750	3.04	17.750	1.40	23.75	0.95
5.833	2.79	11.833	3.04	17.833	1.40	23.83	0.95

5.917	2.99	11.917	2.94	17.917	1.38	23.92	0.94
6.000	2.99	12.000	2.94	18.000	1.38	24.00	0.94

Unit Hyd Qpeak (cms)= 0.012

PEAK FLOW (cms)= 0.008 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 67.414
TOTAL RAINFALL (mm)= 105.375
RUNOFF COEFFICIENT = 0.640

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

CALIB			
STANDHYD (0001)	Area (ha)= 0.27		
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00	Dir. Conn.(%)= 64.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.17	0.10
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	42.43	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	0.96	6.083	3.22	12.083	2.84	18.08	1.36
0.167	0.96	6.167	3.22	12.167	2.84	18.17	1.36
0.250	0.98	6.250	3.50	12.250	2.75	18.25	1.34
0.333	0.98	6.333	3.50	12.333	2.75	18.33	1.34
0.417	1.00	6.417	3.83	12.417	2.66	18.42	1.33
0.500	1.00	6.500	3.83	12.500	2.66	18.50	1.33
0.583	1.02	6.583	4.26	12.583	2.58	18.58	1.31
0.667	1.02	6.667	4.26	12.667	2.58	18.67	1.31
0.750	1.04	6.750	4.80	12.750	2.51	18.75	1.29
0.833	1.04	6.833	4.80	12.833	2.51	18.83	1.29
0.917	1.06	6.917	5.52	12.917	2.44	18.92	1.28
1.000	1.06	7.000	5.52	13.000	2.44	19.00	1.28
1.083	1.08	7.083	6.54	13.083	2.37	19.08	1.26
1.167	1.08	7.167	6.54	13.167	2.37	19.17	1.26
1.250	1.10	7.250	8.09	13.250	2.31	19.25	1.25
1.333	1.10	7.333	8.09	13.333	2.31	19.33	1.25
1.417	1.12	7.417	10.78	13.417	2.25	19.42	1.23
1.500	1.12	7.500	10.78	13.500	2.25	19.50	1.23
1.583	1.14	7.583	16.61	13.583	2.20	19.58	1.22
1.667	1.14	7.667	16.61	13.667	2.20	19.67	1.22
1.750	1.17	7.750	39.40	13.750	2.15	19.75	1.20
1.833	1.17	7.833	39.40	13.833	2.15	19.83	1.20
1.917	1.20	7.917	139.95	13.917	2.10	19.92	1.19
2.000	1.20	8.000	139.94	14.000	2.10	20.00	1.19
2.083	1.22	8.083	51.29	14.083	2.05	20.08	1.18
2.167	1.22	8.167	51.29	14.167	2.05	20.17	1.18
2.250	1.25	8.250	27.55	14.250	2.00	20.25	1.16
2.333	1.25	8.333	27.55	14.333	2.00	20.33	1.16
2.417	1.28	8.417	18.85	14.417	1.96	20.42	1.15
2.500	1.28	8.500	18.85	14.500	1.96	20.50	1.15
2.583	1.32	8.583	14.40	14.583	1.92	20.58	1.14
2.667	1.32	8.667	14.40	14.667	1.92	20.67	1.14
2.750	1.35	8.750	11.70	14.750	1.88	20.75	1.13
2.833	1.35	8.833	11.70	14.833	1.88	20.83	1.13
2.917	1.39	8.917	9.89	14.917	1.85	20.92	1.12
3.000	1.39	9.000	9.89	15.000	1.85	21.00	1.12
3.083	1.43	9.083	8.59	15.083	1.81	21.08	1.11
3.167	1.43	9.167	8.59	15.167	1.81	21.17	1.11
3.250	1.47	9.250	7.62	15.250	1.78	21.25	1.09
3.333	1.47	9.333	7.62	15.333	1.78	21.33	1.09
3.417	1.51	9.417	6.85	15.417	1.74	21.42	1.08
3.500	1.51	9.500	6.85	15.500	1.74	21.50	1.08
3.583	1.56	9.583	6.24	15.583	1.71	21.58	1.07
3.667	1.56	9.667	6.24	15.667	1.71	21.67	1.07
3.750	1.61	9.750	5.74	15.750	1.68	21.75	1.06
3.833	1.61	9.833	5.74	15.833	1.68	21.83	1.06
3.917	1.67	9.917	5.32	15.917	1.66	21.92	1.05
4.000	1.67	10.000	5.32	16.000	1.66	22.00	1.05
4.083	1.73	10.083	4.96	16.083	1.63	22.08	1.04
4.167	1.73	10.167	4.96	16.167	1.63	22.17	1.04
4.250	1.79	10.250	4.65	16.250	1.60	22.25	1.03
4.333	1.79	10.333	4.65	16.333	1.60	22.33	1.03
4.417	1.86	10.417	4.38	16.417	1.58	22.42	1.02
4.500	1.86	10.500	4.38	16.500	1.58	22.50	1.02
4.583	1.94	10.583	4.14	16.583	1.55	22.58	1.01
4.667	1.94	10.667	4.14	16.667	1.55	22.67	1.01
4.750	2.02	10.750	3.93	16.750	1.53	22.75	1.00
4.833	2.02	10.833	3.93	16.833	1.53	22.83	1.00
4.917	2.12	10.917	3.75	16.917	1.50	22.92	0.99
5.000	2.12	11.000	3.75	17.000	1.50	23.00	0.99
5.083	2.22	11.083	3.58	17.083	1.48	23.08	0.99
5.167	2.22	11.167	3.58	17.167	1.48	23.17	0.99
5.250	2.34	11.250	3.42	17.250	1.46	23.25	0.98
5.333	2.34	11.333	3.42	17.333	1.46	23.33	0.98
5.417	2.47	11.417	3.29	17.417	1.44	23.42	0.97
5.500	2.47	11.500	3.29	17.500	1.44	23.50	0.97
5.583	2.62	11.583	3.16	17.583	1.42	23.58	0.96
5.667	2.62	11.667	3.16	17.667	1.42	23.67	0.96
5.750	2.79	11.750	3.04	17.750	1.40	23.75	0.95
5.833	2.79	11.833	3.04	17.833	1.40	23.83	0.95
5.917	2.99	11.917	2.94	17.917	1.38	23.92	0.94
6.000	2.99	12.000	2.94	18.000	1.38	24.00	0.94

Max.Eff.Inten.(mm/hr)=	139.95	90.55		
over (min)	5.00	10.00		
Storage Coeff. (min)=	1.34 (ii)	6.24 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.33	0.15		
			TOTALS	
PEAK FLOW (cms)=	0.07	0.02	0.084 (iii)	
TIME TO PEAK (hrs)=	8.00	8.08	8.00	
RUNOFF VOLUME (mm)=	104.37	67.73	91.17	
TOTAL RAINFALL (mm)=	105.37	105.37	105.37	
RUNOFF COEFFICIENT =	0.99	0.64	0.87	

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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 (0014)	Area (ha)= 0.72		
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.71	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	69.28	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	0.96	6.083	3.22	12.083	2.84	18.08	1.36
0.167	0.96	6.167	3.22	12.167	2.84	18.17	1.36
0.250	0.98	6.250	3.50	12.250	2.75	18.25	1.34
0.333	0.98	6.333	3.50	12.333	2.75	18.33	1.34
0.417	1.00	6.417	3.83	12.417	2.66	18.42	1.33
0.500	1.00	6.500	3.83	12.500	2.66	18.50	1.33
0.583	1.02	6.583	4.26	12.583	2.58	18.58	1.31
0.667	1.02	6.667	4.26	12.667	2.58	18.67	1.31
0.750	1.04	6.750	4.80	12.750	2.51	18.75	1.29
0.833	1.04	6.833	4.80	12.833	2.51	18.83	1.29
0.917	1.06	6.917	5.52	12.917	2.44	18.92	1.28
1.000	1.06	7.000	5.52	13.000	2.44	19.00	1.28
1.083	1.08	7.083	6.54	13.083	2.37	19.08	1.26
1.167	1.08	7.167	6.54	13.167	2.37	19.17	1.26
1.250	1.10	7.250	8.09	13.250	2.31	19.25	1.25
1.333	1.10	7.333	8.09	13.333	2.31	19.33	1.25
1.417	1.12	7.417	10.78	13.417	2.25	19.42	1.23
1.500	1.12	7.500	10.78	13.500	2.25	19.50	1.23
1.583	1.14	7.583	16.61	13.583	2.20	19.58	1.22
1.667	1.14	7.667	16.61	13.667	2.20	19.67	1.22
1.750	1.17	7.750	39.40	13.750	2.15	19.75	1.20
1.833	1.17	7.833	39.40	13.833	2.15	19.83	1.20
1.917	1.20	7.917	139.95	13.917	2.10	19.92	1.19
2.000	1.20	8.000	139.94	14.000	2.10	20.00	1.19
2.083	1.22	8.083	51.29	14.083	2.05	20.08	1.18
2.167	1.22	8.167	51.29	14.167	2.05	20.17	1.18
2.250	1.25	8.250	27.55	14.250	2.00	20.25	1.16
2.333	1.25	8.333	27.55	14.333	2.00	20.33	1.16
2.417	1.28	8.417	18.85	14.417	1.96	20.42	1.15
2.500	1.28	8.500	18.85	14.500	1.96	20.50	1.15
2.583	1.32	8.583	14.40	14.583	1.92	20.58	1.14
2.667	1.32	8.667	14.40	14.667	1.92	20.67	1.14
2.750	1.35	8.750	11.70	14.750	1.88	20.75	1.13
2.833	1.35	8.833	11.70	14.833	1.88	20.83	1.13
2.917	1.39	8.917	9.89	14.917	1.85	20.92	1.12
3.000	1.39	9.000	9.89	15.000	1.85	21.00	1.12
3.083	1.43	9.083	8.59	15.083	1.81	21.08	1.11
3.167	1.43	9.167	8.59	15.167	1.81	21.17	1.11
3.250	1.47	9.250	7.62	15.250	1.78	21.25	1.09
3.333	1.47	9.333	7.62	15.333	1.78	21.33	1.09
3.417	1.51	9.417	6.85	15.417	1.74	21.42	1.08
3.500	1.51	9.500	6.85	15.500	1.74	21.50	1.08
3.583	1.56	9.583	6.24	15.583	1.71	21.58	1.07
3.667	1.56	9.667	6.24	15.667	1.71	21.67	1.07
3.750	1.61	9.750	5.74	15.750	1.68	21.75	1.06
3.833	1.61	9.833	5.74	15.833	1.68	21.83	1.06
3.917	1.67	9.917	5.32	15.917	1.66	21.92	1.05
4.000	1.67	10.000	5.32	16.000	1.66	22.00	1.05
4.083	1.73	10.083	4.96	16.083	1.63	22.08	1.04
4.167	1.73	10.167	4.96	16.167	1.63	22.17	1.04
4.250	1.79	10.250	4.65	16.250	1.60	22.25	1.03
4.333	1.79	10.333	4.65	16.333	1.60	22.33	1.03
4.417	1.86	10.417	4.38	16.417	1.58	22.42	1.02
4.500	1.86	10.500	4.38	16.500	1.58	22.50	1.02
4.583	1.94	10.583	4.14	16.583	1.55	22.58	1.01
4.667	1.94	10.667	4.14	16.667	1.55	22.67	1.01

4.750	2.02	10.750	3.93	16.750	1.53	22.75	1.00
4.833	2.02	10.833	3.93	16.833	1.53	22.83	1.00
4.917	2.12	10.917	3.75	16.917	1.50	22.92	0.99
5.000	2.12	11.000	3.75	17.000	1.50	23.00	0.99
5.083	2.22	11.083	3.58	17.083	1.48	23.08	0.99
5.167	2.22	11.167	3.58	17.167	1.48	23.17	0.99
5.250	2.34	11.250	3.42	17.250	1.46	23.25	0.98
5.333	2.34	11.333	3.42	17.333	1.46	23.33	0.98
5.417	2.47	11.417	3.29	17.417	1.44	23.42	0.97
5.500	2.47	11.500	3.29	17.500	1.44	23.50	0.97
5.583	2.62	11.583	3.16	17.583	1.42	23.58	0.96
5.667	2.62	11.667	3.16	17.667	1.42	23.67	0.96
5.750	2.79	11.750	3.04	17.750	1.40	23.75	0.95
5.833	2.79	11.833	3.04	17.833	1.40	23.83	0.95
5.917	2.99	11.917	2.94	17.917	1.38	23.92	0.94
6.000	2.99	12.000	2.94	18.000	1.38	24.00	0.94

Max.Eff.Inten.(mm/hr)=	139.95	90.55	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.79 (ii)	2.77 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.32	0.28	
			TOTALS
PEAK FLOW (cms)=	0.28	0.00	0.278 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	104.37	67.73	104.01
TOTAL RAINFALL (mm)=	105.37	105.37	105.37
RUNOFF COEFFICIENT =	0.99	0.64	0.99

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0020)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0190	0.0255
	0.0000	0.0025	0.0200	0.0280
	0.0080	0.0051	0.0210	0.0306
	0.0100	0.0076	0.0220	0.0331
	0.0120	0.0102	0.0230	0.0357
	0.0140	0.0127	0.0240	0.0382
	0.0150	0.0153	0.0250	0.0407
	0.0160	0.0178	0.0250	0.0433
	0.0170	0.0204	0.0260	0.0455
	0.0180	0.0229	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0014)	0.720	0.278	8.00	104.01
OUTFLOW: ID= 1 (0020)	0.720	0.023	8.83	100.37

PEAK FLOW REDUCTION [Qout/Qin](%)= 8.27
TIME SHIFT OF PEAK FLOW (min)= 50.00
MAXIMUM STORAGE USED (ha.m.)= 0.0357

CALIB		
STANDHYD (0016)	Area (ha)=	0.77
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.76	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	71.65	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	0.96	6.083	3.22	12.083	2.84	18.08	1.36
0.167	0.96	6.167	3.22	12.167	2.84	18.17	1.36
0.250	0.98	6.250	3.50	12.250	2.75	18.25	1.34
0.333	0.98	6.333	3.50	12.333	2.75	18.33	1.34
0.417	1.00	6.417	3.83	12.417	2.66	18.42	1.33
0.500	1.00	6.500	3.83	12.500	2.66	18.50	1.33
0.583	1.02	6.583	4.26	12.583	2.58	18.58	1.31
0.667	1.02	6.667	4.26	12.667	2.58	18.67	1.31
0.750	1.04	6.750	4.80	12.750	2.51	18.75	1.29
0.833	1.04	6.833	4.80	12.833	2.51	18.83	1.29
0.917	1.06	6.917	5.52	12.917	2.44	18.92	1.28
1.000	1.06	7.000	5.52	13.000	2.44	19.00	1.28
1.083	1.08	7.083	6.54	13.083	2.37	19.08	1.26
1.167	1.08	7.167	6.54	13.167	2.37	19.17	1.26
1.250	1.10	7.250	8.09	13.250	2.31	19.25	1.25
1.333	1.10	7.333	8.09	13.333	2.31	19.33	1.25
1.417	1.12	7.417	10.78	13.417	2.25	19.42	1.23
1.500	1.12	7.500	10.78	13.500	2.25	19.50	1.23
1.583	1.14	7.583	16.61	13.583	2.20	19.58	1.22
1.667	1.14	7.667	16.61	13.667	2.20	19.67	1.22
1.750	1.17	7.750	39.40	13.750	2.15	19.75	1.20
1.833	1.17	7.833	39.40	13.833	2.15	19.83	1.20
1.917	1.20	7.917	139.95	13.917	2.10	19.92	1.19
2.000	1.20	8.000	139.94	14.000	2.10	20.00	1.19
2.083	1.22	8.083	51.29	14.083	2.05	20.08	1.18
2.167	1.22	8.167	51.29	14.167	2.05	20.17	1.18
2.250	1.25	8.250	27.55	14.250	2.00	20.25	1.16
2.333	1.25	8.333	27.55	14.333	2.00	20.33	1.16
2.417	1.28	8.417	18.85	14.417	1.96	20.42	1.15
2.500	1.28	8.500	18.85	14.500	1.96	20.50	1.15
2.583	1.32	8.583	14.40	14.583	1.92	20.58	1.14
2.667	1.32	8.667	14.40	14.667	1.92	20.67	1.14
2.750	1.35	8.750	11.70	14.750	1.88	20.75	1.13
2.833	1.35	8.833	11.70	14.833	1.88	20.83	1.13
2.917	1.39	8.917	9.89	14.917	1.85	20.92	1.12
3.000	1.39	9.000	9.89	15.000	1.85	21.00	1.12
3.083	1.43	9.083	8.59	15.083	1.81	21.08	1.11
3.167	1.43	9.167	8.59	15.167	1.81	21.17	1.11
3.250	1.47	9.250	7.62	15.250	1.78	21.25	1.09
3.333	1.47	9.333	7.62	15.333	1.78	21.33	1.09
3.417	1.51	9.417	6.85	15.417	1.74	21.42	1.08
3.500	1.51	9.500	6.85	15.500	1.74	21.50	1.08
3.583	1.56	9.583	6.24	15.583	1.71	21.58	1.07
3.667	1.56	9.667	6.24	15.667	1.71	21.67	1.07
3.750	1.61	9.750	5.74	15.750	1.68	21.75	1.06
3.833	1.61	9.833	5.74	15.833	1.68	21.83	1.06
3.917	1.67	9.917	5.32	15.917	1.66	21.92	1.05
4.000	1.67	10.000	5.32	16.000	1.66	22.00	1.05
4.083	1.73	10.083	4.96	16.083	1.63	22.08	1.04
4.167	1.73	10.167	4.96	16.167	1.63	22.17	1.04
4.250	1.79	10.250	4.65	16.250	1.60	22.25	1.03
4.333	1.79	10.333	4.65	16.333	1.60	22.33	1.03
4.417	1.86	10.417	4.38	16.417	1.58	22.42	1.02
4.500	1.86	10.500	4.38	16.500	1.58	22.50	1.02
4.583	1.94	10.583	4.14	16.583	1.55	22.58	1.01
4.667	1.94	10.667	4.14	16.667	1.55	22.67	1.01
4.750	2.02	10.750	3.93	16.750	1.53	22.75	1.00
4.833	2.02	10.833	3.93	16.833	1.53	22.83	1.00
4.917	2.12	10.917	3.75	16.917	1.50	22.92	0.99
5.000	2.12	11.000	3.75	17.000	1.50	23.00	0.99
5.083	2.22	11.083	3.58	17.083	1.48	23.08	0.99
5.167	2.22	11.167	3.58	17.167	1.48	23.17	0.99
5.250	2.34	11.250	3.42	17.250	1.46	23.25	0.98
5.333	2.34	11.333	3.42	17.333	1.46	23.33	0.98
5.417	2.47	11.417	3.29	17.417	1.44	23.42	0.97
5.500	2.47	11.500	3.29	17.500	1.44	23.50	0.97
5.583	2.62	11.583	3.16	17.583	1.42	23.58	0.96
5.667	2.62	11.667	3.16	17.667	1.42	23.67	0.96
5.750	2.79	11.750	3.04	17.750	1.40	23.75	0.95
5.833	2.79	11.833	3.04	17.833	1.40	23.83	0.95
5.917	2.99	11.917	2.94	17.917	1.38	23.92	0.94
6.000	2.99	12.000	2.94	18.000	1.38	24.00	0.94

Max.Eff.Inten.(mm/hr)=	139.95	90.55	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.83 (ii)	2.81 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.32	0.28	
			TOTALS
PEAK FLOW (cms)=	0.30	0.00	0.297 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	104.37	67.73	104.01
TOTAL RAINFALL (mm)=	105.37	105.37	105.37
RUNOFF COEFFICIENT =	0.99	0.64	0.99

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0017)	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	0.0190	0.0279
	0.0000	0.0028	0.0200	0.0307
	0.0080	0.0056	0.0210	0.0334
	0.0100	0.0084	0.0220	0.0362
	0.0120	0.0111	0.0230	0.0390
	0.0140	0.0139	0.0240	0.0418
	0.0150	0.0167	0.0250	0.0446
	0.0160	0.0195	0.0250	0.0474
	0.0170	0.0223	0.0260	0.0498
	0.0180	0.0251	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0016)	0.770	0.297	8.00	104.01
OUTFLOW: ID= 1 (0017)	0.770	0.023	8.92	100.28

PEAK FLOW REDUCTION [Qout/Qin](%)= 7.74
TIME SHIFT OF PEAK FLOW (min)= 55.00
MAXIMUM STORAGE USED (ha.m.)= 0.0391

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--------------------------------------------------------------------------------
--------------------
| CALIB              |
| STANDHYD (  0021)|   Area    (ha)=   0.44
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.44         0.00
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      54.16        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    0.96 | 6.083    3.22 |12.083    2.84 | 18.08    1.36
               0.167    0.96 | 6.167    3.22 |12.167    2.84 | 18.17    1.36
               0.250    0.98 | 6.250    3.50 |12.250    2.75 | 18.25    1.34
               0.333    0.98 | 6.333    3.50 |12.333    2.75 | 18.33    1.34
               0.417    1.00 | 6.417    3.83 |12.417    2.66 | 18.42    1.33
               0.500    1.00 | 6.500    3.83 |12.500    2.66 | 18.50    1.33
               0.583    1.02 | 6.583    4.26 |12.583    2.58 | 18.58    1.31
               0.667    1.02 | 6.667    4.26 |12.667    2.58 | 18.67    1.31
               0.750    1.04 | 6.750    4.80 |12.750    2.51 | 18.75    1.29
               0.833    1.04 | 6.833    4.80 |12.833    2.51 | 18.83    1.29
               0.917    1.06 | 6.917    5.52 |12.917    2.44 | 18.92    1.28
               1.000    1.06 | 7.000    5.52 |13.000    2.44 | 19.00    1.28
               1.083    1.08 | 7.083    6.54 |13.083    2.37 | 19.08    1.26
               1.167    1.08 | 7.167    6.54 |13.167    2.37 | 19.17    1.26
               1.250    1.10 | 7.250    8.09 |13.250    2.31 | 19.25    1.25
               1.333    1.10 | 7.333    8.09 |13.333    2.31 | 19.33    1.25
               1.417    1.12 | 7.417   10.78 |13.417    2.25 | 19.42    1.23
               1.500    1.12 | 7.500   10.78 |13.500    2.25 | 19.50    1.23
               1.583    1.14 | 7.583   16.61 |13.583    2.20 | 19.58    1.22
               1.667    1.14 | 7.667   16.61 |13.667    2.20 | 19.67    1.22
               1.750    1.17 | 7.750   39.40 |13.750    2.15 | 19.75    1.20
               1.833    1.17 | 7.833   39.40 |13.833    2.15 | 19.83    1.20
               1.917    1.20 | 7.917  139.95 |13.917    2.10 | 19.92    1.19
               2.000    1.20 | 8.000  139.94 |14.000    2.10 | 20.00    1.19
               2.083    1.22 | 8.083   51.29 |14.083    2.05 | 20.08    1.18
               2.167    1.22 | 8.167   51.29 |14.167    2.05 | 20.17    1.18
               2.250    1.25 | 8.250   27.55 |14.250    2.00 | 20.25    1.16
               2.333    1.25 | 8.333   27.55 |14.333    2.00 | 20.33    1.16
               2.417    1.28 | 8.417   18.85 |14.417    1.96 | 20.42    1.15
               2.500    1.28 | 8.500   18.85 |14.500    1.96 | 20.50    1.15
               2.583    1.32 | 8.583   14.40 |14.583    1.92 | 20.58    1.14
               2.667    1.32 | 8.667   14.40 |14.667    1.92 | 20.67    1.14
               2.750    1.35 | 8.750   11.70 |14.750    1.88 | 20.75    1.13
               2.833    1.35 | 8.833   11.70 |14.833    1.88 | 20.83    1.13
               2.917    1.39 | 8.917    9.89 |14.917    1.85 | 20.92    1.12
               3.000    1.39 | 9.000    9.89 |15.000    1.85 | 21.00    1.12
               3.083    1.43 | 9.083    8.59 |15.083    1.81 | 21.08    1.11
               3.167    1.43 | 9.167    8.59 |15.167    1.81 | 21.17    1.11
               3.250    1.47 | 9.250    7.62 |15.250    1.78 | 21.25    1.09
               3.333    1.47 | 9.333    7.62 |15.333    1.78 | 21.33    1.09
               3.417    1.51 | 9.417    6.85 |15.417    1.74 | 21.42    1.08
               3.500    1.51 | 9.500    6.85 |15.500    1.74 | 21.50    1.08
               3.583    1.56 | 9.583    6.24 |15.583    1.71 | 21.58    1.07
               3.667    1.56 | 9.667    6.24 |15.667    1.71 | 21.67    1.07
               3.750    1.61 | 9.750    5.74 |15.750    1.68 | 21.75    1.06
               3.833    1.61 | 9.833    5.74 |15.833    1.68 | 21.83    1.06
               3.917    1.67 | 9.917    5.32 |15.917    1.66 | 21.92    1.05
               4.000    1.67 |10.000    5.32 |16.000    1.66 | 22.00    1.05
               4.083    1.73 |10.083    4.96 |16.083    1.63 | 22.08    1.04
               4.167    1.73 |10.167    4.96 |16.167    1.63 | 22.17    1.04
               4.250    1.79 |10.250    4.65 |16.250    1.60 | 22.25    1.03
               4.333    1.79 |10.333    4.65 |16.333    1.60 | 22.33    1.03
               4.417    1.86 |10.417    4.38 |16.417    1.58 | 22.42    1.02
               4.500    1.86 |10.500    4.38 |16.500    1.58 | 22.50    1.02
               4.583    1.94 |10.583    4.14 |16.583    1.55 | 22.58    1.01
               4.667    1.94 |10.667    4.14 |16.667    1.55 | 22.67    1.01
               4.750    2.02 |10.750    3.93 |16.750    1.53 | 22.75    1.00
               4.833    2.02 |10.833    3.93 |16.833    1.53 | 22.83    1.00
               4.917    2.12 |10.917    3.75 |16.917    1.50 | 22.92    0.99
               5.000    2.12 |11.000    3.75 |17.000    1.50 | 23.00    0.99
               5.083    2.22 |11.083    3.58 |17.083    1.48 | 23.08    0.99
               5.167    2.22 |11.167    3.58 |17.167    1.48 | 23.17    0.99
               5.250    2.34 |11.250    3.42 |17.250    1.46 | 23.25    0.98
               5.333    2.34 |11.333    3.42 |17.333    1.46 | 23.33    0.98
               5.417    2.47 |11.417    3.29 |17.417    1.44 | 23.42    0.97
               5.500    2.47 |11.500    3.29 |17.500    1.44 | 23.50    0.97
               5.583    2.62 |11.583    3.16 |17.583    1.42 | 23.58    0.96
               5.667    2.62 |11.667    3.16 |17.667    1.42 | 23.67    0.96
               5.750    2.79 |11.750    3.04 |17.750    1.40 | 23.75    0.95
               5.833    2.79 |11.833    3.04 |17.833    1.40 | 23.83    0.95
               5.917    2.99 |11.917    2.94 |17.917    1.38 | 23.92    0.94
               6.000    2.99 |12.000    2.94 |18.000    1.38 | 24.00    0.94

     Max.Eff.Inten.(mm/hr)=     139.95        90.55
               over (min)          5.00         5.00
     Storage Coeff.  (min)=       1.55 (ii)    2.53 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.29
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.17         0.00          0.170 (iii)

     TIME TO PEAK    (hrs)=       8.00         8.00          8.00
     RUNOFF VOLUME    (mm)=     104.37        67.73        104.01
     TOTAL RAINFALL   (mm)=     105.37       105.37        105.37
     RUNOFF COEFFICIENT   =       0.99         0.64          0.99

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  84.0    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  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):     0.27   0.084     8.00    91.17
     + ID2= 2 (  0017):     0.77   0.023     8.92   100.28
       ==========================================
       ID = 3 (  0022):     1.04   0.102     8.00    97.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):     1.04   0.102     8.00    97.92
     + ID2= 2 (  0019):     0.80   0.023     8.92    96.30
       ==========================================
       ID = 1 (  0022):     1.84   0.120     8.00    97.22

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0022):     1.84   0.120     8.00    97.22
     + ID2= 2 (  0020):     0.72   0.023     8.83   100.37
       ==========================================
       ID = 3 (  0022):     2.56   0.138     8.00    98.10

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):     2.56   0.138     8.00    98.10
     + ID2= 2 (  0021):     0.44   0.170     8.00   104.01
       ==========================================
       ID = 1 (  0022):     3.00   0.308     8.00    98.97

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0022):     3.00   0.308     8.00    98.97
     + ID2= 2 (  0036):     0.14   0.023     8.08    67.42
       ==========================================
       ID = 3 (  0022):     3.14   0.328     8.00    97.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):     3.14   0.328     8.00    97.56
     + ID2= 2 (  0039):     0.05   0.008     8.08    67.41
       ==========================================
       ID = 1 (  0022):     3.19   0.335     8.00    97.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     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   |    0.1440      0.0413
                          0.0980      0.0206   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0022)     3.190     0.335      8.00      97.09
   OUTFLOW: ID= 1 (  0002)     3.190     0.124      8.42      97.07

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 36.93
```

TIME SHIFT OF PEAK FLOW (min)= 25.00
MAXIMUM STORAGE USED (ha.m.)= 0.0322

ADD HYD (0035)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	3.19	0.124	8.42	97.07
+ ID2= 2 (0030):	0.59	0.101	8.00	75.24
ID = 3 (0035):	3.78	0.203	8.00	93.67

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

V V I SSSSS U U A L (v 6.2.2016)
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL

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

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

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

Output filename:
C:\Users\schhom\AppData\Local\Civica\VH5\c4784722-8666-4e89-8a43-7d10dc9357ef\e4a0d5f9-9d9e-4443-86f9-b759abcff7ed\scena
Summary filename:
C:\Users\schhom\AppData\Local\Civica\VH5\c4784722-8666-4e89-8a43-7d10dc9357ef\e4a0d5f9-9d9e-4443-86f9-b759abcff7ed\scena

DATE: 10-15-2024 TIME: 11:03:50

USER:

COMMENTS: _____

CALIB			
NASHYD (0026)|ID= 1 DT= 5.0 min	Area (ha)= 0.28	Curve Number (CN)= 84.0	
	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.22		

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	0.58	6.083	1.81	12.083	1.61	18.08	0.80
0.167	0.58	6.167	1.81	12.167	1.61	18.17	0.80
0.250	0.59	6.250	1.95	12.250	1.56	18.25	0.79
0.333	0.59	6.333	1.95	12.333	1.56	18.33	0.79
0.417	0.60	6.417	2.13	12.417	1.51	18.42	0.78
0.500	0.60	6.500	2.13	12.500	1.51	18.50	0.78
0.583	0.61	6.583	2.35	12.583	1.47	18.58	0.77
0.667	0.61	6.667	2.35	12.667	1.47	18.67	0.77
0.750	0.62	6.750	2.63	12.750	1.43	18.75	0.76
0.833	0.62	6.833	2.63	12.833	1.43	18.83	0.76
0.917	0.63	6.917	2.99	12.917	1.39	18.92	0.75
1.000	0.63	7.000	2.99	13.000	1.39	19.00	0.75
1.083	0.64	7.083	3.50	13.083	1.36	19.08	0.74
1.167	0.64	7.167	3.50	13.167	1.36	19.17	0.74
1.250	0.65	7.250	4.27	13.250	1.32	19.25	0.74
1.333	0.65	7.333	4.27	13.333	1.32	19.33	0.74
1.417	0.66	7.417	5.56	13.417	1.29	19.42	0.73
1.500	0.66	7.500	5.56	13.500	1.29	19.50	0.73
1.583	0.68	7.583	8.29	13.583	1.26	19.58	0.72
1.667	0.68	7.667	8.29	13.667	1.26	19.67	0.72
1.750	0.69	7.750	18.82	13.750	1.23	19.75	0.71
1.833	0.69	7.833	18.82	13.833	1.23	19.83	0.71
1.917	0.71	7.917	71.26	13.917	1.21	19.92	0.70
2.000	0.71	8.000	71.26	14.000	1.21	20.00	0.70
2.083	0.72	8.083	24.34	14.083	1.18	20.08	0.70
2.167	0.72	8.167	24.34	14.167	1.18	20.17	0.70
2.250	0.74	8.250	13.32	14.250	1.16	20.25	0.69
2.333	0.74	8.333	13.32	14.333	1.16	20.33	0.69
2.417	0.76	8.417	9.33	14.417	1.13	20.42	0.68
2.500	0.76	8.500	9.33	14.500	1.13	20.50	0.68
2.583	0.78	8.583	7.27	14.583	1.11	20.58	0.68
2.667	0.78	8.667	7.27	14.667	1.11	20.67	0.68
2.750	0.79	8.750	6.00	14.750	1.09	20.75	0.67
2.833	0.79	8.833	6.00	14.833	1.09	20.83	0.67
2.917	0.82	8.917	5.14	14.917	1.07	20.92	0.66
3.000	0.82	9.000	5.14	15.000	1.07	21.00	0.66
3.083	0.84	9.083	4.51	15.083	1.05	21.08	0.66
3.167	0.84	9.167	4.51	15.167	1.05	21.17	0.66
3.250	0.86	9.250	4.04	15.250	1.03	21.25	0.65
3.333	0.86	9.333	4.04	15.333	1.03	21.33	0.65
3.417	0.89	9.417	3.66	15.417	1.01	21.42	0.64
3.500	0.89	9.500	3.66	15.500	1.01	21.50	0.64
3.583	0.91	9.583	3.36	15.583	1.00	21.58	0.64
3.667	0.91	9.667	3.36	15.667	1.00	21.67	0.64
3.750	0.94	9.750	3.10	15.750	0.98	21.75	0.63
3.833	0.94	9.833	3.10	15.833	0.98	21.83	0.63
3.917	0.97	9.917	2.89	15.917	0.96	21.92	0.63
4.000	0.97	10.000	2.89	16.000	0.96	22.00	0.63
4.083	1.00	10.083	2.71	16.083	0.95	22.08	0.62
4.167	1.00	10.167	2.71	16.167	0.95	22.17	0.62
4.250	1.04	10.250	2.55	16.250	0.93	22.25	0.61
4.333	1.04	10.333	2.55	16.333	0.93	22.33	0.61
4.417	1.08	10.417	2.41	16.417	0.92	22.42	0.61
4.500	1.08	10.500	2.41	16.500	0.92	22.50	0.61
4.583	1.12	10.583	2.29	16.583	0.91	22.58	0.60
4.667	1.12	10.667	2.29	16.667	0.91	22.67	0.60
4.750	1.17	10.750	2.18	16.750	0.89	22.75	0.60
4.833	1.17	10.833	2.18	16.833	0.89	22.83	0.60
4.917	1.22	10.917	2.08	16.917	0.88	22.92	0.59
5.000	1.22	11.000	2.08	17.000	0.88	23.00	0.59
5.083	1.27	11.083	2.00	17.083	0.87	23.08	0.59
5.167	1.27	11.167	2.00	17.167	0.87	23.17	0.59
5.250	1.34	11.250	1.92	17.250	0.86	23.25	0.58
5.333	1.34	11.333	1.92	17.333	0.86	23.33	0.58
5.417	1.41	11.417	1.84	17.417	0.84	23.42	0.58
5.500	1.41	11.500	1.84	17.500	0.84	23.50	0.58
5.583	1.49	11.583	1.78	17.583	0.83	23.58	0.57
5.667	1.49	11.667	1.78	17.667	0.83	23.67	0.57
5.750	1.58	11.750	1.72	17.750	0.82	23.75	0.57
5.833	1.58	11.833	1.72	17.833	0.82	23.83	0.57
5.917	1.69	11.917	1.66	17.917	0.81	23.92	0.56
6.000	1.69	12.000	1.66	18.000	0.81	24.00	0.56

Unit Hyd Qpeak (cms)= 0.049

** SIMULATION : 2yr_24hr Chicago **

CHICAGO STORM	IDF curve parameters: A= 586.100
Ptotal= 55.78 mm	B= 6.000
	C= 0.760

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
0.00	0.58	6.00	1.81	12.00	1.61	18.00	0.80
0.17	0.59	6.17	1.95	12.17	1.56	18.17	0.79
0.33	0.60	6.33	2.13	12.33	1.51	18.33	0.78
0.50	0.61	6.50	2.35	12.50	1.47	18.50	0.77
0.67	0.62	6.67	2.63	12.67	1.43	18.67	0.76
0.83	0.63	6.83	2.99	12.83	1.39	18.83	0.75
1.00	0.64	7.00	3.50	13.00	1.36	19.00	0.74
1.17	0.65	7.17	4.27	13.17	1.32	19.17	0.74
1.33	0.66	7.33	5.56	13.33	1.29	19.33	0.73
1.50	0.68	7.50	8.29	13.50	1.26	19.50	0.72
1.67	0.69	7.67	18.82	13.67	1.23	19.67	0.71
1.83	0.71	7.83	71.26	13.83	1.21	19.83	0.70
2.00	0.72	8.00	24.34	14.00	1.18	20.00	0.70
2.17	0.74	8.17	13.32	14.17	1.16	20.17	0.69
2.33	0.76	8.33	9.33	14.33	1.13	20.33	0.68
2.50	0.78	8.50	7.27	14.50	1.11	20.50	0.68
2.67	0.79	8.67	6.00	14.67	1.09	20.67	0.67
2.83	0.82	8.83	5.14	14.83	1.07	20.83	0.66
3.00	0.84	9.00	4.51	15.00	1.05	21.00	0.66
3.17	0.86	9.17	4.04	15.17	1.03	21.17	0.65
3.33	0.89	9.33	3.66	15.33	1.01	21.33	0.64
3.50	0.91	9.50	3.36	15.50	1.00	21.50	0.64
3.67	0.94	9.67	3.10	15.67	0.98	21.67	0.63
3.83	0.97	9.83	2.89	15.83	0.96	21.83	0.63
4.00	1.00	10.00	2.71	16.00	0.95	22.00	0.62
4.17	1.04	10.17	2.55	16.17	0.93	22.17	0.61

PEAK FLOW (cms)= 0.013 (i)
TIME TO PEAK (hrs)= 8.167
RUNOFF VOLUME (mm)= 25.965
TOTAL RAINFALL (mm)= 55.777
RUNOFF COEFFICIENT = 0.466

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

CALIB			
NASHYD (0029)	Area (ha)= 0.18	Curve Number (CN)= 84.0	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.17		

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	0.58	6.083	1.81	12.083	1.61	18.08	0.80
0.167	0.58	6.167	1.81	12.167	1.61	18.17	0.80
0.250	0.59	6.250	1.95	12.250	1.56	18.25	0.79
0.333	0.59	6.333	1.95	12.333	1.56	18.33	0.79
0.417	0.60	6.417	2.13	12.417	1.51	18.42	0.78
0.500	0.60	6.500	2.13	12.500	1.51	18.50	0.78
0.583	0.61	6.583	2.35	12.583	1.47	18.58	0.77
0.667	0.61	6.667	2.35	12.667	1.47	18.67	0.77
0.750	0.62	6.750	2.63	12.750	1.43	18.75	0.76
0.833	0.62	6.833	2.63	12.833	1.43	18.83	0.76
0.917	0.63	6.917	2.99	12.917	1.39	18.92	0.75
1.000	0.63	7.000	2.99	13.000	1.39	19.00	0.75
1.083	0.64	7.083	3.50	13.083	1.36	19.08	0.74
1.167	0.64	7.167	3.50	13.167	1.36	19.17	0.74
1.250	0.65	7.250	4.27	13.250	1.32	19.25	0.74
1.333	0.65	7.333	4.27	13.333	1.32	19.33	0.74
1.417	0.66	7.417	5.56	13.417	1.29	19.42	0.73
1.500	0.66	7.500	5.56	13.500	1.29	19.50	0.73
1.583	0.68	7.583	8.29	13.583	1.26	19.58	0.72
1.667	0.68	7.667	8.29	13.667	1.26	19.67	0.72
1.750	0.69	7.750	18.82	13.750	1.23	19.75	0.71
1.833	0.69	7.833	18.82	13.833	1.23	19.83	0.71
1.917	0.71	7.917	71.26	13.917	1.21	19.92	0.70
2.000	0.71	8.000	71.26	14.000	1.21	20.00	0.70
2.083	0.72	8.083	24.34	14.083	1.18	20.08	0.70
2.167	0.72	8.167	24.34	14.167	1.18	20.17	0.70
2.250	0.74	8.250	13.32	14.250	1.16	20.25	0.69
2.333	0.74	8.333	13.32	14.333	1.16	20.33	0.69
2.417	0.76	8.417	9.33	14.417	1.13	20.42	0.68
2.500	0.76	8.500	9.33	14.500	1.13	20.50	0.68
2.583	0.78	8.583	7.27	14.583	1.11	20.58	0.68
2.667	0.78	8.667	7.27	14.667	1.11	20.67	0.68
2.750	0.79	8.750	6.00	14.750	1.09	20.75	0.67
2.833	0.79	8.833	6.00	14.833	1.09	20.83	0.67
2.917	0.82	8.917	5.14	14.917	1.07	20.92	0.66
3.000	0.82	9.000	5.14	15.000	1.07	21.00	0.66
3.083	0.84	9.083	4.51	15.083	1.05	21.08	0.66
3.167	0.84	9.167	4.51	15.167	1.05	21.17	0.66
3.250	0.86	9.250	4.04	15.250	1.03	21.25	0.65
3.333	0.86	9.333	4.04	15.333	1.03	21.33	0.65
3.417	0.89	9.417	3.66	15.417	1.01	21.42	0.64
3.500	0.89	9.500	3.66	15.500	1.01	21.50	0.64
3.583	0.91	9.583	3.36	15.583	1.00	21.58	0.64
3.667	0.91	9.667	3.36	15.667	1.00	21.67	0.64
3.750	0.94	9.750	3.10	15.750	0.98	21.75	0.63
3.833	0.94	9.833	3.10	15.833	0.98	21.83	0.63
3.917	0.97	9.917	2.89	15.917	0.96	21.92	0.63
4.000	0.97	10.000	2.89	16.000	0.96	22.00	0.63
4.083	1.00	10.083	2.71	16.083	0.95	22.08	0.62
4.167	1.00	10.167	2.71	16.167	0.95	22.17	0.62
4.250	1.04	10.250	2.55	16.250	0.93	22.25	0.61
4.333	1.04	10.333	2.55	16.333	0.93	22.33	0.61
4.417	1.08	10.417	2.41	16.417	0.92	22.42	0.61
4.500	1.08	10.500	2.41	16.500	0.92	22.50	0.61
4.583	1.12	10.583	2.29	16.583	0.91	22.58	0.60
4.667	1.12	10.667	2.29	16.667	0.91	22.67	0.60
4.750	1.17	10.750	2.18	16.750	0.89	22.75	0.60
4.833	1.17	10.833	2.18	16.833	0.89	22.83	0.60
4.917	1.22	10.917	2.08	16.917	0.88	22.92	0.59
5.000	1.22	11.000	2.08	17.000	0.88	23.00	0.59
5.083	1.27	11.083	2.00	17.083	0.87	23.08	0.59
5.167	1.27	11.167	2.00	17.167	0.87	23.17	0.59
5.250	1.34	11.250	1.92	17.250	0.86	23.25	0.58
5.333	1.34	11.333	1.92	17.333	0.86	23.33	0.58
5.417	1.41	11.417	1.84	17.417	0.84	23.42	0.58
5.500	1.41	11.500	1.84	17.500	0.84	23.50	0.58
5.583	1.49	11.583	1.78	17.583	0.83	23.58	0.57
5.667	1.49	11.667	1.78	17.667	0.83	23.67	0.57
5.750	1.58	11.750	1.72	17.750	0.82	23.75	0.57
5.833	1.58	11.833	1.72	17.833	0.82	23.83	0.57
5.917	1.69	11.917	1.66	17.917	0.81	23.92	0.56
6.000	1.69	12.000	1.66	18.000	0.81	24.00	0.56

Unit Hyd Qpeak (cms)= 0.040

PEAK FLOW (cms)= 0.009 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 25.906
TOTAL RAINFALL (mm)= 55.777

RUNOFF COEFFICIENT = 0.464

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

CALIB			
STANDHYD (0028)	Area (ha)= 0.08		
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.08	0.00
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	23.09	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	0.58	6.083	1.81	12.083	1.61	18.08	0.80
0.167	0.58	6.167	1.81	12.167	1.61	18.17	0.80
0.250	0.59	6.250	1.95	12.250	1.56	18.25	0.79
0.333	0.59	6.333	1.95	12.333	1.56	18.33	0.79
0.417	0.60	6.417	2.13	12.417	1.51	18.42	0.78
0.500	0.60	6.500	2.13	12.500	1.51	18.50	0.78
0.583	0.61	6.583	2.35	12.583	1.47	18.58	0.77
0.667	0.61	6.667	2.35	12.667	1.47	18.67	0.77
0.750	0.62	6.750	2.63	12.750	1.43	18.75	0.76
0.833	0.62	6.833	2.63	12.833	1.43	18.83	0.76
0.917	0.63	6.917	2.99	12.917	1.39	18.92	0.75
1.000	0.63	7.000	2.99	13.000	1.39	19.00	0.75
1.083	0.64	7.083	3.50	13.083	1.36	19.08	0.74
1.167	0.64	7.167	3.50	13.167	1.36	19.17	0.74
1.250	0.65	7.250	4.27	13.250	1.32	19.25	0.74
1.333	0.65	7.333	4.27	13.333	1.32	19.33	0.74
1.417	0.66	7.417	5.56	13.417	1.29	19.42	0.73
1.500	0.66	7.500	5.56	13.500	1.29	19.50	0.73
1.583	0.68	7.583	8.29	13.583	1.26	19.58	0.72
1.667	0.68	7.667	8.29	13.667	1.26	19.67	0.72
1.750	0.69	7.750	18.82	13.750	1.23	19.75	0.71
1.833	0.69	7.833	18.82	13.833	1.23	19.83	0.71
1.917	0.71	7.917	71.26	13.917	1.21	19.92	0.70
2.000	0.71	8.000	71.26	14.000	1.21	20.00	0.70
2.083	0.72	8.083	24.34	14.083	1.18	20.08	0.70
2.167	0.72	8.167	24.34	14.167	1.18	20.17	0.70
2.250	0.74	8.250	13.32	14.250	1.16	20.25	0.69
2.333	0.74	8.333	13.32	14.333	1.16	20.33	0.69
2.417	0.76	8.417	9.33	14.417	1.13	20.42	0.68
2.500	0.76	8.500	9.33	14.500	1.13	20.50	0.68
2.583	0.78	8.583	7.27	14.583	1.11	20.58	0.68
2.667	0.78	8.667	7.27	14.667	1.11	20.67	0.68
2.750	0.79	8.750	6.00	14.750	1.09	20.75	0.67
2.833	0.79	8.833	6.00	14.833	1.09	20.83	0.67
2.917	0.82	8.917	5.14	14.917	1.07	20.92	0.66
3.000	0.82	9.000	5.14	15.000	1.07	21.00	0.66
3.083	0.84	9.083	4.51	15.083	1.05	21.08	0.66
3.167	0.84	9.167	4.51	15.167	1.05	21.17	0.66
3.250	0.86	9.250	4.04	15.250	1.03	21.25	0.65
3.333	0.86	9.333	4.04	15.333	1.03	21.33	0.65
3.417	0.89	9.417	3.66	15.417	1.01	21.42	0.64
3.500	0.89	9.500	3.66	15.500	1.01	21.50	0.64
3.583	0.91	9.583	3.36	15.583	1.00	21.58	0.64
3.667	0.91	9.667	3.36	15.667	1.00	21.67	0.64
3.750	0.94	9.750	3.10	15.750	0.98	21.75	0.63
3.833	0.94	9.833	3.10	15.833	0.98	21.83	0.63
3.917	0.97	9.917	2.89	15.917	0.96	21.92	0.63
4.000	0.97	10.000	2.89	16.000	0.96	22.00	0.63
4.083	1.00	10.083	2.71	16.083	0.95	22.08	0.62
4.167	1.00	10.167	2.71	16.167	0.95	22.17	0.62
4.250	1.04	10.250	2.55	16.250	0.93	22.25	0.61
4.333	1.04	10.333	2.55	16.333	0.93	22.33	0.61
4.417	1.08	10.417	2.41	16.417	0.92	22.42	0.61
4.500	1.08	10.500	2.41	16.500	0.92	22.50	0.61
4.583	1.12	10.583	2.29	16.583	0.91	22.58	0.60
4.667	1.12	10.667	2.29	16.667	0.91	22.67	0.60
4.750	1.17	10.750	2.18	16.750	0.89	22.75	0.60
4.833	1.17	10.833	2.18	16.833	0.89	22.83	0.60
4.917	1.22	10.917	2.08	16.917	0.88	22.92	0.59
5.000	1.22	11.000	2.08	17.000	0.88	23.00	0.59
5.083	1.27	11.083	2.00	17.083	0.87	23.08	0.59
5.167	1.27	11.167	2.00	17.167	0.87	23.17	0.59
5.250	1.34	11.250	1.92	17.250	0.86	23.25	0.58
5.333	1.34	11.333	1.92	17.333	0.86	23.33	0.58
5.417	1.41	11.417	1.84	17.417	0.84	23.42	0.58
5.500	1.41	11.500	1.84	17.500	0.84	23.50	0.58
5.583	1.49	11.583	1.78	17.583	0.83	23.58	0.57
5.667	1.49	11.667	1.78	17.667	0.83	23.67	0.57
5.750	1.58	11.750	1.72	17.750	0.82	23.75	0.57
5.833	1.58	11.833	1.72	17.833	0.82	23.83	0.57
5.917	1.69	11.917	1.66	17.917	0.81	23.92	0.56
6.000	1.69	12.000	1.66	18.000	0.81	24.00	0.56

Max.Eff.Inten.(mm/hr)=	71.26	30.03
over (min)	5.00	5.00
Storage Coeff. (min)=	1.21 (ii)	2.50 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00

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     Unit Hyd. peak  (cms)=       0.33         0.29
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.02         0.00          0.016 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.00          8.00
     RUNOFF VOLUME    (mm)=      54.78        26.00         54.49
     TOTAL RAINFALL   (mm)=      55.78        55.78         55.78
     RUNOFF COEFFICIENT   =       0.98         0.47          0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  84.0    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 (  0037)|   Area    (ha)=   0.04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.04         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      16.33        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    0.58 | 6.083    1.81 |12.083    1.61 | 18.08    0.80
               0.167    0.58 | 6.167    1.81 |12.167    1.61 | 18.17    0.80
               0.250    0.59 | 6.250    1.95 |12.250    1.56 | 18.25    0.79
               0.333    0.59 | 6.333    1.95 |12.333    1.56 | 18.33    0.79
               0.417    0.60 | 6.417    2.13 |12.417    1.51 | 18.42    0.78
               0.500    0.60 | 6.500    2.13 |12.500    1.51 | 18.50    0.78
               0.583    0.61 | 6.583    2.35 |12.583    1.47 | 18.58    0.77
               0.667    0.61 | 6.667    2.35 |12.667    1.47 | 18.67    0.77
               0.750    0.62 | 6.750    2.63 |12.750    1.43 | 18.75    0.76
               0.833    0.62 | 6.833    2.63 |12.833    1.43 | 18.83    0.76
               0.917    0.63 | 6.917    2.99 |12.917    1.39 | 18.92    0.75
               1.000    0.63 | 7.000    2.99 |13.000    1.39 | 19.00    0.75
               1.083    0.64 | 7.083    3.50 |13.083    1.36 | 19.08    0.74
               1.167    0.64 | 7.167    3.50 |13.167    1.36 | 19.17    0.74
               1.250    0.65 | 7.250    4.27 |13.250    1.32 | 19.25    0.74
               1.333    0.65 | 7.333    4.27 |13.333    1.32 | 19.33    0.74
               1.417    0.66 | 7.417    5.56 |13.417    1.29 | 19.42    0.73
               1.500    0.66 | 7.500    5.56 |13.500    1.29 | 19.50    0.73
               1.583    0.68 | 7.583    8.29 |13.583    1.26 | 19.58    0.72
               1.667    0.68 | 7.667    8.29 |13.667    1.26 | 19.67    0.72
               1.750    0.69 | 7.750   18.82 |13.750    1.23 | 19.75    0.71
               1.833    0.69 | 7.833   18.82 |13.833    1.23 | 19.83    0.71
               1.917    0.71 | 7.917   71.26 |13.917    1.21 | 19.92    0.70
               2.000    0.71 | 8.000   71.26 |14.000    1.21 | 20.00    0.70
               2.083    0.72 | 8.083   24.34 |14.083    1.18 | 20.08    0.70
               2.167    0.72 | 8.167   24.34 |14.167    1.18 | 20.17    0.70
               2.250    0.74 | 8.250   13.32 |14.250    1.16 | 20.25    0.69
               2.333    0.74 | 8.333   13.32 |14.333    1.16 | 20.33    0.69
               2.417    0.76 | 8.417    9.33 |14.417    1.13 | 20.42    0.68
               2.500    0.76 | 8.500    9.33 |14.500    1.13 | 20.50    0.68
               2.583    0.78 | 8.583    7.27 |14.583    1.11 | 20.58    0.68
               2.667    0.78 | 8.667    7.27 |14.667    1.11 | 20.67    0.68
               2.750    0.79 | 8.750    6.00 |14.750    1.09 | 20.75    0.67
               2.833    0.79 | 8.833    6.00 |14.833    1.09 | 20.83    0.67
               2.917    0.82 | 8.917    5.14 |14.917    1.07 | 20.92    0.66
               3.000    0.82 | 9.000    5.14 |15.000    1.07 | 21.00    0.66
               3.083    0.84 | 9.083    4.51 |15.083    1.05 | 21.08    0.66
               3.167    0.84 | 9.167    4.51 |15.167    1.05 | 21.17    0.66
               3.250    0.86 | 9.250    4.04 |15.250    1.03 | 21.25    0.65
               3.333    0.86 | 9.333    4.04 |15.333    1.03 | 21.33    0.65
               3.417    0.89 | 9.417    3.66 |15.417    1.01 | 21.42    0.64
               3.500    0.89 | 9.500    3.66 |15.500    1.01 | 21.50    0.64
               3.583    0.91 | 9.583    3.36 |15.583    1.00 | 21.58    0.64
               3.667    0.91 | 9.667    3.36 |15.667    1.00 | 21.67    0.64
               3.750    0.94 | 9.750    3.10 |15.750    0.98 | 21.75    0.63
               3.833    0.94 | 9.833    3.10 |15.833    0.98 | 21.83    0.63
               3.917    0.97 | 9.917    2.89 |15.917    0.96 | 21.92    0.63
               4.000    0.97 |10.000    2.89 |16.000    0.96 | 22.00    0.63
               4.083    1.00 |10.083    2.71 |16.083    0.95 | 22.08    0.62
               4.167    1.00 |10.167    2.71 |16.167    0.95 | 22.17    0.62
               4.250    1.04 |10.250    2.55 |16.250    0.93 | 22.25    0.61
               4.333    1.04 |10.333    2.55 |16.333    0.93 | 22.33    0.61
               4.417    1.08 |10.417    2.41 |16.417    0.92 | 22.42    0.61
               4.500    1.08 |10.500    2.41 |16.500    0.92 | 22.50    0.61
               4.583    1.12 |10.583    2.29 |16.583    0.91 | 22.58    0.60
               4.667    1.12 |10.667    2.29 |16.667    0.91 | 22.67    0.60
               4.750    1.17 |10.750    2.18 |16.750    0.89 | 22.75    0.60
               4.833    1.17 |10.833    2.18 |16.833    0.89 | 22.83    0.60
               4.917    1.22 |10.917    2.08 |16.917    0.88 | 22.92    0.59
               5.000    1.22 |11.000    2.08 |17.000    0.88 | 23.00    0.59
               5.083    1.27 |11.083    2.00 |17.083    0.87 | 23.08    0.59
               5.167    1.27 |11.167    2.00 |17.167    0.87 | 23.17    0.59
               5.250    1.34 |11.250    1.92 |17.250    0.86 | 23.25    0.58
               5.333    1.34 |11.333    1.92 |17.333    0.86 | 23.33    0.58
               5.417    1.41 |11.417    1.84 |17.417    0.84 | 23.42    0.58
               5.500    1.41 |11.500    1.84 |17.500    0.84 | 23.50    0.58
               5.583    1.49 |11.583    1.78 |17.583    0.83 | 23.58    0.57
               5.667    1.49 |11.667    1.78 |17.667    0.83 | 23.67    0.57
               5.750    1.58 |11.750    1.72 |17.750    0.82 | 23.75    0.57
               5.833    1.58 |11.833    1.72 |17.833    0.82 | 23.83    0.57
               5.917    1.69 |11.917    1.66 |17.917    0.81 | 23.92    0.56
               6.000    1.69 |12.000    1.66 |18.000    0.81 | 24.00    0.56

     Max.Eff.Inten.(mm/hr)=      71.26        35.80
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.99 (ii)    2.27 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.30
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.008 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.00          8.00
     RUNOFF VOLUME    (mm)=      54.78        29.73         49.40
     TOTAL RAINFALL   (mm)=      55.78        55.78         55.78
     RUNOFF COEFFICIENT   =       0.98         0.53          0.89

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    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 (  0038)|   Area    (ha)=   0.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       8.16        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    0.58 | 6.083    1.81 |12.083    1.61 | 18.08    0.80
               0.167    0.58 | 6.167    1.81 |12.167    1.61 | 18.17    0.80
               0.250    0.59 | 6.250    1.95 |12.250    1.56 | 18.25    0.79
               0.333    0.59 | 6.333    1.95 |12.333    1.56 | 18.33    0.79
               0.417    0.60 | 6.417    2.13 |12.417    1.51 | 18.42    0.78
               0.500    0.60 | 6.500    2.13 |12.500    1.51 | 18.50    0.78
               0.583    0.61 | 6.583    2.35 |12.583    1.47 | 18.58    0.77
               0.667    0.61 | 6.667    2.35 |12.667    1.47 | 18.67    0.77
               0.750    0.62 | 6.750    2.63 |12.750    1.43 | 18.75    0.76
               0.833    0.62 | 6.833    2.63 |12.833    1.43 | 18.83    0.76
               0.917    0.63 | 6.917    2.99 |12.917    1.39 | 18.92    0.75
               1.000    0.63 | 7.000    2.99 |13.000    1.39 | 19.00    0.75
               1.083    0.64 | 7.083    3.50 |13.083    1.36 | 19.08    0.74
               1.167    0.64 | 7.167    3.50 |13.167    1.36 | 19.17    0.74
               1.250    0.65 | 7.250    4.27 |13.250    1.32 | 19.25    0.74
               1.333    0.65 | 7.333    4.27 |13.333    1.32 | 19.33    0.74
               1.417    0.66 | 7.417    5.56 |13.417    1.29 | 19.42    0.73
               1.500    0.66 | 7.500    5.56 |13.500    1.29 | 19.50    0.73
               1.583    0.68 | 7.583    8.29 |13.583    1.26 | 19.58    0.72
               1.667    0.68 | 7.667    8.29 |13.667    1.26 | 19.67    0.72
               1.750    0.69 | 7.750   18.82 |13.750    1.23 | 19.75    0.71
               1.833    0.69 | 7.833   18.82 |13.833    1.23 | 19.83    0.71
               1.917    0.71 | 7.917   71.26 |13.917    1.21 | 19.92    0.70
               2.000    0.71 | 8.000   71.26 |14.000    1.21 | 20.00    0.70
               2.083    0.72 | 8.083   24.34 |14.083    1.18 | 20.08    0.70
               2.167    0.72 | 8.167   24.34 |14.167    1.18 | 20.17    0.70
               2.250    0.74 | 8.250   13.32 |14.250    1.16 | 20.25    0.69
               2.333    0.74 | 8.333   13.32 |14.333    1.16 | 20.33    0.69
               2.417    0.76 | 8.417    9.33 |14.417    1.13 | 20.42    0.68
               2.500    0.76 | 8.500    9.33 |14.500    1.13 | 20.50    0.68
               2.583    0.78 | 8.583    7.27 |14.583    1.11 | 20.58    0.68
               2.667    0.78 | 8.667    7.27 |14.667    1.11 | 20.67    0.68
               2.750    0.79 | 8.750    6.00 |14.750    1.09 | 20.75    0.67
               2.833    0.79 | 8.833    6.00 |14.833    1.09 | 20.83    0.67
               2.917    0.82 | 8.917    5.14 |14.917    1.07 | 20.92    0.66
               3.000    0.82 | 9.000    5.14 |15.000    1.07 | 21.00    0.66
               3.083    0.84 | 9.083    4.51 |15.083    1.05 | 21.08    0.66
               3.167    0.84 | 9.167    4.51 |15.167    1.05 | 21.17    0.66
               3.250    0.86 | 9.250    4.04 |15.250    1.03 | 21.25    0.65
               3.333    0.86 | 9.333    4.04 |15.333    1.03 | 21.33    0.65
               3.417    0.89 | 9.417    3.66 |15.417    1.01 | 21.42    0.64
               3.500    0.89 | 9.500    3.66 |15.500    1.01 | 21.50    0.64
               3.583    0.91 | 9.583    3.36 |15.583    1.00 | 21.58    0.64
               3.667    0.91 | 9.667    3.36 |15.667    1.00 | 21.67    0.64
               3.750    0.94 | 9.750    3.10 |15.750    0.98 | 21.75    0.63
               3.833    0.94 | 9.833    3.10 |15.833    0.98 | 21.83    0.63
               3.917    0.97 | 9.917    2.89 |15.917    0.96 | 21.92    0.63
               4.000    0.97 |10.000    2.89 |16.000    0.96 | 22.00    0.63
               4.083    1.00 |10.083    2.71 |16.083    0.95 | 22.08    0.62
               4.167    1.00 |10.167    2.71 |16.167    0.95 | 22.17    0.62
               4.250    1.04 |10.250    2.55 |16.250    0.93 | 22.25    0.61
               4.333    1.04 |10.333    2.55 |16.333    0.93 | 22.33    0.61
               4.417    1.08 |10.417    2.41 |16.417    0.92 | 22.42    0.61
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4.500	1.08	10.500	2.41	16.500	0.92	22.50	0.61
4.583	1.12	10.583	2.29	16.583	0.91	22.58	0.60
4.667	1.12	10.667	2.29	16.667	0.91	22.67	0.60
4.750	1.17	10.750	2.18	16.750	0.89	22.75	0.60
4.833	1.17	10.833	2.18	16.833	0.89	22.83	0.60
4.917	1.22	10.917	2.08	16.917	0.88	22.92	0.59
5.000	1.22	11.000	2.08	17.000	0.88	23.00	0.59
5.083	1.27	11.083	2.00	17.083	0.87	23.08	0.59
5.167	1.27	11.167	2.00	17.167	0.87	23.17	0.59
5.250	1.34	11.250	1.92	17.250	0.86	23.25	0.58
5.333	1.34	11.333	1.92	17.333	0.86	23.33	0.58
5.417	1.41	11.417	1.84	17.417	0.84	23.42	0.58
5.500	1.41	11.500	1.84	17.500	0.84	23.50	0.58
5.583	1.49	11.583	1.78	17.583	0.83	23.58	0.57
5.667	1.49	11.667	1.78	17.667	0.83	23.67	0.57
5.750	1.58	11.750	1.72	17.750	0.82	23.75	0.57
5.833	1.58	11.833	1.72	17.833	0.82	23.83	0.57
5.917	1.69	11.917	1.66	17.917	0.81	23.92	0.56
6.000	1.69	12.000	1.66	18.000	0.81	24.00	0.56

Max.Eff.Inten.(mm/hr)=	71.26	35.80	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.65 (ii)	1.94 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.31	
			TOTALS
PEAK FLOW (cms)=	0.00	0.00	0.002 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	54.78	29.73	38.16
TOTAL RAINFALL (mm)=	55.78	55.78	55.78
RUNOFF COEFFICIENT =	0.98	0.53	0.68

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 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 (0030)			
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0026):	0.28	0.013	8.17	25.97
+ ID2= 2 (0028):	0.08	0.016	8.00	54.49
ID = 3 (0030):	0.36	0.024	8.00	32.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)			
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	0.36	0.024	8.00	32.30
+ ID2= 2 (0029):	0.18	0.009	8.08	25.91
ID = 1 (0030):	0.54	0.032	8.00	30.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)			
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	0.54	0.032	8.00	30.17
+ ID2= 2 (0037):	0.04	0.008	8.00	49.40
ID = 3 (0030):	0.58	0.040	8.00	31.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)			
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	0.58	0.040	8.00	31.50
+ ID2= 2 (0038):	0.01	0.002	8.00	38.16
ID = 1 (0030):	0.59	0.041	8.00	31.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0031)	Area (ha)= 0.09	Curve Number (CN)= 84.0		
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 0.17			

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
0.083	0.58	6.083	1.81	12.083	1.61	18.08	0.80
0.167	0.58	6.167	1.81	12.167	1.61	18.17	0.80
0.250	0.59	6.250	1.95	12.250	1.56	18.25	0.79
0.333	0.59	6.333	1.95	12.333	1.56	18.33	0.79
0.417	0.60	6.417	2.13	12.417	1.51	18.42	0.78
0.500	0.60	6.500	2.13	12.500	1.51	18.50	0.78
0.583	0.61	6.583	2.35	12.583	1.47	18.58	0.77
0.667	0.61	6.667	2.35	12.667	1.47	18.67	0.77
0.750	0.62	6.750	2.63	12.750	1.43	18.75	0.76
0.833	0.62	6.833	2.63	12.833	1.43	18.83	0.76
0.917	0.63	6.917	2.99	12.917	1.39	18.92	0.75
1.000	0.63	7.000	2.99	13.000	1.39	19.00	0.75
1.083	0.64	7.083	3.50	13.083	1.36	19.08	0.74
1.167	0.64	7.167	3.50	13.167	1.36	19.17	0.74
1.250	0.65	7.250	4.27	13.250	1.32	19.25	0.74
1.333	0.65	7.333	4.27	13.333	1.32	19.33	0.74
1.417	0.66	7.417	5.56	13.417	1.29	19.42	0.73
1.500	0.66	7.500	5.56	13.500	1.29	19.50	0.73
1.583	0.68	7.583	8.29	13.583	1.26	19.58	0.72
1.667	0.68	7.667	8.29	13.667	1.26	19.67	0.72
1.750	0.69	7.750	18.82	13.750	1.23	19.75	0.71
1.833	0.69	7.833	18.82	13.833	1.23	19.83	0.71
1.917	0.71	7.917	71.26	13.917	1.21	19.92	0.70
2.000	0.71	8.000	71.26	14.000	1.21	20.00	0.70
2.083	0.72	8.083	24.34	14.083	1.18	20.08	0.70
2.167	0.72	8.167	24.34	14.167	1.18	20.17	0.70
2.250	0.74	8.250	13.32	14.250	1.16	20.25	0.69
2.333	0.74	8.333	13.32	14.333	1.16	20.33	0.69
2.417	0.76	8.417	9.33	14.417	1.13	20.42	0.68
2.500	0.76	8.500	9.33	14.500	1.13	20.50	0.68
2.583	0.78	8.583	7.27	14.583	1.11	20.58	0.68
2.667	0.78	8.667	7.27	14.667	1.11	20.67	0.68
2.750	0.79	8.750	6.00	14.750	1.09	20.75	0.67
2.833	0.79	8.833	6.00	14.833	1.09	20.83	0.67
2.917	0.82	8.917	5.14	14.917	1.07	20.92	0.66
3.000	0.82	9.000	5.14	15.000	1.07	21.00	0.66
3.083	0.84	9.083	4.51	15.083	1.05	21.08	0.66
3.167	0.84	9.167	4.51	15.167	1.05	21.17	0.66
3.250	0.86	9.250	4.04	15.250	1.03	21.25	0.65
3.333	0.86	9.333	4.04	15.333	1.03	21.33	0.65
3.417	0.89	9.417	3.66	15.417	1.01	21.42	0.64
3.500	0.89	9.500	3.66	15.500	1.01	21.50	0.64
3.583	0.91	9.583	3.36	15.583	1.00	21.58	0.64
3.667	0.91	9.667	3.36	15.667	1.00	21.67	0.64
3.750	0.94	9.750	3.10	15.750	0.98	21.75	0.63
3.833	0.94	9.833	3.10	15.833	0.98	21.83	0.63
3.917	0.97	9.917	2.89	15.917	0.96	21.92	0.63
4.000	0.97	10.000	2.89	16.000	0.96	22.00	0.63
4.083	1.00	10.083	2.71	16.083	0.95	22.08	0.62
4.167	1.00	10.167	2.71	16.167	0.95	22.17	0.62
4.250	1.04	10.250	2.55	16.250	0.93	22.25	0.61
4.333	1.04	10.333	2.55	16.333	0.93	22.33	0.61
4.417	1.08	10.417	2.41	16.417	0.92	22.42	0.61
4.500	1.08	10.500	2.41	16.500	0.92	22.50	0.61
4.583	1.12	10.583	2.29	16.583	0.91	22.58	0.60
4.667	1.12	10.667	2.29	16.667	0.91	22.67	0.60
4.750	1.17	10.750	2.18	16.750	0.89	22.75	0.60
4.833	1.17	10.833	2.18	16.833	0.89	22.83	0.60
4.917	1.22	10.917	2.08	16.917	0.88	22.92	0.59
5.000	1.22	11.000	2.08	17.000	0.88	23.00	0.59
5.083	1.27	11.083	2.00	17.083	0.87	23.08	0.59
5.167	1.27	11.167	2.00	17.167	0.87	23.17	0.59
5.250	1.34	11.250	1.92	17.250	0.86	23.25	0.58
5.333	1.34	11.333	1.92	17.333	0.86	23.33	0.58
5.417	1.41	11.417	1.84	17.417	0.84	23.42	0.58
5.500	1.41	11.500	1.84	17.500	0.84	23.50	0.58
5.583	1.49	11.583	1.78	17.583	0.83	23.58	0.57
5.667	1.49	11.667	1.78	17.667	0.83	23.67	0.57
5.750	1.58	11.750	1.72	17.750	0.82	23.75	0.57
5.833	1.58	11.833	1.72	17.833	0.82	23.83	0.57
5.917	1.69	11.917	1.66	17.917	0.81	23.92	0.56
6.000	1.69	12.000	1.66	18.000	0.81	24.00	0.56

Unit Hyd Qpeak (cms)=	0.020	
PEAK FLOW (cms)=	0.005 (i)	
TIME TO PEAK (hrs)=	8.083	
RUNOFF VOLUME (mm)=	25.906	
TOTAL RAINFALL (mm)=	55.777	
RUNOFF COEFFICIENT =	0.464	

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

CALIB			
STANDHYD (0018)	Area (ha)= 0.71		
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00	
	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	0.70	0.01	
Dep. Storage (mm)=	1.00	5.00	
Average Slope (%)=	1.00	2.00	
Length (m)=	68.80	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	0.58	6.083	1.81	12.083	1.61	18.08	0.80
0.167	0.58	6.167	1.81	12.167	1.61	18.17	0.80
0.250	0.59	6.250	1.95	12.250	1.56	18.25	0.79
0.333	0.59	6.333	1.95	12.333	1.56	18.33	0.79
0.417	0.60	6.417	2.13	12.417	1.51	18.42	0.78
0.500	0.60	6.500	2.13	12.500	1.51	18.50	0.78
0.583	0.61	6.583	2.35	12.583	1.47	18.58	0.77
0.667	0.61	6.667	2.35	12.667	1.47	18.67	0.77
0.750	0.62	6.750	2.63	12.750	1.43	18.75	0.76
0.833	0.62	6.833	2.63	12.833	1.43	18.83	0.76
0.917	0.63	6.917	2.99	12.917	1.39	18.92	0.75
1.000	0.63	7.000	2.99	13.000	1.39	19.00	0.75
1.083	0.64	7.083	3.50	13.083	1.36	19.08	0.74
1.167	0.64	7.167	3.50	13.167	1.36	19.17	0.74
1.250	0.65	7.250	4.27	13.250	1.32	19.25	0.74
1.333	0.65	7.333	4.27	13.333	1.32	19.33	0.74
1.417	0.66	7.417	5.56	13.417	1.29	19.42	0.73
1.500	0.66	7.500	5.56	13.500	1.29	19.50	0.73
1.583	0.68	7.583	8.29	13.583	1.26	19.58	0.72
1.667	0.68	7.667	8.29	13.667	1.26	19.67	0.72
1.750	0.69	7.750	18.82	13.750	1.23	19.75	0.71
1.833	0.69	7.833	18.82	13.833	1.23	19.83	0.71
1.917	0.71	7.917	71.26	13.917	1.21	19.92	0.70
2.000	0.71	8.000	71.26	14.000	1.21	20.00	0.70
2.083	0.72	8.083	24.34	14.083	1.18	20.08	0.70
2.167	0.72	8.167	24.34	14.167	1.18	20.17	0.70
2.250	0.74	8.250	13.32	14.250	1.16	20.25	0.69
2.333	0.74	8.333	13.32	14.333	1.16	20.33	0.69
2.417	0.76	8.417	9.33	14.417	1.13	20.42	0.68
2.500	0.76	8.500	9.33	14.500	1.13	20.50	0.68
2.583	0.78	8.583	7.27	14.583	1.11	20.58	0.68
2.667	0.78	8.667	7.27	14.667	1.11	20.67	0.68
2.750	0.79	8.750	6.00	14.750	1.09	20.75	0.67
2.833	0.79	8.833	6.00	14.833	1.09	20.83	0.67
2.917	0.82	8.917	5.14	14.917	1.07	20.92	0.66
3.000	0.82	9.000	5.14	15.000	1.07	21.00	0.66
3.083	0.84	9.083	4.51	15.083	1.05	21.08	0.66
3.167	0.84	9.167	4.51	15.167	1.05	21.17	0.66
3.250	0.86	9.250	4.04	15.250	1.03	21.25	0.65
3.333	0.86	9.333	4.04	15.333	1.03	21.33	0.65
3.417	0.89	9.417	3.66	15.417	1.01	21.42	0.64
3.500	0.89	9.500	3.66	15.500	1.01	21.50	0.64
3.583	0.91	9.583	3.36	15.583	1.00	21.58	0.64
3.667	0.91	9.667	3.36	15.667	1.00	21.67	0.64
3.750	0.94	9.750	3.10	15.750	0.98	21.75	0.63
3.833	0.94	9.833	3.10	15.833	0.98	21.83	0.63
3.917	0.97	9.917	2.89	15.917	0.96	21.92	0.63
4.000	0.97	10.000	2.89	16.000	0.96	22.00	0.63
4.083	1.00	10.083	2.71	16.083	0.95	22.08	0.62
4.167	1.00	10.167	2.71	16.167	0.95	22.17	0.62
4.250	1.04	10.250	2.55	16.250	0.93	22.25	0.61
4.333	1.04	10.333	2.55	16.333	0.93	22.33	0.61
4.417	1.08	10.417	2.41	16.417	0.92	22.42	0.61
4.500	1.08	10.500	2.41	16.500	0.92	22.50	0.61
4.583	1.12	10.583	2.29	16.583	0.91	22.58	0.60
4.667	1.12	10.667	2.29	16.667	0.91	22.67	0.60
4.750	1.17	10.750	2.18	16.750	0.89	22.75	0.60
4.833	1.17	10.833	2.18	16.833	0.89	22.83	0.60
4.917	1.22	10.917	2.08	16.917	0.88	22.92	0.59
5.000	1.22	11.000	2.08	17.000	0.88	23.00	0.59
5.083	1.27	11.083	2.00	17.083	0.87	23.08	0.59
5.167	1.27	11.167	2.00	17.167	0.87	23.17	0.59
5.250	1.34	11.250	1.92	17.250	0.86	23.25	0.58
5.333	1.34	11.333	1.92	17.333	0.86	23.33	0.58
5.417	1.41	11.417	1.84	17.417	0.84	23.42	0.58
5.500	1.41	11.500	1.84	17.500	0.84	23.50	0.58
5.583	1.49	11.583	1.78	17.583	0.83	23.58	0.57
5.667	1.49	11.667	1.78	17.667	0.83	23.67	0.57
5.750	1.58	11.750	1.72	17.750	0.82	23.75	0.57
5.833	1.58	11.833	1.72	17.833	0.82	23.83	0.57
5.917	1.69	11.917	1.66	17.917	0.81	23.92	0.56
6.000	1.69	12.000	1.66	18.000	0.81	24.00	0.56

Max.Eff.Inten.(mm/hr)=	71.26	30.03	
over (min)	5.00	5.00	
Storage Coeff. (min)=	2.34 (ii)	3.62 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.30	0.25	
			TOTALS
PEAK FLOW (cms)=	0.14	0.00	0.138 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	54.78	26.00	54.49
TOTAL RAINFALL (mm)=	55.78	55.78	55.78
RUNOFF COEFFICIENT =	0.98	0.47	0.98

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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 (0032)|

1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0018):	0.71	0.138	8.00	54.49
+ ID2= 2 (0031):	0.09	0.005	8.08	25.91
ID = 3 (0032):	0.80	0.142	8.00	51.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| RESERVOIR(0019)| | IN= 2---> OUT= 1 | | DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0190	0.0279
0.0000	0.0028	0.0200	0.0307
0.0080	0.0056	0.0210	0.0335
0.0100	0.0084	0.0220	0.0363
0.0120	0.0112	0.0230	0.0391
0.0140	0.0140	0.0240	0.0419
0.0150	0.0168	0.0250	0.0447
0.0160	0.0196	0.0250	0.0475
0.0170	0.0223	0.0260	0.0499
0.0180	0.0251	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0032)	0.800	0.142	8.00	51.27
OUTFLOW: ID= 1 (0019)	0.800	0.016	8.67	47.68

PEAK FLOW REDUCTION [Qout/Qin](%)= 10.97
TIME SHIFT OF PEAK FLOW (min)= 40.00
MAXIMUM STORAGE USED (ha.m.)= 0.0184

| CALIB | NASHYD (0036)| ID= 1 DT= 5.0 min |

Area (ha)= 0.14 Curve Number (CN)= 84.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.16

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	0.58	6.083	1.81	12.083	1.61	18.08	0.80
0.167	0.58	6.167	1.81	12.167	1.61	18.17	0.80
0.250	0.59	6.250	1.95	12.250	1.56	18.25	0.79
0.333	0.59	6.333	1.95	12.333	1.56	18.33	0.79
0.417	0.60	6.417	2.13	12.417	1.51	18.42	0.78
0.500	0.60	6.500	2.13	12.500	1.51	18.50	0.78
0.583	0.61	6.583	2.35	12.583	1.47	18.58	0.77
0.667	0.61	6.667	2.35	12.667	1.47	18.67	0.77
0.750	0.62	6.750	2.63	12.750	1.43	18.75	0.76
0.833	0.62	6.833	2.63	12.833	1.43	18.83	0.76
0.917	0.63	6.917	2.99	12.917	1.39	18.92	0.75
1.000	0.63	7.000	2.99	13.000	1.39	19.00	0.75
1.083	0.64	7.083	3.50	13.083	1.36	19.08	0.74
1.167	0.64	7.167	3.50	13.167	1.36	19.17	0.74
1.250	0.65	7.250	4.27	13.250	1.32	19.25	0.74
1.333	0.65	7.333	4.27	13.333	1.32	19.33	0.74
1.417	0.66	7.417	5.56	13.417	1.29	19.42	0.73
1.500	0.66	7.500	5.56	13.500	1.29	19.50	0.73
1.583	0.68	7.583	8.29	13.583	1.26	19.58	0.72
1.667	0.68	7.667	8.29	13.667	1.26	19.67	0.72
1.750	0.69	7.750	18.82	13.750	1.23	19.75	0.71
1.833	0.69	7.833	18.82	13.833	1.23	19.83	0.71
1.917	0.71	7.917	71.26	13.917	1.21	19.92	0.70
2.000	0.71	8.000	71.26	14.000	1.21	20.00	0.70
2.083	0.72	8.083	24.34	14.083	1.18	20.08	0.70
2.167	0.72	8.167	24.34	14.167	1.18	20.17	0.70
2.250	0.74	8.250	13.32	14.250	1.16	20.25	0.69
2.333	0.74	8.333	13.32	14.333	1.16	20.33	0.69
2.417	0.76	8.417	9.33	14.417	1.13	20.42	0.68
2.500	0.76	8.500	9.33	14.500	1.13	20.50	0.68
2.583	0.78	8.583	7.27	14.583	1.11	20.58	0.68
2.667	0.78	8.667	7.27	14.667	1.11	20.67	0.68
2.750	0.79	8.750	6.00	14.750	1.09	20.75	0.67
2.833	0.79	8.833	6.00	14.833	1.09	20.83	0.67
2.917	0.82	8.917	5.14	14.917	1.07	20.92	0.66
3.000	0.82	9.000	5.14	15.000	1.07	21.00	0.66
3.083	0.84	9.083	4.51	15.083	1.05	21.08	0.66
3.167	0.84	9.167	4.51	15.167	1.05	21.17	0.66
3.250	0.86	9.250	4.04	15.250	1.03	21.25	0.65
3.333	0.86	9.333	4.04	15.333	1.03	21.33	0.65
3.417	0.89	9.417	3.66	15.417	1.01	21.42	0.64
3.500	0.89	9.500	3.66	15.500	1.01	21.50	0.64
3.583	0.91	9.583	3.36	15.583	1.00	21.58	0.64
3.667	0.91	9.667	3.36	15.667	1.00	21.67	0.64
3.750	0.94	9.750	3.10	15.750	0.98	21.75	0.63
3.833	0.94	9.833	3.10	15.833	0.98	21.83	0.63
3.917	0.97	9.917	2.89	15.917	0.96	21.92	0.63
4.000	0.97	10.000	2.89	16.000	0.96	22.00	0.63
4.083	1.00	10.083	2.71	16.083	0.95	22.08	0.62
4.167	1.00	10.167	2.71	16.167	0.95	22.17	0.62
4.250	1.04	10.250	2.55	16.250	0.93	22.25	0.61
4.333	1.04	10.333	2.55	16.333	0.93	22.33	0.61
4.417	1.08	10.417	2.41	16.417	0.92	22.42	0.61

4.500	1.08	10.500	2.41	16.500	0.92	22.50	0.61
4.583	1.12	10.583	2.29	16.583	0.91	22.58	0.60
4.667	1.12	10.667	2.29	16.667	0.91	22.67	0.60
4.750	1.17	10.750	2.18	16.750	0.89	22.75	0.60
4.833	1.17	10.833	2.18	16.833	0.89	22.83	0.60
4.917	1.22	10.917	2.08	16.917	0.88	22.92	0.59
5.000	1.22	11.000	2.08	17.000	0.88	23.00	0.59
5.083	1.27	11.083	2.00	17.083	0.87	23.08	0.59
5.167	1.27	11.167	2.00	17.167	0.87	23.17	0.59
5.250	1.34	11.250	1.92	17.250	0.86	23.25	0.58
5.333	1.34	11.333	1.92	17.333	0.86	23.33	0.58
5.417	1.41	11.417	1.84	17.417	0.84	23.42	0.58
5.500	1.41	11.500	1.84	17.500	0.84	23.50	0.58
5.583	1.49	11.583	1.78	17.583	0.83	23.58	0.57
5.667	1.49	11.667	1.78	17.667	0.83	23.67	0.57
5.750	1.58	11.750	1.72	17.750	0.82	23.75	0.57
5.833	1.58	11.833	1.72	17.833	0.82	23.83	0.57
5.917	1.69	11.917	1.66	17.917	0.81	23.92	0.56
6.000	1.69	12.000	1.66	18.000	0.81	24.00	0.56

Unit Hyd Qpeak (cms)= 0.033

PEAK FLOW (cms)= 0.007 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 25.882
TOTAL RAINFALL (mm)= 55.777
RUNOFF COEFFICIENT = 0.464

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

CALIB			
NASHYD (0039)	Area (ha)=	0.05	Curve Number (CN)= 84.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.16	

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	0.58	6.083	1.81	12.083	1.61	18.08	0.80
0.167	0.58	6.167	1.81	12.167	1.61	18.17	0.80
0.250	0.59	6.250	1.95	12.250	1.56	18.25	0.79
0.333	0.59	6.333	1.95	12.333	1.56	18.33	0.79
0.417	0.60	6.417	2.13	12.417	1.51	18.42	0.78
0.500	0.60	6.500	2.13	12.500	1.51	18.50	0.78
0.583	0.61	6.583	2.35	12.583	1.47	18.58	0.77
0.667	0.61	6.667	2.35	12.667	1.47	18.67	0.77
0.750	0.62	6.750	2.63	12.750	1.43	18.75	0.76
0.833	0.62	6.833	2.63	12.833	1.43	18.83	0.76
0.917	0.63	6.917	2.99	12.917	1.39	18.92	0.75
1.000	0.63	7.000	2.99	13.000	1.39	19.00	0.75
1.083	0.64	7.083	3.50	13.083	1.36	19.08	0.74
1.167	0.64	7.167	3.50	13.167	1.36	19.17	0.74
1.250	0.65	7.250	4.27	13.250	1.32	19.25	0.74
1.333	0.65	7.333	4.27	13.333	1.32	19.33	0.74
1.417	0.66	7.417	5.56	13.417	1.29	19.42	0.73
1.500	0.66	7.500	5.56	13.500	1.29	19.50	0.73
1.583	0.68	7.583	8.29	13.583	1.26	19.58	0.72
1.667	0.68	7.667	8.29	13.667	1.26	19.67	0.72
1.750	0.69	7.750	18.82	13.750	1.23	19.75	0.71
1.833	0.69	7.833	18.82	13.833	1.23	19.83	0.71
1.917	0.71	7.917	71.26	13.917	1.21	19.92	0.70
2.000	0.71	8.000	71.26	14.000	1.21	20.00	0.70
2.083	0.72	8.083	24.34	14.083	1.18	20.08	0.70
2.167	0.72	8.167	24.34	14.167	1.18	20.17	0.70
2.250	0.74	8.250	13.32	14.250	1.16	20.25	0.69
2.333	0.74	8.333	13.32	14.333	1.16	20.33	0.69
2.417	0.76	8.417	9.33	14.417	1.13	20.42	0.68
2.500	0.76	8.500	9.33	14.500	1.13	20.50	0.68
2.583	0.78	8.583	7.27	14.583	1.11	20.58	0.68
2.667	0.78	8.667	7.27	14.667	1.11	20.67	0.68
2.750	0.79	8.750	6.00	14.750	1.09	20.75	0.67
2.833	0.79	8.833	6.00	14.833	1.09	20.83	0.67
2.917	0.82	8.917	5.14	14.917	1.07	20.92	0.66
3.000	0.82	9.000	5.14	15.000	1.07	21.00	0.66
3.083	0.84	9.083	4.51	15.083	1.05	21.08	0.66
3.167	0.84	9.167	4.51	15.167	1.05	21.17	0.66
3.250	0.86	9.250	4.04	15.250	1.03	21.25	0.65
3.333	0.86	9.333	4.04	15.333	1.03	21.33	0.65
3.417	0.89	9.417	3.66	15.417	1.01	21.42	0.64
3.500	0.89	9.500	3.66	15.500	1.01	21.50	0.64
3.583	0.91	9.583	3.36	15.583	1.00	21.58	0.64
3.667	0.91	9.667	3.36	15.667	1.00	21.67	0.64
3.750	0.94	9.750	3.10	15.750	0.98	21.75	0.63
3.833	0.94	9.833	3.10	15.833	0.98	21.83	0.63
3.917	0.97	9.917	2.89	15.917	0.96	21.92	0.63
4.000	0.97	10.000	2.89	16.000	0.96	22.00	0.63
4.083	1.00	10.083	2.71	16.083	0.95	22.08	0.62
4.167	1.00	10.167	2.71	16.167	0.95	22.17	0.62
4.250	1.04	10.250	2.55	16.250	0.93	22.25	0.61
4.333	1.04	10.333	2.55	16.333	0.93	22.33	0.61
4.417	1.08	10.417	2.41	16.417	0.92	22.42	0.61
4.500	1.08	10.500	2.41	16.500	0.92	22.50	0.61
4.583	1.12	10.583	2.29	16.583	0.91	22.58	0.60
4.667	1.12	10.667	2.29	16.667	0.91	22.67	0.60
4.750	1.17	10.750	2.18	16.750	0.89	22.75	0.60
4.833	1.17	10.833	2.18	16.833	0.89	22.83	0.60
4.917	1.22	10.917	2.08	16.917	0.88	22.92	0.59
5.000	1.22	11.000	2.08	17.000	0.88	23.00	0.59
5.083	1.27	11.083	2.00	17.083	0.87	23.08	0.59
5.167	1.27	11.167	2.00	17.167	0.87	23.17	0.59
5.250	1.34	11.250	1.92	17.250	0.86	23.25	0.58
5.333	1.34	11.333	1.92	17.333	0.86	23.33	0.58
5.417	1.41	11.417	1.84	17.417	0.84	23.42	0.58
5.500	1.41	11.500	1.84	17.500	0.84	23.50	0.58
5.583	1.49	11.583	1.78	17.583	0.83	23.58	0.57
5.667	1.49	11.667	1.78	17.667	0.83	23.67	0.57
5.750	1.58	11.750	1.72	17.750	0.82	23.75	0.57
5.833	1.58	11.833	1.72	17.833	0.82	23.83	0.57
5.917	1.69	11.917	1.66	17.917	0.81	23.92	0.56
6.000	1.69	12.000	1.66	18.000	0.81	24.00	0.56

Unit Hyd Qpeak (cms)= 0.012

PEAK FLOW (cms)= 0.003 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 25.873
TOTAL RAINFALL (mm)= 55.777
RUNOFF COEFFICIENT = 0.464

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

CALIB			
STANDHYD (0001)	Area (ha)=	0.27	
ID= 1 DT= 5.0 min	Total Imp(%)=	64.00	Dir. Conn.(%)= 64.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.17	0.10
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	42.43	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	0.58	6.083	1.81	12.083	1.61	18.08	0.80
0.167	0.58	6.167	1.81	12.167	1.61	18.17	0.80
0.250	0.59	6.250	1.95	12.250	1.56	18.25	0.79
0.333	0.59	6.333	1.95	12.333	1.56	18.33	0.79
0.417	0.60	6.417	2.13	12.417	1.51	18.42	0.78
0.500	0.60	6.500	2.13	12.500	1.51	18.50	0.78
0.583	0.61	6.583	2.35	12.583	1.47	18.58	0.77
0.667	0.61	6.667	2.35	12.667	1.47	18.67	0.77
0.750	0.62	6.750	2.63	12.750	1.43	18.75	0.76
0.833	0.62	6.833	2.63	12.833	1.43	18.83	0.76
0.917	0.63	6.917	2.99	12.917	1.39	18.92	0.75
1.000	0.63	7.000	2.99	13.000	1.39	19.00	0.75
1.083	0.64	7.083	3.50	13.083	1.36	19.08	0.74
1.167	0.64	7.167	3.50	13.167	1.36	19.17	0.74
1.250	0.65	7.250	4.27	13.250	1.32	19.25	0.74
1.333	0.65	7.333	4.27	13.333	1.32	19.33	0.74
1.417	0.66	7.417	5.56	13.417	1.29	19.42	0.73
1.500	0.66	7.500	5.56	13.500	1.29	19.50	0.73
1.583	0.68	7.583	8.29	13.583	1.26	19.58	0.72
1.667	0.68	7.667	8.29	13.667	1.26	19.67	0.72
1.750	0.69	7.750	18.82	13.750	1.23	19.75	0.71
1.833	0.69	7.833	18.82	13.833	1.23	19.83	0.71
1.917	0.71	7.917	71.26	13.917	1.21	19.92	0.70
2.000	0.71	8.000	71.26	14.000	1.21	20.00	0.70
2.083	0.72	8.083	24.34	14.083	1.18	20.08	0.70
2.167	0.72	8.167	24.34	14.167	1.18	20.17	0.70
2.250	0.74	8.250	13.32	14.250	1.16	20.25	0.69
2.333	0.74	8.333	13.32	14.333	1.16	20.33	0.69
2.417	0.76	8.417	9.33	14.417	1.13	20.42	0.68
2.500	0.76	8.500	9.33	14.500	1.13	20.50	0.68
2.583	0.78	8.583	7.27	14.583	1.11	20.58	0.68
2.667	0.78	8.667	7.27	14.667	1.11	20.67	0.68
2.750	0.79	8.750	6.00	14.750	1.09	20.75	0.67
2.833	0.79	8.833	6.00	14.833	1.09	20.83	0.67
2.917	0.82	8.917	5.14	14.917	1.07	20.92	0.66
3.000	0.82	9.000	5.14	15.000	1.07	21.00	0.66
3.083	0.84	9.083	4.51	15.083	1.05	21.08	0.66
3.167	0.84	9.167	4.51	15.167	1.05	21.17	0.66
3.250	0.86	9.250	4.04	15.250	1.03	21.25	0.65
3.333	0.86	9.333	4.04	15.333	1.03	21.33	0.65
3.417	0.89	9.417	3.66	15.417	1.01	21.42	0.64
3.500	0.89	9.500	3.66	15.500	1.01	21.50	0.64
3.583	0.91	9.583	3.36	15.583	1.00	21.58	0.64
3.667	0.91	9.667	3.36	15.667	1.00	21.67	0.64
3.750	0.94	9.750	3.10	15.750	0.98	21.75	0.63
3.833	0.94	9.833	3.10	15.833	0.98	21.83	0.63
3.917	0.97	9.917	2.89	15.917	0.96	21.92	0.63
4.000	0.97	10.000	2.89	16.000	0.96	22.00	0.63
4.083	1.00	10.083	2.71	16.083	0.95	22.08	0.62
4.167	1.00	10.167	2.71	16.167	0.95	22.17	0.62
4.250	1.04	10.250	2.55	16.250	0.93	22.25	0.61
4.333	1.04	10.333	2.55	16.333	0.93	22.33	0.61
4.417	1.08	10.417	2.41	16.417	0.92	22.42	0.61
4.500	1.08	10.500	2.41	16.500	0.92	22.50	0.61
4.583	1.12	10.583	2.29	16.583	0.91	22.58	0.60

4.667	1.12	10.667	2.29	16.667	0.91	22.67	0.60
4.750	1.17	10.750	2.18	16.750	0.89	22.75	0.60
4.833	1.17	10.833	2.18	16.833	0.89	22.83	0.60
4.917	1.22	10.917	2.08	16.917	0.88	22.92	0.59
5.000	1.22	11.000	2.08	17.000	0.88	23.00	0.59
5.083	1.27	11.083	2.00	17.083	0.87	23.08	0.59
5.167	1.27	11.167	2.00	17.167	0.87	23.17	0.59
5.250	1.34	11.250	1.92	17.250	0.86	23.25	0.58
5.333	1.34	11.333	1.92	17.333	0.86	23.33	0.58
5.417	1.41	11.417	1.84	17.417	0.84	23.42	0.58
5.500	1.41	11.500	1.84	17.500	0.84	23.50	0.58
5.583	1.49	11.583	1.78	17.583	0.83	23.58	0.57
5.667	1.49	11.667	1.78	17.667	0.83	23.67	0.57
5.750	1.58	11.750	1.72	17.750	0.82	23.75	0.57
5.833	1.58	11.833	1.72	17.833	0.82	23.83	0.57
5.917	1.69	11.917	1.66	17.917	0.81	23.92	0.56
6.000	1.69	12.000	1.66	18.000	0.81	24.00	0.56

Max.Eff.Inten.(mm/hr)=	71.26	24.35	
over (min)	5.00	15.00	
Storage Coeff. (min)=	1.75 (ii)	14.17 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.32	0.08	
			TOTALS
PEAK FLOW (cms)=	0.03	0.00	0.037 (iii)
TIME TO PEAK (hrs)=	8.00	8.17	8.00
RUNOFF VOLUME (mm)=	54.78	26.00	44.38
TOTAL RAINFALL (mm)=	55.78	55.78	55.78
RUNOFF COEFFICIENT =	0.98	0.47	0.80

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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 (0014)	Area (ha)= 0.72
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.71	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	69.28	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	0.58	6.083	1.81	12.083	1.61	18.08	0.80
0.167	0.58	6.167	1.81	12.167	1.61	18.17	0.80
0.250	0.59	6.250	1.95	12.250	1.56	18.25	0.79
0.333	0.59	6.333	1.95	12.333	1.56	18.33	0.79
0.417	0.60	6.417	2.13	12.417	1.51	18.42	0.78
0.500	0.60	6.500	2.13	12.500	1.51	18.50	0.78
0.583	0.61	6.583	2.35	12.583	1.47	18.58	0.77
0.667	0.61	6.667	2.35	12.667	1.47	18.67	0.77
0.750	0.62	6.750	2.63	12.750	1.43	18.75	0.76
0.833	0.62	6.833	2.63	12.833	1.43	18.83	0.76
0.917	0.63	6.917	2.99	12.917	1.39	18.92	0.75
1.000	0.63	7.000	2.99	13.000	1.39	19.00	0.75
1.083	0.64	7.083	3.50	13.083	1.36	19.08	0.74
1.167	0.64	7.167	3.50	13.167	1.36	19.17	0.74
1.250	0.65	7.250	4.27	13.250	1.32	19.25	0.74
1.333	0.65	7.333	4.27	13.333	1.32	19.33	0.74
1.417	0.66	7.417	5.56	13.417	1.29	19.42	0.73
1.500	0.66	7.500	5.56	13.500	1.29	19.50	0.73
1.583	0.68	7.583	8.29	13.583	1.26	19.58	0.72
1.667	0.68	7.667	8.29	13.667	1.26	19.67	0.72
1.750	0.69	7.750	18.82	13.750	1.23	19.75	0.71
1.833	0.69	7.833	18.82	13.833	1.23	19.83	0.71
1.917	0.71	7.917	71.26	13.917	1.21	19.92	0.70
2.000	0.71	8.000	71.26	14.000	1.21	20.00	0.70
2.083	0.72	8.083	24.34	14.083	1.18	20.08	0.70
2.167	0.72	8.167	24.34	14.167	1.18	20.17	0.70
2.250	0.74	8.250	13.32	14.250	1.16	20.25	0.69
2.333	0.74	8.333	13.32	14.333	1.16	20.33	0.69
2.417	0.76	8.417	9.33	14.417	1.13	20.42	0.68
2.500	0.76	8.500	9.33	14.500	1.13	20.50	0.68
2.583	0.78	8.583	7.27	14.583	1.11	20.58	0.68
2.667	0.78	8.667	7.27	14.667	1.11	20.67	0.68
2.750	0.79	8.750	6.00	14.750	1.09	20.75	0.67
2.833	0.79	8.833	6.00	14.833	1.09	20.83	0.67
2.917	0.82	8.917	5.14	14.917	1.07	20.92	0.66
3.000	0.82	9.000	5.14	15.000	1.07	21.00	0.66
3.083	0.84	9.083	4.51	15.083	1.05	21.08	0.66
3.167	0.84	9.167	4.51	15.167	1.05	21.17	0.66
3.250	0.86	9.250	4.04	15.250	1.03	21.25	0.65
3.333	0.86	9.333	4.04	15.333	1.03	21.33	0.65
3.417	0.89	9.417	3.66	15.417	1.01	21.42	0.64
3.500	0.89	9.500	3.66	15.500	1.01	21.50	0.64
3.583	0.91	9.583	3.36	15.583	1.00	21.58	0.64

3.667	0.91	9.667	3.36	15.667	1.00	21.67	0.64
3.750	0.94	9.750	3.10	15.750	0.98	21.75	0.63
3.833	0.94	9.833	3.10	15.833	0.98	21.83	0.63
3.917	0.97	9.917	2.89	15.917	0.96	21.92	0.63
4.000	0.97	10.000	2.89	16.000	0.96	22.00	0.63
4.083	1.00	10.083	2.71	16.083	0.95	22.08	0.62
4.167	1.00	10.167	2.71	16.167	0.95	22.17	0.62
4.250	1.04	10.250	2.55	16.250	0.93	22.25	0.61
4.333	1.04	10.333	2.55	16.333	0.93	22.33	0.61
4.417	1.08	10.417	2.41	16.417	0.92	22.42	0.61
4.500	1.08	10.500	2.41	16.500	0.92	22.50	0.61
4.583	1.12	10.583	2.29	16.583	0.91	22.58	0.60
4.667	1.12	10.667	2.29	16.667	0.91	22.67	0.60
4.750	1.17	10.750	2.18	16.750	0.89	22.75	0.60
4.833	1.17	10.833	2.18	16.833	0.89	22.83	0.60
4.917	1.22	10.917	2.08	16.917	0.88	22.92	0.59
5.000	1.22	11.000	2.08	17.000	0.88	23.00	0.59
5.083	1.27	11.083	2.00	17.083	0.87	23.08	0.59
5.167	1.27	11.167	2.00	17.167	0.87	23.17	0.59
5.250	1.34	11.250	1.92	17.250	0.86	23.25	0.58
5.333	1.34	11.333	1.92	17.333	0.86	23.33	0.58
5.417	1.41	11.417	1.84	17.417	0.84	23.42	0.58
5.500	1.41	11.500	1.84	17.500	0.84	23.50	0.58
5.583	1.49	11.583	1.78	17.583	0.83	23.58	0.57
5.667	1.49	11.667	1.78	17.667	0.83	23.67	0.57
5.750	1.58	11.750	1.72	17.750	0.82	23.75	0.57
5.833	1.58	11.833	1.72	17.833	0.82	23.83	0.57
5.917	1.69	11.917	1.66	17.917	0.81	23.92	0.56
6.000	1.69	12.000	1.66	18.000	0.81	24.00	0.56

Max.Eff.Inten.(mm/hr)=	71.26	30.03	
over (min)	5.00	5.00	
Storage Coeff. (min)=	2.35 (ii)	3.63 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.30	0.25	
			TOTALS
PEAK FLOW (cms)=	0.14	0.00	0.140 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	54.78	26.00	54.49
TOTAL RAINFALL (mm)=	55.78	55.78	55.78
RUNOFF COEFFICIENT =	0.98	0.47	0.98

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0020)	OVERFLOW IS OFF
IN= 2---> OUT= 1	
DT= 5.0 min	

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0190	0.0255
0.0000	0.0025	0.0200	0.0280
0.0080	0.0051	0.0210	0.0306
0.0100	0.0076	0.0220	0.0331
0.0120	0.0102	0.0230	0.0357
0.0140	0.0127	0.0240	0.0382
0.0150	0.0153	0.0250	0.0407
0.0160	0.0178	0.0250	0.0433
0.0170	0.0204	0.0260	0.0455
0.0180	0.0229	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0014)	0.720	0.140	8.00	54.49
OUTFLOW: ID= 1 (0020)	0.720	0.016	8.58	50.85

PEAK FLOW REDUCTION [Qout/Qin](%)= 11.27
TIME SHIFT OF PEAK FLOW (min)= 35.00
MAXIMUM STORAGE USED (ha.m.)= 0.0173

CALIB	
STANDHYD (0016)	Area (ha)= 0.77
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.76	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	71.65	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	0.58	6.083	1.81	12.083	1.61	18.08	0.80
0.167	0.58	6.167	1.81	12.167	1.61	18.17	0.80
0.250	0.59	6.250	1.95	12.250	1.56	18.25	0.79
0.333	0.59	6.333	1.95	12.333	1.56	18.33	0.79
0.417	0.60	6.417	2.13	12.417	1.51	18.42	0.78

0.500	0.60	6.500	2.13	12.500	1.51	18.50	0.78
0.583	0.61	6.583	2.35	12.583	1.47	18.58	0.77
0.667	0.61	6.667	2.35	12.667	1.47	18.67	0.77
0.750	0.62	6.750	2.63	12.750	1.43	18.75	0.76
0.833	0.62	6.833	2.63	12.833	1.43	18.83	0.76
0.917	0.63	6.917	2.99	12.917	1.39	18.92	0.75
1.000	0.63	7.000	2.99	13.000	1.39	19.00	0.75
1.083	0.64	7.083	3.50	13.083	1.36	19.08	0.74
1.167	0.64	7.167	3.50	13.167	1.36	19.17	0.74
1.250	0.65	7.250	4.27	13.250	1.32	19.25	0.74
1.333	0.65	7.333	4.27	13.333	1.32	19.33	0.74
1.417	0.66	7.417	5.56	13.417	1.29	19.42	0.73
1.500	0.66	7.500	5.56	13.500	1.29	19.50	0.73
1.583	0.68	7.583	8.29	13.583	1.26	19.58	0.72
1.667	0.68	7.667	8.29	13.667	1.26	19.67	0.72
1.750	0.69	7.750	18.82	13.750	1.23	19.75	0.71
1.833	0.69	7.833	18.82	13.833	1.23	19.83	0.71
1.917	0.71	7.917	71.26	13.917	1.21	19.92	0.70
2.000	0.71	8.000	71.26	14.000	1.21	20.00	0.70
2.083	0.72	8.083	24.34	14.083	1.18	20.08	0.70
2.167	0.72	8.167	24.34	14.167	1.18	20.17	0.70
2.250	0.74	8.250	13.32	14.250	1.16	20.25	0.69
2.333	0.74	8.333	13.32	14.333	1.16	20.33	0.69
2.417	0.76	8.417	9.33	14.417	1.13	20.42	0.68
2.500	0.76	8.500	9.33	14.500	1.13	20.50	0.68
2.583	0.78	8.583	7.27	14.583	1.11	20.58	0.68
2.667	0.78	8.667	7.27	14.667	1.11	20.67	0.68
2.750	0.79	8.750	6.00	14.750	1.09	20.75	0.67
2.833	0.79	8.833	6.00	14.833	1.09	20.83	0.67
2.917	0.82	8.917	5.14	14.917	1.07	20.92	0.66
3.000	0.82	9.000	5.14	15.000	1.07	21.00	0.66
3.083	0.84	9.083	4.51	15.083	1.05	21.08	0.66
3.167	0.84	9.167	4.51	15.167	1.05	21.17	0.66
3.250	0.86	9.250	4.04	15.250	1.03	21.25	0.65
3.333	0.86	9.333	4.04	15.333	1.03	21.33	0.65
3.417	0.89	9.417	3.66	15.417	1.01	21.42	0.64
3.500	0.89	9.500	3.66	15.500	1.01	21.50	0.64
3.583	0.91	9.583	3.36	15.583	1.00	21.58	0.64
3.667	0.91	9.667	3.36	15.667	1.00	21.67	0.64
3.750	0.94	9.750	3.10	15.750	0.98	21.75	0.63
3.833	0.94	9.833	3.10	15.833	0.98	21.83	0.63
3.917	0.97	9.917	2.89	15.917	0.96	21.92	0.63
4.000	0.97	10.000	2.89	16.000	0.96	22.00	0.63
4.083	1.00	10.083	2.71	16.083	0.95	22.08	0.62
4.167	1.00	10.167	2.71	16.167	0.95	22.17	0.62
4.250	1.04	10.250	2.55	16.250	0.93	22.25	0.61
4.333	1.04	10.333	2.55	16.333	0.93	22.33	0.61
4.417	1.08	10.417	2.41	16.417	0.92	22.42	0.61
4.500	1.08	10.500	2.41	16.500	0.92	22.50	0.61
4.583	1.12	10.583	2.29	16.583	0.91	22.58	0.60
4.667	1.12	10.667	2.29	16.667	0.91	22.67	0.60
4.750	1.17	10.750	2.18	16.750	0.89	22.75	0.60
4.833	1.17	10.833	2.18	16.833	0.89	22.83	0.60
4.917	1.22	10.917	2.08	16.917	0.88	22.92	0.59
5.000	1.22	11.000	2.08	17.000	0.88	23.00	0.59
5.083	1.27	11.083	2.00	17.083	0.87	23.08	0.59
5.167	1.27	11.167	2.00	17.167	0.87	23.17	0.59
5.250	1.34	11.250	1.92	17.250	0.86	23.25	0.58
5.333	1.34	11.333	1.92	17.333	0.86	23.33	0.58
5.417	1.41	11.417	1.84	17.417	0.84	23.42	0.58
5.500	1.41	11.500	1.84	17.500	0.84	23.50	0.58
5.583	1.49	11.583	1.78	17.583	0.83	23.58	0.57
5.667	1.49	11.667	1.78	17.667	0.83	23.67	0.57
5.750	1.58	11.750	1.72	17.750	0.82	23.75	0.57
5.833	1.58	11.833	1.72	17.833	0.82	23.83	0.57
5.917	1.69	11.917	1.66	17.917	0.81	23.92	0.56
6.000	1.69	12.000	1.66	18.000	0.81	24.00	0.56

Max.Eff.Inten.(mm/hr)=	71.26	30.03	
over (min)	5.00	5.00	
Storage Coeff. (min)=	2.40 (ii)	3.68 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.30	0.25	
			TOTALS
PEAK FLOW (cms)=	0.15	0.00	0.150 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	54.78	26.00	54.49
TOTAL RAINFALL (mm)=	55.78	55.78	55.78
RUNOFF COEFFICIENT =	0.98	0.47	0.98

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0017) | 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	0.0190	0.0279
	0.0000	0.0028	0.0200	0.0307
	0.0080	0.0056	0.0210	0.0334
	0.0100	0.0084	0.0220	0.0362
	0.0120	0.0111	0.0230	0.0390
	0.0140	0.0139	0.0240	0.0418
	0.0150	0.0167	0.0250	0.0446
	0.0160	0.0195	0.0250	0.0474
	0.0170	0.0223	0.0260	0.0498
	0.0180	0.0251	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0016)	0.770	0.150	8.00	54.49
OUTFLOW: ID= 1 (0017)	0.770	0.016	8.58	50.76

PEAK FLOW REDUCTION [Qout/Qin](%)= 10.56
TIME SHIFT OF PEAK FLOW (min)= 35.00
MAXIMUM STORAGE USED (ha.m.)= 0.0190

CALIB | STANDHYD (0021) | ID= 1 DT= 5.0 min	Area (ha)= 0.44		Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00
		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.44	0.00	
Dep. Storage	(mm)=	1.00	5.00	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	54.16	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	0.58	6.083	1.81	12.083	1.61	18.08	0.80
0.167	0.58	6.167	1.81	12.167	1.61	18.17	0.80
0.250	0.59	6.250	1.95	12.250	1.56	18.25	0.79
0.333	0.59	6.333	1.95	12.333	1.56	18.33	0.79
0.417	0.60	6.417	2.13	12.417	1.51	18.42	0.78
0.500	0.60	6.500	2.13	12.500	1.51	18.50	0.78
0.583	0.61	6.583	2.35	12.583	1.47	18.58	0.77
0.667	0.61	6.667	2.35	12.667	1.47	18.67	0.77
0.750	0.62	6.750	2.63	12.750	1.43	18.75	0.76
0.833	0.62	6.833	2.63	12.833	1.43	18.83	0.76
0.917	0.63	6.917	2.99	12.917	1.39	18.92	0.75
1.000	0.63	7.000	2.99	13.000	1.39	19.00	0.75
1.083	0.64	7.083	3.50	13.083	1.36	19.08	0.74
1.167	0.64	7.167	3.50	13.167	1.36	19.17	0.74
1.250	0.65	7.250	4.27	13.250	1.32	19.25	0.74
1.333	0.65	7.333	4.27	13.333	1.32	19.33	0.74
1.417	0.66	7.417	5.56	13.417	1.29	19.42	0.73
1.500	0.66	7.500	5.56	13.500	1.29	19.50	0.73
1.583	0.68	7.583	8.29	13.583	1.26	19.58	0.72
1.667	0.68	7.667	8.29	13.667	1.26	19.67	0.72
1.750	0.69	7.750	18.82	13.750	1.23	19.75	0.71
1.833	0.69	7.833	18.82	13.833	1.23	19.83	0.71
1.917	0.71	7.917	71.26	13.917	1.21	19.92	0.70
2.000	0.71	8.000	71.26	14.000	1.21	20.00	0.70
2.083	0.72	8.083	24.34	14.083	1.18	20.08	0.70
2.167	0.72	8.167	24.34	14.167	1.18	20.17	0.70
2.250	0.74	8.250	13.32	14.250	1.16	20.25	0.69
2.333	0.74	8.333	13.32	14.333	1.16	20.33	0.69
2.417	0.76	8.417	9.33	14.417	1.13	20.42	0.68
2.500	0.76	8.500	9.33	14.500	1.13	20.50	0.68
2.583	0.78	8.583	7.27	14.583	1.11	20.58	0.68
2.667	0.78	8.667	7.27	14.667	1.11	20.67	0.68
2.750	0.79	8.750	6.00	14.750	1.09	20.75	0.67
2.833	0.79	8.833	6.00	14.833	1.09	20.83	0.67
2.917	0.82	8.917	5.14	14.917	1.07	20.92	0.66
3.000	0.82	9.000	5.14	15.000	1.07	21.00	0.66
3.083	0.84	9.083	4.51	15.083	1.05	21.08	0.66
3.167	0.84	9.167	4.51	15.167	1.05	21.17	0.66
3.250	0.86	9.250	4.04	15.250	1.03	21.25	0.65
3.333	0.86	9.333	4.04	15.333	1.03	21.33	0.65
3.417	0.89	9.417	3.66	15.417	1.01	21.42	0.64
3.500	0.89	9.500	3.66	15.500	1.01	21.50	0.64
3.583	0.91	9.583	3.36	15.583	1.00	21.58	0.64
3.667	0.91	9.667	3.36	15.667	1.00	21.67	0.64
3.750	0.94	9.750	3.10	15.750	0.98	21.75	0.63
3.833	0.94	9.833	3.10	15.833	0.98	21.83	0.63
3.917	0.97	9.917	2.89	15.917	0.96	21.92	0.63
4.000	0.97	10.000	2.89	16.000	0.96	22.00	0.63
4.083	1.00	10.083	2.71	16.083	0.95	22.08	0.62
4.167	1.00	10.167	2.71	16.167	0.95	22.17	0.62
4.250	1.04	10.250	2.55	16.250	0.93	22.25	0.61
4.333	1.04	10.333	2.55	16.333	0.93	22.33	0.61
4.417	1.08	10.417	2.41	16.417	0.92	22.42	0.61
4.500	1.08	10.500	2.41	16.500	0.92	22.50	0.61
4.583	1.12	10.583	2.29	16.583	0.91	22.58	0.60
4.667	1.12	10.667	2.29	16.667	0.91	22.67	0.60
4.750	1.17	10.750	2.18	16.750	0.89	22.75	0.60
4.833	1.17	10.833	2.18	16.833	0.89	22.83	0.60
4.917	1.22	10.917	2.08	16.917	0.88	22.92	0.59
5.000	1.22	11.000	2.08	17.000	0.88	23.00	0.59
5.083	1.27	11.083	2.00	17.083	0.87	23.08	0.59
5.167	1.27	11.167	2.00	17.167	0.87	23.17	0.59
5.250	1.34	11.250	1.92	17.250	0.86	23.25	0.58
5.333	1.34	11.333	1.92	17.333	0.86	23.33	0.58
5.417	1.41	11.417	1.84	17.417	0.84	23.42	0.58
5.500	1.41	11.500	1.84	17.500	0.84	23.50	0.58
5.583	1.49	11.583	1.78	17.583	0.83	23.58	0.57

```
              5.667    1.49 |11.667    1.78 |17.667    0.83 | 23.67    0.57
              5.750    1.58 |11.750    1.72 |17.750    0.82 | 23.75    0.57
              5.833    1.58 |11.833    1.72 |17.833    0.82 | 23.83    0.57
              5.917    1.69 |11.917    1.66 |17.917    0.81 | 23.92    0.56
              6.000    1.69 |12.000    1.66 |18.000    0.81 | 24.00    0.56

     Max.Eff.Inten.(mm/hr)=      71.26        30.03
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      2.02 (ii)    3.31 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=      0.31         0.26
                                                    *TOTALS*
     PEAK FLOW       (cms)=      0.09         0.00          0.086 (iii)
     TIME TO PEAK    (hrs)=      8.00         8.00           8.00
     RUNOFF VOLUME    (mm)=     54.78        26.00          54.48
     TOTAL RAINFALL   (mm)=     55.78        55.78          55.78
     RUNOFF COEFFICIENT   =      0.98         0.47           0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  84.0    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  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):     0.27   0.037     8.00    44.38
     + ID2= 2 (  0017):     0.77   0.016     8.58    50.76
       ================================================
       ID = 3 (  0022):     1.04   0.050     8.00    49.11

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):     1.04   0.050     8.00    49.11
     + ID2= 2 (  0019):     0.80   0.016     8.67    47.68
       ================================================
       ID = 1 (  0022):     1.84   0.063     8.00    48.49

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| RESERVOIR(  0002)|     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   |    0.1440      0.0413
                          0.0980     0.0206   |    0.0000      0.0000

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0022)     3.190     0.171      8.00      48.50
   OUTFLOW: ID= 1 (  0002)     3.190     0.075      8.42      48.49

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 43.79
                  TIME SHIFT OF PEAK FLOW         (min)= 25.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0158

--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0035)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0002):     3.19   0.075     8.42    48.49
     + ID2= 2 (  0030):     0.59   0.041     8.00    31.61
       ================================================
       ID = 3 (  0035):     3.78   0.102     8.17    45.85

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2016)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****
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-------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0022):     1.84   0.063     8.00    48.49
     + ID2= 2 (  0020):     0.72   0.016     8.58    50.85
       ================================================
       ID = 3 (  0022):     2.56   0.076     8.00    49.15

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):     2.56   0.076     8.00    49.15
     + ID2= 2 (  0021):     0.44   0.086     8.00    54.48
       ================================================
       ID = 1 (  0022):     3.00   0.163     8.00    49.93

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0022):     3.00   0.163     8.00    49.93
     + ID2= 2 (  0036):     0.14   0.007     8.08    25.88
       ================================================
       ID = 3 (  0022):     3.14   0.169     8.00    48.86

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):     3.14   0.169     8.00    48.86
     + ID2= 2 (  0039):     0.05   0.003     8.08    25.87
       ================================================
       ID = 1 (  0022):     3.19   0.171     8.00    48.50

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
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```
  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\schhom\AppData\Local\Civica\VH5\c4784722-8666-4e89-8a43-7d10dc9357ef\3b61
4f6e-db96-48e1-8b7c-5a6d3e4f9d95\scena
  Summary filename:
C:\Users\schhom\AppData\Local\Civica\VH5\c4784722-8666-4e89-8a43-7d10dc9357ef\3b61
4f6e-db96-48e1-8b7c-5a6d3e4f9d95\scena


DATE: 10-15-2024                          TIME: 11:03:46

USER:


COMMENTS: _____

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  ************************************************
  ** SIMULATION : 50yr_24hr Chicago             **
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| CHICAGO STORM    |    IDF curve parameters: A=1622.450
| Ptotal=117.76 mm |                          B=   9.000
-------------------                          C=   0.797
                         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
      0.00    1.04 |  6.00    3.55 | 12.00    3.12 | 18.00    1.48
      0.17    1.06 |  6.17    3.86 | 12.17    3.02 | 18.17    1.46
      0.33    1.08 |  6.33    4.24 | 12.33    2.92 | 18.33    1.44
      0.50    1.10 |  6.50    4.72 | 12.50    2.83 | 18.50    1.42
      0.67    1.12 |  6.67    5.33 | 12.67    2.75 | 18.67    1.40
      0.83    1.14 |  6.83    6.16 | 12.83    2.67 | 18.83    1.38
      1.00    1.16 |  7.00    7.33 | 13.00    2.60 | 19.00    1.37
      1.17    1.19 |  7.17    9.12 | 13.17    2.53 | 19.17    1.35
      1.33    1.21 |  7.33   12.24 | 13.33    2.46 | 19.33    1.34
      1.50    1.24 |  7.50   19.05 | 13.50    2.40 | 19.50    1.32
      1.67    1.27 |  7.67   45.51 | 13.67    2.34 | 19.67    1.30
      1.83    1.30 |  7.83  155.24 | 13.83    2.29 | 19.83    1.29
      2.00    1.33 |  8.00   59.23 | 14.00    2.24 | 20.00    1.27
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2.17	1.36	8.17	31.85	14.17	2.19	20.17	1.26
2.33	1.39	8.33	21.68	14.33	2.14	20.33	1.25
2.50	1.43	8.50	16.46	14.50	2.10	20.50	1.23
2.67	1.47	8.67	13.31	14.67	2.05	20.67	1.22
2.83	1.51	8.83	11.20	14.83	2.01	20.83	1.21
3.00	1.55	9.00	9.70	15.00	1.97	21.00	1.20
3.17	1.60	9.17	8.57	15.17	1.94	21.17	1.18
3.33	1.64	9.33	7.69	15.33	1.90	21.33	1.17
3.50	1.70	9.50	6.99	15.50	1.87	21.50	1.16
3.67	1.75	9.67	6.41	15.67	1.83	21.67	1.15
3.83	1.81	9.83	5.93	15.83	1.80	21.83	1.14
4.00	1.88	10.00	5.52	16.00	1.77	22.00	1.13
4.17	1.95	10.17	5.16	16.17	1.74	22.17	1.11
4.33	2.03	10.33	4.86	16.33	1.71	22.33	1.10
4.50	2.12	10.50	4.59	16.50	1.69	22.50	1.09
4.67	2.21	10.67	4.35	16.67	1.66	22.67	1.08
4.83	2.31	10.83	4.14	16.83	1.63	22.83	1.07
5.00	2.43	11.00	3.95	17.00	1.61	23.00	1.06
5.17	2.56	11.17	3.78	17.17	1.59	23.17	1.06
5.33	2.71	11.33	3.62	17.33	1.56	23.33	1.05
5.50	2.87	11.50	3.48	17.50	1.54	23.50	1.04
5.67	3.06	11.67	3.35	17.67	1.52	23.67	1.03
5.83	3.29	11.83	3.23	17.83	1.50	23.83	1.02

CALIB					
NASHYD (0026)	Area	(ha)=	0.28	Curve Number (CN)=	84.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.22		

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	1.04	6.083	3.55	12.083	3.12	18.08	1.48
0.167	1.04	6.167	3.55	12.167	3.12	18.17	1.48
0.250	1.06	6.250	3.86	12.250	3.02	18.25	1.46
0.333	1.06	6.333	3.86	12.333	3.02	18.33	1.46
0.417	1.08	6.417	4.24	12.417	2.92	18.42	1.44
0.500	1.08	6.500	4.24	12.500	2.92	18.50	1.44
0.583	1.10	6.583	4.72	12.583	2.83	18.58	1.42
0.667	1.10	6.667	4.72	12.667	2.83	18.67	1.42
0.750	1.12	6.750	5.33	12.750	2.75	18.75	1.40
0.833	1.12	6.833	5.33	12.833	2.75	18.83	1.40
0.917	1.14	6.917	6.16	12.917	2.67	18.92	1.38
1.000	1.14	7.000	6.16	13.000	2.67	19.00	1.38
1.083	1.16	7.083	7.33	13.083	2.60	19.08	1.37
1.167	1.16	7.167	7.33	13.167	2.60	19.17	1.37
1.250	1.19	7.250	9.12	13.250	2.53	19.25	1.35
1.333	1.19	7.333	9.12	13.333	2.53	19.33	1.35
1.417	1.21	7.417	12.24	13.417	2.46	19.42	1.34
1.500	1.21	7.500	12.24	13.500	2.46	19.50	1.34
1.583	1.24	7.583	19.05	13.583	2.40	19.58	1.32
1.667	1.24	7.667	19.05	13.667	2.40	19.67	1.32
1.750	1.27	7.750	45.51	13.750	2.34	19.75	1.30
1.833	1.27	7.833	45.52	13.833	2.34	19.83	1.30
1.917	1.30	7.917	155.24	13.917	2.29	19.92	1.29
2.000	1.30	8.000	155.23	14.000	2.29	20.00	1.29
2.083	1.33	8.083	59.23	14.083	2.24	20.08	1.27
2.167	1.33	8.167	59.23	14.167	2.24	20.17	1.27
2.250	1.36	8.250	31.85	14.250	2.19	20.25	1.26
2.333	1.36	8.333	31.85	14.333	2.19	20.33	1.26
2.417	1.39	8.417	21.68	14.417	2.14	20.42	1.25
2.500	1.39	8.500	21.68	14.500	2.14	20.50	1.25
2.583	1.43	8.583	16.46	14.583	2.10	20.58	1.23
2.667	1.43	8.667	16.46	14.667	2.10	20.67	1.23
2.750	1.47	8.750	13.31	14.750	2.05	20.75	1.22
2.833	1.47	8.833	13.31	14.833	2.05	20.83	1.22
2.917	1.51	8.917	11.20	14.917	2.01	20.92	1.21
3.000	1.51	9.000	11.20	15.000	2.01	21.00	1.21
3.083	1.55	9.083	9.70	15.083	1.97	21.08	1.20
3.167	1.55	9.167	9.70	15.167	1.97	21.17	1.20
3.250	1.60	9.250	8.57	15.250	1.94	21.25	1.18
3.333	1.60	9.333	8.57	15.333	1.94	21.33	1.18
3.417	1.64	9.417	7.69	15.417	1.90	21.42	1.17
3.500	1.64	9.500	7.69	15.500	1.90	21.50	1.17
3.583	1.70	9.583	6.99	15.583	1.87	21.58	1.16
3.667	1.70	9.667	6.99	15.667	1.87	21.67	1.16
3.750	1.75	9.750	6.41	15.750	1.83	21.75	1.15
3.833	1.75	9.833	6.41	15.833	1.83	21.83	1.15
3.917	1.81	9.917	5.93	15.917	1.80	21.92	1.14
4.000	1.81	10.000	5.93	16.000	1.80	22.00	1.14
4.083	1.88	10.083	5.52	16.083	1.77	22.08	1.13
4.167	1.88	10.167	5.52	16.167	1.77	22.17	1.13
4.250	1.95	10.250	5.16	16.250	1.74	22.25	1.11
4.333	1.95	10.333	5.16	16.333	1.74	22.33	1.11
4.417	2.03	10.417	4.86	16.417	1.71	22.42	1.10
4.500	2.03	10.500	4.86	16.500	1.71	22.50	1.10
4.583	2.12	10.583	4.59	16.583	1.69	22.58	1.09
4.667	2.12	10.667	4.59	16.667	1.69	22.67	1.09
4.750	2.21	10.750	4.35	16.750	1.66	22.75	1.08
4.833	2.21	10.833	4.35	16.833	1.66	22.83	1.08
4.917	2.31	10.917	4.14	16.917	1.63	22.92	1.07
5.000	2.31	11.000	4.14	17.000	1.63	23.00	1.07
5.083	2.43	11.083	3.95	17.083	1.61	23.08	1.06
5.167	2.43	11.167	3.95	17.167	1.61	23.17	1.06
5.250	2.56	11.250	3.78	17.250	1.59	23.25	1.06
5.333	2.56	11.333	3.78	17.333	1.59	23.33	1.06
5.417	2.71	11.417	3.62	17.417	1.56	23.42	1.05
5.500	2.71	11.500	3.62	17.500	1.56	23.50	1.05
5.583	2.87	11.583	3.48	17.583	1.54	23.58	1.04
5.667	2.87	11.667	3.48	17.667	1.54	23.67	1.04
5.750	3.06	11.750	3.35	17.750	1.52	23.75	1.03
5.833	3.06	11.833	3.35	17.833	1.52	23.83	1.03
5.917	3.29	11.917	3.23	17.917	1.50	23.92	1.02
6.000	3.29	12.000	3.23	18.000	1.50	24.00	1.02

Unit Hyd Qpeak (cms)= 0.049

PEAK FLOW (cms)= 0.046 (i)
TIME TO PEAK (hrs)= 8.167
RUNOFF VOLUME (mm)= 78.803
TOTAL RAINFALL (mm)= 117.763
RUNOFF COEFFICIENT = 0.669

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

CALIB					
NASHYD (0029)	Area	(ha)=	0.18	Curve Number (CN)=	84.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.17		

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	1.04	6.083	3.55	12.083	3.12	18.08	1.48
0.167	1.04	6.167	3.55	12.167	3.12	18.17	1.48
0.250	1.06	6.250	3.86	12.250	3.02	18.25	1.46
0.333	1.06	6.333	3.86	12.333	3.02	18.33	1.46
0.417	1.08	6.417	4.24	12.417	2.92	18.42	1.44
0.500	1.08	6.500	4.24	12.500	2.92	18.50	1.44
0.583	1.10	6.583	4.72	12.583	2.83	18.58	1.42
0.667	1.10	6.667	4.72	12.667	2.83	18.67	1.42
0.750	1.12	6.750	5.33	12.750	2.75	18.75	1.40
0.833	1.12	6.833	5.33	12.833	2.75	18.83	1.40
0.917	1.14	6.917	6.16	12.917	2.67	18.92	1.38
1.000	1.14	7.000	6.16	13.000	2.67	19.00	1.38
1.083	1.16	7.083	7.33	13.083	2.60	19.08	1.37
1.167	1.16	7.167	7.33	13.167	2.60	19.17	1.37
1.250	1.19	7.250	9.12	13.250	2.53	19.25	1.35
1.333	1.19	7.333	9.12	13.333	2.53	19.33	1.35
1.417	1.21	7.417	12.24	13.417	2.46	19.42	1.34
1.500	1.21	7.500	12.24	13.500	2.46	19.50	1.34
1.583	1.24	7.583	19.05	13.583	2.40	19.58	1.32
1.667	1.24	7.667	19.05	13.667	2.40	19.67	1.32
1.750	1.27	7.750	45.51	13.750	2.34	19.75	1.30
1.833	1.27	7.833	45.52	13.833	2.34	19.83	1.30
1.917	1.30	7.917	155.24	13.917	2.29	19.92	1.29
2.000	1.30	8.000	155.23	14.000	2.29	20.00	1.29
2.083	1.33	8.083	59.23	14.083	2.24	20.08	1.27
2.167	1.33	8.167	59.23	14.167	2.24	20.17	1.27
2.250	1.36	8.250	31.85	14.250	2.19	20.25	1.26
2.333	1.36	8.333	31.85	14.333	2.19	20.33	1.26
2.417	1.39	8.417	21.68	14.417	2.14	20.42	1.25
2.500	1.39	8.500	21.68	14.500	2.14	20.50	1.25
2.583	1.43	8.583	16.46	14.583	2.10	20.58	1.23
2.667	1.43	8.667	16.46	14.667	2.10	20.67	1.23
2.750	1.47	8.750	13.31	14.750	2.05	20.75	1.22
2.833	1.47	8.833	13.31	14.833	2.05	20.83	1.22
2.917	1.51	8.917	11.20	14.917	2.01	20.92	1.21
3.000	1.51	9.000	11.20	15.000	2.01	21.00	1.21
3.083	1.55	9.083	9.70	15.083	1.97	21.08	1.20
3.167	1.55	9.167	9.70	15.167	1.97	21.17	1.20
3.250	1.60	9.250	8.57	15.250	1.94	21.25	1.18
3.333	1.60	9.333	8.57	15.333	1.94	21.33	1.18
3.417	1.64	9.417	7.69	15.417	1.90	21.42	1.17
3.500	1.64	9.500	7.69	15.500	1.90	21.50	1.17
3.583	1.70	9.583	6.99	15.583	1.87	21.58	1.16
3.667	1.70	9.667	6.99	15.667	1.87	21.67	1.16
3.750	1.75	9.750	6.41	15.750	1.83	21.75	1.15
3.833	1.75	9.833	6.41	15.833	1.83	21.83	1.15
3.917	1.81	9.917	5.93	15.917	1.80	21.92	1.14
4.000	1.81	10.000	5.93	16.000	1.80	22.00	1.14
4.083	1.88	10.083	5.52	16.083	1.77	22.08	1.13
4.167	1.88	10.167	5.52	16.167	1.77	22.17	1.13
4.250	1.95	10.250	5.16	16.250	1.74	22.25	1.11
4.333	1.95	10.333	5.16	16.333	1.74	22.33	1.11
4.417	2.03	10.417	4.86	16.417	1.71	22.42	1.10
4.500	2.03	10.500	4.86	16.500	1.71	22.50	1.10
4.583	2.12	10.583	4.59	16.583	1.69	22.58	1.09
4.667	2.12	10.667	4.59	16.667	1.69	22.67	1.09
4.750	2.21	10.750	4.35	16.750	1.66	22.75	1.08
4.833	2.21	10.833	4.35	16.833	1.66	22.83	1.08
4.917	2.31	10.917	4.14	16.917	1.63	22.92	1.07
5.000	2.31	11.000	4.14	17.000	1.63	23.00	1.07
5.083	2.43	11.083	3.95	17.083	1.61	23.08	1.06
5.167	2.43	11.167	3.95	17.167	1.61	23.17	1.06
5.250	2.56	11.250	3.78	17.250	1.59	23.25	1.06
5.333	2.56	11.333	3.78	17.333	1.59	23.33	1.06
5.417	2.71	11.417	3.62	17.417	1.56	23.42	1.05
5.500	2.71	11.500	3.62	17.500	1.56	23.50	1.05

5.583	2.87	11.583	3.48	17.583	1.54	23.58	1.04	1.250	1.19	7.250	9.12	13.250	2.53	19.25	1.35
5.667	2.87	11.667	3.48	17.667	1.54	23.67	1.04	1.333	1.19	7.333	9.12	13.333	2.53	19.33	1.35
5.750	3.06	11.750	3.35	17.750	1.52	23.75	1.03	1.417	1.21	7.417	12.24	13.417	2.46	19.42	1.34
5.833	3.06	11.833	3.35	17.833	1.52	23.83	1.03	1.500	1.21	7.500	12.24	13.500	2.46	19.50	1.34
5.917	3.29	11.917	3.23	17.917	1.50	23.92	1.02	1.583	1.24	7.583	19.05	13.583	2.40	19.58	1.32
6.000	3.29	12.000	3.23	18.000	1.50	24.00	1.02	1.667	1.24	7.667	19.05	13.667	2.40	19.67	1.32
								1.750	1.27	7.750	45.51	13.750	2.34	19.75	1.30
								1.833	1.27	7.833	45.52	13.833	2.34	19.83	1.30
								1.917	1.30	7.917	155.24	13.917	2.29	19.92	1.29
								2.000	1.30	8.000	155.23	14.000	2.29	20.00	1.29
								2.083	1.33	8.083	59.23	14.083	2.24	20.08	1.27
								2.167	1.33	8.167	59.23	14.167	2.24	20.17	1.27
								2.250	1.36	8.250	31.85	14.250	2.19	20.25	1.26
								2.333	1.36	8.333	31.85	14.333	2.19	20.33	1.26
								2.417	1.39	8.417	21.68	14.417	2.14	20.42	1.25
								2.500	1.39	8.500	21.68	14.500	2.14	20.50	1.25
								2.583	1.43	8.583	16.46	14.583	2.10	20.58	1.23
								2.667	1.43	8.667	16.46	14.667	2.10	20.67	1.23
								2.750	1.47	8.750	13.31	14.750	2.05	20.75	1.22
								2.833	1.47	8.833	13.31	14.833	2.05	20.83	1.22
								2.917	1.51	8.917	11.20	14.917	2.01	20.92	1.21
								3.000	1.51	9.000	11.20	15.000	2.01	21.00	1.21
								3.083	1.55	9.083	9.70	15.083	1.97	21.08	1.20
								3.167	1.55	9.167	9.70	15.167	1.97	21.17	1.20
								3.250	1.60	9.250	8.57	15.250	1.94	21.25	1.18
								3.333	1.60	9.333	8.57	15.333	1.94	21.33	1.18
								3.417	1.64	9.417	7.69	15.417	1.90	21.42	1.17
								3.500	1.64	9.500	7.69	15.500	1.90	21.50	1.17
								3.583	1.70	9.583	6.99	15.583	1.87	21.58	1.16
								3.667	1.70	9.667	6.99	15.667	1.87	21.67	1.16
								3.750	1.75	9.750	6.41	15.750	1.83	21.75	1.15
								3.833	1.75	9.833	6.41	15.833	1.83	21.83	1.15
								3.917	1.81	9.917	5.93	15.917	1.80	21.92	1.14
								4.000	1.81	10.000	5.93	16.000	1.80	22.00	1.14
								4.083	1.88	10.083	5.52	16.083	1.77	22.08	1.13
								4.167	1.88	10.167	5.52	16.167	1.77	22.17	1.13
								4.250	1.95	10.250	5.16	16.250	1.74	22.25	1.11
								4.333	1.95	10.333	5.16	16.333	1.74	22.33	1.11
								4.417	2.03	10.417	4.86	16.417	1.71	22.42	1.10
								4.500	2.03	10.500	4.86	16.500	1.71	22.50	1.10
								4.583	2.12	10.583	4.59	16.583	1.69	22.58	1.09
								4.667	2.12	10.667	4.59	16.667	1.69	22.67	1.09
								4.750	2.21	10.750	4.35	16.750	1.66	22.75	1.08
								4.833	2.21	10.833	4.35	16.833	1.66	22.83	1.08
								4.917	2.31	10.917	4.14	16.917	1.63	22.92	1.07
								5.000	2.31	11.000	4.14	17.000	1.63	23.00	1.07
								5.083	2.43	11.083	3.95	17.083	1.61	23.08	1.06
								5.167	2.43	11.167	3.95	17.167	1.61	23.17	1.06
								5.250	2.56	11.250	3.78	17.250	1.59	23.25	1.06
								5.333	2.56	11.333	3.78	17.333	1.59	23.33	1.06

Unit Hyd Qpeak (cms)= 0.040

PEAK FLOW (cms)= 0.033 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 78.624
TOTAL RAINFALL (mm)= 117.763
RUNOFF COEFFICIENT = 0.668

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

CALIB	
STANDHYD (0028)	Area (ha)= 0.08
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.00
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	23.09	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	1.04	6.083	3.55	12.083	3.12	18.08	1.48
0.167	1.04	6.167	3.55	12.167	3.12	18.17	1.48
0.250	1.06	6.250	3.86	12.250	3.02	18.25	1.46
0.333	1.06	6.333	3.86	12.333	3.02	18.33	1.46
0.417	1.08	6.417	4.24	12.417	2.92	18.42	1.44
0.500	1.08	6.500	4.24	12.500	2.92	18.50	1.44
0.583	1.10	6.583	4.72	12.583	2.83	18.58	1.42
0.667	1.10	6.667	4.72	12.667	2.83	18.67	1.42
0.750	1.12	6.750	5.33	12.750	2.75	18.75	1.40
0.833	1.12	6.833	5.33	12.833	2.75	18.83	1.40
0.917	1.14	6.917	6.16	12.917	2.67	18.92	1.38
1.000	1.14	7.000	6.16	13.000	2.67	19.00	1.38
1.083	1.16	7.083	7.33	13.083	2.60	19.08	1.37
1.167	1.16	7.167	7.33	13.167	2.60	19.17	1.37

5.417	2.71	11.417	3.62	17.417	1.56	23.42	1.05	0.250	1.06	6.250	3.86	12.250	3.02	18.25	1.46
5.500	2.71	11.500	3.62	17.500	1.56	23.50	1.05	0.333	1.06	6.333	3.86	12.333	3.02	18.33	1.46
5.583	2.87	11.583	3.48	17.583	1.54	23.58	1.04	0.417	1.08	6.417	4.24	12.417	2.92	18.42	1.44
5.667	2.87	11.667	3.48	17.667	1.54	23.67	1.04	0.500	1.08	6.500	4.24	12.500	2.92	18.50	1.44
5.750	3.06	11.750	3.35	17.750	1.52	23.75	1.03	0.583	1.10	6.583	4.72	12.583	2.83	18.58	1.42
5.833	3.06	11.833	3.35	17.833	1.52	23.83	1.03	0.667	1.10	6.667	4.72	12.667	2.83	18.67	1.42
5.917	3.29	11.917	3.23	17.917	1.50	23.92	1.02	0.750	1.12	6.750	5.33	12.750	2.75	18.75	1.40
6.000	3.29	12.000	3.23	18.000	1.50	24.00	1.02	0.833	1.12	6.833	5.33	12.833	2.75	18.83	1.40
								0.917	1.14	6.917	6.16	12.917	2.67	18.92	1.38
								1.000	1.14	7.000	6.16	13.000	2.67	19.00	1.38
								1.083	1.16	7.083	7.33	13.083	2.60	19.08	1.37
								1.167	1.16	7.167	7.33	13.167	2.60	19.17	1.37
								1.250	1.19	7.250	9.12	13.250	2.53	19.25	1.35
								1.333	1.19	7.333	9.12	13.333	2.53	19.33	1.35
								1.417	1.21	7.417	12.24	13.417	2.46	19.42	1.34
								1.500	1.21	7.500	12.24	13.500	2.46	19.50	1.34
								1.583	1.24	7.583	19.05	13.583	2.40	19.58	1.32
								1.667	1.24	7.667	19.05	13.667	2.40	19.67	1.32
								1.750	1.27	7.750	45.51	13.750	2.34	19.75	1.30
								1.833	1.27	7.833	45.52	13.833	2.34	19.83	1.30
								1.917	1.30	7.917	155.24	13.917	2.29	19.92	1.29
								2.000	1.30	8.000	155.23	14.000	2.29	20.00	1.29
								2.083	1.33	8.083	59.23	14.083	2.24	20.08	1.27
								2.167	1.33	8.167	59.23	14.167	2.24	20.17	1.27
								2.250	1.36	8.250	31.85	14.250	2.19	20.25	1.26
								2.333	1.36	8.333	31.85	14.333	2.19	20.33	1.26
								2.417	1.39	8.417	21.68	14.417	2.14	20.42	1.25
								2.500	1.39	8.500	21.68	14.500	2.14	20.50	1.25
								2.583	1.43	8.583	16.46	14.583	2.10	20.58	1.23
								2.667	1.43	8.667	16.46	14.667	2.10	20.67	1.23
								2.750	1.47	8.750	13.31	14.750	2.05	20.75	1.22
								2.833	1.47	8.833	13.31	14.833	2.05	20.83	1.22
								2.917	1.51	8.917	11.20	14.917	2.01	20.92	1.21
								3.000	1.51	9.000	11.20	15.000	2.01	21.00	1.21
								3.083	1.55	9.083	9.70	15.083	1.97	21.08	1.20
								3.167	1.55	9.167	9.70	15.167	1.97	21.17	1.20
								3.250	1.60	9.250	8.57	15.250	1.94	21.25	1.18
								3.333	1.60	9.333	8.57	15.333	1.94	21.33	1.18
								3.417	1.64	9.417	7.69	15.417	1.90	21.42	1.17
								3.500	1.64	9.500	7.69	15.500	1.90	21.50	1.17
								3.583	1.70	9.583	6.99	15.583	1.87	21.58	1.16
								3.667	1.70	9.667	6.99	15.667	1.87	21.67	1.16
								3.750	1.75	9.750	6.41	15.750	1.83	21.75	1.15
								3.833	1.75	9.833	6.41	15.833	1.83	21.83	1.15
								3.917	1.81	9.917	5.93	15.917	1.80	21.92	1.14
								4.000	1.81	10.000	5.93	16.000	1.80	22.00	1.14
								4.083	1.88	10.083	5.52	16.083	1.77	22.08	1.13
								4.167	1.88	10.167	5.52	16.167	1.77	22.17	1.13
								4.250	1.95	10.250	5.16	16.250	1.74	22.25	1.11
								4.333	1.95	10.333	5.16	16.333	1.74	22.33	1.11

Max.Eff.Inten.(mm/hr)=	155.24	105.93	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.89 (ii)	1.83 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.32	
			TOTALS
PEAK FLOW (cms)=	0.03	0.00	0.034 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	116.76	78.91	116.38
TOTAL RAINFALL (mm)=	117.76	117.76	117.76
RUNOFF COEFFICIENT =	0.99	0.67	0.99

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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 (0037)	Area (ha)= 0.04
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.04	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	16.33	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	1.04	6.083	3.55	12.083	3.12	18.08	1.48
0.167	1.04	6.167	3.55	12.167	3.12	18.17	1.48

4.417	2.03	10.417	4.86	16.417	1.71	22.42	1.10
4.500	2.03	10.500	4.86	16.500	1.71	22.50	1.10
4.583	2.12	10.583	4.59	16.583	1.69	22.58	1.09
4.667	2.12	10.667	4.59	16.667	1.69	22.67	1.09
4.750	2.21	10.750	4.35	16.750	1.66	22.75	1.08
4.833	2.21	10.833	4.35	16.833	1.66	22.83	1.08
4.917	2.31	10.917	4.14	16.917	1.63	22.92	1.07
5.000	2.31	11.000	4.14	17.000	1.63	23.00	1.07
5.083	2.43	11.083	3.95	17.083	1.61	23.08	1.06
5.167	2.43	11.167	3.95	17.167	1.61	23.17	1.06
5.250	2.56	11.250	3.78	17.250	1.59	23.25	1.06
5.333	2.56	11.333	3.78	17.333	1.59	23.33	1.06
5.417	2.71	11.417	3.62	17.417	1.56	23.42	1.05
5.500	2.71	11.500	3.62	17.500	1.56	23.50	1.05
5.583	2.87	11.583	3.48	17.583	1.54	23.58	1.04
5.667	2.87	11.667	3.48	17.667	1.54	23.67	1.04
5.750	3.06	11.750	3.35	17.750	1.52	23.75	1.03
5.833	3.06	11.833	3.35	17.833	1.52	23.83	1.03
5.917	3.29	11.917	3.23	17.917	1.50	23.92	1.02
6.000	3.29	12.000	3.23	18.000	1.50	24.00	1.02

Max.Eff.Inten.(mm/hr)=	155.24	112.85	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.72 (ii)	1.66 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.32	
			TOTALS
PEAK FLOW (cms)=	0.02	0.00	0.017 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	116.76	83.91	116.43
TOTAL RAINFALL (mm)=	117.76	117.76	117.76
RUNOFF COEFFICIENT =	0.99	0.71	0.99

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 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 (0038)	Area (ha)=	0.01	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.01	0.00
Dep. Storage (mm)=	1.00	1.50

Average Slope (%)=	1.00	2.00
Length (m)=	8.16	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	1.04	6.083	3.55	12.083	3.12	18.08	1.48
0.167	1.04	6.167	3.55	12.167	3.12	18.17	1.48
0.250	1.06	6.250	3.86	12.250	3.02	18.25	1.46
0.333	1.06	6.333	3.86	12.333	3.02	18.33	1.46
0.417	1.08	6.417	4.24	12.417	2.92	18.42	1.44
0.500	1.08	6.500	4.24	12.500	2.92	18.50	1.44
0.583	1.10	6.583	4.72	12.583	2.83	18.58	1.42
0.667	1.10	6.667	4.72	12.667	2.83	18.67	1.42
0.750	1.12	6.750	5.33	12.750	2.75	18.75	1.40
0.833	1.12	6.833	5.33	12.833	2.75	18.83	1.40
0.917	1.14	6.917	6.16	12.917	2.67	18.92	1.38
1.000	1.14	7.000	6.16	13.000	2.67	19.00	1.38
1.083	1.16	7.083	7.33	13.083	2.60	19.08	1.37
1.167	1.16	7.167	7.33	13.167	2.60	19.17	1.37
1.250	1.19	7.250	9.12	13.250	2.53	19.25	1.35
1.333	1.19	7.333	9.12	13.333	2.53	19.33	1.35
1.417	1.21	7.417	12.24	13.417	2.46	19.42	1.34
1.500	1.21	7.500	12.24	13.500	2.46	19.50	1.34
1.583	1.24	7.583	19.05	13.583	2.40	19.58	1.32
1.667	1.24	7.667	19.05	13.667	2.40	19.67	1.32
1.750	1.27	7.750	45.51	13.750	2.34	19.75	1.30
1.833	1.27	7.833	45.52	13.833	2.34	19.83	1.30
1.917	1.30	7.917	155.24	13.917	2.29	19.92	1.29
2.000	1.30	8.000	155.23	14.000	2.29	20.00	1.29
2.083	1.33	8.083	59.23	14.083	2.24	20.08	1.27
2.167	1.33	8.167	59.23	14.167	2.24	20.17	1.27
2.250	1.36	8.250	31.85	14.250	2.19	20.25	1.26
2.333	1.36	8.333	31.85	14.333	2.19	20.33	1.26
2.417	1.39	8.417	21.68	14.417	2.14	20.42	1.25
2.500	1.39	8.500	21.68	14.500	2.14	20.50	1.25
2.583	1.43	8.583	16.46	14.583	2.10	20.58	1.23
2.667	1.43	8.667	16.46	14.667	2.10	20.67	1.23
2.750	1.47	8.750	13.31	14.750	2.05	20.75	1.22
2.833	1.47	8.833	13.31	14.833	2.05	20.83	1.22
2.917	1.51	8.917	11.20	14.917	2.01	20.92	1.21
3.000	1.51	9.000	11.20	15.000	2.01	21.00	1.21
3.083	1.55	9.083	9.70	15.083	1.97	21.08	1.20
3.167	1.55	9.167	9.70	15.167	1.97	21.17	1.20
3.250	1.60	9.250	8.57	15.250	1.94	21.25	1.18
3.333	1.60	9.333	8.57	15.333	1.94	21.33	1.18

3.417	1.64	9.417	7.69	15.417	1.90	21.42	1.17
3.500	1.64	9.500	7.69	15.500	1.90	21.50	1.17
3.583	1.70	9.583	6.99	15.583	1.87	21.58	1.16
3.667	1.70	9.667	6.99	15.667	1.87	21.67	1.16
3.750	1.75	9.750	6.41	15.750	1.83	21.75	1.15
3.833	1.75	9.833	6.41	15.833	1.83	21.83	1.15
3.917	1.81	9.917	5.93	15.917	1.80	21.92	1.14
4.000	1.81	10.000	5.93	16.000	1.80	22.00	1.14
4.083	1.88	10.083	5.52	16.083	1.77	22.08	1.13
4.167	1.88	10.167	5.52	16.167	1.77	22.17	1.13
4.250	1.95	10.250	5.16	16.250	1.74	22.25	1.11
4.333	1.95	10.333	5.16	16.333	1.74	22.33	1.11
4.417	2.03	10.417	4.86	16.417	1.71	22.42	1.10
4.500	2.03	10.500	4.86	16.500	1.71	22.50	1.10
4.583	2.12	10.583	4.59	16.583	1.69	22.58	1.09
4.667	2.12	10.667	4.59	16.667	1.69	22.67	1.09
4.750	2.21	10.750	4.35	16.750	1.66	22.75	1.08
4.833	2.21	10.833	4.35	16.833	1.66	22.83	1.08
4.917	2.31	10.917	4.14	16.917	1.63	22.92	1.07
5.000	2.31	11.000	4.14	17.000	1.63	23.00	1.07
5.083	2.43	11.083	3.95	17.083	1.61	23.08	1.06
5.167	2.43	11.167	3.95	17.167	1.61	23.17	1.06
5.250	2.56	11.250	3.78	17.250	1.59	23.25	1.06
5.333	2.56	11.333	3.78	17.333	1.59	23.33	1.06
5.417	2.71	11.417	3.62	17.417	1.56	23.42	1.05
5.500	2.71	11.500	3.62	17.500	1.56	23.50	1.05
5.583	2.87	11.583	3.48	17.583	1.54	23.58	1.04
5.667	2.87	11.667	3.48	17.667	1.54	23.67	1.04
5.750	3.06	11.750	3.35	17.750	1.52	23.75	1.03
5.833	3.06	11.833	3.35	17.833	1.52	23.83	1.03
5.917	3.29	11.917	3.23	17.917	1.50	23.92	1.02
6.000	3.29	12.000	3.23	18.000	1.50	24.00	1.02

Max.Eff.Inten.(mm/hr)=	155.24	112.85	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.48 (ii)	1.42 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.33	
			TOTALS
PEAK FLOW (cms)=	0.00	0.00	0.004 (iii)
TIME TO PEAK (hrs)=	7.92	8.00	8.00
RUNOFF VOLUME (mm)=	116.76	83.91	94.89
TOTAL RAINFALL (mm)=	117.76	117.76	117.76
RUNOFF COEFFICIENT =	0.99	0.71	0.81

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 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 (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0026):	0.28	0.046	8.17	78.80
+ ID2= 2 (0028):	0.08	0.034	8.00	116.38
ID = 3 (0030):	0.36	0.067	8.00	87.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	0.36	0.067	8.00	87.15
+ ID2= 2 (0029):	0.18	0.033	8.08	78.62
ID = 1 (0030):	0.54	0.095	8.00	84.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	0.54	0.095	8.00	84.31
+ ID2= 2 (0037):	0.04	0.017	8.00	116.43
ID = 3 (0030):	0.58	0.112	8.00	86.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	0.58	0.112	8.00	86.53
+ ID2= 2 (0038):	0.01	0.004	8.00	94.89
ID = 1 (0030):	0.59	0.116	8.00	86.67

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB							
NASHYD (0031)	Area (ha)= 0.09	Curve Number (CN)= 84.0					
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00					
	U.H. Tp(hrs)= 0.17						

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	1.04	6.083	3.55	12.083	3.12	18.08	1.48
0.167	1.04	6.167	3.55	12.167	3.12	18.17	1.48
0.250	1.06	6.250	3.86	12.250	3.02	18.25	1.46
0.333	1.06	6.333	3.86	12.333	3.02	18.33	1.46
0.417	1.08	6.417	4.24	12.417	2.92	18.42	1.44
0.500	1.08	6.500	4.24	12.500	2.92	18.50	1.44
0.583	1.10	6.583	4.72	12.583	2.83	18.58	1.42
0.667	1.10	6.667	4.72	12.667	2.83	18.67	1.42
0.750	1.12	6.750	5.33	12.750	2.75	18.75	1.40
0.833	1.12	6.833	5.33	12.833	2.75	18.83	1.40
0.917	1.14	6.917	6.16	12.917	2.67	18.92	1.38
1.000	1.14	7.000	6.16	13.000	2.67	19.00	1.38
1.083	1.16	7.083	7.33	13.083	2.60	19.08	1.37
1.167	1.16	7.167	7.33	13.167	2.60	19.17	1.37
1.250	1.19	7.250	9.12	13.250	2.53	19.25	1.35
1.333	1.19	7.333	9.12	13.333	2.53	19.33	1.35
1.417	1.21	7.417	12.24	13.417	2.46	19.42	1.34
1.500	1.21	7.500	12.24	13.500	2.46	19.50	1.34
1.583	1.24	7.583	19.05	13.583	2.40	19.58	1.32
1.667	1.24	7.667	19.05	13.667	2.40	19.67	1.32
1.750	1.27	7.750	45.51	13.750	2.34	19.75	1.30
1.833	1.27	7.833	45.52	13.833	2.34	19.83	1.30
1.917	1.30	7.917	155.24	13.917	2.29	19.92	1.29
2.000	1.30	8.000	155.23	14.000	2.29	20.00	1.29
2.083	1.33	8.083	59.23	14.083	2.24	20.08	1.27
2.167	1.33	8.167	59.23	14.167	2.24	20.17	1.27
2.250	1.36	8.250	31.85	14.250	2.19	20.25	1.26
2.333	1.36	8.333	31.85	14.333	2.19	20.33	1.26
2.417	1.39	8.417	21.68	14.417	2.14	20.42	1.25
2.500	1.39	8.500	21.68	14.500	2.14	20.50	1.25
2.583	1.43	8.583	16.46	14.583	2.10	20.58	1.23
2.667	1.43	8.667	16.46	14.667	2.10	20.67	1.23
2.750	1.47	8.750	13.31	14.750	2.05	20.75	1.22
2.833	1.47	8.833	13.31	14.833	2.05	20.83	1.22
2.917	1.51	8.917	11.20	14.917	2.01	20.92	1.21
3.000	1.51	9.000	11.20	15.000	2.01	21.00	1.21
3.083	1.55	9.083	9.70	15.083	1.97	21.08	1.20
3.167	1.55	9.167	9.70	15.167	1.97	21.17	1.20
3.250	1.60	9.250	8.57	15.250	1.94	21.25	1.18
3.333	1.60	9.333	8.57	15.333	1.94	21.33	1.18
3.417	1.64	9.417	7.69	15.417	1.90	21.42	1.17
3.500	1.64	9.500	7.69	15.500	1.90	21.50	1.17
3.583	1.70	9.583	6.99	15.583	1.87	21.58	1.16
3.667	1.70	9.667	6.99	15.667	1.87	21.67	1.16
3.750	1.75	9.750	6.41	15.750	1.83	21.75	1.15
3.833	1.75	9.833	6.41	15.833	1.83	21.83	1.15
3.917	1.81	9.917	5.93	15.917	1.80	21.92	1.14
4.000	1.81	10.000	5.93	16.000	1.80	22.00	1.14
4.083	1.88	10.083	5.52	16.083	1.77	22.08	1.13
4.167	1.88	10.167	5.52	16.167	1.77	22.17	1.13
4.250	1.95	10.250	5.16	16.250	1.74	22.25	1.11
4.333	1.95	10.333	5.16	16.333	1.74	22.33	1.11
4.417	2.03	10.417	4.86	16.417	1.71	22.42	1.10
4.500	2.03	10.500	4.86	16.500	1.71	22.50	1.10
4.583	2.12	10.583	4.59	16.583	1.69	22.58	1.09
4.667	2.12	10.667	4.59	16.667	1.69	22.67	1.09
4.750	2.21	10.750	4.35	16.750	1.66	22.75	1.08
4.833	2.21	10.833	4.35	16.833	1.66	22.83	1.08
4.917	2.31	10.917	4.14	16.917	1.63	22.92	1.07
5.000	2.31	11.000	4.14	17.000	1.63	23.00	1.07
5.083	2.43	11.083	3.95	17.083	1.61	23.08	1.06
5.167	2.43	11.167	3.95	17.167	1.61	23.17	1.06
5.250	2.56	11.250	3.78	17.250	1.59	23.25	1.06
5.333	2.56	11.333	3.78	17.333	1.59	23.33	1.06
5.417	2.71	11.417	3.62	17.417	1.56	23.42	1.05
5.500	2.71	11.500	3.62	17.500	1.56	23.50	1.05
5.583	2.87	11.583	3.48	17.583	1.54	23.58	1.04
5.667	2.87	11.667	3.48	17.667	1.54	23.67	1.04
5.750	3.06	11.750	3.35	17.750	1.52	23.75	1.03
5.833	3.06	11.833	3.35	17.833	1.52	23.83	1.03
5.917	3.29	11.917	3.23	17.917	1.50	23.92	1.02
6.000	3.29	12.000	3.23	18.000	1.50	24.00	1.02

Unit Hyd Qpeak (cms)= 0.020

PEAK FLOW (cms)= 0.017 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 78.622
TOTAL RAINFALL (mm)= 117.763
RUNOFF COEFFICIENT = 0.668

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

CALIB							
STANDHYD (0018)	Area (ha)= 0.71						
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00					

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.70	0.01
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	68.80	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	1.04	6.083	3.55	12.083	3.12	18.08	1.48
0.167	1.04	6.167	3.55	12.167	3.12	18.17	1.48
0.250	1.06	6.250	3.86	12.250	3.02	18.25	1.46
0.333	1.06	6.333	3.86	12.333	3.02	18.33	1.46
0.417	1.08	6.417	4.24	12.417	2.92	18.42	1.44
0.500	1.08	6.500	4.24	12.500	2.92	18.50	1.44
0.583	1.10	6.583	4.72	12.583	2.83	18.58	1.42
0.667	1.10	6.667	4.72	12.667	2.83	18.67	1.42
0.750	1.12	6.750	5.33	12.750	2.75	18.75	1.40
0.833	1.12	6.833	5.33	12.833	2.75	18.83	1.40
0.917	1.14	6.917	6.16	12.917	2.67	18.92	1.38
1.000	1.14	7.000	6.16	13.000	2.67	19.00	1.38
1.083	1.16	7.083	7.33	13.083	2.60	19.08	1.37
1.167	1.16	7.167	7.33	13.167	2.60	19.17	1.37
1.250	1.19	7.250	9.12	13.250	2.53	19.25	1.35
1.333	1.19	7.333	9.12	13.333	2.53	19.33	1.35
1.417	1.21	7.417	12.24	13.417	2.46	19.42	1.34
1.500	1.21	7.500	12.24	13.500	2.46	19.50	1.34
1.583	1.24	7.583	19.05	13.583	2.40	19.58	1.32
1.667	1.24	7.667	19.05	13.667	2.40	19.67	1.32
1.750	1.27	7.750	45.51	13.750	2.34	19.75	1.30
1.833	1.27	7.833	45.52	13.833	2.34	19.83	1.30
1.917	1.30	7.917	155.24	13.917	2.29	19.92	1.29
2.000	1.30	8.000	155.23	14.000	2.29	20.00	1.29
2.083	1.33	8.083	59.23	14.083	2.24	20.08	1.27
2.167	1.33	8.167	59.23	14.167	2.24	20.17	1.27
2.250	1.36	8.250	31.85	14.250	2.19	20.25	1.26
2.333	1.36	8.333	31.85	14.333	2.19	20.33	1.26
2.417	1.39	8.417	21.68	14.417	2.14	20.42	1.25
2.500	1.39	8.500	21.68	14.500	2.14	20.50	1.25
2.583	1.43	8.583	16.46	14.583	2.10	20.58	1.23
2.667	1.43	8.667	16.46	14.667	2.10	20.67	1.23
2.750	1.47	8.750	13.31	14.750	2.05	20.75	1.22
2.833	1.47	8.833	13.31	14.833	2.05	20.83	1.22
2.917	1.51	8.917	11.20	14.917	2.01	20.92	1.21
3.000	1.51	9.000	11.20	15.000	2.01	21.00	1.21
3.083	1.55	9.083	9.70	15.083	1.97	21.08	1.20
3.167	1.55	9.167	9.70	15.167	1.97	21.17	1.20
3.250	1.60	9.250	8.57	15.250	1.94	21.25	1.18
3.333	1.60	9.333	8.57	15.333	1.94	21.33	1.18
3.417	1.64	9.417	7.69	15.417	1.90	21.42	1.17
3.500	1.64	9.500	7.69	15.500	1.90	21.50	1.17
3.583	1.70	9.583	6.99	15.583	1.87	21.58	1.16
3.667	1.70	9.667	6.99	15.667	1.87	21.67	1.16
3.750	1.75	9.750	6.41	15.750	1.83	21.75	1.15
3.833	1.75	9.833	6.41	15.833	1.83	21.83	1.15
3.917	1.81	9.917	5.93	15.917	1.80	21.92	1.14
4.000	1.81	10.000	5.93	16.000	1.80	22.00	1.14
4.083	1.88	10.083	5.52	16.083	1.77	22.08	1.13
4.167	1.88	10.167	5.52	16.167	1.77	22.17	1.13
4.250	1.95	10.250	5.16	16.250	1.74	22.25	1.11
4.333	1.95	10.333	5.16	16.333	1.74	22.33	1.11
4.417	2.03	10.417	4.86	16.417	1.71	22.42	1.10
4.500	2.03	10.500	4.86	16.500	1.71	22.50	1.10
4.583	2.12	10.583	4.59	16.583	1.69	22.58	1.09
4.667	2.12	10.667	4.59	16.667	1.69	22.67	1.09
4.750	2.21	10.750	4.35	16.750	1.66	22.75	1.08
4.833	2.21	10.833	4.35	16.833	1.66	22.83	1.08
4.917	2.31	10.917	4.14	16.917	1.63	22.92	1.07
5.000	2.31	11.000	4.14	17.000	1.63	23.00	1.07
5.083	2.43	11.083	3.95	17.083	1.61	23.08	1.06
5.167	2.43	11.167	3.95	17.167	1.61	23.17	1.06
5.250	2.56	11.250	3.78	17.250	1.59	23.25	1.06
5.333	2.56	11.333	3.78	17.333	1.59	23.33	1.06
5.417	2.71	11.417	3.62	17.417	1.56	23.42	1.05
5.500	2.71	11.500	3.62	17.500	1.56	23.50	1.05
5.583	2.87	11.583	3.48	17.583	1.54	23.58	1.04
5.667	2.87	11.667	3.48	17.667	1.54	23.67	1.04
5.750	3.06	11.750	3.35	17.750	1.52	23.75	1.03
5.833	3.06	11.833	3.35	17.833	1.52	23.83	1.03
5.917	3.29	11.917	3.23	17.917	1.50	23.92	1.02
6.000	3.29	12.000	3.23	18.000	1.50	24.00	1.02

Max.Eff.Inten.(mm/hr)=	155.24	105.93		
over (min)	5.00	5.00		
Storage Coeff. (min)=	1.71 (ii)	2.65 (ii)		
Unit Hyd. Tpeak (min)=	5.00	5.00		
Unit Hyd. peak (cms)=	0.32	0.29		
			TOTALS	
PEAK FLOW (cms)=	0.30	0.00	0.305 (iii)	
TIME TO PEAK (hrs)=	8.00	8.00	8.00	
RUNOFF VOLUME (mm)=	116.76	78.91	116.38	
TOTAL RAINFALL (mm)=	117.76	117.76	117.76	
RUNOFF COEFFICIENT =	0.99	0.67	0.99	

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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 (0032)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0018):		0.71	0.305	8.00	116.38
+ ID2= 2 (0031):		0.09	0.017	8.08	78.62
ID = 3 (0032):		0.80	0.319	8.00	112.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0019)	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	0.0190	0.0279
	0.0000	0.0028	0.0200	0.0307
	0.0080	0.0056	0.0210	0.0335
	0.0100	0.0084	0.0220	0.0363
	0.0120	0.0112	0.0230	0.0391
	0.0140	0.0140	0.0240	0.0419
	0.0150	0.0168	0.0250	0.0447
	0.0160	0.0196	0.0250	0.0475
	0.0170	0.0223	0.0260	0.0499
	0.0180	0.0251	0.0000	0.0000

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0032)	0.800	0.319	8.00	112.14
OUTFLOW: ID= 1 (0019)	0.800	0.025	9.00	108.54

PEAK FLOW REDUCTION [Qout/Qin](%)= 7.82
TIME SHIFT OF PEAK FLOW (min)= 60.00
MAXIMUM STORAGE USED (ha.m.)= 0.0445

CALIB

NASHYD (0036) | ID= 1 DT= 5.0 min	Area (ha)= 0.14 Curve Number (CN)= 84.0 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.16

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	1.04	6.083	3.55	12.083	3.12	18.08	1.48
0.167	1.04	6.167	3.55	12.167	3.12	18.17	1.48
0.250	1.06	6.250	3.86	12.250	3.02	18.25	1.46
0.333	1.06	6.333	3.86	12.333	3.02	18.33	1.46
0.417	1.08	6.417	4.24	12.417	2.92	18.42	1.44
0.500	1.08	6.500	4.24	12.500	2.92	18.50	1.44
0.583	1.10	6.583	4.72	12.583	2.83	18.58	1.42
0.667	1.10	6.667	4.72	12.667	2.83	18.67	1.42
0.750	1.12	6.750	5.33	12.750	2.75	18.75	1.40
0.833	1.12	6.833	5.33	12.833	2.75	18.83	1.40
0.917	1.14	6.917	6.16	12.917	2.67	18.92	1.38
1.000	1.14	7.000	6.16	13.000	2.67	19.00	1.38
1.083	1.16	7.083	7.33	13.083	2.60	19.08	1.37
1.167	1.16	7.167	7.33	13.167	2.60	19.17	1.37
1.250	1.19	7.250	9.12	13.250	2.53	19.25	1.35
1.333	1.19	7.333	9.12	13.333	2.53	19.33	1.35
1.417	1.21	7.417	12.24	13.417	2.46	19.42	1.34
1.500	1.21	7.500	12.24	13.500	2.46	19.50	1.34
1.583	1.24	7.583	19.05	13.583	2.40	19.58	1.32
1.667	1.24	7.667	19.05	13.667	2.40	19.67	1.32
1.750	1.27	7.750	45.51	13.750	2.34	19.75	1.30
1.833	1.27	7.833	45.52	13.833	2.34	19.83	1.30
1.917	1.30	7.917	155.24	13.917	2.29	19.92	1.29
2.000	1.30	8.000	155.23	14.000	2.29	20.00	1.29
2.083	1.33	8.083	59.23	14.083	2.24	20.08	1.27
2.167	1.33	8.167	59.23	14.167	2.24	20.17	1.27
2.250	1.36	8.250	31.85	14.250	2.19	20.25	1.26
2.333	1.36	8.333	31.85	14.333	2.19	20.33	1.26
2.417	1.39	8.417	21.68	14.417	2.14	20.42	1.25
2.500	1.39	8.500	21.68	14.500	2.14	20.50	1.25
2.583	1.43	8.583	16.46	14.583	2.10	20.58	1.23
2.667	1.43	8.667	16.46	14.667	2.10	20.67	1.23
2.750	1.47	8.750	13.31	14.750	2.05	20.75	1.22
2.833	1.47	8.833	13.31	14.833	2.05	20.83	1.22
2.917	1.51	8.917	11.20	14.917	2.01	20.92	1.21
3.000	1.51	9.000	11.20	15.000	2.01	21.00	1.21
3.083	1.55	9.083	9.70	15.083	1.97	21.08	1.20
3.167	1.55	9.167	9.70	15.167	1.97	21.17	1.20
3.250	1.60	9.250	8.57	15.250	1.94	21.25	1.18
3.333	1.60	9.333	8.57	15.333	1.94	21.33	1.18
3.417	1.64	9.417	7.69	15.417	1.90	21.42	1.17
3.500	1.64	9.500	7.69	15.500	1.90	21.50	1.17
3.583	1.70	9.583	6.99	15.583	1.87	21.58	1.16
3.667	1.70	9.667	6.99	15.667	1.87	21.67	1.16
3.750	1.75	9.750	6.41	15.750	1.83	21.75	1.15
3.833	1.75	9.833	6.41	15.833	1.83	21.83	1.15
3.917	1.81	9.917	5.93	15.917	1.80	21.92	1.14
4.000	1.81	10.000	5.93	16.000	1.80	22.00	1.14
4.083	1.88	10.083	5.52	16.083	1.77	22.08	1.13
4.167	1.88	10.167	5.52	16.167	1.77	22.17	1.13
4.250	1.95	10.250	5.16	16.250	1.74	22.25	1.11
4.333	1.95	10.333	5.16	16.333	1.74	22.33	1.11
4.417	2.03	10.417	4.86	16.417	1.71	22.42	1.10
4.500	2.03	10.500	4.86	16.500	1.71	22.50	1.10
4.583	2.12	10.583	4.59	16.583	1.69	22.58	1.09
4.667	2.12	10.667	4.59	16.667	1.69	22.67	1.09
4.750	2.21	10.750	4.35	16.750	1.66	22.75	1.08
4.833	2.21	10.833	4.35	16.833	1.66	22.83	1.08
4.917	2.31	10.917	4.14	16.917	1.63	22.92	1.07
5.000	2.31	11.000	4.14	17.000	1.63	23.00	1.07
5.083	2.43	11.083	3.95	17.083	1.61	23.08	1.06
5.167	2.43	11.167	3.95	17.167	1.61	23.17	1.06
5.250	2.56	11.250	3.78	17.250	1.59	23.25	1.06
5.333	2.56	11.333	3.78	17.333	1.59	23.33	1.06
5.417	2.71	11.417	3.62	17.417	1.56	23.42	1.05
5.500	2.71	11.500	3.62	17.500	1.56	23.50	1.05
5.583	2.87	11.583	3.48	17.583	1.54	23.58	1.04
5.667	2.87	11.667	3.48	17.667	1.54	23.67	1.04
5.750	3.06	11.750	3.35	17.750	1.52	23.75	1.03
5.833	3.06	11.833	3.35	17.833	1.52	23.83	1.03
5.917	3.29	11.917	3.23	17.917	1.50	23.92	1.02
6.000	3.29	12.000	3.23	18.000	1.50	24.00	1.02

Unit Hyd Qpeak (cms)= 0.033

PEAK FLOW (cms)= 0.027 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 78.550
TOTAL RAINFALL (mm)= 117.763
RUNOFF COEFFICIENT = 0.667

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

CALIB

NASHYD (0039) | ID= 1 DT= 5.0 min	Area (ha)= 0.05 Curve Number (CN)= 84.0 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.16

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	1.04	6.083	3.55	12.083	3.12	18.08	1.48
0.167	1.04	6.167	3.55	12.167	3.12	18.17	1.48
0.250	1.06	6.250	3.86	12.250	3.02	18.25	1.46
0.333	1.06	6.333	3.86	12.333	3.02	18.33	1.46
0.417	1.08	6.417	4.24	12.417	2.92	18.42	1.44
0.500	1.08	6.500	4.24	12.500	2.92	18.50	1.44
0.583	1.10	6.583	4.72	12.583	2.83	18.58	1.42
0.667	1.10	6.667	4.72	12.667	2.83	18.67	1.42
0.750	1.12	6.750	5.33	12.750	2.75	18.75	1.40
0.833	1.12	6.833	5.33	12.833	2.75	18.83	1.40
0.917	1.14	6.917	6.16	12.917	2.67	18.92	1.38
1.000	1.14	7.000	6.16	13.000	2.67	19.00	1.38
1.083	1.16	7.083	7.33	13.083	2.60	19.08	1.37
1.167	1.16	7.167	7.33	13.167	2.60	19.17	1.37
1.250	1.19	7.250	9.12	13.250	2.53	19.25	1.35
1.333	1.19	7.333	9.12	13.333	2.53	19.33	1.35
1.417	1.21	7.417	12.24	13.417	2.46	19.42	1.34
1.500	1.21	7.500	12.24	13.500	2.46	19.50	1.34
1.583	1.24	7.583	19.05	13.583	2.40	19.58	1.32
1.667	1.24	7.667	19.05	13.667	2.40	19.67	1.32
1.750	1.27	7.750	45.51	13.750	2.34	19.75	1.30
1.833	1.27	7.833	45.52	13.833	2.34	19.83	1.30
1.917	1.30	7.917	155.24	13.917	2.29	19.92	1.29
2.000	1.30	8.000	155.23	14.000	2.29	20.00	1.29
2.083	1.33	8.083	59.23	14.083	2.24	20.08	1.27
2.167	1.33	8.167	59.23	14.167	2.24	20.17	1.27
2.250	1.36	8.250	31.85	14.250	2.19	20.25	1.26
2.333	1.36	8.333	31.85	14.333	2.19	20.33	1.26
2.417	1.39	8.417	21.68	14.417	2.14	20.42	1.25
2.500	1.39	8.500	21.68	14.500	2.14	20.50	1.25
2.583	1.43	8.583	16.46	14.583	2.10	20.58	1.23
2.667	1.43	8.667	16.46	14.667	2.10	20.67	1.23
2.750	1.47	8.750	13.31	14.750	2.05	20.75	1.22
2.833	1.47	8.833	13.31	14.833	2.05	20.83	1.22
2.917	1.51	8.917	11.20	14.917	2.01	20.92	1.21
3.000	1.51	9.000	11.20	15.000	2.01	21.00	1.21
3.083	1.55	9.083	9.70	15.083	1.97	21.08	1.20
3.167	1.55	9.167	9.70	15.167	1.97	21.17	1.20
3.250	1.60	9.250	8.57	15.250	1.94	21.25	1.18
3.333	1.60	9.333	8.57	15.333	1.94	21.33	1.18
3.417	1.64	9.417	7.69	15.417	1.90	21.42	1.17
3.500	1.64	9.500	7.69	15.500	1.90	21.50	1.17
3.583	1.70	9.583	6.99	15.583	1.87	21.58	1.16
3.667	1.70	9.667	6.99	15.667	1.87	21.67	1.16

3.750	1.75	9.750	6.41	15.750	1.83	21.75	1.15
3.833	1.75	9.833	6.41	15.833	1.83	21.83	1.15
3.917	1.81	9.917	5.93	15.917	1.80	21.92	1.14
4.000	1.81	10.000	5.93	16.000	1.80	22.00	1.14
4.083	1.88	10.083	5.52	16.083	1.77	22.08	1.13
4.167	1.88	10.167	5.52	16.167	1.77	22.17	1.13
4.250	1.95	10.250	5.16	16.250	1.74	22.25	1.11
4.333	1.95	10.333	5.16	16.333	1.74	22.33	1.11
4.417	2.03	10.417	4.86	16.417	1.71	22.42	1.10
4.500	2.03	10.500	4.86	16.500	1.71	22.50	1.10
4.583	2.12	10.583	4.59	16.583	1.69	22.58	1.09
4.667	2.12	10.667	4.59	16.667	1.69	22.67	1.09
4.750	2.21	10.750	4.35	16.750	1.66	22.75	1.08
4.833	2.21	10.833	4.35	16.833	1.66	22.83	1.08
4.917	2.31	10.917	4.14	16.917	1.63	22.92	1.07
5.000	2.31	11.000	4.14	17.000	1.63	23.00	1.07
5.083	2.43	11.083	3.95	17.083	1.61	23.08	1.06
5.167	2.43	11.167	3.95	17.167	1.61	23.17	1.06
5.250	2.56	11.250	3.78	17.250	1.59	23.25	1.06
5.333	2.56	11.333	3.78	17.333	1.59	23.33	1.06
5.417	2.71	11.417	3.62	17.417	1.56	23.42	1.05
5.500	2.71	11.500	3.62	17.500	1.56	23.50	1.05
5.583	2.87	11.583	3.48	17.583	1.54	23.58	1.04
5.667	2.87	11.667	3.48	17.667	1.54	23.67	1.04
5.750	3.06	11.750	3.35	17.750	1.52	23.75	1.03
5.833	3.06	11.833	3.35	17.833	1.52	23.83	1.03
5.917	3.29	11.917	3.23	17.917	1.50	23.92	1.02
6.000	3.29	12.000	3.23	18.000	1.50	24.00	1.02

Unit Hyd Qpeak (cms)= 0.012

PEAK FLOW (cms)= 0.010 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 78.541
TOTAL RAINFALL (mm)= 117.763
RUNOFF COEFFICIENT = 0.667

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

CALIB
STANDHYD (0001) | Area (ha)= 0.27
ID= 1 DT= 5.0 min | Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.17	0.10
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	42.43	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	1.04	6.083	3.55	12.083	3.12	18.08	1.48
0.167	1.04	6.167	3.55	12.167	3.12	18.17	1.48
0.250	1.06	6.250	3.86	12.250	3.02	18.25	1.46
0.333	1.06	6.333	3.86	12.333	3.02	18.33	1.46
0.417	1.08	6.417	4.24	12.417	2.92	18.42	1.44
0.500	1.08	6.500	4.24	12.500	2.92	18.50	1.44
0.583	1.10	6.583	4.72	12.583	2.83	18.58	1.42
0.667	1.10	6.667	4.72	12.667	2.83	18.67	1.42
0.750	1.12	6.750	5.33	12.750	2.75	18.75	1.40
0.833	1.12	6.833	5.33	12.833	2.75	18.83	1.40
0.917	1.14	6.917	6.16	12.917	2.67	18.92	1.38
1.000	1.14	7.000	6.16	13.000	2.67	19.00	1.38
1.083	1.16	7.083	7.33	13.083	2.60	19.08	1.37
1.167	1.16	7.167	7.33	13.167	2.60	19.17	1.37
1.250	1.19	7.250	9.12	13.250	2.53	19.25	1.35
1.333	1.19	7.333	9.12	13.333	2.53	19.33	1.35
1.417	1.21	7.417	12.24	13.417	2.46	19.42	1.34
1.500	1.21	7.500	12.24	13.500	2.46	19.50	1.34
1.583	1.24	7.583	19.05	13.583	2.40	19.58	1.32
1.667	1.24	7.667	19.05	13.667	2.40	19.67	1.32
1.750	1.27	7.750	45.51	13.750	2.34	19.75	1.30
1.833	1.27	7.833	45.52	13.833	2.34	19.83	1.30
1.917	1.30	7.917	155.24	13.917	2.29	19.92	1.29
2.000	1.30	8.000	155.23	14.000	2.29	20.00	1.29
2.083	1.33	8.083	59.23	14.083	2.24	20.08	1.27
2.167	1.33	8.167	59.23	14.167	2.24	20.17	1.27
2.250	1.36	8.250	31.85	14.250	2.19	20.25	1.26
2.333	1.36	8.333	31.85	14.333	2.19	20.33	1.26
2.417	1.39	8.417	21.68	14.417	2.14	20.42	1.25
2.500	1.39	8.500	21.68	14.500	2.14	20.50	1.25
2.583	1.43	8.583	16.46	14.583	2.10	20.58	1.23
2.667	1.43	8.667	16.46	14.667	2.10	20.67	1.23
2.750	1.47	8.750	13.31	14.750	2.05	20.75	1.22
2.833	1.47	8.833	13.31	14.833	2.05	20.83	1.22
2.917	1.51	8.917	11.20	14.917	2.01	20.92	1.21
3.000	1.51	9.000	11.20	15.000	2.01	21.00	1.21
3.083	1.55	9.083	9.70	15.083	1.97	21.08	1.20
3.167	1.55	9.167	9.70	15.167	1.97	21.17	1.20
3.250	1.60	9.250	8.57	15.250	1.94	21.25	1.18
3.333	1.60	9.333	8.57	15.333	1.94	21.33	1.18
3.417	1.64	9.417	7.69	15.417	1.90	21.42	1.17
3.500	1.64	9.500	7.69	15.500	1.90	21.50	1.17

3.583	1.70	9.583	6.99	15.583	1.87	21.58	1.16
3.667	1.70	9.667	6.99	15.667	1.87	21.67	1.16
3.750	1.75	9.750	6.41	15.750	1.83	21.75	1.15
3.833	1.75	9.833	6.41	15.833	1.83	21.83	1.15
3.917	1.81	9.917	5.93	15.917	1.80	21.92	1.14
4.000	1.81	10.000	5.93	16.000	1.80	22.00	1.14
4.083	1.88	10.083	5.52	16.083	1.77	22.08	1.13
4.167	1.88	10.167	5.52	16.167	1.77	22.17	1.13
4.250	1.95	10.250	5.16	16.250	1.74	22.25	1.11
4.333	1.95	10.333	5.16	16.333	1.74	22.33	1.11
4.417	2.03	10.417	4.86	16.417	1.71	22.42	1.10
4.500	2.03	10.500	4.86	16.500	1.71	22.50	1.10
4.583	2.12	10.583	4.59	16.583	1.69	22.58	1.09
4.667	2.12	10.667	4.59	16.667	1.69	22.67	1.09
4.750	2.21	10.750	4.35	16.750	1.66	22.75	1.08
4.833	2.21	10.833	4.35	16.833	1.66	22.83	1.08
4.917	2.31	10.917	4.14	16.917	1.63	22.92	1.07
5.000	2.31	11.000	4.14	17.000	1.63	23.00	1.07
5.083	2.43	11.083	3.95	17.083	1.61	23.08	1.06
5.167	2.43	11.167	3.95	17.167	1.61	23.17	1.06
5.250	2.56	11.250	3.78	17.250	1.59	23.25	1.06
5.333	2.56	11.333	3.78	17.333	1.59	23.33	1.06
5.417	2.71	11.417	3.62	17.417	1.56	23.42	1.05
5.500	2.71	11.500	3.62	17.500	1.56	23.50	1.05
5.583	2.87	11.583	3.48	17.583	1.54	23.58	1.04
5.667	2.87	11.667	3.48	17.667	1.54	23.67	1.04
5.750	3.06	11.750	3.35	17.750	1.52	23.75	1.03
5.833	3.06	11.833	3.35	17.833	1.52	23.83	1.03
5.917	3.29	11.917	3.23	17.917	1.50	23.92	1.02
6.000	3.29	12.000	3.23	18.000	1.50	24.00	1.02

Max.Eff.Inten.(mm/hr)=		155.24	105.93	
over (min)		5.00	10.00	
Storage Coeff. (min)=		1.28 (ii)	5.98 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.33	0.15	
				TOTALS
PEAK FLOW	(cms)=	0.07	0.02	0.095 (iii)
TIME TO PEAK	(hrs)=	8.00	8.08	8.00
RUNOFF VOLUME	(mm)=	116.76	78.91	103.12
TOTAL RAINFALL	(mm)=	117.76	117.76	117.76
RUNOFF COEFFICIENT	=	0.99	0.67	0.88

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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 (0014) | Area (ha)= 0.72
ID= 1 DT= 5.0 min | Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.71	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	69.28	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	1.04	6.083	3.55	12.083	3.12	18.08	1.48
0.167	1.04	6.167	3.55	12.167	3.12	18.17	1.48
0.250	1.06	6.250	3.86	12.250	3.02	18.25	1.46
0.333	1.06	6.333	3.86	12.333	3.02	18.33	1.46
0.417	1.08	6.417	4.24	12.417	2.92	18.42	1.44
0.500	1.08	6.500	4.24	12.500	2.92	18.50	1.44
0.583	1.10	6.583	4.72	12.583	2.83	18.58	1.42
0.667	1.10	6.667	4.72	12.667	2.83	18.67	1.42
0.750	1.12	6.750	5.33	12.750	2.75	18.75	1.40
0.833	1.12	6.833	5.33	12.833	2.75	18.83	1.40
0.917	1.14	6.917	6.16	12.917	2.67	18.92	1.38
1.000	1.14	7.000	6.16	13.000	2.67	19.00	1.38
1.083	1.16	7.083	7.33	13.083	2.60	19.08	1.37
1.167	1.16	7.167	7.33	13.167	2.60	19.17	1.37
1.250	1.19	7.250	9.12	13.250	2.53	19.25	1.35
1.333	1.19	7.333	9.12	13.333	2.53	19.33	1.35
1.417	1.21	7.417	12.24	13.417	2.46	19.42	1.34
1.500	1.21	7.500	12.24	13.500	2.46	19.50	1.34
1.583	1.24	7.583	19.05	13.583	2.40	19.58	1.32
1.667	1.24	7.667	19.05	13.667	2.40	19.67	1.32
1.750	1.27	7.750	45.51	13.750	2.34	19.75	1.30
1.833	1.27	7.833	45.52	13.833	2.34	19.83	1.30
1.917	1.30	7.917	155.24	13.917	2.29	19.92	1.29
2.000	1.30	8.000	155.23	14.000	2.29	20.00	1.29
2.083	1.33	8.083	59.23	14.083	2.24	20.08	1.27
2.167	1.33	8.167	59.23	14.167	2.24	20.17	1.27
2.250	1.36	8.250	31.85	14.250	2.19	20.25	1.26
2.333	1.36	8.333	31.85	14.333	2.19	20.33	1.26
2.417	1.39	8.417	21.68	14.417	2.14	20.42	1.25
2.500	1.39	8.500	21.68	14.500	2.14	20.50	1.25

2.583	1.43	8.583	16.46	14.583	2.10	20.58	1.23
2.667	1.43	8.667	16.46	14.667	2.10	20.67	1.23
2.750	1.47	8.750	13.31	14.750	2.05	20.75	1.22
2.833	1.47	8.833	13.31	14.833	2.05	20.83	1.22
2.917	1.51	8.917	11.20	14.917	2.01	20.92	1.21
3.000	1.51	9.000	11.20	15.000	2.01	21.00	1.21
3.083	1.55	9.083	9.70	15.083	1.97	21.08	1.20
3.167	1.55	9.167	9.70	15.167	1.97	21.17	1.20
3.250	1.60	9.250	8.57	15.250	1.94	21.25	1.18
3.333	1.60	9.333	8.57	15.333	1.94	21.33	1.18
3.417	1.64	9.417	7.69	15.417	1.90	21.42	1.17
3.500	1.64	9.500	7.69	15.500	1.90	21.50	1.17
3.583	1.70	9.583	6.99	15.583	1.87	21.58	1.16
3.667	1.70	9.667	6.99	15.667	1.87	21.67	1.16
3.750	1.75	9.750	6.41	15.750	1.83	21.75	1.15
3.833	1.75	9.833	6.41	15.833	1.83	21.83	1.15
3.917	1.81	9.917	5.93	15.917	1.80	21.92	1.14
4.000	1.81	10.000	5.93	16.000	1.80	22.00	1.14
4.083	1.88	10.083	5.52	16.083	1.77	22.08	1.13
4.167	1.88	10.167	5.52	16.167	1.77	22.17	1.13
4.250	1.95	10.250	5.16	16.250	1.74	22.25	1.11
4.333	1.95	10.333	5.16	16.333	1.74	22.33	1.11
4.417	2.03	10.417	4.86	16.417	1.71	22.42	1.10
4.500	2.03	10.500	4.86	16.500	1.71	22.50	1.10
4.583	2.12	10.583	4.59	16.583	1.69	22.58	1.09
4.667	2.12	10.667	4.59	16.667	1.69	22.67	1.09
4.750	2.21	10.750	4.35	16.750	1.66	22.75	1.08
4.833	2.21	10.833	4.35	16.833	1.66	22.83	1.08
4.917	2.31	10.917	4.14	16.917	1.63	22.92	1.07
5.000	2.31	11.000	4.14	17.000	1.63	23.00	1.07
5.083	2.43	11.083	3.95	17.083	1.61	23.08	1.06
5.167	2.43	11.167	3.95	17.167	1.61	23.17	1.06
5.250	2.56	11.250	3.78	17.250	1.59	23.25	1.06
5.333	2.56	11.333	3.78	17.333	1.59	23.33	1.06
5.417	2.71	11.417	3.62	17.417	1.56	23.42	1.05
5.500	2.71	11.500	3.62	17.500	1.56	23.50	1.05
5.583	2.87	11.583	3.48	17.583	1.54	23.58	1.04
5.667	2.87	11.667	3.48	17.667	1.54	23.67	1.04
5.750	3.06	11.750	3.35	17.750	1.52	23.75	1.03
5.833	3.06	11.833	3.35	17.833	1.52	23.83	1.03
5.917	3.29	11.917	3.23	17.917	1.50	23.92	1.02
6.000	3.29	12.000	3.23	18.000	1.50	24.00	1.02

Max.Eff.Inten.(mm/hr)=	155.24	105.93	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.72 (ii)	2.66 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.32	0.29	
			TOTALS
PEAK FLOW (cms)=	0.31	0.00	0.309 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	116.76	78.91	116.38
TOTAL RAINFALL (mm)=	117.76	117.76	117.76
RUNOFF COEFFICIENT =	0.99	0.67	0.99

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0020)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0190	0.0255
	0.0000	0.0025	0.0200	0.0280
	0.0080	0.0051	0.0210	0.0306
	0.0100	0.0076	0.0220	0.0331
	0.0120	0.0102	0.0230	0.0357
	0.0140	0.0127	0.0240	0.0382
	0.0150	0.0153	0.0250	0.0407
	0.0160	0.0178	0.0250	0.0433
	0.0170	0.0204	0.0260	0.0455
	0.0180	0.0229	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0014)	0.720	0.309	8.00	116.38
OUTFLOW: ID= 1 (0020)	0.720	0.025	8.83	112.75

PEAK FLOW REDUCTION [Qout/Qin](%)= 8.09
TIME SHIFT OF PEAK FLOW (min)= 50.00
MAXIMUM STORAGE USED (ha.m.)= 0.0407

CALIB			
STANDHYD (0016)	Area (ha)= 0.77		
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00	
	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	0.76	0.01	
Dep. Storage (mm)=	1.00	5.00	
Average Slope (%)=	1.00	2.00	
Length (m)=	71.65	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	1.04	6.083	3.55	12.083	3.12	18.08	1.48
0.167	1.04	6.167	3.55	12.167	3.12	18.17	1.48
0.250	1.06	6.250	3.86	12.250	3.02	18.25	1.46
0.333	1.06	6.333	3.86	12.333	3.02	18.33	1.46
0.417	1.08	6.417	4.24	12.417	2.92	18.42	1.44
0.500	1.08	6.500	4.24	12.500	2.92	18.50	1.44
0.583	1.10	6.583	4.72	12.583	2.83	18.58	1.42
0.667	1.10	6.667	4.72	12.667	2.83	18.67	1.42
0.750	1.12	6.750	5.33	12.750	2.75	18.75	1.40
0.833	1.12	6.833	5.33	12.833	2.75	18.83	1.40
0.917	1.14	6.917	6.16	12.917	2.67	18.92	1.38
1.000	1.14	7.000	6.16	13.000	2.67	19.00	1.38
1.083	1.16	7.083	7.33	13.083	2.60	19.08	1.37
1.167	1.16	7.167	7.33	13.167	2.60	19.17	1.37
1.250	1.19	7.250	9.12	13.250	2.53	19.25	1.35
1.333	1.19	7.333	9.12	13.333	2.53	19.33	1.35
1.417	1.21	7.417	12.24	13.417	2.46	19.42	1.34
1.500	1.21	7.500	12.24	13.500	2.46	19.50	1.34
1.583	1.24	7.583	19.05	13.583	2.40	19.58	1.32
1.667	1.24	7.667	19.05	13.667	2.40	19.67	1.32
1.750	1.27	7.750	45.51	13.750	2.34	19.75	1.30
1.833	1.27	7.833	45.52	13.833	2.34	19.83	1.30
1.917	1.30	7.917	155.24	13.917	2.29	19.92	1.29
2.000	1.30	8.000	155.23	14.000	2.29	20.00	1.29
2.083	1.33	8.083	59.23	14.083	2.24	20.08	1.27
2.167	1.33	8.167	59.23	14.167	2.24	20.17	1.27
2.250	1.36	8.250	31.85	14.250	2.19	20.25	1.26
2.333	1.36	8.333	31.85	14.333	2.19	20.33	1.26
2.417	1.39	8.417	21.68	14.417	2.14	20.42	1.25
2.500	1.39	8.500	21.68	14.500	2.14	20.50	1.25
2.583	1.43	8.583	16.46	14.583	2.10	20.58	1.23
2.667	1.43	8.667	16.46	14.667	2.10	20.67	1.23
2.750	1.47	8.750	13.31	14.750	2.05	20.75	1.22
2.833	1.47	8.833	13.31	14.833	2.05	20.83	1.22
2.917	1.51	8.917	11.20	14.917	2.01	20.92	1.21
3.000	1.51	9.000	11.20	15.000	2.01	21.00	1.21
3.083	1.55	9.083	9.70	15.083	1.97	21.08	1.20
3.167	1.55	9.167	9.70	15.167	1.97	21.17	1.20
3.250	1.60	9.250	8.57	15.250	1.94	21.25	1.18
3.333	1.60	9.333	8.57	15.333	1.94	21.33	1.18
3.417	1.64	9.417	7.69	15.417	1.90	21.42	1.17
3.500	1.64	9.500	7.69	15.500	1.90	21.50	1.17
3.583	1.70	9.583	6.99	15.583	1.87	21.58	1.16
3.667	1.70	9.667	6.99	15.667	1.87	21.67	1.16
3.750	1.75	9.750	6.41	15.750	1.83	21.75	1.15
3.833	1.75	9.833	6.41	15.833	1.83	21.83	1.15
3.917	1.81	9.917	5.93	15.917	1.80	21.92	1.14
4.000	1.81	10.000	5.93	16.000	1.80	22.00	1.14
4.083	1.88	10.083	5.52	16.083	1.77	22.08	1.13
4.167	1.88	10.167	5.52	16.167	1.77	22.17	1.13
4.250	1.95	10.250	5.16	16.250	1.74	22.25	1.11
4.333	1.95	10.333	5.16	16.333	1.74	22.33	1.11
4.417	2.03	10.417	4.86	16.417	1.71	22.42	1.10
4.500	2.03	10.500	4.86	16.500	1.71	22.50	1.10
4.583	2.12	10.583	4.59	16.583	1.69	22.58	1.09
4.667	2.12	10.667	4.59	16.667	1.69	22.67	1.09
4.750	2.21	10.750	4.35	16.750	1.66	22.75	1.08
4.833	2.21	10.833	4.35	16.833	1.66	22.83	1.08
4.917	2.31	10.917	4.14	16.917	1.63	22.92	1.07
5.000	2.31	11.000	4.14	17.000	1.63	23.00	1.07
5.083	2.43	11.083	3.95	17.083	1.61	23.08	1.06
5.167	2.43	11.167	3.95	17.167	1.61	23.17	1.06
5.250	2.56	11.250	3.78	17.250	1.59	23.25	1.06
5.333	2.56	11.333	3.78	17.333	1.59	23.33	1.06
5.417	2.71	11.417	3.62	17.417	1.56	23.42	1.05
5.500	2.71	11.500	3.62	17.500	1.56	23.50	1.05
5.583	2.87	11.583	3.48	17.583	1.54	23.58	1.04
5.667	2.87	11.667	3.48	17.667	1.54	23.67	1.04
5.750	3.06	11.750	3.35	17.750	1.52	23.75	1.03
5.833	3.06	11.833	3.35	17.833	1.52	23.83	1.03
5.917	3.29	11.917	3.23	17.917	1.50	23.92	1.02
6.000	3.29	12.000	3.23	18.000	1.50	24.00	1.02

Max.Eff.Inten.(mm/hr)=	155.24	105.93	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.75 (ii)	2.70 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.32	0.29	
			TOTALS
PEAK FLOW (cms)=	0.33	0.00	0.330 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	116.76	78.91	116.38
TOTAL RAINFALL (mm)=	117.76	117.76	117.76
RUNOFF COEFFICIENT =	0.99	0.67	0.99

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| RESERVOIR(  0017)|     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   |    0.0190      0.0279
                          0.0000      0.0028   |    0.0200      0.0307
                          0.0080      0.0056   |    0.0210      0.0334
                          0.0100      0.0084   |    0.0220      0.0362
                          0.0120      0.0111   |    0.0230      0.0390
                          0.0140      0.0139   |    0.0240      0.0418
                          0.0150      0.0167   |    0.0250      0.0446
                          0.0160      0.0195   |    0.0250      0.0474
                          0.0170      0.0223   |    0.0260      0.0498
                          0.0180      0.0251   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0016)     0.770     0.330      8.00     116.38
   OUTFLOW: ID= 1 (  0017)     0.770     0.025      8.92     112.66

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.56
                  TIME SHIFT OF PEAK FLOW         (min)= 55.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0446

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| CALIB            |
| STANDHYD (  0021)|   Area    (ha)=   0.44
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
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                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.44         0.00
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      54.16        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    1.04 | 6.083    3.55 |12.083    3.12 | 18.08    1.48
               0.167    1.04 | 6.167    3.55 |12.167    3.12 | 18.17    1.48
               0.250    1.06 | 6.250    3.86 |12.250    3.02 | 18.25    1.46
               0.333    1.06 | 6.333    3.86 |12.333    3.02 | 18.33    1.46
               0.417    1.08 | 6.417    4.24 |12.417    2.92 | 18.42    1.44
               0.500    1.08 | 6.500    4.24 |12.500    2.92 | 18.50    1.44
               0.583    1.10 | 6.583    4.72 |12.583    2.83 | 18.58    1.42
               0.667    1.10 | 6.667    4.72 |12.667    2.83 | 18.67    1.42
               0.750    1.12 | 6.750    5.33 |12.750    2.75 | 18.75    1.40
               0.833    1.12 | 6.833    5.33 |12.833    2.75 | 18.83    1.40
               0.917    1.14 | 6.917    6.16 |12.917    2.67 | 18.92    1.38
               1.000    1.14 | 7.000    6.16 |13.000    2.67 | 19.00    1.38
               1.083    1.16 | 7.083    7.33 |13.083    2.60 | 19.08    1.37
               1.167    1.16 | 7.167    7.33 |13.167    2.60 | 19.17    1.37
               1.250    1.19 | 7.250    9.12 |13.250    2.53 | 19.25    1.35
               1.333    1.19 | 7.333    9.12 |13.333    2.53 | 19.33    1.35
               1.417    1.21 | 7.417   12.24 |13.417    2.46 | 19.42    1.34
               1.500    1.21 | 7.500   12.24 |13.500    2.46 | 19.50    1.34
               1.583    1.24 | 7.583   19.05 |13.583    2.40 | 19.58    1.32
               1.667    1.24 | 7.667   19.05 |13.667    2.40 | 19.67    1.32
               1.750    1.27 | 7.750   45.51 |13.750    2.34 | 19.75    1.30
               1.833    1.27 | 7.833   45.52 |13.833    2.34 | 19.83    1.30
               1.917    1.30 | 7.917  155.24 |13.917    2.29 | 19.92    1.29
               2.000    1.30 | 8.000  155.23 |14.000    2.29 | 20.00    1.29
               2.083    1.33 | 8.083   59.23 |14.083    2.24 | 20.08    1.27
               2.167    1.33 | 8.167   59.23 |14.167    2.24 | 20.17    1.27
               2.250    1.36 | 8.250   31.85 |14.250    2.19 | 20.25    1.26
               2.333    1.36 | 8.333   31.85 |14.333    2.19 | 20.33    1.26
               2.417    1.39 | 8.417   21.68 |14.417    2.14 | 20.42    1.25
               2.500    1.39 | 8.500   21.68 |14.500    2.14 | 20.50    1.25
               2.583    1.43 | 8.583   16.46 |14.583    2.10 | 20.58    1.23
               2.667    1.43 | 8.667   16.46 |14.667    2.10 | 20.67    1.23
               2.750    1.47 | 8.750   13.31 |14.750    2.05 | 20.75    1.22
               2.833    1.47 | 8.833   13.31 |14.833    2.05 | 20.83    1.22
               2.917    1.51 | 8.917   11.20 |14.917    2.01 | 20.92    1.21
               3.000    1.51 | 9.000   11.20 |15.000    2.01 | 21.00    1.21
               3.083    1.55 | 9.083    9.70 |15.083    1.97 | 21.08    1.20
               3.167    1.55 | 9.167    9.70 |15.167    1.97 | 21.17    1.20
               3.250    1.60 | 9.250    8.57 |15.250    1.94 | 21.25    1.18
               3.333    1.60 | 9.333    8.57 |15.333    1.94 | 21.33    1.18
               3.417    1.64 | 9.417    7.69 |15.417    1.90 | 21.42    1.17
               3.500    1.64 | 9.500    7.69 |15.500    1.90 | 21.50    1.17
               3.583    1.70 | 9.583    6.99 |15.583    1.87 | 21.58    1.16
               3.667    1.70 | 9.667    6.99 |15.667    1.87 | 21.67    1.16
               3.750    1.75 | 9.750    6.41 |15.750    1.83 | 21.75    1.15
               3.833    1.75 | 9.833    6.41 |15.833    1.83 | 21.83    1.15
               3.917    1.81 | 9.917    5.93 |15.917    1.80 | 21.92    1.14
               4.000    1.81 |10.000    5.93 |16.000    1.80 | 22.00    1.14
               4.083    1.88 |10.083    5.52 |16.083    1.77 | 22.08    1.13
               4.167    1.88 |10.167    5.52 |16.167    1.77 | 22.17    1.13
               4.250    1.95 |10.250    5.16 |16.250    1.74 | 22.25    1.11
               4.333    1.95 |10.333    5.16 |16.333    1.74 | 22.33    1.11
               4.417    2.03 |10.417    4.86 |16.417    1.71 | 22.42    1.10
               4.500    2.03 |10.500    4.86 |16.500    1.71 | 22.50    1.10
               4.583    2.12 |10.583    4.59 |16.583    1.69 | 22.58    1.09
               4.667    2.12 |10.667    4.59 |16.667    1.69 | 22.67    1.09
               4.750    2.21 |10.750    4.35 |16.750    1.66 | 22.75    1.08
               4.833    2.21 |10.833    4.35 |16.833    1.66 | 22.83    1.08
               4.917    2.31 |10.917    4.14 |16.917    1.63 | 22.92    1.07
               5.000    2.31 |11.000    4.14 |17.000    1.63 | 23.00    1.07
               5.083    2.43 |11.083    3.95 |17.083    1.61 | 23.08    1.06
               5.167    2.43 |11.167    3.95 |17.167    1.61 | 23.17    1.06
               5.250    2.56 |11.250    3.78 |17.250    1.59 | 23.25    1.06
               5.333    2.56 |11.333    3.78 |17.333    1.59 | 23.33    1.06
               5.417    2.71 |11.417    3.62 |17.417    1.56 | 23.42    1.05
               5.500    2.71 |11.500    3.62 |17.500    1.56 | 23.50    1.05
               5.583    2.87 |11.583    3.48 |17.583    1.54 | 23.58    1.04
               5.667    2.87 |11.667    3.48 |17.667    1.54 | 23.67    1.04
               5.750    3.06 |11.750    3.35 |17.750    1.52 | 23.75    1.03
               5.833    3.06 |11.833    3.35 |17.833    1.52 | 23.83    1.03
               5.917    3.29 |11.917    3.23 |17.917    1.50 | 23.92    1.02
               6.000    3.29 |12.000    3.23 |18.000    1.50 | 24.00    1.02

     Max.Eff.Inten.(mm/hr)=     155.24       105.93
                 over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.48 (ii)    2.42 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.30
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.19         0.00          0.189 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.00            8.00
     RUNOFF VOLUME    (mm)=     116.76        78.91          116.38
     TOTAL RAINFALL   (mm)=     117.76       117.76          117.76
     RUNOFF COEFFICIENT   =       0.99         0.67            0.99

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  84.0    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  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):     0.27   0.095     8.00   103.12
     + ID2= 2 (  0017):     0.77   0.025     8.92   112.66
       ================================================
       ID = 3 (  0022):     1.04   0.114     8.00   110.18

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):     1.04   0.114     8.00   110.18
     + ID2= 2 (  0019):     0.80   0.025     9.00   108.54
       ================================================
       ID = 1 (  0022):     1.84   0.133     8.00   109.47

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0022):     1.84   0.133     8.00   109.47
     + ID2= 2 (  0020):     0.72   0.025     8.83   112.75
       ================================================
       ID = 3 (  0022):     2.56   0.152     8.00   110.39

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):     2.56   0.152     8.00   110.39
     + ID2= 2 (  0021):     0.44   0.189     8.00   116.38
       ================================================
       ID = 1 (  0022):     3.00   0.341     8.00   111.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0022):     3.00   0.341     8.00   111.27
     + ID2= 2 (  0036):     0.14   0.027     8.08    78.55
       ================================================
       ID = 3 (  0022):     3.14   0.364     8.00   109.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
```

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--------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):     3.14   0.364     8.00   109.81
     + ID2= 2 (  0039):     0.05   0.010     8.08    78.54
       ================================================
       ID = 1 (  0022):     3.19   0.373     8.00   109.32

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     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   |   0.1440     0.0413
                           0.0980     0.0206   |   0.0000     0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0022)     3.190     0.373     8.00     109.32
   OUTFLOW: ID= 1 (  0002)     3.190     0.134     8.42     109.31

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 36.04
                TIME SHIFT OF PEAK FLOW         (min)= 25.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.0370

-------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0035)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0002):     3.19   0.134     8.42   109.31
     + ID2= 2 (  0030):     0.59   0.116     8.00    86.67
       ================================================
       ID = 3 (  0035):     3.78   0.226     8.17   105.77

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
===============================================================================
========================

      V    V   I    SSSSS  U   U    A    L              (v 6.2.2016)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL
```

```
       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\schhom\AppData\Local\Civica\VH5\c4784722-8666-4e89-8a43-7d10dc9357ef\cad8
9aaf-c1c1-441f-951a-9d53e10ce3fb\scena
  Summary filename:
C:\Users\schhom\AppData\Local\Civica\VH5\c4784722-8666-4e89-8a43-7d10dc9357ef\cad8
9aaf-c1c1-441f-951a-9d53e10ce3fb\scena


DATE: 10-15-2024                          TIME: 11:03:49

USER:


COMMENTS: _____


-------------------------------------------------------------------------------
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  ***********************************************
  ** SIMULATION : 5yr_24hr Chicago             **
  ***********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 946.460
| Ptotal= 73.43 mm |                          B=   7.000
--------------------                          C=   0.788
                         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
```

0.00	0.67	6.00	2.23	12.00	1.97	18.00	0.95
0.17	0.68	6.17	2.42	12.17	1.91	18.17	0.94
0.33	0.70	6.33	2.65	12.33	1.85	18.33	0.93
0.50	0.71	6.50	2.94	12.50	1.79	18.50	0.91
0.67	0.72	6.67	3.31	12.67	1.74	18.67	0.90
0.83	0.74	6.83	3.80	12.83	1.69	18.83	0.89
1.00	0.75	7.00	4.50	13.00	1.65	19.00	0.88
1.17	0.77	7.17	5.55	13.17	1.61	19.17	0.87
1.33	0.78	7.33	7.36	13.33	1.57	19.33	0.86
1.50	0.80	7.50	11.29	13.50	1.53	19.50	0.85
1.67	0.82	7.67	26.88	13.67	1.49	19.67	0.84
1.83	0.83	7.83	101.51	13.83	1.46	19.83	0.83
2.00	0.85	8.00	35.11	14.00	1.43	20.00	0.82
2.17	0.87	8.17	18.70	14.17	1.39	20.17	0.81
2.33	0.90	8.33	12.80	14.33	1.37	20.33	0.80
2.50	0.92	8.50	9.80	14.50	1.34	20.50	0.80
2.67	0.94	8.67	7.98	14.67	1.31	20.67	0.79
2.83	0.97	8.83	6.76	14.83	1.29	20.83	0.78
3.00	0.99	9.00	5.89	15.00	1.26	21.00	0.77
3.17	1.02	9.17	5.23	15.17	1.24	21.17	0.76
3.33	1.05	9.33	4.71	15.33	1.21	21.33	0.76
3.50	1.09	9.50	4.29	15.50	1.19	21.50	0.75
3.67	1.12	9.67	3.95	15.67	1.17	21.67	0.74
3.83	1.16	9.83	3.66	15.83	1.15	21.83	0.73
4.00	1.20	10.00	3.42	16.00	1.13	22.00	0.73
4.17	1.25	10.17	3.21	16.17	1.12	22.17	0.72
4.33	1.30	10.33	3.03	16.33	1.10	22.33	0.71
4.50	1.35	10.50	2.86	16.50	1.08	22.50	0.71
4.67	1.41	10.67	2.72	16.67	1.06	22.67	0.70
4.83	1.47	10.83	2.59	16.83	1.05	22.83	0.69
5.00	1.54	11.00	2.48	17.00	1.03	23.00	0.69
5.17	1.62	11.17	2.37	17.17	1.02	23.17	0.68
5.33	1.72	11.33	2.28	17.33	1.00	23.33	0.68
5.50	1.82	11.50	2.19	17.50	0.99	23.50	0.67
5.67	1.93	11.67	2.11	17.67	0.98	23.67	0.67
5.83	2.07	11.83	2.04	17.83	0.96	23.83	0.66

```
-------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0026)|   Area    (ha)=   0.28   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.22

         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	0.67	6.083	2.23	12.083	1.97	18.08	0.95
0.167	0.67	6.167	2.23	12.167	1.97	18.17	0.95
0.250	0.68	6.250	2.42	12.250	1.91	18.25	0.94
0.333	0.68	6.333	2.42	12.333	1.91	18.33	0.94
0.417	0.70	6.417	2.65	12.417	1.85	18.42	0.93
0.500	0.70	6.500	2.65	12.500	1.85	18.50	0.93
0.583	0.71	6.583	2.94	12.583	1.79	18.58	0.91
0.667	0.71	6.667	2.94	12.667	1.79	18.67	0.91
0.750	0.72	6.750	3.31	12.750	1.74	18.75	0.90
0.833	0.72	6.833	3.31	12.833	1.74	18.83	0.90
0.917	0.74	6.917	3.80	12.917	1.69	18.92	0.89
1.000	0.74	7.000	3.80	13.000	1.69	19.00	0.89
1.083	0.75	7.083	4.50	13.083	1.65	19.08	0.88
1.167	0.75	7.167	4.50	13.167	1.65	19.17	0.88
1.250	0.77	7.250	5.55	13.250	1.61	19.25	0.87
1.333	0.77	7.333	5.55	13.333	1.61	19.33	0.87
1.417	0.78	7.417	7.36	13.417	1.57	19.42	0.86
1.500	0.78	7.500	7.36	13.500	1.57	19.50	0.86
1.583	0.80	7.583	11.29	13.583	1.53	19.58	0.85
1.667	0.80	7.667	11.29	13.667	1.53	19.67	0.85
1.750	0.82	7.750	26.88	13.750	1.49	19.75	0.84
1.833	0.82	7.833	26.89	13.833	1.49	19.83	0.84
1.917	0.83	7.917	101.51	13.917	1.46	19.92	0.83
2.000	0.83	8.000	101.51	14.000	1.46	20.00	0.83
2.083	0.85	8.083	35.11	14.083	1.43	20.08	0.82
2.167	0.85	8.167	35.11	14.167	1.43	20.17	0.82
2.250	0.87	8.250	18.70	14.250	1.39	20.25	0.81
2.333	0.87	8.333	18.70	14.333	1.39	20.33	0.81
2.417	0.90	8.417	12.80	14.417	1.37	20.42	0.80
2.500	0.90	8.500	12.80	14.500	1.37	20.50	0.80
2.583	0.92	8.583	9.80	14.583	1.34	20.58	0.80
2.667	0.92	8.667	9.80	14.667	1.34	20.67	0.80
2.750	0.94	8.750	7.98	14.750	1.31	20.75	0.79
2.833	0.94	8.833	7.98	14.833	1.31	20.83	0.79
2.917	0.97	8.917	6.76	14.917	1.29	20.92	0.78
3.000	0.97	9.000	6.76	15.000	1.29	21.00	0.78
3.083	0.99	9.083	5.89	15.083	1.26	21.08	0.77
3.167	0.99	9.167	5.89	15.167	1.26	21.17	0.77
3.250	1.02	9.250	5.23	15.250	1.24	21.25	0.76
3.333	1.02	9.333	5.23	15.333	1.24	21.33	0.76
3.417	1.05	9.417	4.71	15.417	1.21	21.42	0.76
3.500	1.05	9.500	4.71	15.500	1.21	21.50	0.76
3.583	1.09	9.583	4.29	15.583	1.19	21.58	0.75
3.667	1.09	9.667	4.29	15.667	1.19	21.67	0.75
3.750	1.12	9.750	3.95	15.750	1.17	21.75	0.74
3.833	1.12	9.833	3.95	15.833	1.17	21.83	0.74
3.917	1.16	9.917	3.66	15.917	1.15	21.92	0.73
4.000	1.16	10.000	3.66	16.000	1.15	22.00	0.73
4.083	1.20	10.083	3.42	16.083	1.13	22.08	0.73

4.167	1.20	10.167	3.42	16.167	1.13	22.17	0.73
4.250	1.25	10.250	3.21	16.250	1.12	22.25	0.72
4.333	1.25	10.333	3.21	16.333	1.12	22.33	0.72
4.417	1.30	10.417	3.03	16.417	1.10	22.42	0.71
4.500	1.30	10.500	3.03	16.500	1.10	22.50	0.71
4.583	1.35	10.583	2.86	16.583	1.08	22.58	0.71
4.667	1.35	10.667	2.86	16.667	1.08	22.67	0.71
4.750	1.41	10.750	2.72	16.750	1.06	22.75	0.70
4.833	1.41	10.833	2.72	16.833	1.06	22.83	0.70
4.917	1.47	10.917	2.59	16.917	1.05	22.92	0.69
5.000	1.47	11.000	2.59	17.000	1.05	23.00	0.69
5.083	1.54	11.083	2.48	17.083	1.03	23.08	0.69
5.167	1.54	11.167	2.48	17.167	1.03	23.17	0.69
5.250	1.62	11.250	2.37	17.250	1.02	23.25	0.68
5.333	1.62	11.333	2.37	17.333	1.02	23.33	0.68
5.417	1.72	11.417	2.28	17.417	1.00	23.42	0.68
5.500	1.72	11.500	2.28	17.500	1.00	23.50	0.68
5.583	1.82	11.583	2.19	17.583	0.99	23.58	0.67
5.667	1.82	11.667	2.19	17.667	0.99	23.67	0.67
5.750	1.93	11.750	2.11	17.750	0.98	23.75	0.67
5.833	1.93	11.833	2.11	17.833	0.98	23.83	0.67
5.917	2.07	11.917	2.04	17.917	0.96	23.92	0.66
6.000	2.07	12.000	2.04	18.000	0.96	24.00	0.66

Unit Hyd Qpeak (cms)= 0.049

PEAK FLOW (cms)= 0.022 (i)
TIME TO PEAK (hrs)= 8.167
RUNOFF VOLUME (mm)= 40.032
TOTAL RAINFALL (mm)= 73.428
RUNOFF COEFFICIENT = 0.545

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

CALIB							
NASHYD (0029)	Area (ha)= 0.18	Curve Number (CN)= 84.0					
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00					
	U.H. Tp(hrs)= 0.17						

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	0.67	6.083	2.23	12.083	1.97	18.08	0.95
0.167	0.67	6.167	2.23	12.167	1.97	18.17	0.95
0.250	0.68	6.250	2.42	12.250	1.91	18.25	0.94
0.333	0.68	6.333	2.42	12.333	1.91	18.33	0.94
0.417	0.70	6.417	2.65	12.417	1.85	18.42	0.93
0.500	0.70	6.500	2.65	12.500	1.85	18.50	0.93
0.583	0.71	6.583	2.94	12.583	1.79	18.58	0.91
0.667	0.71	6.667	2.94	12.667	1.79	18.67	0.91
0.750	0.72	6.750	3.31	12.750	1.74	18.75	0.90
0.833	0.72	6.833	3.31	12.833	1.74	18.83	0.90
0.917	0.74	6.917	3.80	12.917	1.69	18.92	0.89
1.000	0.74	7.000	3.80	13.000	1.69	19.00	0.89
1.083	0.75	7.083	4.50	13.083	1.65	19.08	0.88
1.167	0.75	7.167	4.50	13.167	1.65	19.17	0.88
1.250	0.77	7.250	5.55	13.250	1.61	19.25	0.87
1.333	0.77	7.333	5.55	13.333	1.61	19.33	0.87
1.417	0.78	7.417	7.36	13.417	1.57	19.42	0.86
1.500	0.78	7.500	7.36	13.500	1.57	19.50	0.86
1.583	0.80	7.583	11.29	13.583	1.53	19.58	0.85
1.667	0.80	7.667	11.29	13.667	1.53	19.67	0.85
1.750	0.82	7.750	26.88	13.750	1.49	19.75	0.84
1.833	0.82	7.833	26.89	13.833	1.49	19.83	0.84
1.917	0.83	7.917	101.51	13.917	1.46	19.92	0.83
2.000	0.83	8.000	101.51	14.000	1.46	20.00	0.83
2.083	0.85	8.083	35.11	14.083	1.43	20.08	0.82
2.167	0.85	8.167	35.11	14.167	1.43	20.17	0.82
2.250	0.87	8.250	18.70	14.250	1.39	20.25	0.81
2.333	0.87	8.333	18.70	14.333	1.39	20.33	0.81
2.417	0.90	8.417	12.80	14.417	1.37	20.42	0.80
2.500	0.90	8.500	12.80	14.500	1.37	20.50	0.80
2.583	0.92	8.583	9.80	14.583	1.34	20.58	0.80
2.667	0.92	8.667	9.80	14.667	1.34	20.67	0.80
2.750	0.94	8.750	7.98	14.750	1.31	20.75	0.79
2.833	0.94	8.833	7.98	14.833	1.31	20.83	0.79
2.917	0.97	8.917	6.76	14.917	1.29	20.92	0.78
3.000	0.97	9.000	6.76	15.000	1.29	21.00	0.78
3.083	0.99	9.083	5.89	15.083	1.26	21.08	0.77
3.167	0.99	9.167	5.89	15.167	1.26	21.17	0.77
3.250	1.02	9.250	5.23	15.250	1.24	21.25	0.76
3.333	1.02	9.333	5.23	15.333	1.24	21.33	0.76
3.417	1.05	9.417	4.71	15.417	1.21	21.42	0.76
3.500	1.05	9.500	4.71	15.500	1.21	21.50	0.76
3.583	1.09	9.583	4.29	15.583	1.19	21.58	0.75
3.667	1.09	9.667	4.29	15.667	1.19	21.67	0.75
3.750	1.12	9.750	3.95	15.750	1.17	21.75	0.74
3.833	1.12	9.833	3.95	15.833	1.17	21.83	0.74
3.917	1.16	9.917	3.66	15.917	1.15	21.92	0.73
4.000	1.16	10.000	3.66	16.000	1.15	22.00	0.73
4.083	1.20	10.083	3.42	16.083	1.13	22.08	0.73
4.167	1.20	10.167	3.42	16.167	1.13	22.17	0.73
4.250	1.25	10.250	3.21	16.250	1.12	22.25	0.72
4.333	1.25	10.333	3.21	16.333	1.12	22.33	0.72
4.417	1.30	10.417	3.03	16.417	1.10	22.42	0.71
4.500	1.30	10.500	3.03	16.500	1.10	22.50	0.71
4.583	1.35	10.583	2.86	16.583	1.08	22.58	0.71
4.667	1.35	10.667	2.86	16.667	1.08	22.67	0.71
4.750	1.41	10.750	2.72	16.750	1.06	22.75	0.70
4.833	1.41	10.833	2.72	16.833	1.06	22.83	0.70
4.917	1.47	10.917	2.59	16.917	1.05	22.92	0.69
5.000	1.47	11.000	2.59	17.000	1.05	23.00	0.69
5.083	1.54	11.083	2.48	17.083	1.03	23.08	0.69
5.167	1.54	11.167	2.48	17.167	1.03	23.17	0.69
5.250	1.62	11.250	2.37	17.250	1.02	23.25	0.68
5.333	1.62	11.333	2.37	17.333	1.02	23.33	0.68
5.417	1.72	11.417	2.28	17.417	1.00	23.42	0.68
5.500	1.72	11.500	2.28	17.500	1.00	23.50	0.68
5.583	1.82	11.583	2.19	17.583	0.99	23.58	0.67
5.667	1.82	11.667	2.19	17.667	0.99	23.67	0.67
5.750	1.93	11.750	2.11	17.750	0.98	23.75	0.67
5.833	1.93	11.833	2.11	17.833	0.98	23.83	0.67
5.917	2.07	11.917	2.04	17.917	0.96	23.92	0.66
6.000	2.07	12.000	2.04	18.000	0.96	24.00	0.66

Unit Hyd Qpeak (cms)= 0.040

PEAK FLOW (cms)= 0.016 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 39.941
TOTAL RAINFALL (mm)= 73.428
RUNOFF COEFFICIENT = 0.544

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

CALIB							
STANDHYD (0028)	Area (ha)= 0.08						
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00					

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.08	0.00
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	23.09	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	0.67	6.083	2.23	12.083	1.97	18.08	0.95
0.167	0.67	6.167	2.23	12.167	1.97	18.17	0.95
0.250	0.68	6.250	2.42	12.250	1.91	18.25	0.94
0.333	0.68	6.333	2.42	12.333	1.91	18.33	0.94
0.417	0.70	6.417	2.65	12.417	1.85	18.42	0.93
0.500	0.70	6.500	2.65	12.500	1.85	18.50	0.93
0.583	0.71	6.583	2.94	12.583	1.79	18.58	0.91
0.667	0.71	6.667	2.94	12.667	1.79	18.67	0.91
0.750	0.72	6.750	3.31	12.750	1.74	18.75	0.90
0.833	0.72	6.833	3.31	12.833	1.74	18.83	0.90
0.917	0.74	6.917	3.80	12.917	1.69	18.92	0.89
1.000	0.74	7.000	3.80	13.000	1.69	19.00	0.89
1.083	0.75	7.083	4.50	13.083	1.65	19.08	0.88
1.167	0.75	7.167	4.50	13.167	1.65	19.17	0.88
1.250	0.77	7.250	5.55	13.250	1.61	19.25	0.87
1.333	0.77	7.333	5.55	13.333	1.61	19.33	0.87
1.417	0.78	7.417	7.36	13.417	1.57	19.42	0.86
1.500	0.78	7.500	7.36	13.500	1.57	19.50	0.86
1.583	0.80	7.583	11.29	13.583	1.53	19.58	0.85
1.667	0.80	7.667	11.29	13.667	1.53	19.67	0.85
1.750	0.82	7.750	26.88	13.750	1.49	19.75	0.84
1.833	0.82	7.833	26.89	13.833	1.49	19.83	0.84
1.917	0.83	7.917	101.51	13.917	1.46	19.92	0.83
2.000	0.83	8.000	101.51	14.000	1.46	20.00	0.83
2.083	0.85	8.083	35.11	14.083	1.43	20.08	0.82
2.167	0.85	8.167	35.11	14.167	1.43	20.17	0.82
2.250	0.87	8.250	18.70	14.250	1.39	20.25	0.81
2.333	0.87	8.333	18.70	14.333	1.39	20.33	0.81
2.417	0.90	8.417	12.80	14.417	1.37	20.42	0.80
2.500	0.90	8.500	12.80	14.500	1.37	20.50	0.80
2.583	0.92	8.583	9.80	14.583	1.34	20.58	0.80
2.667	0.92	8.667	9.80	14.667	1.34	20.67	0.80
2.750	0.94	8.750	7.98	14.750	1.31	20.75	0.79
2.833	0.94	8.833	7.98	14.833	1.31	20.83	0.79
2.917	0.97	8.917	6.76	14.917	1.29	20.92	0.78
3.000	0.97	9.000	6.76	15.000	1.29	21.00	0.78
3.083	0.99	9.083	5.89	15.083	1.26	21.08	0.77
3.167	0.99	9.167	5.89	15.167	1.26	21.17	0.77
3.250	1.02	9.250	5.23	15.250	1.24	21.25	0.76
3.333	1.02	9.333	5.23	15.333	1.24	21.33	0.76
3.417	1.05	9.417	4.71	15.417	1.21	21.42	0.76
3.500	1.05	9.500	4.71	15.500	1.21	21.50	0.76
3.583	1.09	9.583	4.29	15.583	1.19	21.58	0.75
3.667	1.09	9.667	4.29	15.667	1.19	21.67	0.75
3.750	1.12	9.750	3.95	15.750	1.17	21.75	0.74
3.833	1.12	9.833	3.95	15.833	1.17	21.83	0.74
3.917	1.16	9.917	3.66	15.917	1.15	21.92	0.73
4.000	1.16	10.000	3.66	16.000	1.15	22.00	0.73
4.083	1.20	10.083	3.42	16.083	1.13	22.08	0.73
4.167	1.20	10.167	3.42	16.167	1.13	22.17	0.73
4.250	1.25	10.250	3.21	16.250	1.12	22.25	0.72

4.333	1.25	10.333	3.21	16.333	1.12	22.33	0.72
4.417	1.30	10.417	3.03	16.417	1.10	22.42	0.71
4.500	1.30	10.500	3.03	16.500	1.10	22.50	0.71
4.583	1.35	10.583	2.86	16.583	1.08	22.58	0.71
4.667	1.35	10.667	2.86	16.667	1.08	22.67	0.71
4.750	1.41	10.750	2.72	16.750	1.06	22.75	0.70
4.833	1.41	10.833	2.72	16.833	1.06	22.83	0.70
4.917	1.47	10.917	2.59	16.917	1.05	22.92	0.69
5.000	1.47	11.000	2.59	17.000	1.05	23.00	0.69
5.083	1.54	11.083	2.48	17.083	1.03	23.08	0.69
5.167	1.54	11.167	2.48	17.167	1.03	23.17	0.69
5.250	1.62	11.250	2.37	17.250	1.02	23.25	0.68
5.333	1.62	11.333	2.37	17.333	1.02	23.33	0.68
5.417	1.72	11.417	2.28	17.417	1.00	23.42	0.68
5.500	1.72	11.500	2.28	17.500	1.00	23.50	0.68
5.583	1.82	11.583	2.19	17.583	0.99	23.58	0.67
5.667	1.82	11.667	2.19	17.667	0.99	23.67	0.67
5.750	1.93	11.750	2.11	17.750	0.98	23.75	0.67
5.833	1.93	11.833	2.11	17.833	0.98	23.83	0.67
5.917	2.07	11.917	2.04	17.917	0.96	23.92	0.66
6.000	2.07	12.000	2.04	18.000	0.96	24.00	0.66

Max.Eff.Inten.(mm/hr)=	101.51	53.13	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.05 (ii)	2.17 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.31	
			TOTALS
PEAK FLOW (cms)=	0.02	0.00	0.022 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	72.43	40.09	72.10
TOTAL RAINFALL (mm)=	73.43	73.43	73.43
RUNOFF COEFFICIENT =	0.99	0.55	0.98

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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 (0037)	Area (ha)=	0.04	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.04	0.00
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	16.33	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	0.67	6.083	2.23	12.083	1.97	18.08	0.95
0.167	0.67	6.167	2.23	12.167	1.97	18.17	0.95
0.250	0.68	6.250	2.42	12.250	1.91	18.25	0.94
0.333	0.68	6.333	2.42	12.333	1.91	18.33	0.94
0.417	0.70	6.417	2.65	12.417	1.85	18.42	0.93
0.500	0.70	6.500	2.65	12.500	1.85	18.50	0.93
0.583	0.71	6.583	2.94	12.583	1.79	18.58	0.91
0.667	0.71	6.667	2.94	12.667	1.79	18.67	0.91
0.750	0.72	6.750	3.31	12.750	1.74	18.75	0.90
0.833	0.72	6.833	3.31	12.833	1.74	18.83	0.90
0.917	0.74	6.917	3.80	12.917	1.69	18.92	0.89
1.000	0.74	7.000	3.80	13.000	1.69	19.00	0.89
1.083	0.75	7.083	4.50	13.083	1.65	19.08	0.88
1.167	0.75	7.167	4.50	13.167	1.65	19.17	0.88
1.250	0.77	7.250	5.55	13.250	1.61	19.25	0.87
1.333	0.77	7.333	5.55	13.333	1.61	19.33	0.87
1.417	0.78	7.417	7.36	13.417	1.57	19.42	0.86
1.500	0.78	7.500	7.36	13.500	1.57	19.50	0.86
1.583	0.80	7.583	11.29	13.583	1.53	19.58	0.85
1.667	0.80	7.667	11.29	13.667	1.53	19.67	0.85
1.750	0.82	7.750	26.88	13.750	1.49	19.75	0.84
1.833	0.82	7.833	26.89	13.833	1.49	19.83	0.84
1.917	0.83	7.917	101.51	13.917	1.46	19.92	0.83
2.000	0.83	8.000	101.51	14.000	1.46	20.00	0.83
2.083	0.85	8.083	35.11	14.083	1.43	20.08	0.82
2.167	0.85	8.167	35.11	14.167	1.43	20.17	0.82
2.250	0.87	8.250	18.70	14.250	1.39	20.25	0.81
2.333	0.87	8.333	18.70	14.333	1.39	20.33	0.81
2.417	0.90	8.417	12.80	14.417	1.37	20.42	0.80
2.500	0.90	8.500	12.80	14.500	1.37	20.50	0.80
2.583	0.92	8.583	9.80	14.583	1.34	20.58	0.80
2.667	0.92	8.667	9.80	14.667	1.34	20.67	0.80
2.750	0.94	8.750	7.98	14.750	1.31	20.75	0.79
2.833	0.94	8.833	7.98	14.833	1.31	20.83	0.79
2.917	0.97	8.917	6.76	14.917	1.29	20.92	0.78
3.000	0.97	9.000	6.76	15.000	1.29	21.00	0.78
3.083	0.99	9.083	5.89	15.083	1.26	21.08	0.77
3.167	0.99	9.167	5.89	15.167	1.26	21.17	0.77
3.250	1.02	9.250	5.23	15.250	1.24	21.25	0.76
3.333	1.02	9.333	5.23	15.333	1.24	21.33	0.76
3.417	1.05	9.417	4.71	15.417	1.21	21.42	0.76
3.500	1.05	9.500	4.71	15.500	1.21	21.50	0.76
3.583	1.09	9.583	4.29	15.583	1.19	21.58	0.75
3.667	1.09	9.667	4.29	15.667	1.19	21.67	0.75
3.750	1.12	9.750	3.95	15.750	1.17	21.75	0.74
3.833	1.12	9.833	3.95	15.833	1.17	21.83	0.74
3.917	1.16	9.917	3.66	15.917	1.15	21.92	0.73
4.000	1.16	10.000	3.66	16.000	1.15	22.00	0.73
4.083	1.20	10.083	3.42	16.083	1.13	22.08	0.73
4.167	1.20	10.167	3.42	16.167	1.13	22.17	0.73
4.250	1.25	10.250	3.21	16.250	1.12	22.25	0.72
4.333	1.25	10.333	3.21	16.333	1.12	22.33	0.72
4.417	1.30	10.417	3.03	16.417	1.10	22.42	0.71
4.500	1.30	10.500	3.03	16.500	1.10	22.50	0.71
4.583	1.35	10.583	2.86	16.583	1.08	22.58	0.71
4.667	1.35	10.667	2.86	16.667	1.08	22.67	0.71
4.750	1.41	10.750	2.72	16.750	1.06	22.75	0.70
4.833	1.41	10.833	2.72	16.833	1.06	22.83	0.70
4.917	1.47	10.917	2.59	16.917	1.05	22.92	0.69
5.000	1.47	11.000	2.59	17.000	1.05	23.00	0.69
5.083	1.54	11.083	2.48	17.083	1.03	23.08	0.69
5.167	1.54	11.167	2.48	17.167	1.03	23.17	0.69
5.250	1.62	11.250	2.37	17.250	1.02	23.25	0.68
5.333	1.62	11.333	2.37	17.333	1.02	23.33	0.68
5.417	1.72	11.417	2.28	17.417	1.00	23.42	0.68
5.500	1.72	11.500	2.28	17.500	1.00	23.50	0.68
5.583	1.82	11.583	2.19	17.583	0.99	23.58	0.67
5.667	1.82	11.667	2.19	17.667	0.99	23.67	0.67
5.750	1.93	11.750	2.11	17.750	0.98	23.75	0.67
5.833	1.93	11.833	2.11	17.833	0.98	23.83	0.67
5.917	2.07	11.917	2.04	17.917	0.96	23.92	0.66
6.000	2.07	12.000	2.04	18.000	0.96	24.00	0.66

Max.Eff.Inten.(mm/hr)=	101.51	59.91	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.86 (ii)	1.97 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.31	
			TOTALS
PEAK FLOW (cms)=	0.01	0.00	0.011 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	72.43	44.31	68.21
TOTAL RAINFALL (mm)=	73.43	73.43	73.43
RUNOFF COEFFICIENT =	0.99	0.60	0.93

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 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 (0038)	Area (ha)=	0.01	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.01	0.00
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	8.16	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	0.67	6.083	2.23	12.083	1.97	18.08	0.95
0.167	0.67	6.167	2.23	12.167	1.97	18.17	0.95
0.250	0.68	6.250	2.42	12.250	1.91	18.25	0.94
0.333	0.68	6.333	2.42	12.333	1.91	18.33	0.94
0.417	0.70	6.417	2.65	12.417	1.85	18.42	0.93
0.500	0.70	6.500	2.65	12.500	1.85	18.50	0.93
0.583	0.71	6.583	2.94	12.583	1.79	18.58	0.91
0.667	0.71	6.667	2.94	12.667	1.79	18.67	0.91
0.750	0.72	6.750	3.31	12.750	1.74	18.75	0.90
0.833	0.72	6.833	3.31	12.833	1.74	18.83	0.90
0.917	0.74	6.917	3.80	12.917	1.69	18.92	0.89
1.000	0.74	7.000	3.80	13.000	1.69	19.00	0.89
1.083	0.75	7.083	4.50	13.083	1.65	19.08	0.88
1.167	0.75	7.167	4.50	13.167	1.65	19.17	0.88
1.250	0.77	7.250	5.55	13.250	1.61	19.25	0.87
1.333	0.77	7.333	5.55	13.333	1.61	19.33	0.87
1.417	0.78	7.417	7.36	13.417	1.57	19.42	0.86
1.500	0.78	7.500	7.36	13.500	1.57	19.50	0.86
1.583	0.80	7.583	11.29	13.583	1.53	19.58	0.85
1.667	0.80	7.667	11.29	13.667	1.53	19.67	0.85
1.750	0.82	7.750	26.88	13.750	1.49	19.75	0.84
1.833	0.82	7.833	26.89	13.833	1.49	19.83	0.84
1.917	0.83	7.917	101.51	13.917	1.46	19.92	0.83
2.000	0.83	8.000	101.51	14.000	1.46	20.00	0.83
2.083	0.85	8.083	35.11	14.083	1.43	20.08	0.82
2.167	0.85	8.167	35.11	14.167	1.43	20.17	0.82
2.250	0.87	8.250	18.70	14.250	1.39	20.25	0.81

2.333	0.87	8.333	18.70	14.333	1.39	20.33	0.81
2.417	0.90	8.417	12.80	14.417	1.37	20.42	0.80
2.500	0.90	8.500	12.80	14.500	1.37	20.50	0.80
2.583	0.92	8.583	9.80	14.583	1.34	20.58	0.80
2.667	0.92	8.667	9.80	14.667	1.34	20.67	0.80
2.750	0.94	8.750	7.98	14.750	1.31	20.75	0.79
2.833	0.94	8.833	7.98	14.833	1.31	20.83	0.79
2.917	0.97	8.917	6.76	14.917	1.29	20.92	0.78
3.000	0.97	9.000	6.76	15.000	1.29	21.00	0.78
3.083	0.99	9.083	5.89	15.083	1.26	21.08	0.77
3.167	0.99	9.167	5.89	15.167	1.26	21.17	0.77
3.250	1.02	9.250	5.23	15.250	1.24	21.25	0.76
3.333	1.02	9.333	5.23	15.333	1.24	21.33	0.76
3.417	1.05	9.417	4.71	15.417	1.21	21.42	0.76
3.500	1.05	9.500	4.71	15.500	1.21	21.50	0.76
3.583	1.09	9.583	4.29	15.583	1.19	21.58	0.75
3.667	1.09	9.667	4.29	15.667	1.19	21.67	0.75
3.750	1.12	9.750	3.95	15.750	1.17	21.75	0.74
3.833	1.12	9.833	3.95	15.833	1.17	21.83	0.74
3.917	1.16	9.917	3.66	15.917	1.15	21.92	0.73
4.000	1.16	10.000	3.66	16.000	1.15	22.00	0.73
4.083	1.20	10.083	3.42	16.083	1.13	22.08	0.73
4.167	1.20	10.167	3.42	16.167	1.13	22.17	0.73
4.250	1.25	10.250	3.21	16.250	1.12	22.25	0.72
4.333	1.25	10.333	3.21	16.333	1.12	22.33	0.72
4.417	1.30	10.417	3.03	16.417	1.10	22.42	0.71
4.500	1.30	10.500	3.03	16.500	1.10	22.50	0.71
4.583	1.35	10.583	2.86	16.583	1.08	22.58	0.71
4.667	1.35	10.667	2.86	16.667	1.08	22.67	0.71
4.750	1.41	10.750	2.72	16.750	1.06	22.75	0.70
4.833	1.41	10.833	2.72	16.833	1.06	22.83	0.70
4.917	1.47	10.917	2.59	16.917	1.05	22.92	0.69
5.000	1.47	11.000	2.59	17.000	1.05	23.00	0.69
5.083	1.54	11.083	2.48	17.083	1.03	23.08	0.69
5.167	1.54	11.167	2.48	17.167	1.03	23.17	0.69
5.250	1.62	11.250	2.37	17.250	1.02	23.25	0.68
5.333	1.62	11.333	2.37	17.333	1.02	23.33	0.68
5.417	1.72	11.417	2.28	17.417	1.00	23.42	0.68
5.500	1.72	11.500	2.28	17.500	1.00	23.50	0.68
5.583	1.82	11.583	2.19	17.583	0.99	23.58	0.67
5.667	1.82	11.667	2.19	17.667	0.99	23.67	0.67
5.750	1.93	11.750	2.11	17.750	0.98	23.75	0.67
5.833	1.93	11.833	2.11	17.833	0.98	23.83	0.67
5.917	2.07	11.917	2.04	17.917	0.96	23.92	0.66
6.000	2.07	12.000	2.04	18.000	0.96	24.00	0.66

Max.Eff.Inten.(mm/hr)=	101.51	59.91
over (min)	5.00	5.00
Storage Coeff. (min)=	0.56 (ii)	1.68 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.34	0.32
		TOTALS
PEAK FLOW (cms)=	0.00	0.00	0.003 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	72.43	44.31	54.23
TOTAL RAINFALL (mm)=	73.43	73.43	73.43
RUNOFF COEFFICIENT =	0.99	0.60	0.74

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 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 (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0026):	0.28	0.022	8.17	40.03
+ ID2= 2 (0028):	0.08	0.022	8.00	72.10
ID = 3 (0030):	0.36	0.038	8.00	47.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	0.36	0.038	8.00	47.16
+ ID2= 2 (0029):	0.18	0.016	8.08	39.94
ID = 1 (0030):	0.54	0.051	8.00	44.75

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	0.54	0.051	8.00	44.75
+ ID2= 2 (0037):	0.04	0.011	8.00	68.21
ID = 3 (0030):	0.58	0.062	8.00	46.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	0.58	0.062	8.00	46.37
+ ID2= 2 (0038):	0.01	0.003	8.00	54.23
ID = 1 (0030):	0.59	0.065	8.00	46.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0031)	Area (ha)=	0.09	Curve Number (CN)=	84.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.17		

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	0.67	6.083	2.23	12.083	1.97	18.08	0.95
0.167	0.67	6.167	2.23	12.167	1.97	18.17	0.95
0.250	0.68	6.250	2.42	12.250	1.91	18.25	0.94
0.333	0.68	6.333	2.42	12.333	1.91	18.33	0.94
0.417	0.70	6.417	2.65	12.417	1.85	18.42	0.93
0.500	0.70	6.500	2.65	12.500	1.85	18.50	0.93
0.583	0.71	6.583	2.94	12.583	1.79	18.58	0.91
0.667	0.71	6.667	2.94	12.667	1.79	18.67	0.91
0.750	0.72	6.750	3.31	12.750	1.74	18.75	0.90
0.833	0.72	6.833	3.31	12.833	1.74	18.83	0.90
0.917	0.74	6.917	3.80	12.917	1.69	18.92	0.89
1.000	0.74	7.000	3.80	13.000	1.69	19.00	0.89
1.083	0.75	7.083	4.50	13.083	1.65	19.08	0.88
1.167	0.75	7.167	4.50	13.167	1.65	19.17	0.88
1.250	0.77	7.250	5.55	13.250	1.61	19.25	0.87
1.333	0.77	7.333	5.55	13.333	1.61	19.33	0.87
1.417	0.78	7.417	7.36	13.417	1.57	19.42	0.86
1.500	0.78	7.500	7.36	13.500	1.57	19.50	0.86
1.583	0.80	7.583	11.29	13.583	1.53	19.58	0.85
1.667	0.80	7.667	11.29	13.667	1.53	19.67	0.85
1.750	0.82	7.750	26.88	13.750	1.49	19.75	0.84
1.833	0.82	7.833	26.89	13.833	1.49	19.83	0.84
1.917	0.83	7.917	101.51	13.917	1.46	19.92	0.83
2.000	0.83	8.000	101.51	14.000	1.46	20.00	0.83
2.083	0.85	8.083	35.11	14.083	1.43	20.08	0.82
2.167	0.85	8.167	35.11	14.167	1.43	20.17	0.82
2.250	0.87	8.250	18.70	14.250	1.39	20.25	0.81
2.333	0.87	8.333	18.70	14.333	1.39	20.33	0.81
2.417	0.90	8.417	12.80	14.417	1.37	20.42	0.80
2.500	0.90	8.500	12.80	14.500	1.37	20.50	0.80
2.583	0.92	8.583	9.80	14.583	1.34	20.58	0.80
2.667	0.92	8.667	9.80	14.667	1.34	20.67	0.80
2.750	0.94	8.750	7.98	14.750	1.31	20.75	0.79
2.833	0.94	8.833	7.98	14.833	1.31	20.83	0.79
2.917	0.97	8.917	6.76	14.917	1.29	20.92	0.78
3.000	0.97	9.000	6.76	15.000	1.29	21.00	0.78
3.083	0.99	9.083	5.89	15.083	1.26	21.08	0.77
3.167	0.99	9.167	5.89	15.167	1.26	21.17	0.77
3.250	1.02	9.250	5.23	15.250	1.24	21.25	0.76
3.333	1.02	9.333	5.23	15.333	1.24	21.33	0.76
3.417	1.05	9.417	4.71	15.417	1.21	21.42	0.76
3.500	1.05	9.500	4.71	15.500	1.21	21.50	0.76
3.583	1.09	9.583	4.29	15.583	1.19	21.58	0.75
3.667	1.09	9.667	4.29	15.667	1.19	21.67	0.75
3.750	1.12	9.750	3.95	15.750	1.17	21.75	0.74
3.833	1.12	9.833	3.95	15.833	1.17	21.83	0.74
3.917	1.16	9.917	3.66	15.917	1.15	21.92	0.73
4.000	1.16	10.000	3.66	16.000	1.15	22.00	0.73
4.083	1.20	10.083	3.42	16.083	1.13	22.08	0.73
4.167	1.20	10.167	3.42	16.167	1.13	22.17	0.73
4.250	1.25	10.250	3.21	16.250	1.12	22.25	0.72
4.333	1.25	10.333	3.21	16.333	1.12	22.33	0.72
4.417	1.30	10.417	3.03	16.417	1.10	22.42	0.71
4.500	1.30	10.500	3.03	16.500	1.10	22.50	0.71
4.583	1.35	10.583	2.86	16.583	1.08	22.58	0.71
4.667	1.35	10.667	2.86	16.667	1.08	22.67	0.71
4.750	1.41	10.750	2.72	16.750	1.06	22.75	0.70
4.833	1.41	10.833	2.72	16.833	1.06	22.83	0.70
4.917	1.47	10.917	2.59	16.917	1.05	22.92	0.69
5.000	1.47	11.000	2.59	17.000	1.05	23.00	0.69
5.083	1.54	11.083	2.48	17.083	1.03	23.08	0.69
5.167	1.54	11.167	2.48	17.167	1.03	23.17	0.69
5.250	1.62	11.250	2.37	17.250	1.02	23.25	0.68
5.333	1.62	11.333	2.37	17.333	1.02	23.33	0.68
5.417	1.72	11.417	2.28	17.417	1.00	23.42	0.68
5.500	1.72	11.500	2.28	17.500	1.00	23.50	0.68
5.583	1.82	11.583	2.19	17.583	0.99	23.58	0.67
5.667	1.82	11.667	2.19	17.667	0.99	23.67	0.67
5.750	1.93	11.750	2.11	17.750	0.98	23.75	0.67
5.833	1.93	11.833	2.11	17.833	0.98	23.83	0.67
5.917	2.07	11.917	2.04	17.917	0.96	23.92	0.66
6.000	2.07	12.000	2.04	18.000	0.96	24.00	0.66

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     Unit Hyd Qpeak  (cms)=   0.020

     PEAK FLOW       (cms)=   0.008 (i)
     TIME TO PEAK    (hrs)=   8.083
     RUNOFF VOLUME    (mm)=  39.939
     TOTAL RAINFALL   (mm)=  73.428
     RUNOFF COEFFICIENT   =   0.544

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

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| CALIB             |
| STANDHYD (  0018)|   Area    (ha)=   0.71
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
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                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.70         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      68.80        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    0.67 | 6.083    2.23 |12.083    1.97 | 18.08    0.95
              0.167    0.67 | 6.167    2.23 |12.167    1.97 | 18.17    0.95
              0.250    0.68 | 6.250    2.42 |12.250    1.91 | 18.25    0.94
              0.333    0.68 | 6.333    2.42 |12.333    1.91 | 18.33    0.94
              0.417    0.70 | 6.417    2.65 |12.417    1.85 | 18.42    0.93
              0.500    0.70 | 6.500    2.65 |12.500    1.85 | 18.50    0.93
              0.583    0.71 | 6.583    2.94 |12.583    1.79 | 18.58    0.91
              0.667    0.71 | 6.667    2.94 |12.667    1.79 | 18.67    0.91
              0.750    0.72 | 6.750    3.31 |12.750    1.74 | 18.75    0.90
              0.833    0.72 | 6.833    3.31 |12.833    1.74 | 18.83    0.90
              0.917    0.74 | 6.917    3.80 |12.917    1.69 | 18.92    0.89
              1.000    0.74 | 7.000    3.80 |13.000    1.69 | 19.00    0.89
              1.083    0.75 | 7.083    4.50 |13.083    1.65 | 19.08    0.88
              1.167    0.75 | 7.167    4.50 |13.167    1.65 | 19.17    0.88
              1.250    0.77 | 7.250    5.55 |13.250    1.61 | 19.25    0.87
              1.333    0.77 | 7.333    5.55 |13.333    1.61 | 19.33    0.87
              1.417    0.78 | 7.417    7.36 |13.417    1.57 | 19.42    0.86
              1.500    0.78 | 7.500    7.36 |13.500    1.57 | 19.50    0.86
              1.583    0.80 | 7.583   11.29 |13.583    1.53 | 19.58    0.85
              1.667    0.80 | 7.667   11.29 |13.667    1.53 | 19.67    0.85
              1.750    0.82 | 7.750   26.88 |13.750    1.49 | 19.75    0.84
              1.833    0.82 | 7.833   26.89 |13.833    1.49 | 19.83    0.84
              1.917    0.83 | 7.917  101.51 |13.917    1.46 | 19.92    0.83
              2.000    0.83 | 8.000  101.51 |14.000    1.46 | 20.00    0.83
              2.083    0.85 | 8.083   35.11 |14.083    1.43 | 20.08    0.82
              2.167    0.85 | 8.167   35.11 |14.167    1.43 | 20.17    0.82
              2.250    0.87 | 8.250   18.70 |14.250    1.39 | 20.25    0.81
              2.333    0.87 | 8.333   18.70 |14.333    1.39 | 20.33    0.81
              2.417    0.90 | 8.417   12.80 |14.417    1.37 | 20.42    0.80
              2.500    0.90 | 8.500   12.80 |14.500    1.37 | 20.50    0.80
              2.583    0.92 | 8.583    9.80 |14.583    1.34 | 20.58    0.80
              2.667    0.92 | 8.667    9.80 |14.667    1.34 | 20.67    0.80
              2.750    0.94 | 8.750    7.98 |14.750    1.31 | 20.75    0.79
              2.833    0.94 | 8.833    7.98 |14.833    1.31 | 20.83    0.79
              2.917    0.97 | 8.917    6.76 |14.917    1.29 | 20.92    0.78
              3.000    0.97 | 9.000    6.76 |15.000    1.29 | 21.00    0.78
              3.083    0.99 | 9.083    5.89 |15.083    1.26 | 21.08    0.77
              3.167    0.99 | 9.167    5.89 |15.167    1.26 | 21.17    0.77
              3.250    1.02 | 9.250    5.23 |15.250    1.24 | 21.25    0.76
              3.333    1.02 | 9.333    5.23 |15.333    1.24 | 21.33    0.76
              3.417    1.05 | 9.417    4.71 |15.417    1.21 | 21.42    0.76
              3.500    1.05 | 9.500    4.71 |15.500    1.21 | 21.50    0.76
              3.583    1.09 | 9.583    4.29 |15.583    1.19 | 21.58    0.75
              3.667    1.09 | 9.667    4.29 |15.667    1.19 | 21.67    0.75
              3.750    1.12 | 9.750    3.95 |15.750    1.17 | 21.75    0.74
              3.833    1.12 | 9.833    3.95 |15.833    1.17 | 21.83    0.74
              3.917    1.16 | 9.917    3.66 |15.917    1.15 | 21.92    0.73
              4.000    1.16 |10.000    3.66 |16.000    1.15 | 22.00    0.73
              4.083    1.20 |10.083    3.42 |16.083    1.13 | 22.08    0.73
              4.167    1.20 |10.167    3.42 |16.167    1.13 | 22.17    0.73
              4.250    1.25 |10.250    3.21 |16.250    1.12 | 22.25    0.72
              4.333    1.25 |10.333    3.21 |16.333    1.12 | 22.33    0.72
              4.417    1.30 |10.417    3.03 |16.417    1.10 | 22.42    0.71
              4.500    1.30 |10.500    3.03 |16.500    1.10 | 22.50    0.71
              4.583    1.35 |10.583    2.86 |16.583    1.08 | 22.58    0.71
              4.667    1.35 |10.667    2.86 |16.667    1.08 | 22.67    0.71
              4.750    1.41 |10.750    2.72 |16.750    1.06 | 22.75    0.70
              4.833    1.41 |10.833    2.72 |16.833    1.06 | 22.83    0.70
              4.917    1.47 |10.917    2.59 |16.917    1.05 | 22.92    0.69
              5.000    1.47 |11.000    2.59 |17.000    1.05 | 23.00    0.69
              5.083    1.54 |11.083    2.48 |17.083    1.03 | 23.08    0.69
              5.167    1.54 |11.167    2.48 |17.167    1.03 | 23.17    0.69
              5.250    1.62 |11.250    2.37 |17.250    1.02 | 23.25    0.68
              5.333    1.62 |11.333    2.37 |17.333    1.02 | 23.33    0.68
              5.417    1.72 |11.417    2.28 |17.417    1.00 | 23.42    0.68
              5.500    1.72 |11.500    2.28 |17.500    1.00 | 23.50    0.68
              5.583    1.82 |11.583    2.19 |17.583    0.99 | 23.58    0.67
              5.667    1.82 |11.667    2.19 |17.667    0.99 | 23.67    0.67
              5.750    1.93 |11.750    2.11 |17.750    0.98 | 23.75    0.67
              5.833    1.93 |11.833    2.11 |17.833    0.98 | 23.83    0.67
              5.917    2.07 |11.917    2.04 |17.917    0.96 | 23.92    0.66
              6.000    2.07 |12.000    2.04 |18.000    0.96 | 24.00    0.66

     Max.Eff.Inten.(mm/hr)=     101.51        53.13
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      2.03 (ii)    3.15 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=      0.31         0.27
                                                    *TOTALS*
     PEAK FLOW       (cms)=      0.20         0.00          0.198 (iii)
     TIME TO PEAK    (hrs)=      8.00         8.00           8.00
     RUNOFF VOLUME    (mm)=     72.43        40.09          72.10
     TOTAL RAINFALL   (mm)=     73.43        73.43          73.43
     RUNOFF COEFFICIENT   =      0.99         0.55           0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  84.0    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  (  0032)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0018):     0.71   0.198     8.00    72.10
      + ID2= 2 (  0031):     0.09   0.008     8.08    39.94
        ================================================
        ID = 3 (  0032):     0.80   0.205     8.00    68.49

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0019)|     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   |    0.0190      0.0279
                          0.0000      0.0028   |    0.0200      0.0307
                          0.0080      0.0056   |    0.0210      0.0335
                          0.0100      0.0084   |    0.0220      0.0363
                          0.0120      0.0112   |    0.0230      0.0391
                          0.0140      0.0140   |    0.0240      0.0419
                          0.0150      0.0168   |    0.0250      0.0447
                          0.0160      0.0196   |    0.0250      0.0475
                          0.0170      0.0223   |    0.0260      0.0499
                          0.0180      0.0251   |    0.0000      0.0000

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
     INFLOW : ID= 2 (  0032)      0.800      0.205      8.00      68.49
     OUTFLOW: ID= 1 (  0019)      0.800      0.018      8.75      64.89

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  8.99
                    TIME SHIFT OF PEAK FLOW          (min)= 45.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.0264

--------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD   (  0036)|   Area    (ha)=   0.14   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.16

         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    0.67 | 6.083    2.23 |12.083    1.97 | 18.08    0.95
              0.167    0.67 | 6.167    2.23 |12.167    1.97 | 18.17    0.95
              0.250    0.68 | 6.250    2.42 |12.250    1.91 | 18.25    0.94
              0.333    0.68 | 6.333    2.42 |12.333    1.91 | 18.33    0.94
              0.417    0.70 | 6.417    2.65 |12.417    1.85 | 18.42    0.93
              0.500    0.70 | 6.500    2.65 |12.500    1.85 | 18.50    0.93
              0.583    0.71 | 6.583    2.94 |12.583    1.79 | 18.58    0.91
              0.667    0.71 | 6.667    2.94 |12.667    1.79 | 18.67    0.91
              0.750    0.72 | 6.750    3.31 |12.750    1.74 | 18.75    0.90
              0.833    0.72 | 6.833    3.31 |12.833    1.74 | 18.83    0.90
              0.917    0.74 | 6.917    3.80 |12.917    1.69 | 18.92    0.89
              1.000    0.74 | 7.000    3.80 |13.000    1.69 | 19.00    0.89
              1.083    0.75 | 7.083    4.50 |13.083    1.65 | 19.08    0.88
              1.167    0.75 | 7.167    4.50 |13.167    1.65 | 19.17    0.88
              1.250    0.77 | 7.250    5.55 |13.250    1.61 | 19.25    0.87
              1.333    0.77 | 7.333    5.55 |13.333    1.61 | 19.33    0.87
              1.417    0.78 | 7.417    7.36 |13.417    1.57 | 19.42    0.86
              1.500    0.78 | 7.500    7.36 |13.500    1.57 | 19.50    0.86
              1.583    0.80 | 7.583   11.29 |13.583    1.53 | 19.58    0.85
              1.667    0.80 | 7.667   11.29 |13.667    1.53 | 19.67    0.85
              1.750    0.82 | 7.750   26.88 |13.750    1.49 | 19.75    0.84
              1.833    0.82 | 7.833   26.89 |13.833    1.49 | 19.83    0.84
              1.917    0.83 | 7.917  101.51 |13.917    1.46 | 19.92    0.83
              2.000    0.83 | 8.000  101.51 |14.000    1.46 | 20.00    0.83
              2.083    0.85 | 8.083   35.11 |14.083    1.43 | 20.08    0.82
              2.167    0.85 | 8.167   35.11 |14.167    1.43 | 20.17    0.82
              2.250    0.87 | 8.250   18.70 |14.250    1.39 | 20.25    0.81
```

2.333	0.87	8.333	18.70	14.333	1.39	20.33	0.81
2.417	0.90	8.417	12.80	14.417	1.37	20.42	0.80
2.500	0.90	8.500	12.80	14.500	1.37	20.50	0.80
2.583	0.92	8.583	9.80	14.583	1.34	20.58	0.80
2.667	0.92	8.667	9.80	14.667	1.34	20.67	0.80
2.750	0.94	8.750	7.98	14.750	1.31	20.75	0.79
2.833	0.94	8.833	7.98	14.833	1.31	20.83	0.79
2.917	0.97	8.917	6.76	14.917	1.29	20.92	0.78
3.000	0.97	9.000	6.76	15.000	1.29	21.00	0.78
3.083	0.99	9.083	5.89	15.083	1.26	21.08	0.77
3.167	0.99	9.167	5.89	15.167	1.26	21.17	0.77
3.250	1.02	9.250	5.23	15.250	1.24	21.25	0.76
3.333	1.02	9.333	5.23	15.333	1.24	21.33	0.76
3.417	1.05	9.417	4.71	15.417	1.21	21.42	0.76
3.500	1.05	9.500	4.71	15.500	1.21	21.50	0.76
3.583	1.09	9.583	4.29	15.583	1.19	21.58	0.75
3.667	1.09	9.667	4.29	15.667	1.19	21.67	0.75
3.750	1.12	9.750	3.95	15.750	1.17	21.75	0.74
3.833	1.12	9.833	3.95	15.833	1.17	21.83	0.74
3.917	1.16	9.917	3.66	15.917	1.15	21.92	0.73
4.000	1.16	10.000	3.66	16.000	1.15	22.00	0.73
4.083	1.20	10.083	3.42	16.083	1.13	22.08	0.73
4.167	1.20	10.167	3.42	16.167	1.13	22.17	0.73
4.250	1.25	10.250	3.21	16.250	1.12	22.25	0.72
4.333	1.25	10.333	3.21	16.333	1.12	22.33	0.72
4.417	1.30	10.417	3.03	16.417	1.10	22.42	0.71
4.500	1.30	10.500	3.03	16.500	1.10	22.50	0.71
4.583	1.35	10.583	2.86	16.583	1.08	22.58	0.71
4.667	1.35	10.667	2.86	16.667	1.08	22.67	0.71
4.750	1.41	10.750	2.72	16.750	1.06	22.75	0.70
4.833	1.41	10.833	2.72	16.833	1.06	22.83	0.70
4.917	1.47	10.917	2.59	16.917	1.05	22.92	0.69
5.000	1.47	11.000	2.59	17.000	1.05	23.00	0.69
5.083	1.54	11.083	2.48	17.083	1.03	23.08	0.69
5.167	1.54	11.167	2.48	17.167	1.03	23.17	0.69
5.250	1.62	11.250	2.37	17.250	1.02	23.25	0.68
5.333	1.62	11.333	2.37	17.333	1.02	23.33	0.68
5.417	1.72	11.417	2.28	17.417	1.00	23.42	0.68
5.500	1.72	11.500	2.28	17.500	1.00	23.50	0.68
5.583	1.82	11.583	2.19	17.583	0.99	23.58	0.67
5.667	1.82	11.667	2.19	17.667	0.99	23.67	0.67
5.750	1.93	11.750	2.11	17.750	0.98	23.75	0.67
5.833	1.93	11.833	2.11	17.833	0.98	23.83	0.67
5.917	2.07	11.917	2.04	17.917	0.96	23.92	0.66
6.000	2.07	12.000	2.04	18.000	0.96	24.00	0.66

Unit Hyd Qpeak (cms)= 0.033

PEAK FLOW (cms)= 0.013 (i)
TIME TO PEAK (hrs)= 8.083

RUNOFF VOLUME (mm)= 39.902
TOTAL RAINFALL (mm)= 73.428
RUNOFF COEFFICIENT = 0.543

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

CALIB			
NASHYD (0039)	Area (ha)=	0.05	Curve Number (CN)= 84.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.16	

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	0.67	6.083	2.23	12.083	1.97	18.08	0.95
0.167	0.67	6.167	2.23	12.167	1.97	18.17	0.95
0.250	0.68	6.250	2.42	12.250	1.91	18.25	0.94
0.333	0.68	6.333	2.42	12.333	1.91	18.33	0.94
0.417	0.70	6.417	2.65	12.417	1.85	18.42	0.93
0.500	0.70	6.500	2.65	12.500	1.85	18.50	0.93
0.583	0.71	6.583	2.94	12.583	1.79	18.58	0.91
0.667	0.71	6.667	2.94	12.667	1.79	18.67	0.91
0.750	0.72	6.750	3.31	12.750	1.74	18.75	0.90
0.833	0.72	6.833	3.31	12.833	1.74	18.83	0.90
0.917	0.74	6.917	3.80	12.917	1.69	18.92	0.89
1.000	0.74	7.000	3.80	13.000	1.69	19.00	0.89
1.083	0.75	7.083	4.50	13.083	1.65	19.08	0.88
1.167	0.75	7.167	4.50	13.167	1.65	19.17	0.88
1.250	0.77	7.250	5.55	13.250	1.61	19.25	0.87
1.333	0.77	7.333	5.55	13.333	1.61	19.33	0.87
1.417	0.78	7.417	7.36	13.417	1.57	19.42	0.86
1.500	0.78	7.500	7.36	13.500	1.57	19.50	0.86
1.583	0.80	7.583	11.29	13.583	1.53	19.58	0.85
1.667	0.80	7.667	11.29	13.667	1.53	19.67	0.85
1.750	0.82	7.750	26.88	13.750	1.49	19.75	0.84
1.833	0.82	7.833	26.89	13.833	1.49	19.83	0.84
1.917	0.83	7.917	101.51	13.917	1.46	19.92	0.83
2.000	0.83	8.000	101.51	14.000	1.46	20.00	0.83
2.083	0.85	8.083	35.11	14.083	1.43	20.08	0.82
2.167	0.85	8.167	35.11	14.167	1.43	20.17	0.82
2.250	0.87	8.250	18.70	14.250	1.39	20.25	0.81
2.333	0.87	8.333	18.70	14.333	1.39	20.33	0.81
2.417	0.90	8.417	12.80	14.417	1.37	20.42	0.80
2.500	0.90	8.500	12.80	14.500	1.37	20.50	0.80
2.583	0.92	8.583	9.80	14.583	1.34	20.58	0.80
2.667	0.92	8.667	9.80	14.667	1.34	20.67	0.80
2.750	0.94	8.750	7.98	14.750	1.31	20.75	0.79
2.833	0.94	8.833	7.98	14.833	1.31	20.83	0.79
2.917	0.97	8.917	6.76	14.917	1.29	20.92	0.78
3.000	0.97	9.000	6.76	15.000	1.29	21.00	0.78
3.083	0.99	9.083	5.89	15.083	1.26	21.08	0.77
3.167	0.99	9.167	5.89	15.167	1.26	21.17	0.77
3.250	1.02	9.250	5.23	15.250	1.24	21.25	0.76
3.333	1.02	9.333	5.23	15.333	1.24	21.33	0.76
3.417	1.05	9.417	4.71	15.417	1.21	21.42	0.76
3.500	1.05	9.500	4.71	15.500	1.21	21.50	0.76
3.583	1.09	9.583	4.29	15.583	1.19	21.58	0.75
3.667	1.09	9.667	4.29	15.667	1.19	21.67	0.75
3.750	1.12	9.750	3.95	15.750	1.17	21.75	0.74
3.833	1.12	9.833	3.95	15.833	1.17	21.83	0.74
3.917	1.16	9.917	3.66	15.917	1.15	21.92	0.73
4.000	1.16	10.000	3.66	16.000	1.15	22.00	0.73
4.083	1.20	10.083	3.42	16.083	1.13	22.08	0.73
4.167	1.20	10.167	3.42	16.167	1.13	22.17	0.73
4.250	1.25	10.250	3.21	16.250	1.12	22.25	0.72
4.333	1.25	10.333	3.21	16.333	1.12	22.33	0.72
4.417	1.30	10.417	3.03	16.417	1.10	22.42	0.71
4.500	1.30	10.500	3.03	16.500	1.10	22.50	0.71
4.583	1.35	10.583	2.86	16.583	1.08	22.58	0.71
4.667	1.35	10.667	2.86	16.667	1.08	22.67	0.71
4.750	1.41	10.750	2.72	16.750	1.06	22.75	0.70
4.833	1.41	10.833	2.72	16.833	1.06	22.83	0.70
4.917	1.47	10.917	2.59	16.917	1.05	22.92	0.69
5.000	1.47	11.000	2.59	17.000	1.05	23.00	0.69
5.083	1.54	11.083	2.48	17.083	1.03	23.08	0.69
5.167	1.54	11.167	2.48	17.167	1.03	23.17	0.69
5.250	1.62	11.250	2.37	17.250	1.02	23.25	0.68
5.333	1.62	11.333	2.37	17.333	1.02	23.33	0.68
5.417	1.72	11.417	2.28	17.417	1.00	23.42	0.68
5.500	1.72	11.500	2.28	17.500	1.00	23.50	0.68
5.583	1.82	11.583	2.19	17.583	0.99	23.58	0.67
5.667	1.82	11.667	2.19	17.667	0.99	23.67	0.67
5.750	1.93	11.750	2.11	17.750	0.98	23.75	0.67
5.833	1.93	11.833	2.11	17.833	0.98	23.83	0.67
5.917	2.07	11.917	2.04	17.917	0.96	23.92	0.66
6.000	2.07	12.000	2.04	18.000	0.96	24.00	0.66

Unit Hyd Qpeak (cms)= 0.012

PEAK FLOW (cms)= 0.005 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 39.898
TOTAL RAINFALL (mm)= 73.428
RUNOFF COEFFICIENT = 0.543

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

CALIB			
STANDHYD (0001)	Area (ha)=	0.27	
ID= 1 DT= 5.0 min	Total Imp(%)=	64.00	Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.17	0.10
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	42.43	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	0.67	6.083	2.23	12.083	1.97	18.08	0.95
0.167	0.67	6.167	2.23	12.167	1.97	18.17	0.95
0.250	0.68	6.250	2.42	12.250	1.91	18.25	0.94
0.333	0.68	6.333	2.42	12.333	1.91	18.33	0.94
0.417	0.70	6.417	2.65	12.417	1.85	18.42	0.93
0.500	0.70	6.500	2.65	12.500	1.85	18.50	0.93
0.583	0.71	6.583	2.94	12.583	1.79	18.58	0.91
0.667	0.71	6.667	2.94	12.667	1.79	18.67	0.91
0.750	0.72	6.750	3.31	12.750	1.74	18.75	0.90
0.833	0.72	6.833	3.31	12.833	1.74	18.83	0.90
0.917	0.74	6.917	3.80	12.917	1.69	18.92	0.89
1.000	0.74	7.000	3.80	13.000	1.69	19.00	0.89
1.083	0.75	7.083	4.50	13.083	1.65	19.08	0.88
1.167	0.75	7.167	4.50	13.167	1.65	19.17	0.88
1.250	0.77	7.250	5.55	13.250	1.61	19.25	0.87
1.333	0.77	7.333	5.55	13.333	1.61	19.33	0.87
1.417	0.78	7.417	7.36	13.417	1.57	19.42	0.86
1.500	0.78	7.500	7.36	13.500	1.57	19.50	0.86
1.583	0.80	7.583	11.29	13.583	1.53	19.58	0.85
1.667	0.80	7.667	11.29	13.667	1.53	19.67	0.85
1.750	0.82	7.750	26.88	13.750	1.49	19.75	0.84
1.833	0.82	7.833	26.89	13.833	1.49	19.83	0.84
1.917	0.83	7.917	101.51	13.917	1.46	19.92	0.83
2.000	0.83	8.000	101.51	14.000	1.46	20.00	0.83
2.083	0.85	8.083	35.11	14.083	1.43	20.08	0.82
2.167	0.85	8.167	35.11	14.167	1.43	20.17	0.82
2.250	0.87	8.250	18.70	14.250	1.39	20.25	0.81
2.333	0.87	8.333	18.70	14.333	1.39	20.33	0.81
2.417	0.90	8.417	12.80	14.417	1.37	20.42	0.80

2.500	0.90	8.500	12.80	14.500	1.37	20.50	0.80
2.583	0.92	8.583	9.80	14.583	1.34	20.58	0.80
2.667	0.92	8.667	9.80	14.667	1.34	20.67	0.80
2.750	0.94	8.750	7.98	14.750	1.31	20.75	0.79
2.833	0.94	8.833	7.98	14.833	1.31	20.83	0.79
2.917	0.97	8.917	6.76	14.917	1.29	20.92	0.78
3.000	0.97	9.000	6.76	15.000	1.29	21.00	0.78
3.083	0.99	9.083	5.89	15.083	1.26	21.08	0.77
3.167	0.99	9.167	5.89	15.167	1.26	21.17	0.77
3.250	1.02	9.250	5.23	15.250	1.24	21.25	0.76
3.333	1.02	9.333	5.23	15.333	1.24	21.33	0.76
3.417	1.05	9.417	4.71	15.417	1.21	21.42	0.76
3.500	1.05	9.500	4.71	15.500	1.21	21.50	0.76
3.583	1.09	9.583	4.29	15.583	1.19	21.58	0.75
3.667	1.09	9.667	4.29	15.667	1.19	21.67	0.75
3.750	1.12	9.750	3.95	15.750	1.17	21.75	0.74
3.833	1.12	9.833	3.95	15.833	1.17	21.83	0.74
3.917	1.16	9.917	3.66	15.917	1.15	21.92	0.73
4.000	1.16	10.000	3.66	16.000	1.15	22.00	0.73
4.083	1.20	10.083	3.42	16.083	1.13	22.08	0.73
4.167	1.20	10.167	3.42	16.167	1.13	22.17	0.73
4.250	1.25	10.250	3.21	16.250	1.12	22.25	0.72
4.333	1.25	10.333	3.21	16.333	1.12	22.33	0.72
4.417	1.30	10.417	3.03	16.417	1.10	22.42	0.71
4.500	1.30	10.500	3.03	16.500	1.10	22.50	0.71
4.583	1.35	10.583	2.86	16.583	1.08	22.58	0.71
4.667	1.35	10.667	2.86	16.667	1.08	22.67	0.71
4.750	1.41	10.750	2.72	16.750	1.06	22.75	0.70
4.833	1.41	10.833	2.72	16.833	1.06	22.83	0.70
4.917	1.47	10.917	2.59	16.917	1.05	22.92	0.69
5.000	1.47	11.000	2.59	17.000	1.05	23.00	0.69
5.083	1.54	11.083	2.48	17.083	1.03	23.08	0.69
5.167	1.54	11.167	2.48	17.167	1.03	23.17	0.69
5.250	1.62	11.250	2.37	17.250	1.02	23.25	0.68
5.333	1.62	11.333	2.37	17.333	1.02	23.33	0.68
5.417	1.72	11.417	2.28	17.417	1.00	23.42	0.68
5.500	1.72	11.500	2.28	17.500	1.00	23.50	0.68
5.583	1.82	11.583	2.19	17.583	0.99	23.58	0.67
5.667	1.82	11.667	2.19	17.667	0.99	23.67	0.67
5.750	1.93	11.750	2.11	17.750	0.98	23.75	0.67
5.833	1.93	11.833	2.11	17.833	0.98	23.83	0.67
5.917	2.07	11.917	2.04	17.917	0.96	23.92	0.66
6.000	2.07	12.000	2.04	18.000	0.96	24.00	0.66

Max.Eff.Inten.(mm/hr)=	101.51	53.13	
over (min)	5.00	15.00	
Storage Coeff. (min)=	1.52 (ii)	10.61 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.33	0.09	
			TOTALS
PEAK FLOW (cms)=	0.05	0.01	0.054 (iii)
TIME TO PEAK (hrs)=	8.00	8.17	8.00
RUNOFF VOLUME (mm)=	72.43	40.09	60.76
TOTAL RAINFALL (mm)=	73.43	73.43	73.43
RUNOFF COEFFICIENT =	0.99	0.55	0.83

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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 (0014)	Area (ha)=	0.72	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.71	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	69.28	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	0.67	6.083	2.23	12.083	1.97	18.08	0.95
0.167	0.67	6.167	2.23	12.167	1.97	18.17	0.95
0.250	0.68	6.250	2.42	12.250	1.91	18.25	0.94
0.333	0.68	6.333	2.42	12.333	1.91	18.33	0.94
0.417	0.70	6.417	2.65	12.417	1.85	18.42	0.93
0.500	0.70	6.500	2.65	12.500	1.85	18.50	0.93
0.583	0.71	6.583	2.94	12.583	1.79	18.58	0.91
0.667	0.71	6.667	2.94	12.667	1.79	18.67	0.91
0.750	0.72	6.750	3.31	12.750	1.74	18.75	0.90
0.833	0.72	6.833	3.31	12.833	1.74	18.83	0.90
0.917	0.74	6.917	3.80	12.917	1.69	18.92	0.89
1.000	0.74	7.000	3.80	13.000	1.69	19.00	0.89
1.083	0.75	7.083	4.50	13.083	1.65	19.08	0.88
1.167	0.75	7.167	4.50	13.167	1.65	19.17	0.88
1.250	0.77	7.250	5.55	13.250	1.61	19.25	0.87
1.333	0.77	7.333	5.55	13.333	1.61	19.33	0.87
1.417	0.78	7.417	7.36	13.417	1.57	19.42	0.86
1.500	0.78	7.500	7.36	13.500	1.57	19.50	0.86
1.583	0.80	7.583	11.29	13.583	1.53	19.58	0.85
1.667	0.80	7.667	11.29	13.667	1.53	19.67	0.85
1.750	0.82	7.750	26.88	13.750	1.49	19.75	0.84
1.833	0.82	7.833	26.89	13.833	1.49	19.83	0.84
1.917	0.83	7.917	101.51	13.917	1.46	19.92	0.83
2.000	0.83	8.000	101.51	14.000	1.46	20.00	0.83
2.083	0.85	8.083	35.11	14.083	1.43	20.08	0.82
2.167	0.85	8.167	35.11	14.167	1.43	20.17	0.82
2.250	0.87	8.250	18.70	14.250	1.39	20.25	0.81
2.333	0.87	8.333	18.70	14.333	1.39	20.33	0.81
2.417	0.90	8.417	12.80	14.417	1.37	20.42	0.80
2.500	0.90	8.500	12.80	14.500	1.37	20.50	0.80
2.583	0.92	8.583	9.80	14.583	1.34	20.58	0.80
2.667	0.92	8.667	9.80	14.667	1.34	20.67	0.80
2.750	0.94	8.750	7.98	14.750	1.31	20.75	0.79
2.833	0.94	8.833	7.98	14.833	1.31	20.83	0.79
2.917	0.97	8.917	6.76	14.917	1.29	20.92	0.78
3.000	0.97	9.000	6.76	15.000	1.29	21.00	0.78
3.083	0.99	9.083	5.89	15.083	1.26	21.08	0.77
3.167	0.99	9.167	5.89	15.167	1.26	21.17	0.77
3.250	1.02	9.250	5.23	15.250	1.24	21.25	0.76
3.333	1.02	9.333	5.23	15.333	1.24	21.33	0.76
3.417	1.05	9.417	4.71	15.417	1.21	21.42	0.76
3.500	1.05	9.500	4.71	15.500	1.21	21.50	0.76
3.583	1.09	9.583	4.29	15.583	1.19	21.58	0.75
3.667	1.09	9.667	4.29	15.667	1.19	21.67	0.75
3.750	1.12	9.750	3.95	15.750	1.17	21.75	0.74
3.833	1.12	9.833	3.95	15.833	1.17	21.83	0.74
3.917	1.16	9.917	3.66	15.917	1.15	21.92	0.73
4.000	1.16	10.000	3.66	16.000	1.15	22.00	0.73
4.083	1.20	10.083	3.42	16.083	1.13	22.08	0.73
4.167	1.20	10.167	3.42	16.167	1.13	22.17	0.73
4.250	1.25	10.250	3.21	16.250	1.12	22.25	0.72
4.333	1.25	10.333	3.21	16.333	1.12	22.33	0.72
4.417	1.30	10.417	3.03	16.417	1.10	22.42	0.71
4.500	1.30	10.500	3.03	16.500	1.10	22.50	0.71
4.583	1.35	10.583	2.86	16.583	1.08	22.58	0.71
4.667	1.35	10.667	2.86	16.667	1.08	22.67	0.71
4.750	1.41	10.750	2.72	16.750	1.06	22.75	0.70
4.833	1.41	10.833	2.72	16.833	1.06	22.83	0.70
4.917	1.47	10.917	2.59	16.917	1.05	22.92	0.69
5.000	1.47	11.000	2.59	17.000	1.05	23.00	0.69
5.083	1.54	11.083	2.48	17.083	1.03	23.08	0.69
5.167	1.54	11.167	2.48	17.167	1.03	23.17	0.69
5.250	1.62	11.250	2.37	17.250	1.02	23.25	0.68
5.333	1.62	11.333	2.37	17.333	1.02	23.33	0.68
5.417	1.72	11.417	2.28	17.417	1.00	23.42	0.68
5.500	1.72	11.500	2.28	17.500	1.00	23.50	0.68
5.583	1.82	11.583	2.19	17.583	0.99	23.58	0.67
5.667	1.82	11.667	2.19	17.667	0.99	23.67	0.67
5.750	1.93	11.750	2.11	17.750	0.98	23.75	0.67
5.833	1.93	11.833	2.11	17.833	0.98	23.83	0.67
5.917	2.07	11.917	2.04	17.917	0.96	23.92	0.66
6.000	2.07	12.000	2.04	18.000	0.96	24.00	0.66

Max.Eff.Inten.(mm/hr)=	101.51	53.13	
over (min)	5.00	5.00	
Storage Coeff. (min)=	2.04 (ii)	3.15 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.31	0.27	
			TOTALS
PEAK FLOW (cms)=	0.20	0.00	0.201 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	72.43	40.09	72.10
TOTAL RAINFALL (mm)=	73.43	73.43	73.43
RUNOFF COEFFICIENT =	0.99	0.55	0.98

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0020)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0190	0.0255
	0.0000	0.0025	0.0200	0.0280
	0.0080	0.0051	0.0210	0.0306
	0.0100	0.0076	0.0220	0.0331
	0.0120	0.0102	0.0230	0.0357
	0.0140	0.0127	0.0240	0.0382
	0.0150	0.0153	0.0250	0.0407
	0.0160	0.0178	0.0250	0.0433
	0.0170	0.0204	0.0260	0.0455
	0.0180	0.0229	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0014)	0.720	0.201	8.00	72.10
OUTFLOW: ID= 1 (0020)	0.720	0.019	8.67	68.46

PEAK FLOW REDUCTION [Qout/Qin](%)= 9.28
TIME SHIFT OF PEAK FLOW (min)= 40.00

MAXIMUM STORAGE USED (ha.m.)= 0.0246

| CALIB
| STANDHYD (0016)| Area (ha)= 0.77
|ID= 1 DT= 5.0 min | Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.76	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	71.65	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	0.67	6.083	2.23	12.083	1.97	18.08	0.95
0.167	0.67	6.167	2.23	12.167	1.97	18.17	0.95
0.250	0.68	6.250	2.42	12.250	1.91	18.25	0.94
0.333	0.68	6.333	2.42	12.333	1.91	18.33	0.94
0.417	0.70	6.417	2.65	12.417	1.85	18.42	0.93
0.500	0.70	6.500	2.65	12.500	1.85	18.50	0.93
0.583	0.71	6.583	2.94	12.583	1.79	18.58	0.91
0.667	0.71	6.667	2.94	12.667	1.79	18.67	0.91
0.750	0.72	6.750	3.31	12.750	1.74	18.75	0.90
0.833	0.72	6.833	3.31	12.833	1.74	18.83	0.90
0.917	0.74	6.917	3.80	12.917	1.69	18.92	0.89
1.000	0.74	7.000	3.80	13.000	1.69	19.00	0.89
1.083	0.75	7.083	4.50	13.083	1.65	19.08	0.88
1.167	0.75	7.167	4.50	13.167	1.65	19.17	0.88
1.250	0.77	7.250	5.55	13.250	1.61	19.25	0.87
1.333	0.77	7.333	5.55	13.333	1.61	19.33	0.87
1.417	0.78	7.417	7.36	13.417	1.57	19.42	0.86
1.500	0.78	7.500	7.36	13.500	1.57	19.50	0.86
1.583	0.80	7.583	11.29	13.583	1.53	19.58	0.85
1.667	0.80	7.667	11.29	13.667	1.53	19.67	0.85
1.750	0.82	7.750	26.88	13.750	1.49	19.75	0.84
1.833	0.82	7.833	26.89	13.833	1.49	19.83	0.84
1.917	0.83	7.917	101.51	13.917	1.46	19.92	0.83
2.000	0.83	8.000	101.51	14.000	1.46	20.00	0.83
2.083	0.85	8.083	35.11	14.083	1.43	20.08	0.82
2.167	0.85	8.167	35.11	14.167	1.43	20.17	0.82
2.250	0.87	8.250	18.70	14.250	1.39	20.25	0.81
2.333	0.87	8.333	18.70	14.333	1.39	20.33	0.81
2.417	0.90	8.417	12.80	14.417	1.37	20.42	0.80
2.500	0.90	8.500	12.80	14.500	1.37	20.50	0.80
2.583	0.92	8.583	9.80	14.583	1.34	20.58	0.80
2.667	0.92	8.667	9.80	14.667	1.34	20.67	0.80
2.750	0.94	8.750	7.98	14.750	1.31	20.75	0.79
2.833	0.94	8.833	7.98	14.833	1.31	20.83	0.79
2.917	0.97	8.917	6.76	14.917	1.29	20.92	0.78
3.000	0.97	9.000	6.76	15.000	1.29	21.00	0.78
3.083	0.99	9.083	5.89	15.083	1.26	21.08	0.77
3.167	0.99	9.167	5.89	15.167	1.26	21.17	0.77
3.250	1.02	9.250	5.23	15.250	1.24	21.25	0.76
3.333	1.02	9.333	5.23	15.333	1.24	21.33	0.76
3.417	1.05	9.417	4.71	15.417	1.21	21.42	0.76
3.500	1.05	9.500	4.71	15.500	1.21	21.50	0.76
3.583	1.09	9.583	4.29	15.583	1.19	21.58	0.75
3.667	1.09	9.667	4.29	15.667	1.19	21.67	0.75
3.750	1.12	9.750	3.95	15.750	1.17	21.75	0.74
3.833	1.12	9.833	3.95	15.833	1.17	21.83	0.74
3.917	1.16	9.917	3.66	15.917	1.15	21.92	0.73
4.000	1.16	10.000	3.66	16.000	1.15	22.00	0.73
4.083	1.20	10.083	3.42	16.083	1.13	22.08	0.73
4.167	1.20	10.167	3.42	16.167	1.13	22.17	0.73
4.250	1.25	10.250	3.21	16.250	1.12	22.25	0.72
4.333	1.25	10.333	3.21	16.333	1.12	22.33	0.72
4.417	1.30	10.417	3.03	16.417	1.10	22.42	0.71
4.500	1.30	10.500	3.03	16.500	1.10	22.50	0.71
4.583	1.35	10.583	2.86	16.583	1.08	22.58	0.71
4.667	1.35	10.667	2.86	16.667	1.08	22.67	0.71
4.750	1.41	10.750	2.72	16.750	1.06	22.75	0.70
4.833	1.41	10.833	2.72	16.833	1.06	22.83	0.70
4.917	1.47	10.917	2.59	16.917	1.05	22.92	0.69
5.000	1.47	11.000	2.59	17.000	1.05	23.00	0.69
5.083	1.54	11.083	2.48	17.083	1.03	23.08	0.69
5.167	1.54	11.167	2.48	17.167	1.03	23.17	0.69
5.250	1.62	11.250	2.37	17.250	1.02	23.25	0.68
5.333	1.62	11.333	2.37	17.333	1.02	23.33	0.68
5.417	1.72	11.417	2.28	17.417	1.00	23.42	0.68
5.500	1.72	11.500	2.28	17.500	1.00	23.50	0.68
5.583	1.82	11.583	2.19	17.583	0.99	23.58	0.67
5.667	1.82	11.667	2.19	17.667	0.99	23.67	0.67
5.750	1.93	11.750	2.11	17.750	0.98	23.75	0.67
5.833	1.93	11.833	2.11	17.833	0.98	23.83	0.67
5.917	2.07	11.917	2.04	17.917	0.96	23.92	0.66
6.000	2.07	12.000	2.04	18.000	0.96	24.00	0.66

			TOTALS
Max.Eff.Inten.(mm/hr)=	101.51	53.13	
over (min)	5.00	5.00	
Storage Coeff. (min)=	2.08 (ii)	3.20 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.31	0.27	
PEAK FLOW (cms)=	0.21	0.00	0.215 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	72.43	40.09	72.10
TOTAL RAINFALL (mm)=	73.43	73.43	73.43
RUNOFF COEFFICIENT =	0.99	0.55	0.98

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| RESERVOIR(0017)| 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	0.0190	0.0279
0.0000	0.0028	0.0200	0.0307
0.0080	0.0056	0.0210	0.0334
0.0100	0.0084	0.0220	0.0362
0.0120	0.0111	0.0230	0.0390
0.0140	0.0139	0.0240	0.0418
0.0150	0.0167	0.0250	0.0446
0.0160	0.0195	0.0250	0.0474
0.0170	0.0223	0.0260	0.0498
0.0180	0.0251	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0016)	0.770	0.215	8.00	72.10
OUTFLOW: ID= 1 (0017)	0.770	0.019	8.75	68.38

PEAK FLOW REDUCTION [Qout/Qin](%)= 8.68
TIME SHIFT OF PEAK FLOW (min)= 45.00
MAXIMUM STORAGE USED (ha.m.)= 0.0269

| CALIB
| STANDHYD (0021)| Area (ha)= 0.44
|ID= 1 DT= 5.0 min | Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.44	0.00
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	54.16	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	0.67	6.083	2.23	12.083	1.97	18.08	0.95
0.167	0.67	6.167	2.23	12.167	1.97	18.17	0.95
0.250	0.68	6.250	2.42	12.250	1.91	18.25	0.94
0.333	0.68	6.333	2.42	12.333	1.91	18.33	0.94
0.417	0.70	6.417	2.65	12.417	1.85	18.42	0.93
0.500	0.70	6.500	2.65	12.500	1.85	18.50	0.93
0.583	0.71	6.583	2.94	12.583	1.79	18.58	0.91
0.667	0.71	6.667	2.94	12.667	1.79	18.67	0.91
0.750	0.72	6.750	3.31	12.750	1.74	18.75	0.90
0.833	0.72	6.833	3.31	12.833	1.74	18.83	0.90
0.917	0.74	6.917	3.80	12.917	1.69	18.92	0.89
1.000	0.74	7.000	3.80	13.000	1.69	19.00	0.89
1.083	0.75	7.083	4.50	13.083	1.65	19.08	0.88
1.167	0.75	7.167	4.50	13.167	1.65	19.17	0.88
1.250	0.77	7.250	5.55	13.250	1.61	19.25	0.87
1.333	0.77	7.333	5.55	13.333	1.61	19.33	0.87
1.417	0.78	7.417	7.36	13.417	1.57	19.42	0.86
1.500	0.78	7.500	7.36	13.500	1.57	19.50	0.86
1.583	0.80	7.583	11.29	13.583	1.53	19.58	0.85
1.667	0.80	7.667	11.29	13.667	1.53	19.67	0.85
1.750	0.82	7.750	26.88	13.750	1.49	19.75	0.84
1.833	0.82	7.833	26.89	13.833	1.49	19.83	0.84
1.917	0.83	7.917	101.51	13.917	1.46	19.92	0.83
2.000	0.83	8.000	101.51	14.000	1.46	20.00	0.83
2.083	0.85	8.083	35.11	14.083	1.43	20.08	0.82
2.167	0.85	8.167	35.11	14.167	1.43	20.17	0.82
2.250	0.87	8.250	18.70	14.250	1.39	20.25	0.81
2.333	0.87	8.333	18.70	14.333	1.39	20.33	0.81
2.417	0.90	8.417	12.80	14.417	1.37	20.42	0.80
2.500	0.90	8.500	12.80	14.500	1.37	20.50	0.80
2.583	0.92	8.583	9.80	14.583	1.34	20.58	0.80
2.667	0.92	8.667	9.80	14.667	1.34	20.67	0.80
2.750	0.94	8.750	7.98	14.750	1.31	20.75	0.79
2.833	0.94	8.833	7.98	14.833	1.31	20.83	0.79
2.917	0.97	8.917	6.76	14.917	1.29	20.92	0.78
3.000	0.97	9.000	6.76	15.000	1.29	21.00	0.78
3.083	0.99	9.083	5.89	15.083	1.26	21.08	0.77
3.167	0.99	9.167	5.89	15.167	1.26	21.17	0.77
3.250	1.02	9.250	5.23	15.250	1.24	21.25	0.76
3.333	1.02	9.333	5.23	15.333	1.24	21.33	0.76
3.417	1.05	9.417	4.71	15.417	1.21	21.42	0.76

3.500	1.05	9.500	4.71	15.500	1.21	21.50	0.76
3.583	1.09	9.583	4.29	15.583	1.19	21.58	0.75
3.667	1.09	9.667	4.29	15.667	1.19	21.67	0.75
3.750	1.12	9.750	3.95	15.750	1.17	21.75	0.74
3.833	1.12	9.833	3.95	15.833	1.17	21.83	0.74
3.917	1.16	9.917	3.66	15.917	1.15	21.92	0.73
4.000	1.16	10.000	3.66	16.000	1.15	22.00	0.73
4.083	1.20	10.083	3.42	16.083	1.13	22.08	0.73
4.167	1.20	10.167	3.42	16.167	1.13	22.17	0.73
4.250	1.25	10.250	3.21	16.250	1.12	22.25	0.72
4.333	1.25	10.333	3.21	16.333	1.12	22.33	0.72
4.417	1.30	10.417	3.03	16.417	1.10	22.42	0.71
4.500	1.30	10.500	3.03	16.500	1.10	22.50	0.71
4.583	1.35	10.583	2.86	16.583	1.08	22.58	0.71
4.667	1.35	10.667	2.86	16.667	1.08	22.67	0.71
4.750	1.41	10.750	2.72	16.750	1.06	22.75	0.70
4.833	1.41	10.833	2.72	16.833	1.06	22.83	0.70
4.917	1.47	10.917	2.59	16.917	1.05	22.92	0.69
5.000	1.47	11.000	2.59	17.000	1.05	23.00	0.69
5.083	1.54	11.083	2.48	17.083	1.03	23.08	0.69
5.167	1.54	11.167	2.48	17.167	1.03	23.17	0.69
5.250	1.62	11.250	2.37	17.250	1.02	23.25	0.68
5.333	1.62	11.333	2.37	17.333	1.02	23.33	0.68
5.417	1.72	11.417	2.28	17.417	1.00	23.42	0.68
5.500	1.72	11.500	2.28	17.500	1.00	23.50	0.68
5.583	1.82	11.583	2.19	17.583	0.99	23.58	0.67
5.667	1.82	11.667	2.19	17.667	0.99	23.67	0.67
5.750	1.93	11.750	2.11	17.750	0.98	23.75	0.67
5.833	1.93	11.833	2.11	17.833	0.98	23.83	0.67
5.917	2.07	11.917	2.04	17.917	0.96	23.92	0.66
6.000	2.07	12.000	2.04	18.000	0.96	24.00	0.66

Max.Eff.Inten.(mm/hr)=	101.51	53.13	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.76 (ii)	2.87 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.32	0.28	
			TOTALS
PEAK FLOW (cms)=	0.12	0.00	0.123 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	72.43	40.09	72.10
TOTAL RAINFALL (mm)=	73.43	73.43	73.43
RUNOFF COEFFICIENT =	0.99	0.55	0.98

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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 (0022)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	0.27	0.054	8.00	60.76
+ ID2= 2 (0017):	0.77	0.019	8.75	68.38
ID = 3 (0022):	1.04	0.069	8.00	66.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0022)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0022):	1.04	0.069	8.00	66.40
+ ID2= 2 (0019):	0.80	0.018	8.75	64.89
ID = 1 (0022):	1.84	0.084	8.00	65.75

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0022)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0022):	1.84	0.084	8.00	65.75
+ ID2= 2 (0020):	0.72	0.019	8.67	68.46
ID = 3 (0022):	2.56	0.100	8.00	66.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0022)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0022):	2.56	0.100	8.00	66.51
+ ID2= 2 (0021):	0.44	0.123	8.00	72.10
ID = 1 (0022):	3.00	0.223	8.00	67.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0022)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	3.00	0.223	8.00	67.33
+ ID2= 2 (0036):	0.14	0.013	8.08	39.90
ID = 3 (0022):	3.14	0.234	8.00	66.11

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0022)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0022):	3.14	0.234	8.00	66.11
+ ID2= 2 (0039):	0.05	0.005	8.08	39.90
ID = 1 (0022):	3.19	0.238	8.00	65.70

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0002)	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	0.1440	0.0413
	0.0980	0.0206	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0022)	3.190	0.238	8.00	65.70
OUTFLOW: ID= 1 (0002)	3.190	0.100	8.33	65.68

PEAK FLOW REDUCTION [Qout/Qin](%)= 41.88
TIME SHIFT OF PEAK FLOW (min)= 20.00
MAXIMUM STORAGE USED (ha.m.)= 0.0215

ADD HYD (0035)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	3.19	0.100	8.33	65.68
+ ID2= 2 (0030):	0.59	0.065	8.00	46.50
ID = 3 (0035):	3.78	0.148	8.17	62.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

V V I SSSSS U U A L (v 6.2.2016)
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL

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

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

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

Output filename:
C:\Users\schhom\AppData\Local\Civica\VH5\c4784722-8666-4e89-8a43-7d10dc9357ef\f6f9d63b-8f3c-437b-b5c0-fd9daad04e6b\scena
Summary filename:
C:\Users\schhom\AppData\Local\Civica\VH5\c4784722-8666-4e89-8a43-7d10dc9357ef\f6f9d63b-8f3c-437b-b5c0-fd9daad04e6b\scena

DATE: 10-15-2024 TIME: 11:03:51

USER:

COMMENTS: _____

****
** SIMULATION : Regional Storm **
****

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|    READ STORM    |    Filename: C:\Users\schhom\AppD
|                  |              ata\Local\Temp\
|                  |              e961c6e4-ab79-4906-8111-09011bd8104d\4c95d2fd
| Ptotal=212.00 mm |    Comments: HAZEL
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```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	6.00	3.00	13.00	6.00	23.00	9.00	53.00
1.00	4.00	4.00	17.00	7.00	13.00	10.00	38.00
2.00	6.00	5.00	13.00	8.00	13.00	11.00	13.00

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| CALIB            |
| NASHYD   (  0026)|   Area    (ha)=   0.28   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.22

        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)=   0.049

     PEAK FLOW       (cms)=   0.038 (i)
     TIME TO PEAK    (hrs)=  10.000
     RUNOFF VOLUME    (mm)= 167.563
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.790

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

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--------------------
| CALIB            |
| NASHYD   (  0029)|   Area    (ha)=   0.18   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.17

        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	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)=   0.040

     PEAK FLOW       (cms)=   0.025 (i)
     TIME TO PEAK    (hrs)=  10.000
     RUNOFF VOLUME    (mm)= 167.184
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.789

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

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--------------------
| CALIB            |
| STANDHYD (  0028)|   Area    (ha)=   0.08
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
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		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.00
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	23.09	40.00
Mannings n	=	0.013	0.250

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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	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	49.90	
over (min)		5.00	5.00	
Storage Coeff. (min)=		1.37 (ii)	2.81 (ii)	
Unit Hyd. Tpeak (min)=		5.00	5.00	
Unit Hyd. peak (cms)=		0.33	0.28	
				TOTALS
PEAK FLOW	(cms)=	0.01	0.00	0.012 (iii)
TIME TO PEAK	(hrs)=	9.33	10.00	10.00
RUNOFF VOLUME	(mm)=	211.00	167.78	210.54

```
     TOTAL RAINFALL   (mm)=     212.00       212.00         212.00
     RUNOFF COEFFICIENT   =       1.00         0.79           0.99

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  84.0    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 (  0037)|   Area    (ha)=   0.04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.04         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      16.33        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        50.33
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.73 (ii)    2.18 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.31
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.001 (iii)
     TIME TO PEAK    (hrs)=       9.33        10.00         10.00
     RUNOFF VOLUME    (mm)=     211.00       173.55        210.61
     TOTAL RAINFALL   (mm)=     212.00       212.00        212.00
     RUNOFF COEFFICIENT   =       1.00         0.82          0.99

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    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 (  0038)|   Area    (ha)=   0.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       8.16        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        50.33
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       1.11 (ii)    2.56 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.29
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.006 (iii)
     TIME TO PEAK    (hrs)=       9.25        10.00         10.00
     RUNOFF VOLUME    (mm)=     211.00       173.55        210.62
     TOTAL RAINFALL   (mm)=     212.00       212.00        212.00
     RUNOFF COEFFICIENT   =       1.00         0.82          0.99

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    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  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0026):     0.28   0.038    10.00   167.56
     + ID2= 2 (  0028):     0.08   0.012    10.00   210.54
       ==========================================
       ID = 3 (  0030):     0.36   0.050    10.00   177.11

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):     0.36   0.050    10.00   177.11
     + ID2= 2 (  0029):     0.18   0.025    10.00   167.18
       ==========================================
       ID = 1 (  0030):     0.54   0.075    10.00   173.80

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0030):     0.54   0.075    10.00   173.80
     + ID2= 2 (  0037):     0.04   0.006    10.00   210.61
       ==========================================
       ID = 3 (  0030):     0.58   0.081    10.00   176.34

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):     0.58   0.081    10.00   176.34
     + ID2= 2 (  0038):     0.01   0.001    10.00   210.62
       ================================================
       ID = 1 (  0030):     0.59   0.082    10.00   176.92

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0031)|   Area    (ha)=   0.09   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.17

        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)=   0.020

     PEAK FLOW       (cms)=   0.012 (i)
     TIME TO PEAK    (hrs)=  10.000
     RUNOFF VOLUME    (mm)= 167.180
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.789

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

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--------------------
| CALIB            |
| STANDHYD (  0018)|   Area    (ha)=   0.71
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.70         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      68.80        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        49.90
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.63 (ii)    4.08 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.29         0.24
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.10         0.00          0.104 (iii)
     TIME TO PEAK    (hrs)=       9.67        10.00          10.00
     RUNOFF VOLUME    (mm)=     211.00       167.78         210.56
     TOTAL RAINFALL   (mm)=     212.00       212.00         212.00
     RUNOFF COEFFICIENT   =       1.00         0.79           0.99

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  84.0    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  (  0032)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0018):     0.71   0.104    10.00   210.56
     + ID2= 2 (  0031):     0.09   0.012    10.00   167.18
       ================================================
       ID = 3 (  0032):     0.80   0.117    10.00   205.68

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0019)|     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   |    0.0190      0.0279
                          0.0000      0.0028   |    0.0200      0.0307
                          0.0080      0.0056   |    0.0210      0.0335
                          0.0100      0.0084   |    0.0220      0.0363
                          0.0120      0.0112   |    0.0230      0.0391
                          0.0140      0.0140   |    0.0240      0.0419
                          0.0150      0.0168   |    0.0250      0.0447
                          0.0160      0.0196   |    0.0250      0.0475
                          0.0170      0.0223   |    0.0260      0.0499
                          0.0180      0.0251   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0032)     0.800     0.117     10.00     205.68
   OUTFLOW: ID= 1 (  0019)     0.800     0.041     11.08     202.09

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 35.35
                TIME SHIFT OF PEAK FLOW         (min)= 65.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.0869

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0036)|   Area    (ha)=   0.14   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.16

        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	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)= 0.033

PEAK FLOW (cms)= 0.019 (i)
TIME TO PEAK (hrs)= 10.000
RUNOFF VOLUME (mm)= 167.026
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.788

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

CALIB			
NASHYD (0039)	Area (ha)=	0.05	Curve Number (CN)= 84.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 0.16

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)= 0.012

PEAK FLOW (cms)= 0.007 (i)
TIME TO PEAK (hrs)= 10.000
RUNOFF VOLUME (mm)= 167.018

TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.788

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

CALIB			
STANDHYD (0001)	Area (ha)=	0.27	
ID= 1 DT= 5.0 min	Total Imp(%)=	64.00	Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.17	0.10
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	42.43	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	49.90		
over (min)	5.00	15.00		
Storage Coeff. (min)=	1.97 (ii)	11.29 (ii)		
Unit Hyd. Tpeak (min)=	5.00	15.00		
Unit Hyd. peak (cms)=	0.31	0.09		
				TOTALS
PEAK FLOW (cms)=	0.03	0.01		0.039 (iii)
TIME TO PEAK (hrs)=	9.50	10.00		10.00
RUNOFF VOLUME (mm)=	211.00	167.78		195.42
TOTAL RAINFALL (mm)=	212.00	212.00		212.00
RUNOFF COEFFICIENT =	1.00	0.79		0.92

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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 (0014)	Area (ha)=	0.72	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.71	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	69.28	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	49.90	
over (min)	5.00	5.00	
Storage Coeff. (min)=	2.64 (ii)	4.09 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.29	0.24	
			TOTALS
PEAK FLOW (cms)=	0.10	0.00	0.106 (iii)
TIME TO PEAK (hrs)=	9.67	10.00	10.00
RUNOFF VOLUME (mm)=	211.00	167.78	210.56
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	1.00	0.79	0.99

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0020)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0190	0.0255
	0.0000	0.0025	0.0200	0.0280
	0.0080	0.0051	0.0210	0.0306
	0.0100	0.0076	0.0220	0.0331
	0.0120	0.0102	0.0230	0.0357
	0.0140	0.0127	0.0240	0.0382
	0.0150	0.0153	0.0250	0.0407
	0.0160	0.0178	0.0250	0.0433
	0.0170	0.0204	0.0260	0.0455
	0.0180	0.0229	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0014)	0.720	0.106	10.00	210.56
OUTFLOW: ID= 1 (0020)	0.720	0.040	11.08	206.93

PEAK FLOW REDUCTION [Qout/Qin](%)= 37.59
TIME SHIFT OF PEAK FLOW (min)= 65.00
MAXIMUM STORAGE USED (ha.m.)= 0.0761

CALIB			
STANDHYD (0016)	Area (ha)= 0.77		
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00	
		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.76	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	71.65	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	49.90	
over (min)	5.00	5.00	
Storage Coeff. (min)=	2.70 (ii)	4.14 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.29	0.24	
			TOTALS
PEAK FLOW (cms)=	0.11	0.00	0.113 (iii)
TIME TO PEAK (hrs)=	9.75	10.00	10.00
RUNOFF VOLUME (mm)=	211.00	167.78	210.57
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	1.00	0.79	0.99

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0017)	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	0.0190	0.0279
	0.0000	0.0028	0.0200	0.0307
	0.0080	0.0056	0.0210	0.0334
	0.0100	0.0084	0.0220	0.0362
	0.0120	0.0111	0.0230	0.0390
	0.0140	0.0139	0.0240	0.0418
	0.0150	0.0167	0.0250	0.0446
	0.0160	0.0195	0.0250	0.0474
	0.0170	0.0223	0.0260	0.0498
	0.0180	0.0251	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0016)	0.770	0.113	10.00	210.57
OUTFLOW: ID= 1 (0017)	0.770	0.041	11.08	206.84

PEAK FLOW REDUCTION [Qout/Qin](%)= 35.77
TIME SHIFT OF PEAK FLOW (min)= 65.00
MAXIMUM STORAGE USED (ha.m.)= 0.0850

CALIB			
STANDHYD (0021)	Area (ha)= 0.44		
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00	
		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.44	0.00
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	54.16	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

			TOTALS
Max.Eff.Inten.(mm/hr)=	53.00	49.90	
over (min)	5.00	5.00	
Storage Coeff. (min)=	2.28 (ii)	3.73 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.30	0.25	
PEAK FLOW (cms)=	0.06	0.00	0.065 (iii)
TIME TO PEAK (hrs)=	9.58	10.00	10.00
RUNOFF VOLUME (mm)=	211.00	167.78	210.57
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	1.00	0.79	0.99

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 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 (0022)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	0.27	0.039	10.00	195.42
+ ID2= 2 (0017):	0.77	0.041	11.08	206.84
ID = 3 (0022):	1.04	0.072	10.00	203.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0022)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0022):	1.04	0.072	10.00	203.87
+ ID2= 2 (0019):	0.80	0.041	11.08	202.09
ID = 1 (0022):	1.84	0.109	11.00	203.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0022)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0022):	1.84	0.109	11.00	203.10
+ ID2= 2 (0020):	0.72	0.040	11.08	206.93
ID = 3 (0022):	2.56	0.149	11.00	204.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0022)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0022):	2.56	0.149	11.00	204.18
+ ID2= 2 (0021):	0.44	0.065	10.00	210.57
ID = 1 (0022):	3.00	0.204	10.00	205.11

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0022)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0022):	3.00	0.204	10.00	205.11
+ ID2= 2 (0036):	0.14	0.019	10.00	167.03
ID = 3 (0022):	3.14	0.223	10.00	203.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0022)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0022):	3.14	0.223	10.00	203.42
+ ID2= 2 (0039):	0.05	0.007	10.00	167.02
ID = 1 (0022):	3.19	0.230	10.00	202.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0002)	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	0.1440	0.0413
	0.0980	0.0206	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0022)	3.190	0.230	10.00	202.84
OUTFLOW: ID= 1 (0002)	3.190	0.187	11.08	202.83

PEAK FLOW REDUCTION [Qout/Qin](%)= 81.25
TIME SHIFT OF PEAK FLOW (min)= 65.00
MAXIMUM STORAGE USED (ha.m.)= 0.0606

ADD HYD (0035)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	3.19	0.187	11.08	202.83
+ ID2= 2 (0030):	0.59	0.082	10.00	176.92
ID = 3 (0035):	3.78	0.246	11.00	198.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH

APPENDIX C2 - SANITARY DEMAND CALCULATIONS

WASTEWATER PROPOSED CONDITIONS - POPULATION ESTIMATE

Project Name: 130 Mountainview Road North
Municipality: Town of Halton Hills
Project No.: 23-763

Prepared by: KC
Checked by: BM
Date: 15-Nov-24

Persons Per Unit (Note 2)

Apartments - Less Than 2-Bed	1.355	persons per unit	
Apartments - 2+ Bedrooms	1.831	persons per unit	
Multiples - 3+ Bedrooms	3.044	persons per unit	(Townhomes)

Retail (Note 3)

Square Foot per Employee	403	sq. ft. / employee
	37	sq. m / employee

Site Population - Residential / Employment

	Less Than 2-Bed	2+ Bed	Townhomes	Retail Space (m^2)	Population	
					Residential	Employment
By Parcels						
Parcel A	347	307	16	525	1081	14
Parcel B	270	123	20	0	652	0
Parcel C	176	196	26	0	677	0
TOTAL	**793**	**626**	**62**	**525**	**2,409**	**14**

Notes:
1. Proposed Unit Count per Site Statistics prepared by Arcadis Architects (November 15, 2024 Site Statistics)
2. Persons Per Unit from Halton Region 2022 DC Background Study Table A-4 (Housing Occupancy Rates) - Built Boundary
3. Retail population is from Halton Region 2022 DC Background Study Table A-8 (Sq. Ft per Employee Assumption 2022-2031), Commercial

URBANTECH

WASTEWATER DEMAND CALCULATIONS - PROPOSED CONDITIONS

Project Name: 130 Mountainview Road North
Municipality: Town of Halton Hills
Project No.: 23-763

Prepared by: KC
Checked by: BM
Date: 15-Nov-24

Wastewater Generation Calculations

Average Dry Weather Flow

Population =	2409	persons, from Site Statistics
Per Capita WW Generation Rate (Res) =	275	L/person/day (Halton Linear Design Manual)
Average Dry Weather Flow =	7.67	L/s
Employment =	14	employees, from Site Statistics
Per Capita WW Generation Rate (Emp) =	275	L/employee/day (Halton Linear Design Manual)
Average Dry Weather Flow =	0.04	L/s
Total Average Dry Weather Flow =	7.71	L/s

Peaking Factor (Modified Harmon)

Kav =	1.0	(Halton Linear Design Manual)
Peaking Factor =	3.52	(Halton Linear Design Manual)

Inflow /Infiltration

Factor =	0.286	L/ha/s (Halton Linear Design Manual)
I/I =	1.073	L/s

Design Flow = 28.22 L/s

Notes:
1. Wastewater generation per Region of Halton Water and Wastwater Linear Design Manual (2019)

Urbantech Consulting, A Division of Leighton-Zec Ltd.
3760 14th, Suite 301 Markham, Ontario L3R 3T7
TEL: 905.946.9461 FAX: 905.946.9595
www.urbantech.com

APPENDIX D

Water Hydraulic Modelling Report (MES)

Municipal Engineering Solutions

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October 3, 2024 Project No. 17003-65

Whitestone Georgetown Developments General Partnership
Attn: Annette Gilgan, Principal, Gilbach Real Estate Development
c/o Ms. Kate Connell
Urbantech Consulting
2030 Bristol Circle, Suite 105
Oakville ON L6H 0H2

Subject: 130 Mountainview Development
Water Distribution Modeling
Community of Georgetown, Region of Halton

Dear Ms. Connell,

We are pleased to submit our report entitled "130 Mountainview Development Watermain Analysis" outlining the results of our water distribution analysis for the proposed residential development in the Community of Georgetown, Region of Halton.

This development layout was incorporated into the Region of Halton's existing Infowater water models dated August 2022 and modeled utilizing the design information provided to Municipal Engineering Solutions. The findings of our analysis are summarized in the following report.

We trust you will find this report satisfactory. Should you have any questions or require further clarification, please call.

Yours truly,

Municipal Engineering Solutions

John C. Bourrie

Per: John C. Bourrie, P.Eng.

/LMC

File Location: D:\Projects\2024\24-007 Mountainview Halton Urbantech 17003-65\3.0 Report\Draft Report\17003-65 Mountainview Watermain Analysis_20240905.docx

55 Gilbank Drive, Aurora, Ontario L4G 6H9
Tel: 905.726.1016 Cell: 416.434.0186 Fax: 905.726.1225

130 MOUNTAINVIEW DEVELOPMENT

WATER ANALYSIS

PREPARED BY:

MUNICIPAL ENGINEERING SOLUTIONS

FOR:

WHITESTONE GEORGETOWN DEVELOPMENTS

October 2024

Project Number: 17003-65

TABLE OF CONTENTS

APPENDICES

Section 1 – INTRODUCTION

Municipal Engineering Solutions ("MES") was retained by Whitestone Georgetown Developments to conduct a hydraulic water analysis for the proposed 130 Mountainview development located in the Community of Georgetown in the Region of Halton. As part of this hydraulic assessment MES was requested to undertake the following:

1. Calculate/verify water demands for the proposed development using Region of Halton, provincial and industry design standards;
2. Add the subject watermains/development to the Region's existing water model;
3. Run the model to size the subject mains to achieve service criteria during Average Day, Peak Hour, and fire flow during Maximum Day demand; and
4. Prepare a Report summarizing the modeling results for agency review and design purposes.

1.1 Development Background

The 130 Mountainview Development will consist of 1,482 apartments and some commercial on the west side of Mountainview Road North, south of River Drive in the Community of Georgetown. The proposed development is shown below on **Figure 1**.

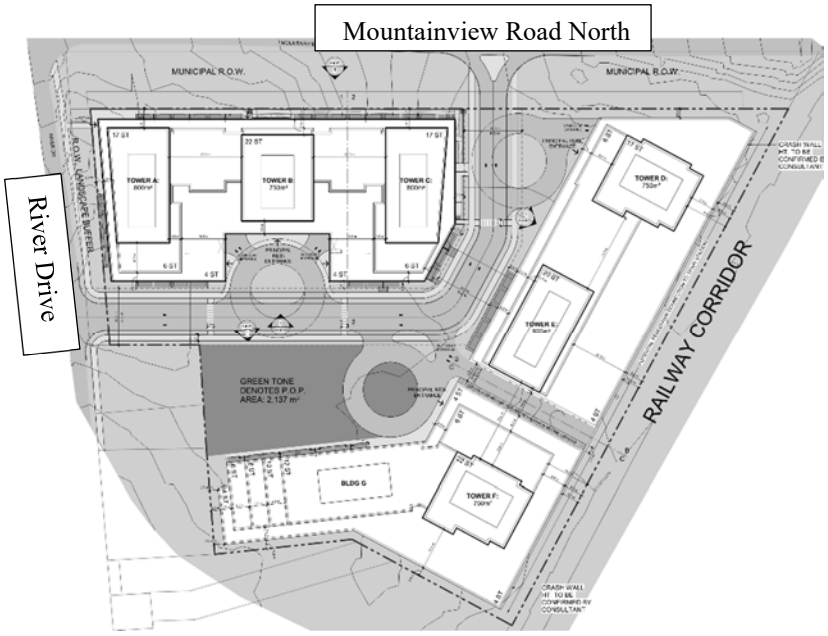

Figure 1 - Proposed 130 Mountainview Development

Section 2 – WATERMAIN DESIGN CRITERIA

The design criteria utilized to estimate the water demands for the hydraulic water model follows general industry standards and is calculated using the design criteria and guidelines outlined in the Region of Halton's October 2019 Water and Wastewater Linear Design Manual, the Ministry of the Environment, Conservation and Parks (MECP) Watermain Design Criteria, and the Fire Underwriters Survey.

The following sections summarize the specific design criteria used to carry out the hydraulic watermain assessment for this development.

2.1 Equivalent Population Densities & Water Design Factors

To calculate the equivalent population and water design factors for this development MES used Region of Halton criteria as noted in the *"Region of Halton Water and Wastewater Linear Design Manual, October 2019"*. **Table 1** summarizes the population densities and **Table 2** summarizes the average daily demand and peaking factors used for this analysis.

Table 1 – Equivalent Population Density

Type of Development	Equivalent Population (Persons/Ha)	Equivalent Population (Persons/Unit)
Single Family	55	3.772
Semi-Detached	100	3.772
Townhouse	135	2.536
Apartments – 1 bedroom	285	1.356
Apartments – 2 or more bedrooms	285	1.831
Light Commercial	90	37.2 m^2/emp (400 sq ft/emp)
Community Services	40	55 m^2/emp (592 sq ft/emp)

Source: Region of Halton Water and Wastewater Linear Design Manual, October 2019, 2022 Development Charges Update December 2021

Table 2 - Water Design Factors

Type of Development	Average Daily Demand (m^3 per capita)	Maximum Daily Demand Peaking Factor	Peak Hourly Demand Peaking Factor
Residential	0.275	2.25	4.00
Industrial	0.275	2.25	2.25
Commercial	0.275	2.25	2.25
Community Services	0.275	2.25	2.25

Source: Region of Halton Water and Wastewater Linear Design Manual, October 2019

Section 3 –FLOW DEMANDS

Utilizing the equivalent population data and the corresponding Average Day, Maximum Day, and Peak Hour data from **Table 1** the water demands for this development were calculated.

3.1 Equivalent Population Flow Demands

The calculated demands for the development are summarized in **Table 3**. For additional details on the development water demands and assigned demand nodes used in the water model see **Appendix A**.

Table 3 – Water Demand for Mountainview Development

Development	Average Day Demand (L/S)	Maximum Day Demand (L/S)	Peak Hour Demand (L/S)
130 Mountainview	7.60	17.10	30.36

3.2 Fire Flow Demands

The fire demands for this development were based on typical flows calculated using the Fire Underwriters Survey ("FUS") formula outlined in the *'Water Supply For Public Fire Protection Guideline'*, dated 2020. Once the building designs/configurations are known for the proposed development the fire flows for each unit/building must be confirmed

`

using the FUS criteria to determine the actual fire flow required. Building construction and sprinkler systems may need to be designed to suit the available flow and pressure. The fire flows used are shown in **Table 4**.

Table 4 - Fire Flow Requirements

Building	Fire Flow (L/S)
Parcel A Buildings A, B, C	167
Parcel B Buildings D & E	183
Parcel C Buildings F & G	200

Source: Fire Underwriters Survey

As noted, the fire flows in **Table 4** above are calculated using the FUS formula using estimated values. **Table 5** below summarizes the criteria utilized to develop the fire flow requirements as well as the assumptions made.

Table 5 – FUS Criteria/Assumptions

	Type of Development
	Apartment Buildings
Type of Construction	Fire Resistive Construction (All structural elements are Non-Combustible with a minimum 2-hour fire resistance rating)
Occupancy Type	Limited Combustible
Fire Protection (Sprinkler/Firewalls)	Sprinklered
Area Considered	Parcel A Buildings A, B & C –Total GCA 78,426 m^2 Area Considered 27,631 m^2 Parcel B Buildings D & E –Total GCA 48,889 m^2 Area Considered 22,352.5 m^2 Parcel C Buildings F & G –Total GCA 51,242 m^2 Area Considered 22,833 m^2

Note: For Additional Information on FUS Criteria Refer to Water Supply for Public Protection Guide, Fire Underwriters Survey, 2020

3.3 External Demands

The Region of Halton InfoWater model that was provided by the Region to MES included water demands for existing and known future developments within the Region.

Section 4 – OTHER SYSTEM REQUIREMENTS

4.1 System Pressure Requirements

In addition to meeting the various flow requirements, the system must also satisfy minimum and maximum pressure requirements as outlined by the Region of Halton. The Region's pressure requirements are outlined in the Water and Wastewater Linear Design Manual and stipulate the following:

1. The water system shall be designed to maintain as close as possible to a maximum working pressure of 690 kPa (100 psi) as a best management practice.
2. The minimum system pressure shall not be less than 140 kPa (20 psi) at any point in the water system under fire flow conditions.
3. Under normal operating conditions, the water system shall have a target minimum static pressure of 345 kPa (50 psi). Under no operating conditions shall the static pressure within a distribution main fall below 275 kPa (40 psi).
4. The normal method of reduction of pressures to comply with the Ontario Building Code (reduction of pressures to 550 kPa, 80 psi) is by pressure reducing valves to be installed on individual services.

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4.2 Watermain Sizing

The Region of Halton also stipulates minimum pipe sizes and requires that all watermains are adequately sized to maintain demand flows at the required pressures without causing excessive energy loss or result in water quality decay. The watermain system must therefore be designed to accommodate the greater of the following:

- Maximum day plus fire demand
- Peak hour demand

The minimum pipe size for commercial and industrial areas shall be 300 mm diameter and for residential areas the minimum pipe size shall be 150 mm diameter. For distribution systems providing fire protection the minimum pipe size shall be 150 mm diameter in accordance with Ministry of the Environment, Conservation and Parks (MECP) and NFPA requirements.

To provide appropriate fire protection, reliable supply and pressures the water distribution system should be looped wherever possible to improve supply security and water quality.

4.3 Watermain C-Factor

In designing and modeling of the pipes the Coefficient of Roughness (C-Factor) factors from the MECP were utilized. It's our understanding that the Region's 2019 design criteria are undergoing an update to the C-Factors to the MECP values. The Coefficient of Roughness assigned to each pipe size in summarized in **Table 6** below.

Table 6 - Hazen-Williams Coefficient of Roughness (C-Factors)

Size of Pipe (Diameter in mm)	Coefficient of Roughness (C)
150 mm	100
200 mm to 250 mm	110
300 mm to 600 mm	120
Greater than 600 mm	130

Source: MECP

Section 5 – ANALYSIS & MODELING RESULTS

To conduct the hydraulic water analysis for the proposed development the water demands were estimated by MES using the design criteria previously discussed and incorporated the demands into the existing Region of Halton InfoWater model which was provided by the Region and confirmed as most recent. The following sections discusses the model setup and results.

5.1 Model Setup

The Mountainview development is located within the Region's Zone G6G. As Georgetown builds out, the Region will be switching areas south of Credit River to a lake-based water supply. The Mountainview site will remain in the G6G zone. The development was modeled under 2026 and 2031 conditions in the Region's water model.

The site will be provided with connections to the existing Zone G6G 250 mm watermains along River Drive and Mountainview Road North.

New nodes were created to add the flow demands and service elevation information from the development to the Region of Halton's existing Infowater hydraulic water distribution model system and the system analysis was conducted. Friction factor for the pipes were assigned according to **Table 6**.

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5.2 Watermain Sizing and System Pressures

The analysis was conducted under 2026 and 2031 servicing conditions for Average Day, Maximum Day, Peak Hour and Maximum day plus Fire demands to size the watermains and meet the pressure requirements. The pipe size and layout are shown in **Appendix B**.

The watermains were sized at 200 mm according to the results of average day, maximum day, maximum day plus fire, and peak hour scenarios.

The site is adequately supplied from Zone G6G according to the model output. Both 2026 and 2031 scenarios considered that the Georgetown groundwater/lake water zone split has been completed. There is a neighbouring development site, 1 Rosetta Street, that will increase the water demand in the area. The Rosetta Street site will add about 12 L/s peak hour demand (1 Rosetta Street Georgetown FSR, Table 3.1 by Arcadis, June 2023). The Mountainview site will achieve adequate pressures and flows with the estimated Rosetta demands considered.

Modeled service pressures for the development are summarized in **Table 7**. All pressures lie within the required operating range under average day, maximum day, and peak hour demands.

Detailed pipe and node tables for the various scenarios modelled are attached to this report in **Appendix B**.

Table 7 - Modeled Service Pressures

Scenario	Average Day	Maximum Day	Peak Hour	Max. Day + Fire
2026	63.2 – 76.4 psi (436 to 527 kPa)	62.1 – 75.3 psi (428 to 519 kPa)	59.7 to 73.0 psi (411 to 504 kPa)	260 to 450 L/s @ 20 psi
2031	63.0 – 76.2 psi (435 to 525 kPa)	61.8 – 75.0 psi (426 to 517 kPa)	59.1 to 72.4 psi (408 to 499 kPa)	257 to 444 L/s @ 20 psi

Section 6 – CONCLUSIONS

The results are summarized below.

- The service pressures are expected to range between 59.7 psi to 76.4 psi (411 kPa to 527 kPa) in 2026 and between 59.1 psi to 76.2 psi (408 kPa to 525 kPa) in 2031.
- The available fire flow meets the preliminary fire flow demands at the minimum pressure of 20 psi (140 kPa).
- Pressures must be confirmed in the field after the watermains are constructed.
- The available fire flow meets or exceeds the preliminary fire flow demands utilized for this assessment at the minimum pressure of 140 kPa based on the proposed watermain supply and assumptions made within this report but should be confirmed when additional information becomes available. Once building designs/configurations are known, the fire flows must be confirmed using the FUS formula. Building construction, firewall locations and sprinkler systems may need to be designed to suit the available flow and pressure.
- This report, including all modeling assumptions used, is to be submitted to and reviewed by the water operating authority (municipality) to confirm that the modeling parameters used are acceptable to the operating authority and/or confirm if modified domestic or fire flow requirements are required or should be implemented for this particular development.

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Appendix A

Demands

Equivalent Population by Unit

(2022 Development Charges Update, Table A-4)

Type of Development	Equivalent Population Density *(Person/Unit)*
Semi-Detached	3.772
Townhouse	2.536
Apartment Less than 2 Bdrm	1.356
Apartment 2 or more Bdrms	1.831

Equivalent Population by Area

Type of Development	Equivalent Population Density *(Person/Hectare)*	Average Day Demands *(m3/ha/day)*
Single Family	55	15.13
Semi-detached duplex and 4-plex	100	27.50
Townhouse, Maisonette (<6 stories)	135	37.13
Apartments (>6 stories)	285	78.38
Light Commercial Areas	90	24.75
Community Services	40	11.00
Light Industrial Areas	125	34.38
Hospitals (persons/bed)	4	

Water Design Factors

Average Daily Demand (m3/capita)	0.275
Maximum Daily Demand P.F.	2.25
Maximum Hourly Demand P.F.	
Residential	*4*
I/C/I	*2.25*

Cofficient of Roughness

Size of Pipe (mm Dia.)	Material	Coefficient of Roughness (C)
50	Copper	120
100-400	PVC/HDPE	130
Over 400	Concrete Lined	110

Minimum Pipe Size

Type of Development	Size of Pipe (mm Dia.)
Residential	150
Commercial/Industrial/Community	300

Working Pressures

Parameter	Pressure
Normal Condition	
Minimum Pressure	275 kPa (40 psi)
Target Pressure	350 kPa (50 psi)
Maximum (Building Code)	550 kPa (80 psi)
Maximum (Halton)	690 kPa (100 psi)
Fire Flow Conditions	
Minimum Pressure	140 kPa (20 psi)

Water Demand
Mountainview, Georgetown ON
October 3, 2024

Municipal Engineering Solutions

Node	Exist. Zone	Future Zone	Elevation	Type of Development					Equivalent Population		Demands			Fire Flow Demands
				Single Family	Townhomes	Apts < 2 bdrm	Apts ≥ 2 bdrm	Commercial	Total Population	Total Population	ADD	MDD	PHD	
			(m)	*(units)*	*(units)*	*(units)*	(units)	*(ha)*	*(Residential)*	*(ICI)*	*(L/s)*	*(L/s)*	*(L/s)*	*(L/s)*
J-700	G6G	G6G	*256.40*						0	0	0.00	0.00	0.00	
J-701	G6G	G6G	*254.00*						0	0	0.00	0.00	0.00	
J-702	G6G	G6G	*257.40*			*274*	140		628	0	2.00	4.50	7.99	*183*
J-703	G6G	G6G	*256.44*						0	0	0.00	0.00	0.00	
J-704	G6G	G6G	*254.16*		*37*	*341*	288	*0.0615*	1084	6	3.47	7.80	13.83	*167*
J-705	G6G	G6G	*255.22*						0	0	0.00	0.00	0.00	
J-706	G6G	G6G	*255.60*		*11*	*155*	236		670	0	2.13	4.80	8.53	*200*
J-707	G6G	G6G	*251.14*						0	0	0.00	0.00	0.00	
			.											
Total				**0**	**48**	**770**	**664**	**0.062**	**2382**	**6**	**7.60**	**17.10**	**30.36**	

Calculations are based on "Water Supply for Public Fire Protection Guide" by Fire Underwriters Survey Dated 2020

Municipal Engineering Solutions

FUS CALCULATION

Project:	Mountainview	**Building Type/Block #**	Towers A, B & C
Project Number:	17003-65	**Firewalls/Sprinkler:**	Sprinklered
Project Location:	Halton	**Number of Units/Unit #'s**	666 Units
Date:	27-Sep-24		

1.0 FUS Formula

$RFF = 220C\sqrt{A}$ where: RFF = required fire flow in litres per minute;
C = the Coefficient related to the type of construction; and
A = the Total Effective Floor Area (m^2) excluding basements at least 50% below grade) [a]

NBC Occupancy	Group C	
Type of Construction [b]	Fire-Resistive Construction	Type I
Protection (for C below 1.0)	Unprotected Openings	
Footprint area	7143.0 sq. metres	
Storeys	17-22	
C =	0.6	
A =	27631.0 Total Effective Area [a]	
F =	**22000 L/min** (rounded)	

2.0 Occupancy Adjustment

Type of Occupancy [c]	Limited Combustible
Hazard Allowance	-0.15
	-3300 L/min
Adjusted Fire Flow	**18700 L/min**

3.0 Sprinkler Adjustment

		Credit	Total
NFPA 13 sprinkler standard	YES	30%	50%
Standard Water Supply	YES	10%	
Fully Supervised system	YES	10%	

Sprinkler Credit **9350 L/min**

4.0 Exposure Adjustment

Construction Type of the Exposed Building Face: Type I-II (unprotected)

North Side		Percent	Total*
Distance to Building (m)	over 30	0%	4%
Length (ft) by height in storeys	over 100		
South Side			
Distance to Building (m)	20.1 to 30	4%	
Length (ft) by height in storeys	over 100		
East Side			
Distance to Building (m)	over 30	0%	
Length (ft) by height in storeys	over 100		
West Side			
Distance to Building (m)	over 30	0%	
Length (ft) by height in storeys	over 100		

*max 75%

Exposures Surcharge **750 L/min**

Total Required Fire Flow (rounded)	**10000 L/min**
	167 L/sec

a) For buildings with a construction coefficient from 1.0 to 1.5, consider 100% of all floor areas. For buildings with a construction coefficient below 1.0 (vertical openings are inadequately protected), consider the two largest adjoining floors plus 50% of each of any floors immediately above them up to a maximum of eight. If the vertical openings and exterior vertical communications are properly protected, consider only the area of the largest floor plus 25% of each of the two immediately adjoining floors.
b) Wood Frame=1.5, Mass Timber= 0.8 to 1.5, Ordinary=1.0, Noncombustible=0.8, Fire-Resistive=0.6
c) Noncombustible=-25%, Limited Combustible=-15%, Combustible=0%, Free Burning=+15%, Rapid Burning=+25%

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Calculations are based on "Water Supply for Public Fire Protection Guide" by Fire Underwriters Survey Dated 2020

Municipal Engineering Solutions

FUS CALCULATION

Project:	Mountainview	**Building Type/Block #**	Towers D & E
Project Number:	17003-65	**Firewalls/Sprinkler:**	Sprinklered
Project Location:	Halton	**Number of Units/Unit #'s**	414 Units
Date:	27-Sep-24		

1.0 FUS Formula

$$RFF = 220C\sqrt{A}$$

where: RFF = required fire flow in litres per minute;
C = the Coefficient related to the type of construction; and
A = the Total Effective Floor Area (m^2) excluding basements at least 50% below grade) [a]

NBC Occupancy	Group C	
Type of Construction [b]	Fire-Resistive Construction	Type I
Protection (for C below 1.0)	Unprotected Openings	
Footprint area	5657.0 sq. metres	
Storeys	33	
C =	0.6	
A =	22352.5	Total Effective Area [a]
F =	**20000 L/min** (rounded)	

2.0 Occupancy Adjustment

Type of Occupancy [c]	Limited Combustible
Hazard Allowance	-0.15
	-3000 L/min
Adjusted Fire Flow	**17000 L/min**

3.0 Sprinkler Adjustment

		Credit	Total
NFPA 13 sprinkler standard	YES	30%	50%
Standard Water Supply	YES	10%	
Fully Supervised system	YES	10%	

Sprinkler Credit **8500 L/min**

4.0 Exposure Adjustment

Construction Type of the Exposed Building Face: Type I-II (unprotected)

North Side		Percent	Total*
Distance to Building (m)	20.1 to 30	4%	15%
Length (ft) by height in storeys	over 100		
South Side			
Distance to Building (m)	over 30	0%	
Length (ft) by height in storeys	over 100		
East Side			
Distance to Building (m)	over 30	0%	
Length (ft) by height in storeys	over 100		
West Side			
Distance to Building (m)	3.1 to 10	11%	
Length (ft) by height in storeys	over 100		

*max 75%

Exposures Surcharge **2550 L/min**

Total Required Fire Flow (rounded) **11000 L/min** / **183 L/sec**

a) For buildings with a construction coefficient from 1.0 to 1.5, consider 100% of all floor areas. For buildings with a construction coefficient below 1.0 (vertical openings are inadequately protected), consider the two largest adjoining floors plus 50% of each of any floors immediately above them up to a maximum of eight. If the vertical openings and exterior vertical communications are properly protected, consider only the area of the largest floor plus 25% of each of the two immediately adjoining floors.
b) Wood Frame=1.5, Mass Timber= 0.8 to 1.5, Ordinary=1.0, Noncombustible=0.8, Fire-Resistive=0.6
c) Noncombustible=-25%, Limited Combustible=-15%, Combustible=0%, Free Burning=+15%, Rapid Burning=+25%

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Calculations are based on "Water Supply for Public Fire Protection Guide" by Fire Underwriters Survey Dated 2020

Municipal Engineering Solutions

FUS CALCULATION

Project:	Mountainview	**Building Type/Block #**	Towers F & G
Project Number:	17003-65	**Firewalls/Sprinkler:**	Sprinklered
Project Location:	Halton	**Number of Units/Unit #'s**	402 Units
Date:	27-Sep-24		

1.0 FUS Formula

$$RFF = 220C\sqrt{A}$$

where: RFF = required fire flow in litres per minute;
C = the Coefficient related to the type of construction; and
A = the Total Effective Floor Area (m^2) excluding basements at least 50% below grade) [a]

NBC Occupancy	Group C	
Type of Construction [b]	Fire-Resistive Construction	Type I
Protection (for C below 1.0)	Unprotected Openings	
Footprint area	5672.0 sq. metres	
Storeys	22	
C =	0.6	
A =	22833.0 Total Effective Area [a]	
F =	**20000 L/min** (rounded)	

2.0 Occupancy Adjustment

Type of Occupancy [c]	Limited Combustible
Hazard Allowance	-0.15
	-3000 L/min
Adjusted Fire Flow	**17000 L/min**

3.0 Sprinkler Adjustment

		Credit	Total
NFPA 13 sprinkler standard	YES	30%	50%
Standard Water Supply	YES	10%	
Fully Supervised system	YES	10%	

Sprinkler Credit **8500 L/min**

4.0 Exposure Adjustment

Construction Type of the Exposed Building Face: Type I-II (unprotected)

North Side		Percent	Total*
Distance to Building (m)	over 30	0%	19%
Length (ft) by height in storeys	over 100		
South Side			
Distance to Building (m)	over 30	0%	
Length (ft) by height in storeys	over 100		
East Side			
Distance to Building (m)	3.1 to 10	11%	
Length (ft) by height in storeys	over 100		
West Side			
Distance to Building (m)	10.1 to 20	8%	
Length (ft) by height in storeys	over 100		

*max 75%

Exposures Surcharge **3230 L/min**

Total Required Fire Flow (rounded)	**12000 L/min**
	200 L/sec

a) For buildings with a construction coefficient from 1.0 to 1.5, consider 100% of all floor areas. For buildings with a construction coefficient below 1.0 (vertical openings are inadequately protected), consider the two largest adjoining floors plus 50% of each of any floors immediately above them up to a maximum of eight. If the vertical openings and exterior vertical communications are properly protected, consider only the area of the largest floor plus 25% of each of the two immediately adjoining floors.
b) Wood Frame=1.5, Mass Timber= 0.8 to 1.5, Ordinary=1.0, Noncombustible=0.8, Fire-Resistive=0.6
c) Noncombustible=-25%, Limited Combustible=-15%, Combustible=0%, Free Burning=+15%, Rapid Burning=+25%

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Appendix B

Model Results

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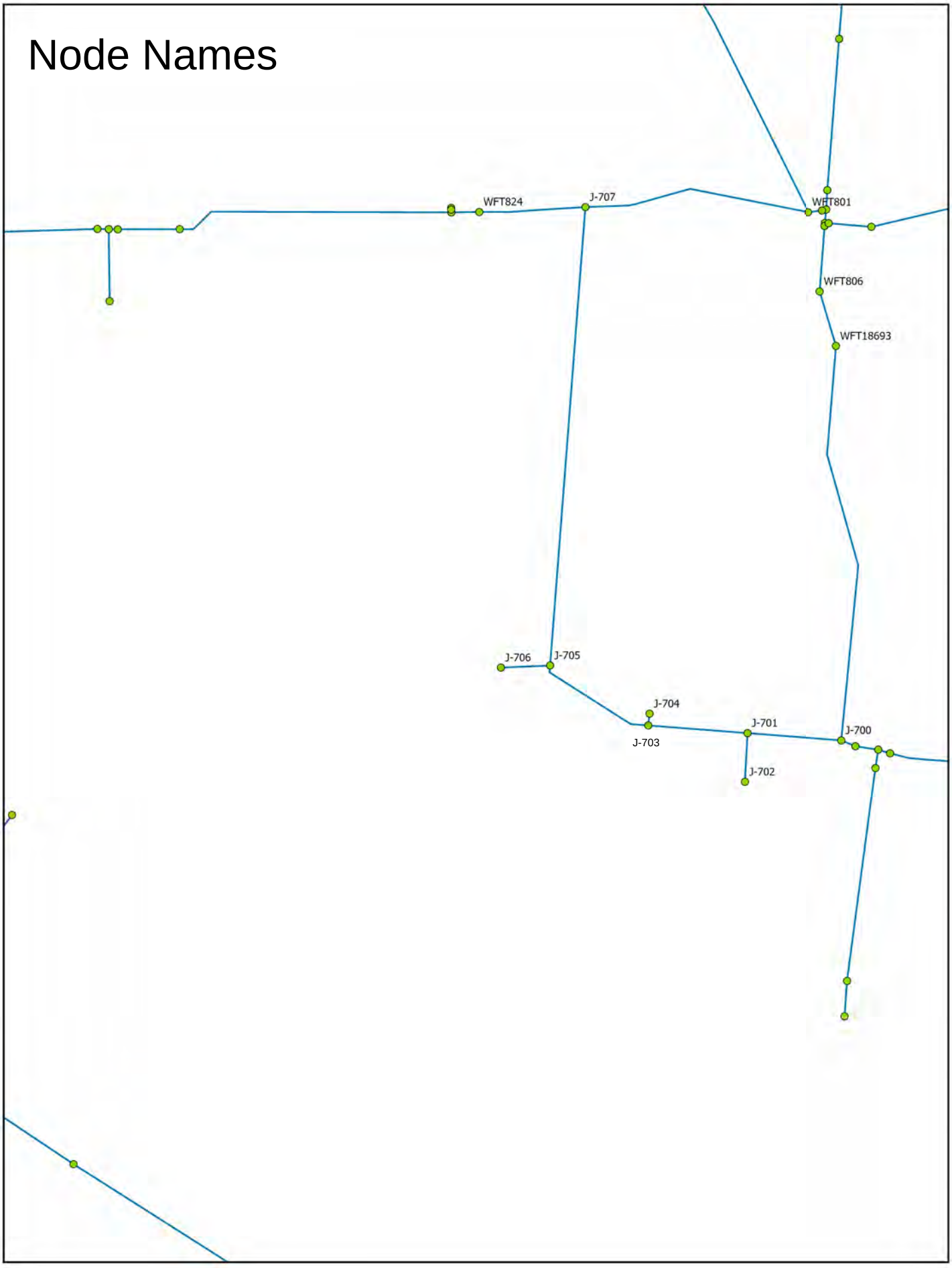
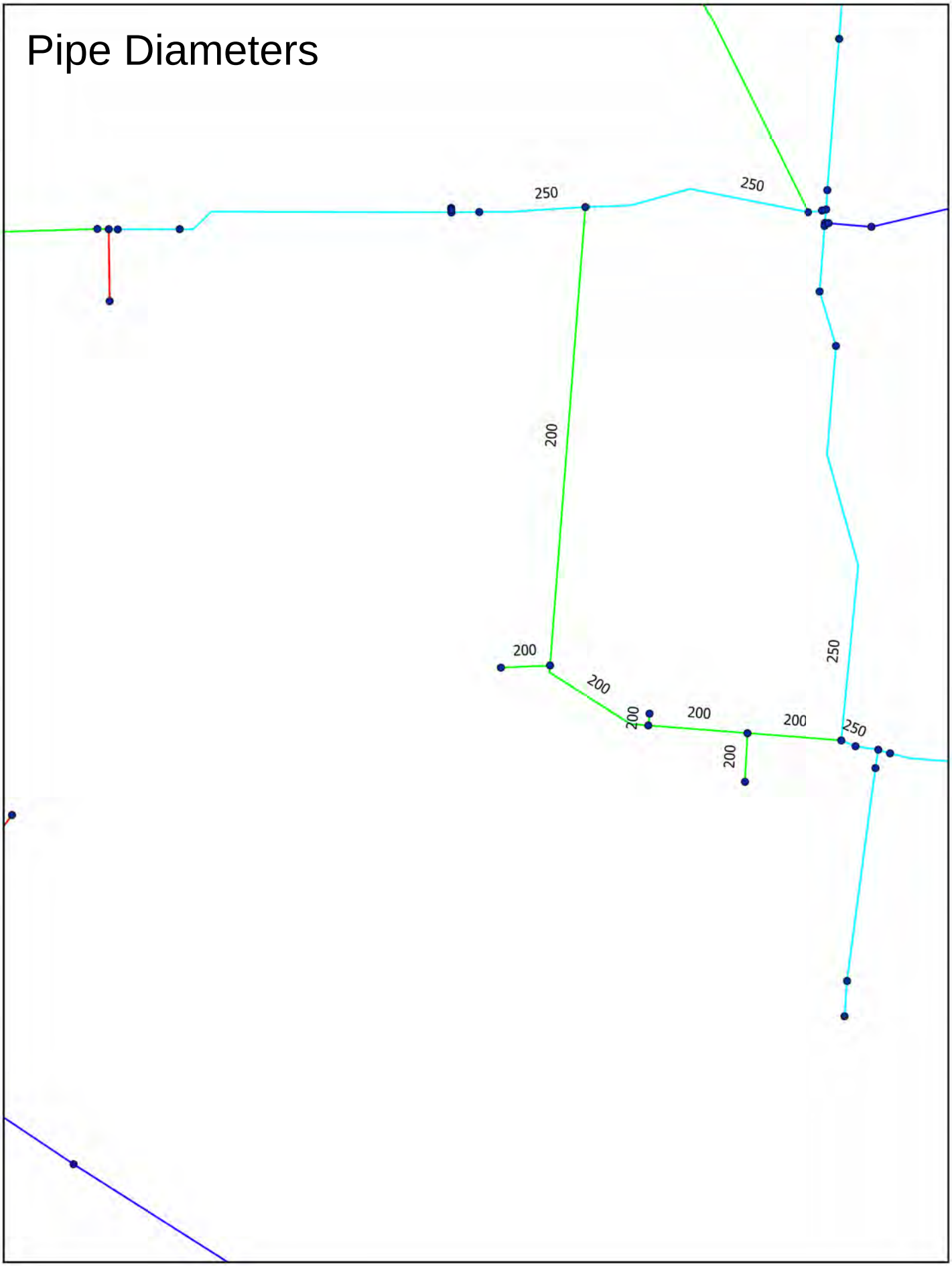
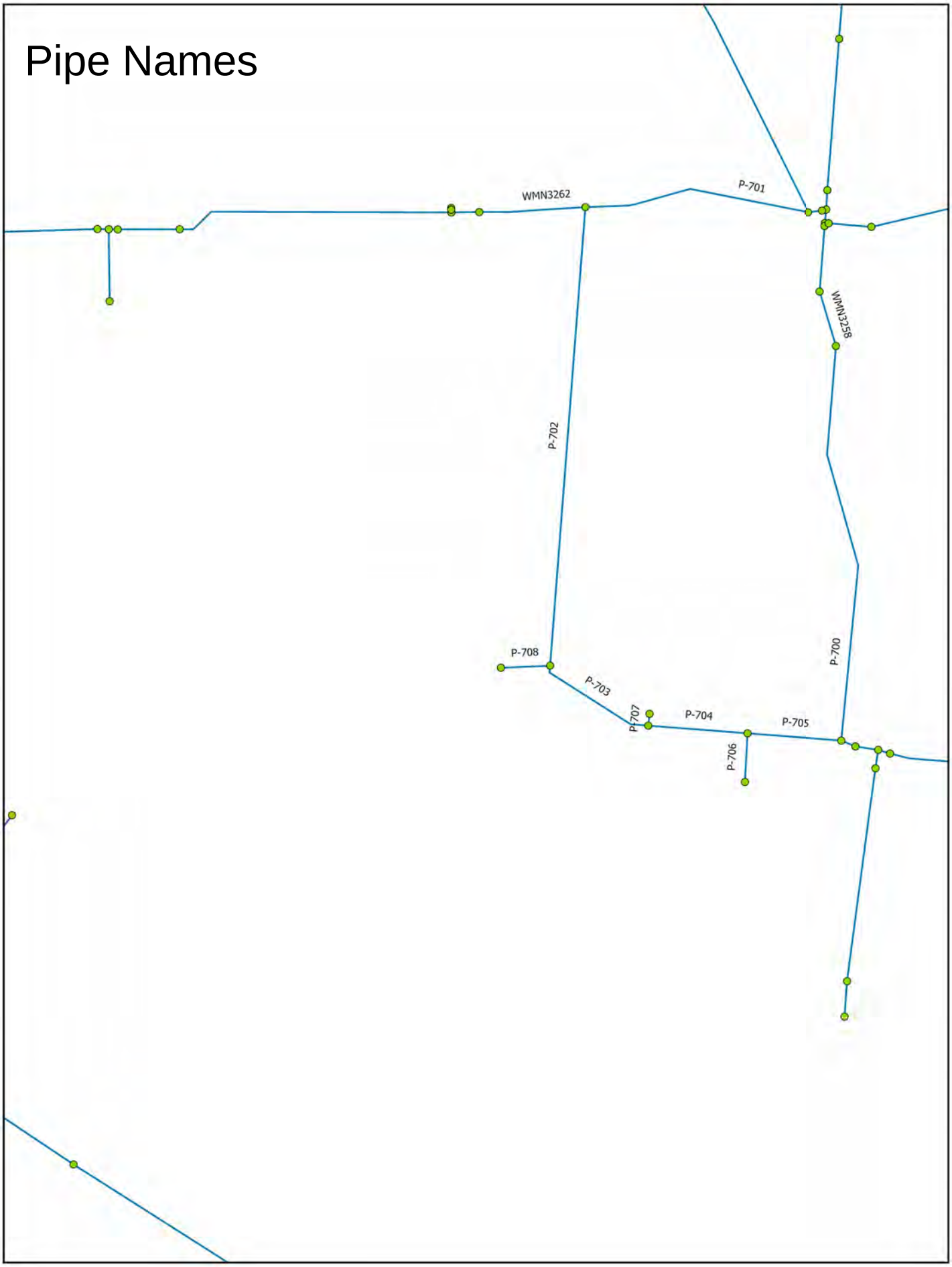
Node Names


WFT824
J-707
WFT801
WFT806
WFT18693
J-706
J-705
J-704
J-703
J-701
J-700
J-702

Pipe Diameters



Pipe Names


WMN3262
P-701
WMN3258
P-702
P-708
P-703
P-707
P-704
P-705
P-706
P-700

2026 Conditions
Mountainview, Georgetown ON
October 3, 2024

Municipal Engineering Solutions

Average Day

Node Table

ID	Demand	Elevation	Head	Pressure
	(L/s)	*(m)*	*(m)*	*(psi)*
J-700	0.00	256.40	301.86	64.62
J-701	0.00	254.00	301.86	68.04
J-702	2.00	257.40	301.86	63.21
J-703	0.00	256.44	301.86	64.57
J-704	3.47	254.16	301.86	67.81
J-705	0.00	255.22	301.87	66.31
J-706	2.13	255.60	301.86	65.77
J-707	0.00	251.14	301.90	72.17
WFT18693	0.06	249.17	301.88	74.93
WFT801	0.09	248.14	301.89	76.41
WFT806	0.06	248.31	301.88	76.16
WFT824	0.08	252.53	301.92	70.20
MIN		**248.14**		**63.21**
MAX		**257.40**		**76.41**

Pipe Table

ID	From Node	To Node	Length	Diameter	Roughness	Flow	Velocity
			(m)	*(mm)*	*(C)*	*(ML/d)*	*(m/s)*
P-700	J-700	WFT18693	118.33	250	110	-0.51	0.12
P-701	J-707	WFT801	67.45	250	110	0.70	0.17
P-702	J-707	J-705	136.13	200	110	0.44	0.16
P-703	J-705	J-703	35.76	200	110	0.26	0.10
P-704	J-703	J-701	29.47	200	110	-0.04	0.02
P-705	J-701	J-700	28.01	200	110	-0.21	0.08
P-706	J-701	J-702	14.48	200	110	0.17	0.06
P-707	J-703	J-704	3.50	200	110	0.30	0.11
P-708	J-705	J-706	14.58	200	110	0.18	0.07
WMN3258	WFT806	WFT18693	16.87	250	99	0.52	0.12
WMN3262	WFT824	J-707	31.47	250	110	1.14	0.27

Maximum Day

Node Table

ID	Demand	Elevation	Head	Pressure
	(L/s)	*(m)*	*(m)*	*(psi)*
J-700	0.00	256.40	301.12	63.56
J-701	0.00	254.00	301.09	66.95
J-702	4.50	257.40	301.09	62.11
J-703	0.00	256.44	301.09	63.47
J-704	7.80	254.16	301.08	66.71
J-705	0.00	255.22	301.09	65.21
J-706	4.80	255.60	301.08	64.66
J-707	0.00	251.14	301.15	71.10
WFT18693	0.09	249.17	301.13	73.87
WFT801	0.14	248.14	301.14	75.35
WFT806	0.09	248.31	301.14	75.10
WFT824	0.13	252.53	301.17	69.14
MIN		**248.14**		**62.11**
MAX		**257.40**		**75.35**

Pipe Table

ID	From Node	To Node	Length	Diameter	Roughness	Flow	Velocity
			(m)	*(mm)*	*(C)*	*(ML/d)*	*(m/s)*
P-700	J-700	WFT18693	118.33	250	110	-0.54	0.13
P-701	J-707	WFT801	67.45	250	110	0.67	0.16
P-702	J-707	J-705	136.13	200	110	0.62	0.23
P-703	J-705	J-703	35.76	200	110	0.21	0.08
P-704	J-703	J-701	29.47	200	110	-0.46	0.17
P-705	J-701	J-700	28.01	200	110	-0.85	0.31
P-706	J-701	J-702	14.48	200	110	0.39	0.14
P-707	J-703	J-704	3.50	200	110	0.67	0.25
P-708	J-705	J-706	14.58	200	110	0.41	0.15
WMN3258	WFT806	WFT18693	16.87	250	99	0.55	0.13
WMN3262	WFT824	J-707	31.47	250	110	1.29	0.30

Peak Hour

Node Table

ID	Demand	Elevation	Head	Pressure
	(L/s)	*(m)*	*(m)*	*(psi)*
J-700	0.00	256.40	299.52	61.29
J-701	0.00	254.00	299.44	64.60
J-702	7.99	257.40	299.43	59.76
J-703	0.00	256.44	299.41	61.09
J-704	13.83	254.16	299.41	64.32
J-705	0.00	255.22	299.42	62.83
J-706	8.53	255.60	299.41	62.28
J-707	0.00	251.14	299.58	68.87
WFT18693	0.18	249.17	299.54	71.61
WFT801	0.26	248.14	299.55	73.09
WFT806	0.18	248.31	299.55	72.84
WFT824	0.24	252.53	299.63	66.94
MIN		**248.14**		**59.76**
MAX		**257.40**		**73.09**

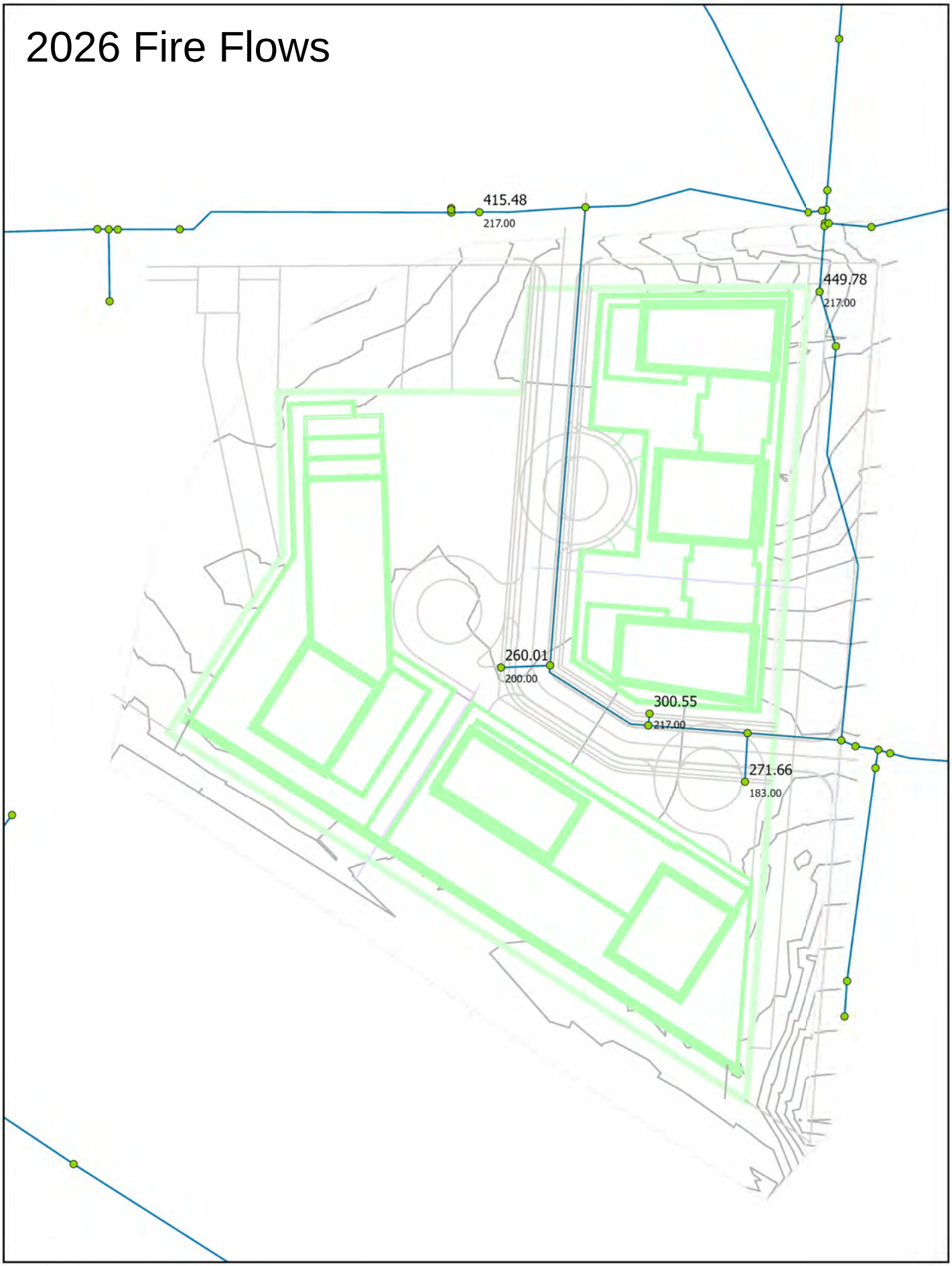
Pipe Table

ID	From Node	To Node	Length	Diameter	Roughness	Flow	Velocity
			(m)	*(mm)*	*(C)*	*(ML/d)*	*(m/s)*
P-700	J-700	WFT18693	118.33	250	110	-0.64	0.15
P-701	J-707	WFT801	67.45	250	110	1.02	0.24
P-702	J-707	J-705	136.13	200	110	1.01	0.37
P-703	J-705	J-703	35.76	200	110	0.28	0.10
P-704	J-703	J-701	29.47	200	110	-0.92	0.34
P-705	J-701	J-700	28.01	200	110	-1.61	0.59
P-706	J-701	J-702	14.48	200	110	0.69	0.25
P-707	J-703	J-704	3.50	200	110	1.19	0.44
P-708	J-705	J-706	14.58	200	110	0.74	0.27
WMN3258	WFT806	WFT18693	16.87	250	99	0.66	0.15
WMN3262	WFT824	J-707	31.47	250	110	2.04	0.48

Fire Flow Table

ID	Total Demand	Available Flow	Fire Flow Met?
	(L/s)	*(L/s)*	
J-702	183.00	271.66	TRUE
J-704	167.00	300.55	TRUE
J-706	200.00	260.01	TRUE
WFT806	167.00	449.78	TRUE
WFT824	167.00	415.48	TRUE
MIN		**260.01**	
MAX		**449.78**	

2026 Fire Flows



2031 Conditions
Mountainview, Georgetown ON
October 3, 2024

Municipal Engineering Solutions

Average Day

Node Table

ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (psi)
J-700	0.00	256.40	301.73	64.43
J-701	0.00	254.00	301.73	67.85
J-702	2.00	257.40	301.72	63.01
J-703	0.00	256.44	301.72	64.38
J-704	3.47	254.16	301.72	67.62
J-705	0.00	255.22	301.73	66.11
J-706	2.11	255.60	301.73	65.57
J-707	0.00	251.14	301.76	71.96
WFT18693	0.14	249.17	301.74	74.73
WFT801	0.17	248.14	301.75	76.21
WFT806	0.14	248.31	301.74	75.96
WFT824	0.16	252.53	301.77	70.00
MIN		**248.14**		**63.01**
MAX		**257.40**		**76.21**

Pipe Table

ID	From Node	To Node	Length (m)	Diameter (mm)	Roughness (C)	Flow (ML/d)	Velocity (m/s)
P-700	J-700	WFT18693	118.33	250	110	-0.45	0.11
P-701	J-707	WFT801	67.45	250	110	0.68	0.16
P-702	J-707	J-705	136.13	200	110	0.41	0.15
P-703	J-705	J-703	35.76	200	110	0.23	0.09
P-704	J-703	J-701	29.47	200	110	-0.07	0.03
P-705	J-701	J-700	28.01	200	110	-0.24	0.09
P-706	J-701	J-702	14.48	200	110	0.17	0.06
P-707	J-703	J-704	3.50	200	110	0.30	0.11
P-708	J-705	J-706	14.58	200	110	0.18	0.07
WMN3258	WFT806	WFT18693	16.87	250	99	0.46	0.11
WMN3262	WFT824	J-707	31.47	250	110	1.09	0.26

Maximum Day

Node Table

ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (psi)
J-700	0.00	256.40	300.91	63.27
J-701	0.00	254.00	300.89	66.65
J-702	4.50	257.40	300.88	61.82
J-703	0.00	256.44	300.88	63.17
J-704	7.80	254.16	300.88	66.41
J-705	0.00	255.22	300.88	64.91
J-706	4.80	255.60	300.88	64.36
J-707	0.00	251.14	300.94	70.80
WFT18693	0.23	249.17	300.92	73.57
WFT801	0.27	248.14	300.93	75.05
WFT806	0.23	248.31	300.93	74.80
WFT824	0.26	252.53	300.96	68.84
MIN		**248.14**		**61.82**
MAX		**257.40**		**75.05**

Pipe Table

ID	From Node	To Node	Length (m)	Diameter (mm)	Roughness (C)	Flow (ML/d)	Velocity (m/s)
P-700	J-700	WFT18693	118.33	250	110	-0.47	0.11
P-701	J-707	WFT801	67.45	250	110	0.63	0.15
P-702	J-707	J-705	136.13	200	110	0.60	0.22
P-703	J-705	J-703	35.76	200	110	0.19	0.07
P-704	J-703	J-701	29.47	200	110	-0.49	0.18
P-705	J-701	J-700	28.01	200	110	-0.87	0.32
P-706	J-701	J-702	14.48	200	110	0.39	0.14
P-707	J-703	J-704	3.50	200	110	0.67	0.25
P-708	J-705	J-706	14.58	200	110	0.41	0.15
WMN3258	WFT806	WFT18693	16.87	250	99	0.49	0.12
WMN3262	WFT824	J-707	31.47	250	110	1.23	0.29

Peak Hour

Node Table

ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (psi)
J-700	0.00	256.40	299.07	60.66
J-701	0.00	254.00	298.99	63.96
J-702	7.99	257.40	298.99	59.12
J-703	0.00	256.44	298.96	60.45
J-704	13.83	254.16	298.96	63.68
J-705	0.00	255.22	298.97	62.19
J-706	8.53	255.60	298.96	61.64
J-707	0.00	251.14	299.12	68.22
WFT18693	0.43	249.17	299.09	70.97
WFT801	0.51	248.14	299.10	72.44
WFT806	0.43	248.31	299.09	72.19
WFT824	0.49	252.53	299.17	66.30
MIN		**248.14**		**59.12**
MAX		**257.40**		**72.44**

Pipe Table

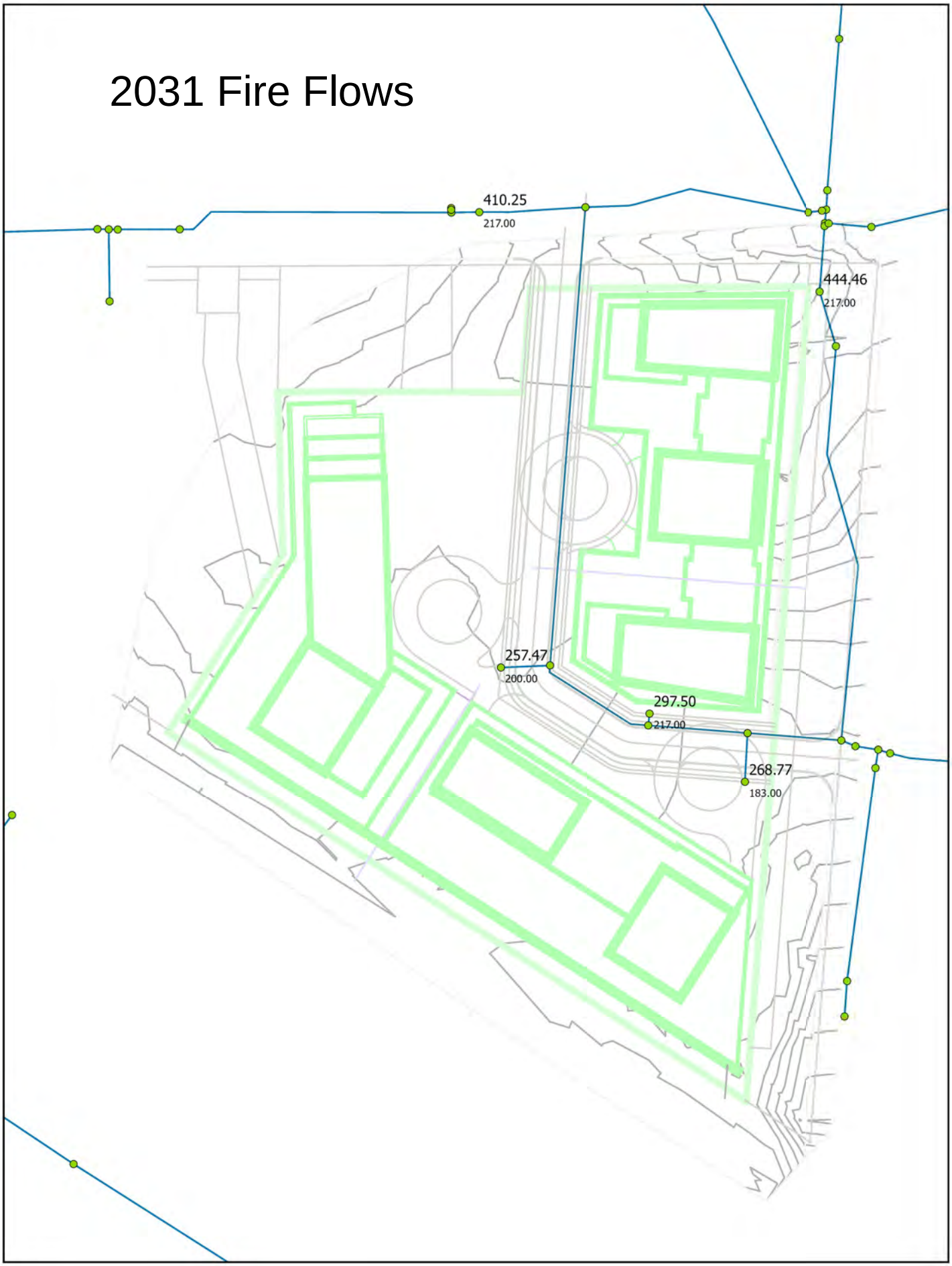
ID	From Node	To Node	Length (m)	Diameter (mm)	Roughness (C)	Flow (ML/d)	Velocity (m/s)
P-700	J-700	WFT18693	118.33	250	110	-0.52	0.12
P-701	J-707	WFT801	67.45	250	110	1.03	0.24
P-702	J-707	J-705	136.13	200	110	1.00	0.37
P-703	J-705	J-703	35.76	200	110	0.26	0.10
P-704	J-703	J-701	29.47	200	110	-0.94	0.34
P-705	J-701	J-700	28.01	200	110	-1.63	0.60
P-706	J-701	J-702	14.48	200	110	0.69	0.25
P-707	J-703	J-704	3.50	200	110	1.19	0.44
P-708	J-705	J-706	14.58	200	110	0.74	0.27
WMN3258	WFT806	WFT18693	16.87	250	99	0.56	0.13
WMN3262	WFT824	J-707	31.47	250	110	2.02	0.48

Fire Flow Table

ID	Total Demand (L/s)	Available Flow (L/s)	Fire Flow Met?
J-702	183.00	268.77	TRUE
J-704	167.00	297.50	TRUE
J-706	200.00	257.47	TRUE
WFT806	167.00	444.46	TRUE
WFT824	167.00	410.25	TRUE

MIN	**257.47**
MAX	**444.46**

2031 Fire Flows



APPENDIX E

Watermark Hydrant Flow Test Report

Hydrant Flow Test Report

Residual Hydrant Number _____

Operator: Colin Powell

Date: 16-Sep-24 Time: 10:10 AM

Witness: Halton Region

Residual Test Hydrant:	5 Daniela Court
Hydrant Number:	
Owner:	

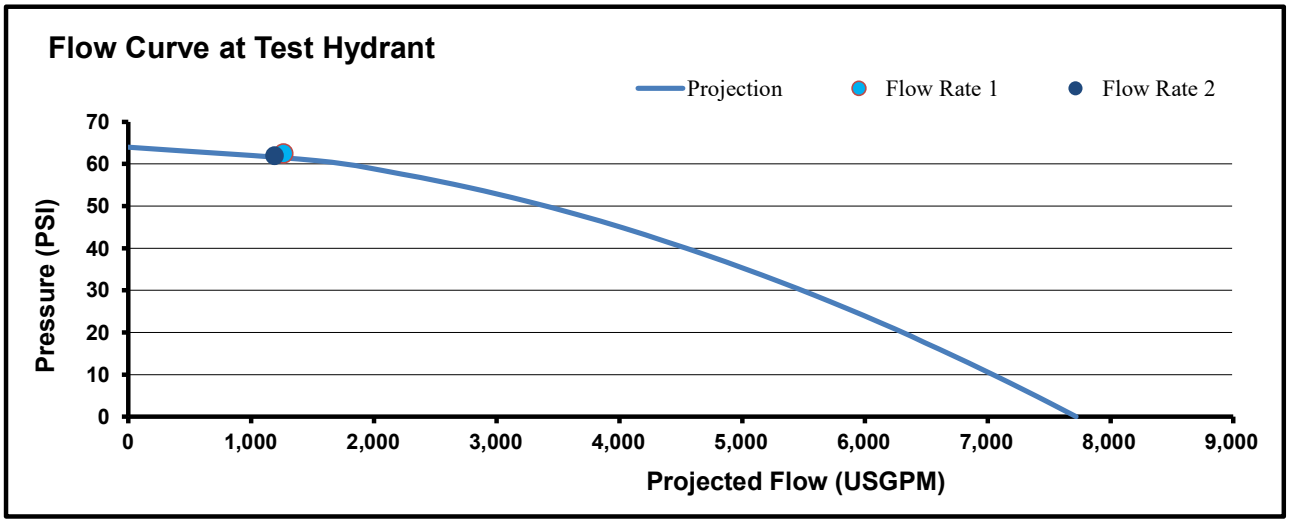
NFPA Colour Code: **CLASS AA - BLUE**

STATIC PRESSURE:	64 psi	441 kPa	Pressure Drop
RESIDUAL PRESSURE 1:	62.5 psi	kPa	
RESIDUAL PRESSURE 2:	62 psi	427 kPa	3.1%

			Hydrant Number
Flow Hydrants:	A	7 River Drive	
	B		
	C		

Hydrant No.	Flow Device	Outlet Dia. (in.)	Flow Rate 1 Reading (psi)	Flow Rate 1 (USGPM)	Flow Rate 2 Reading (psi)	Flow Rate 2 (USGPM)
A	Pitot	2.5	20	698	14	584
A	Pitot	2.5	13	562	15	604
A	HoseMonster	4"			-	
B	Pitot	2.5		0		0
B	Pitot	2.5		0		0
Total Flow (USGPM)				1260		1188
Total Flow (L/second)				80		75
Available Flow At Test Hydrant at 20 ps			7,812	USGPM	6,305	USGPM
			493	L/second	398	L/second

Average Projection at 20 PSI 7,059 USGPM



Comments/Discrepencies/Diagram:

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

Hydrant Flow Test Report

Residual Hydrant Number _____

Operator: Colin Powell

Date: 16-Sep-24 Time: 10:40 AM

Witness: Halton Region

Residual Test Hydrant:	Mountainview at River Drive
Hydrant Number:	
Owner:	

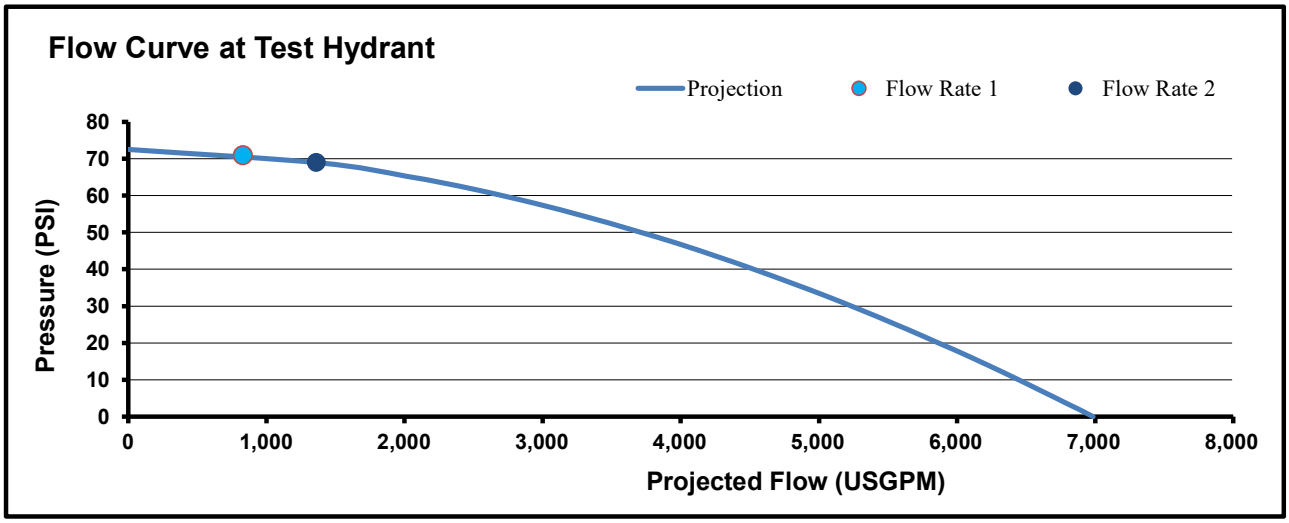
NFPA Colour Code: **CLASS AA - BLUE**

STATIC PRESSURE:	72.5 psi	500 kPa	Pressure Drop
RESIDUAL PRESSURE 1:	71 psi	490 kPa	
RESIDUAL PRESSURE 2:	69 psi	476 kPa	4.8%

		Hydrant Number
Flow Hydrants:	A	
	B	
	C	

Hydrant No.	Flow Device	Outlet Dia. (in.)	Flow Rate 1 Reading (psi)	Flow Rate 1 (USGPM)	Flow Rate 2 Reading (psi)	Flow Rate 2 (USGPM)
A	Pitot	2.5	28	825	18	662
A	Pitot	2.5		0	20	698
A	HoseMonster	4"			-	
B	Pitot	2.5		0		0
B	Pitot	2.5		0		0
Total Flow (USGPM)				825		1360
Total Flow (L/second)				52		86
Available Flow At Test Hydrant at 20 ps			5,630	USGPM	5,868	USGPM
			355	L/second	370	L/second

Average Projection at 20 PSI: 5,749 USGPM



Comments/Discrepencies/Diagram:

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